

Model 3-97

Gamma Exposure & Count Ratemeter



Ludlum Measurements, Inc.

Features

- Wide Range from $\mu\text{R/hr}$ to 200 mR/hr
- High Sensitivity to Gamma
- Rugged
- 4-Range Analog Ratemeter
- Internal & External Detectors



Introduction

The Model 3-97 provides a great solution for locating potential contamination and then accurately measuring the exposure rate, or for simply measuring the ambient exposure levels over a wide range. The instrument is equipped with an internal 2.5 x 2.5 cm (1 x 1 in.) NaI detector that is highly sensitive to gamma, with readings in the μR range between 0–3000 $\mu\text{R/hr}$ (0–3 mR/hr). The instrument is additionally equipped with an external Model 44-38 energy-compensated GM to extend the detection range up to 200 mR/hr. The ratemeter is Ludlum's venerable Model 3 series, which employs a robust aluminum cast instrument housing with a separate battery compartment for long-lasting protection and instrument life. The front-panel controls include a rotary switch for selecting the four-decade range, instrument shut-off and battery test, audio on/off switch, fast/slow response switch, count reset button, and internal/external detector switch. The Model 3-97 is a complete turn-key system with the detector cable and two "D" cell batteries.

Specifications

Part Number 48-1410

INDICATED USE: beta-gamma survey

DETECTORS: controlled by selector switch

INTERNAL: 2.5 x 2.5 cm. (1 x 1 in.) NaI(Tl) scintillator

SENSITIVITY: typically 175 cpm/ $\mu\text{R/hr}$ (137Cs gamma)

HIGH VOLTAGE: adjustable from 200–1200 volts

EXTERNAL: Model 44-38 energy compensated GM detector (others available)

SENSITIVITY: typically 1200 cpm/mR/hr (137Cs gamma)

HIGH VOLTAGE: factory set for 900 volts, may be adjusted from 400 to 1500 volts

CONNECTOR: series "C" (others available)

THRESHOLD: fixed at 30 mV \pm 10 mV

LINEARITY: within 10% of true value

CONTROLS:

- Rotary Selector Switch: off, battery check, range selections for x0.1, x1, x10, x100
- Reset: pushbutton to zero meter
- Response Switch: toggles between FAST (4 seconds) or SLOW (22 seconds) from 10% to 90% of final reading
- Audio Switch: on/off, built-in unimorph speaker, 60 dB at 61 cm (2 ft)
- Calibration Controls: accessible from front of instrument (protective cover provided)
- Int/Ext Switch: selects the internal scintillation detector or an external probe

CONSTRUCTION: cast and drawn aluminum with beige powder coating

METER DIAL: 0–2 mR/hr, 0–2.4 kcpm, BAT TEST (others available)

DETECTOR CONNECTOR: type "C" series (others available)

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

POWER: two each "D" cell batteries (housed in externally accessible sealed compartment)

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

SIZE: 24.1 x 8.9 x 21.6 cm (9.5 x 3.5 x 8.5 in.) (H x W x L), with handle

WEIGHT: 2 kg (4.4 lb) including batteries and detector, 1.4 kg (3 lb) alone

Options (others available):

Check Source: 137Cs, 1 μCi (Model L-01-5196) (several types of Check Source Holders are also available)

Lighted Handle: meter illuminating self-contained handle (uses one dedicated "AA" battery) (Model L-4464-154)

Portable Scaler Option (PN 4464-114) adds scaler counting capability with digital readout, count time & count controls

Shoulder Strap Kit: includes shoulder strap, replacement latches with built-in loops, & screws (Model L-4363-413)

Model 3-97 without Model 44-38 (PN 48-1409): for applications requiring a different external detector