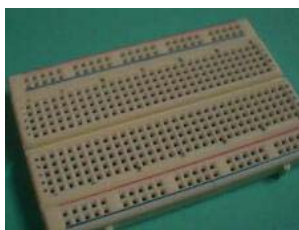


Project board 400 tie points

E-Call



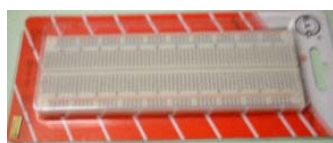
Solderless breadboard with a total of 400 contacts arranged in two blocks of 30 vertical rows of 5 interconnected sockets and four horizontal rows of 25 interconnected sockets on a standard 0.1" pitch. Self adhesive pad on rear. Boards can be interlocked to increase size.

Technical specification

| | | | | |
|------------------|-----------------------------|------------|-------|-------|
| No of contacts | 400 | | | |
| Contact material | Silver plated nickel silver | | | |
| Dimensions | 80x54x10mm | | | |
| Type | Order code | Price each | | |
| | | 1-9 | 10-49 | 50+ |
| Project board 1 | 535-452 | £2.25 | £1.95 | £1.75 |

Project board 830 tie points

E-Call



Solderless breadboard with a total of 830 contacts arranged in two blocks of 5 interconnected sockets and four horizontal rows of 50 interconnected sockets on a standard 0.1" pitch. Self adhesive pad on rear. Boards can be interlocked to increase size.

Technical specification

| | | | | |
|------------------|-----------------------------|------------|-------|-------|
| No of contacts | 830 | | | |
| Contact material | Silver plated nickel silver | | | |
| Dimensions | 166x55x11mm | | | |
| Type | Order code | Price each | | |
| | | 1-9 | 10-49 | 50+ |
| Project board 2 | 535-453 | £3.45 | £3.20 | £2.85 |

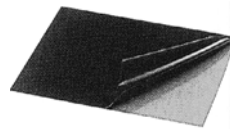
Plain copper board



High quality copper clad board for use with etching pens.

| | | | |
|---------------------|------------|------------|--|
| Type | Order code | Price each | |
| | | | |
| 24x18" single sided | 535-466 | £15.30 | |
| 18x12" single sided | 535-469 | £7.70 | |

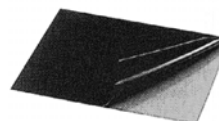
Economy photo etch PCB



A low cost photo etch board ideal for education. Boards protected by a black plastic film.

| | | | |
|-------------------------|------------|------------|--------|
| Type | Order code | Price each | |
| | | 1-9 | 10+ |
| 6"x12" CT board | 535-470 | £5.20 | £4.85 |
| 12"x12" CT board | 535-471 | £10.45 | £10.10 |
| 12"x18" CT board | 535-474 | £14.25 | £13.45 |
| 4"x6" CT double sided | 535-482 | £2.59 | £2.35 |
| 6"x12" CT double sided | 535-483 | £6.95 | £6.60 |
| 12"x12" CT double sided | 535-484 | £11.95 | £11.45 |

Photo etch PCB



FR4 epoxy glass coated photo resist board. Boards protected by a black plastic

| | | | |
|--------------------------|------------|------------|--------|
| Type | Order code | Price each | |
| | | 1-9 | 10+ |
| 18"x12" FR4 PCB Board | 535-503 | £17.90 | £17.40 |
| 4"x6" FR4 double sided | 535-485 | £3.25 | £2.95 |
| 6"x12" FR4 double sided | 535-493 | £7.90 | £7.45 |
| 12"x12" FR4 double sided | 535-494 | £13.45 | £12.80 |

PCB eraser/cleaner



Ideal for degreasing and cleaning copper clad boards before applying photoresist or after a board has been etched and stripped to clean the tracks before tinning or fluxing. The eraser block is made of silicon rubber material containing non-metallic abrasives which will polish the copper to a high gloss finish.

| | | | |
|--------------------|------------|------------|-------|
| Type | Order code | Price each | |
| | | 1-9 | 10+ |
| PCB eraser/cleaner | 535-465 | £1.95 | £1.85 |

74 PCB EQUIPMENT

Ferric Chloride

Ferric chloride in convenient pellet form. Ferric chloride pellets form a fairly safe etchant once mixed with warm water. Supplied in a 2.5Kg bucket to make up 5 litres of ferric chloride solution. Data supplied.



| Type | Order | Price each | |
|-----------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Ferric chloride 2.5kg | 535-464 | £11.90 | £11.65 |

Mega

Liquid concentrate developer

The premium developer for processing our photoresist. Very safe and stable and contains no Sodium Hydroxide. The 1 litre concentrate will make 10 litres of working solution. Normal developing time only 30 seconds.



| Type | Order | Price each | |
|------------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Liquid concentrate dev | 535-488 | £11.95 | £10.75 |

Ferric Chloride solution

A special formulation of Ferric Chloride to etch all types of copper circuit boards, as well as other metals such as stainless steel and brass etc. Supplied as full strength 45 Baume - can be diluted by an additional 30% for use with copper. Available in 5 litre containers.



| Type | Order | Price each | |
|--------------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Ferric solution 5 litres | 535-486 | £14.50 | £13.25 |

Mega

Ferric Chloride stain remover

A unique powder which may be utilised in a variety of methods for the removal of Ferric Chloride stains from clothing, PCB tanks, work benches and other affected areas. Concentration required will depend on the nature of the stain requiring removal, but typical concentration in solution is between 100g/200ml and 100g/100ml of water. The powder may also be used directly on badly affected areas. Supplied in a 1kg pack. COSHH data sheet supplied



| Type | Order | Price each | |
|---------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Stain remover | 535-478 | £13.95 | £13.20 |

Mega

Clear PCB etchant

Superior to standard Ferric Chloride etchant. This solution remains clear and does not crystallise. Makes 5 litres. Supplied with instructions and COSHH data sheet



| Type | Order | Price each | |
|-------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Clear PCB etchant | 535-492 | £18.75 | £17.75 |

Mega

Immerse Tin plating powder

A unique stable immerse tin powder that although it dissolves in water at 50 deg C, it actually plates at room temperature. The tin molecules deposited at room temperature are very small making the coating fine, hard and homogenous. Working solution has six months shelf life, unmixed powder has unlimited shelf life.



| Type | Order | Price each | |
|------------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Tin powder for 1 litre | 535-489 | £13.45 | £12.90 |
| Tin powder for 5 litre | 535-491 | £39.90 | £37.75 |

Mega

Seno universal developer

A safe stable powder developer with unlimited shelf life in unmixed form and 3 to 4 weeks in solution form. This safe developer which is suitable for all positive working photoresists, contains no hazardous Sodium Hydroxide at all. This developer has a safety factor which prevents over development. A board may be left immersed up to 50 times longer than the normal 20/30 seconds developing time without the risk of undercutting or thinning of the photoresist. COSHH data



| Type | Order | Price each | |
|---------------------|---------|------------|-------|
| | code | 1-4 | 5+ |
| Universal developer | 535-467 | £8.90 | £8.50 |

Mega

Photoresist stripper

A stripper for removing the resist after etching. 1Ltr of Photoresist concentrate for making 5 Ltrs for use in a resist strip tank.



| Type | Order | Price each | |
|---------------------------|---------|------------|--------|
| | code | 1-4 | 5+ |
| Photoresist stripper 1Ltr | 535-504 | £11.90 | £10.70 |

Mega

PA104 Bubble etch tank

Mega

A single free standing etching tank for producing PCBs from either photo resist board or plain copper clad board. The tank includes a 500W heater and thermostat sensor. It also has a pump fitted which forces air through two bubble bars to provide efficient and even etching. Separate illuminated switches control mains power and the pump, and a neon indicates heater operative. The switches and neon have splash proof covers. The temperature is set by adjusting the variable thermostat control knob. (Optimum for ferric chloride 40 to 50 deg C). Supplied with syphon and 2 metres of mains lead with sleeved pin 13A mains plug. Instructions supplied.



| Type | Order code | Price each |
|------------------------|------------|------------|
| PA104 etch tank | 535-472 | £199.00 |
| Replacement lid/basket | 535-480 | £6.20 |

PA210 Two-tank unit

Mega

An improvement over a standard Bubble Etch tank. This unit is the same as the PA104 Bubble Etch Tank with the addition of an integral spray wash tank. The spray wash is solenoid operated and all electrical controls are on the front panel. Connections are provided at the rear for drain and cold water requirements. The integral spray wash tank offers safer and more efficient etching of boards than a standard bubble etch tank and being wider also gives greater stability. Complete with an IEC socket and supplied with 2 metres mains cable with moulded 13amp plug and a syphon. Width 275mm, depth 525mm, height 380mm



| Type | Order code | Price each |
|------------------------|------------|------------|
| PA210 Two-tank unit | 535-473 | £255.00 |
| Replacement lid/basket | 535-480 | £6.20 |

PA107 Universal tank

Mega

A single free standing tank complete with thermostatically controlled heater to cover PCB chemical temperature range of 10 deg C to 55 deg C. The tank can be selected for develop (25 deg C), Resist strip (45 deg C) or immerse tin (21 deg C) Neons indicate when the mains heater is operative. Supplied complete with a syphon, IEC socket and 2 metre mains cable with moulded 13A plug. Width 180mm, depth 525mm, height 380mm.



| Type | Order code | Price each |
|------------------------|------------|------------|
| PA107 universal tank | 535-481 | £170.00 |
| Replacement lid/basket | 535-480 | £6.20 |

PA310 Tri-tank unit

Mega

A self contained triple process unit with built in develop/spray wash/bubble etch functions to provide a convenient bench standing system and eliminate the normal mess associated with getting a prototype PCB to the solderable etched stage. Function tanks and splash proof controls are as standard, with all electrics brought together on the recessed front panel and the connections provided at the rear for drain and cold water requirements. Supplied with 2 syphons and 2 metres of mains cable with sleeved pin 13A mains plug. Instructions supplied.



| Type | Order code | Price each |
|------------------------|------------|------------|
| PA310 Tri-tank | 535-463 | £425.00 |
| Replacement lid/basket | 535-480 | £6.20 |

76 PCB EQUIPMENT

Rotary jet spray etcher

The Rora-Spray has many advance features making it an ideal upgrade to a Bubble etch tank. It is 3-4 times faster than a Bubble Etch tank and can etch PCBs in less than 90 seconds.

A splash hopper is included to help contain the chemistry to aid clean processing. The integral spray wash washes the entire board holder to keep the whole etching process clean. Fitted with adjustable spray bars and can take multiple small boards.



The transparent case design allows boards to be examined after processing without removing. As well as etching the unit can be used to develop photoresists. A digital temperature control allows the accurate setting and control of the temperature. A bottom drain with secure fastening removes the need for syphoning. The maximum board capacity is 10" x 12" (254 x 305mm). A safety cut-out on the lid cuts the motor out if the lid is raised during etching. As the board is not immersed in liquid, there is no over-processing after completion. This makes over-etching very difficult. Supplied with mains lead and 13A plug.

| Type | Order code | Price each |
|-------------------------|------------|------------|
| Rotary jet spray etcher | 535-495 | £790.00 |
| Base unit | 535-497 | £67.00 |

Syphon pump



A replacement syphon pump for emptying tanks as supplied with the PA range of tanks.

| Type | Order code | Price each |
|-------------|------------|------------|
| Syphon pump | 535-479 | £5.50 |

Next day delivery for all ex stock products. Carriage free on all orders over £30 UK mainland

Mega PCB 500S Labstation

Mega

A popular multi-purpose PCB processing unit developed for both the industrial and educational market.

Three chemical and process tanks separated by two integral spray wash tanks.

Possible processing sequences are: Develop/ Wash/ Etch/ Wash/ Resit strip. Or Develop/ Wash/ Etch/ Wash/ Immerse Tin.

Integral sink with hot and cold water to keep PCB processing clean and efficient.

Hot and cold water inlets are through standard washing machine hoses provided, draining from standard 32mm push fittings also provided.

Standard single phase 240/50Hz 13A supply required.

RCD current trip socket supplied as standard.

One piece polypropylene moulded top incorporating a sink and hot/cold mixer tap.

The cabinet itself is of steel construction clad with polypropylene sheeting and incorporates a locable storage facility. Doors are manufactured from PVC



| Type | Order code | Price each |
|---------------------|------------|------------|
| PCB 500S labstation | 535-498 | £1275.00 |

PCB PB710 Labstation

Mega

A complete 7 tank PCB production unit to enable the user to produce a complete PCB in under 20 minutes.

10" x 12" (250 x 300mm) board capacity.

Easy emptying of tanks via bottom drains, no syphoning required.

Four process tanks separated by three integral spray wash tanks.

Integral sink with hot and cold water to keep processing clean and efficient

Hot and cold water inlets are through standard washing machine hoses provided, draining from standard 32mm push fittings also provided.

Standard single phase 240/50Hz 13 amp supply required.

RCD current trip socket supplied as standard.

Cabinet is of steel construction clad with polypropylene sheeting and incorporates a locable storage facility. Doors are manufactured from PVC.



| Type | Order code | Price each |
|----------------------|------------|------------|
| PCB PB710 labstation | 535-499 | £1525.00 |

Rota-Station PCB production unit

Mega

Polypropylene tray

Based on the popular Rota-spray is designed to etch and wash PCBs.

Two digitally controlled Heated Process Tanks either side of a Spray-Wash Tank and an integral Hot/Cold sink. The new Rota-Station therefore offers all the efficiencies of the spray etching of the Rota-Spray with additional tanks to handle the whole PCB production process.



A polypropylene tray suitable for developing and etching printed circuit boards.

| Type | Order code | Price each |
|--------------------|------------|------------|
| Polypropylene tray | 535-468 | £1.35 |

| Type | Order code | Price each |
|-------------------------|------------|------------|
| Rota-Station production | 535-500 | £1775.00 |
| Without Rota-Spray | 535-501 | £975.00 |

Ultraviolet exposure unit

Mega

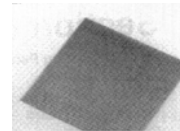


An ultraviolet exposure unit for use in the preparation of photo resist PCBs. A six minute mechanical timer which also acts as the mains switch is fitted to the front. When the control knob is rotated to the required time the power is turned on and exposure begins. The timer clicks off as soon as exposure is completed.

Technical specification

| | | |
|----------------|------------------|------------|
| Working area | 9"x6.25" | |
| | 229x159mm | |
| Dimensions | 17.25x7.25x3.62" | |
| Timer | 6 mins | |
| UV output | 2x8W | |
| Power | 240V ac | |
| Type | Order code | Price each |
| LV202E UV unit | 535-476 | £95.00 |

Copper Stripboard



Fully pierced copper stripboard for use in prototype and development work and may be readily cut to the size of the finished circuit. Copper strips form the interconnections. Punched on a 0.1" pitch.

| Type | Order code | Price each |
|---------------------|------------|------------|
| Stripboard 127x95mm | 535-490 | £1.15 |

PCB shears

Mega



Two cost effective but powerful shears which have the ability to accurately cut PCB laminates, plastics up to 2.0mm thick and aluminium up to 1.5mm. These shears have been designed with safety in mind. Free 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 operation without it being released first. For accuracy the cutting bed is fitted with a rule which is recessed to assist in securing the PCB or sheeting whilst cutting is in progress.

The DM9000 has a cutting capacity of 203mm (8") and is extremely compact with an overall height of 575mm and a base size of 335 x 140mm. It has a cutting bed of 110mm wide from the blade although wider material can be cut.

The DM9001 will cut materials up to 305mm (12") and has a height of 670mm and a base size of 440 x 245mm. It has a large cutting bed 225mm wide from the blade although wider material can be cut.

| Type | Order code | Price each |
|------------------|------------|------------|
| DM9000 8" shear | 535-505 | £165.00 |
| DM9001 12" shear | 535-506 | £209.00 |