

# LUDLUM MEASUREMENTS, INC.

## Model 12-4-7 Neutron Dose Ratemeter

### Features

- Smaller, Lighter 7 inch Polyethylene Ball
- 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-Range Analog Meter
- Complete Turn-Key System



### Specifications

Part Number: 48-4280

**INDICATED USE:** neutron dose rate

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

**DETECTOR:** <sup>3</sup>He proportional detector, 1.6 x 2.5 cm (0.6 x 1.0 in.) (D x L), surrounded by a 19.5 cm (7.7 in.) diameter polyethylene sphere with internal borated layer

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

**LINEARITY:** reading within 10% of actual value

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

**GAMMA REJECTION:** < 10 cpm through 0.1 Sv/hr (10 R/hr) (137Cs 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

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

**SIZE:** 38.9 x 19.6 x 22.9 cm (15.3 x 7.7 x 9 in.) (H x W x L)

**TOTAL WEIGHT:** 5.4 kg (12 lb); with batteries

### Options

**Lighted Handle:** (PN 4464-154) meter-illuminating self-contained handle with 3-position rocker switch (On, Off, Momentary)

**Shoulder Harness** (PN 4363-413) nylon strap with wide comfort pad help ease task of carrying heavier instruments

**Carrying Case:** (PN 2310377) rugged, foam-padded, padlockable transport and storage case with hinged lid & trunk stay

**Rolling Case:** (PN 2311487) rugged, foam-padded, padlockable transport and storage case with wheels and extendable handle

**Portable Scaler Option:** (PN 4464-114) adds scaler counting capability with digital readout to analog ratemeter

**Headphone Jack:** (PN 4464-464) adds headphone jack to instrument. Headphones provide superior audio in noisy or crowded environments. Headphones are also available (PN 22-9313).

