

LUDLUM MEASUREMENTS, INC.

Model 2241-3RK2 Emergency Response Kit

Part Number: 48-4081

Features

- Ready-to-Go Kit Packaged in Rugged Case
- Digital Scaler-Ratemeter with Adjustable Audio & Visual Alarms
- Measures Alpha, Beta, and Gamma Contamination
- Includes a High-Sensitivity Gamma Probe for Quickly Locating Sources of Radiation
- Convenient In-Field Detector Switching

Introduction

The Model 2241-3RK2 Emergency Response Kit consists of all of the basic radiation measurement tools needed to rapidly respond to a radiological emergency. The standard kit includes:

- Model 2241-3 Digital Scaler-Ratemeter
- Model 44-9 Alpha-Beta-Gamma GM Detector
- Model 44-2 High Energy Gamma Scintillation Detector
- Model 133-6 Gamma GM Detector

Each kit comes in a rugged transport and storage case, which holds the meter and all three detectors, as well as a detector cable and a 1 μ Ci ¹³⁷Cs check source.



Detector Option

Model 133-7 Gamma GM Detector (PN 47-1216)

A higher range option replacing the Model 133-6 detector.

Model	133-6	133-7
Linear Range*	40 μ Sv/h to 1 Sv/h (4 mR/hr to 100 R/hr)	250 μ Sv/h to 10 Sv/h (25 mR/hr to 1000 R/hr)

* Linear range with included Model 2241-3 firmware upgrade.



Model 2241-3

Model 2241-3 Scaler-Ratemeter

- Four selectable and configurable detector settings
- Two operational modes: RATEMETER (displays count rate) or SCALER (preset count time from 1 to 9999 seconds)

DISPLAY: 4-digit (6 in scaler mode) auto-ranging LCD with 1.3 cm (0.5 in.) digits, moving decimal point.

Units: (μ)(m)R/hr, (μ)(m)Sv/h, (k)cpm, (k)cps

Indicators: ALERT, ALARM, low battery, counting OVERFLOW, and scaler COUNTING

DISPLAY RANGE:

- 0.0 μ R/hr to 9999 R/hr
- 0.000 μ Sv/h to 9999 Sv/h
- 0 cpm to 999 kcpm
- 0 cps to 100 kcps

USER CONTROLS:

- OFF/DET1/DET2/DET3/DET4 SWITCH: rotary switch to turn instrument on/off and to select set of detector parameters
- AUD ON/OFF SWITCH: turn click audio on/off (alarm audio operates independently of this setting)
- F/S SWITCH: select fast (F) or slow (S) response time
- SCA/RATE SWITCH: select scaler (SCA) or ratemeter (RATE) mode
- LIGHT BUTTON: activate display backlight
- RESET BUTTON: reset display and silence alarm
- SCALER COUNT SWITCH: start scaler count, reset scaler count

CALIBRATION CONTROLS: under protective cover on front

RESPONSE TIME: variable or fixed modes

- VARIABLE: response time varies in proportion to the incoming count rate
- FIXED: response time set to a programmable fixed value

LINEARITY: reading within 10% of true value

RATEMETER ALERT/ALARM: two alarms set at any point in the display range, indicated by ALERT or ALARM on the display and an audible tone

SCALER ALARM: adjustable from 1 to 999999 counts, indicated by ALARM on the display and an audible tone

AUDIO: built-in speaker, max. volume > 60 dB at 0.6 m (2 ft)

RS-232 PORT: allows user to set detector parameters using a computer, and enables data dump

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

BATTERY LIFE: typically 200 hours with alkaline batteries, 24-hour low battery warning

TEMPERATURE RANGE: -20 to 50 oC (-4 to 122 oF)

SIZE (H x W x L): 16.5 x 8.9 x 21.6 cm (6.5 x 3.5 x 8.5 in.)

WEIGHT: 1.6 kg (3.5 lb) with batteries

Model 44-9 Alpha-Beta-Gamma GM Detector

DETECTOR: pancake-type, halogen-quenched GM

EFFICIENCY (4 π): 14C - 5%; 90Sr/90Y - 22%; 99Tc - 19%;

^{99m}Tc - < 1%; 32P - 32%; 239Pu - 1%; 125I - 0.2%

SENSITIVITY (137Cs gamma): 3300 cpm per mR/hr

ENERGY RESPONSE: energy dependent

BACKGROUND: 60 cpm

DEAD TIME: 80 μ s

OPERATING VOLTAGE: 900 Vdc

SIZE (H x W x L): 4.6 x 6.9 x 27.2 cm (1.8 x 2.7 x 10.7 in.)

WEIGHT: 0.5 kg (1 lb)

Model 44-2 High Energy Gamma Scintillation Detector

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

EFFICIENCY: 125I - 7%; 57Co - 10%; 137Cs - 3%; 60Co - 3%

SENSITIVITY (137Cs gamma): typically 175 cpm per μ R/hr

ENERGY RESPONSE: energy dependent

BACKGROUND: 1800 cpm

OPERATING VOLTAGE: 500 to 1200 volts

SIZE (D x L): 5.1 x 21 cm (2 x 8.25 in.)

WEIGHT: 0.5 kg (1 lb)

Model 133-6 Gamma GM Detector

DETECTOR: energy-compensated, halogen quenched GM, 30 mg/cm² stainless steel

LINEAR RANGE*: 40 μ Sv/h to 1 Sv/h (4 mR/hr to 100 R/hr)

SENSITIVITY (137Cs gamma): 1.8 cpm/ μ Sv/h (18 cpm/mR/hr)

ENERGY RESPONSE: within 15% of true value (60 keV to 3 MeV)

BACKGROUND: 1 cpm or less

DEAD TIME: typically 50 μ s

OPERATING VOLTAGE: 550 Vdc

SIZE (D x L): 2.2 x 10.2 cm (0.88 x 4 in.)

WEIGHT: 0.090 kg (0.20 lb)

*Linear range with included Model 2241-3 firmware upgrade.