

# Model 54 Small Article Monitor

*Radiation Detection for a Safer World*



Ludlum Measurements, Inc.

## Features

- True  $4\pi$  Counting Geometry for Optimized Homogenous Efficiency
- QPASS Counting Technology for Shorter Counting Cycles
- Large 30.7 cm (12.1 in.) Color LCD with Touch Screen Interface
- USB Port for Printer-Free Operation & Calibration
- User-Selectable Operating Modes
- Auto Calibration Routine
- Several Configurations Available



Part Number 48-3263

## Introduction

Automating routine contamination frisking using instruments like Ludlum's Small Article Monitor is a well-proven methodology for ensuring that items leaving controlled areas are clean. Ludlum's new Model 54 has adopted time-tested and proven concepts, gathered from throughout the industry, and integrated them into a new, ground-up design that employs the latest computer and detector technologies. The result is a more robust, user-friendly, and cost-effective design than any other currently available.

Central to the design is the detector chamber, which is configured to deliver the largest and most sensitive detection volume presently available for this type of monitor. The specially-designed, large area, 5 cm (2 in.) thick plastic scintillator detectors are arranged to optimize the sensitivity throughout the chamber. A stainless steel liner protects the detectors while facilitating decon. The chamber can be configured with either four or six detectors, and either 2.5 or 5.1 cm (1 or 2 in.) of lead. The lead is shipped separately and easily loaded on site.

The Model 54 is equipped with two doors, which can be mounted with either a left- or right-hand swing. Hardened steel door hinges, securely bolted to the instrument frame, employ ball-bearings to make operating the doors as easy as possible. Very powerful, non-jamming, electromagnet-activated door locks may be configured by the user to support logistics for single or pass-through type operation.

Ludlum's new QPASS algorithms provide a means whereby administrators can optimize the settings best

suited for their operations. QPASS additionally surpasses all other technologies via built-in intelligence that can automatically optimize settings as the count begins to deliver the most efficient and effective count possible. It's a perfect balance between minimum count time and maximum sensitivity that affords eliminating a second count to verify any alarms.

Operational status and instrument condition is clearly presented to the operator via a large 30.7 cm (12.1 in) touch screen LCD. An optional second LCD mounted to the opposite side is available where desired, as in the case of pass-through type operations. The screens are designed to be very intuitive and are accompanied by a large-size pushbutton to activate sample counting, and two smaller pushbuttons for updating the background or acknowledging any alarms. The main counting screen is locked, with password control access via the touch screen, to either routine check functions at one level or a second level accessing all parameters.

The electronics support the latest Ludlum detector boards, which are connected to a PC-based fan-less controller motherboard running on Embedded Windows™ XP platform. The system also provides an ethernet port that enables connection to the site LAN for collecting all count and alarm data as well as monitoring all activities remotely from one or more locations.

When taken in total, Ludlum's Model 54 Small Article Monitor delivers state-of-the-art technology in a robust design with enhanced performance, user-friendliness, and connectivity at the lowest cost on the market.

# Model 54 Small Article Monitor



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## CHAMBER:

- INTERNAL DIMENSIONS: 50.8 x 50.8 x 50.8 cm (20 x 20 x 20 in.) (H x W x L)
- DETECTION VOLUME: 130 L (4.6 ft<sup>3</sup>)
- LINER MATERIAL: stainless steel

## DETECTORS:

- 4 or 6 detector configurations available
- Scintillator: EJ-200 plastic
- Size: 48.3 x 48.3 x 5.1 cm (19 x 19 x 2 in.) (H x W x D)

## DOORS:

- Reversible door swing
- Hinges are heavy duty rated, incorporating ball bearings for smooth operation
- Door locks to control single- or dual-door operation

## ELECTRONICS:

- PC based, fanless controller motherboard running Embedded Windows™ XP
- Display: 30.7 cm (12.1 in.) (diagonal) TFT LCD, SVGA, touchscreen
- User Pushbutton Controls: Start/Stop Count, Background Update, Alarm Acknowledgement. All other control functions are available via the LCD touch screen. Password protection employed.

I/O: Alarm & access control relays, USB ports, TCP/IP

## COUNTING:

- Three alarm modes to maximize throughput, sensitivity or fix the count time
- Alarms available for sum channels, sum zones and individual detectors
- Automatic background updating
- Contaminated detector checking
- False alarm control
- Logs each use, operational test, and calibration

PERFORMANCE: detects 2.2 nCi mixed <sup>60</sup>Co/<sup>137</sup>Cs source in less than 5 seconds

TEMPERATURE RANGE: 0–50 °C (32–122 °F)

MAXIMUM HUMIDITY: 95% non-condensing

POWER: 100–240 Vac, 50–60 Hz single phase

SIZE: 139 x 90.9 x 95.3 cm (54.7 x 35.8 x 37.5 in.) (H x W x D)

## WEIGHT:

0.0 cm (0 in.) of lead: approximately 544 kg (1200 lb)

2.5 cm (1 in.) of lead: approximately 1315 kg (2900 lb)

5.1 cm (2 in.) of lead: approximately 2087 kg (4600 lb)

*(Lead is shipped separately and installed on site)*

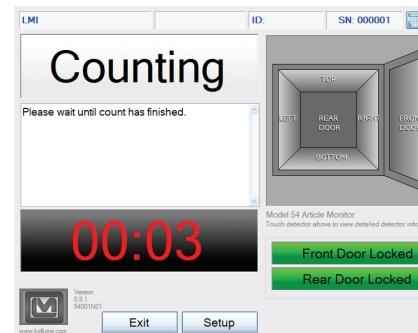
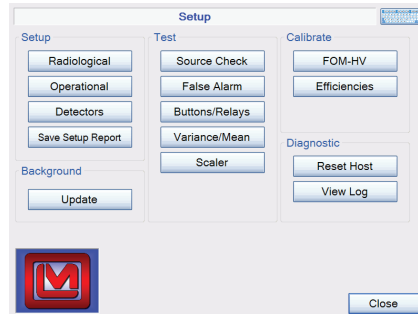
## Available Configurations

| Part Number | Description   |
|-------------|---|
| 48-3728     | 4 detectors, 2 doors, 2.5 cm (1 in.) lead shielding |
| 48-3727     | 4 detectors, 2 doors, 5.1 cm (2 in.) lead shielding |
| 48-3726     | 6 detectors, 2 doors, 2.5 cm (1 in.) lead shielding |
| 48-3263     | 6 detectors, 2 doors, 5.1 cm (2 in.) lead shielding |

## Options

| Part Number | Description        |
|-------------|--------------------|
| 4540-209    | Light Stack        |
| 4540-127    | Weight Scale       |
| 4540-210    | Second LCD Monitor |

**Also Available:** Model 54A: smaller-capacity monitors with nearly identical specifications (PN 48-3792)



Representative Screen Shots