

Breadboard survey — 2

Assemblies and systems

Part one described the basic breadboard blocks. This concluding article covers breadboard assemblies and systems, many of which are based on the individual blocks.

THREE ASSEMBLIES based on the Bimboard 1 consist of either 2, 3 or 4 blocks mounted on a rigid aluminium base plate as shown in Fig. 9. Four screw-terminals are also supplied for connection to incoming power supplies. As with the single block, a vertical panel can be mounted to support switches and potentiometers.

Eight assemblies from A.P. Products, based on either their distribution strips or super strips, offer from 728 connection points and two screw terminals, to 3,648 connection points and four screw terminals.

Six assemblies from Continental Specialities, based on their bus strips mounted on a base plate, offer from 630 connection points with four screw terminals, to 3,060 connection points also with four screw terminals.

The Vector Klip-Blok breadboard system shown in Fig 10 consists of 0.1in matrix blocks organised as 12 rows each with four interconnected beryllium copper sockets. These blocks have four pins which locate in a base plate which contains a matrix of holes. Because the individual blocks can be moved, the system automatically accommodates all dual-in-line i.cs and most discrete components with lead diameters between 0.38 and 0.8mm. For larger lead diameters, special sockets are supplied. To supplement the blocks, metal socket strips are supplied, also with locating pins, which serve as power supply rails. These metal strips can be cut into shorter lengths to produce several supply rails. Both sides of the matrix base board are printed with a labelled grid to help with component placement. A useful feature of the Klip Blok system is the ability to wire on both sides of the base board.

Three board sizes are available from model 49X, which measures 67 × 114mm and accommodates two blocks and two metal socket strips, to model 51X which measures 114 × 203mm and

accommodates eight blocks, eight metal socket strips and three screw terminals. All of the base boards are mounted in an aluminium frame, and two larger frames will accommodate two or four 51X baseboards.

Function boards are modules designed to be used with the Ramp base board which also accommodates up to four Bimboards. A power board, see Fig. 11 which measures 150 × 50mm, allows breadboard circuits to use either TO3P, TO126, TO220, TO66 or TO3 type semiconductor cases on two 10W heat-sinks. The components are either plugged into a fixed socket and bolted to the

heatsink or bolted and wired with plug in leads to a breadboard circuit. Two terminal blocks allow external connections to, for example, a loudspeaker. The power board is supplied with connector leads and mounting hardware.

An oscillator board, which measures 150 × 50mm, contains a 1MHz crystal oscillator, six counters and a one-shot circuit. All inputs and outputs are brought out to labelled connectors in the same way as the breadboard. A set of four display boards, which again all measure 150 × 50mm, range from a four digit 5V version to a six digit 5 to 15V type. All of the boards accept multi-

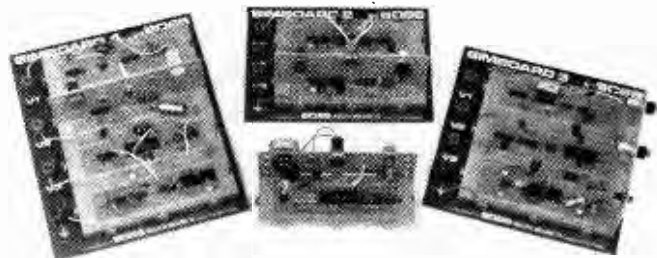


Fig 9

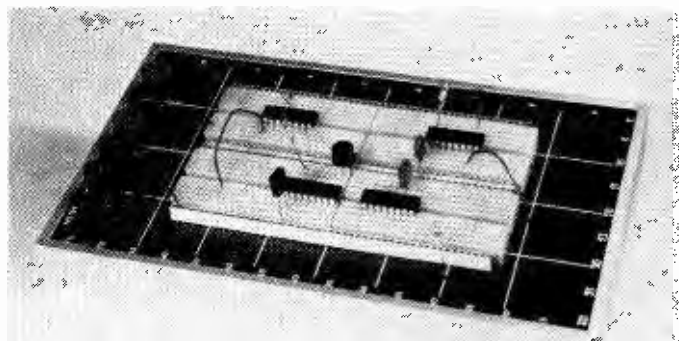


Fig 10

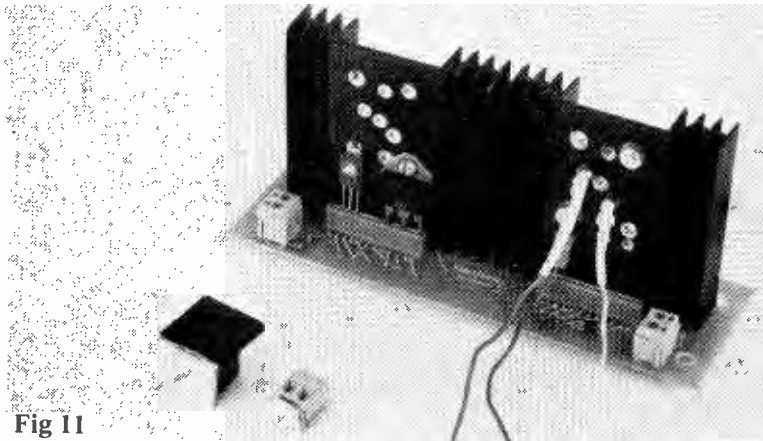


Fig 11

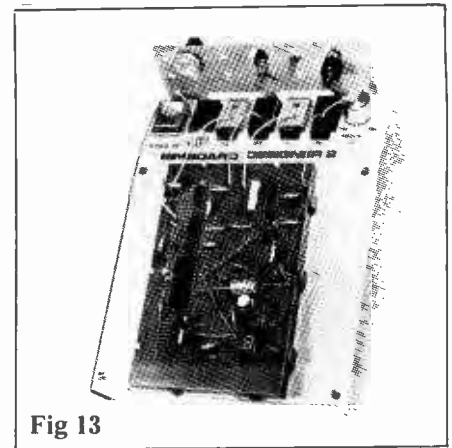


Fig 13

BREADBOARD	PRICE	SUPPLIER	BREADBOARD	PRICE	SUPPLIER
Augat Breadboard Panels		Rastra Electronics Ltd, 275 King Street, London W6 9NF.	" -1022- "	£73.30 + v.a.t.	
8 130-36DG1R	£269.72 + v.a.t.		" -1024- "	£41.50 + v.a.t.	
8 130-36DG1R-25	£139.16 + v.a.t.		Klip block 51X	£21.00 + v.a.t.	Rhopoint Ltd, Eastman House, 98-102 Station Road, East Oxted, Surrey RH8 0AY.
8 130-36DG1R-10	£58.97 + v.a.t.		" 50X	£14.00 + v.a.t.	
Bimboard 1	£8.83 inc.	Boss Industrial Mouldings Ltd, Higgs Industrial Estate, 2 Herne Hill Road, London SE24 0AU.	" 49X	£7.50 + v.a.t.	
" 2	£21.01 inc.		Laboratory Bread-board (kit)	£72.15 inc. v.a.t.	Heath (Gloucester) Ltd, Gloucester GL2 6EE.
" 3	£29.84 inc.		Ramp base board	£5.00 + v.a.t.	Ramp Electronics 105 Harehills Avenue, Leeds LS8 4HU.
" 4	£38.79 inc.		" power board	£10.95 + v.a.t.	
Bimboard designer 1	£55.62 inc.		" oscillator board	£22.95 + v.a.t.	
" " 2	£61.02 inc.		" display board A	£18.50 + v.a.t.	
" " 3	£66.42 inc.		" " B	£19.95 + v.a.t.	
Euroblock	£5.80 inc. v.a.t.	David George Sales 74 Crayford High Street, Crayford, Kent DA1 4EF.	" " C	£25.95 + v.a.t.	
Experimenter 300	£5.75 + v.a.t.	Continental Specialties Corporation, Spur Road, North Feltham Trading Estate, Feltham, Middlesex.	" " D	£28.50 + v.a.t.	
" 600	£6.30 + v.a.t.		Super strip	£11.05 inc.	
Assembly 6	£9.20 + v.a.t.		Assembly 200	£12.53 inc.	
" 100	£11.80 + v.a.t.		" 201	£16.75 inc.	Lektrokit Ltd, Sutton Industrial Park, London Road, Reading, Berks RG6 1AZ.
" 101	£17.20 + v.a.t.		" 208	£19.35 inc.	
" 102	£22.95 + v.a.t.		" 212	£23.60 inc.	
" 103	£34.45 + v.a.t.		" 218	£31.70 inc.	
" 104	£45.95 + v.a.t.		" 227	£40.35 inc.	
Breadboard system 203A	£74.70 + v.a.t.		" 236	£53.50 inc.	OK Tool Co Ltd, 48a The Avenue, Southampton, Hants SO1 2SY.
Hirschmann Experimental Plate	£45.00 + v.a.t.	Lectroustic Ltd, 20 Wilbury Grove, Hove, Sussex BN3 3JQ.	236 with power supply	£78.95 inc.	
IC breadboards		Cambion Electronic Products Ltd, Castleton, Sheffield, S30 2WR.	S Dec	£3.50 + v.a.t.	Bandridge Ltd, 80a Battersea Rise, London SW11 1EH.
705-2105-02	£16.40 + v.a.t.		T Dec	£4.50 + v.a.t.	
705-0169-01	£173.40 + v.a.t.		µ-Dec A	£4.65 + v.a.t.	
" -0269- "	£92.80 + v.a.t.		µ-Dec B	£7.20 + v.a.t.	
" -0369- "	£54.20 + v.a.t.		Wonderboard small	£2.80 inc. v.a.t.	Charcroft Electronics, Charcroft House, Sturmer, Haverhill, Suffolk.
" -1020- "	£150.20 + v.a.t.		" large	£11.20 inc. v.a.t.	

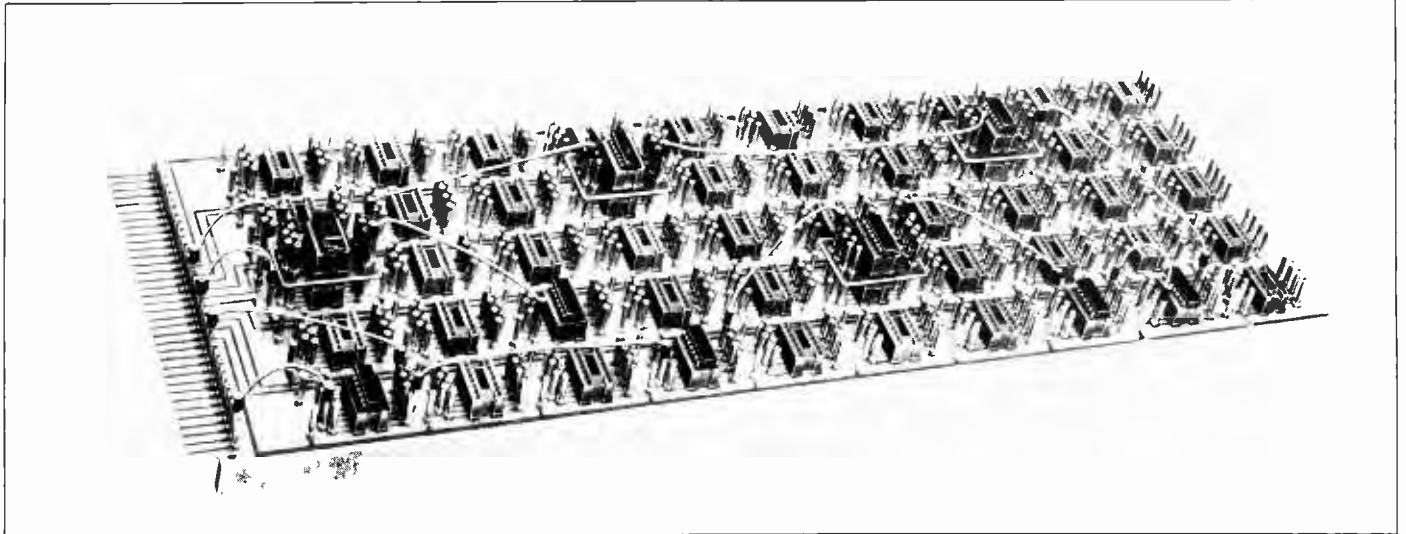


Fig 12

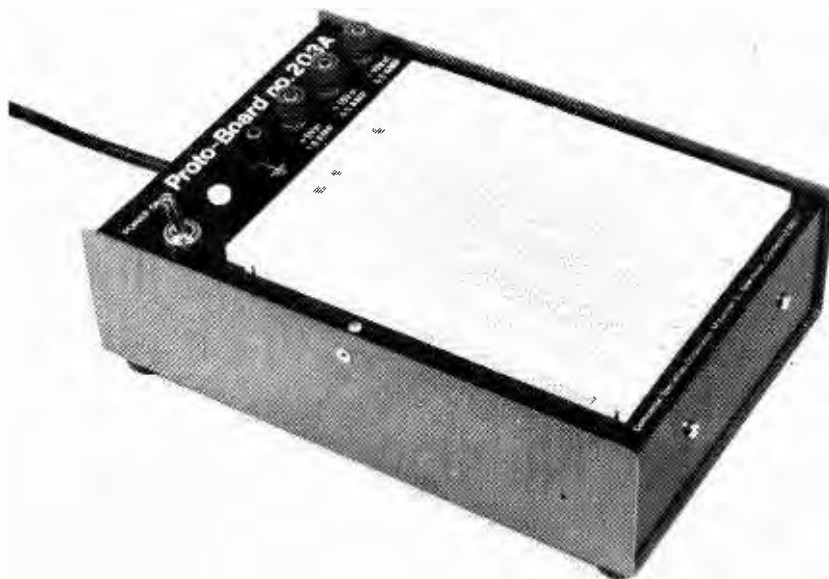


Fig 14

plexed b.c.d. or seven segment inputs via labelled sockets and stripped wires.

To supplement the function boards, there is a range of terminal blocks, sockets and a multi-zener, all designed to plug into a 0.1in breadboard. The last mentioned is a single circuit-block which gives an adjustable zener voltage from 2.7 to 30V.

Augat i.c. test panels are available in three sizes, each 155mm wide by 106, 231, or 441mm long. These panels accommodate 10, 25 and 50 i.c. sockets respectively. Each i.c. pin has a vertical socket constructed from beryllium copper with gold-over-nickel plating, see Fig. 12, and connections are made by special patch leads. A 36-way edge connector, also with vertical sockets, is used for input/output connections and several power supply busses which travel in between the i.c. sockets.

This system can be extended by using single breadboard units. These small

boards contain similar vertical sockets together with pins on the underside which will locate on top of any one i.c. on the main board. The individual breadboards can accept more i.c.s or other components as required. A special plug/socket patch lead enables a connection to be made to the socket underneath the piggy-back module.

The Bimboard Designer in Fig. 13 consists of one, two or three Bimboards mounted on a console which contains a triple-rail d.c. power supply, comprising a dual tracking 100mA supply which can be varied from ± 5 to ± 15 V, and a fixed 5V output rated at 1A. All of the supplies, which are isolated from earth and from each other, offer short circuit protection. Power supply terminals on the top of the console accept either 4mm plugs or stripped wire.

The console is fitted with a mains switch/neon indicator, a fuse holder, and a vertical panel.

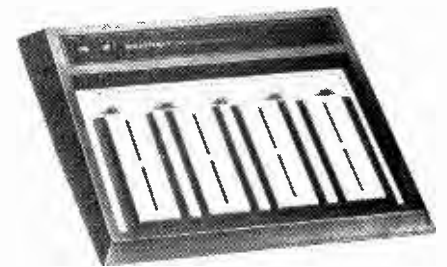


Fig 15

Proto Board 203A. Fig. 14, is composed of three Continental Specialties 0.1in breadboard strips and five power supply strips mounted on a steel case. A total of 2,270 connection points will accommodate up to 24 14-pin i.c.s together with discrete components. An internal power supply with short circuit protection gives three d.c. outputs of 5V at 1A and ± 15 V at 0.5A. Four screw terminals are provided for supply and earth connections, together with a mains switch and neon indicator. Dimensions for the unit are 247 × 165 × 90mm.

Laboratory Breadboard Type ET3300 from Heathkit, see Fig. 15 is available in kit form or ready built. The console comprises four 0.1in matrix strips and three bus strips which will accept up to 24 14-pin i.c.s. The internal d.c. power supplies offer +5V at 1.5A, ± 12 V at 100mA, and are short circuit protected. Overall size of the unit is 89 × 304 × 304mm. □