

LUDLUM MEASUREMENTS, INC.

Model 3002/FM Series Alpha-Beta Floor Monitor

Features

- Large Backlit and Auto-Ranging LCD
- Simultaneous Alpha-Beta Counting
- Gasless – Uses Scintillators and PMTs
- Dual-Tone Audio: Low-Pitch Beta Clicks and High Pitch Alpha Beeps
- 4-Button Interface for Easy Operation
- Height Above Floor Easily Adjusted
- Rate, Max, and Count Modes

Introduction

The Model 3002/FM Series Alpha-Beta Floor Monitors allow a user to quickly survey large areas for alpha-beta contamination. They combine the dependable Model 3002 Alpha-Beta Survey Meter with two alpha-beta scintillation detectors in configurations ideal for floor monitoring. The use of scintillation detectors creates an instrument that requires much less maintenance than traditional gas flow proportional detectors. See available detector configurations below.



Model 3002/FM1

Model 3002/FM2

Model	3002/FM1	3002/FM2	3002/FM3
Part Number	48-4037-1	48-4037-2	48-4037-3
Detector	2 ea. Model 43-147 alpha-beta scintillation detectors	2 ea. Model 43-147 alpha-beta scintillation detectors	2 ea. Model 43-204-2 alpha-beta scintillation detectors
Total Detector Area	Active: 400 cm ² (62 in ²) Open: 352 cm ² (54.6 in ²)	Active: 400 cm ² (62 in ²) Open: 352 cm ² (54.6 in ²)	Active: 1080 cm ² (167.4 in ²) Open: 960 cm ² (148.8 in ²)
Total Detector Window Width	22.4 cm (8.8 in)	40.9 cm (16.1 in)	65.7 cm (25.9 in)
Efficiency (4π)	²³⁹ Pu – 20%, ⁹⁹ Tc – 15%, ⁹⁰ Sr/ ⁹⁰ Y – 20%	²³⁹ Pu – 20%, ⁹⁹ Tc – 15%, ⁹⁰ Sr/ ⁹⁰ Y – 20%	²³⁹ Pu – 18%, ⁹⁹ Tc – 10%
Typical Background (10 μR/hr field, combined detectors)	Alpha: ≤ 5 cpm Beta: ≤ 800 cpm	Alpha: ≤ 5 cpm Beta: ≤ 800 cpm	Alpha: ≤ 5 cpm Beta: ≤ 1200 cpm
Detector Height	Adjustable from 0 to 16 mm (0.0 to 0.625 in.)	Adjustable from 0 to 16 mm (0.0 to 0.625 in.)	Adjustable from 0 to 16 mm (0.0 to 0.625 in.)

Specifications

METER: Model 3002 alpha-beta survey meter

DISPLAY: 3-digit LCD with large 20 mm (0.8 in.) digits, low-battery indicator, MAX, ALARM, AUDIO, α icon, β icon, (k)cps, (k)cpm, (k)Bq, (k)dpm

DISPLAY RANGE:

- 0.0 cps to 99.9 kcps
- 0.00 cpm to 999 kcpm
- 0.00 Bq to 99.9 kBq
- 0.00 dpm to 999 kdpm

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.

LINEARITY: within 10% of true value

BACKLIGHT: Built-in ambient light sensor automatically activates low-power LED backlight, unless internal dipswitch is set to continuous-on (will reduce battery life)

USER CONTROLS:

- ON/OFF: extra-long press to turn ON; short press to acknowledge alarms; extra-long press plus 3 seconds to turn OFF
- α - β : short press changes between alpha, beta, and alpha + beta measurements
- AUDIO: short press to adjust audio level, long press in COUNT mode allows for selection of alternate count times
- MODE: short press alternates between modes: RATE (display count rate), MAX (captures peak rate), and COUNT (captures rate or dose readings for a user-selectable preset count time from 0 to 10 minutes)
- LOG: short press to log current display (requires Lumic Data Logger Kit), or initiate count in COUNT mode

RESPONSE TIME: User-selectable from 1 to 60 seconds, or auto-response rate FAST or SLOW

ALARMS: Two adjustable count rate, exposure/dose, and count alarm set-points adjustable over the display range

LOSS OF COUNT PROTECTION: After a preselected time interval of no pulses from detector (default 60 seconds), audible and visual alarms will be activated

OVERLOAD PROTECTION: High count rate saturation protection prevents false display of lower count rates. "OL" will appear on display and an audio warning will be triggered.

OVERRANGE: if the reading should exceed the predefined detector range, the instrument will flash a maximum reading and trigger an audio warning.

DEAD TIME CORRECTION: employs first and second order corrections for extended performance

AUDIO: Approximately 4.5 kHz, click audio greater than 65 dB at 0.6 m (2 ft.), audio alarm greater than 72 dB

POWER: Four alkaline "AA" batteries

BATTERY LIFE: Approximately 750 hours of operation (as low as 100 hours with backlight configured for continuous-on), 16-hour low battery warning

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

CONSTRUCTION:

Meter: High-impact plastic with water-resistant rubber seals and separate battery compartment

Detector & Pole: Aluminum with beige powder coat

OVERALL SIZE (H x W x L):

3002/FM1: 76 x 40 x 137 cm (30 x 16 x 54 in.)

3002/FM2: 76 x 60 x 137 cm (30 x 23.6 x 54 in.)

3002/FM3: 76 x 86 x 154 cm (30 x 34 x 61 in.)

OVERALL WEIGHT:

3002/FM1: 5 kg (11 lb.)

3002/FM2: 5.6 kg (12.4 lb.)

3002/FM3: 11.2 kg (24.6 lb.)