

## Model 52 Personnel Beta/Gamma Portal Monitor

Part Number: 48-2471

### Features

- Easy Setup, Operation, and Transportation
- Portable
- Uses 18 GM Detectors
- Built-in Person Counter
- Background Updating and Subtraction
- 81.3 cm (32 in.) Wide Opening
- Meets FEMA-REP-21 Standards
- Includes Wheeled Transport Case
- Includes Weather Sleeve



Left: Transport Case



Left: Model 52 Portal Monitor  
Above: Model 52 Electronics

### Introduction

The Model 52 Portal Monitor is used for Beta-Gamma personnel contamination monitoring and meets the FEMA standard for Emergency Response Portal Monitoring (FEMA-REP-21). It is designed to be assembled in five minutes or less without tools, and can be quickly disassembled for ease of transportation and storage. All parameters are stored in non-volatile memory, which requires no battery backup. These parameters allow easy operation with minimal setup by minimally trained personnel. The parameters are preset at the factory to detect a 1  $\mu\text{Ci}$   $^{137}\text{Cs}$  beta window source in a 10  $\mu\text{R/hr}$  background field, in accordance with the FEMA standard. The Model 52 can be powered by 120 Vac, six "D" cell batteries, or 220 Vac-powered units, which are available as a special order.

The instrument has a "person-counter" integrated into the electronics that increments by one every time a count is completed. It is a four-digit number normally displayed on the LCD display, next to the "READY" message. It also has an RS-232 port that can be used to print out parameter setpoints, background counts, and counts above background.

The portal frame incorporates an array of 18 Geiger-Mueller (GM) detectors positioned around the frame and base. Fourteen GM pancake detectors are located in the frame for monitoring the head and body. Four cylindrical GM detectors are utilized in the base for monitoring the feet. The electronics are microprocessor-based for ease of setup

and reliability. Individual LEDs (Light Emitting Diodes) mounted in the frame and also on the electronics front panel indicate the specific alarm location. LEDs in the front panel indicate count cycle status. Audible signals accompany the LEDs for additional indication. Detector counts, background, and all parameters may be viewed on the LCD display. All setup is accomplished via pushbuttons on the electronics assembly.

The Model 52 incorporates a summing alarm in addition to the individual channel alarms. This increases the system sensitivity to widespread contamination. If two or more channels have a noticeable increase in counts but do not exceed their alarm threshold, the sum of their counts could exceed the summing alarm.

The Model 52 also has background update and subtract capabilities. The instrument will take a background count and subtract it from the current count. This function helps compensate for fluctuations in background. Background subtract can be turned on or off, the background count time is adjustable, and the background interval time is adjustable. The operator can force the instrument to stop and take a background count at a different interval if desired.

The Model 52 is supplied with a polypropylene weather sleeve to protect against wet weather conditions. Units are also supplied with a rugged, wheeled, and padded transport/storage case for rapid deployment.

Ludlum Measurements, Inc. P.O. Box 810, Sweetwater, Texas 79556

Web: [ludlums.com](http://ludlums.com) Tel: 800-622-0828 / 325-235-5494 Fax: 325-235-4672 Email: [sales@ludlums.com](mailto:sales@ludlums.com)

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

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## Specifications

**SENSITIVITY:** This instrument will detect the beta gamma emissions from a 1.0  $\mu\text{Ci}$   $^{137}\text{Cs}$  source when it is located at mid-frame of the portal monitor in a 10  $\mu\text{R/hr}$  background (per the suggested standard in FEMA report "Contamination Monitoring Standard for a Portal Monitor Used for Emergency Response," Sept. 1992).

**ENERGY RESPONSE:** energy dependent

**BODY and HEAD DETECTORS:** 14 GM pancake detectors (2 per channel).

**Active Area:** approximately 15.4  $\text{cm}^2$  (2.4  $\text{in}^2$ ) per detector. **Open Area:** approximately 12.2  $\text{cm}^2$  (1.9  $\text{in}^2$ ) per detector.

**Window:** 1.7  $\pm$  0.3  $\text{mg/cm}^2$  mica

**SHOE DETECTORS:** 4 (2 per shoe) cylindrical GM detectors.

**Wall Thickness:** 37  $\pm$  7  $\text{mg/cm}^2$  stainless steel. **Active Length:** approximately 22.9 cm (9 in.). **Sensitivity:** 8800 cpm per mR/hr ( $^{137}\text{Cs}$ )

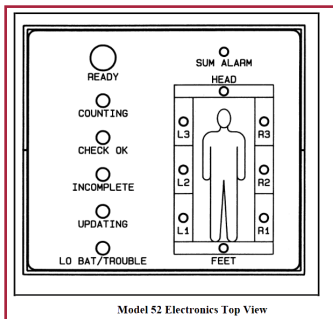
**DISPLAY/CONTROL UNIT:** one-line x 16-character alphanumeric LCD;

**Menu Controls:**

- Select
- Save
- Exit
- Increment Value
- Decrement Value

**LED INDICATORS:**

- Ready (green LED): indicates system is ready for use
- Counting (green LED): indicates count is in process
- Check OK (green LED): indicates count is completed and no alarms sensed
- Incomplete/Updating (amber LED): indicates user stepped off portal before count was complete, or a background update is in progress
- Low Bat/Trouble: (red LED) indicates a low battery or high/low background
- Sum Zones: 8 zones with 3 on the left, 3 on the right, 1 for the head, and 1 for the feet; LEDs are situated around a graphic indicating the relative position to the person



**PARAMETERS:** all parameters are stored in non-volatile memory, adjustable by administrator with password input

**Key Operating Parameters:**

- Background Count Time: can be set at any point from 0 to 99 seconds
- Count Time: adjustable from 1 to 60 seconds
- Forced Background Update: adjustable from 0 to 99 minutes
- Alarm Hold Time: 1 to 99 seconds

**AUDIO:** built-in unimorph speaker with adjustable volume output via menu control

**INTERFACE:** RS-232 port for connection to printer or computer

**TEMPERATURE RANGE:** -20 to 50  $^{\circ}\text{C}$  (-4 to 122  $^{\circ}\text{F}$ )

**POWER:** 95 to 135 VAC (178 to 238 VAC available), or 6 each "D" cell batteries

**BATTERY LIFE:** typically 80 hours in a non-alarm condition

**CONSTRUCTION:** aluminum housing with beige powder coat

**WEATHER PROTECTION:** crystal clear polypropylene tubing is provide to sleeve over the monitor whenever protection against wet weather conditions is desired

**PORTAL DIMENSIONS:** 203.2 x 104 x 43.2 cm (80 x 41 x 17 in.) (H x W x L)

**PORTAL INSIDE DIMENSIONS:** 194.3 x 81.3 cm (76.5 x 32 in.) (H x W)

**TRANSPORT CASE:** high-density plastic with wheels and dual padded handles.

**TRANSPORT CASE DIMENSIONS:** 122 x 61 x 30.5 cm (48 x 24 x 12 in.) H x W x D)

**WEIGHT:** 29.5 kg (65 lb), 38.6 kg (85 lb) with included case, approximately 42.3 kg (93 lb) shipping weight

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