

Model 12-4

Neutron Dose Ratemeter

Radiation Detection for a Safer World



Ludlum Measurements, Inc.

Features

- Moderated Neutron Detector
- Range: 0–100 mSv/h (0–10,000 mrem/hr)
- Gamma Rejection up to 0.1 Sv/h (10 R/hr)
- Rugged
- 4-Decade Analog Meter
- Complete Turn-Key System



Part Number: 48-1200

Specifications

INDICATED USE: neutron dose rate

MEASUREMENT RANGE: 0–100 mSv/h (0–10,000 mrem/hr)

DETECTOR: ^3He proportional detector, 1.6 x 2.5 cm (0.6 x 1.0 in.) (D x L), surrounded by a 22.9 cm (9.0 in.) diameter cadmium loaded polyethylene sphere

SENSITIVITY: typically 10 cpm per $\mu\text{Sv/h}$ (100 cpm per mrem/hr) (bare AmBe neutrons)

ENERGY RESPONSE: provides an appropriate inverse RPG curve for neutrons from thermal through 7 MeV, provides response up to 12 MeV

LINEARITY: reading within 10% of actual value

GAMMA REJECTION: < 10 cpm through 0.1 Sv/hr (10 R/hr) (^{137}Cs gamma)

OPERATING VOLTAGE: approximately 1200 Vdc

THRESHOLD: -2 mV

WORKING ENVIRONMENT: splashproof shields for outdoor use

METER DIAL: 0–10 mrem/hr, 0–2.5 kV, BAT TEST (other dials available)

HIGH VOLTAGE: adjustable from 400–2500 V (can be read on meter)

DISCRIMINATOR: adjustable from 1–50 mV

CONTROLS:

1. Multipliers: x1, x10, x100, x1000
2. Response: toggle switch for FAST (4 seconds) or SLOW (22 seconds) from 10% to 90% of final reading
3. Reset: pushbutton to zero meter
4. HV Test: pushbutton to display the high voltage on the meter
5. Audio: built-in unimorph speaker (greater than 60 dB at 61 cm [2 ft]) with ON/OFF switch

CALIBRATION: accessible from front of instrument (protective cover provided)

POWER: 2 “D” cell batteries (housed in sealed compartment that is externally accessible)

BATTERY LIFE: typically 600 hours with alkaline batteries (battery condition can be checked on meter)

CONSTRUCTION: cast and drawn aluminum with beige powder coat finish

WORKING ENVIRONMENT: splashproof shields for outdoor use

TEMPERATURE RANGE: -20 to 50 °C (-4 to 122 °F)

SIZE: 43.2 x 22.9 x 26.7 cm (17.0 x 9.0 x 10.5 in.) (H x W x L)

WEIGHT: 7.9 kg (17.5 lb)