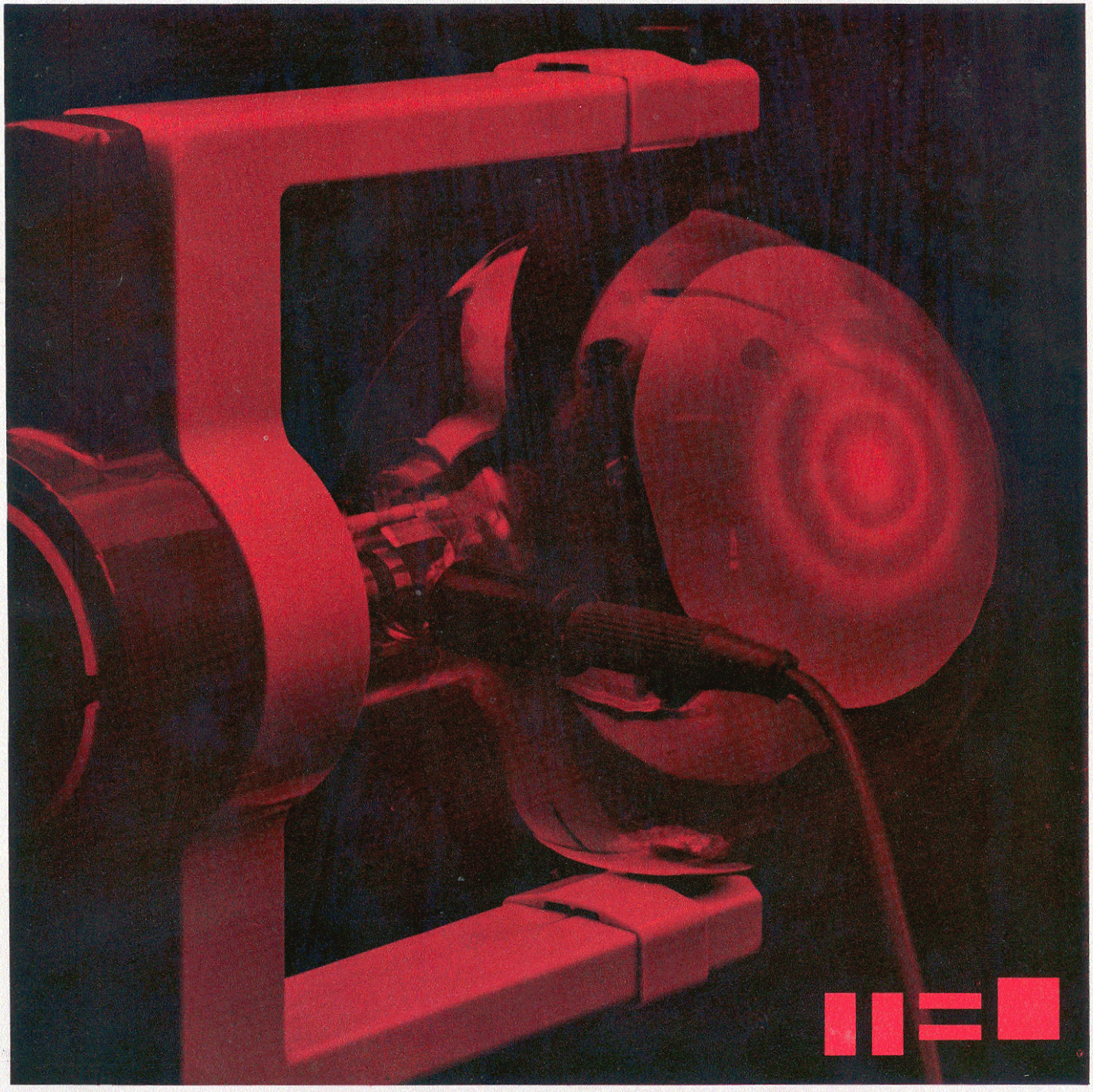
TELTRON

Atomic Physics Educational Apparatus

TUBES

A comprehensive and unique range of evacuated, gas-filled and demountable tubes designed and manufactured to suit the contemporary requirements of the teaching and learning of Atomic Physics



TELTRON

Atomic Physics Educational Apparatus

Severe limitations to the amount of both time and money available for each and every subject seems to be characteristic of all echelons of teaching establishments. Teltron Research and Design staff are acutely conscious of this and at every design stage they are guided by the Teachers needs. Our aim is to produce didacticaly sound equipment of high quality at economic prices. The world-wide demand for Teltron apparatus is adequate testimony to the success of our philosophy.

TEACHING ATOMIC PHYSICS

The subject of Atomic Physics cannot be taught or learnt in depth in one single school grade or one university year. With the help of teachers, lecturers and researchers in modern physics, Teltron has prepared a programme entitled **''The Teltron Approach To Atomic Physics''** with the object of achieving better subject penetration in the minimum time without using a lot of apparatus. It is divided into a number of 'Series', each of which provide guidance on suitable 'starting' and 'stopping' points for those responsible for preparing syllabuses and curriculae. They may also be considered as suitable divisions for phased purchase of the relevant apparatus.

TELTRON SERIES A—The production and properties of the free electron.
TELTRON SERIES B—A concept of the electron within the atom.
TELTRON SERIES D—The production, properties and uses of X-rays.
TELTRON SERIES C—The production, properties and uses of radioactivity.*
TELTRON SERIES Q—The Quantum Theory.*

(*series in preparation)
Also available are the following illustrated catalogues :–

● TELTRON TUBES

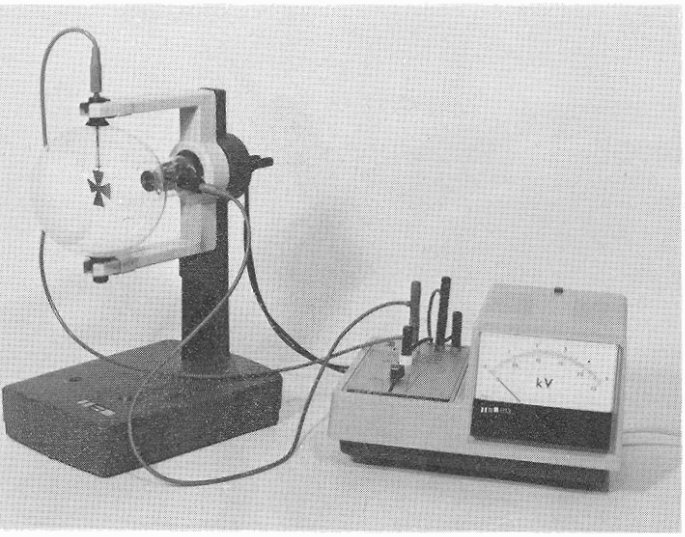
A comprehensive and unique range of evacuated, gas-filled and demountable tubes designed and manufactured to suit the contemporary requirements of the teaching and learning of Atomic Physics.

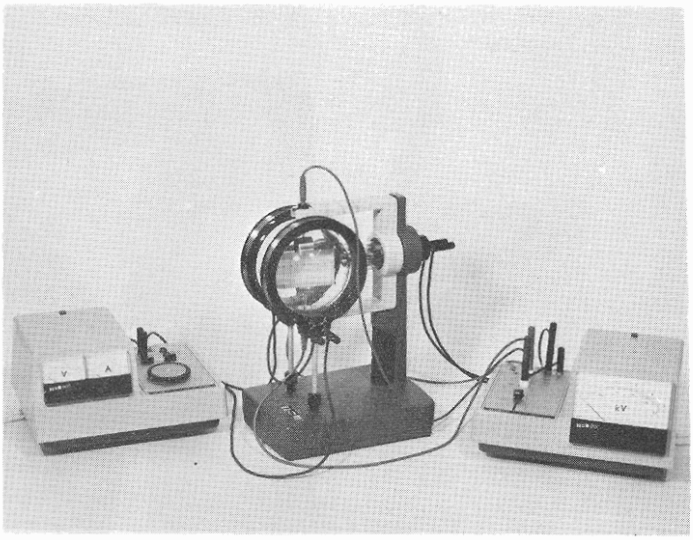
● TELTRON X-RAY EQUIPMENT

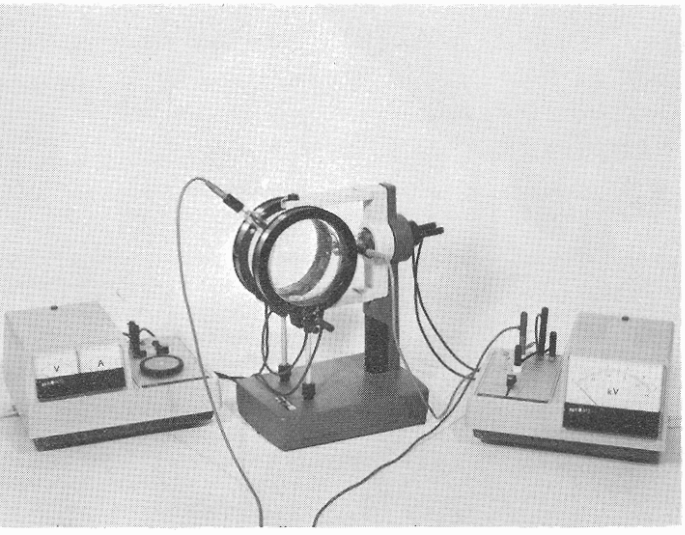
More than 10 years research is embodied in this range of X-ray equipment which has internationally pioneered the teaching and learning of the phenomenon of X-rays in all grades of educational establishments.

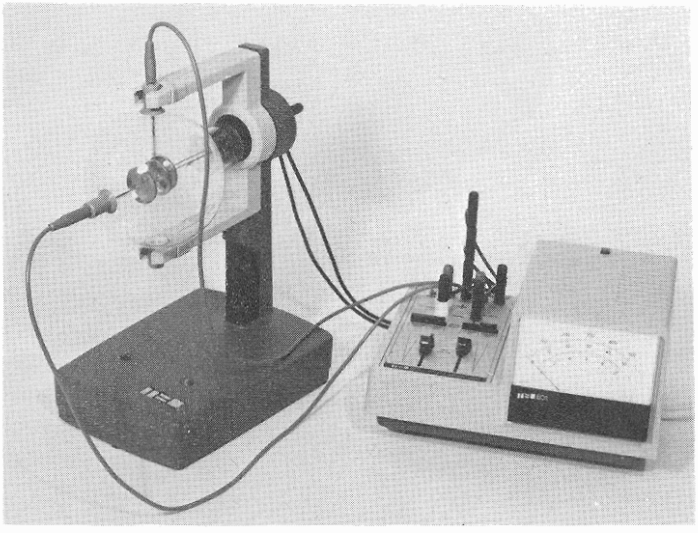
● TELTRON ELECTRONIC UNITS

A unique series of electronic accessories designed for use as polarising and monitoring modules in conjunction with the Teltron ranges of apparatus.









TELTRON DEMONSTRATION TUBES AND ACCESSORIES

Teltron tubes have been designed with the development of the pure physics argument very much in mind. Each experiment in the series is able to demonstrate particular properties of the free electron produced within the tube. But in order to achieve maximum value all tubes wherever possible are provided with features enabling experiments to be performed which illustrate the application of phenomenom to Chemistry, Engineering and Technology.

THE INTRODUCTION TO ATOMIC PHYSICS

A knowledge of the electron is fundamental to the understanding of atomic structure. The use of Teltron tubes and their accessories enables the teacher to provide the student with a clear grasp of the nature of the electron, leading to a proper understanding of positive ions, radioactivity and X-rays.

TELTRON MODULAR CONCEPT

A number of basic standards have been evolved embracing dimensions, connections (4mm) and electrical supplies for polarising, filaments and magnetic fields. All Teltron tubes, except the demountable ones, embody a spherical experimental zone 13.5 cms. diameter, and a cylindrical neck containing the electrode assembly. Teltron Electronic Units type, TEL 800, TEL 801 and TEL 813 have been designed to provide the supplies required by the tubes and voltages and currents can be accurately displayed.

SIMPLICITY OF OPERATION

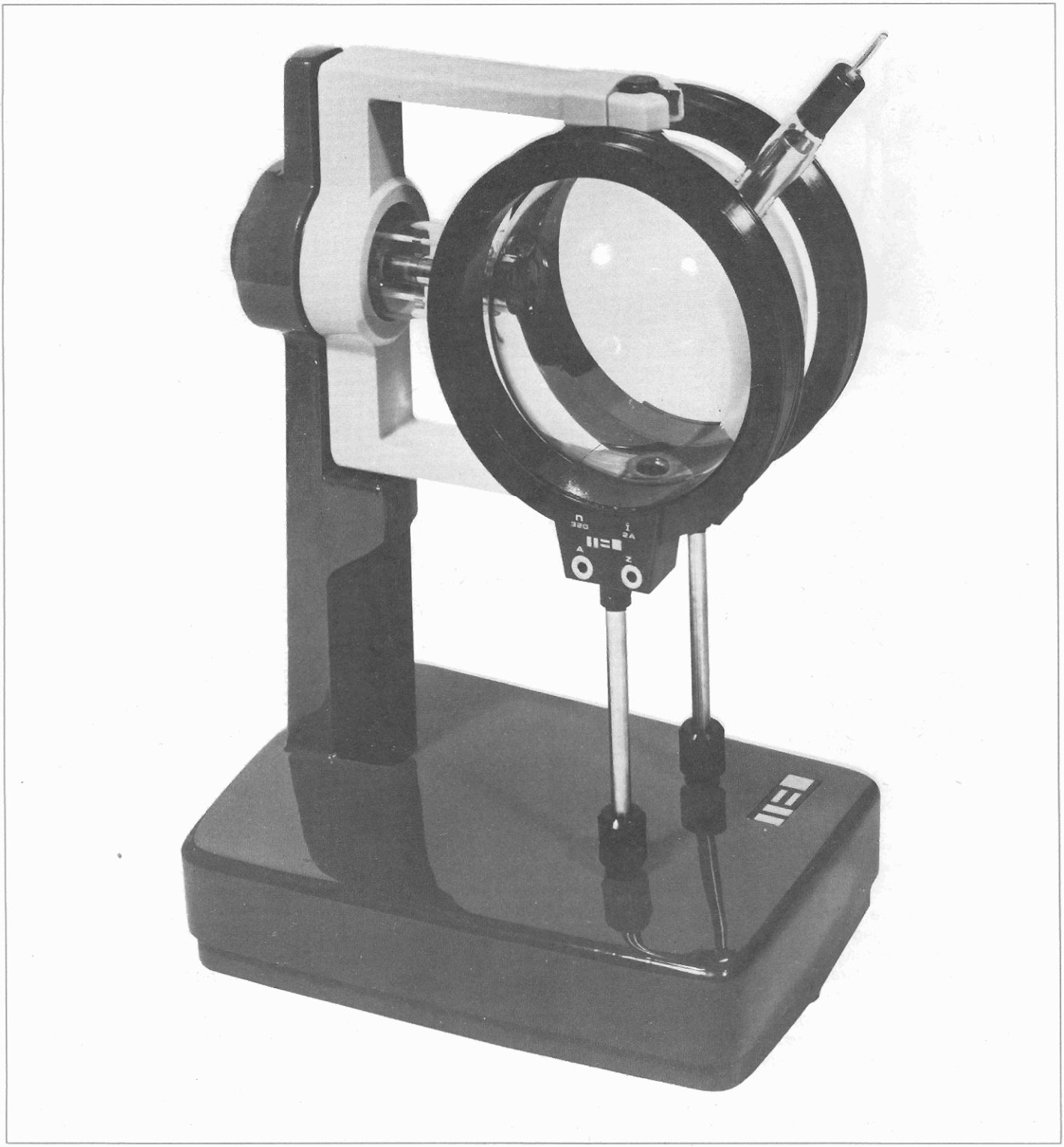
Because the range of Teltron Educational Equipment is standardised, interchanging apparatus is rapid and the time needed to set it up is very short. The arrangement of Teltron equipment is straightforward and "breadboard clutter" is avoided thereby focussing the pupil's attention on subjective features of the experiment. The size and low cost makes Teltron equipment entirely suitable for demonstration to both small and large audiences and for practical work by groups or by individuals.

SAFE TO USE

All Teltron equipment is electrically safe. All Teltron tubes utilise thermionic emission of electrons which not only simplifies the presentation and understanding of the physics argument but has another very significant advantage; the use of a hot cathode enables the tube voltage required for any experiment to be limited to a maximum of 5,000 volts d.c. : secondary radiation produced at voltages of 5,000 and below is of such low energy that it will not penetrate the glass envelopes and thus ALL TELTRON TUBES ARE RADIATION SAFE.

RELIABILITY AND VALUE

Rugged designs using high quality materials are the basic ingredients of the renowned Teltron reliability enhanced by carefully controlled manufacture and stringent testing and inspection. Modern production methods also ensure lowest possible manufacturing costs. Taking into account these factors; not forgeting the unique contribution Teltron apparatus makes to learning situations, all in all it represents outstanding value for money.



TEL 501 UNIVERSAL STAND

Designed to accommodate the whole range of Teltron tubes and accessories, the Universal Stand provides unimpeded access to all plug and socket connections and gives a clear view of the experimental zone.

The vertical stanchion is die-cast, integral with the plinth, in aluminium and stove-enamelled in Teltron Blue; the jaws, clamped in the stanchion cavity are made of heat-resistant plastic and provide good electrical insulation. Any tube can be mounted in the stand by placing the neck within the stanchion cavity and springing the side caps of the experimental zone sphere into the jaw clamps; any tube thus mounted can be rotated through 360° about an axis which is 25 cms above the table top.

The stand is mounted on 3 rubber feet, has overall dimensions 34 cms high, 18 cms wide, 30 cms long and weighs 2 kg.

TEL 502 HELMHOLTZ COILS

These magnetising coils, supplied in pairs, when mounted on the Universal Stand as illustrated above, automatically provide an Helmholtz configuration, where the coil radius is equal to the coil separation.

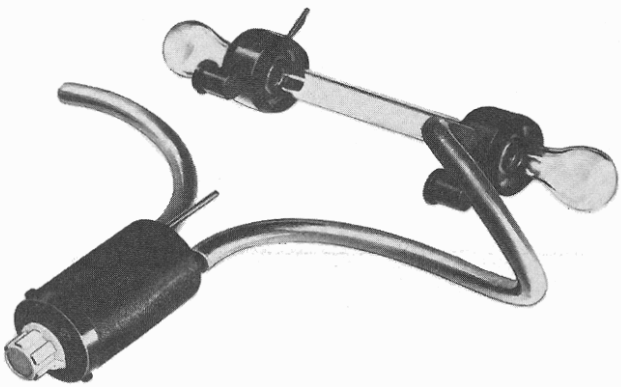
Each coil has 320 turns of 22 swg enamelled copper wire wound on a plastics former of 13.6 cm mean diameter. The terminations are 4 mm sockets and 'start' and 'finish' is indicated.

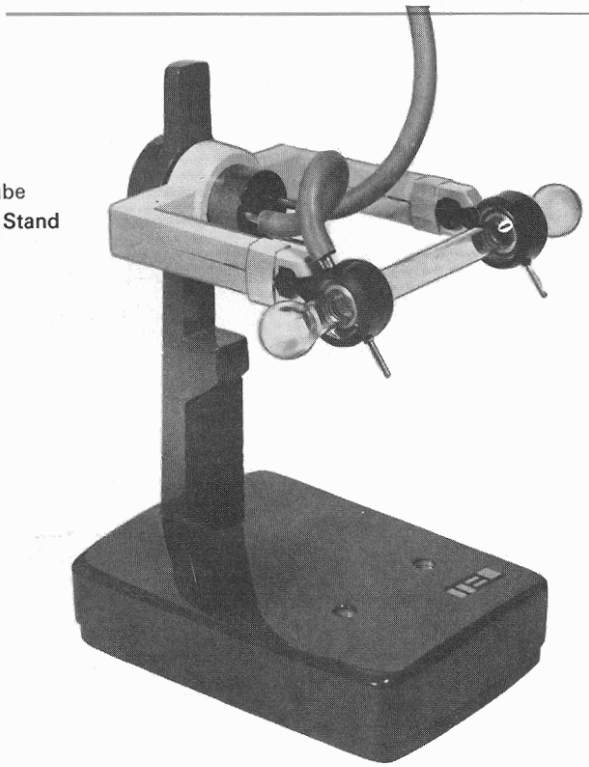
Continuous Operation—30 oersted (12 volts d.c., 1.0A). Short-Term Operation—45 oersted (18 volts d.c., 1.5A).
Use TEL 800 L.T. Power Unit or batteries. Accessories required—15Ω, 2A Rheostat.

THE COMPLETE ASSEMBLY

The photograph above illustrates a typical assembly in which a tube is mounted on the Universal Stand and the experimental zone sphere is contained within the Helmholtz Coils to obtain magnetic deflection of a cathode ray beam.

illustrating the discharge tube mounted on the Universal Stand





TEL 530 DEMOUNTABLE DISCHARGE TUBE

- evidence of positive as well as negative charges
- the nature of gaseous discharges at various pressures and voltages
- magnetic deflection indicating more massive positive ions
- "canal-ray" luminescence, mean free-path
- colour depends on gas filling.

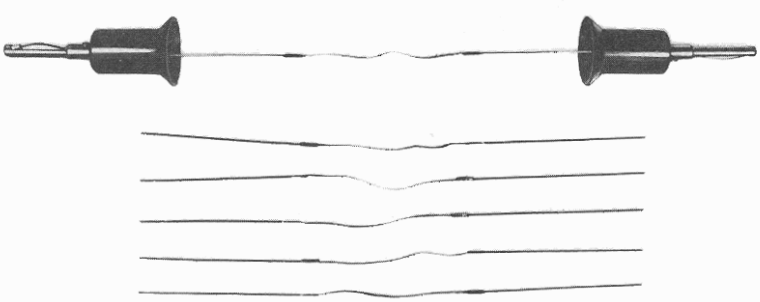
At each end of the tube is a phosphor-coated flanged glass bulb; the main discharge tube is 13 cms long, has a bore diameter of 1.5 cms and is made of glass with flanged ends. The electrodes and the 4 mm plug terminations are housed in the two plastics supports which also contain the flange-retaining rubber cups and the vacuum seals; these two supports provide the means for mounting the discharge tube in the jaws of the Universal Stand. A precision needle-valve is also included which mounts within the stanchion cavity of the stand and is self-located.

Overall length 28 cms Vacuum required 5×10^{-5} torr

Polarising supplies 2000-5000 volts d.c. (typical discharge current 1.2 milli-amps)
Use TEL 813 kV Power Unit

TEL 531 SPECTRUM DISCHARGE TUBE

Alternative glass components which convert TEL 530 into a spectral source, for slit or intense illumination end-on viewing.
A fine capillary tube, bore diameter 0.15 cms, replaces the central discharge tube and two glass end-plates replace the flanged and screened bulbs.
Overall length 17 cms.
Vacuum and Polarising equipment as for TEL 530.



TEL 504 THERMIONIC EFFECT

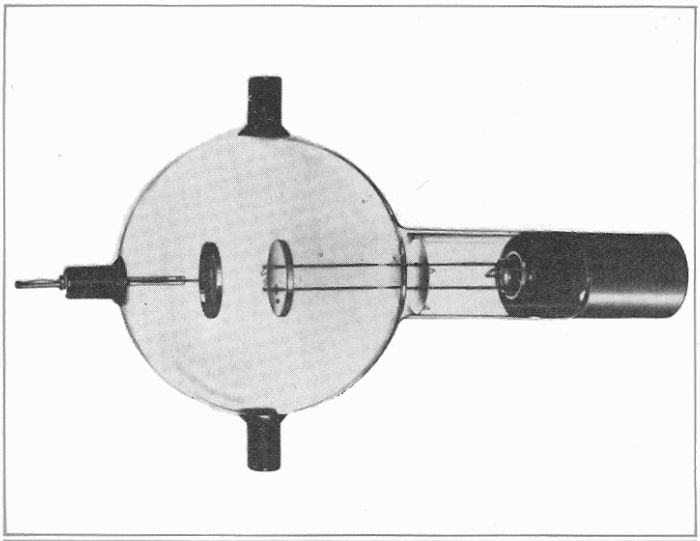
As an introduction to atomic physics a "Thermionic Effect" experiment is often performed in an attempt to make the movement of charge due to electric current become sufficiently violent as to completely liberate the charges.
The Teltron Thermionic Effect Kit comprises six replaceable nichrome wire strips which can be mounted by means of 2 insulated 4 mm plugs across the end of the Universal Stand Jaws; with the Jaws rotated through 90° the wire passes horizontally across the induction plate or loop of an electroscope. When current is passed, the wire glows red-hot and the effect on both a positively and a negatively charged electroscope can be studied; the experiment indicates that some form of charge has been liberated and that to achieve conclusive results the work must be repeated in a vacuum; this introduces the first experiment performed with the Planar Diode, TEL 520.

Polarising supplies — 6.3 volts, 0.3 amps.
Use TEL 800 L.T. Power Unit
Accessories required — Gold-leaf or similar electroscope.

TEL 507 SECONDARY COIL

When mounted on the upper arm of the Universal Stand and in between the Helmholtz Coils, this Secondary Coil provides a cross magnetic field. This field can be used to introduce horizontal deflection of a cathode ray beam and thereby demonstrate the basic principles of a Cathode Ray Oscilloscope.
The coil has 1000 turns of 22 swg enamelled copper wire lap wound on a plastics bobbin; the ends are terminated by two 4 mm sockets marked A and Z; a tongue fixed to the bobbin locates and locks the coil on one side-arm of the jaws of the Stand.

MAXIMUM CURRENT — 2 amps. Use TEL 800 L.T. Power Unit



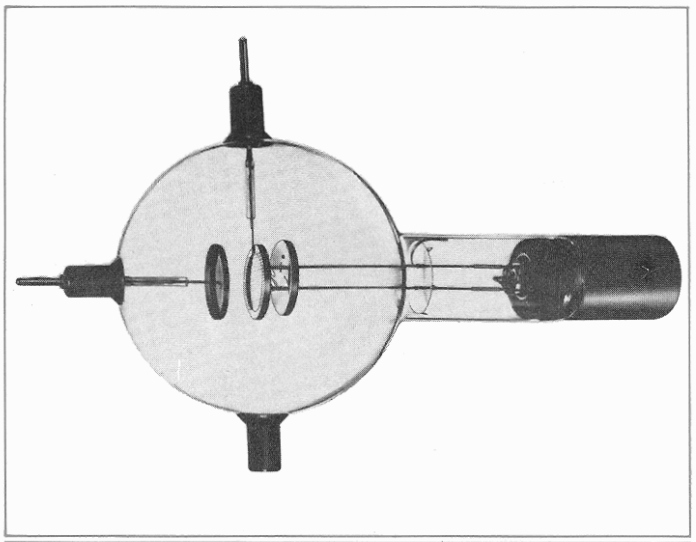
TEL 520 PLANAR DIODE

- phenomena of thermionic effect in vacuum
- the Edison effect and space charge
- for fixed temperature, charge flow depends on electrode potential difference
- "saturation" current depends on filament temperature
- evidence of unilateral flow of charge
- determination of e/m by magnetron method (use TEL 502)
- application of diode as rectifier
- characteristic curve Ia/Va, Three Halves Power Law
- filament temperature studies, Richardson-Dushman and Stefan.

The Planar Diode consists of a pure tungsten wire filament and a circular plate within an evacuated, clear glass bulb, the inside of which has been made electrically conducting to eliminate external electrostatic field effects. The filament terminations are 4 mm sockets and the anode plate is connected to a 4 mm plug mounted on the plastics top-cap. The planar form of construction corresponds with the conventional diode symbol. The performance of the large geometry configuration has been improved by attaching to one of the filament leads a circular backing disc to provide a more uniform electric field between the cathode and anode electrodes.

Polarising supplies—Optimum plate voltage 500V. Maximum filament voltage, 7.5V. Typical plate current, 3 mA.

Use TEL 801 H.T. Power Unit



TEL 521 PLANAR TRIODE

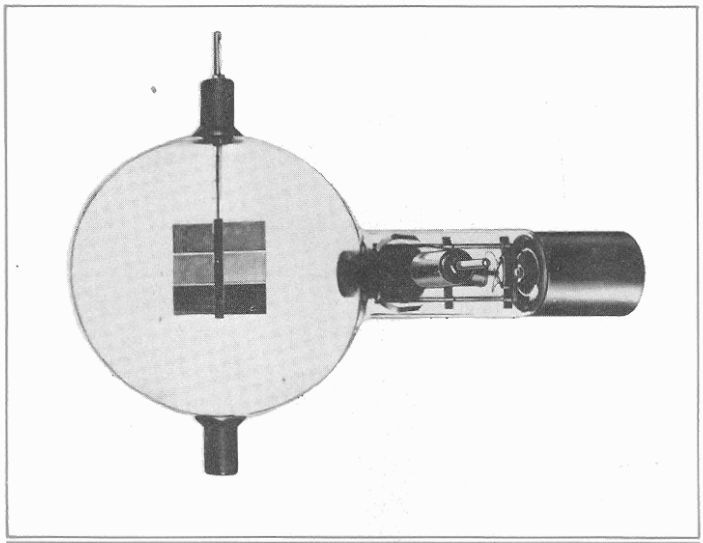
- establishment of direction of charge flow
- concept of a cathode ray gun (diode electron gun)
- application as an amplifier
- application as an oscillator (use TEL 502 Coils).
- anode and mutual characteristic curves.

The Planar Triode is essentially the Planar Diode with a parallel wire grid interposed between the cathode and anode electrodes; the grid is connected to a 4 mm plug mounted on one of the plastics side-caps.

As with the diode the form of construction corresponds with the conventional triode symbol; the performance of the large geometry configuration has been improved by attaching to one of the filament leads a circular backing disc to provide a more uniform electric field between the cathode and anode electrodes.

Polarising supplies—Optimum plate voltage 500V. Maximum filament voltage, 7.5V. Typical plate current, 0.35mA.

Use TEL 801 H.T. Power Unit



TEL 522 LUMINESCENT TUBE

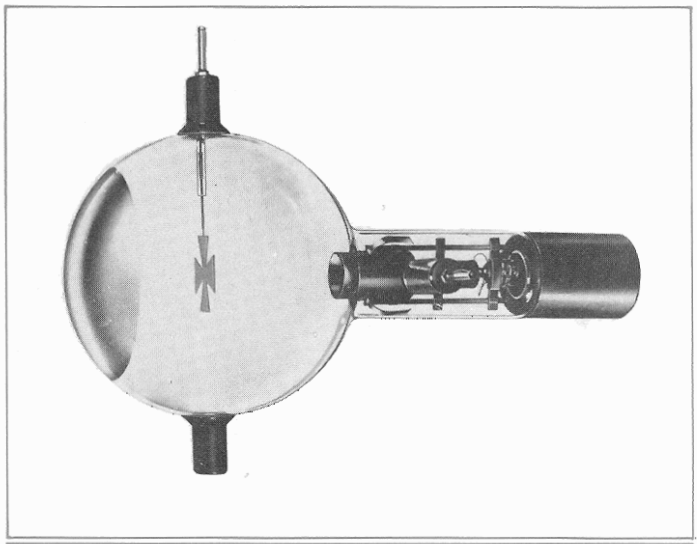
- establishment of the cathode ray gun (diode electron gun)
- excitation of luminescence by ultra-violet light
- excitation without ionisation, no charge emitted
- persistence and infra-red quenching
- the meta-stable state of excitation
- different colours, analysis spectroscope
- introduction of concept of excitation potentials.

The Luminescent Tube comprises a simple diode electron gun in a cylindrical neck and three mica flags coated with different phosphors mounted on a metal support and located in the centre of an evacuated spherical glass bulb.

The diode gun, a tungsten wire "hair-pin" filament and a cylindrical anode, projects a wide beam of cathode rays into the experimental zone and this beam is intercepted by the phosphor screens. Filament connection is by two 4 mm sockets and the anode and the phosphor flags are each connected to 4 mm plugs mounted on plastics side-caps.

Polarising supplies—Anode Voltage, 2000-5000 Volts, d.c.
Maximum Filament voltage, 7.5V.
Anode Current at 4000 volts, 1.8mA.

Use TEL 813 kV Power Unit



TEL 523 MALTESE CROSS TUBE

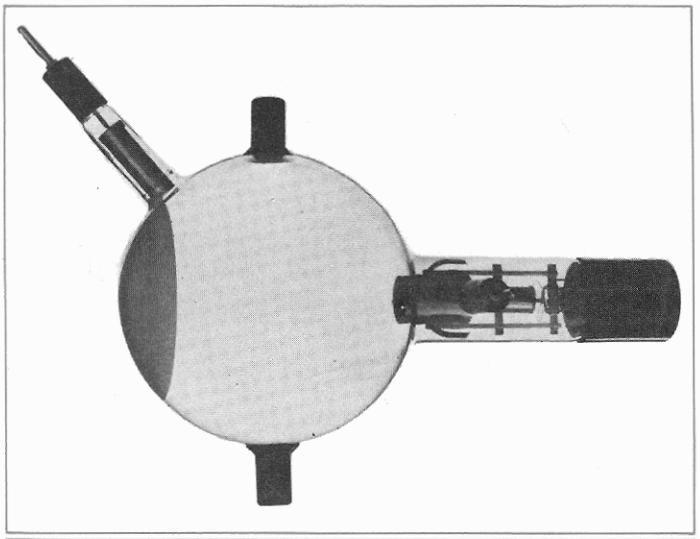
- linear propogation of cathode rays
- deflection by a magnetic field, a particle-nature effect
- electrostatic charging, image distortion, a particle-nature effect
- introduction to electron optics, inversion, magnification, reduction, aberration, a wave-nature effect (use one coil of TEL 502)
- comparison of cathodic stream and electro-magnetic radiation
- postulation of the de Broglie theory of duality.

The diode gun, a tungsten wire "hair-pin" filament and a cylindrical anode, projects a wide beam of cathode rays into the evacuated experimental zone; a beam of light from the hot filament is also projected into the experimental zone; comparisons can therefore be made of the respective shadows cast on the luminescent screen by the interception of both beams by the Maltese Cross.

The filament is connected to two 4 mm sockets in the end-cap; the cylindrical anode and the Maltese Cross are each connected to 4 mm plugs mounted on plastics side-caps.

Polarising supplies—Anode Voltage, 2000-5000V d.c.
Maximum filament voltage, 7.5V.
Anode Current at 4000V, 1.8mA.

Use TEL 813 kV Power Unit

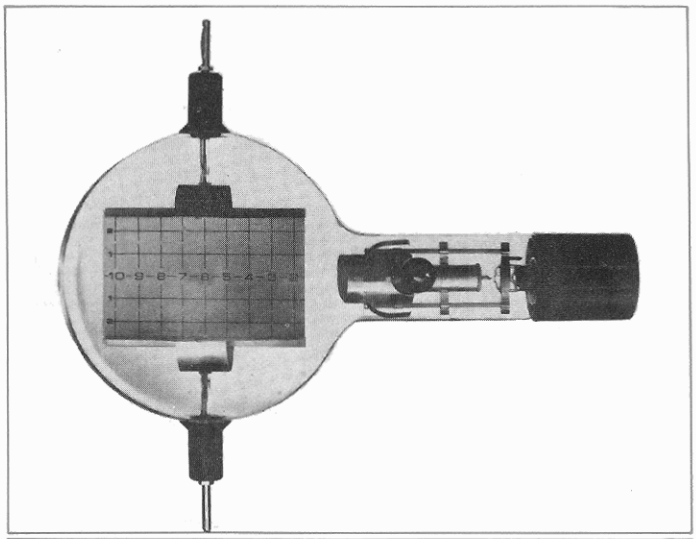


TEL 524 PERRIN TUBE

- evidence of the particular nature of cathode rays
- establishment of negative sign of charge
- introduction of the "electron" as an atomic particle
- electron deflection sensitivity studies
- the concept of a "time-base"
- operation of a cathode ray oscilloscope
- simple Lissajous' figures.

The diode gun, a tungsten wire "hair-pin" filament and a cylindrical collimating anode, projects a narrow beam of cathode rays into the evacuated experimental zone; this beam traverses the sphere to impinge on the luminescent screen in a spot about 4 mm in diameter. The narrow beam may be deflected in a vertical plane to enter the Faraday cage by using Helmholtz Coils, TEL 502; this assembly is illustrated on a previous page of this brochure. A further and horizontal deflection can be obtained using Secondary Coil, TEL 507 thereby constructing a simple Cathode Ray Oscilloscope.
The filament is connected to two 4 mm sockets in the end-cap and the cylindrical anode and the Faraday cage are each connected to 4 mm plugs mounted on the plastics side-caps.

Polarising supplies	Use
Anode Voltage, 2000-5000 volts, d.c.	TEL 813 kV Power Unit
Maximum filament voltage, 7.5V.	
Anode Current at 4000V 1.8mA.	TEL 502 Helmholtz Coils
Beam current at 4000V, 4 μA.	TEL 507 Secondary Coil

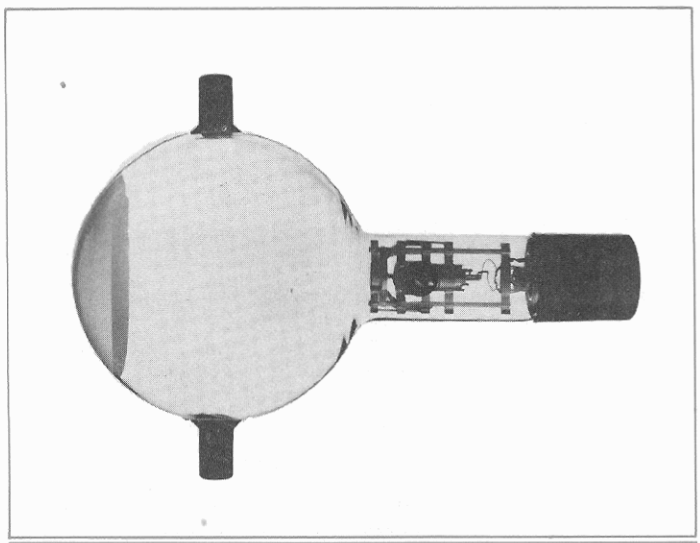


TEL 525 DEFLECTION $^{e}/_{m}$ TUBE

- electron deflection by magnetic and electric fields.
- determination of e/m by balanced deflections
- more accurate determination by magnetic deflection alone
- the electron mirror, trochoidal spirals
- velocity distribution and magnetic focussing
- beam divergence with an alternating magnetic field.

The diode electron gun, a tungsten wire "hair-pin" filament and a cylindrical collimating anode, projects a narrow ribbon of electrons into the evacuated experimental zone; the metal plates support the phosphor-coated mica sheet to intercept the ribbon of electrons at 15° with respect to the axis of the beam; printed on the opposite side of the mica is a centimetre graticule whose centre-line zero lies along the axis of the undeflected electron beam.
This configuration makes visible the path of the electrons as the beam traverses the experimental zone; deflections of the beam caused by the electric field between the internal parallel plates or by a magnetic field applied externally by means of the Helmholtz Coils, TEL 502, are clearly detected and displacements relative to the undeflected beam can be easily recorded.
The filament terminations are 4 mm sockets and connections are made by 4 mm plugs and sockets

Polarising supplies	Use
Anode Voltage, 1500-5000V d.c.	TEL 813 kV Power Unit
Maximum Filament voltage, 7.5 Volts.	TEL 502 Helmholtz Coils
Typical Anode Current, 1 mA.	

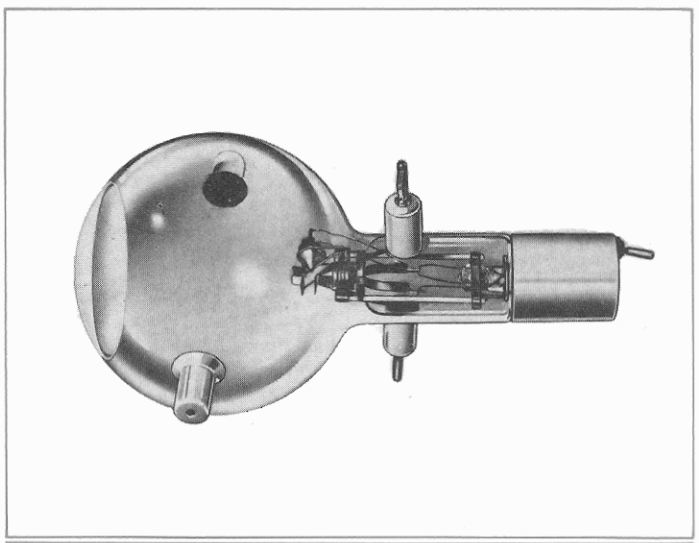


TEL 555 ELECTRON DIFFRACTION TUBE

- study of the de Broglie hypothesis
- an optical analogue of electron diffraction (see TEL 555 A),
- detection by ring patterns, Planck's constant
- variation of "wavelength" with anode voltage
- verification of the de Broglie hypothesis
- establishment of the dual nature of the electron
- calculation of spacing of diffracting planes
- re-assessment of supposed carbon atom crystal arrangement.

The electron gun uses an indirectly-heated oxide-coated cathode and projects a converging narrow beam of electrons through a thin layer of graphitised carbon which is supported on a fine mesh grid over the exit aperture of the gun assembly. Electrons diffracted during transmission through the carbon traverse the evacuated experimental zone to impinge on the luminescent screen in ring patterns, the centre of the rings being the spot caused by the undiffracted electrons.
The brightest rings are caused by diffraction at the planes in the carbon atoms separated by 1.23 and 2.13 angstroms, d_{11} and d_{10} respectively. The filament heater assembly is terminated at two 4 mm sockets in the end-cap and the anode assembly is connected to a 4 mm plug mounted on a side-cap.

Polarising supplies		
Anode Voltage	1,500-5,000 volts d.c.	Use
Filament Voltage	5.0 to 9.0 V a.c./d.c. as indicated on each tube.	TEL 813 kV Power Unit
Anode Current	0.2-0.4 mA	

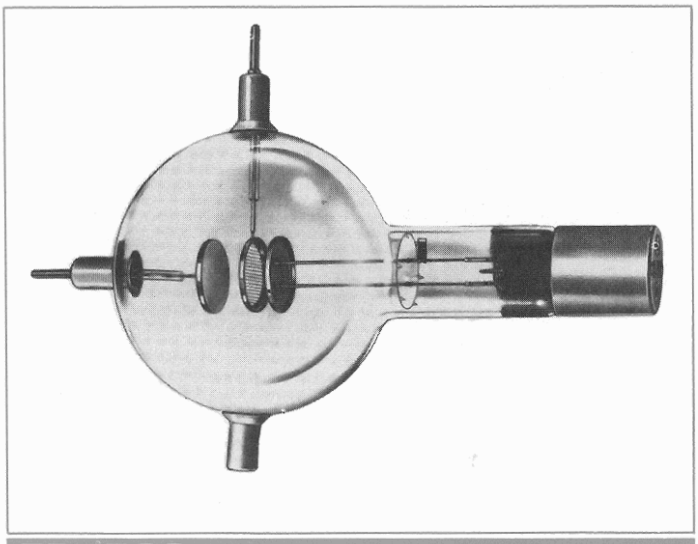


TEL 534 DOUBLE BEAM TUBE GAS-FILLED

- narrow visible electron beams
- mean free path studies and unstable beams
- velocity focussing and gas multiplication
- primary and higher orders of ionisation
- loss of energy in a spiral path
- measurement of "assumed circular path" e/m
- secondary emission and phosphor screen "blanking"
- introduction to plasma technology

The electrons emitted by the indiretly heated oxide coated cathodes are projected from the two identical guns in the form of a narrow pencil beam and these beams can be accurately traced within the helium gas as a green glow due to the emission of energy during the collision processes experienced by the electrons. The angle of projection from the guns can be modified by applying a potential across miniature deflecting plates, located just beyond the emission apertures. The filament heaters are terminated at a two-way switch and two 4 mm sockets in the grey plastics end-cap; the anodes and deflecting plates are connected to two 4 mm plugs mounted on grey plastics side-caps.

Polarising supplies	
Anode Voltage, 0-300 V d.c.	Use
Anode Current, 10-20mA	TEL 801 H.T. Power Unit
Heater Voltage, 6.3 V, 0.3 A.	TEL 502 Helmholtz Coils
Deflector Voltage, 0-25 V d.c.	

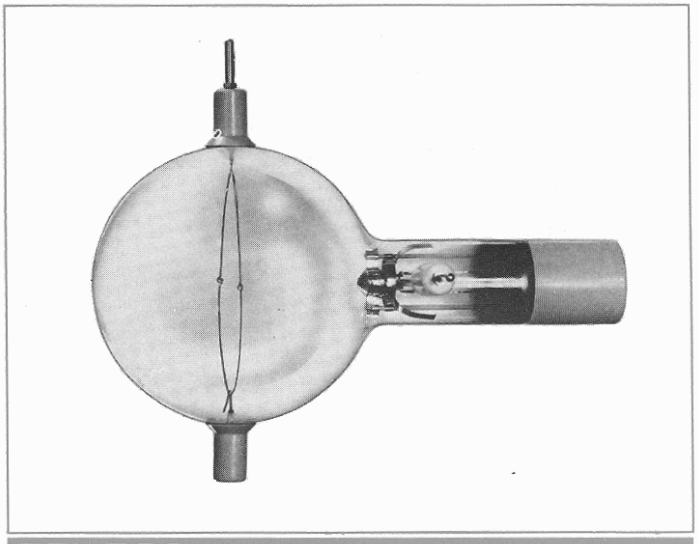


TEL 532
GAS-FILLED PLANAR TRIODE

- the Ia/Va Diode Characteristic, no saturation
- occurrence of gaseous glow at a discrete potential
- the Thermionic Effect in gas, no rectifier effect
- the Cold Cathode Discharge, positive ions
- collision processes, energy absorption and emission
- ultra-violet excitation
- spectroscope studies, lines dependent on potential difference
- introduction of excitation potentials
- anode and mutual characteristics, the thyratron
- the principles of a relaxation oscillator.

Identical in construction to the Planar Triode, TEL 521 but having grey plastics caps instead of black, to indicate the presence of helium gas within the sealed tube.
The gaseous glow can be made sufficiently intense to analyse the spectral lines using a standard school spectroscope.
The filament/cathode is terminated at two 4 mm sockets in the grey plastics end cap and the grid and anode electrodes are each connected to 4 mm plugs mounted on grey plastics side-caps.

Polarising supplies	Use
Maximum Anode Voltage, 400 V d.c.	TEL 801 H.T. Power Unit
Anode Current at 300 V, 10 mA.	
Maximum Filament Voltage, 7.5 V.	



TEL 533
CRITICAL POTENTIALS TUBE

- electrical detection of excitation potentials, Hertz.
- no oven required
- measurement by oscilloscope, 3 energy levels + ionisation
- measurement by spot galvanometer, 3 to 4 energy levels + ionisation
- measurement by potentiometric recorder, up to 6 energy levels
- evidence of meta-stable states

Experiments with the Gas-Filled Planar Triode reveal that energy exchanges take place through non-elastic collisions but the resolution is not sufficient to show the existence of individual energy levels; electrons with a narrow energy spread are necessary.
The Critical Potentials Tube has the inside surface of the glass bulb coated with a transparent conducting layer connected to the anode of a diode gun to create a field-free collision region. A hot cathode emits electrons in a narrow cone determined by the exit aperture in the anode. The collector is a wire ring so positioned that it cannot receive electrons directly from the cathode.
The tube contains helium at low pressure.
The collector ring is made positive by a few volts with respect to the anode; the collector attracts electrons which have been scattered by collision processes out of the main beam and, in contrast to the classical Franck/Hertz and Hertz experiments, the collector current exhibits peaks by collecting, rather than repelling, the low energy electrons when their population is at a maximum.
The filament/cathode is terminated at two 4mm sockets in the grey plastics end cap and the anode and collector ring are each connected to 4mm plugs mounted on grey plastics side-caps.

Polarising supplies	Use
Maximum Anode voltage, 50V d.c.	TEL 801 H.T. Power Unit
Anode Current at 30V, 2mA	
Collector Voltage, 3 to 6V d.c.	
Filament Voltage, 5 to 7V.	

TEL 555A OPTICAL ANALOGUE KIT

The nature of the diffraction effect from a carbon "grating" can be investigated optically by passing a beam of light through a close-meshed rectangular grid.

A coloured cross pattern, including many orders of optical diffraction, is observed indicating that the grid is acting as two line gratings perpendicular to each other; this phenomenon is familiar to the student. If however a more or less random nature is to be simulated, the grid can be rapidly rotated, when the cross patterns will be seen to fuse into concentric rings.

The dependence of the pattern on wavelength can be tested by viewing in red and green light, when the diameter of the rings is seen to decrease significantly with a decrease in wavelength from red to green.

The kit comprises an aluminium disc mounted on a hollow shaft which rotates in a ball race in a plastics holder. The holder can be mounted in the back of the stanchion cavity of the Universal Stand. Located in the bore of the shaft is a rectilinear 20 mesh/mm grid. Included also are a red and green filter and a micro-collimator for use with a 35 mm projector.

TEL 800 L.T. POWER UNIT

This unit is a dual metered general purpose laboratory power supply particularly suitable for operating the Teltron Coils, TEL 502 and 507.

Power Output
0-30V, AC or DC (Ripple ≃ 10%)
Maximum total load, 3 Amperes.

Metering
1) AMPS : 0-3A, AC/DC.
2) VOLTS : 0-30V, AC/DC.
Each scale :
length 52mm, 100μA linear.

Power Input
110, 220, 240V, ±10%, 50/60 Hz.
Power Selector
Situated underneath.
Power On Neon indicator lamp.

Controls
Meter Function Selector.
Two press-button switches, interlocked, selecting : AC or DC.
Voltage Control.
Rotary movement, variable 0-30V.
Power On/Off Switch situated at back.

Connections
DC Output – 2 x 4mm Sockets.
AC Output – 2 x 4mm Sockets.
Earth – 1 x 4mm Socket.
Mains Cable – Integral, 2 metres long.

General
Housing: Glass fibre reinforced resin moulding on cast aluminium base.
Ambient Temp: 35°C (95°F) max.
Dimensions
W : 280 ; D : 230 ; H : 150mm.
Weight: 6.6Kg.

TEL 801 H.T. POWER UNIT

A general purpose metered laboratory power supply, particularly suitable for operating Teltron Tubes 520, 521, 532, 533 and 534.

Power Output
1) H.T. Output
0-500V DC, 25 watts max.
Ripple : less than 0.1% at 50mA.
2) L.T. Output
0-50V DC, 0.5 watts max.
Ripple : less than 0.01% at 10mA.
3) Heater Supply
1/2/4/5/6/7V, 3A RMS max.

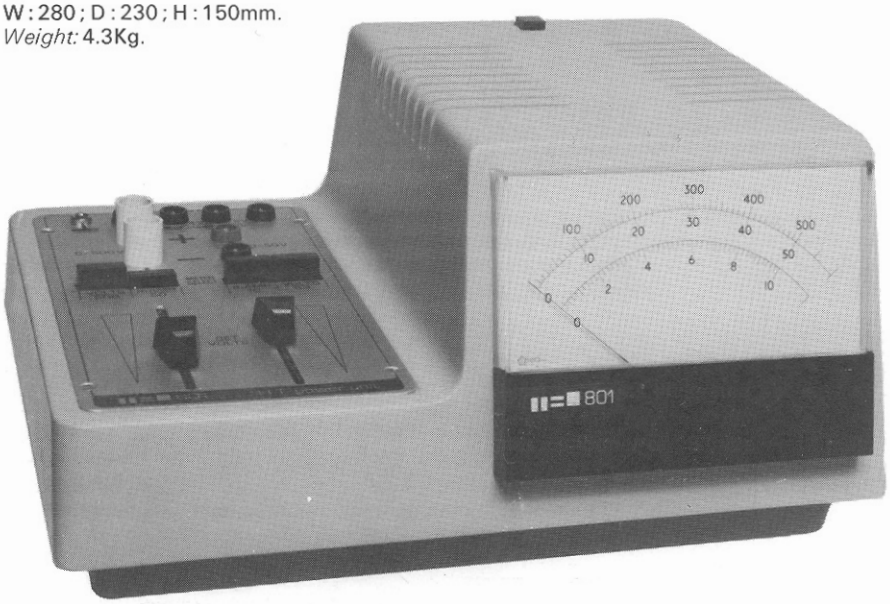
Metering
Calibration : 0-500, 0-50, 0-10.
Scale length : 119mm, 100μA, linear.

Power Input
110, 220, 240 ± 10%, 50/60 Hz.
Power Selector
Situated underneath.
Power On Neon indicator lamp.

Controls
Meter Function Selector.
Four press-button switches, interlocked, selecting : 0-500V, 0-50mA, 0-10mA, 0-50V.
H.T. Voltage Control.
Slider movement, variable 0-500V.
L.T. Voltage Control.
Slider movement, variable 0-50V.
Power On/Off Switch situated at back.

Connections
H.T. Output – 2 x 4mm Sockets.
L.T. Output – 2 x 4mm Sockets.
Heater Supply – 4 x 4mm Sockets.
Earth – 1 x 4mm Socket.
Mains Cable – Integral, 2 metres long.

General
Housing: Glass fibre reinforced resin moulding on cast aluminium base.
Ambient Temp: 35°C (95°F) max.
Dimensions
W : 280 ; D : 230 ; H : 150mm.
Weight: 4.3Kg.



TEL 813 kV POWER UNIT

A general purpose metered laboratory power supply, particularly suitable for operating Teltron Tubes 522, 523, 524, 525, 530 and 555.

Power Output
kV Output
0 to ± 5kV with Centre Tap
or 0 to ± 2.5kV.
Current : 3mA max.
(short circuit current).
Power : 3.5 watts max.
Ripple & Noise : Less than 0.3% of output at maximum power.
Stability : 2% for ± 10% mains change.
Heater Supply: 6.3V, 3A rms max., fully insulated for 5kV working.

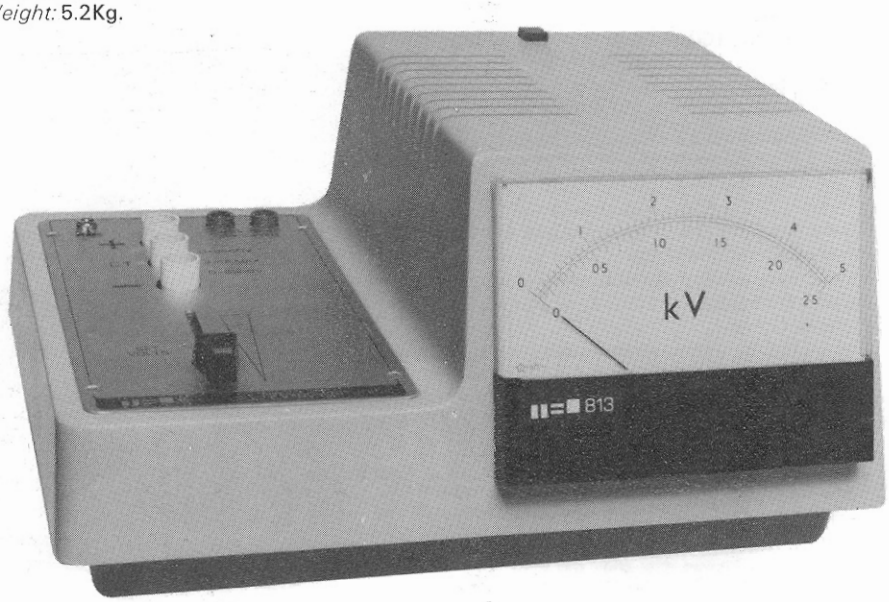
Metering
Calibration : 0 – 5kV, 0 – 2.5kV.
Scale length : 119mm, 100μA, linear.

Power Input
110, 220, 240V ± 10%, 50/60Hz.
Power Selector
Situated underneath.
Power On Neon indicator lamp.

Controls
Voltage Control.
Slider movement, variable 0 to ± 5 or ± 2.5kV.
Power On/Off Switch situated at back.

Connections
kV Output – 3 x 4mm Sockets.
Heater Supply – 2 x 4mm Sockets.
Earth – 1 x 4mm Socket.
Mains Cable : Integral, 2 metres long.

General
Housing: Glass fibre reinforced resin moulding on cast aluminium base.
Ambient Temp: 35°C (95°F) max.
Dimensions
W : 280 ; D : 230 ; H : 150mm.
Weight: 5.2Kg.



TELTRON

Atomic Physics Educational Apparatus

The TELTRON philosophy of educational equipment takes account of the changing needs of the many different countries throughout the World. However, the basic needs of educationalists everywhere hardly change; sound teaching principles, good equipment and solid value for money are universal requirements. TELTRON aims are to provide that and more. We at TELTRON look ahead and anticipate future teaching needs, we do this with the teachers help. Our equipment is developed in consultation with teachers and based on the research of educationalists. Our policy of continuing development incurs, however, a possibility that the equipment described and illustrated in this brochure may be subject to modification without notice.

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