

**D·I·G·E·S·T**  
**·VOLUME 1·PART 3·**

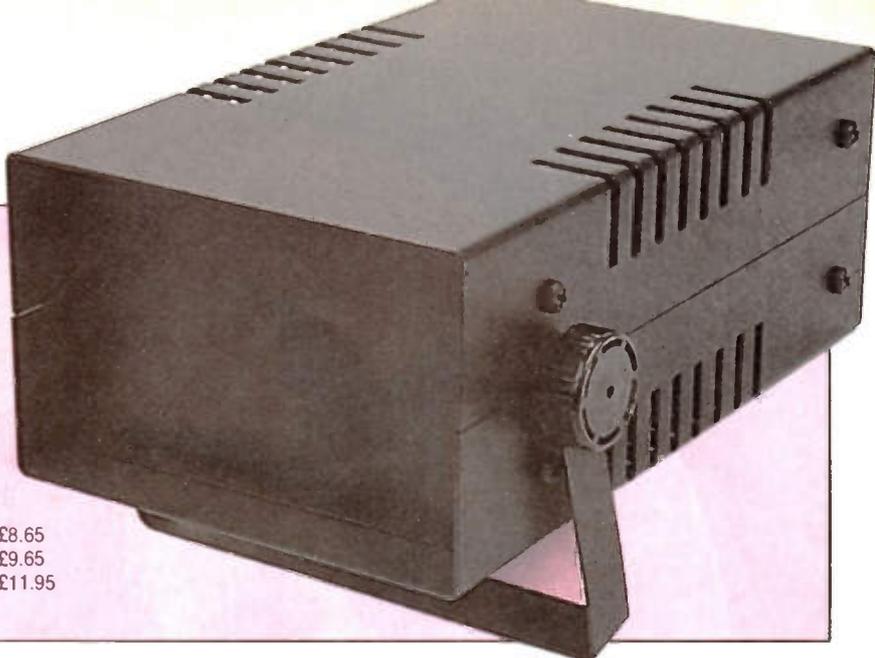
# boxes

## Instrument Case with Handle

A range of steel instrument cases which incorporate an adjustable handle. The handle may be set at the desired angle and locked in position using the knobs on each side of the case. The case has ventilation slots and is finished in matt black. The back panel is flush with the edges of the case whilst the front is recessed, so as to protect controls, switches etc.

Knobs protrude by approximately 11mm either side of the case.

Type	External dimensions (excluding handle)			
Small	92 x 60 x 150mm	YZ01B	Tilt Inst Case Small	£8.65
Medium	137 x 60 x 150mm	YZ02C	Tilt Inst Case Med	£9.65
Large	137 x 92 x 225mm	YZ00A	Tilt Inst Case Large	£11.95



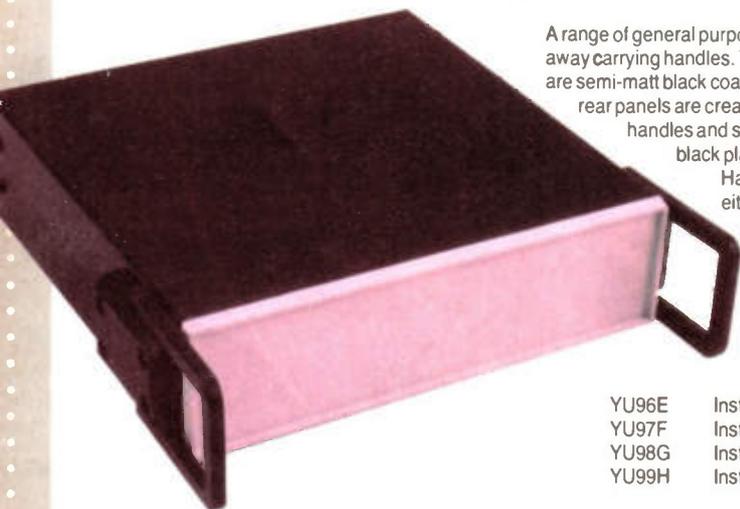
## Instrument Case with Carrying Handles

A range of general purpose instrument cases with fold away carrying handles. The top and bottom panels are semi-matt black coated steel, whilst the front and rear panels are cream plastic. The two carrying handles and side mouldings are made from black plastic.

Handles protrude by 10mm on either side of the cases.

Type	External dimensions
IB-1	210 x 60 x 112mm
IB-2	180 x 92 x 116mm
IB-3	210 x 60 x 212mm
IB-4	180 x 92 x 217mm

YU96E	Instrument Case IB-1	£8.45
YU97F	Instrument Case IB-2	£8.95
YU98G	Instrument Case IB-3	£9.45
YU99H	Instrument Case IB-4	£10.45



## Shoulder Strap

A shoulder strap terminated at both ends with karabina type hooks, which can be clipped to the folding carrying handles of the general purpose instrument cases left. For this purpose the strap also comes with a pair of replacement handles for the case, having V shaped extensions to locate the hooks centrally whilst carried by the strap. The actual strap can be varied in length from 450mm to 850mm.

JR30H	Shoulder Strap	£4.95
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## Steel Instrument Cases

An attractive range of superbly finished instrument cases with a 1mm thick galvanised steel base and a 1mm thick steel cover, black epoxy painted and baked at 190°C. The top rear of the cover is punched with ventilation holes. A 1mm thick front panel in anodised aluminium is supplied along with a zinc-passivated 1mm thick rear panel. The base is fitted with self-adhesive feet.

The following sizes are available (mm)

Model	Width	Depth	Height	
1105	117	143	51	
1108	117	143	81	
1605	167	143	51	
1608	167	143	81	
2105	215	166	51	
2108	215	166	81	

XJ25C-	Steel Case 1105	£4.65
XJ26D	Steel Case 1108	£4.95
XJ27E	Steel Case 1605	£5.45
XJ28F	Steel Case 1608	£6.75
XJ29G	Steel Case 2105	£7.45
XJ30H	Steel Case 2108	£7.95

For all accessories for boxes and cases, including cabinet feet, handles and corners, see the 1991 Maplin catalogue...

## YOU'LL ENJOY THIS, QUITE A LOT...

Fancy a game of cards?  
Not a lot!  
What about a game of magical cards?

The cards are magical because they contain the Maplin present problem solution, Maplin gift tokens! Available in £1, £5 and £10 denominations, these gift tokens are available by mail order (see the Maplin catalogue for details), or from Maplin shops nation-wide. Each gift card measures approximately 15cm (6") x 20cm (8"), and is printed in full colour on quality art card, (there are 6 great designs to choose from), and cost just 30p including the envelope.

Maplin Gift Tokens and Cards...  
...Now that's Magic!



# What is PERITEL?

The standard developed by the European Committee for Electrotechnical Standardisation (CENELEC)

Take a look on the back of many of today's televisions and VCR's and you may come across an odd shaped socket with 21 pins (on some TV's two or more). This is the Peritelevision, Scart or Euroconnector socket. The names Scart and Euroconnector have now been replaced as terms by the universally agreed name of Peritel.

The Peritelevision audio-visual interface standard was developed by the European Committee for Electrotechnical Standardisation (CENELEC), as a universal means of interfacing a wide variety of audio-visual equipment; namely the domestic TV, DBS and other satellite decoders, VCR's, video disc players, video cameras, domestic computer equipment, etc. Always try to ensure that at least one 21 pin Peritel connector is available. Connecting your TV to your VCR via the Peritel output, will give you the best possible picture from the pairing. Two scarts are better than one e.g. the second connector can be used to feed in the signal from a second VCR, a satellite receiver or a CD video player.

Interface connection is via a single multiple connector, carrying a variety of audio, video and control signals, which is incapable of incorrect connection, thus avoiding problems associated with individual connectors being used for each component signal; which give rise to possible incorrect connection.

Connection between socket and plug is via a staggered 2 row by 10 contact arrangement, plus a contact encompassing shield; providing a total of 21 connections. Consisting of a socket, panel mounted on the equipment; and a plug, attached to the interconnecting cable, this is the Peritelevision interface. Defined by the European Standard EN 50 049 and the

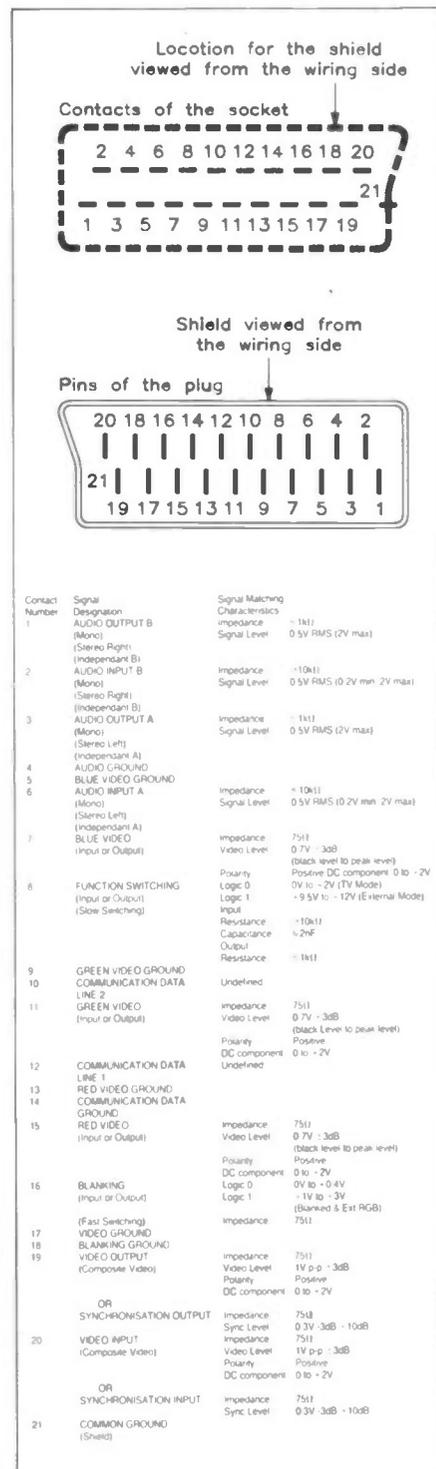
British Standard BS 6552, which is the English language version of the European Standard mentioned previously, the Peritel interface is well worth seeking out on all your main equipment as the more connectors (such as Peritel and S-connectors) you have available on your favoured piece of technology the longer it is likely to entertain you.

## Assembling Custom Cables

When assembling custom cables for particular applications, where a standard cable cannot be used (i.e. computer to TV) it is important to use the correct type of cable for the signal being carried: Video (including sync and blanking) connections should be made with 75Ω coaxial cable (e.g. Miniature Coax XR88V) and Audio connections with screened cable (e.g. Low Noise Screened XR18U, Cable Quad XR23A). Other connections should be made with standard insulated cable (e.g. 7/0.2 Wire BLOOA). The bundle of cables should be neatly bound by using cable ties at 200mm intervals (approx.), Spiral Wrap or Systoflex sleeving.

Peritel products available from Maplin; Peritel line connectors: FJ41U Peritel Plug (21 way) £1.20. JW33L Peritel Line Socket £1.20. FV89W Peritel Right-Angled PCB Socket 80p. JW34M Peritel Straight PCB Socket 80p. JW36P Peritel Plug to Plug Connecting Cable (composite video and audio) £4.95. JW37S Peritel Plug to Plug Connecting Cable (universal) £7.95. JW38R Peritel Plug to Phono Plugs Connecting Cable £9.95.

See the Maplin catalogue for the full range of connectors.





# Search for Purity

Conventional multi-bit or the new 'Bitstream' digital to analogue converter – where does the Compact Disc format go from here in its search for sound reproduction?

**T**he search for musical purity continues with the latest development in Compact Disc (CD) technology: the new Bitstream system pioneered by Philips. This system is being taken-up by other manufacturers; they feel that the excellent results obtained so far are well worth the capital investment, and provide the best way forward to achieve continued product improvement.

The CD player in its conventional form, as we have grown to know and love it, contains a multi-bit digital to analogue (D-to-A) converter. It is the function of the D-to-A converter to 'decode' the digitally recorded music on the CD and restore it to an analogue waveform. The digital recording comprises of a code, which is made up from 16-bit digital words, each word describes one tiny portion of the original analogue signal, which has been sampled (measured and converted into digital code). The stream of 'bits' retrieved from the surface of the CD, by a laser and associated optics/electronics, is processed by the D-to-A converter into a series of analogue currents of various magnitudes (values). External circuitry processes and filters the currents to produce an analogue voltage signal, which is the audio signal output from the CD player. Even though the D-to-A converter is processing

44,100 samples per second, the result can never be a smooth waveform; it is stepped like a staircase.

## A Bit About Bitstream

The 16-bit digital signals in the Bitstream system, are converted into a high-speed 1-bit 11.22896MHz data stream; the data rate is some 256 times faster than the 'normal' 44.1kHz CD sampling frequency. The technique of using a higher data rate than is 'actually necessary' is called oversampling.

Compared to the conventional system, which has a maximum number of 65,536 output levels, the Bitstream output has only two; 'on' and 'off', giving each bit equal significance. With Bitstream it is not the value of the signal that is crucial, but its logic state; thus making this, in the eyes of its main advocates, true digital operation.

## New Developments and Potential Improvements

So is Bitstream the future of CD sound? Is it really an improvement? Firstly, Bitstream machines are still slow to appear in the high street retail outlets. Secondly, new developments and potential improvements in both the CD and the CD player are possible as this is still a comparatively 'young' Hi-Fi concept.

Although much heralded by certain quarters, Bitstream by no means represents the ultimate in sound purity (although Bitstream is very good). The CD has only been generally available to the public at large since the early 80's (Circa 1982); less than 10 years have past. Consider the advances, in leaps and bounds, covered by the domestic Video Cassette recorder (VCR) and camcorder in the same relative time span. These products have been available to the home market for a longer period of time than the CD, yet home video still is perfecting its act; who knows what another few years of CD development will bring. All the time the quest is on for sound quality, and in an age when compact is beautiful, the CD player has surely gone a long way in the search for purity.

**Featured in the photograph above are various accessories available from Maplin to ensure that you get the best out of your CD's:**

A)	YP45Y	CD Clean System	£5.95
B)	FD28F	CD Library Case	48p
C)	JK38R	CD Double Case	£1.25
D)	YT18U	Compact Discbox 12	£2.45
E)	YT19V	Compact Discbox 20	£3.45

## "Crosshatch" Knobs



A most attractive solid aluminium knob with horizontal and perpendicular lines cut in the sides to give an almost jewelled appearance. The top is finely spun and marked with an indicator line. Types K52B and K52C have a recess for a control fixing nut. The knob is available in silver, black anodised or champagne-anodised finish.

K52A: Diameter 19mm. Height 16mm.  
K52B: Diameter 24mm. Height 16mm.  
K52C: Diameter 32mm. Height 16mm.

JH49D	Knob K52A Silver	86p
JH52G	Knob K52B Silver	£1.06
JH55K	Knob K52C Silver	£1.56
JH50E	Knob K52A Black	86p
JH53H	Knob K52B Black	£1.06
JH56L	Knob K52C Black	£1.56
JH51F	Knob K52A Champagne	86p
JH54J	Knob K52B Champagne	£1.06
JH57M	Knob K52C Champagne	£1.56

# WITH KNOBS ON!

A range of attractive modern knobs. All types have grub-screw fixing and are suitable for 6 or 6.35mm (1/4in) shafts. All knobs are black unless stated.

## PLASTIC KNOBS

### Pointer Knob

Standard pointer knob with white line.  
Length 32mm.  
Width (max) 19mm.  
Height 13mm.

RW75S Knob BK12

28p



## ALUMINIUM-CAPPED PLASTIC KNOBS Serrated

A range of attractive knobs which have the appearance of being solid aluminium, but are actually plastic with a metal top which covers all the plastic. The knobs have a spun top and serrated sides. Silver-finish types have a black line deeply engraved in the top and side, whilst the black-anodised types have a white line. Types AC13B and AC13C have a recess for a control fixing nut.

AC13A: Diameter 19mm. Height 16mm.  
AC13B: Diameter 24mm. Height 16mm.  
AC13C: Diameter 32mm. Height 16mm.

JH43W	Knob AC13A Silver	60p
JH45Y	Knob AC13B Silver	72p
JH47B	Knob AC13C Silver	80p
JH44X	Knob AC13A Black	60p
JH46A	Knob AC13B Black	72p
JH48C	Knob AC13C Black	80p

## Pointer Knobs with Coloured Caps

A range of pointer knobs with pointer bar with a white line. Knobs have serrated sides and coloured cap. Knobs are available in two sizes with blue, green, red or yellow caps.

RN15: Length 15mm. Width 13mm. Height 13mm.

RN18: Length 23mm. Width 19.3mm. Height 16.5mm.

FE74R	Knob RN15 Blue	32p
FE75S	Knob RN15 Green	32p
FE76H	Knob RN15 Red	32p
FE77J	Knob RN15 Yellow	32p
FD65V	Knob RN18 Blue	36p
FD66W	Knob RN18 Green	36p
FD67X	Knob RN18 Red	36p
FD68Y	Knob RN18 Yellow	36p



## SHOPPING AROUND!

Have you visited a Maplin store yet? There could be one in your area, new Maplin stores are opening every year.

Hampshire: The Southampton store has been recently converted to self-service. Conveniently situated with car park opposite, the store is at 46-48 Bevois Valley Road, Southampton. Tel: (0703) 225831.

London: Two stores for your convenience. The spacious Burnt Oak store offers the familiar self-service format with separate component counter. Very easy to find and situated at 146-148 Burnt Oak Broadway, Edgware. Tel: 081 951 0969. Our store in Hammersmith is due to move in late 1990 but only locally. At present the store is situated at 159-161 King Street, Hammersmith. (moving to 178 King Street late 1990). Tel: 081 748 0926.

# Car aerials... sound investments

It is surprising, given that we spend a fortune buying the best in car audio equipment, how often the aerial is so much an afterthought, when in fact a good quality, well fitted car aerial can make all the difference between poor or mediocre reception and superb sound reproduction. Some major auto manufacturers have realised that the aerial should be an integral part of in-car entertainment and have now designed the aerial as part of the manufacturing process, incorporating the aerial as part of the windscreen surround or built into the bodywork.

Unfortunately, not all of us can replace our older makes of car with the latest in auto-technology and have to rely on our own selection and fitting of the car aerial.

## Wing mounting aerials

Two fully retractable telescopic car radio aerials for wing mounting, HW18U (4-section) and YT13P (5-section), are pictured below right. Both aerials retract into plastic cylinders and both pull up with a key (there are two supplied), that fits into a slot in the top of the aerials. HW18U has a fully extended length of 780mm; YT13P extends fully to 119cm. The underhang of HW18U is 22cm and YT13P has an underhang of 26cm. Both aerials are supplied fitted with leads that have a car radio plug fitted. HW18U has a lead that is 117.5cm long and YT13P has a lead that is 112cm long. A bar is also supplied with each aerial, that clamps the bottom of the metal cylinder so that the aerials are firmly secured.

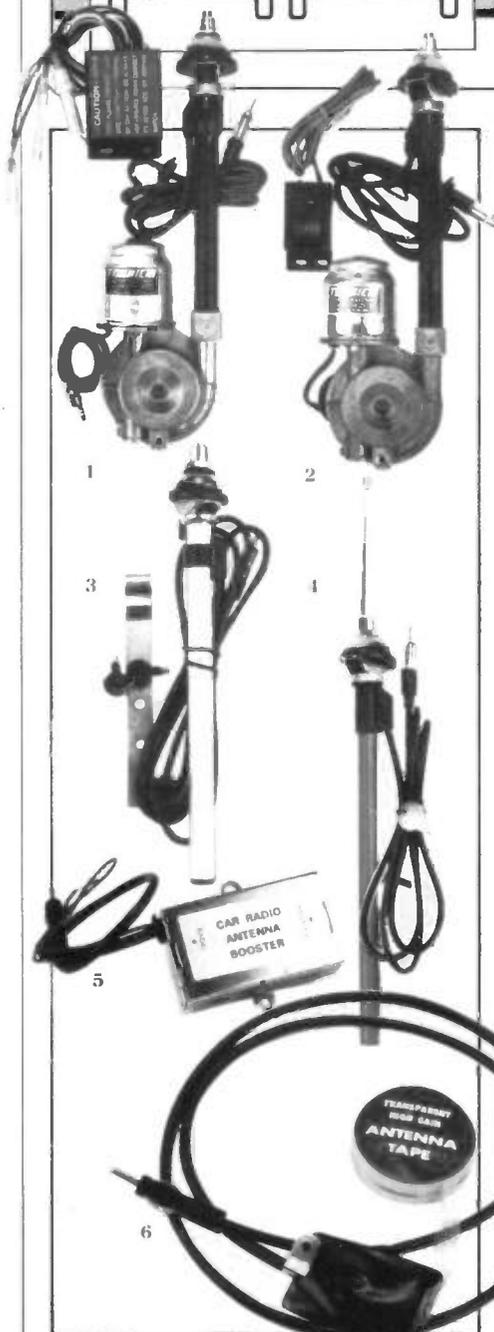
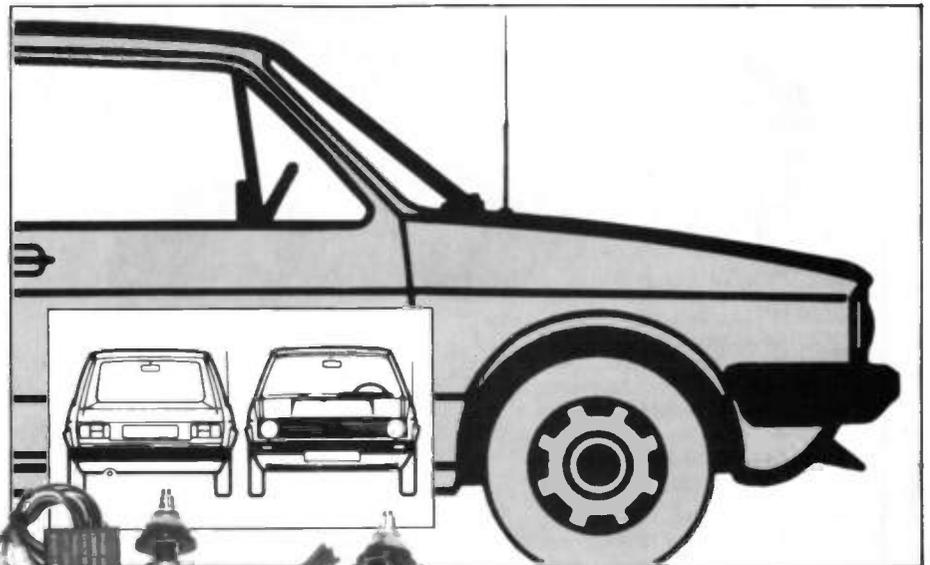
## Automatically the right sounds

YP43W and YP44X pictured above right offer the convenience of a semi-automatic and fully-automatic car aerial, respectively.

YP43W is a good quality car aerial complete with mounting bracket, two-way switch and has approximately 1.2m of screened cable terminating in a car aerial plug. Approximately 0.8m of wire is supplied between the aerial and switch. The battery positive and negative wires are 0.45m and 0.25m long respectively. The extended length is 1m and the total depth inside car body is 250mm. The switch size is 60 x 32 x 28mm high.

YP44X is also a good quality aerial, but this model offers fully-automatic action! This aerial comes complete with mounting bracket and relay unit. The battery positive wire has an in-line fuse (in order to operate, the car radio must have an auxiliary output). Supplied with approximately 1.2m of screened cable terminating in a car aerial plug and approximately 0.8m of wire between the aerial and relay unit. Extended length is 1m and the total depth inside car body is 250mm. The relay unit size is 72 x 50 x 29mm high.

- 1 YP44X Automatic Car Aerial **B** £18.95
- 2 YP43W Semi-Auto Car Aerial **A** £12.95
- 3 HW18U Car Aerial 4-Section £2.95
- 4 YT13P Car Aerial 5-Section £5.45
- 5 XX37S Car Aerial Booster £5.95
- 6 LH99H Windscreen Aerial £3.95



## Crystal clear, a boost to your aerial

We mentioned windscreen mounting aerials earlier in this article and now we are putting the spotlight on the cost-effective alternative LH99H. This windscreen mounting aerial is a crystal clear self-adhesive polypropylene film tape that will not crack, yellow or dry out even in extreme heat or cold. The tape is connected to 1m of co-ax cable terminating in a car aerial plug. The advantages over externally fitted aerials are many, including the most obvious one, that it is (virtually) vandle-proof. The windscreen aerial won't be snapped off in the car washes, and because of the length, it gives an improvement on FM reception. Easy to install, no holes to drill in your car body and fitting any car, the windscreen aerial is a clear alternative.

If snap, crackle and pop present a problem to your listening pleasure, as well as weak reception, then why not get a boost. The car aerial booster XX37S is a high gain amplifier covering the Long, Medium, Short and VHF wavebands, and works by simply plugging into your radio and the existing aerial lead plugs into the amplifier. The unit will give a largely noise-free reception on previously noisy FM stations and a big increase in signal strength on weak AM stations. The unit is only suitable for use with negative earth cars, and must be connected to +12V DC, while the amplifier must be earthed via its fixing bracket.

**For in-car entertainment audio systems see the entertainment section of the Maplin catalogue. For sound on the go... Choose the label that says Pro. Pro-sound speakers and audio equipment!**

# PCB equipment

## ETCH RESIST DRAFTING AIDS

A range of professional etch resist drafting aids for use directly on the PCB or in making 1:1 artwork for use with photo resist PCB's or 2:1 artwork for masters for professional PCB manufacturers.

### Black Tapes

A black crepe tape with a matt finish for high quality photographic reproduction. The crepe tape can be made into tight curves without distortion at the edges. A good adhesion is obtained even on irregular surfaces. Tapes are on 16.46m rolls.

The following types are available.

0.031in	—————	0.040in	—————
0.062in	—————	0.080in	—————
0.125in	—————	0.150in	—————
0.050in	—————		
0.100in	—————		
0.200in	—————		

BW21X	Track Tape 31	£1.48
BW22Y	Track Tape 40	£1.48
BW23A	Track Tape 50	£1.48
BW24B	Track Tape 62	£1.86
BW25C	Track Tape 80	£1.98
BW26D	Track Tape 100	£1.98
BW27E	Track Tape 125	£2.10
BW28F	Track Tape 150	£2.75
BW29G	Track Tape 200	£2.75

### Dual-In-Line IC Clusters

Sixteen circles arranged in a 0.1 x 0.3in pitch (1:1) or a 0.2 by 0.6in pitch (2:1), to suit IC's up to 16-pin DIL. Symbols can be laid end to end and/or split to make them wider to suit any size IC package. These pads offer a considerable saving over using individual pads. Supplied in rolls of 100 16-pin DIL grouped symbols. These pads are not suitable for use directly on PCB's, only for artwork masters.

BW39N	IC Pads 100	£5.95
BW40T	IC Pads 200	£8.95

### Black Circles

Die-cut circles manufactured in black crepe and supplied in the form of a roll with half of each symbol stuck to a clear carrier tape. To apply, separate the circles from the carrier, release the film from its protective backing paper and position carrier with circle on the artwork or PCB. Then having applied pressure to the circle, gently pull away the carrier film at an angle leaving the circle securely in position. This method is undoubtedly the most simple, accurate and speedy way to make PCB artwork. Circles are supplied in rolls of 250 circles. The following sizes are available.

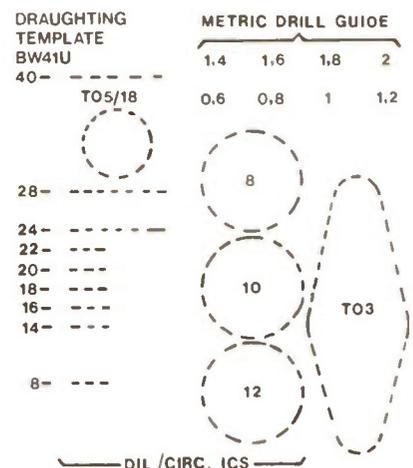
Outside dia. (in)	Inside dia. (in)	Outside dia. (in)	Inside dia. (in)
0.075	0.02	0.15	0.04
0.100	0.03	0.2	0.04
0.125	0.03		

BW30H	Pad 075	£2.25
BW31J	Pad 100	£2.25
BW32K	Pad 125	£2.25
BW33L	Pad 150	£2.25
BW34M	Pad 200	£2.25

### Drafting Template

A clear plastic template to speed the job of placing pads for PCB artworks. Holes are laid out over the template in various patterns and pitches; simply lay the template over the artwork or PCB, put a pin through the appropriate holes to lightly mark the position, remove the template and put the pads down centred on the marks. The following patterns are marked on the template. DIL packages up to 40-pin at 0.3in and 0.6in pitch as applicable, TO5, TO18 and TO3 transistor packages including fixing holes for TO3, 8-pin, 10-pin and 12-pin round IC packages. In addition there are a series of precision holes to check drill sizes between 0.6mm and 2mm where drills are often too small to be marked on the shank. Manufactured in clear plastic. Overall size: 64 x 51mm.

BW41U Drafting Template £1.80



### PCB Transfers

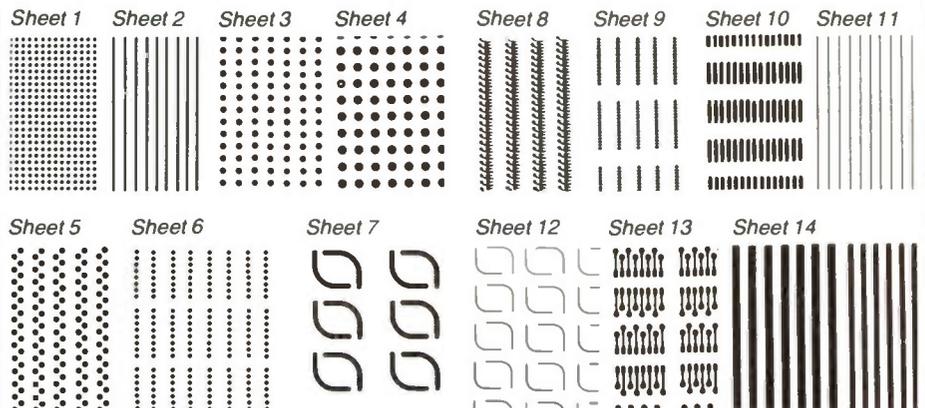
A range of high quality rub-down black symbols suitable for making printed circuit boards. Available as individual sheets or one of each in a starter kit of fourteen sheets. All symbols are acid resistant, have a clear sharp outline and are fully lightproof. The specially designed transparent symbol carrier prevents stresses being imparted to the symbol during application and eliminating symbol edge tearing. The carrier retains its shape even during heavy handed application or the use of unsuitable rub-down tools. The customised symbol adhesive prevents unwanted side-effects and guarantees optimum symbol adhesion. Sheet size 210 x 94mm.

#### How to use

Rub down the printed circuit board with Polish Block or fine abrasive paper to give a good finish to the copper surface. Do not use liquid cleaners or water and keep the board dry and clean whilst you are working. Mask the unwanted symbols on the transfer card being used, with the release paper backing, or cut out the required symbol, place in position on the printed circuit board (tacky side down), then rub the reverse side of the symbol with a ball pen or soft pencil lead. Lift off the clear film and smooth over by rubbing the release paper over the symbol to make sure there is no lift at the edges. The printed circuit board may now be etched to remove the unwanted copper. When complete, wash under water and rub the transfer away with Polish Block, fine wire wool or scouring powder. You will then have a professional looking printed circuit board, ready to drill and assemble.

#### Sheet details

Sheet 1	2176 circle pads 1.6 x 0.38mm.
Sheet 2	20 straight lines 170 x 1.61mm.
Sheet 3	480 circle pads 2.54 x 0.45mm.



Sheet 4	351 circle pads 3.6 x 0.79mm.
Sheet 5	210 transistor pad sets, each circular pad is 2.4 x 0.32mm.
Sheet 6	45 16 pad DIL IC's spaced at 0.3 x 0.1 inch, each circular pad is 2.16 x 0.38mm.
Sheet 7	90° bend lines, fifteen bends 2.25mm wide, twelve bends 3.0mm wide.
Sheet 8	8 rows of 68 pairs of pads with 'between-pad' tracks, pads are 2.54mm diameter.
Sheet 9	77 sets of 8 pads 1.6 x 0.34mm with through tracks for DIL IC's.
Sheet 10	0.1 inch spaced edge connector fingers, 12 rows of 32 fingers.
Sheet 11	21 straight lines 170 x 0.65mm.
Sheet 12	90° bend lines, 24 bends 0.65mm thick, 24 bends 1.61mm thick.
Sheet 13	33 sets of DIL IC pads with leads and offset holes.

Sheet 14	7 straight lines 170 x 3.0mm, 8 straight lines 170 x 2.25mm.	
The kit contains one each of all of the 14 sheets listed above.		
XH66W	Transfer Sheet 1	48p
HX46A	Transfer Sheet 2	48p
HX47B	Transfer Sheet 3	48p
XH67X	Transfer Sheet 4	48p
HX49D	Transfer Sheet 5	48p
HX63T	Transfer Sheet 6	48p
HX64U	Transfer Sheet 7	48p
XH68Y	Transfer Sheet 8	48p
XH69A	Transfer Sheet 9	48p
HX67X	Transfer Sheet 10	48p
HX68Y	Transfer Sheet 11	48p
HX83E	Transfer Sheet 12	48p
HX84F	Transfer Sheet 13	48p
XH70M	Transfer Sheet 14	48p
HX44X	Transfer Kit	£5.95

# HAMMERS

**W**hen you need extra, power, choose Black & Decker hammer drills. All of the drills featured are ideal for wood, masonry and metal.

Before drilling into walls etc, why not ensure that you are warned in advance of any cables and pipes that may be hidden. Use a Metal and Voltage Detector first to trace pipes, nails and screws. In addition to detecting metals it can also detect electric cables that are connected to the mains even when no current is flowing.  
YP30H Metal/Volt Detector £6.95.



## Cordless Variable Speed Reversing Hammer Drill

- ★ Cordless ★ 7.2V battery pack ★ Variable speed trigger and two speed gearbox ★ Bright steel 10mm chuck ★ Comfortable 'pistol grip' case ★ Switchable two-stage hammer action ★ Reversible ★ Chuck key storage ★ Supplied with double-ended screwdriver bit ★ Fast recharge

A highly versatile cordless drill with a number of innovative features not often found on cordless drills. Chuck speed is variable from 0 to 300 R.P.M. or 0 to

600 R.P.M. depending on which gear ratio is selected.

Recharging takes only 3 hours compared to the 16 hours of many other units. Supplied complete with charger unit.

XP13P Cordless Drill  
BD602 [B] £59.95



## Variable Speed Hammer Drill

- ★ Proline™ Professional ★ Powerful 600W motor ★ Variable speed trigger and two-speed gearbox ★ Black knurled steel 13mm chuck ★ Comfortable 'pistol grip' case ★ Contoured 2 finger trigger ★ High specification moving parts ★ Power-on lock button

A professional drill with a chuck speed variable from 0 to 1050 R.P.M. or 0 to 2500 R.P.M.

depending on gear ratio selected. A powerful 600W motor and combination of power and control for a wide variety of applications. An ideal work-horse tool for the professional tradesman. Supplied with front handle and depth stop.

XP12N Hammer Drill  
PL20K [B] £74.95



# POWERED!



## Two Speed Hammer Drill

- ★ Powerful 550W motor
- ★ Two speed
- ★ Black knurled steel 13mm chuck
- ★ Comfortable 'pistol grip' case
- ★ Contoured 2 finger trigger
- ★ High specification moving parts
- ★ Power-on lock button

A two speed hammer drill with 550W motor and a 13mm chuck, which rotates at 2600 or 3000 R.P.M.

depending on the setting of the speed switch. Drilling capacity is 25mm in wood, 13mm in concrete and 13mm in steel. Speed control is by means of switch selectable diode speed control circuit. Supplied with front handle and depth stop.

XP11M Hammer Drill  
BD162  £39.95

## Single Speed Hammer Drill

- ★ Powerful 400W motor
- ★ Bright steel 10mm chuck
- ★ Comfortable 'pistol grip' case
- ★ Easy access for hammer selector switch
- ★ Contoured 2 finger trigger
- ★ High specification moving parts
- ★ Forward airflow for fast dust removal
- ★ Recessed power-on lock button

A single speed hammer drill with a 400W motor and a 10mm chuck, which rotates at 2500 R.P.M. Drilling capacity is 20mm in wood, 10mm in concrete and 10mm in steel.

High torque gearbox and long life ratchet for superior performance. Contoured case allows 3 comfortable holding positions for both left and right hand use.

XP10L Hammer Drill  
BD561  £27.95



A range of drill bits can be found in the Maplin catalogue. From high speed metric drills, high speed imperial drills, masonry drills to drill sets that make the ideal gift for the handyman. Get the bit between your teeth, see the Tools section in the Maplin catalogue!

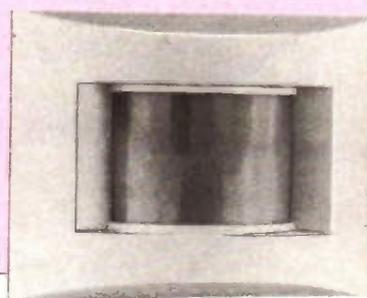
# An Englishman's home is his Castle



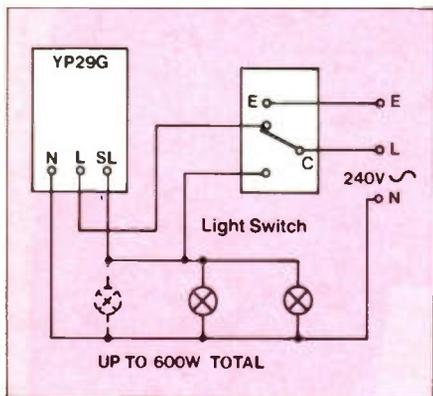
YP29G  
£29.95



YU17T  
£19.95



JG24B  
£36.95



Example connection for YP29G

**M**aplin has a range of passive infra-red detectors designed to complement your own security system. Pictured above (JG24B) is the high quality indoor pulse type of detector which provides extremely high immunity to false alarms. The alarm only triggers if two consecutive signals are detected within approximately half a minute. This eliminates false alarms due to heat from a radiator, the sun rising or setting, etc. A walk test facility is provided and the detection range and height can be adjusted without repositioning the unit.

## Ear piercing siren

Pictured top right is the portable PIR alarm/chime unit (YU17T). This is a compact passive infra-red detector and alarm unit in one. It is possible to use the unit either free standing, on a desk, etc. or use the integral swivel bracket for wall mounting. A slide switch on the side of the unit selects chime/off/alarm modes and in chime mode 'ding-dong' chime sounds when the detector is triggered. The alarm mode sounds an ear piercing 90dB siren when the unit is triggered. Requires 9V PP3 alkaline battery (not supplied).



## Completely weatherproof?

Featured above left is the outdoor sensor (YP29G). Easy-to-install and using the latest in passive infra-red detection techniques, this PIR security sensor instantly reacts to body heat within the detection zone. A built-in photocell sensor keeps the unit switched off during daylight and as can be seen in the diagram featured left, this PIR can be connected to your existing outdoor light(s) up to a total of 600W. A wall mounting bracket is supplied, and the unit is completely weatherproof. With time control delay function, unit activation point level (marked LUX), and afternoon light level activation (for falling light levels), incorporated into this PIR, you are certainly getting a most sensible sensor indeed. In fact, all three PIR's featured are of top notch quality, and as mentioned before, a certain boon when incorporated into your very own security set-up.

**Maplin**  
*As safe as Houses*

The light emitting diode (LED) was initially used as a panel indicator to replace filament lamps. However, since its birth in the sixties, the LED has progressed in giant strides.

### A Cost Effective Solution

The LED is a semiconductor diode and in common with other semiconductor diodes it has P-N junction. However the major difference is that, apart from behaving as a diode (allowing current flow in one direction only), the LED when forward biased emits light. The term applied to light emission from a semiconductor device is electroluminescence or injection luminescence. In the LED, the semiconductor material used is normally a gallium or indium compound, whilst for normal diodes, the semiconductor material is silicon or germanium.

When the LED junction is forward biased, the junction region is enriched with electrons and holes. When these charge carriers recombine with one another, and electron is transferred from the conduction band to the valence band with each recombination. Energy equal to the difference between level of the conduction band and the valence band is given up, some of this energy is converted into light. Elements in groups three (III) and five (V) of the periodic table are chosen for their excellent electroluminescent properties when combined in the correct proportions. Elements in groups three and five that are commonly used in the manufacture of LEDs are: indium, antimony, arsenic, gallium, phosphorus and nitrogen.

The first LEDs were only able to emit non-visible infra-red light, but this soon changed when new semiconductor materials were developed, thus allowing visible light to be produced. The colour of the light emitted from an LED is determined by the wavelength of the light produced by the semiconductor material: gallium arsenide phosphide emits red light, gallium phosphide emits green light and gallium nitride emits violet light. For infra-red applications, such as TV remote control units, the following materials may be used: indium antimonide, indium arsenide, gallium antimonide, indium phosphide and gallium arsenide.

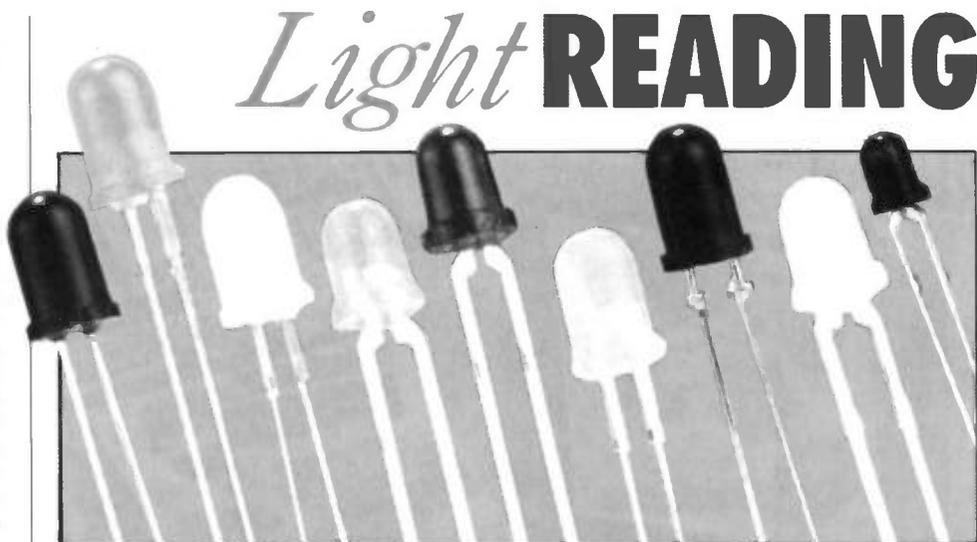
The use of LEDs has moved on since the early days, new devices are now offering cost effective solutions to areas previously addressed by incandescent lamps. Featured above right are several different types of LEDs ranging from 3mm diameter standard types to 10mm high-brightness types.

### Commonly Found LEDs

Everyday objects such as calculators, VCRs, CDPs, etc., use LEDs in groups to form displays. The most common form of display is the seven-segment display which shows the numerals 0 to 9, depending on the individual segments energised. There is usually a decimal point than can be illuminated as well. Each segment (and the decimal point), is an individual LED.

### Conduction with Care

LEDs are intended to be used in the forward-biased mode, and as such they must be protected from excessive reverse bias, as they commonly have a reverse breakdown voltage of only a few volts. If breakdown occurs the LED may be destroyed. As with normal semiconductor diodes. LEDs exhibit a forward voltage drop when conducting. However, the forward voltage is dependent on the type of semiconductor material used,



# Light READING

consequently voltage drops differ slightly from colour to colour.

It is important to remember that most LEDs do not have inbuilt current limiting. Therefore a resistor (or other current limiting device) must be connected in series with the LED to ensure that the manufacturer's maximum recommended current level is not exceeded.

### Protection from Reverse Breakdown Voltage

If an LED is to be used in an application where it will be subject to a reverse voltage in excess of the maximum rated figure, the LED must be protected. The simplest way of achieving this is to connect a diode in inverse parallel with the LED, i.e. of opposite polarity.

### All Manner of Shapes, Sizes and Colours

The standard range of 3mm and 5mm diameter LEDs are available in 4 colours: red, yellow, orange and green. Additionally there is a range of shaped LEDs, for building-up attractive panel displays, and these too are available in the same four colours as the standard types.

### Current Misers

The low current range of LEDs require very little current to operate, whilst maintaining a high brightness level. They are therefore ideal for use in applications where minimal power consumption is of prime importance, such as battery powered portable equipment. The low current types are available in red, yellow and green. This range of LEDs is available in 5mm diameter packages only.

### Bright Sparks

For applications which require very bright indicators, high brightness LEDs are available. Classed as high-brightness, super-bright, ultra-bright and hyper-bright types, these offer extremely high light output for the same supply current as standard types.

High brightness 3mm and 5mm types are available in red only, whilst the 8mm and 10mm high-brightness types are available in red, green and yellow. Super, ultra and hyper-bright are available in red only, with a choice of 3mm, 5mm, 8mm and 10mm diameter packages.

### Identity Parade

Most types of round LED have their cathode connection denoted by a flat portion on the body (near the lead-out wires). The cathode is also indicated by the shortest lead.

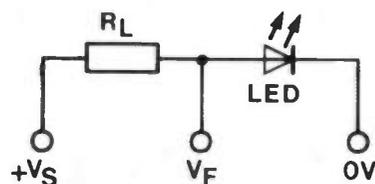
### Maplin Mounties

To anchor an LED to a panel, a number of panel mounting clips are available. Some of these improve the cosmetic appearance as well as providing physical anchorage. Fresnel types increase viewing angle and provide anchorage.

### All in Optoelectrical

All the types of LED mentioned here are detailed in the Optoelectrical section of the current Maplin catalogue and there you will find the full specifications and other information for all types, plus further optoelectrical equipment.

## Calculating LED Series Resistor Value



To calculate the required value for an LED current limiting series resistor the following formula should be used:

$$R_L = (V_S - V_F) \div I_F$$

Where:

$V_S$  is the applied supply voltage in volts.  
 $V_F$  is the LED forward voltage in volts.  
 $I_F$  is the LED forward current in amperes.

The resistor value calculated may not be a preferred value and the next highest preferred value should be used. For AC operation connect a diode, e.g. 1N4148 etc, in inverse parallel with the LED and halve the value of the resistor determined by the above formula.

Example:

$$V_S = 12V \text{ DC}$$

$$V_F = 2V$$

$$I_F = 20mA$$

$$R_L = (12 - 2) \div 20 \times 10^{-3}$$

$$R_L = 500\Omega$$

$$\text{Nearest preferred value} = 510\Omega$$

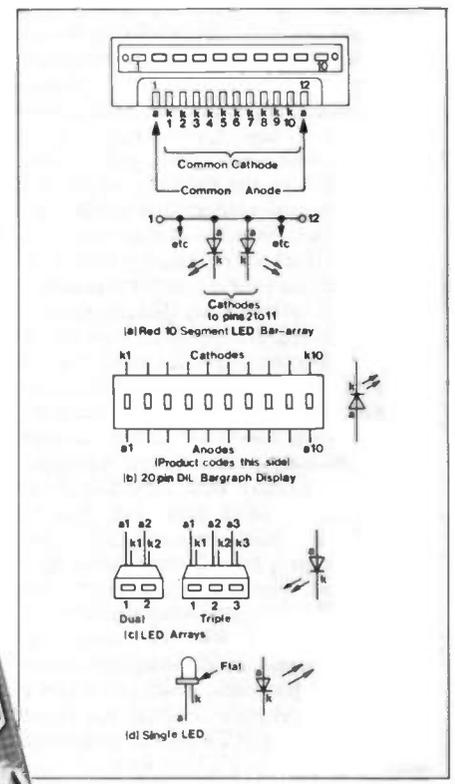


## Build up your own collection of projects!

Containing full construction details of projects that have appeared in 'Electronics - The Maplin Magazine', the Maplin Projects Books are a handy way of building up your own library of projects.

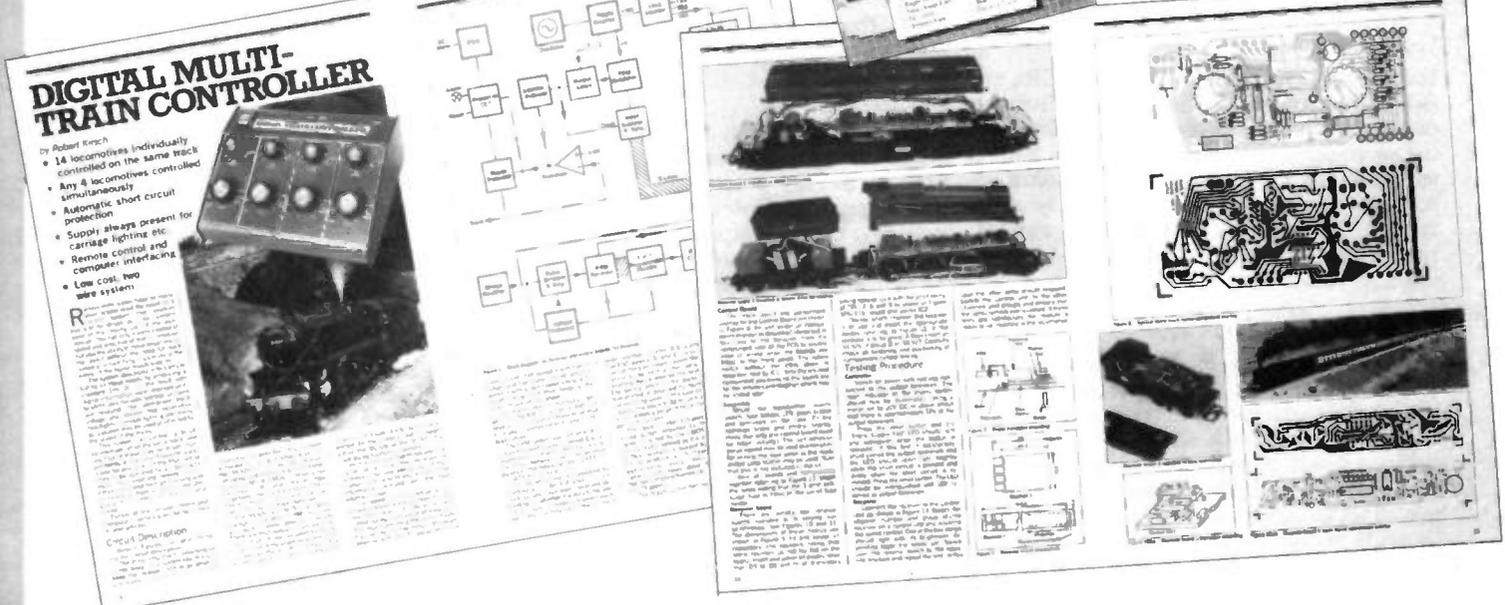
From construction details of speech synthesisers, logic pulsers, eight channel fluid detectors to ultrasonic car alarms, data communications systems, digital echo system and much, more more!

Written for the beginner and the professional alike, and as shown below, clearly illustrated with diagrams, photographs and drawings. The illustration below is from Maplin Projects Book 14.



# Maplin Projects Books

There are also Best of Maplin Projects Books available, mega-charged with project construction details. See the Maplin catalogue for the full range and get building!



Prices may change after 30th April 1991. [A], [B] etc. against price indicates there is an additional carriage charge for this item; see Order Coupon in Magazine for details.

# Fuses

## Thermal Fuses

A range of thermal fuses which will protect any equipment or appliance from excessive temperature rise by cutting off the supply, since they are connected into a circuit in the same way as an 'ordinary' fuse would be. These thermal fuses offer a low impedance when operational, but will go open circuit if their temperature range threshold is exceeded. They will serve to protect equipment from heat damage if the source of excess heat originates within the equipment itself as the result of a fault, cutting off the power where the ordinary fuse fails to do so because the current load is not great enough, yet there is enough power being converted to heat to start a fire.

These devices are extensively applied in industry in the manufacture of sandwich toasters, water heaters, hair curlers etc. They are not resettable and must be replaced if 'blown'.  
NOTE: when installing any of these devices *never* solder directly to the wire leads - you must use screw terminals, terminal blocks or crimped on connectors.

Size of body: 14mm long x 4mm dia.  
Lead length (each end): 34mm.  
Rating: 240V @ 15A max.  
Rupture current: 40A (resistive), 20A (inductive).  
Open circuit breakdown voltage: 1200V AC  
Opening threshold temperature tolerance: +0°C -4°C.

### General Purpose Range

A range of thermal fuses covering a wide range of operating temperatures, available as follows: 91°C, 128°C, 141°C, 152°C, 169°C, 184°C, 192°C, 216°C, 228°C, 240°C

RA14Q	Thermal Fuse 91C	68p
RA15R	Thermal Fuse 128C	68p
RA16S	Thermal Fuse 141C	68p
RA17T	Thermal Fuse 152C	68p
RA18U	Thermal Fuse 169C	68p
RA19V	Thermal Fuse 184C	68p
RA20W	Thermal Fuse 192C	68p
RA21X	Thermal Fuse 216C	68p
RA22Y	Thermal Fuse 228C	68p
RA23A	Thermal Fuse 240C	68p

### Audio Range

A range of thermal fuses formulated especially for applications in audio equipment, test instruments etc. Temperature ratings available are:

72°C, 84°C, 100°C, 109°C, 121°C

RA61R	Thermal Fuse 72C	68p
RA62S	Thermal Fuse 84C	68p
RA63T	Thermal Fuse 100C	68p
RA64U	Thermal Fuse 109C	68p
RA65V	Thermal Fuse 121C	68p

**DON'T BLOW IT!**  
Have you stocked up with spare domestic fuses? See the Maplin catalogue for the full range of fuses.

## SUPPRESSORS RF Suppressor Chokes

Designed for use at 250V AC these small heavy current rf chokes are ideal for the suppression of motor-driven appliances and in input circuits of power units. Inductance is approximately 6μH. PVC sleeve is colour coded. Three types are available.

Rating	Length	Diameter	Colour code
1 Amp	15mm	5-1mm	White
2 Amp	19mm	5-1mm	Yellow
3 Amp	23mm	7-6mm	Black

HW04E	RF Supp Choke 1A	36p
HW05F	RF Supp Choke 2A	40p
HW06G	RF Supp Choke 3A	45p

## Contact Suppressor

A 120Ω resistor (±30% tolerance) and 0.1μF (±20% tolerance) capacitor connected in series. Connect directly across switch or relay contacts etc. to suppress interference when switching reactive loads. Also useful as a snubber network in SCR and triac protection. Maximum voltage 250V AC.

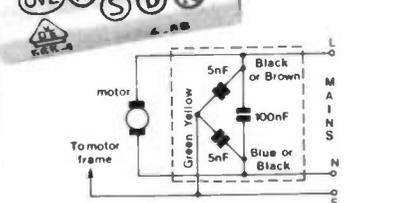
YR90X R-C Network £1.65

## Mains Transient Suppressor

Simply connect this device across the mains. It has a very high resistance at 240V rms and therefore usually may be ignored, but the moment a spike appears on the supply line which exceeds the peak level of mains voltage, the impedance of the device drops immediately to a very low level while it dissipates the unwanted energy.

HW13P Mains Trans Supp 48p

## Motor Suppressor



For radio suppression of small electric motors and domestic appliances. 250V AC. Connect as close as possible to the source of interference. 0.1μF + 0.005μF + 0.005μF.

HW07H Delta Cap £1.06p

## A Guide to Electricity Running Costs

Electricity is billed to the user in 'units', each unit corresponds to one kilowatt (1kW) of electricity used for one hour. This means that a 1kW electric fire will use one unit of electricity if it is switched on for one hour and a 100W electric light will use one tenth of a unit if it is switched on for one hour. It follows from this, that if the wattage of an appliance is known and the price per unit of electricity is known, then the cost of using an appliance can be calculated.

To work out your running costs, you will need to find out how much you pay for each unit of electricity, this can be determined by looking on your electricity bill or by contacting your local electricity showroom or office.

The following figures are approximate and are based on the average rating of each appliance.

### Kitchen Appliances

Blender - 700 pints of soup = 1 unit.  
Can opener - one can a day for 4 years = 1 unit.  
Carving knife - carve one weekend joint = 1 unit.  
Coffee grinder - over 50kg of coffee = 1/2 unit.  
Coffee percolator - 75 cups of coffee = 1 unit.  
Contact Grill - over 25 well done steaks = 1 unit.  
Cooker - one week's meals for four = 20 units.  
Cooker hob - 4 fried breakfasts = less than 1/2 unit.  
Radiant ring - stew for four = less than 1/2 unit.  
Conventional oven - 24 scones = 1 unit.  
Fan oven - 48 meringues = 1 1/4 unit.  
Grill - 1lb of sausages = less than 1/2 unit.  
Cooker hood - 10 hours use = 1 unit.  
Crêpe maker - 12 lots of 8 crêpes = 1 unit.  
Deep fryer - 3lb of chips = 1 unit.  
Food mixer - 52 cakes a year = less than 1 unit.  
Kettle - 12 pints = 1 unit.  
Knife sharpener - 12,000 knives = 1 unit.  
Yoghurt maker - 70 yoghurts = 1 unit.  
Microwave oven - 3lb joint = less than 1/2 unit.

### Utility Appliances

Waste disposal unit - 50lb of waste = 1 unit.  
Dishwasher - One full load = just over 2 units.  
Extractor fan - 24 hours = 1 unit.  
Freezer = 1 to 2 units per day.  
Fridge/Freezer = 2 units per day.  
Hostess trolley - 1 hour = less than 1 unit.  
Iron - 1 hour = 1/2 to 1 unit.  
Floor polisher - 1 week's polishing = 1 unit.  
Vacuum cleaners  
Cylinder - every day for 1 week = 1 unit.  
Upright - 2 hours = 1 unit.  
Washing machines  
Automatic - weekly wash for four = 8 to 9 units.  
Twin-tub - weekly wash for four = 11 to 12 units.

Tumble dryer = 12lb load of sheets and towels = 4 units.  
Spin dryer - 5 weeks use = 1 unit.

### DIY, Garage & Garden

Battery charger - 30 hours charging = 1 unit.  
Hedge trimmer - 2 1/2 hours = 1 unit.  
Lawnmowers  
Cylinder - 3 hours = 1 unit.  
Rotary - 1 hour = 1 unit.  
Power drill - 4 hours = 1 unit.

### Heating

Electric blankets  
Single overblanket - all night for 1 week = 2 units.  
Double overblanket - all night for 1 week = 3 units.  
Single underblanket - 1 1/2 hours each night for 1 week = less than 1 unit.  
Double underblanket - 1 1/2 hours each night for 1 week = less than 1 1/2 units.  
Storage heater (2kW) - 45 to 75 units per week.  
Convactor heater (2kW) - 1/2 hour = 1 unit.  
Fan heater (2kW) - 1/2 hour = 1 unit.  
Infra-red heater (1kW) - 1 hour = 1 unit.  
Oil filled radiator (500W) - 2 hours = 1 unit.

### Hot Water

Immersion heater (46 gal. insulated twin heaters) - 67 units per week for four people.  
Instant water heater - 3 gallons = 1 unit.  
Shower - A 3 to 5 minute shower every day for a week = 2 1/2 to 4 units.

### Personal Appliances

Facial sauna - 10 hours = 1 unit.  
Curling tongs (30W) - 60 1/2-hour sessions = 1 unit.  
Hair dryer (500W) - 12 10-minute sessions = 1 unit.  
Shaver - One shave every day for 5 years = 1 unit.

### Entertainment

Colour TV (22in) - 6 to 9 hours = 1 unit.  
Hi-Fi system - 8 to 10 hours = 1 unit.

### Lighting

Fluorescent strip light (40W) - 20 hours use = less than 1 unit.  
Lamp (60W) - 16 hours = 1 unit.

# GUITAR TALK

## Quotes from the greats

"Sometimes I jump on the guitar, sometimes I grind the strings up against the frets. The more it grinds, the more it whines. Sometimes I rub myself up against the amplifier. Sometimes I play the guitar with my teeth or with my elbow. I can't remember all the things I do."  
*Jimi Hendrix.*

"I have a lick that's better than Jeff Becks and Jeff has a lick that is better than mine, but Jimi Hendrix is better than either of us."  
*Eric Clapton.*

"My life has been what you might call an uneventful one, and it seems there is not much of interest to tell..."  
*Buddy Holly, writing his autobiography, aged 16.*



"I smash guitars because I like them. I usually smash a guitar when it's at its best."  
*Pete Townsend.*

"I never wanted to be a train driver, I wanted to be the best guitar player in the world."  
*Peter Frampton.*

"The only Maybelline I knew was the name of a cow."  
*Chuck Berry.*



## SOUNDS LIKE ERIC CLAPTON ...OR IS IT GARY MOORE?

Whether you want to sound like Eric Clapton or capture the sound of Gary Moore, the sound you eventually end up with depends not only on the guitar you use, but also on the amplifier and musical effects units employed. Just how did Jimi Hendrix get the unique 'Hendrix Sound'?

The guitarist has searched over the years for ways to expand the 'sound' produced by the electric guitar. From stereo flangers, compressors, phasers, to chorus, delay and ultra metal units, there is the right one for the sound you are after.

The Stereo Chorus unit (YN20W), for example, has separate 'depth', 'rate' and 'intensity' controls. The 'rate' control varies the speed of the effect, whilst the 'depth' and 'intensity' controls regulate the short-time delay and chorus effects. The Chorus unit adds a harmony of fatter, richer sound.

The Ultra-Metal (YN22Y), is ideal for those who need more overdrive. The unit provides sounds ranging from a fairly gentle blues sustain to a blistering, dirty heavy-metal overdrive. Gary Moore eat ya heart out!

If it is sustain and attack you are after, the compressor (YB88V) allows you to hold the note or notes, great for the blues, just ask Eric!

The full range of Musical Effects Units can be found in the Maplin catalogue. Remember,

Musical Effects Units can be used with most amplified instruments. YN20W Chorus £39.95. YN22Y Ultra Metal £34.95. YB88V Compressor £29.95.

### Amplifiers to give you a boost!

If the bass guitar is your instrument then you will need an amplifier that really delivers. The XM36P is a 40W bass guitar amplifier with built-in limiter, and is ideal for stage work. Sockets are provided for line out and headphones and controls are provided for volume, bass, mid and treble.

The powerful 75W guitar amplifier (XM35Q) is a guitarist's joy. A host of facilities are provided including controls for 'overdrive'; pre-gain, post-gain and waveform (which adjust the harmonic content). Reverb, bass, low mid, treble and master volume controls and an additional switch; 'bright' which gives the signal more presence, are also incorporated in the amplifier. The rear panel has a mains on/off switch and three jack sockets; external speaker (8Ω), pre-amp out and power amp in. All in all, a terrific guitar amplifier suitable for studio or stage work.

XM36P 40W Bass Amp  £119.95.  
XM35Q 75W Guitar Amp  £159.95.

Full specifications of all our musical and effects instruments can be found in the Maplin catalogue.

# HOMAGE to the GUITAR PLAYER

## Three legends meet

An imaginary conversation between Jimi Hendrix, Carl Perkins and Muddy Waters.

"Boy was it wild, the first night I set fire to my guitar."

"Where was that Jim?"

"Finsbury Park Astoria, London. It was so sweet that night, 1967, March I think. It was the ultimate experience."

"Boy did you take it to the limit Jimi, me I only had Elvis to compete with, not the world."

"Well Carl, Elvis was never a guitar player, never in your class. Great voice in his early days though. Had a raw energy, but he was never in your league as a guitar picker."

"Hell son, Elvis even took my song and made it his own. Blue suede shoes was the easiest song I ever wrote. Got up at 3pm when me and my wife were living in a government project in Jackson, Tennessee. Had the idea in my head, seeing kids by the bandstand, so proud of their new city shoes – you gotta be real poor to care about new shoes like I did – and that morning I went downstairs and wrote out the words on a potato sack. We didn't have any reason to have writing paper around."

"Yeh, people always rip you off."

"Tell us about it Muddy."

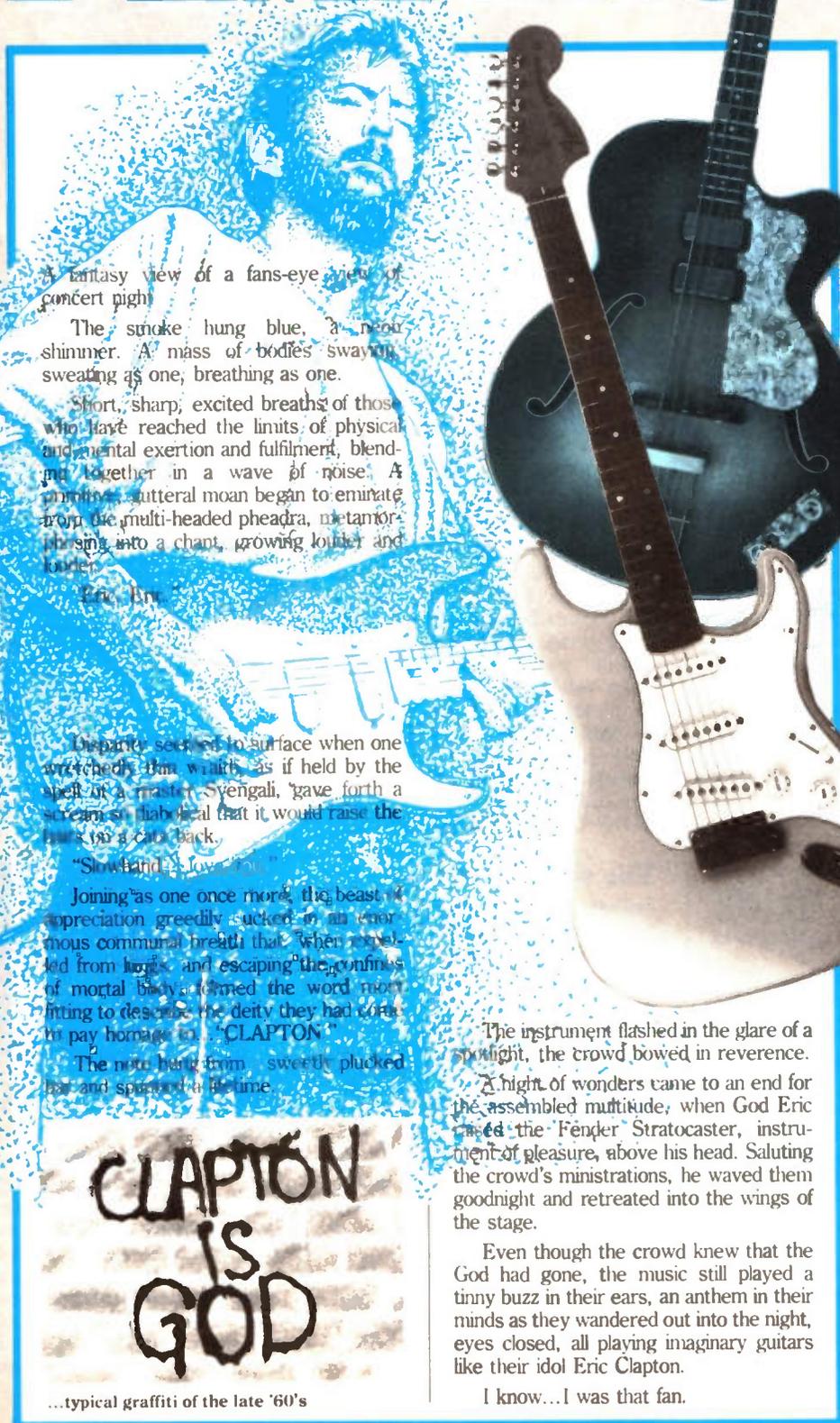
"When you get in the record business someone gonna rip you anyway, so that don't bother me. If you don't rip me, she gonna rip me, and if she don't rip me, he gonna rip me, so I'm gonna get ripped, so you don't be bothered by that, because people round you gonna rip you if they can."

"Yeh, even when you're dead they rip you. Look at Elvis, Buddy and even you Jimi. When you died you became it."

"Took me years to make it Carl, hard work, but it gave me style man."

"The music still lives Jimi, the music will always live."

"Amen to that Muddy, Amen to that."



A fantasy view of a fans-eye view of concert night

The smoke hung blue, a neon shimmer. A mass of bodies swaying, sweating as one, breathing as one.

Short, sharp, excited breaths of those who have reached the limits of physical and mental exertion and fulfilment, blending together in a wave of noise. A primitive, guttural moan began to emanate from the multi-headed pheadra, metamorphosing into a chant, growing louder and louder.

Eric, Eric

Disparity seemed to surface when one wretchedly thin waif, as if held by the spell of a master Syngali, gave forth a screams, diabolical that it would raise the hairs on a cat's back.

"Slowhand's love you"

Joining as one once more, the beast of appreciation greedily sucked to an enormous communal breath that when expelled from lungs, and escaping the confines of mortal body, formed the word most fitting to describe the deity they had come to pay homage to. "CLAPTON"

The note hung from, sweetly plucked, bar and spaced a lifetime

CLAPTON  
IS  
GOD

...typical graffiti of the late '60's

The instrument flashed in the glare of a spotlight, the crowd bowed in reverence.

A night of wonders came to an end for the assembled multitude, when God Eric raised the Fender Stratocaster, instrument of pleasure, above his head. Saluting the crowd's ministrations, he waved them goodnight and retreated into the wings of the stage.

Even though the crowd knew that the God had gone, the music still played a tinny buzz in their ears, an anthem in their minds as they wandered out into the night, eyes closed, all playing imaginary guitars like their idol Eric Clapton.

I know...I was that fan.





Trip S.

Trip MD 2.

AF10 Super.

AZ 200 Super Zoom.

AZ 330 Super Zoom.

# Bailey, Daley & Maplin

Everybody has seen the great series of advertisements on TV featuring photographer David Bailey and that likeable rogue Arthur Daley. They certainly confirmed the oft held belief that some adverts are more entertaining than some of the scheduled programmes screened.

Olympus hit on a winning formula in more ways than one. The series of cameras bearing the Olympus name are the real reason for the success of the Olympus company. Now you too can hit that winning formula, the Olympus range has arrived at Maplin! All of the models pictured feature the optical precision, rugged construction and quality of manufacture which has become synonymous with the name Olympus.

## The legendary Trip Series

The Olympus Trip S is a fully automatic 35mm camera with sliding lens barrier and built-in electronic flash and motor drive. The film transport mechanism features automatic forward wind and motor re-wind. Film loading is automatic, courtesy of the motor wind-on system (on closing the cover). A terrific first time camera for those looking for an up-market, quality introduction into the world of photography at a cost-effective price.

ZA14Q Trip S [B] £34.95.

The Trip MD 2 (like all of the Olympus models featured), is precision

engineered with superior optics in a sleek metallic finish case with lens barrier. The MD 2 also features fully automatic motor wind and built-in electronic flash for ease of use. Also featured is an automatic first frame positioning triggered by the shutter release. The automatic motor wind-on is complemented by the re-wind at end of roll facility. A low light warning LED in the viewfinder activated by a CdS photocell ensures that you're kept informed of light conditions.

ZA15R Trip MD 2 [B] £48.95.

## The super cameras

Following in the tradition of its best-selling predecessor, the AF10, comes the AF10 Super. This gem of a camera couldn't be easier to use. Since it is fully automatic, including the auto-flash facility and the infra-red auto-focus action, all you need to do is simply point and shoot. One of the smallest full-auto cameras on the market in a slim, lightweight body incorporating a sliding lens barrier. Also included in this 35mm DX camera is a focus lock facility, threaded tripod socket, bright frame viewfinder with central auto-focus frame, flash and auto-focus indicators; 12 second electronic delay timer, and low light activated flash with manual override. A programmed automatic exposure control covers the range F3.5-F9 (EV9-EV15).

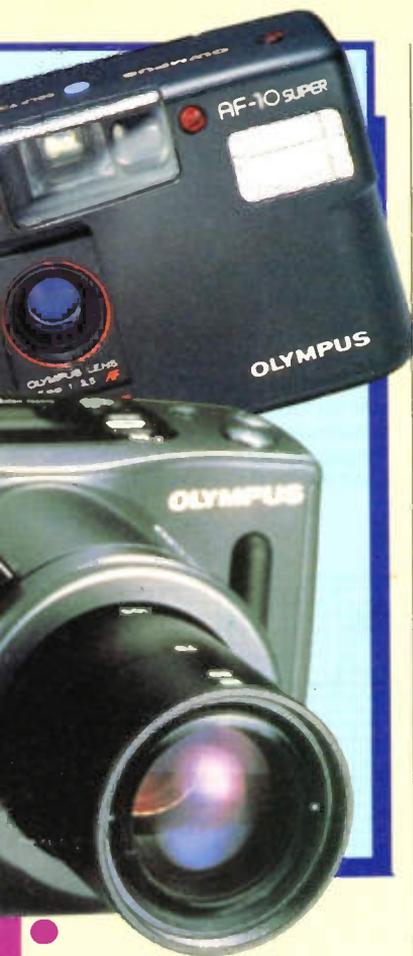
ZA16S AF10 Super [C] £99.95.

If you are looking for a camera with a bit more clout, then the Olympus AZ 200 Super Zoom may fit the bill. The AZ 200 Super Zoom contains a x2 power zoom lens in a compact, lightweight body and features an innovative variable power flash system which makes flash photography virtually idiot-proof, together with a reliable new multi-spot auto focusing system. You also get a pop out infra-red remote controller which fits into the grip, the camera will then operate from up to five metres away with a 1 or 3 second delay.



## Focusing errors...A thing of the past?

'Normal' auto-focus systems have been liable to produce focusing errors if the subject were not directly in front of the lens, the AZ 200's system measures the distance to the subject in three separate 'spots' for more accurate focusing in a wider variety of situations, whilst giving you total control by the option of 'single spot' focusing and metering if required.



lin

Kepler type viewfinder (which 'tracks' the zoom to help you compose your shot), automatic exposure programme which is matched to the focal length of the lens automatically, so that photographs are correctly exposed whether at the panoramic wide-angle 38mm or the telephoto position at 105mm or any stage between. An auto-zoom mode allows the AZ 330 to frame portraits properly of its own accord while the subject is 1.3-3m away, or full length auto zoom portraits for subjects at 3-8m.

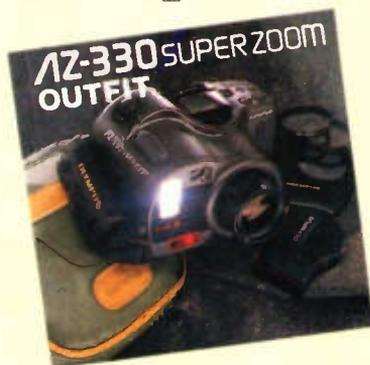


### Night-time photography made simple...

For better night-time photography, the slow synchro fill-in flash function can provide dramatic effects. Here a slow shutter speed is used to record as much of the darkened background as possible, while the flash illuminates the foreground 'subject'. And the AZ 330 will handle dim, available-light only scenes as well. An infra-red remote control is included - the lens cap doubles as the transmitter - with a choice of 1 or 3 seconds delay.

There are so many features on the AZ 330 that describing them all in detail would fill up the whole of this feature. For full specifications on the AZ 330 and all cameras featured here see the main Maplin catalogue or pop into your local Maplin store and ask to see the Olympus range of cameras.

ZAI8U AZ 330 @ £249.95.



The advanced metering system can tell you when the subject is lit and automatically provides fill-in flash to compensate. Spectacular special effects can also be achieved by the built-in strobe capability, allowing up to four exposures on one frame during 1/6 second exposure time.

Some pictures can be ruined by what is known as 'red eyes'. By using soft 'pre-flashes' before taking pictures, the subjects pupils contract, rather than expand when the photo is actually taken.

Packed full of many more exciting and advanced features the AZ 200 Super Zoom is a photographers dream!

ZAI7T AZ 200 @ £199.95.

### More power to your zoom!

The top-of-the-range Olympus AZ 330 Super Zoom is more than a camera, it is a complete photographers arsenal, packing more punch than Mike Tyson! A fully automatic 38-105mm power zoom camera in a lightweight compact body - a camera that makes it easier than ever before to take professional looking, beautiful photographs. Focusing, film loading, winding and re-winding are all automatic naturally, and thanks to 'auto-S' technology even close-up portraits taken with flash turn out great. Features include infra-red remote control,

### Free Olympus gift packs!

With selected cameras you will receive (while stocks last), a free camera outfit. With the AF10 Super comes a free pouch carrying case, Kodacolor 24 exposure film, batteries and carrying strap and for a limited period, a free 1991 diary. The AZ 200 Super Zoom comes with pouch case, 2 colour print films, carrying strap and batteries. The AZ 330 Super Zoom comes complete with carrying case, soft focus filter, starburst filter, skylight filter, filter case and batteries.

## The Joe Soap guide to photography... Honest!

"Alright, I've learnt my lesson, I won't mess around with any more dodgy photographic gear. From now on it's Olympus for me! It was the fault of my misses, wanted her 'boatrace' captured in all its glory. Got all the gear out didn't I, set it all up, took the photo and then 'aw my gawd', disaster! She came out looking like a haddock with a cold. She'd caught this 'red eye' thing. That is the camera I was using turned 'er indoors' into an 'alibut all at sea'. Made my life a misery she did. Never again, never again I tell you."

"My boy, Byron told me to get some decent, kosher gear. So I invested in this Olympus, pukah camera. I don't know why they all had such a good laugh down at the Rose & Crown, I only said the man in the shop said that this particular model is virtually idiot-proof. I think they were trying to get my goat. Every photo I've taken since I got this camera has been a real gem, I even lent it to my nephew Nobby for his hols, well, rented it to him on the strict understanding and a few readies in hand, that if he so much as put a dent in the bodywork, I would send Byron round to sort him out. Where was I? Oh yes, the photos he took of the place he stayed at, they came out brilliant. Where was it Nobby went? That funny sounding place... That's it! Pratts Bottom. But judge not lest ye be, as the good book says. I'm sure that Pratts Bottom had a great deal to offer Knobby, he often sniles about it."

"You mark my words, these Olympus cameras could catch on. They've got more gadgets than James Bond, yet so simple to use. I was thinking of putting a nice little earner Byrons way. It occurred to me that a link-up with the local vicar could bring in a fair few readies. I could send Byron out with my camera to all these weddings, I remember how much it cost me when ours got spiced, not that I begrudge it mind, on the contrary, it made the misses very happy indeed. Anyway I could charge the going rate, but give the vicar a few bob to give us a nod in the right direction of the soon to be happily married couple, looking for a photographer. They say that 'he' moves in mysterious ways, well, so does Byron I tell you, right blew his top didn't he. Used all these big words he did, called it sacrificial or was it sacriligious? Get off your high horse said I. I was married by a vicar too you know, just ask the misses, she remembers it all."

"Anyway I've enjoyed our little chat, I bet you wish you had an Olympus don't you? Tell you what, why don't you pop around to my local. No! On second thoughts, PC Uncorruptable is haunting me again. I know, pop along to your local Maplin Electronics shop, they've got a whole load of Olympus cameras, and they are giving away free gift packs with each camera sold. Why any one in business should give anything away free beats me. Still, as I'm always telling the misses, you've got to speculate to accumulate, but that doesn't mean going out willy-nilly with the readies. No, you've got to get the best deal you can, and if you pop along to Maplin they'll see you alright. Got to dash, I'm meeting Mechanical Mike, reckons he's got a nice little earner for me."

OLYMPUS

# PCB connectors

## 0.1in Series (2.54mm)

A range of connectors for PCB mounting that allow circuit boards to be plugged together at right angles or end-to-end, or cables to be plugged onto circuit boards at right angles or end-on at the edge of the PCB. Both plugs and sockets may be buffered up end-to-end to form connectors with any number of ways from 2 upwards. Rated: 2.5A, 250V AC.

### Socket Housing



A housing which accepts the PCB terminals and then plugs onto the wafer plug assembly. Solder the wire to the terminal, then push the terminal into the housing until it latches and cannot be withdrawn. Housings are 13.5mm high and 4-8mm thick.

HB59P	PCB Ltch Hsng 2-way	6p
BX97F	PCB Ltch Hsng 3-way	7p
HB58N	PCB Ltch Hsng 4-way	8p
BH66W	PCB Ltch Hsng 5-way	9p
BH65V	PCB Ltch Hsng 6-way	10p
YW23A	PCB Ltch Hsng 8-way	11p
FY94C	PCB Ltch Hsng 10-way	12p
YW24B	PCB Ltch Hsng 12-way	14p
RK69A	PCB Ltch Hsng 17-way	18p

### PCB Terminal



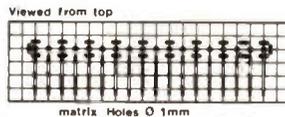
Tin-plated phosphor bronze terminals for use with the PCB Latch Housings. Designed for solder or crimp connections. Supplied in packs of ten.

YW25C PCB Terminal 24p

## Right-Angled Polarised Locking Plug Assembly

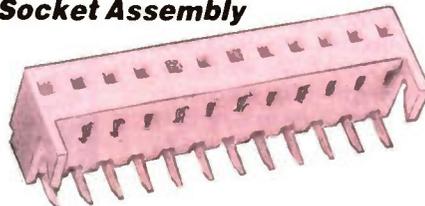


Wafer connector similar to that featured right, but with a right-angled bend in it, enabling one PCB to be connected parallel to another. Available in 10 way only.

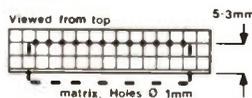


RK68Y RA Lch PCB 10W 52p

## Right-Angled Socket Assembly



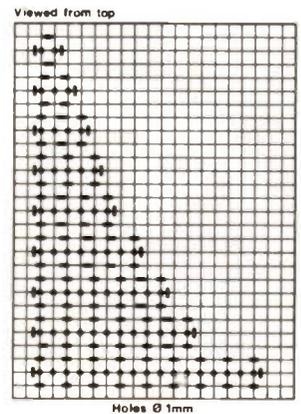
Housing with printed circuit type tin-plated phosphor bronze terminals pre-assembled with pins at right-angles to the housings for direct PCB mounting. Thus boards with straight plugs may be connected at right-angles and boards with right-angle non-locking plugs may be connected end to end. Housing is 7.9mm wide 4.7mm high. The housing has a clip which holds it against the edge of the PCB. Pin length: 3.3mm x 1mm dia. holes, which should be drilled 6mm from edge of PCB. Available in 12 way only. Length: 30-38mm.



YW30H PCB Skt 12-way 48p

## Straight Polarised Locking Plug Assembly

A wafer into which square, tinplated brass pins have been inserted. These pins protrude 3.4mm on one side, and these should be soldered flat to the PCB. The nylon wafer sits flat on the PCB and is 3.3mm thick, and the back wafer provides the locking and polarising. The plug pins are 7.5mm long. Wafers are 2.3mm wide, and the pins require a 1mm dia. PCB hole.



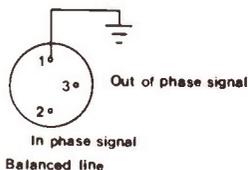
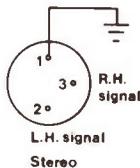
Type	Length (mm)	Type	Length (mm)
2-way	3.5	8-way	19.5
3-way	7.0	10-way	24.5
4-way	9.5	12-way	29.5
5-way	12.0	17-way	42.0
6-way	14.0		

RK65V	PCB Latch PI 2W	18p
BX96E	PCB Latch PI 3W	24p
YW11M	PCB Latch PI 4W	28p
FY93B	PCB Latch PI 5W	34p
YW12N	PCB Latch PI 6W	42p
YW13P	PCB Latch PI 8W	46p
RK66W	PCB Latch PI 10W	52p
YW14Q	PCB Latch PI 12W	56p
BH61R	PCB Latch PI 17W	60p

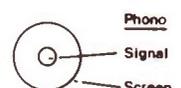
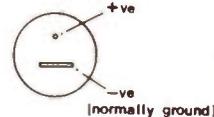
CUT OUT AND KEEP. SO HANDY FOR YOUR TOOLBOX MOUNTED ON CARD.

## AUDIO LEAD CONNECTIONS

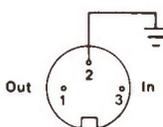
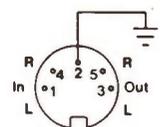
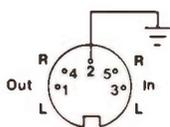
### XLR Cannon



### DIN speaker

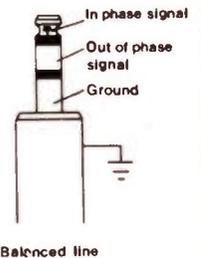
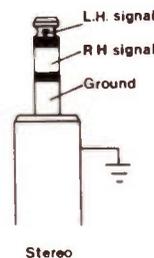
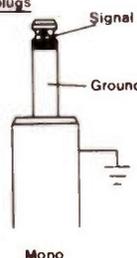


### DIN equipment sockets



N.B. Pin 2 is the screen in each case

### Jack plugs



## Capacitor Markings

Some of the capacitors sold by Maplin are marked using three digits and a letter. The three digits denote the value and the letter indicates the tolerance. The first two digits are the actual value and the third digit indicates the number of zeros that follow the value, and the value is printed in picoFarads. For example a capacitor marked 102 has a value of 10 plus 2 zeros, which is 1000pF (1000pF = 0.001µF). The letter indicates the tolerance as follows: F = ±1%, G = ±2%, H = ±2½%, J = ±5%, K = ±10%, M = ±20%.

## Sub-Miniature Radial Electrolytics

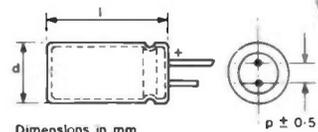
A range of sub-miniature capacitors offering size, tolerance and leakage current similar to tantalum bead. Designed for direct mounting on PCB's.

Tolerance: ±20%  
Temperature range: -40°C to +85°C

Cap (µF)	Working Voltage (DC)	Case Size l(max)	d(max)	p	Leakage Current (µA max)	Power Factor (max)	Ripple current (mA max) at 120Hz 85°C
0.1	63	7	4	1.5	3.1	0.1	1
0.47	63	7	4	1.5	3.3	0.1	6
1	63	7	4	1.5	3.6	0.1	13
2.2	63	7	4	1.5	4.4	0.1	21
4.7	35	7	4	1.5	4.6	0.12	24
4.7	63	7	5	2	6	0.1	33
10	16	7	4	1.5	4.6	0.16	29
10	35	7	5	2	6.5	0.12	36
10	50	7	6.3	2.5	8	0.1	44
22	16	7	5	2	6.5	0.16	44
22	35	7	6.3	2.5	10.7	0.12	57
47	16	7	6.3	2.5	10.5	0.16	68
100	10	7	6.3	2.5	13	0.2	80
100	16	9	8	3.5	19	0.16	90
220	10	9	8	3.5	25	0.2	110

YY29G	Minelect 0.1µF 63V	12p
YY30H	Minelect 0.47µF 63V	12p
YY31J	Minelect 1µF 63V	12p
YY32K	Minelect 2.2µF 63V	12p
YY33L	Minelect 4.7µF 35V	12p
RA53H	Minelect 4.7µF 63V	12p
YY34M	Minelect 10µF 16V	12p
JL05F	Minelect 10µF 35V	12p
YY35Q	Minelect 10µF 50V	12p
YY36P	Minelect 22µF 16V	12p
RA54J	Minelect 22µF 35V	12p
YY37S	Minelect 47µF 16V	12p
RK50E	Minelect 100µF 10V	12p
RA55K	Minelect 100µF 16V	12p
JL06G	Minelect 220µF 10V	12p

## Radial Electrolytics



Dimensions in mm

A range of small electrolytic capacitors designed for direct mounting on PCB's.

Tolerance: ±20%  
(-10+50% for 450V types)  
Temperature range: -40°C to +85°C (-25°C to +85°C for 450V types)

Cap (µF)	Working Voltage (DC)	Case Size l(max)	d(max)	p	Leakage Current (µA max)	Power Factor (max)	Ripple current (mA max) at 120Hz 85°C
0.47	100	11.5	5	2	12	3.9	0.1
1	100	11.5	5	2	18	5	0.1
1	450	16	10	5	18	37	0.24
2.2	100	11.5	5	2	27	7.4	0.1
4.7	63	11.5	5	2	40	8.9	0.1
4.7	100	11.5	5	2	42	12.4	0.1
4.7	450	22	13	5	42	137	0.24
10	50	11.5	5	2	54	13	0.1
10	63	11.5	6	2.5	58	15.6	0.1
10	100	11.5	8	3.5	69	23	0.1
10	450	31	13	5	69	280	0.24
22	25	11.5	5	2	69	14	0.15
22	50	11.5	6	2.5	81	25	0.15

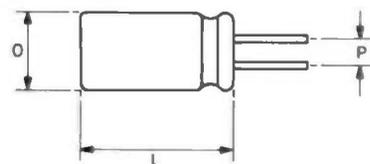
# Capacitors

Cap (µF)	Working Voltage (DC)	Case Size l(max)	d(max)	p	Leakage Current (µA max)	Power Factor (max)	Ripple current (mA max) at 120Hz 85°C
22	63	11.5	8	3.5	98	30.7	0.1
22	100	14.5	8	3.5	120	47	0.1
33	35	11.5	6	2.5	91	26.1	0.12
33	63	12.5	8	3.5	120	44.6	0.1
47	25	11.5	6	2.5	100	26.5	0.15
47	50	11.5	8	3.5	140	50	0.1
47	63	12.5	10	5	170	62.2	0.1
47	100	21	10	5	230	97	0.1
47	450	40	22	12.5	240	1279	0.24
100	10	11.5	6	2.5	130	23	0.2
100	25	11.5	8	3.5	170	53	0.15
100	35	14.5	8	3.5	210	73	0.12
100	63	18	10	5	280	129	0.1
100	100	21.5	13	5	400	203	0.1
100	450	51	25	12.5	500	2710	0.24
220	16	11.5	8	3.5	270	73.4	0.17
220	35	18	10	5	370	157	0.12
220	63	21.5	12	5	490	280	0.1
220	100	25	16	7.5	710	443	0.1
330	50	21.5	12	5	580	333	0.1
470	16	16	10	5	450	153	0.17
470	35	21.5	12	5	640	332	0.12
470	63	25	16	7.5	880	595	0.1
470	100	38	18	7.5	1100	943	0.1
1000	16	18.5	12	5	790	323	0.17
1000	35	25	16	7.5	1100	703	0.12
1000	63	38	16	7.5	1530	1263	0.1
1000	100	40	25	12.5	1750	2003	0.1
2200	16	25	16	7.5	1340	707	0.2
2200	35	34	18	7.5	1810	1543	0.15
2200	63	43.5	22	12.5	2350	2775	0.13
4700	16	38	16	7.5	2100	1507	0.25
4700	35	43.5	22	12.5	2600	3293	0.2
10,000	16	43.5	22	12.5	2800	3203	0.35

FF00A	PC Elect 0.47µF 100V	8p
FF01B	PC Elect 1µF 100V	8p
JL07H	PC Elect 1µF 450V	32p
FF02C	PC Elect 2.2µF 100V	8p
FF03D	PC Elect 4.7µF 63V	8p
JL08J	PC Elect 4.7µF 100V	10p
JL09K	PC Elect 4.7µF 450V	42p
FF04E	PC Elect 10µF 50V	8p
JL10L	PC Elect 10µF 63V	10p
FF05F	PC Elect 10µF 100V	12p
JL11M	PC Elect 10µF 450V	56p
FF06G	PC Elect 22µF 25V	8p
JL12N	PC Elect 22µF 50V	12p
FF07H	PC Elect 22µF 63V	12p
JL13P	PC Elect 22µF 100V	14p
JL14Q	PC Elect 33µF 35V	8p
JL15R	PC Elect 33µF 63V	12p
FF08J	PC Elect 47µF 25V	10p
JL16S	PC Elect 47µF 50V	14p
FF09K	PC Elect 47µF 63V	14p
JL17T	PC Elect 47µF 100V	28p
JL18U	PC Elect 47µF 450V	£1.20
FF10L	PC Elect 100µF 10V	8p
FF11M	PC Elect 100µF 25V	12p
JL19V	PC Elect 100µF 35V	14p
FF12N	PC Elect 100µF 63V	20p
FD15R	PC Elect 100µF 100V	36p
JL21X	PC Elect 100µF 450V	£1.98
FF13P	PC Elect 220µF 16V	12p
JL22Y	PC Elect 220µF 35V	18p
FF14Q	PC Elect 220µF 63V	36p
JL23A	PC Elect 220µF 100V	52p
JL24B	PC Elect 330µF 50V	38p
FF15R	PC Elect 470µF 16V	20p
FF16S	PC Elect 470µF 35V	28p
FF59P	PC Elect 470µF 63V	56p
JL25C	PC Elect 470µF 100V	98p
FF17T	PC Elect 1000µF 16V	24p
FF18U	PC Elect 1000µF 35V	48p
JL26D	PC Elect 1000µF 63V	75p
JL27E	PC Elect 1000µF 100V	£1.75
FF60Q	PC Elect 2200µF 16V	48p
JL28F	PC Elect 2200µF 35V	£1.16
JL29G	PC Elect 2200µF 63V	£1.36
FM83E	PC Elect 4700µF 16V	98p
JL30H	PC Elect 4700µF 35V	£1.80
JL31J	PC Elect 10000µF 16V	£1.56

## High Frequency Electrolytics

Radial lead electrolytic capacitors having very low impedances at high frequencies, designed primarily for use in switch mode power supplies, but suitable for use in many applications where a high grade capacitor is required.



Tolerance: ±20%  
Temperature range: -55°C to +105°C  
Leakage current: 0.02CV  
Power factor: <0.08 (0.1 for 1000µF types)

Cap (µF)	Working Voltage (DC)	Case Size l(max)	d(max)	p	Ripple current (mA max) at 120Hz 85°C	ESR max (mΩ) at 20°C 120Hz	Impedance (mΩ) at 1kHz
47	50	11	10	5			
47	100	25	13	5			
100	50	20	10	5			
100	100	25	16	8			
220	50	25	13	5			
220	100	32	16	8			
470	50	32	16	8			
470	100	35	18	8			
1000	16	32	13	5			
1000	25	32	16	8			
1000	50	32	18	8			
47	50	0.5A			2000	1000	
47	100	1.75A			880	600	
100	50	0.9A			760	550	
100	100	2.44A			500	400	
220	50	1.75A			400	300	
220	100	3.3A			250	190	
470	50	3.3A			120	80	
470	100	4.2A			100	70	
1000	16	2.44A			120	80	
1000	25	3.3A			150	90	
1000	50	4.5A			80	60	
JL47B	SMPS Cap 47µF 50V						24p
JL48C	SMPS Cap 47µF 100V						38p
JL49D	SMPS Cap 100µF 50V						32p
JL50E	SMPS Cap 100µF 100V						52p
JL51F	SMPS Cap 220µF 50V						42p
JL52G	SMPS Cap 220µF 100V						68p
JL53H	SMPS Cap 470µF 50V						68p
JL54J	SMPS Cap 470µF 100V						£1.36
JL55K	SMPS Cap 1000µF 16V						48p
JL56L	SMPS Cap 1000µF 25V						60p
JL57M	SMPS Cap 1000µF 50V						98p

## Choosing an Electrolytic to Suit Your Needs

Since all electrolytic capacitors have a wide tolerance, one of the capacitors here will suffice in most cases where an electrolytic is specified. Choose the nearest value to the one specified, and the nearest voltage equal to or above the one specified, e.g. 50µF at 50V specified, nearest value 47µF; and 100V is the nearest voltage above. Thus a 47µF at 100V will perform exactly the same job as a 50µF at 50V in almost all applications, provided its physical size is not too large.

# Telephone accessories

## Secondary Line Jacks

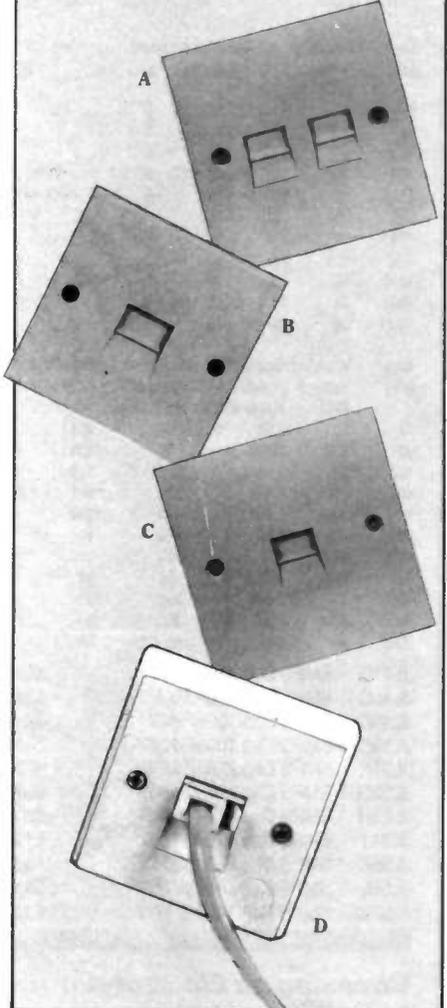
A range of flush fitting and surface mounting Secondary Line Jack Units are featured below:

A) Twin Flush 5/6A: A flush mounting Secondary Jack Unit having two commoned outlets, for use where two appliances may need to share one socket, e.g. telephone and answering machine, modem etc. Size 84 x 84mm. FT47B Twin Second Jk 5/6A £3.95.

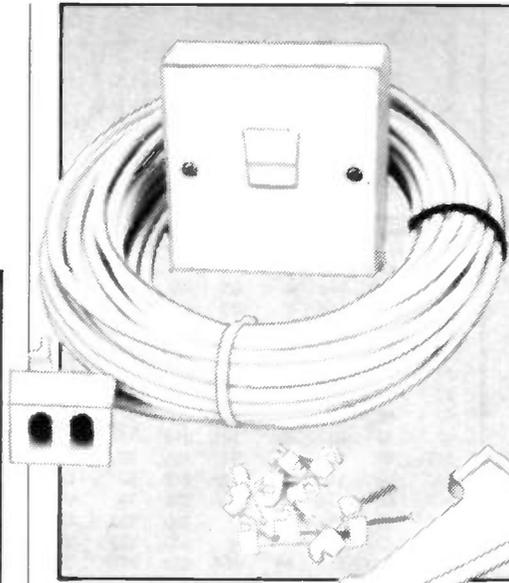
B) Flush 3/6A: Standard BT type Secondary Line Jack for flush wall mounting. Size 84 x 84mm. FJ34M Flush Sec LJck 3/6A £2.25.

C) Surface Mounting 2/6A: A wall mounted Secondary Line Jack Unit for extension telephones. Size 67 x 67 x 29mm deep. FG28F Line Jack Unit 2/6A £2.25.

D) Small Surface Mounting 1/6A: A Secondary Jack Unit. Size 54 x 54 x 29mm deep. FT50E Sfce Sec Jk 1/6A £2.95.



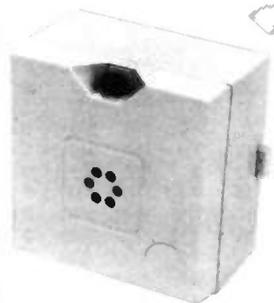
**APPROVED** for connection to telecommunications systems specified in the instructions for use subject to the conditions set out in them.



## Extension Kit

A complete kit containing everything you need to provide an outlet for a second (or subsequent) telephone extension. The kit simply plugs into an existing socket and provides a new socket at that point for the existing telephone to plug back into. 15m of cable is pre-connected to this plug and a pack of 45 (approx.) cable clips are provided. The cable is connected to the extension socket included in the kit using the special tool supplied. Full instructions are supplied with the kit. This is approved for private DIY installation (provided that BT, Mercury or Hull have installed a master socket of the type shown in the Maplin catalogue).

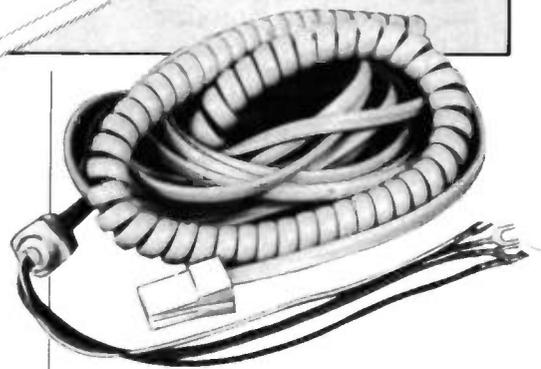
YT54J 15m Extension Kit £7.95



## Plug-In Ringer

A self contained unit which can be plugged into a Line Jack unit, having its own plug extension at rear. The ringer will give an audible alarm of an incoming call being received. In addition visual indication is provided by a red LED.

FV96E Telephone Ringer £5.95

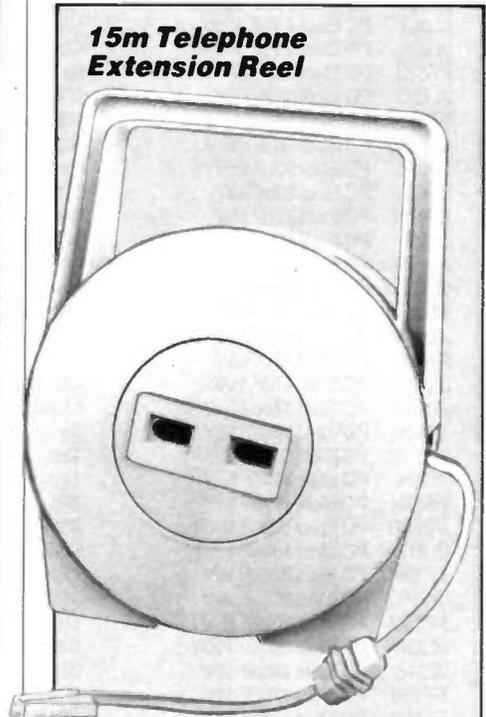


## Coiled 5m Line Cord

A 5m long Line Cord, having a Line Plug at one end and spade terminals at the other. The cord is coiled near the plug end; the coiled section extending to about 1.2m from 33cm. The cord has a grommet at the spade end which fits Trimphones. Wire colours are red, blue, green and white.

FP09K Trimphone Cord 5m £3.95

## 15m Telephone Extension Reel



A handy extension lead in a white moulded case with carrying handle. Cable can be simply pulled out and then wound back in using the rotary handle for easy stowage. The unit provides two sockets, so that it can be used as an extension cable for a telephone and answering machine or other accessory. Ideal for use in the garden, garage, workshop etc.

YT51F 15m Phone Ext RI £8.95

## Standard 4-Way and 6-Way Line Plugs 431A and 631A

Standard BT type 4-way and 6-way Line Plugs using Insulation Piercing Contacts (IPC), with strain relief. To fit flat line cord to an IPC plug, simply provide a clean cut across the end, and strip off 11 to 12mm of the outer sheath. Allow the wires to separate from one another by approximately 1mm, then push and tease them gently into the plug, which has locating guides built in for each conductor.

Once fully home (the coloured wires can be seen through the slot behind the contacts) use heavy duty pliers or a small vice to press all the gold coloured contacts flush with the plug body; push down the small strain relief members immediately behind the contacts, then force down the cable clamp at rear.

FJ33L Line Plug 4-Way 431A 48p  
 FT52G BT Plug 6-Way 631A 58p

## Dual Output Adaptor

An adaptor that can be plugged into any BT Line Jack unit to convert it to a dual outlet for 4-way or 6-way line plugs.



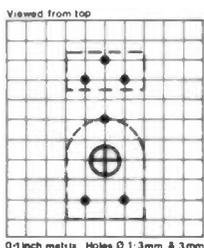
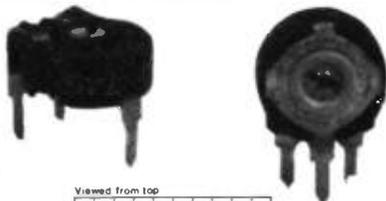
FJ30H Dual Adaptor £3.95

# Resistor

## Addenda

### PRESETS

#### Sub-Miniature Fully Enclosed Carbon Presets



0.1 inch matrix. Holes 0.1-3mm & 3mm

A new range of sub-miniature horizontal and vertical mounting linear track presets fully enclosed in a flame retardant plastic housing. The insulated slider can be adjusted from either side by tool with blade 1 to 2.3mm wide. Power rating 0.15W at 40°C. Tolerance  $\pm 20\%$  ( $\pm 30\%$  2.2M $\Omega$  and 4.7M $\Omega$ ). Enclosure is dust and splash proof. Dimensions 10 x 10.3 x 4.5mm.

Vertical type fits flush to PCB (12.1mm overall height from PCB), horizontal type sits 1.5mm proud of PCB (6mm overall height from PCB). Pins require 1.3mm dia. PCB holes. Pin length 4.5mm.

The following values are available in horizontal types:

100 $\Omega$ , 220 $\Omega$ , 470 $\Omega$ , 1k, 2k, 4k7, 10k, 22k, 47k, 100k, 220k, 470k, 1M, 2M2, 4M7.

UF97F	Hor Encl Preset 100R	16p
UF98G	Hor Encl Preset 220R	16p
UF99H	Hor Encl Preset 470R	16p
UH00A	Hor Encl Preset 1k	16p
UH01B	Hor Encl Preset 2k2	16p
UH02C	Hor Encl Preset 4k7	16p
UH03D	Hor Encl Preset 10k	16p
UH04E	Hor Encl Preset 22k	16p
UH05F	Hor Encl Preset 47k	16p
UH06G	Hor Encl Preset 100k	16p
UH07H	Hor Encl Preset 220k	16p
UH08J	Hor Encl Preset 470k	16p
UH09K	Hor Encl Preset 1M	16p
UH10L	Hor Encl Preset 2M2	16p
UH11M	Hor Encl Preset 4M7	16p

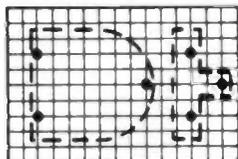
The following values are available in vertical types:

470 $\Omega$ , 1k, 2k2, 4k7, 10k, 22k, 47k, 100k, 220k, 470k, and 1M.

UH12N	Vrt Encl Preset 470R	16p
UH13P	Vrt Encl Preset 1k	16p
UH14Q	Vrt Encl Preset 2k2	16p
UH15R	Vrt Encl Preset 4k7	16p
UH16S	Vrt Encl Preset 10k	16p
UH17T	Vrt Encl Preset 22k	16p
UH18U	Vrt Encl Preset 47k	16p
UH19V	Vrt Encl Preset 100k	16p
UH20W	Vrt Encl Preset 220k	16p
UH21X	Vrt Encl Preset 470k	16p
UH22Y	Vrt Encl Preset 1M	16p

### 0.25W Presets

Viewed from Top



0.1 inch matrix

Enclosed type presets with linear carbon tracks rated 0.25W at 40°C. Tolerance  $\pm 20\%$  up to 220k,  $\pm 30\%$  over 220k. Maximum voltage 300V DC. Non-insulated slider operated by screwdriver from either side.

This range is gradually being discontinued as supplies are exhausted.

Available in the following values in vertical type.

100 $\Omega$ , 220 $\Omega$ , 470 $\Omega$ , 1k, 2k2, 220k, 470k, 1M, 2M2, and 4M7.

Horizontal types: 220 $\Omega$  4k7 and 4M7.

#### For Horizontal Types

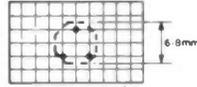
WR79L	Hor 0.25W Preset 220R	20p
WR83E	Hor 0.25W Preset 4k7	20p
WR92A	Hor 0.25W Preset 4M7	20p

#### For Vertical Types

WW00A	Vrt 0.25W Preset 100R	20p
WW01B	Vrt 0.25W Preset 220R	20p
WW02C	Vrt 0.25W Preset 470R	20p
WW03D	Vrt 0.25W Preset 1k	20p
WW04E	Vrt 0.25W Preset 2k2	20p
WW10L	Vrt 0.25W Preset 220k	20p
WW11M	Vrt 0.25W Preset 470k	20p
WW12N	Vrt 0.25W Preset 1M	20p
WW13P	Vrt 0.25W Preset 2M2	20p
WW14Q	Vrt 0.25W Preset 4M7	20p

### Cermet Preset

Viewed from top



0.1 inch matrix. Holes 0.1mm

A miniature horizontal mounting cermet preset featuring high stability and excellent resolution. It has an integral dust cover, fits 0.1in matrix directly, and may be adjusted by a screwdriver from either side. Linear track only. Tolerance:  $\pm 20\%$ . Power rating: 0.3W at 70°C. Maximum voltage: 100V DC or AC. Temperature coefficient:  $\pm 200\text{ppm}/^\circ\text{C}$ . Dimensions 7.8mm diameter, stands 7.4mm high from PCB. Value is marked on case as shown in brackets below.

The following values are available:

100 $\Omega$ (101)	500 $\Omega$ (501)	1k (102)	5k (502)
10k (103)	50k (503)	100k (104)	1M (105)
WR38R	Cermet 100R	28p	
WR39N	Cermet 500R	28p	
WR40T	Cermet 1k	28p	
WR41U	Cermet 5k	28p	
WR42V	Cermet 10k	28p	
WR43W	Cermet 50k	28p	
WR44X	Cermet 100k	28p	
WR45Y	Cermet 1M	28p	

# NICAM HI-FI STEREO SOUND

The Maplin NICAM Tuner System converts the additional digital code present in the TV signal to a high quality stereo soundtrack with quality similar to that of Compact Disc.

This fully working system is based upon the Toshiba NICAM chip set.

Switch on to the sound and hear your favourite programmes in glorious hi-fi stereo.

For further information and a brief history of the NICAM 728 principle, see 'Electronics - The Maplin Magazine' issues 23 and 34.

The 'build-it-yourself' NICAM Tuner System is available in kit form now!

Switch on to Stereo Sound Today!

NICAM COVERAGE  
OF THE U.K. BY THE  
END OF 1990

NICAM  
IT'S  
WHAT  
YOUR  
EARS  
ARE  
MADE  
FOR!



LP19V NICAM Tuner System £139.95

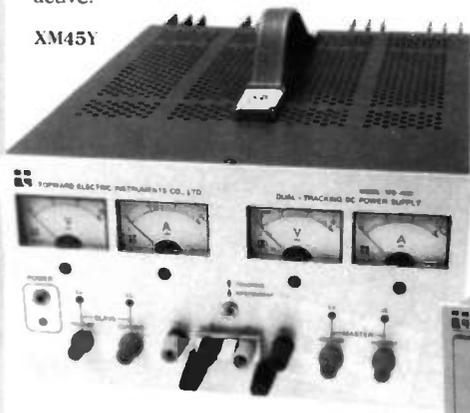
#### Features

- ★ Single +12V power requirement
- ★ Automatic audio switching (Mono-Stereo-Bilingual)
- ★ British Design
- ★ Reverts to FM audio if NICAM is not present
- ★ High Quality Optimum Performance without any additional IC's
- ★ NICAM mode indicators

# More power to your test gear

**B**ench power supplies are an essential part of workshop equipment. In this feature we focus on four professional dual tracking units. Three of the units, XM30H, XM43W and XM45Y, feature two 0-30V DC outputs which can operate either as two entirely independent single ended supplies, or be combined in tracking mode to produce equal dual (+) and (+) supply rails, both continuously variable from one single control, and with a central commoned rail. In this mode the right-hand voltage control is the 'master' for both supplies, the left-hand supply being the 'slave' while 'tracking' mode is active.

XM45Y



XM30H is a Dual Tracking 30V 3A DC Power Supply which can deliver up to 3A maximum in either mode. Separate voltmeters and ammeters are provided for monitoring each output, and each meter allows for an extra 10% of F.S.D. marked on the scale in red. Voltage output for each independent supply is continuously variable over the range with one rotary control. As an aid, two red front panel LED's for each channel signal either 'CV' (constant voltage) or 'CC' (constant current) mode as active.

XM43W is a Digital Dual Tracking 30V 3A DC Power Supply, each mode delivering up to 3A maximum in either mode. This instrument also includes an auto-ranging digital voltmeter (DVM) with front panel LCD display, which can also function as a digital ammeter, for monitoring the voltage or current output, as required according to the position of the front panel V/A selector button, of either supply. Voltage output for each independent supply is

XM43W



continuously variable over the range with one rotary control. Green and red front panel LED's signal either 'CV' or 'CC' mode as active for each channel.

XM45Y is a Dual Tracking 30V 6A DC Power Supply delivering up to 6A DC maximum in either mode. Separate voltmeters and ammeters are provided for monitoring each output, and each meter allows for an extra 10% of F.S.D. marked on the scale in red.

XM47B is a Dual Tracking 60V 3A DC Power Supply featuring two 0-60V DC outputs, which can operate either as two entirely independent single ended supplies or be combined in tracking mode to produce equal dual (+) and (+) supply rails, both continuously variable from one single control, with a central commoned rail. In this mode the right-hand voltage control is the 'master' for both supplies, the left-hand supply being the 'slave' while the 'tracking' switch is up. Each supply can deliver up to 3A maximum in either mode. Separate voltmeters and ammeters are provided for monitoring each output, and each meter allows for an extra 10% of F.S.D. marked on the scale in red.

For the full listing of features available on these instruments, see the Maplin catalogue:

XM30H PSU 30V 3A Dual  £209.95  
 XM43W PSU 30V 3A Dual Dgtl  £239.95  
 XM47B PSU 60V 3A Dual  £309.95  
 XM45Y PSU 30V 6A Dual  £289.95

XM30H



XM47B



**Maplin Bench Power Supplies... More Power to your Test Gear!!**

## Digital Thermometers

### SMALL TEMPERATURE MODULES

#### Internal Type

Compact and highly accurate temperature module ideal for use in applications where ambient air temperature sensing is required.

- ★ 11mm High Digital Temperature Display
- ★ Temperature Range  $-5^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- ★  $0.1^{\circ}\text{C}$  Temperature Resolution
- ★ Low Current Consumption
- ★ High and Low Temperature Alarm
- ★ Internal Temperature Sensor

YU06G Small Temp Mod Int £7.95

#### External Type

Just as compact and highly accurate as Internal Type but with an external probe, so that temperatures in the range  $-40^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  can be measured. The temperature of the module itself should not fall below  $-5^{\circ}\text{C}$  when operating. The external probe is pre-connected with 3m of cable.

YU07H Small Temp Mod Ext £8.95



### DIGITAL BATH THERMOMETER

A temperature module with digital LCD display and external probe. The probe is coupled to the module with a 900mm long lead. Splash proof and protected against high humidity or steamy atmosphere. Runs on one silver oxide button cell type A76.

JL93B Bath Thermometer £9.95



# TOOL TALES...

...Once upon a time in a workshop long ago...

**Y**es, they had been sharp and pristine once, a long time ago when you first bought them. Now they sit worn out, gunged-up, blunt! Has it occurred to you that perhaps the time has come to replace your old tools with a new generation? You don't even have to throw your old tools out, just retire them gracefully. Have you thought about replacing that old worn-out hacksaw or the old socket set, most of its sockets are missing anyway, or how about your junior hacksaw. Quite frankly they've all seen better days haven't they? As you can see, pictured above is a new generation of socket sets, hacksaws and hacksaw blades (the new blades alone could revitalise an old hacksaw anytime).

## A closer inspection

YM32K is a 39-piece socket set (plus case) forged in steel, chromed in vana-

dium. The set has both  $\frac{1}{4}$ in and  $\frac{3}{8}$ in drives and a  $\frac{3}{8}$ in to  $\frac{1}{4}$ in adaptor. The set contains 18 metric sockets, nine being  $\frac{1}{4}$ in drive 6 point in the sizes 4.5, 5, 6, 7, 8, 9, 10, 11 and 12mm, and nine being  $\frac{3}{8}$ in drive 12 point in the sizes 9, 10, 11, 12, 13, 14, 16, 17 and 19mm. There are 16 AF sockets, nine being  $\frac{1}{4}$ in drive 6 point in the sizes  $\frac{3}{16}$ ,  $\frac{7}{32}$ ,  $\frac{1}{4}$ ,  $\frac{9}{32}$ ,  $\frac{5}{16}$ ,  $\frac{11}{32}$ ,  $\frac{3}{8}$ ,  $\frac{7}{16}$  and  $\frac{1}{2}$ in, and seven being  $\frac{3}{8}$ in drive 12 point in the sizes  $\frac{3}{8}$ ,  $\frac{7}{16}$ ,  $\frac{1}{2}$ ,  $\frac{9}{16}$ ,  $\frac{5}{8}$ ,  $\frac{11}{16}$  and  $\frac{3}{4}$ in. In addition the set contains one reversing ratchet handle, one spark plug socket, one spinner handle, one  $\frac{3}{8}$ in to  $\frac{1}{4}$ in adaptor and one extension bar. Supplied in a metal case 320 x 164 x 37mm with carrying handle. Overall weight 1.85kg. YM32K 39-Piece Socket Set  $\text{\pounds}19.95$ .

YM33L is the bigger brother of the set above containing 52 pieces, including hex

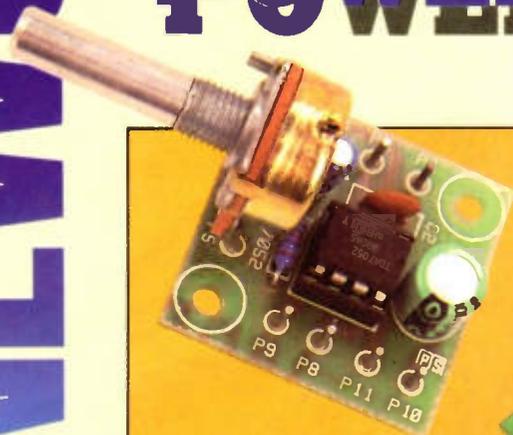
bits, hex coupler, magnetic ratchet driver, and three extension bars etc. YM33L 52-Piece Socket Set  $\text{\pounds}39.95$ .

BR63T is a junior hacksaw with a steel frame and 6in pinned tungsten steel blade. Packs of ten replacement blades are also available. BR63T 6in Hacksaw  $\text{\pounds}1.06$ . BR64U 6in Hacksaw Blades  $\text{\pounds}1.06$ .

YT12N is a full sized standard hacksaw with a tubular chromed frame adjustable to suit 200mm, 250mm or 300mm blades. The strong metal handle is finished in hammertone blue. Supplied with one blade 250mm x 24 teeth per inch. YT12N Hacksaw  $\text{\pounds}2.95$ . Spare Blades in packs of 6 for the Standard Hacksaw are also available. JG71N 10in Hacksaw Blades  $\text{\pounds}1.20$ .

**BUY ONE OR COLLECT THE SET**

# POWER AMPLIFIERS



## TDA 7052 1W Power Amplifier

- ★ Low Component Count
- ★ Low Power Consumption
- ★ Short Circuit Protection
- ★ No External Heatsink Required

An application circuit using the TDA7052 1W mono power amplifier IC, and ideal for use in low power applications such as portable battery powered equipment, because it requires very little in the way of external components to function.

This is entirely a general purpose module and will find uses where simple but effective audio power amplification is needed. Typical uses for the module could include low power audio amplification for portable radios, cassette recorders/players, toys, games, intercoms, and related devices; the high gain capability of the circuit makes it ideal for use in intercoms and baby alarms, where the module may be used to amplify signals from a microphone direct with very little preamplification to a suitable level to drive a loudspeaker directly. Provision for a volume control can be made directly on the board.

### Specification

Power supply range: 3 to 15V DC  
 Supply current: 4mA quiescent @ 6V  
 340mA max. @ 6V for 1W into 8Ω  
 Distortion: 0.7% THD @ 1kHz & 0.1W  
 Output power: 1Wrms max. @ 6V  
 Voltage gain: 39dB  
 Size: 32 x 32mm

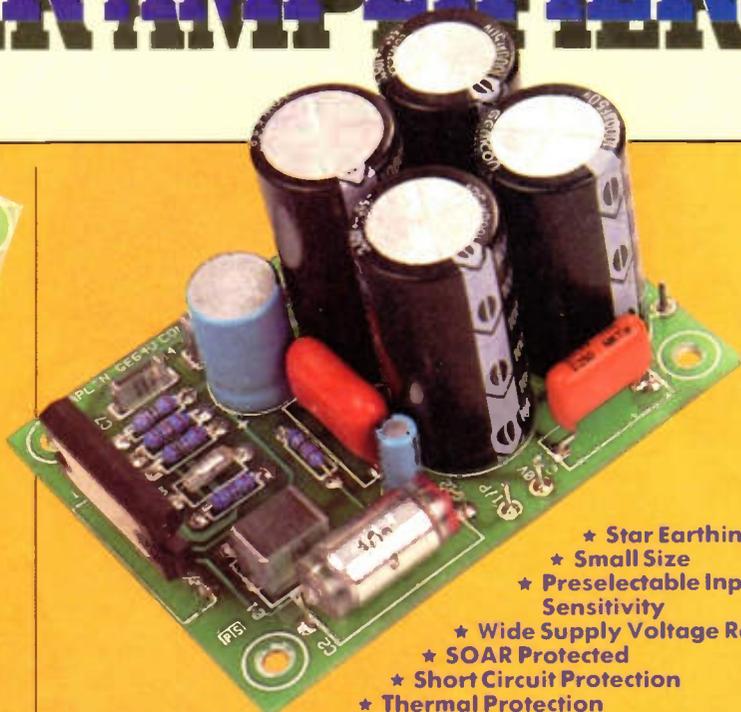
### Kit & PCB

A complete kit of parts is available. The PCB is also available separately.

LP16S	TDA7052 Kit	£3.95
GE41U	TDA7052 PCB	£1.80

**OVER 60 PAGES OF PROJECTS AND MODULES**

In the new 1991 Maplin catalogue available from WHSMITH, and Maplin shops £2.45 or mail order CA08J £2.95



## TDA1514A 50W Power Amplifier

The TDA1514A power amplifier is a high quality IC based power amplifier combining small size with high power output. The IC features protection against AC and DC short circuits when used with symmetrical supplies. The IC also includes an output mute circuit preventing 'clicks' and 'thumps' during switch on and switch off, thus eliminating the possibility of damage to delicate speakers. The amplifier is protected against thermal runaway and includes SOAR protection making the device almost indestructible. The IC has a wide supply range, the minimum requirements being ±9V to a maximum of ±30V. To deliver an output power of 50 watts the module requires a ±27.5V supply for an 8Ω load and a ±23V for a 4Ω load.

### Specification

Supply voltage range: ±9V to ±30V DC  
 Input sensitivity: 300mV to 12V (adjustable)  
 Output impedance: 0-1Ω

- ★ Star Earthing
- ★ Small Size
- ★ Preselectable Input Sensitivity
- ★ Wide Supply Voltage Range
- ★ SOAR Protected
- ★ Short Circuit Protection
- ★ Thermal Protection

Power output: (Vs = ±27.5V)  
 8Ω 40WRMS  
 4Ω 60WRMS  
 HD at -3dB of full output: 0.1%  
 Full power bandwidth (-3dB): 20Hz to 25kHz  
 Signal to noise ratio: 82dB  
 Peak output current: 6.4A  
 Quiescent current: 60mA  
 Supply ripple rejection: (100Hz) 72dB  
 Slew rate: 10V/μs

### Optional Items

The following optional items are not included in the kit but may also be required. (See Maplin catalogue).

Heatsink 2E	1	HQ70M
Insulator TO218	1	UL74R

### Kit

A complete kit of parts is available.  
 LP43W TDA1514 Power Amp £15.95

### Printed Circuit Board

The high quality fibreglass PCB is also available separately. Size: 57 x 76mm.  
 GE64U TDA1514 Amp PCB £4.95

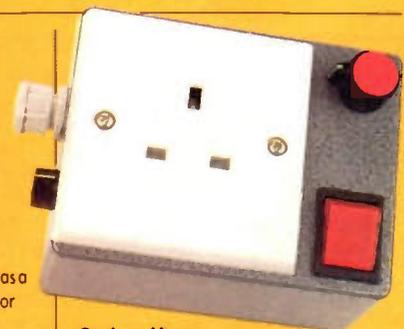
## 1.2kW Power Controller

- ★ Lighting
- ★ Power Tools
- ★ Soldering Iron Temperature

This versatile power controller is suitable for use as a lamp dimmer, power tool speed controller (not for use with 'electronic control' power tools) or for varying the temperature of a mains powered soldering iron. It can handle loads of up to 1.2kW which is more than sufficient for most normal domestic applications. The controller is easy and convenient to use, simply plug the appliance into the controller, plug the controller into a mains socket, switch on and set the required power level.

### Specification

Input Voltage: 240V AC  
 Maximum Output Current: 5A  
 Maximum Output Power: 1.2kWatt



### Optional Items

The following optional items are not included in the kit but may also be required. (See Maplin catalogue).

Rubber 13A Plug	1	HL58N
Plug Fuse 5A	1	HQ33L

### Kit, PCB and Front Panel

A complete kit of parts is available. The PCB and front panel are also available separately.

LP41U	1.2kW Power Cntrlr	£20.95
GE62S	1.2kW Pwr Cntrlr PCB	£2.45
JU35Q	1.2kW Cntrlr Panel	£1.20

# Breezeze AIR IONISER

- ★ Safety Tested
- ★ Simple Construction
- ★ Minimal Wiring
- ★ Built-in Ion Charge Flow Indicator

In today's home environment an imbalance of ions will occur where electronic equipment is being used or synthetic materials are present. The ubiquitous television set uses a very high positive charge to produce a television picture and positive ions are liberated at the same time. Negative ions, on the other hand, are generated naturally by the action of the sun's rays, wind, rain and lightning. However, they have a very brief life in the presence of synthetic materials and air pollutants. To restore this ion imbalance negative ions can be electronically generated by the 'Breezeze' air ioniser.



'Breezeze' has been thoroughly tested in professional laboratory conditions to ensure that it is perfectly safe to use in the domestic environment, according to the guidelines pertaining to the amounts of various chemicals that can be present in the atmosphere without known detriment to health, as issued by the Health and Safety Executive. When ions are generated, ozone is also produced and in certain conditions oxides of nitrogen also. Providing the 'Breezeze' ioniser is constructed as per instructions and there are no modifications or changes to the original design, then no oxides of nitrogen will be produced and the small amount of ozone produced will be of no consequence and will be further reduced through normal room ventilation. 'Breezeze' will be safe to use continuously without large concentrations of ozone developing.

Although very straightforward in principle, the ioniser generates a very high internal voltage and construction and testing is not recommended for an absolute beginner. Furthermore, the project must only be housed in the recommended case, must not be used in a damp or steamy environment, and should be out of reach of young children and animals. The 'Breezeze' ioniser requires an external 12V DC supply to operate. A suitable power supply to operate the ioniser is the 300mA unregulated AC adaptor XX09K.

### Printed Circuit Boards

The main PCB and detector plate are available separately.

GE16S	Ioniser PCB	£5.25
GE30H	Ioniser Pick-Up Bd	98p

### Needle Pack

A set of ion emitter needles (a spare set may be required after prolonged usage).

JR56L	Needle Pack	60p
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### Front and Rear Panels

Plastic front and rear panels specifically to convert the case used by the 'Breezeze' ioniser (Verobox 201).

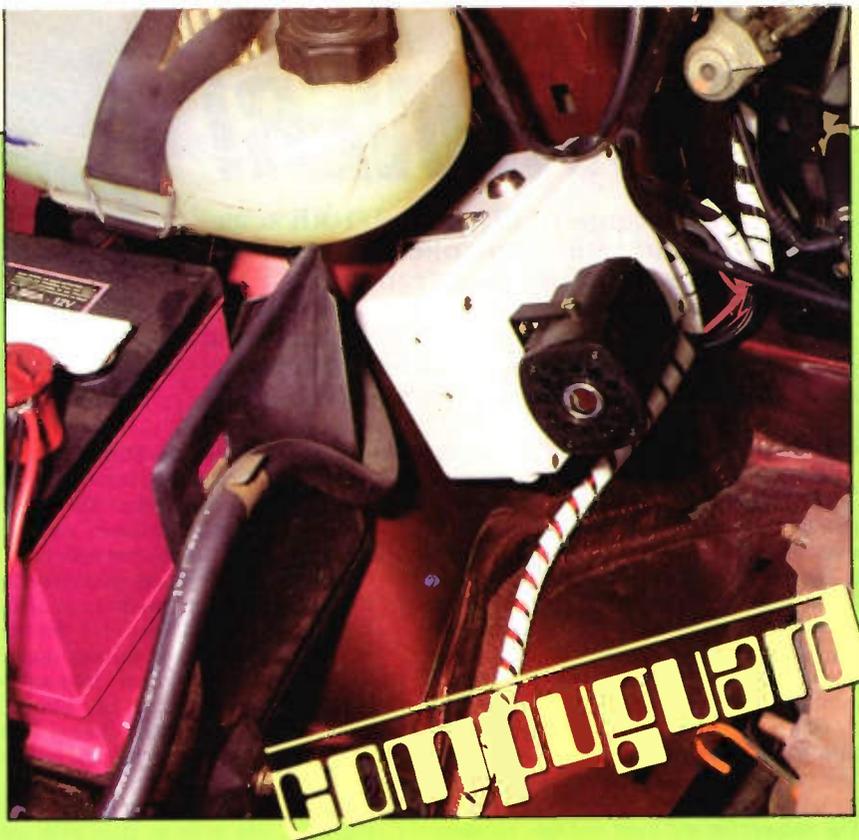
JR57M	Breezeze Ioniser FP	£2.98
JR58N	Breezeze Ioniser BP	£2.98

### Kit

A complete kit of all parts (excluding PSU) to build the 'Breezeze' air ioniser including ionising needles, all-plastic case and hook-up wire.

LM97F	Ioniser Kit	£32.95
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**FOR A FRIENDLY  
WELCOME & THE BEST  
OF SERVICE VISIT YOUR  
LOCAL MAPLIN SHOP**



- ★ Fully Programmable
- ★ Low Power Consumption
- ★ Optional Battery Backup
- ★ Suitable For All Negative Earth Vehicles
- ★ Microprocessor Controlled
- ★ Controls Central Locking and Electric Windows and Sunroof

In Britain a car is stolen every 30 seconds! Compuguard is a microprocessor controlled programmable semi-intelligent vehicle alarm that aims to make a thief's time as difficult as possible by constantly monitoring and modifying its outlook on the security of the vehicle!

Compuguard comes in three kits:

### Compuguard Main Unit

This houses a microcontroller, optional battery backup, shock and voltage drop sensors, control relays and service keyswitch. The unit is impregnable to water and is to be mounted in the engine compartment.

### Kit

A complete kit of parts is available.

LP22Y	Compuguard Main Unit	£64.95
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### Printed Circuit Board

The high quality fibreglass PCB is also available separately.

GE46A	Compuguard Main PCB	£11.95
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### Mounting Bracket

An aluminium mounting bracket for attaching the Compuguard Main Unit to the car body.

JR77J	Compuguard Bracket	£3.95
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### Pre-Programmed Microcontroller

A TMS77C82 microcontroller pre-programmed with the Compuguard car alarm software.

UL63T	TMS77C82 MS01A	£16.95
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### Optional Items

The following optional items are not included in the kit but may also be required. (See Maplin catalogue).

Re-Chargeable Type AA Battery	6	YG00A
9V Battery Holder	1	HQ01B
PP3 Battery Clip	1	HF28F
Motor-Start Press	1	FH91Y
Additional Quick Snap Connectors	As Req.	JR88V
12V Siren		Various
Power Connection Wire Black	As Req.	XR32K
Power Connection Wire Red	As Req.	XR36P
Self-Topper No8 x 1/2in.	1 Pkt.	BF69A
Spiralwrap 1/8in.	As Req.	BL57M

### Compuguard Infra-red Receiver and Control Unit

This houses the infra-red receiver/decoder and control switches to select the activated sensors. The unit is to be mounted inside the passenger compartment.

### Kit

A complete kit of parts is available.

LP23A	Compuguard IR Rec/Sw	£19.95
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### Printed Circuit Board

The high quality fibreglass PCB is also available separately.

GE56L	Compuguard I/R Rx Bd	£5.45
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### Front Panel

A self-adhesive panel for the infra-red receiver and control unit.

JR73Q	Compuguard IR Panel	£2.95
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### Optional Items

The following optional items are not included in the kit but may also be required. (See Maplin catalogue).

Multi-Core 15-way	As Req.	XR28F
Multi-Core 4-way Screened	As Req.	XR25C
Potting Box Miniature	1	LH56L
Potting Compound 50g	1	FT17T
Quickstick Pods	1	HB22Y

### Compuguard Infra-red Transmitter

This is a small hand-held transmitter that can easily be attached to a key-ring. A recessed tactile switch is provided which selects active, inactive, or 'panic' conditions.

### Kit

A complete kit of parts is available.

LP24B	Compuguard IR Tx	£9.95
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### Printed Circuit Board

The high quality fibreglass PCB is also available separately.

GE57M	Compuguard I/R Tx Bd	£2.25
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### Front Panel

A self adhesive panel for the infra-red transmitter unit.

JR92A	Remote Case Panel	32p
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### Box

A keyring box for housing the infra-red transmitter unit.

JR90X	Keyring Remote Case	£1.20
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### Optional Item

The following optional item is not included in the kit but may also be required. (See Maplin catalogue).

12V Lighter Battery 23A	1	JG91Y
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# THE WINNER!

A top-of-the-range ready-built 1/10th scale model off-road radio controlled racer. The car is supplied with its own transmitter, receiver and two servos all ready-fitted. Its radio control system is a high quality fully digital 2-channel proportional unit to give complete control over steering and speed.



**T**he car has 4-wheel shaft drive, generally regarded as superior to chain drive, and a powerful improved RS540S motor for incredible power and speed. The motor is mounted centrally in line with the shaft and this coupled with the 4-wheel drive gives the model superb balance and excellent road-holding so that steering and speed control are very accurate and manoeuvrability is maintained even at the highest speeds.

Other features include differentials on both axles, independent suspension on all four wheels with double wishbones to grip the surface and a very strong front bumper. The suspension and front and side bumpers are manufactured in a tough nylon, which is extremely strong yet flexible enough to soak up the bumps. The frame and chassis are of monocoque design.

The radio control transmitter has two auto-centring sticks for forward and reverse throttle and left and right steering each with its own trim control. A centre switch turns the transmitter on and off and a red LED lights when the unit is switched on. The telescopic antenna extends to 845mm. Because of the size and speed of

this model it is essential that the transmitter is always switched on before the car, and the car switched off before the transmitter.

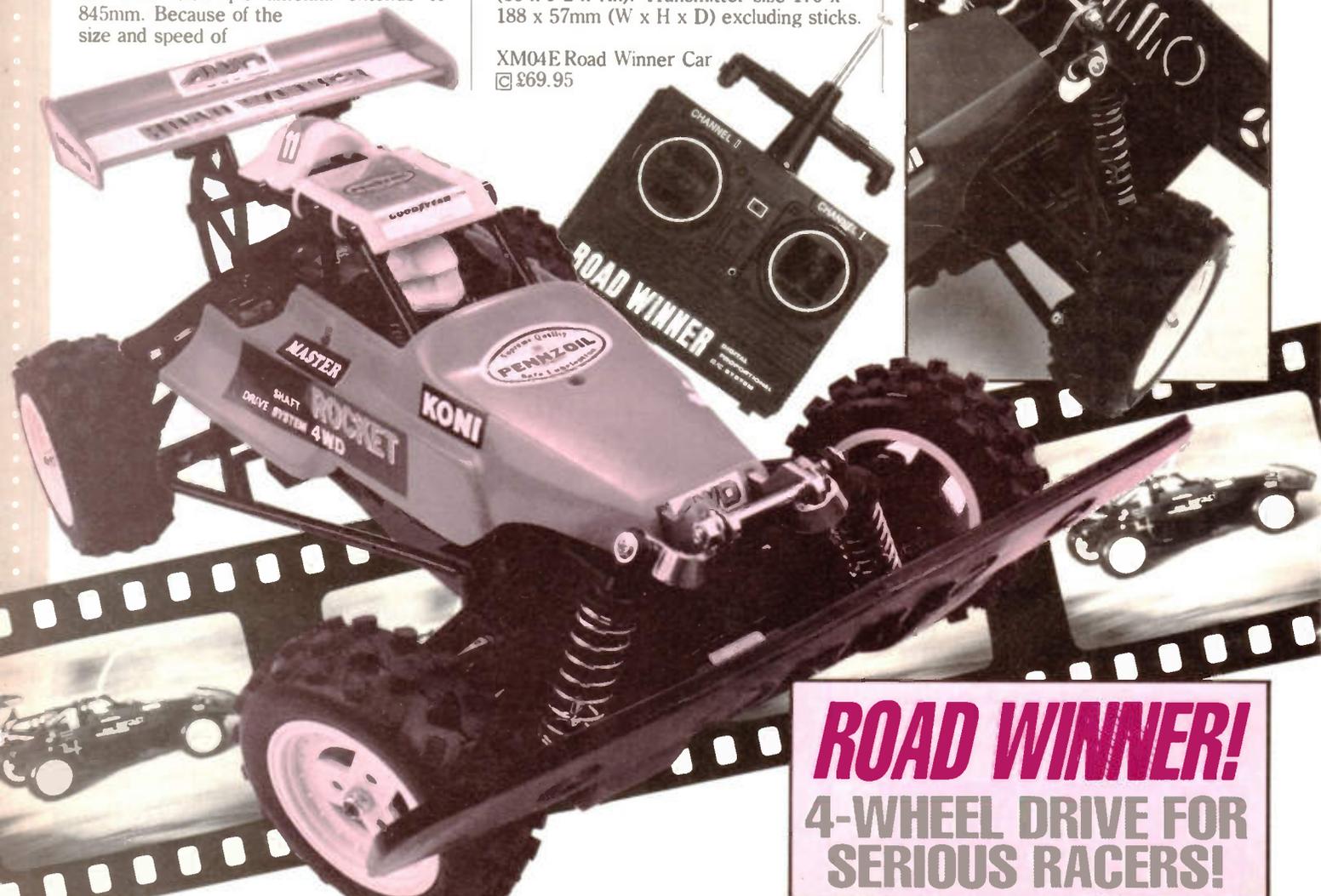
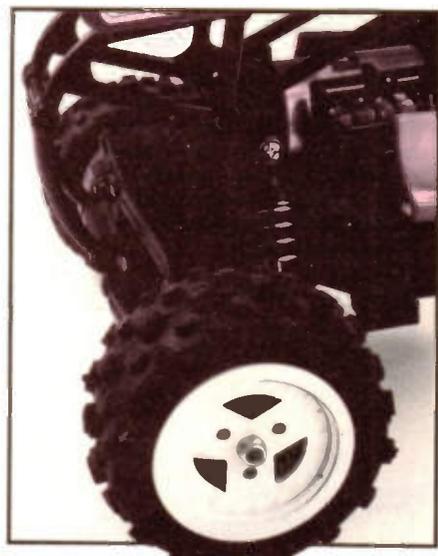
The transmitter requires six AA ni-cad (recommended) or alkaline cells and the car requires four AA ni-cad (recommended) or alkaline cells to run the receiver and a 7.2V racing pack (YP90X) to drive the car.

The radio control system operates at 27MHz AM and therefore does not require a licence in the U.K. Six channels are manufactured, but we cannot guarantee that any particular channel will be available, so please advise us with your order if any channel(s) are not acceptable. (If, for example, you wish to race with someone who already has a car, you will obviously not want the same channel as them.) Normally, we will simply supply a channel for you at random.

The car is supplied with an operator's manual. If you require spare parts at any time, please contact customer services who can obtain parts from our service dept.

Suitable for ages 10+.  
Overall size of car 405 x 234 x 178mm (16 x 9.2 x 7in). Transmitter size 170 x 188 x 57mm (W x H x D) excluding sticks.

**XM04E Road Winner Car**  
£69.95



**ROAD WINNER!**  
**4-WHEEL DRIVE FOR SERIOUS RACERS!**

Prices may change after 30th April 1991.

[A], [B] etc. against price indicates there is an additional carriage charge for this item; see Order Coupon in Magazine for details.

# Are you under PRESSURE?

High blood pressure can be a hidden killer. Featured below are two Digital Blood Pressure Testers. Now, you can keep yourself in check, when you want, whenever you want. It's not just the elderly who are at risk, so don't take any chances. Also featured below is a Digital Clinical Thermometer. Less than £6 for accuracy, reliability and peace of mind.

## DIGITAL BLOOD PRESSURE TESTERS

### Auto-Deflating Digital Blood Pressure Monitor

A portable digital blood pressure tester producing the systolic, diastolic and pulse rate on an LCD display. A rubber bulb is used to inflate the cuff until the monitor indicates that the nominal preset value of 190mmHg has been reached. At this point the monitor begins measuring after pumping is finished as soon as it automatically deflates the cuff at the rate of 2 to 3mmHg per second.



During this process the readings are taken accompanied by a flashing pulse indicator and bleeper. A one second bleep indicates that the monitor has finished, whereupon the systolic and diastolic readings will be displayed for three seconds, and then the pulse rate for two seconds. The cuff can then be deflated with the manual quick exhaust valve.

After the cuff is exhausted the display returns to the systolic and diastolic values, which will be retained until the monitor is turned off. If not used any further within three minutes the monitor turns itself off to conserve battery power.

The deflation valve for the cuff is set to release air at a rate of 2 to 3mmHg per second to achieve accurate results with a normal adult, but is adjustable with a set screw. The cuff is designed so that it would normally be impossible to dislodge in use.

Measurement range –  
Cuff pressure: 0 to 300mmHg  
Pulse: 40 to 150ppm  
Accuracy –  
Cuff pressure: ±3 mmHg  
Pulse: ±5% of reading  
Operating temperature: +50°F to +104°F  
Humidity: 85% Rh or less  
Storage temperature: -29°F to +149°F  
Power required: 1 x PP3 type battery  
Dimensions Cuff: To fit 9 – 12½ inch circumference  
Monitor: 35 x 70 x 145mm  
Weight: 180g with battery  
Supplied with battery and vinyl carrying case.  
XG60Q Blood Press Tester **£39.95**

### Auto-Inflating Digital Blood Pressure Monitor



A digital blood pressure tester designed to take all the complication out of taking blood pressure measurements, especially for those not very conversant with the technique. No manual pumping of a rubber bulb is required, simply press a button and the monitor will inflate the cuff with its own air pump until a preset value is reached, normally preset at 190mmHg. If this is insufficient pressurisation is automatically re-attempted 30mmHg higher and so on until an appropriate pressure is reached. When the pressurisation stops the monitor begins measuring. During this process the systolic, diastolic and pulse rate are determined and accompanied by a flashing pulse indicator and bleeper, and eventually

appear on the LCD display after a one second bleep indicates that the monitor has finished, whereupon the systolic and diastolic readings will be displayed for three seconds, and then the pulse rate for two seconds, and the monitor finishes by completely exhausting the air from the cuff.

When the measurement is completed the cuff is automatically deflated to 0mmHg, and the measurement data is stored in memory, which can hold the data for up to seven different and separate measurements. This data storage is 'stacked' such that if the memory is full, the oldest data is cleared upon the next new data being stored. While the display indicates 0mmHg the memory can be read back by pressing the memory recall button. One press retrieves the last data, repeated pressings recall the previous earlier data in a reversed sequence, from the latest to the oldest. The data is retained in memory even if the unit is switched off, but will be lost upon the batteries being replaced.

The unit is equipped with an automatic deflation valve for the cuff set to release air at a rate of 2 to 3mmHg per second to achieve accurate results with a normal adult, but is adjustable for special cases with a screw accessible from within the battery compartment. The cuff is designed so that it would normally be impossible to dislodge in use.

Measurement range –  
Cuff pressure: 0 to 300mmHg  
Pulse: 40 to 150ppm  
Accuracy –  
Cuff pressure: ±3mmHg  
Pulse: ±5% of reading  
Operating temperature: +50°F to +104°F  
Operating humidity: 85% Rh or less  
Storage temperature: -29°F to +149°F  
Power required: 4 x AA size alkaline batteries

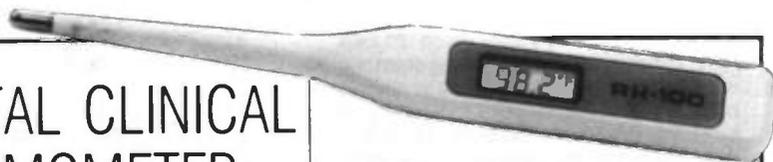
Dimensions  
Cuff: To fit 9 – 12½ inch circumference  
Monitor: 42 x 180 x 100mm  
Weight: 360g with batteries

Note that batteries supplied are for demonstration purposes only and may have a shorter than expected life. Also supplied with vinyl carrying case.

YU08J Auto Inflate BP Test **£79.95**

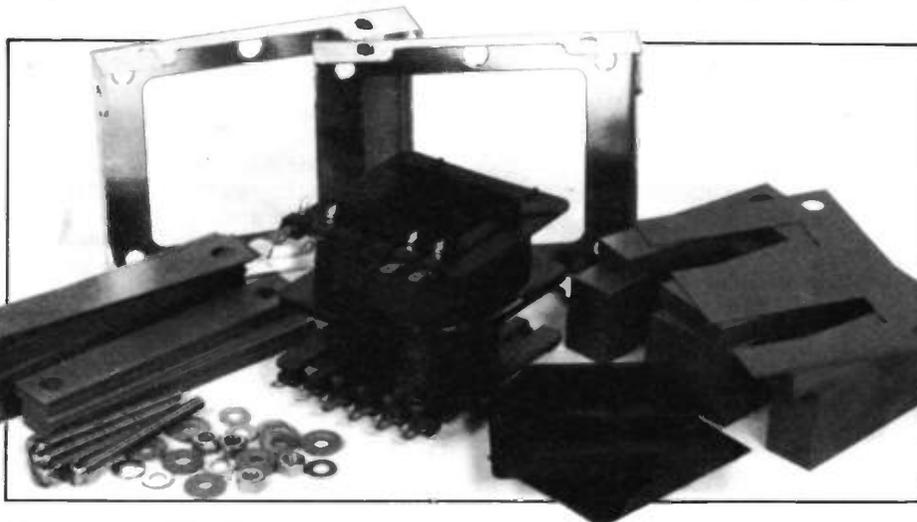
## DIGITAL CLINICAL THERMOMETER

A clinical thermometer having a digital LCD readout display. The thermometer will measure temperature in the range 89.6°F to 107.6°F. This is the biomedical temperature range, and the thermometer is accurate only within this range. If the measured temperature is outside of this range then the display will only read as 'L' or 'H' (for Low or High as appropriate). The display 'blinks' at a rate of 1Hz. There is also a peak hold function, where the peak value measured is held and displayed until power is turned off. If the thermometer is inadvertently left on, it will turn itself off after about 7 minutes. Instructions are also supplied. Size 137mm long x 16mm wide x 7mm thick. Weight 13 grams.  
Uses silver oxide type battery SR41W (replacement type FM30H).  
FK51F Digital Thermometer **£5.65**



Preparation: Switch on  
Weight: 6 to 7 grammes  
Length: 11cm  
Accuracy: ± 0.4°F over normal range  
Reading completed: After about 1 minute when correct temperature reached, display stops flashing  
Taking reading: As easy to read as a digital watch  
Finish: Switch off. Automatically switches off after 8 minutes if you should forget  
Cleaning: Dip tip in luke-warm soapy water  
Sterilising: Dip tip in Milton or medical alcohol  
Price: Less than £6 for accuracy, reliability and peace of mind!

# Transformer kits



At last you can wind your own mains transformers to *your* specification. Some power supply requirements might include an unusual secondary winding, which can be easily catered for by building a transformer kit, thereby obviating the tedious process of searching through the catalogues and adverts for a transformer to meet your needs, and having to settle for one having a higher specification or additional frequency secondary taps which are expensive and which you don't really want. As an example, a digital frequency counter using a fluorescent multi-digit display will require +5V for its logic circuits, and then a 3 volts AC heater feed for the display. Or you may want a +5V, +12V and -5V supply for your home made microprocessor system, plus an additional 25V tap for programming EPROMS. The only other recourse would be to use two separate transformers, which use up space and money.

## 20VA Transformer Kit

This 20VA transformer kit comprises a double section bobbin ready wound with a 120-240V mains primary winding, electrical steel core 'E' and 'I' laminations, end mounting 'frames' and clamping bolts. The number of secondary turns required can be found by multiplying the required secondary output in volts by 6.04 turns per volt, +1% for each multiple of 10VA loading. The maximum current output depends on the wire cross section of the secondary winding (see table right). The total power output of all secondaries must not exceed 20VA. Enamelled copper wire for winding the secondaries is not supplied with the kit.

Dimensions: Width 69mm x Depth 55mm x Height 58mm.

Weight: 660 gms.

YJ61R Transformer Kit 20VA A £5.95

## 50VA Transformer Kit

A transformer kit having a ready wound 120-240V mains primary winding, 'E' and 'I' laminations and end frames. Secondary windings can be wound for a total output not exceeding 50VA. The number of secondary turns required can be found by multiplying the voltage output required by 4.8, +1% for each multiple of 10VA loading.

To find wire gauge for current output required (see table right). Wire for winding the secondaries is not supplied in the kit.

Dimensions: Width 79mm x Depth 62mm x Height 65mm.

Weight: 950 gms.

YJ62S Transformer Kit 50VA A £7.95

## 100VA Transformer Kit

A transformer kit having a ready wound 120-240V mains primary winding, 'E' and 'I' laminations, end frames and clamping bolts. Secondary windings can be wound using enamelled copper wire for a total power output not exceeding 100VA. To find the number of secondary turns required multiply output voltage required by 4.16 turns per volt, +1% for each multiple of 10VA loading. To find wire gauge for the output current required (see table right). Wire for winding the secondaries is not supplied in the kit.

Dimensions: Width 89mm x Depth 68mm x Height 75mm.

Weight: 1400g.

YJ63T Transformer Kit 100VA A £10.95

**NOTE:** Under no circumstances should you attempt to modify or rewind the mains primary winding if the transformer is to remain safe to use. The primary windings have been properly assembled and tested during manufacture and should not be interfered with.

### Output Current Calculation Table

Wire Gauge	Wire Dia. s.w.g.	Wire Dia. mm.	Max Current Out	Max number of turns for 20VA	Max number of turns for 50VA	Max number of turns for 100VA
36	0-2		100mA	1664	2394	3300
34	0-224		150mA	1363	1938	2652
32	0-25		200mA	1092	1581	2135
30	0-315		300mA	714	1025	1421
26	0-4		500mA	459	660	897
24	0-56		1A	228	336	476
22	0-71		1-5A	150	209	286
21	0-8		2A	104	160	240
20	1-0		3A	77	104	144
18	1-25		5A	40	60	96
16	1-5		7-5A	28	40	60

Note that the total number of turns that can be accommodated on the former are reduced in proportion to increasing output current, and therefore, increasing wire sizes. Ergo, you will not be able to achieve a high current high voltage output from a transformer kit that is too small.

**NEVER** attempt to use tinned copper wire in place of enamelled copper wire, regardless of how small the winding.

240 volt isolation transformers can easily be made (provided the factory wound primary windings are not used as the secondary), as follows:-

For 20VA 1,450 turns of 34 s.w.g. enamelled copper wire (80mA out).

For 50VA 1,150 turns of 31 s.w.g. enamelled copper wire (200mA out).

For 100VA 1,000 turns of 28 s.w.g. enamelled copper wire (400mA out).

## H.F. FERROXCUBE KITS

These ferrite cored high power transformer kits form a useful addition to complement our range of pot cores. The Ferroxcube system can provide for those applications where even the largest pot core is not powerful enough. Ideal for such requirements as voltage inversion, step-up or step-down, power oscillators, compact, light-weight yet powerful supply regulators, or switch mode regulated power supply systems. They operate on the principle that a reduction in physical bulk and weight can be simply achieved by using a frequency substantially greater than the 50Hz mains, although of course a suitable push-pull driver circuit must be used to drive the primary side at the optimum operating frequency of, in this case, 25kHz.

Two kits are available in 50 or 100 watt versions. Each kit comprises two 'E' shaped halves of the ferrite core, a high temperature, moulded maranyl core former, and 16 winding termination solder tags which can be inserted into the former as required.

The assembled transformer is very compact, for example the 100W version does not exceed 40mm in any dimension.

The ferrite core is provided with outer grooves to accept long M2.5 or 6BA bolts or studs to hold the two halves together when assembled. These core clamping components are not included in the kit since the design of these is entirely dependent on the method employed for mounting the transformer.

These fixings must be of brass or similarly non ferrous material, and it is recommended that top and bottom clamping plates be made (strips or brackets of aluminium are ideal) on which the nuts of the studding should act to provide an even overall pressure.

Specification	50W Kit	100W Kit
Absolute maximum power through-put, push-pull driven @ 25kHz:	75W	150W
Effective total core loss @ 25kHz:	1-1W	2-2W
Ambient operating temperature:	60°C	60°C
Maximum operating temperature:	100°C	100°C
Total ferrite volume:	7780mm <sup>3</sup>	12600mm <sup>3</sup>
Total centre pole volume:	1740mm <sup>3</sup>	2950mm <sup>3</sup>
Maximum permissible core centre pole flux density before saturation @ 100°C:	320mT	320mT
Most stringent example of 5V output:	5V @ 10A	5V @ 20A
Recommended core clamping force:	=20kgf	=25kgf

An output power less than the maximum can be achieved by progressively reducing the input switching frequency below the optimum, or by shortening the 'on' time of the switching waveform.

## 50W Kit



Dimensions assembled: 35.5mm wide x 33mm deep x 40mm high. Weight: 45gms. Overall dimensions assembled include clamps, studs and nuts.

(Clamps/brackets must be provided by the user.)

FT32K 50W Ferrit Tran Kit £3.65

## 100W Kit

Dimensions assembled: 41.6mm wide x 37.4mm deep x 47mm high. Weight: 70gms. Overall dimensions assembled include clamps, studs and nuts.

(Clamps/brackets must be provided by the user.)

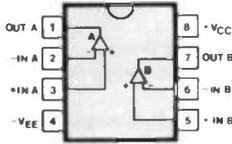
FT33L 100W Ferrit Tran Kit £3.95

# Semiconductors

## OPERATIONAL AMPLIFIERS

### LM833

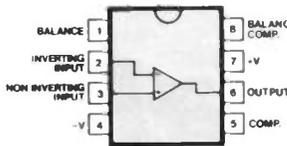
A dual op-amp designed specifically for use as sensitive pre-amps in audio circuits. The amps feature very low noise characteristics, typically 4.5nV/√Hz, total harmonic distortion of 0.002% from 20Hz to 20kHz and dynamic range >140dB. Channel separation 120dB from 20Hz to 20kHz.



UF49D LM833N £1.16

### NE5534A

Designed for use in high quality and professional audio equipment where low noise is of prime importance. The op-amp has a typical input noise voltage at 1kHz of 3.5nV/√Hz. In addition it has better output drive capabilities and much higher small signal and power bandwidths than most other op-amps, yet is a direct pin-for-pin replacement for a μA741.



YY68Y NE5534A 86p

### OP-37GP

The op-amp provides the same performance as the OP-27GN, but with slew rate and gain-bandwidth product improved for gains greater than 5. Noise levels are also improved down to 3.5nV/√Hz at 10Hz and 3.0nV/√Hz from 30Hz upwards. Applications include microphone, tape-head and magnetic pick-up pre-amplifiers, data acquisition systems, and wide bandwidth instrumentation.

UL04E OP-37GP £1.36

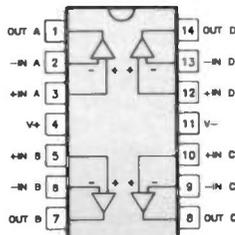
### OP-77GP

An improved version of the OP-07CN. It can be used as a direct replacement upgrade for the OP-07, LM308 and μA741.

UL05F OP-77GP £1.68

### OP-470GP

Four OP-27G op-amps in one package. For a quad package, the noise level is an exceptionally low 5nV/√Hz at 1kHz. Amplifier matching is excellent and channel separation is 155dB at 10Hz. The IC can be used as a direct replacement upgrade for LM148/149, HA4741, HA5104 and RM4156 types.



UL06G OP-470GP £6.25

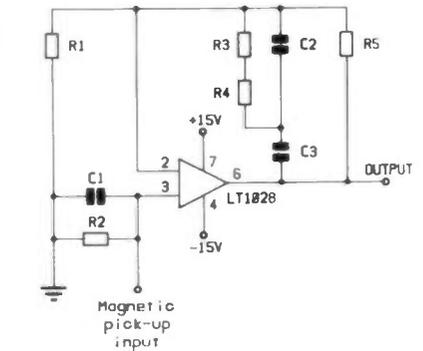
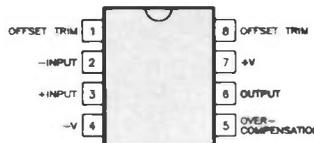
### LM837

A quad op-amp designed for low noise, high speed and wide bandwidth performance. The output can drive a 600Ω load and is ideal for digital audio, graphic equalisers, pre-amplifiers and professional audio applications. It can be used to upgrade existing systems with little or no change to the circuit. The amps feature low noise 4.5nV/√Hz typically, total harmonic distortion of 0.0015% from 20Hz to 20kHz, output drive capability ±40mA, and channel separation 120dB from 20Hz to 20kHz.

UL33L LM837 £2.45

### LT1028

A high performance op-amp that sets a new standard of excellence in noise performance only 0.9nV/√Hz with low source resistances. Total harmonic distortion is less than 0.01%. The op-amp is suitable for use in high quality audio, low noise frequency synthesisers, infra-red detectors etc. particularly where the source resistance is under 1kΩ.



### Magnetic Cartridge Pre-amplifier Parts List

R1	Min Res 10Ω
R2	Min Res 47kΩ
R3	Min Res 750Ω
R4	Min Res 36Ω
R5	Min Res 10kΩ
C1	Ceramic 100pF
C2	Poly Layer 0.1μF
C3	Poly Layer 0.33μF

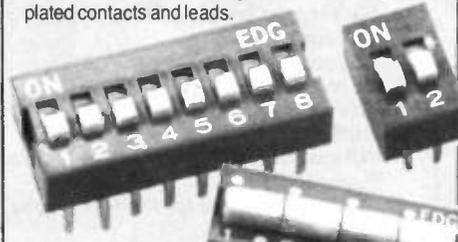
UL23A LT1028CN8 £8.45

## DATA SHEETS FOR IC's

We can supply customers with data sheets for any IC's we stock, priced at 40p each. Although some of these may only be a couple of sheets giving electrical specifications, the vast majority will usually contain a good deal of information on the use of the IC, including example application circuits.

## DUAL-IN-LINE SWITCHES

Subminiature switches in dual-in-line packages for PCB mounting. Pin spacing 0.3in. x 0.1in. Manufactured in UL94-V0 grade plastic with gold-plated contacts and leads.

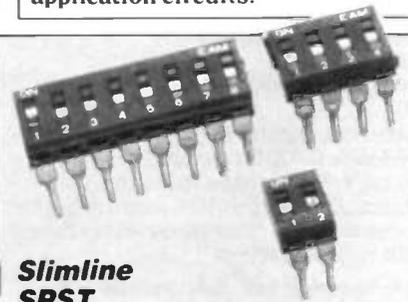


Contact rating, non-switching: 100mA 50V DC  
switching: 25mA 24V DC  
100mA 5V DC

Contact resistance: <50mΩ  
Life: >3000 operations per pole

Dimensions:  
Width: 9.7mm  
Height: 6.6mm SPST types  
7.7mm SPDT types  
Pin length: 3mm  
Length: 2-pole SPST: 6.7mm  
4-pole SPST: 11.7mm  
6-pole SPST: 16.7mm  
8-pole SPST: 21.7mm  
10-pole SPST: 26.7mm  
1-pole SPDT: 6.7mm  
2-pole SPDT: 11.7mm  
4-pole SPDT: 21.7mm

XX26D	DIL Switch SPST Dual	75p
FV43W	DIL Switch SPST Quad	£1.10
FV44X	DIL Switch SPST 6Way	£1.36
XX27E	DIL Switch SPST Octl	£1.75
FV45Y	DIL Switch SPST 10W	£1.98
XX28F	DIL Switch SPDT Sgl	80p
JH11M	DIL Switch SPDT 2Way	£1.16
XX29G	DIL Switch SPDT Quad	£1.98



### Slimline SPST

DIL switches with dimensions identical to DIL IC's. The pins fit standard IC sockets or can be directly mounted on the PCB. The white levers are numbered 1 and 2, 1 to 4, or 1 to 8 depending on size and have a movement of 1mm. The switch is made from UL94V-0 plastics with gold-plated twin contacts to ensure low contact resistance and long operating life. Pin spacing is 0.3in. x 0.1in.

Contact rating, non-switching: 100mA 50V DC  
switching: 100mA 5V DC  
Contact resistance: <50mΩ  
Insulation resistance: 1000MΩ at 100V DC  
Dielectric strength: 500V DC min. for 1 minute

Capacitance between adjacent switches: 5pF  
Life: >2000 operations per pole

Dimensions:  
Width: 7.62mm  
Height: 4.3mm  
Pin length: 3mm  
Actuator height: 1mm  
Length: 2-pole: 5.04mm  
4-pole: 10.12mm  
8-pole: 20.28mm

JH09K	Slimline 2W DIL Sw	75p
JH08J	Slimline 4W DIL Sw	£1.06
QY70M	Slimline 8W DIL Sw	£1.60

# meet the challenge



## SIMPLE MELODY GENERATOR

- ★ Simple Construction
- ★ Small Size
- ★ 4 Different Versions

A simple to construct melody generator based on the UM66 series CMOS LSI chips designed for use in door bell, telephone and toy applications. The 64 note Read Only Memory (ROM) integral to the UM66 is programmed with one of four different melodies and is available as follows:

- Kit 1: A medley of Jingle Bells, Santa Claus is Coming to Town, and We Wish You A Merry Christmas.
- Kit 2: Happy Birthday to You
- Kit 3: Wedding March
- Kit 4: Love Me Tender, Love Me True

### Specification of prototype

64 Note ROM Memory  
Tone Generator  
Range: C4 to C6  
Operating Voltage: 1.3V to 15V  
Stand-By Supply  
Current: 1µA at 1.3V  
Reverse Polarity Protection  
Output: Piezo Sounder or 8Ω Loudspeaker  
External Amplifier  
Output: 1V Square Wave at 10kΩ

### Printed Circuit Board

A printed circuit board for the project is available.  
Size 25 x 25mm.  
GD75S Simple Melody PCB 56p

### Kits

Complete kits of parts according to the tune required for the Melody Generator are available.

LM43W Simple Melody Gen1	£2.75
LM44X Simple Melody Gen2	£2.75
LM45Y Simple Melody Gen3	£2.75
LM46A Simple Melody Gen4	£2.75

### Optional Items

The following items, not included in the kit, may also be required.  
Miniature Loudspeaker 1 (WF57M)  
Push Switch 1 (FH59P)  
5in. Horn Speaker 1 (XQ73Q)

## MULTI-TUNE GENERATOR

- ★ Easy to Build
- ★ Minimum of Tools and Test Gear Required
- ★ No Setting-up Required
- ★ No Musical Knowledge Required
- ★ On-board Power Amplifier
- ★ Audio Output to External Amplifier
- ★ Automatic Switch off at end of Tune for Power Saving
- ★ Variable Envelope for Piano to Organ Type Sounds
- ★ Variable Volume and Pitch/Speed
- ★ Two Control Switch Inputs
- ★ Transistor Switched Voltage Output

### Specification of Prototype

Integrated circuit: UM34811A low-power CMOS LSI  
Operating voltage: 1.5V to 4.5V  
Supply current: 150mA at 4.5V  
Stand-by supply current: 2.5µA at 4.5V  
Transistor switched supply output: 1.5V to 12V  
Output current: 200mA at 12V maximum  
Memory: Masked Read Only Memory (ROM) 512 words by 7 bits  
Master Oscillator tuning range: 50kHz to 175kHz  
Tone generator: Logic controlled divider

### Number of tunes - 16:

- |                                  |                                  |
|----------------------------------|----------------------------------|
| 1: Twinkle, twinkle, little star | 9: London bridge is falling down |
| 2: Cuckoo waltz (1)              | 10: Little brown jug             |
| 3: Eency Weency spider           | 11: Butterfly                    |
| 4: Lullaby                       | 12: Long long ago                |
| 5: Santa Lucia                   | 13: Cuckoo waltz (2)             |
| 6: Oh my darling Clementine      | 14: Mary had a little lamb       |
| 7: Are you sleeping              | 15: The train is running fast    |
| 8: Rock-a-bye baby               | 16: Dream of home and mother     |

The UM34811A is a low-cost, low-power CMOS LSI chip designed for use in door bell and music box applications. Inside the chip is a pre-programmed memory containing 512 notes and is capable of generating 16 different tunes. To trigger the unit two pulse generator circuits have been incorporated. A bell push, mercury tilt, pressure mat or microswitch can be used to start the tune playing. The comprehensive control facilities enable the playing of all tunes repeatedly or stopping at the end of each tune. Three preset resistors on the PCB control the volume, pitch and envelope. An on-board amplifier capable of driving a small loudspeaker is included in the design. However, provision has been made for an external amplifier if louder volumes are required. The construction details describe the operation of the UM34811A chip.

### Printed Circuit Board

GD83E Tunes Generator PCB £1.98

### Kit

A complete kit of parts, excluding the Optional Items is available.

LM47B Multi-tune Gen Kit £10.95

### Optional Items

The following items not included in the kit may also be required:

- Zip Wire As Req (XR39N)
- Horn Speaker 1 (XQ73Q)
- Bell Push As Req (FS17T)
- Min Microswitch As Req (FP41U)
- Miniature Mercury Tilt Switch As Req (FE11M)
- Pressure Mat As Req (YB91Y)
- Bulb MES 6V 0.6W 1 (WL78K)
- MES Batten Holder 1 (RX86T)
- Miniature Motor 1 (YG12N)

# make the kit!

## ENTER THE DRAGON?



Ah! You have arrived Grasshopper, sit down, relax. Can you feel it?... The Dragon is coming. Shhhh! Here it is, all around us. Feel it moving, breathing, knowing. It is larger than ever, breathing knowledge from parts that form a whole. From cover to cover it is a hardy beast that is not easily put aside or cast down. It has the knowledge of generations past, and of those yet to be. It has a presence that lingers, stays in your mind long after its time has gone. Now it is yours, its knowledge and its gifts. Grasp it whilst you may, go forth to branches of **WHSMITH** and seek the dragon for only £2.45 or telephone (0702) 554161 and order yours for £2.95. The knowledge you seek and the gifts you desire shall be found. And when you have the dragon, you have the answers!

# Surrounds you with sound for £99.95

**E**xperience cinema style sound surround in your own home. Incorporating the Dolby Surround Sound System, the Maplin Dolby Surround Processor is designed for use in the domestic environment. Now you can listen to films such as 'Raiders of the Lost Ark', the 'Star Wars' trilogy and 'Back to the Future' as they were originally intended to be heard. Suitably encoded Dolby Surround material includes many of the feature films that have been produced in Dolby Stereo and subsequently released on video cassette and video disc. Encoded feature films are also broadcast via satellite television, which has stereo capability and on terrestrial television in NICAM Digital Stereo.

The Maplin Dolby Surround Sound Processor offers a host of facilities to anyone who wants to add Dolby Surround to their existing AV system. With the Maplin Dolby Surround Processor, selecting the 'Dolby Surround' mode activates the decoding circuitry allowing

surround sound to be reproduced from suitably encoded material.

Apart from decoding Dolby Surround encoded movies, the unit also provides 'Matrix' and 'Hall' modes. 'Matrix' provides a pseudo-stereo effect for use with mono programmes and films. 'Hall' provides reverberation and ambience to stereo programmes and films that are not Dolby Surround encoded.

A 'Monitor' switch is also provided, which is used to switch to the tape monitor input sockets on the processor. This facility is provided so that when the processor is connected into your existing AV system, the tape deck can still be used without having to swap cables.

The Maplin Dolby Surround Sound Processor offers a great value for money introduction into the world of Dolby Surround Sound, and provides greater realism to movies on the 'small screen'.



YU59P Surround Sound Processor **£**99.95.  
A list of movies released in Dolby Stereo is available from Maplin. Order as XL15R Dolby Film List 40p.



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