Prototyping & PCBs
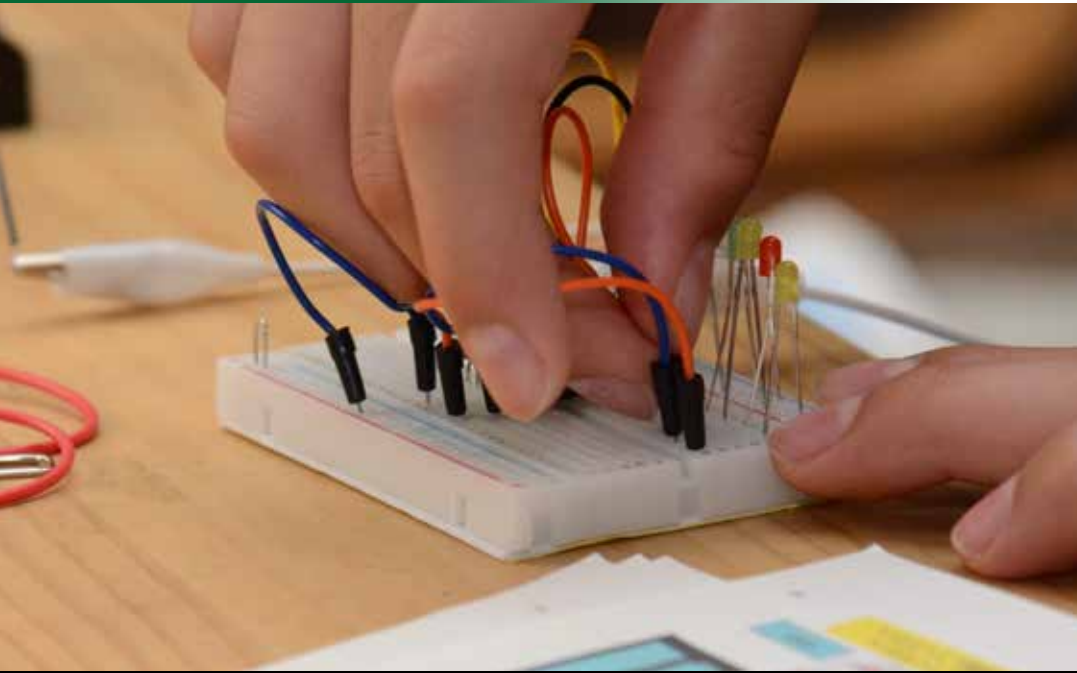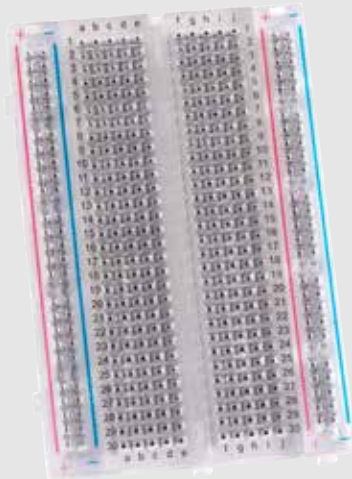
Solderless Breadboard Transparent 400 Points

R-TECH®
Tried & trusted technology

£2.88
Order code 34-1320

Jumper Wire Kit - Box of 350

K&H PRODUCTS®

£35.25
Order code 34-0495

Full range of Prototyping & PCBs products available at:

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PCB Accessories

65747

R-TECH
Copper Track Cutter for Stripboard and Prototype Boards

This simple tool is ideal for easy copper track cutting on stripboards and prototyping boards. Simply insert the tool in a hole at the point where the break is required and twist clockwise.

- Swivel top handle for easy turning
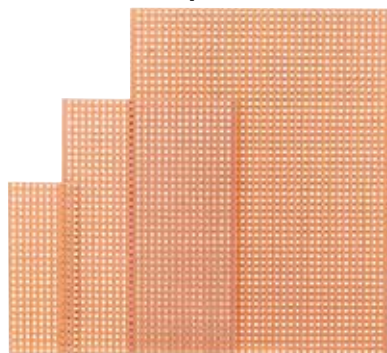- Bit size 3.5mm
- Overall length 115mm

Type	Order code	1+	10+	50+
Stripboard cutter	**34-0608**	5.50	4.86	3.95

586711

R-TECH
2.54mm Pitch Stripboard

This stripboard provides a simple form of printed circuit, ideal for prototype and development work. The board has holes and strips on a 2.54mm pitch and is manufactured from copper-clad paper and phenolic laminate body material.

- Range of sizes available
- Can be readily cut to size
- 1Oz (34µm) Copper contact material

MOQ 5 - In Multiples of 5					
Width	Length	Order code	5+	10+	25+	50+
25mm	64mm	**34-0410**	0.45	0.425	0.374	0.34
		Price each				
64mm	95mm	**34-0411**	1.30	1.22	1.11	1.01
95mm	127mm	**34-0412**	2.51	2.37	2.10	1.90
95mm	432mm	**34-0413**	9.11	8.60	7.60	6.91
119mm	455mm	**34-0414**	13.13	12.41	10.95	9.95

583628

All the Tools you need …

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Tru components
Universal PCB Strip Grid HP 90 x 50 x 1.6mm Grid Pitch 2.54/5.08mm

The Universal PCB Strip Grid HP 90 x 50 x 1.6mm Grid Pitch 2.54/5.08mm is a copper-coated strip manufactured using a hard-paper material and a 1.6mm thickness.

- Available with 2.54/5.08mm grid pitch

For technical specialication visit **www.rapidonline.com**

		MOQ 5	
Type	Order code	5+	10+
Pitch 2.54mm	**51-1077**	1.67	1.49
Pitch 5.08mm	**51-1078**	2.55	

521566

RADEMACHER
Grid Board Stripboard

Perforated circuit board with copper strips, ideal for prototypes and one-off designs.

Components are mounted though the holes, then soldered to the copper strips.

The copper strips can be cut easily to make the desired connections between components.

- Thickness 1.5mm
- Hole diameter 1.0mm
- Available with 2.5mm or 2.54mm (0.1in.) hole spacing
- Range of sizes
- Available with hard paper

For technical specialication visit **www.rapidonline.com**

			MOQ 2		
Size	Hole Pitch	Order code	2+	10+	100+
Hard paper					
160 x 100mm	2.5mm	**50-5198**	2.60	2.34	2.16
			Price each		
Size	Hole Pitch	Order code	1+	10+	
100 x 75mm	2.54mm	**50-5201**	2.10	1.92	
			MOQ 2		
Size	Hole Pitch	Order code	2+	10+	
160 x 100mm	2.54mm	**50-5199**	3.34	3.00	
			Price each		
Size	Hole Pitch	Order code	1+	10+	
160 x 100mm	2.54mm	**50-5203**	5.29	4.79	
500 x 100mm	2.54mm	**50-5202**	9.81	8.84	

520593

R-TECH
Solderless Transparent Breadboard – 400 Points

Solderless Breadboard allows components to be easily connected together into circuits and used time and time again for experiments and prototyping.

This transparent topped version allows visibility of the contacts and how they are connected together, making it ideal for use in training and education.
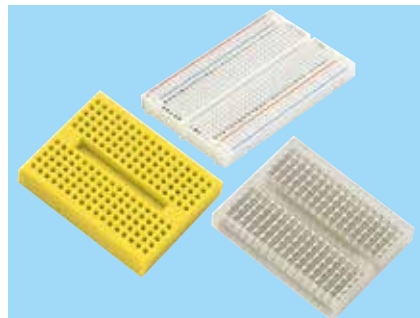
- Solderless concept allows components to be used again and again
- Ideal system for teaching electronic systems and circuit design
- Components are plugged into the board and are retained by double-leaf phosphor bronze nickel-plated spring contacts
- Sockets are on a 2.54mm matrix, allowing dual-in-line integrated circuits, plus many other components to simply be plugged into the board
- Two sets of 30 rows of 5 interconnected contact sockets
- Allows up to 4 connections to each pin of ICs placed across the central gap
- 2 rows of 50 contacts for power supply distribution
- Total of 400 tie points
- All contact positions are clearly defined on an coloured alphanumeric grid
- ABS polymer board mounted on an adhesive foam base
- Accepts components with wire sizes from 0.288 to 0.841mm (29 to 20 AWG)
- Dimensions: 83.5 x 54.5 x 8.5mm
- Boards can be slotted together for larger circuits

Type	Order code	1+	10+	25+	50+
Trans. breadboard	**34-1320**	2.88	2.70	2.50	2.36
Trans. breadboard	**34-1320**	2.88	2.70	2.50	2.36

583652

R-TECH
Solderless Breadboard

A range of Solderless Breadboards that allow components to be easily connected together into circuits and can be used again and again for experiments and prototyping.

- Range of colours, sizes and number of tie points
- Solderless concept allows components to be used again and again
- Ideal system for teaching electronic systems and circuit design

| Tie points	Colour	Order code	1+	10+	25+	50+
170	Yellow	**34-1328**	1.96	1.84	1.73	1.63
170	Yellow	**34-1328**	1.96	1.84	1.73	1.63
400	White	**34-1330**	3.63	3.40	3.14	2.96
170	Transparent	**34-1329**	1.96	1.84	1.73	1.63
400	White	**34-1330**	3.63	3.40	3.14	2.96
170	Transparent	**34-1329**	1.96	1.84	1.73	1.63
830	White	**34-1331**	6.92	6.49	6.00	5.66
830	White	**34-1331**	6.59	6.18	5.82	5.49
1660	White / black	**34-1332**	16.80	15.44	14.27	13.50
1660	White / black	**34-1332**	16.80	15.44	14.27	13.50

583655

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Prototyping Board (Protobloc 1)
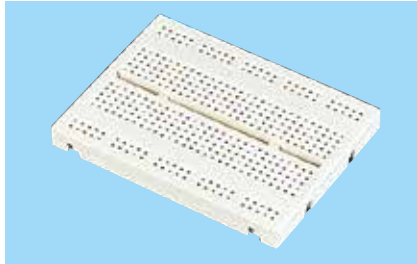
This prototyping board (protobloc 1 breadboard) is a prototyping system offering a fast and economical method of circuit construction and development. Solderless in concept allowing components to be used time and time again, while components are plugged into the board and are retained by double leaf spring contacts. Incorporating the following features: protobloc prototyping board, 2 (29 x 5) grid size, 390 number of holes, 2.54mm hole pitch, 0.3 to 0.8mm wire size acceptability, 3A contact current, abs polymer body material, silver alloy/nickel alloy contact material, fast and economical method of circuit construction and development, double leaf spring contacts, allowing all dual-in-line integrated circuits, ideal system for the teaching of electronic systems and circuit design, ideal introduction to solderless circuit development systems.

- Sockets are on a 2.54mm matrix, allowing all dual-in-line integrated circuits, plus many other components to simply be plugged into the board
- An ideal system for the teaching of electronic systems and circuit design
- Total of 390 tie points
- Two sets of 29 rows of 5 interconnected contact sockets
- 4 rows of 25 interconnected sockets suitable for use as power supply rails
- ABS polymer board mounted on an adhesive foam base
- Can accommodate up to three 16-pin devices
- An ideal introduction to solderless circuit development systems

Type	Order code	1+	10+	50+	100+
Protobloc 1	**34-0650**	7.47	6.45	5.68	5.28

29458

Protobloc 2 Prototyping Breadboard
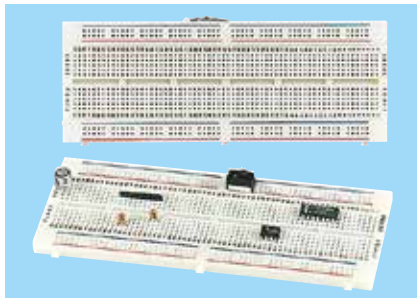
This **prototyping board** (protobloc 2 breadboard) is a prototyping system offering a total of 840 tie points, consisting of two sets of 64 rows of 5 inter-connected sockets. Incorporating the following features: protobloc 2, 2 (64 x 5) grid size, 840 number of holes, 0.3 to 0.8mm wire size acceptability, 3A contact current, ABS polymer body material, silver nickel contact material, 4 rows of 50 interconnected sockets suitable for use as power supply rails, all contact positions are clearly defined on an alphanumeric grid.

- 4 rows of 50 interconnected sockets suitable for use as power supply rails
- All contact positions are clearly defined on an alphanumeric grid
- ABS polymer board mounted on a non-removable self-adhesive foam base
- Can accommodate up to seven 16-pin devices
- White colour

Type	Order code	1+	10+	50+	100+
Protobloc 2	**34-0655**	13.04	11.02	9.84	9.33

29459

Protobloc AD Series Advanced Solderless Breadboard

A range of **solderless breadboards** that are ideal for prototyping and testing electronic circuits.

As a prototyping system, **Protobloc** offers a fast and economical method of circuit construction and development. Components are plugged into the board and are retained by double leaf spring contacts, with positions clearly defined on an alphanumeric grid. Sockets are on a 2.54mm matrix, allowing all dual-in-line integrated circuits, plus many other components to simply be plugged into the board. Units can be clipped together to accommodate larger circuit designs and the solderless concept allows components to be used time and time again, making these boards an ideal system for the teaching of electronic systems and circuit design.

- Available in several types
- Provides ideal placement for all components
- Easy insertion and wiring
- Very flexible for digital and analog circuits
- Easy combination and expansion
- More tie points for MSI, LSI, and all DIL-size chips
- ABS Body

| Tie points	Dimensions (LxWxH)	Order code	1+	10+	50+
10	81 x 30 x 19mm	**34-0668**	10.98	9.88	8.20
48	81 x 12 x 9mm	**34-0672**	2.27	2.09	1.84
360	81 x 42 x 9mm	**34-0666**	4.98	4.55	4.01
408	81 x 52 x 9mm	**34-0674**	5.66	5.14	4.98
456	81 x 62 x 9mm	**34-0676**	6.70	6.54	6.15
948	83 x 118 x 9mm	**34-0678**	12.87	12.61	11.79
958	83 x 147 x 19mm	**34-0662**	20.56	19.49	17.85
2854	266 x 168 x 24mm	**34-0664**	48.11	45.36	42.51

526259

STEAM resources

Don't forget to visit our STEAM Lab online

www.rapidonline.com/steam-lab

K & H Protobloc 2A
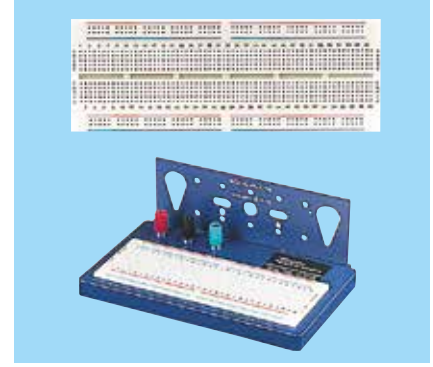
This **protobloc 2A (breadboard h21b)** features 4 rows of 50 interconnected sockets suitable for use as power supply rails. All positions are clearly defined on an alphanumeric grid.

The ABS polymer board is mounted onto a rigid base plate complete with three 4mm terminals in red, black and green for power connections. A mounting bracket, which clips into the base, is also provided to accept a variety of components including switches and potentiometers, etc.

- v2 (29x5) grid size
- 840 holes
- 0.3 to 0.8mm wire size acceptability
- 3A contact current
- ABS polymer body material
- Silver nickel contact material
- White colour

Type	Order code	1+	10+	50+
Protobloc 2A	**34-0660**	22.54	20.73	18.38

29460

electro-PJP

Professional Prototyping Board and Jumper Wire with Spare Contacts

Professional prototyping board with a total of 555 contacts arranged in two blocks of 43 rows of five interconnected sockets on a 2.54mm (0.1in) pitch.

- 5 other rows of 25 interconnected sockets, two on either side and one central between the two main blocks, are for use as bus-bars
- The central gap between the two blocks of contacts allows DIL packaged devices to be inserted without the use of adaptors
- Individual boards can be clipped together both sideways and end-on to produce larger boards
- Contacts are replaceable from underneath the board if damaged
- Dimensions (excluding joining lugs): 114 x 48 x 12mm
- A connection and maintenance kit is available comprising ten 1m lengths of single cored, colour-coded PVC covered wire for interconnections, plus five strips of five-way contacts and one 25-way contact strip for replacements

Type	Order code	1+	10+	25+
Prototyping board	**34-0550**	77.40	73.00	67.03
Wire & contacts kit	**34-0555**	33.33	29.84	

28625

Jumper Wire Kit

This **jumper wire kit** has been designed for use with protobloc prototyping boards has a variety of colours for easy identification and comes in a wide range of sizes.

- Convenient hinged plastic storage case
- Variety of colours for easy identification
- Pre-cut and pre-formed jumper wires with ¼in stripped end bent 90°
- Box dimensions: 270 x 124 x 30mm

Set includes 25 each of the following lengths: 0.1in (no insulation), 0.2in, 0.3in, 0.4in, 0.5in, 0.6in, 0.7in, 0.8in, 0.9in, 1in, 2in, 3in, 4in and 5in.

Type	Order code	1+	10+
Jumper wire kit	**34-0495**	35.25	31.56

29452

Jumper Links for Protoblocs

These packs of jumper links can be used with protobloc prototyping boards. Colour-coded for easy identification. Specially designed plugs are employed which significantly extend the life of the connector.

- 50, 70, 100 or 150mm lengths
- Supplied in **pack of 10**

Type	Order code	1+	10+
50mm jumper link	**34-0450**	7.62	6.52
70mm jumper link	**34-0455**	8.74	7.11
100mm jumper link	**34-0460**	10.01	7.93
150mm jumper link	**34-0465**	10.01	7.93

29451

≡Rapid

Jumper Wire 40 Way Ribbon Cable

These high quality **jumper wires come in a strip of 40 with four pieces of each of ten colours**. They have 0.1in sockets on either end and fit cleanly next to each other on a standard pitch (2.54mm) header. You can always pull the ribbon wires off to make individual jumpers, or keep them together to make neatly organised wire harnesses.

- Available in male-female, male-male and female-female versions
- Length 200mm
- 40 ways

Type	Order code	1+	10+	100+
F to F	**34-0684**	7.60	6.40	5.49
M to F	**34-0686**	7.60	6.40	5.49
M to M	**34-0688**	8.02	6.77	5.82

564327

≡Rapid

Jumper Wires for Breadboard, Arduino, Raspberry Pi, Olimex, etc.

These reuseable jumper cables are ideal for use with solderless protoblocs, prototyping boards and breadboards. They are also perfect for interconnections on single board computers like Arduino, Raspberry Pi, Olimex, etc.

The cables are available in male-to-male, female-to-female and male-to-female configurations for maximum flexiblity.

- Made from insulated 26AWG wire with crimped pin in plastic housing
- Length 150mm
- Pin size approx. 0.6mm
- Housing width 2.5mm (fits 0.1in. pitch)
- Plug pins fit connectors in breadboard without damage
- Available in male-to-male, female-to-female and male-to-female configurations
- Supplied in assorted coloured **packs of 10**

Type	Order code	1+	10+	100+
Male to male	**34-0677**	3.00	2.48	1.97
Male to female	**34-0679**	2.85	2.36	1.91
Female to female	**34-0681**	2.85	2.36	1.91

544268

≡Rapid

Breadboard Jumper Wires – Bundle Of 75

A bundle of 75 assorted reuseable Jumper Links for use with Protobloc prototyping boards and other breadboards.

- Made from insulated 22AWG solid copper wire
- Fitted with plugs that fit the connectors in the breadboard without damage
- 4 lengths
- Assorted colours for easy identification
- Supplied in **packs of 75**

Bundle contains:
Length	Quantity
80mm	55
130mm	10
180mm	5
230mm	5

Type	Order code	1+
Breadboard jumpers	**34-0673**	4.89

518907

≡RVFM

Breadboard Power Supply 5V or 3.3V

This **RVFM breadboard power supply** provides both 3.3 and 5V DC to suit all popular microcontrollers such as the Arduino. The board will accept 6.5 to 12V DC input. It provides two regulated outputs which can be jumper selected to be 3.3V, 5V or Off. There is a USB A socket so that the device is ideal for powering development boards such as the Arduino. There are two sets of header pins which plug into the breadboard allowing you to minimise the number of tie points you use or to maximise the stability of the PSU. More header pins are available on the top of the board if you need to use flying lead connections. The board is equiped with an on/off switch and a power indicator LED.

- Two independent outputs at either 3.3V or 5V DC
- DC input from 6.5V to 12V
- Maximum 700mA output
- Short circuit and over temperature protected
- Dimensions 53 x 35mm (2.09 x 1.38in)

Type	Order code	1+
Power supply	**73-4538**	3.53

547653

≡Rapid

Microtrak FR4 Positive Photoresist Copper Clad Printed Circuit Board PCB

Single-sided and double-sided copper-clad fibreglass PCB laminate photo etch boards coated with a high resolution photo-resist.

Microtrak laminates consist of FR4 epoxy-glass laminate sheets, dip-coated with a positive working photo-resist. The photo-resist contains a dye that provides a good contrast against the copper and allows boards to be easily inspected at the developing stage. Boards are protected by a specially designed light-proof blue film which allows them to be guillotined without the risk of fracturing the photo-resist.

- FR4 fibreglass laminate
- Thickness 1.5mm
- Copper thickness 35 micron
- High resolution positive photo-resist
- Supplied covered with blue light-proof film
- Single or double sided
- Wide range of sizes

Microtrack FR4 boards require a developer strength of 10 to 1. (Not 20 to 1 as with other products it replaces.)

Exposure time is typically 2.5 to 3.5 minutes.

For technical specialication visit **www.rapidonline.com**

Size	Order code	1+	5+	10+
Single sided				
160 x 100mm	**34-1500**	4.83	4.27	3.77
203 x 114mm	**34-1502**	6.05	5.47	5.01
220 x 100mm	**34-1504**	5.98	5.37	4.43
233.4 x 160mm	**34-1508**	9.73	8.70	7.60
233.4 x 220mm	**34-1506**	10.40	9.29	7.72
457 x 305mm	**34-1510**	31.00	28.72	24.62
Double sided				
160 x 100mm	**34-1512**	5.56	4.95	4.26
203 x 114mm	**34-1514**	8.30	7.67	
220 x 100mm	**34-1516**	7.22	6.57	
233.4 x 160mm	**34-1520**	5.49		
233.4 x 220mm	**34-1518**	10.89	9.84	
457 x 305mm	**34-1522**	35.01	31.22	27.68

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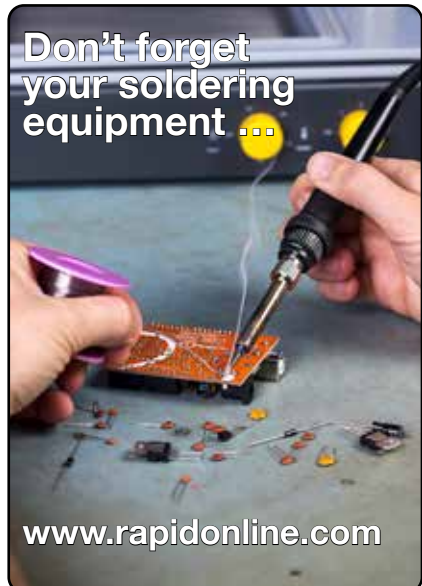
BUNGARD

FR4 Epoxy Photo Resist Single Sided Printed Circuit Boards

High quality single-sided epoxy printed circuit boards from Bungard with copper cladding and a positive photo resist coating.

Bungard represents excellent quality and reliability of the materials and equipment used in producing circuit boards for prototypes and limited series production. The base material conforms to all international standards and releases, as listed in summary in the standard IPC 4101 A.

- Lacquer coat absolutely dust-free with straight edges
- Photo lacquer is burnt in and artificially aged, ensuring a very long storage time
- Only original Bungard circuit boards have a special, blue-dyed light-protective film
- Available in a range of sizes and thicknesses with natural or blue backing
- Maximum spectral sensitivity is in the range of 350 to 450nm
- Optical resolution of the resist better than 30µm

For technical specialication visit **www.rapidonline.com**

			Price each		
Size	Thickness	Order code	1+		
160 x 100mm	0.2mm	**50-5406**	85.16		
		MOQ 2			
Size	Thickness	Order code	2+	10+	
160 x 100mm	0.5mm	**50-5376**	5.33	5.11	
160 x 100mm	1mm	**50-5378**	7.62	6.95	
100 x 60mm	1.5mm	**50-5394**	1.91	1.75	
			Price each		
Size	Thickness	Order code	1+	10+	50+
160 x 100mm	1.5mm	**50-5398**	5.94	5.74	5.29
160 x 100mm	1.5mm*	**50-5400**	6.77	6.51	
200 x 150mm	1.5mm	**50-5392**	9.73	9.48	
250 x 250mm	1.5mm	**50-5397**	19.98	18.40	
Blue backing					
100 x 60mm	1.5mm	**50-5389**	1.60		
Pack of 10					
Natural backing					
160 x 100mm	1.5mm	**50-5399**	65.29	60.01	

523662

BUNGARD

Laminated Paper Photo Resist Printed Circuit Boards

Photo resist printed circuit boards from Bungard made with laminated paper. The Bungard name represents the excellent quality and reliability of the materials and equipment used in producing circuit boards for prototypes and limited series production. The basic material complies with all international standards and approvals, as summarised in the standard IPC 4101 A.

The photoresist is characterised by accurate detail rendering, high contrast steepness/parameter and short process times. However, particular attention should be drawn to its completely compliant characteristics in relation to processing tolerances. The only requirement is not to have the light exposure too short in order to have "guaranteed" results.

- Lacquer coat is absolutely dust-free with straight edges
- Photo lacquer is burnt in and artificially aged to ensure long storage time of over 1 year
- Only original Bungard circuit boards have a special, blue-dyed light-protective film
- Available in a range of sizes in single-sided and double-sided versions

	MOQ 2			
Size (mm)		Order code	2+	10+
Single sided				
100 x 60		**50-5424**	2.13	2.04
100 x 75		**50-5425**	2.97	2.69
160 x 100		**50-5426**	5.32	4.89
	Price each			
Size (mm)		Order code	1+	10+
200 x 150		**50-5427**	9.39	8.57
250 x 250		**50-5428**	7.69	
300 x 200		**50-5429**	17.25	15.86
	MOQ 2			
Size (mm)		Order code	2+	10+
Double sided				
160 x 100		**50-5438**	3.76	3.72

566844

R-TECH

Copper Clad FR4 Fibre Glass Printed Circuit Board

These single- and double-sided fibreglass boards are high quality 305g/m copper clad boards made from epoxy glass material.
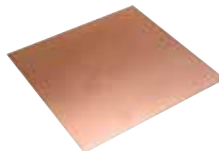
- Range of sizes
- Single- and double sided
- Grade: FR4
- Fibreglass board
- Thickness: 1.6mm
- 35 micron copper thickness
- Suitable etchant: ferric chloride solution

Length	Width	Order code	1+	10+	25+	50+
Single-sided						
160mm	100mm	**34-1017**	1.79	1.57	1.42	1.33
203mm	95mm	**34-1015**	2.17	1.88	1.67	1.56
220mm	100mm	**34-1019**	2.37	2.06	1.88	1.76
233.4mm	160mm	**34-1018**	3.81	3.31	2.96	2.76
233.4mm	220mm	**34-1020**	6.11	5.33	4.74	4.43
305mm	203mm	**34-1016**	4.77	4.15	3.70	3.46
Double-sided						
160mm	100mm	**34-1021**	1.85	1.62	1.47	1.37
220mm	100mm	**34-1023**	2.14	1.87	1.70	1.59
233.4mm	160mm	**34-1022**	4.13	3.60	3.21	3.00
233.4mm	220mm	**34-1024**	5.78	5.03	4.49	4.19
305mm	203mm	**34-1025**	7.29	6.36	5.65	5.29

583651

R-TECH

Copper Clad FR2 Epoxy Paper Printed Circuit Board

Single-sided copper-clad printed circuit board made from SRBP - a paper-based material.

- Available in a range of sizes
- Thickness: 1.6mm
- Copper thickness: 35 micron
- Excellent for low-cost printed circuit boards
- Easier to drill than epoxy glass fibre
- Results in longer life for drills and cutting tools
- Suitable etchant - ferric chloride solution
- 150°C heat resistance

Length	Width	Order code	1+	10+	25+	50+
Single-sided						
160mm	100mm	**34-1026**	1.33	1.16	1.05	0.983
220mm	100mm	**34-1027**	2.06	1.80	1.61	1.50
233mm	160mm	**34-1028**	2.39	2.08	1.85	1.74
233mm	220mm	**34-1029**	4.11	3.59	3.20	2.99
305mm	203mm	**34-1030**	4.05	3.52	3.15	2.93

583654

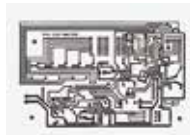**≡Rapid** e d u c a t i o n **We bring STEAM to life**

Pricing

Pricing correct at time of going to press.
For up-to-date pricing visit **www.rapidonline.com**

FORTEX

Laserstar Laser Printer PCB Artwork Film - Packs of A4 Sheets

A specially formulated translucent film for the production of high-resolution PCB artwork directly from any laser printer.

- Supplied in **packs of 10 or 100** A4 sheets of film

Type	Order code	1+
10 pack A4 Laser film	**39-0774**	7.60
100 pack A4 Laser film	**39-0776**	72.80

29485

FORTEX

Jetstar Standard (Ver. II) A4 Inkjet MicroArt Film

A pack of 10 sheets of JetStar Standard - a specially formulated inkjet film for the production of artwork photo tools for graphics and PCB production.

- A popular film producing excellent artwork at an economical price
- Suitable for both photo-positives and photo-negatives
- Excellent density & clarity – DMAX up to 4.0, DMIN .07
- Dries instantaneously
- Impervious to water and humidity
- Can be used with dye or pigment based inkjet systems
- Supplied in **packs of 10 A4 sheets**

Please ensure that your printer is capable of printing on to clear sheets before purchase.

Type	Order code	1+
A4 film (10 sheets)	**39-0780**	11.64

568694

FORTEX

Fortex PCB Shears

Powerful, cost effective shears which have the ability to accurately cut PCB laminates, plastics up to 2mm thick and aluminium up to 1.5mm.

- Access to the cutting area is prevented by heavy Perspex shielding extending along both sides of the blade
- A safety latch is fitted to the pivot to prevent accidental operation
- For positional accuracy the cutting bed is fitted with a metric rule which is recessed to assist in securing the PCB or sheeting whilst cutting
- The 200mm unit has a cutting capacity of 203mm (8in.) for normal 1.6mm PCB laminate and is extremely compact with an overall height of only 575mm and a base of 275 x 140mm
- The 300mm shear will cut 1.6mm PCB laminates up to 305mm (12in.) wide and has a height of 670mm and a base of 430 x 135mm

Type	Order code	1+
200mm PCB shear	**34-0950**	264.50
Blade set 200mm	**34-0951**	68.25
300mm PCB shear	**34-0955**	325.52

32578

SENO

Polifix PCB Cleaning and Polishing Block

Specially formulated, ultra-fine non-metallic polishing compound carried in an elastic bonding material.

- Cleans, de-greases and polishes in one simple action
- Simply polish back and forth in straight lines, then wipe with a cloth to remove traces of the abrasive
- Size 30 x 40 x 20mm

Type	Order code	1+
Polifix block	**34-0295**	3.43

29443

TOOLCRAFT
PCB Holder

Easily adjustable **circuit board holder from Toolcraft.** The angle can be set according to the board in use.

- Clamping width 220mm
- Height 125mm
- Length 165mm
- Width 330mm

Type	Order code	1+
PCB holder	**64-5426**	7.10

566712

STAEDTLER
Etch Resist Pens

This **etch resist pen from Staedtler** is ideal for using on plain copper boards. Producing a blue ink for preparation and artwork.

- Simply press the tip to promote ink flow
- Apply slow, even pressure in use

Colour	Order code	1+
Blue	**34-0300**	1.54
Black	**34-2951**	1.51

29444

FORTEX
Ferric Chloride Etchant 5L

A special formulation of ferric chloride for etching metals and all types of copper circuit boards.

- Supplied as full strength (45 Baume), suitable for metals such as stainless steel, nickel, brass, etc.
- Dilute by an additional 30% with water for use with copper
- Supplied in **5 litre containers,** weight 7.5kg

Type	Order code	1+	3+
Ferric chloride 5L	**34-0758**	17.19	16.05

61309

Order online
Save time, and place your order at:
www.rapidonline.com
24 hours a day

FORTEX
Liquid Developer Concentrate – 1 Litre

Fortex PCB Developer is suitable for use with all alkaline developed, positive photo resists and fully aqueous dry film photo resists.

- Developer gives a long tank life and fast developing time
- Recommended dilution: 3 to 1, or less, depending on temperature
- Optimum temperature 30°C
- Safe to use: contains no sodium hydroxide
- Supplied as **1 litre of concentrate** - makes 4 litres of working solution

The shelf life of the solution is considerably greater than that of the crystalline form and should be kept in undiluted form in an airtight container.

Type	Order code	1+
Developer concentrate	**34-0790**	18.67

568451

R-TECH
Self Adhesive Nylon PCB Pillars

These PCB pillars have a self-adhesive backed base which provides a fast, effective, positive support for PCBs where chassis holes are not possible, for example inside front or rear panels, or on extra thick panels.

- Range of effective heights
- Self-adhesive base
- PCB snaps into position via 4mm holes drilled into the board
- Suitable for 1.6 to 2mm thick PCBs
- Base dimensions: 18 x 18mm
- Material: Nylon 6.6
- Colour: natural
- UL94-V2 rated
- Supplied in **packs of 50**

Effective height	Order code	1+	5+	10+	25+
5.5mm	**52-4362**	8.43	7.76	7.19	6.70
9.6mm	**52-4363**	8.95	8.23	7.63	7.10
12.8mm	**52-4364**	9.58	8.81	8.17	7.61

586448

ESSENTRA
Circuit Board Supports on Self-Adhesive Base – Pack of 25

These self-adhesive PCB supports allow the mounting of a PCB directly on to a chassis. They allow the panels, and particularly the printed circuit board, to be insulated from one another. The clip allows the board to be detached to permit repair or replacement.

- Eliminates the need for a mounting hole in the chassis
- Manufactured from Nylon 6.6
- Colour: Natural
- Top hole: Snap lock 4mm ±0.08mm / Panel thickness: 1.57mm
- Available with stand-off heights of 6.4, 12.7 and 19.1mm
- Base width 17.8mm square
- Self adhesive double-sided foam tape
- Temperature range -40°C to +85°C
- RoHS compliant
- UL Flame rating V-2
- Supplied in **packs of 25**

Type	Stand-off	Order code	1+
LCBSB-4-01A-RT	6.4mm	**33-6230**	5.62
LCBSB-8-01A-RT	12.7mm	**33-6234**	7.51
LCBSB-12-01A-RT	19.1mm	**33-6236**	8.30

116433

Can't find what you need?

Get in touch – **education@rapidonline.com**

ESSENTRA
Mini Circuit Board Supports on Self-Adhesive Base – Pack of 25

These self-adhesive mini PCB supports allow the mounting of a PCB directly on to a chassis. They allow the panels, and particularly the printed circuit board, to be insulated from one another. The clip allows the board to be detached for repair or replacement.

- Eliminates the need for a mounting hole on the chassis
- Manufactured from Nylon 6.6
- Colour: Natural
- Top hole: Snap lock 3.18mm ±0.05mm / Panel thickness: 1.57mm
- Available with stand-off heights of 4.8, 6.4 and 9.5mm
- Base width 12.7mm square
- Double-sided self-adhesive foam pad
- Temperature range -40°C to +85°C
- RoHS compliant
- UL Flame rating V-2
- Supplied in **packs of 25**

Type	Stand-off	Order code	1+	10+	25+
LCBSBM-3-01	4.8mm	**33-6238**	7.16	5.96	4.35
LCBSBM-4-01	6.4mm	**33-6240**	7.45	6.21	
LCBSBM-6-01	9.5mm	**33-6242**	6.58	5.44	4.01

116434

ESSENTRA
Round Through-Hole Plastic Spacers

Ideally suited for PCB packaging and stacking applications, these spacers/supports are used for 'board-to-board' and 'chassis-to-board' requirements. They are available to accept M2.5 and M3 screws and are easily installed, requiring no tools for assembly.

Durable and lightweight, these spacers/supports are manufactured from high-grade CPVC. They feature one-piece moulded construction, which ensures consistent, close tolerance dimensions and high strength.

- Non-threaded
- Made from CPVC
- Colour: Light grey
- Retains its dielectric properties
- The universally used spacer for electronics, electrical systems, etc
- Available for M2.5 and M3 screws
- Available in 4 lengths
- Post widths 6.4mm
- Temperature range -0°C to +50°C
- RoHS compliant
- UL Flame rating V-0
- Supplied in **packs of 25**

Type	Spacer length	Support width	Screw hole	Order code	1+
SS4-2	6.4mm	6.4mm	M2.5	**33-6258**	4.81
SS4-3	9.5m	6.4mm	M2.5	**33-6260**	3.35
SS6-2	6.4mm	6.4mm	M3	**33-6264**	4.81
SS6-4	12.7mm	6.4mm	M3	**33-6268**	5.82
SS6-8	25.4mm	6.4mm	M3	**33-6270**	6.05

116437

Education

06

Prototyping & PCBs

electro-PJP

Brass M3 Circular Spacers

These circular spacers are made from nickel-plated brass and have an M3 clearance hole. They are available in a range of lengths.

- Overall diameter 5mm
- Internal diameter 3.1mm
- Supplied in **packs of 100**

Technical Specification:

Order code	Mftrs Part No.	Length	Pack size
33-3611	EL4Ø3	4mm	100
33-3616	EL10Ø3	10mm	100
33-3621	EL20Ø3	20mm	100

Length	Pack size	Order code	1+	5+
4mm	100	**33-3611**	11.00	9.83
10mm	100	**33-3616**	11.02	9.49
20mm	100	**33-3621**	15.79	

64763

ℝ-TECH

Nylon Hexagonal M3 F-F Spacers - 5.5mm AF

These 5.5mm AF hexagonal female to female spacers have M3 tapped holes in both ends and are threaded throughout their entire length.

- Range of body lengths
- Threaded throughout length
- Thread: M3 x 0.5
- Width across flats: 5.5mm
- Material: UL approved Nylon 66, 94-V2
- Halogen-free
- Colour: natural
- Supplied in **packs of 100**

Length	Order code	1+	5+	10+	25+
6mm	**52-4344**	8.23	7.58	6.89	6.41
8mm	**52-4345**	9.56	8.80	8.01	7.45
10mm	**52-4346**	9.11	8.38	7.63	7.10
15mm	**52-4347**	9.78	9.01	8.19	7.63

586443

ℝ-TECH

Hexagonal M3 Threaded F-F Brass Spacers - 5mm AF

These 5mm AF hexagonal female to female spacers have M3 tapped holes in both ends. Shorter length spacers have thread extending though the whole length, while longer spacers have 10mm deep threads in each end.

- Range of body lengths
- Width across flats: 5mm
- Material: brass to DIN 17660: Cu Zn 39 Pb 3
- Tensile Strength: 430 N/mm² Min.
- Surface finish accords to DIN 267: nickel plated (G 3 E)
- Material number: 2.0401
- Tolerance for length dimensions: ± 0.1 mm
- Supplied in **packs of 25**

Length	Order code	1+	5+	10+	20+
5mm	**52-4395**	3.33	3.19	2.99	2.83
6mm	**52-4377**	4.41	4.20	3.93	3.71
8mm	**52-4380**	4.27	4.08	3.82	3.62
10mm	**52-4383**	4.50	4.30	4.03	3.81
12mm	**52-4386**	3.82	3.64	3.48	3.29
14mm	**52-4398**	5.21	4.98	4.67	4.41
16mm	**52-4400**	6.22	5.93	5.68	5.36
18mm	**52-4392**	5.52	5.27	4.95	4.67
20mm	**52-4401**	6.76	6.45	6.05	5.72
25mm	**52-4402**	7.22	6.89	6.46	6.11
30mm	**52-4403**	8.85	8.45	7.93	7.48

586436

Digital Analog Training System ETS-7000A

This comprehensive electronics training system is ideal for both analog and digital circuits and contains a wealth of equipment and features. The training system contains all the peripherals needed to support your circuit design. Components can be connected without soldering, by simply inserting them into the breadboard. Your circuit can then be powered by the internal power supplies, signals applied from the function generator and monitored on the built-in test equipment and displays.

Includes:
- Solderless breadboard with 2712 connection points
- 4 Fixed and variable DC power supplies
- 2 Control potentiometers
- Function generator producing sine, triangle and square waves plus TTL output
- Timer/counter measuring frequency and time with digital display
- Eight bit data switches
- Loudspeaker 8Ω 2.25in. dia.
- Four channel adaptor
- 2 LED displays
- Dimensions: 325 x 250 x 95mm
- Weight 4.3kg
- **Type ETS-7000A**

Type	Order code	1+
Digital Analog Lab	**34-0941**	621.94

517710

Logic Trainer

All the equipment you need to learn about logic in one comprehensive package.

- Basic logic gates – AND, OR, NAND, NOR, OR and NOT
- DC power supply +5V, -5V and ±15V
- Pulse generator
- Debounced logic switches
- Eight LED indicators
- Solderless breadboard with 1,896 tie points
- Console style case
- Complete with UK power lead and manual

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Type	Order code	2+
Logic trainer	**34-0932**	226.32

74731

Digital Lab IDL-800A

This comprehensive digital electronics training system contains a wealth of equipment and features. The training system contains all the peripherals needed to support your circuit design. Components can be connected without soldering, by simply inserting them into the breadboard. Your circuit can then be powered by the internal power supplies, signals applied from the function generator and monitored on the built-in test equipment and displays.

- **Includes:** Solderless breadboard with 1896 connection points
- 3 Fixed and variable DC power supplies
- Function generator producing sine, triangle and square waves plus TTL output
- Timer/counter measuring frequency and time with digital display
- 3.5 digit LED digital multimeter
- Eight bit data switches
- Loudspeaker 8Ω 2.25in. dia.
- 8 buffered LEDs
- 2 LED displays
- 2 function switches
- 2 pulse switches
- Dimensions: 480 x 360 x 200mm (L x W x H)
- Weight 4.2kg
- **Type IDL-800A**

Type	Order code	1+
Digital Lab	**34-0937**	633.04

517709