

G DIODE VALVE MOUNTED

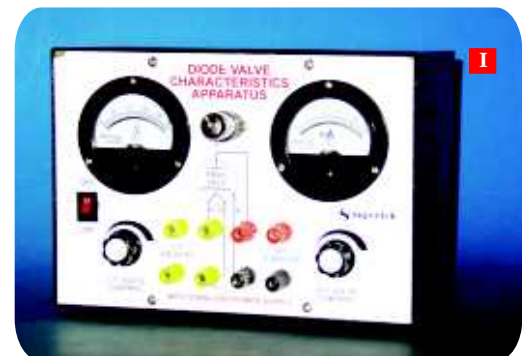
For experiments in diode characteristics. A double diode valve EB91 or equivalent is mounted on a two part plastic box 90x90x30 mm with sockets for two anodes, heater and cathode.
P50651

**H TRIODE VALVE MOUNTED**

For experiments in triode characteristics. A triode valve is mounted on two part plastic box 90x90x30mm with sockets for anode, heater, cathode, grid etc.
P50653

**I DIODE CHARACTERISTICS APPARATUS**

For diode valve experiments, designed to work on 230 volts a.c. with built-in power supply, fitted with diode valve in the front panel. Two meters are provided to read voltage and current.
Output : H.T. : 0-250 volts at 25mA
continuously variable.
L.T. : 6.3 volts a.c.

**P50656****P50658** With stabilised power supply.**J TRIODE CHARACTERISTICS APPARATUS**

For triode valve experiments, input 230 volts a.c. with built-in power supply, fitted with triode valve. Provided with three meters for HT voltage, output current and bias voltage.

Output: H.T. : 0-300 volts d.c. at 30mA,
continuously variable. Bias : 0-25
volts d.c. at 5mA, continuously
variable. L.T. : 6.3 volts a.c.

P50663**P50665** With stabilised power supply

K TETRODE/PENTODE CHARACTERISTICS APPARATUS For tetrode/pentode valve experiments . Provided with stabilised dual power supply, five meters.

HT-1: 0-300 volts d.c. at 30mA continuously
variable.

HT-2: 0-300 volts d.c. at 30mA continuously
variable.

Bias: 10 volts d. c. floating L.T. : 6.3 volts a.c.
at 2 amps.

P50670

ALL DEVICES ARE PROVIDED WITH CIRCUIT DIAGRAM ON BASE, WITH 4 MM COLOUR CODED SOCKETS.

A DIODE

A general purpose silicon junction diode to show diode properties and routine circuit use, mounted on 90x90x30 mm base.

P50680



B ZENER DIODE

Zener diode mounted on 90x90x30 mm base.

P50684



C CADMIUM SULPHIDE RESISTOR UNIT

With photo-sensitive resistor mounted on 90 x 90 x 30 mm base. Shows that resistance is inversely proportional to light density.

P50685



D TRANSISTOR

An npn silicon low power transistor used to investigate transistor characteristics or as a basic circuit building element mounted on 90x90x30 mm base.

P50686



E PHOTO TRANSISTOR

A monolithic silicon photo transistor mounted on 90x90x30 mm base.

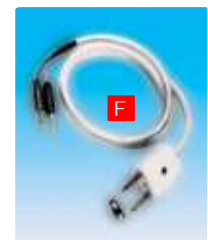
P50688



F THERMISTOR

A thermistor mounted at end of a 2-core flying lead with 4mm plug ends to show change of resistance with temperature.

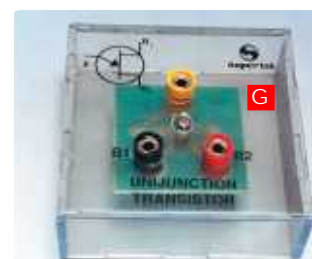
P50690



G UNIUNCTION

A unijunction transistor mounted on 90 x 90 30 mm base.

P50691



H FIELD EFFECT TRANSISTOR (FET)

Mounted on 90x90x30 mm base
P50692

**I POWER TRANSISTOR**

Mounted on 90x90x30 mm base.
P50693

**J THYRISTOR**

Mounted on 90x90x30 mm base.
P50694

K PHOTO CELL

A sensitive photo-voltaic solar cell, mounted on 90 x 90 x 30 mm base.
P50695

**L TRANSISTOR CHARACTERISTICS APPARATUS**

With four meters and built-in regulated power supply suitable for both common base and common emitter amplifier.
P50697

**M FET CHARACTERISTICS APPARATUS**

With three meters, to study and plot output and mutual characteristics of a FET.
P50699

**N SEMICONDUCTOR DIODE / PN JUNCTION DIODE CHARACTERISTICS APPARATUS**

Complete with power supply and two meters, suitable for both forward and reverse bias characteristics.
P50702

O ZENER DIODE CHARACTERISTICS APPARATUS

Complete with two meters for measuring input voltage and output voltage, complete with built-in power supply.
P50704



A THERMISTOR CHARACTERISTICS APPARATUS

With glass thermistor, two meters, oven and built-in 0-10V d.c. IC regulated power supply.
P50706

B LCR IMPEDANCE APPARATUS

Provided with three resistances, three capacitors, inductance and two meters to read voltage and current for series and parallel resonance circuits.
P50708

ELECTRONICS KIT

Each module is housed in a two part plastic box 90 x 90 x 30 mm and is provided with a circuit diagram on the panel. It has necessary input and output sockets. The socket stacking system allows addition of as many modules as desired, designed to work on 6V d.c.

C BASIC UNIT

A one-transistor amplifier, may also be used as a squarer, an inverter or NOT gate, a NOR gate and as a pulse generator.
P50720

D BISTABLE UNIT

Comprises two basic units in bi-stable configuration. A trigger input socket is also provided to allow the bistable to be changed over a continuous train of pulses thus acting as frequency divider.
P50725

E MULTIVIBRATOR UNIT

Incorporates two Basic Units with switches for being coupled (a) resistively to produce a bistable multivibrator (b) capacitively to produce an astable multivibrator of approx 2.5kHz frequency (c) resistive-capacitively to produce a monostable multivibrator.
P50728

F BEAM SPLITTER UNIT

To convert an oscilloscope to double beam operation. Signals supplied to INPUT 1 and INPUT 2 sockets will be displayed as separate traces of the oscilloscope.
P50730

G AND UNIT

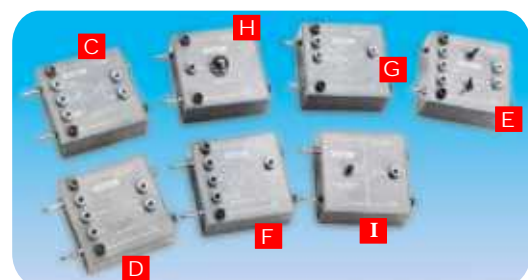
A two input "AND" gate with single output. This unit gives an output which is high only when both inputs are simultaneously high.
P50733

H INDICATOR UNIT

A 6V lamp, with drive transistor, lights when the input to the unit is made 'high'.
P50735

I SWITCH UNIT

Comprising a press switch linked with a bistable circuit which, on operation, causes the output socket to go 'high'. The unit is useful for supplying pulses and does not suffer the contact bounces and is more suitable in binary counting.
P50740



LOGIC TRAINER SYSTEM

J LOGIC GATES TRAINER

Logic Gates Trainer is a self training course in basic digital electronics and is first step to understand fundamentals of any computer. It enables the student to understand AND, OR, NOT, NAND & NOR Gates and in the process to make connections. Supplied with user's manual.
P50744

K VERIFICATION OF BOOLEAN IDENTITIES & DEMORGAN'S THEOREMS

To verify the truth table of 3 input AND gate, OR gate, NAND gate, NOR gate, single input NOT gates, Boolean expressions & Demorgan's theorems.
 Consists of 5V d.c. regulated power supply, 4 push-to-on switches provided for selecting logic '1' & logic '0', 2 Red LED output indicators, circuit diagram printed for 5 OR, 5 AND & 4 NOT gates & their respective IC's placed inside the cabinet & connections brought out at sockets.
P50747

L LOGIC GATE CIRCUIT TRAINER

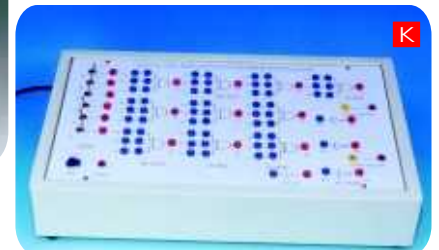
Study & verification of Flip flops, Counters, Shift Registers, Encoders, Decoders, Multiplexers & De-multiplexers.
 Consists of 8 Debounced logic inputs, 8 red LED output indicators, +5 V d.c. / 1Amp regulated short circuit & overload protected power supply, 1 Hz monoshot clock pulse. All the IC's & components have been placed inside the cabinet & connections brought out at 2 mm sockets.
P50745

M OPERATION AMPLIFIER KIT

To study Operational Amplifier Characteristics and Applications.
 Consists of 3 d.c. regulated power supplies of 0-5 V Continuously variable, $\pm 15V$ d.c. regulated power supply, Sine, Square, Triangular wave outputs, one Bread board having two main strips & two distribution strips. Complete with two dual range meters and necessary components.
P50750

N AUDIO FREQUENCY FUNCTION GENERATOR 1 Hz TO 220 kHz

Wave Shapes : Sine, Square & Traingular waves selectable by band switch.
 Frequency Range : 1 Hz to 220 KHz using fine & coarse controls.
 Accuracy : $\pm 3\%$ on all ranges,
 Outputs Impedance: App. 60 Ohms.
 Amplitude for sine : 20 V Peak to Peak wave output
P51005



A SINE/SQUARE OSCILLATOR 1 HZ - 1MHz

Wave Shapes : Sine & Square waves output 4mm sockets .
 Frequency Range: 1 Hz to 1MHz using fine & coarse controls.
 Accuracy : $\pm 5\%$ on all ranges.
 Amplitude for sine wave output : 30 V Peak to Peak
 Amplitude for Square wave output : 15 V Peak to Peak
 Output Impedance for sine wave : App. 600 Ohms.
 Output Impedance for square wave : App. 400 Ohms.
 P51015

B OSCILLOSCOPE, DUAL TRACE, 20 MHz

DC to 20 MHz, dual beam
 2mV per cm sensitivity
 A high performance oscilloscope with wide vertical bandwidth and time-base speed range.

Specifications :

Operating mode : Ch I, Ch II, Ch I & II Alternated / chopped
 Vertical Deflection: DC - 20 MHz (-3 dB) (identical channels) DC - 28 MHz (-6 dB)
 Deflection Coefficients : Twelve calibrated steps 2 mV to 10V/cm
 Input Impedance : 1 M ohm//25 pf
 Input coupling : DC-AC-GD

Max Input Voltage : 500 V (d.c.+ peak a.c.)
 Time Base : 18 calibrated steps
 0.5 μ s/cm to 0.2s/cm, with magnifier x5 to 100 ns/cm with variable control to 40 ns/cm

Accuracy : $\pm 3\%$
Trigger System :
 Modes : Automatic or variable trigger level

Source : Channel I or II or external

Slope : Positive or negative
 Coupling : a.c., TV frame

Horizontal Deflection :

Bandwidth : DC 2.3 MHz
 Deflection co-efficient : 12 calibrated steps 2mV/cm to 10V/cm

Input impedance : 1 M//25 pf

Built-in single touch component tester :

Test voltage : Max.8.6 V rms (open)
 Test Current : Max 28 mA rms (shorted)

Test frequency : 50 Hz

Display : 8 x 10 cm

Trace rotation : Adjustable on front panel

Calibrator : Square wave 1 KHz approx 0.2V $\pm 1\%$

Mains Voltage : 220-240 V 50, Hz (switch at the back)

Mains fluctuation : $\pm 10\%$

Included accessories :

- 1 BNC-BNC cable
- 1 BNC-crocodile clip cable
- 1 pair Test probe
- 1 Manual

P52010

