EEC DECLARATION OF CONFORMITY

In accordance with:

EEC Low Voltage Equipment Directive (73/23/EEC)
EEC Electro-Magnetic Compatibility Directive (89/336/EEC)

CE

We IPC Electronics hereby declare that the apparatus described below both in basic design and construction conforms to the relevant requirements of the appropriate EEC Directives.

This Declaration shall cease to be valid if modifications are made to the apparatus with or without our approval.

Product: **Spark Counter/Alpha Particle Detector**
Model: IPC-6001-R
Serial Number:
(To be filled in by customer - refer to rating label)

It is ensured through internal measures that series production units conform at all times to the requirements of the current EEC Directives and relevant standards.

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D P R Knight (Proprietor)

Correspondence: In the event of any correspondence concerning the apparatus please contact your supplying agent quoting the catalogue number and the serial number shown on the apparatus rating label, together with the voltage and frequency of the local mains electricity supply. This will help us process your enquiry quickly. Any spare parts which may be required are supplied on the understanding that the replacement of those requiring the exposure of live electrical connections will be undertaken by an electrically qualified person.

INSTRUCTIONS

IPC Electronics Spark Counter/Alpha Particle Detector

Part Number: IPC-6001-R

IMPORTANT

Please Read These Instructions Carefully <u>Before</u> Using Apparatus

ipc

DESCRIPTION

The instrument is capable of detecting alpha particles and measuring their range.

In order to operate correctly, the detector requires a school laboratory radioactive alpha source and a school laboratory variable voltage EHT power supply able to deliver up to 5 kV. When used with a Timer Scaler & Frequency Meter, counts may be recorded with the radioactive source at different distances to enable graphs to be drawn showing the properties of the particular alpha radiation. The experiments help to demonstrate the random nature of radioactivity and the energy levels of alpha particles.

When the alpha source is brought within detection distance, the air is ionised and sparks occur between the electrically-charged array of fine wires and the steel electrode. Hence the range(s) of alpha particles in air from a particular radioactive source may be found.

OPERATION

- With the power turned off, the EHT power supply is connected to the spark counter. Three good quality 4mm leads, should be used to link the +5kV, -5kV and Earth sockets on the power supply to the corresponding sockets on the spark counter.
- If the sparks are to be counted, a Timer Scaler & Frequency Meter should be connected via a short BNC to BNC lead.
- The EHT supply is turned on and the voltage adjusted until sparking occurs spontaneously. The voltage is reduced slightly until the sparking stops and then set to a level just below the point where spontaneous sparking occurs.
- The holder is slid to a position several cm from the wire array and the radioactive source is placed in the holder using a standard handling tool and normal precautions for radioactive material.
- The source holder may now be slid towards the wire array and sparks should be produced. In general, the closer the source is to the wire array, the greater the frequency of the sparks. The instrument is fitted with a scale, so that the radioactive source can be positioned at known distances from the wires. The number or rate of sparks produced may then be measured.

Important safety information:

The Extra High Tension (EHT) power supply used must be of the type supplied for use in school science laboratories (i.e., it must have a current limit of 5mA or less).

The spark counter is designed to be used with a traditional alpha-emitting cup-type radioactive source (for example Americium-241 or Plutonium-239) supplied for use in school science laboratories. For important safety information, see the CLEAPSS guide L93 “Managing Ionising Radiations and Radioactive Substances, etc.” The recommended source type is listed as ‘type 8a’ in L93, which includes a model risk assessment for its safe handling and use.

L93 is available for free download at:
www.cleapss.org.uk/download/L93.pdf

ACCESSORIES

5 kV Power Supply	IPC-0734-P
Timer Scaler & Frequency Meter	IPC-3342-T
5 kV lead (black)	IPC-0492-P
5 kV lead (red)	IPC-0893-P
BNC to BNC lead	
Alpha Source	