

Dual Channel Alpha Beta Counter (EMI-EMC Compliant) Model PNC- $\alpha\beta$



Dual Channel Alpha Beta Counter model **PNC- $\alpha\beta$** is a micro-controller based, economical, stand alone, mains operated instrument for Dual Channel Nuclear Counting application for Alpha – Beta radiations. It is a versatile instrument designed to cater the counting application requirements.

Dual Channel Alpha Beta Counter Model **PNC- $\alpha\beta$** , uses Composite Detector (Plastic Scintillator and ZnS(Ag) Scintillator) for detection and measurement of alpha / beta radiation. High voltage required for the detector is generated in instrument. The load resistor for Photo Multiplier Tube (PMT) and the front end electronics for pulse processing circuits for the detector is housed in unit.

Dual Channel Alpha Beta Counter Model **PNC- $\alpha\beta$** , stores 1000 counts (500 Alpha + 500 Beta) data in a non-volatile memory. It generates formatted USB 2.0 output for transferring data to PC. USB male connector on the front panel is provided for transferring the data to PC. Support software for data transfer in Windows environment, is provided with system.

Model **PNC- $\alpha\beta$** is useful for radiation counting for Health Physics applications in radioisotope laboratories, nuclear reactors, nuclear power plants, nuclear medicine centers etc.

A Drawer Assembly to hold 1" dia or 2" dia filter paper is supplied as standard accessory. The detector mounts upside down on the drawer assembly such that mylar face of the detector is just 2 mm above the sample filter paper.

40mm thick Lead shield for detector can be supplied at extra cost (as shown in above photograph)

Specifications : Model PNC- $\alpha\beta$ (EMI-EMC Compliant)



Dual Channel Alpha Beta with Drawer Assembly

Counter

- ❖ Electronics All solid state, Micro-Controller based design
- ❖ Preset Time Time settable between 1 and 9999 seconds in Step of 1 second
- ❖ No. of Runs Settable between 1 to 500
- ❖ Display **Counts : 999999 , Time : 9999 Seconds, Runs : 500 Alpha & 500 Beta**
- ❖ HV Supply Adjustable to 1200V by setting front panel mounted heliport with calibrated dial
- ❖ Data Storage Store and recall facility for data up to 500 Alpha + 500 Beta readings
- ❖ User Interface 4 keys keypad with 20x4 line LCD for displaying Key function
- ❖ Data Transfer To PC - via USB 2.0 through Windows based Data Transfer Software

Composite Detector

- ❖ Radiation Detected: Alpha and Beta Particles
- ❖ Detector : ZnS(Ag) adhered to 0.10" thick Plastic Scintillator mounted on 1.5" PMT.
- ❖ Efficiency : **(Alpha)** 25% for Am²⁴¹
(Beta) better than 12% for Sr⁹⁰ without lead shield
better than 15% for Sr⁹⁰ with 40mm thick lead shield
- ❖ Background : 3 – 4 CPH for Alpha particles
3 – 4 CPM for Beta Particles (at 0-10 μ R / Hr ambient background)
- ❖ Crosstalk : Alpha to Beta <10% and Beta to Alpha <1%

Power Supply

- ❖ 240 V (+ 10%), 50 Hz Ac Mains

Compliance

- ❖ Operating Conditions : Temp +5°C to 55°C
Relative Humidity < 50% (50 to 95% Occasional)
- ❖ EMI /EMC : IEC 61000-4-20 : 2010, IEC 61000-4-6 : 2013, IEC 61000-4-5 : 2005
IEC 61000-4-2 : 2008, IEC 61000-4-8 : 2009
- ❖ Environmental : IS 9000 (part 8) : 1981, IS 9000 (part 3) : 1977, IS 9000 (part 5) : 1981

Due to continuous R&D, specifications are likely to change without notice

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