

The PA-100 Detector

Air proportional Alpha Detector

Radiation Detection Division

Health Physics



The PA-100 is an alpha detector designed for monitoring of alpha contamination only.

The detector does not react to beta or gamma radiation at all. The detector

contains a highly efficient air proportional sensor and electronic circuits. The MediSmarts Monitoring channel or RAM DA 2000 monitor supplies power and output is a rate proportional to the radiation contamination. The detector has a low background count rate and is easy to decontaminate. The sensor contains atmospheric cells made of aluminum containing a thin anode wire. The surface of the cell is a membrane of aluminized Mylar, protected by a fine stainless steel wire mesh.

The detector contains a high voltage power supply, calibrated discriminator, linear pulse amplifier, pulse shaper, GM saturation indicator, and detector identifier and malfunction detection circuitry. This configuration minimizes noise, improving sensitivity and stability. The detector also holds a replaceable cartridge filled with hygroscopic silica gel for the reduction of humidity in the sensor.

Specifications

Sensitive area: 100 cm² (15.5sq.in.)
Window Thickness: 0.85mg/cm² aluminized window
Probe Efficiency (2p): 18% (related to ²⁴¹Am)
Surface Sensitivity: 530cpm/Bq/cm² *
Accuracy: ±15% of reading (related to ²⁴¹Am)
Maximum count rate: 3 x 10⁶ cpm
Output Signals: TTL pulses.
Detector status: ID, OK, malfunction
Temperature Range: Operation: -10°C to +50°C (15°F - 122°F)
Storage: -20°C to +60°C (-5°F - 140°F)
Humidity Range: 40% to 95% RH (non condensing)
Dimensions: 240mm (9.5") length
75mm (3") width
55mm (2.2") height
Weight: 1kg (2.2lbs)
Casing: Aluminum, splash proof

When operated with the RAM DA monitor, the probe efficiency (2p), is compensated to 100% by the monitor, so that surface sensitivity, using a large homogeneous ²⁴¹Am source, is approximately 3000 cpm/Bq/cm².

Rotem Part # BAK-1330

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