

# Model 2241-3MERK

## Medical Environment Emergency Response Kit



Ludlum Measurements, Inc.

### Features

- Ready-to-Go Kit Packaged in Rugged Case
- Digital Ratemeter/Scaler with Audible & Visual Alarms
- Measures Alpha, Beta, and Gamma Contamination
- Includes Personal Radiation Monitor & Check Source
- Includes a High-Sensitivity Gamma Probe for Quickly Locating Sources of Radiation



Part Number: 48-3744

### Introduction

The 2241-3MERK Emergency Kit will easily meet the radiation requirements of an emergency response plan. It includes a digital, autoranging ratemeter/scaler that stores 4 detector setups for quickly changing probes in the field. The detector complement is optimized for medical isotopes. A rugged, easy-to-use personal monitor is provided for emergency personnel entering a potentially harmful radiation environment. The 1  $\mu\text{Ci}$   $^{137}\text{Cs}$  check source with mountable holder ensures instruments are functioning properly. Response Kit components are securely stored and easily transported in the rugged, padlockable, airtight and watertight corrosion-proof case with soft-grip handle.

#### Model 2241-3 Survey Meter

**METER:** microprocessor-based digital ratemeter and scaler  
**DISPLAY:** 4-digit (6 in scaler mode) LCD with 1.3 cm (0.5 in.) high digits, moving decimal point, separate annunciators for display units, alert, alarm, low battery, counting overflow, and scaler counting  
**DISPLAY RANGE:** autoranging from 0.0  $\mu\text{R/hr}$  9999 R/hr; 0.000  $\mu\text{Sv/h}$  9999 Sv/h; 0 cpm 999 kcpm; or 0 cps 100 kcps  
**FRONT PANEL:** Audio On/Off, Fast/Slow, Sca/Rate, Backlight, Reset, HV, Detector Selector (Det1, Det2, Det3, Det4), On/Off  
**OFF/DET1/DET2/DET3/DET4:** 5-position switch with rotary switch selects one of four sets of detector parameters and applies power  
**SCA/RATE MODE:** locking switch toggles between ratemeter and scaler counting modes.  
**AUD ON/OFF:** silences or enables click-per-event audio (audible alarm is independent function and will override the switch)  
**F/S (FAST/SLOW) RESPONSE:** selects desired response time  
**VARIABLE/FIXED RESPONSE:** selects desired time constant  
**CALIBRATION CONTROLS:** under protective cover on front  
**LINEARITY:** reading within 10% of true value  
**RS-232 PORT:** allows user to set up to four different detector parameters using computer, and enables data dump  
**POWER:** 2 ea. "D" cell batteries housed in sealed compartment that is externally accessible  
**BATTERY LIFE:** typically 200 hours with alkaline batteries (low battery warning on LCD)  
**TEMPERATURE RANGE:** -20 to 50 °C (-4 to 122 °F)  
**SIZE:** 16.5 x 8.9 x 21.6 cm (6.5 x 3.5 x 8.5 in.) (H x W x L)  
**WEIGHT:** 1.6 kg (3.5 lb) with batteries

#### Model 44-142 Beta Detector

**DETECTOR:** beta scintillator  
**EFFICIENCY (4 $\pi$ ):** typically 20% for  $^{90}\text{Tc}$ ; 30% for  $^{90}\text{SrY}$ ; 4% for  $^{14}\text{C}$   
**RESPONSE UNIFORMITY:**  $\leq 10\%$  from average reading for  $^{99}\text{Tc}$   
**DEAD TIME:** typically 5 microseconds or less  
**SCREEN:** snap-on, 0.030 in. thick stainless steel with 0.25 in. square holes, 88% open  
**CONSTRUCTION:** aluminum housing with beige powder coat  
**SIZE:** 76.4 x 9.5 x 31.1 cm (2.5 x 3.8 x 12.3 in.) (H x W x D)

#### Model 44-9 Alpha/Beta/Gamma Detector

**INDICATED USE:** alpha, beta, gamma survey; sample counting  
**DETECTOR:** pancake-type, halogen-quenched GM  
**WINDOW:** 1.7 + 0.3 mg/cm<sup>2</sup> mica, 15 cm<sup>2</sup> (2.3 in<sup>2</sup>) active, 12 cm<sup>2</sup> (1.9 in<sup>2</sup>) open  
**EFFICIENCY (4 $\pi$ ):** 5% for  $^{14}\text{C}$ ; 22% for  $^{90}\text{Sr}/^{90}\text{Y}$ ; 19% for  $^{99}\text{Tc}$ ; < 1% for  $^{99m}\text{Tc}$ , 32%  $^{32}\text{P}$ ; 1% for  $^{239}\text{Pu}$   
**SENSITIVITY ( $^{137}\text{Cs}$  gamma):** 3300 cpm/mR/hr  
**ENERGY RESPONSE:** energy dependent  
**BACKGROUND:** 60 cpm  
**DEAD TIME:** 80 microseconds  
**OPERATING VOLTAGE:** 900 Vdc  
**SIZE:** 4.6 x 6.9 x 27.2 cm (1.8 x 2.7 x 10.7 in.) (H x W x L)

#### Model 44-2 Gamma Detector

**DETECTOR:** scintillator, 2.5 x 2.5 cm (1 x 1 in.) (Dia x L) NaI(Tl)  
**SENSITIVITY:** typically 175 cpm/ $\mu\text{R/hr}$  ( $^{137}\text{Cs}$  gamma)  
**BACKGROUND:** 1900 cpm  
**RECOMMENDED ENERGY RANGE:** 50 KeV to 1.5 MeV  
**ENERGY RESPONSE:** energy dependent  
**PHOTOMULTIPLIER TUBE:** 2.86 cm (1.12 in.) diameter  
**OPERATING VOLTAGE:** 500 to 1200 volts  
**CONNECTOR:** series "C"  
**TEMPERATURE RANGE:** -15 to 50 °C (5 to 122 °F)  
**SIZE:** 5.1 x 18.5 cm (2 x 7.3 in.) (Dia x L)

#### Included Items

Personal Dosimeter/Ratemeter, Check Source Holder, 1  $\mu\text{Ci}$  ( $^{137}\text{Cs}$ ) Check Source, Carrying Case, Cable, Batteries

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Note: specifications subject to change without notification. We are not responsible for errors or omissions.

Aug 2015