



Ludlum Model 43-68

Alpha Beta Gas Proportional Detector

Indicated Use: Alpha beta survey
Recommended Counting Gas: P-10 (10% methane, 90% argon)
Gas Recharge: Will operate on static charge for at least 15 hours with 39" cable, 5 hours in alpha/beta mode
Window: 0.8 mg/cm² aluminized mylar (other thicknesses available)
Gas Connectors: Double end quick disconnect
Suggested Instruments: Model 12, 16, 18, 2000, 2200, 2221, 2224-1, 2241-2, 2350-1, 2360
Window Area: 126 cm² active; 100 cm² open
Counter Threshold Setting: typically 2 -5 mV

Efficiency (4pi): 20%-²³⁹Pu; 15%-¹⁴C, 30%-⁹⁹Tc; 30%-⁹⁰Sr/⁹⁰Y less than 1% - gamma
Simultaneous Alpha/Beta Counting: 17.5%-²³⁹Pu, 20%-⁹⁹Tc; 20%-⁹⁰Sr/⁹⁰Y

Background:

Alpha-Less than 7 cpm (when operating at Alpha only plateau region)
Beta-Gamma-typically 350 cpm (10 μR/hr field)

Operating Voltage:

Alpha-typically 1100 - 1400 volts
Beta-Gamma-typically 1600 - 1800 volts

Size: 3.9" H x 4.6" W x 7.8" L

Weight: 2 lbs (0.9 kg)

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Ludlum Measurements, Inc. manufactures many different types of detectors to measure alpha, beta, gamma, and neutron radiation

Proportional Detectors are similar to GM in that they utilize an electric field to produce a signal when radiation ionizes a neutral gas molecule. Depending on the construction they can be used to detect alpha, beta, gamma, or neutron radiation. Like GM detectors they are inexpensive and easy to use, but they are also capable of energy discrimination. Drawbacks to this type of detector are the fragility of the windows, altitude dependence, and a constant need for gas replenishment (excluding sealed gas proportional tubes and air proportionals).

Common Specifications for all Detectors:

Connector: Series "C" (others available)

Construction: Aluminum housing with beige powder coat paint

Temperature Range: -4° F to 122° F (-20° C to 50° C). May be certified for operation from -40° F to 150° F (-40° C to 65° C).

Note: All efficiencies and sensitivities are typical and different detectors may vary.

