

**OMEGA TYPE ES-448:** Our G.M. Counter is a technology based, economy model, design around eight bit microcontroller chip. This system with accessories is an ideal choice for teaching / demonstrating various G.M. Experiments, as part of Experimental physics lab to U.G., P.G. Science, U.G. Engineering students. This counting system can be used for carrying out number of nuclear physics Experiments such as characteristics curve of G.M. counter, Absorption of Beta Radiations, efficiency of G.M. Counter for Beta radiation etc.

#### OBJECT

1. Study of the characteristics of a GM tube
2. Inverse square law: gamma rays
3. To study determination of beta particle range and maximum energy (by half-thickness method)
4. Backscattering of beta particles
5. Production and attenuation of bremsstrahlung

#### FEATURES:

The Set up consists of the following:

#### GM COUNTER SPECIFICATION:

G.M. INPUT : NEGATIVE  
AMPLITUDE : 250mV (min)  
Resolving Time : 0.1 second approx.  
H.V. OUTPUT : Maximum of 300-1000V @ 1mA Load & Line regulation better than 0.05% Ripple less than 10mV (RMS)

Display:

- (a) 3 Digit LED display for time count (99.9 secs)
- (b) 6 Digit LED display for counts (999999 counts)
- (c) 3 Digital LED display for high voltage (999 volts)

Counts Capacity : 999999

Preset Time : 1 to 99.9 seconds

Commands Buttons : START, STOP & RESET buttons are provided on the front panel.

G.M. Socket : 2mm & 4mm insulation banana terminals / patch chord.

Mains ON/OFF switch and Fuse.

The unit is operative on 230VAC  $\pm 10\%$  at 50Hz.

Dimensions : 12"X12"X5" (only counter)

Weight : 8kg Approx.

#### GM TUBE SPECIFICATION:

This is a halogen quenched End Window GM Detector. It is suitable general purpose GM Counting applications. It has got a very wide plateau length and plateau slope is better than 6% per 100V.

TUBE Number : 120

Type : End Window, Halogen Quenched

Application : Suitable for Alpha, Beta & Gamma Counting

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.



Operating Voltage: Range : 450-600 volts  
End Window : mica 2.0 mg/m sq. density  
Gas Filled : Ne + Hal.  
Gamma Sensitivity : 18 CPS /mr/hr (Co60)  
Starting Voltage : max 325V  $\pm 25V$   
Plateau Threshold Voltage : max 400V  
Plateau Length : 150V  
Plateau Slope :  $\leq 6\%$  per 100V

#### GM TUBE STAND SPECIFICATION:

Designed to hold end window G.M. tubes. it has both sample & absorber tray. The position of this trays can be adjusted from the end window of the detector. The stand made up of acrylic sheet is precisely milled for sliding-in of sample and absorber trays.

#### BETA OR GAMMA SOURCE SPECIFICATION:

These are low active disc sources of the order of 2 to 10 micro curie for Gamma & Beta. Gamma source disc is evaporated and sealed on 25mm diameter x 5mm thick plastic disc. Whereas Beta source disc is evaporated & sealed on 25mm x 10mm thick plastic disc and covered with 10mg / sq.cm aluminized mylar film. Each source is supplied in their individual lead shielding for safe storage. These sources are an ideal choice along with G.M. counting system for educational institutions & research labs.

#### ALUMINIUM ABSORBER SET

Set of 4 aluminum sheets of different thickness. Each of these aluminum absorber sheets are of the same size as the sample trays of the GM tube stand and exactly fits & slides in the grooves of this stand. This absorber set will be useful in studying the beta absorption coefficient using G.M. Counting Systems.

#### RADIOACTIVE SOURCE TO BE OBTAINED

One radioactive source Beta or Gamma (in Lead Container and Wooden box) Source: On approval from Atomic Energy Regulatory Board (AERB) Ask for appropriate Perform's.