# LUDLUM MEASUREMENTS, INC.

# Model 3003i-4RK
## Emergency Response Kit

Part Number: 48-4483

## Features

- Ready-to-Go Response Kit in Rugged Case
- Ergonomic Survey Meter with 4 Selectable and Configurable Detector Settings
- Measures Alpha, Beta, and Gamma Contamination
- Alpha, Beta, or Alpha+Beta Measurements
- Convenient In-Field Detector Switching
- Either Internal or External Dose Measurement Detector

## Introduction

The Model 3003i-4RK consists of the necessary equipment for measuring radiation in both NORM and emergency response applications. The standard kit includes:

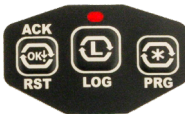
- Model 3003i Multi-Detector Survey Meter with Internal Detector
- Model 44-9 Alpha-Beta-Gamma GM Detector
- Model 44-2 High Energy Gamma Scintillation Detector
- Model 133-6 Gamma GM Detector
- Model 43-93 Alpha/Beta Scintillation Detector

The Model 3003i is a digital survey meter with four modes of operation, RATE, MAX, COUNT, and DOSE; adjustable alarms; and an internal energy compensated GM detector for dose measurements. It can store detector settings for up to four external detectors allowing personnel to easily change detectors in the field. Users can connect either the Model 44-9 alpha-beta-gamma detector for general survey measurements, the Model 44-2 high-sensitivity gamma scintillator for locating the source of high readings, the Model 133-6 gamma detector for high-level gamma survey measurements, or the Model 43-93 alpha/beta detector for alpha and beta measurements.

Each kit comes in a rugged, air- and watertight transport and storage case, which holds the meter, the four detectors, and a 1 m (39 in.) detector cable.

**Meter Buttons**

**Handle Buttons**



**Model 3003i**

## Options

- **1 µCi $^{137}$Cs Check Source** (PN: 01-5196)
- **M 3000 Gen 2 Series Bluetooth® LE Option** (PN: 4519-564)
- **Lumic LInker App** (available for free in Google Play and Apple App stores, requires meter with Bluetooth® LE Option)
- **Lumic Calibration Kit** (PN: 4519-865)
- **Lumic Configuration Kit** (PN: 4519-747)
- **Lumic Data Logging Kit** (PN: 4498-1019)

(See our website for the full list of available options.)

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

## Model 3003i Multi-Detector Survey Meter with Internal Detector

- Four selectable and configurable detector settings
- Four operational modes: RATE (displays rate in selected units), MAX (captures peak rate), COUNT (preset count time from 0 to 31.68 years), and DOSE (current accumulated dose)

**INTERNAL DETECTOR:** energy compensated GM tube (LND 71210)
Range: Background to 50 mSv/h (5 R/hr)

**DISPLAY:** 3-digit auto-ranging LCD with large 20 mm (0.8 in.) digits, built-in ambient light sensor automatically activates LED backlight

**DISPLAY RANGE:**

- 00.0 cps to 999 kcps
- 00.0 cpm to 99.9 Mcpm
- 00.0 Bq to 999 MBq
- 00.0 Bq/cm$^2$ to 999 MBq/cm$^2$
- 00.0 dpm to 999 Mdpm
- 0.00 µR to 999 MR
- 0.00 µR/h to 9.99 kR/h
- 0.00 µSv to 999 MSv
- 0.00 µSv/h to 999 Sv/h
- 0.00 µRem to 999 MRem
- 0.00 µRem/h to 9.99 kRem/h
- 0 c to 999 Mc (counts)
- 0 d to 999 Md (disintegrations)

NOTE: Operational display ranges are dependent on the detector and dead time configuration. The minimum and maximum display can be set to limit the display to the calibrated range.

**USER CONTROLS:**

- ON/AUD: instrument On/Off, adjust audio level
- UNITS: switch between primary and secondary units
- DETECTOR: press to change between detectors, and between internal and external detector
- MODE: press to select mode - RATE, MAX, COUNT, DOSE
- ACK/RST: acknowledge alarms, reset current mode
- LOG: log current display or initiate count in COUNT mode, extra-long press to change count in COUNT mode
- PRG: press during power-up to access setup menu

**DATA LOGGING:** Can store up to 1000 data points internally. Requires Lumic Data Logger Kit (see Options)

**RESPONSE TIME:** User-selectable from 1 to 60 seconds, auto SLOW, auto FAST, fixed SLOW (22s), fixed FAST (4s)

**ALARMS:** Three count rate, exposure/dose, scaler, and accumulated dose alarm set-points adjustable over the display range

**OVERLOAD PROTECTION:** High count rate saturation protection prevents false display of lower count rates.

**LOSS OF COUNT PROTECTION:** After a user-defined time (typically 60 seconds) of no pulses from detector, the unit will indicate loss of count

**OVERRANGE:** Indicated when reading exceeds the predefined detector range

**AUDIO:** "Click" audio greater than 65 dB at 0.6 m (2 ft); Alarm audio greater than 72 dB at 0.6 m (2 ft), approx. 4.5 kHz

**POWER:** Four "AA" batteries, approximately 175 hour battery life, 16-hour low battery warning

**CONNECTOR:** series "C" (others available)

**CONSTRUCTION:** High-impact polycarbonate with rubber seals and separate battery compartment

**TEMPERATURE RANGE:** -20 to 50 °C (-5 to 122 °F), may be certified for operation from -40 to 65 °C (-40 to 150 °F)

**ENVIRONMENTAL RATING:** NEMA 3x or IP 53

**SIZE: (H X W X L):** 16.5 x 11.4 x 21.6 cm (6.5 x 4.5 x 8.5 in.)

**WEIGHT:** 0.9 kg (2.0 lb)

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

**DETECTOR:** pancake-type, halogen-quenched GM

**EFFICIENCY (4π):** $^{14}$C- 5%; $^{90}$Sr/$^{90}$Y - 22%; $^{99}$Tc - 15%; $^{32}$P - 32%; $^{239}$Pu - 15%; $^{99m}$Tc - < 1%; $^{125}$I - 0.2%

**SENSITIVITY ($^{137}$Cs gamma):** 3300 cpm per mR/hr

**ENERGY RESPONSE:** energy dependent

**BACKGROUND:** 30-60 cpm (in 10 µR/hr field)

**DEAD TIME:** 80 µs

**CONSTRUCTION:** aluminum housing with beige powder coat, stainless steel screen (79% open)

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

**EFFICIENCY:** $^{125}$I - 7%; $^{57}$Co - 10%; $^{137}$Cs - 3%; $^{60}$Co - 3%

**SENSITIVITY ($^{137}$Cs gamma):** typically 175 cpm per µR/hr

**ENERGY RESPONSE:** energy dependent

**BACKGROUND:** 1800 cpm (in 10 µR/hr field)

**CONSTRUCTION:** aluminum with beige powder coat

**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/cm$^2$ stainless steel

**LINEAR RANGE:** 40 µSv/h to 10 Sv/h (4 mR/hr to 1000 R/hr) (Maximum range may be reduced at longer cable lengths.)

**SENSITIVITY ($^{137}$Cs gamma):** 1.8 cpm/µSv/h (18 cpm/mR/hr)

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

**BACKGROUND:** 1 cpm or less (in 10 µR/hr field)

**DEAD TIME:** typically 50 µs

**CONSTRUCTION:** anodized aluminum housing

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

**WEIGHT:** 0.090 kg (0.20 lb)

## Model 43-93 Alpha/Beta Scintillation Detector

**DETECTOR:** ZnS(Ag) scintillator adhered to 0.25 mm (0.01 in.) thick plastic scintillator

**ACTIVE WINDOW AREA:** 100 cm$^2$ (15.5 in$^2$)

**EFFICIENCY:** $^{99}$Tc - 15%; $^{90}$Sr/$^{90}$Y - 20%; $^{239}$Pu - 20%

**BACKGROUND:** Alpha - 3 cpm or less; Beta - 300 cpm or less (in 10 µR/hr field)

**CONSTRUCTION:** aluminum with beige powder coat

**SIZE (H x W x L):** 6.4 x 9.5 x 31 cm (2.5 x 3.8 x 12.3 in.)

**WEIGHT:** 0.5 kg (1.0 lb)

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