

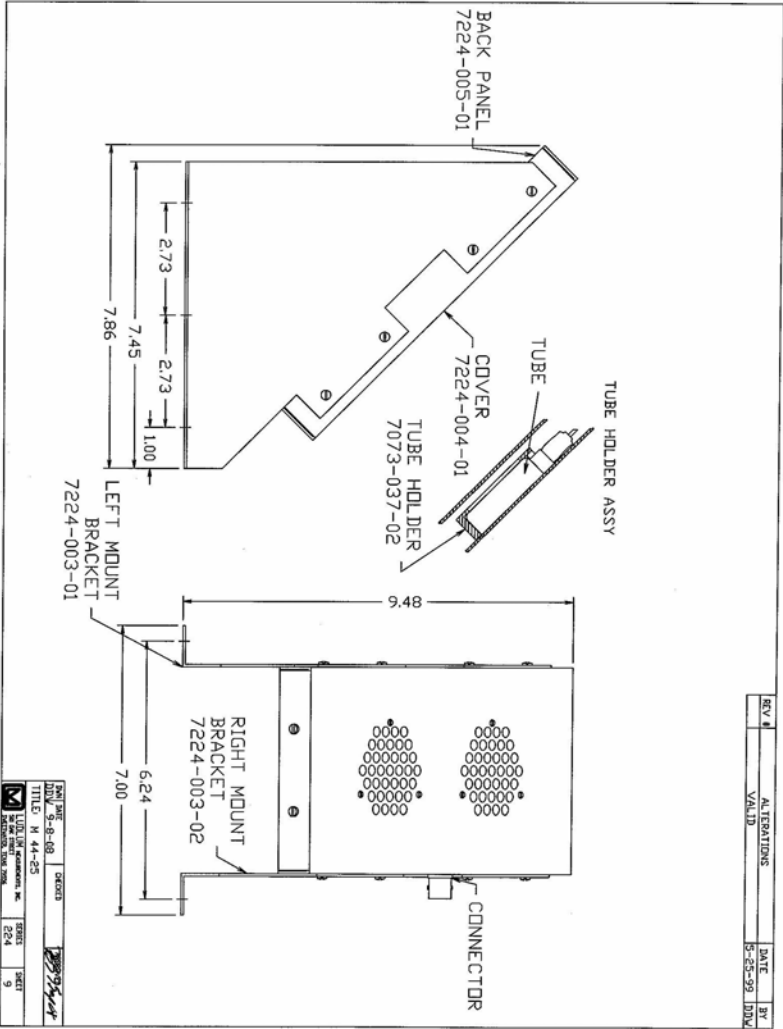
**LUDLUM MODEL 44-25  
ALPHA, BETA, GAMMA  
HAND DETECTOR**

**September 2008  
Serial Number 155835 and Succeeding  
Serial Numbers**



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Drawings and Diagrams



## Parts List

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Model 44-25 Alpha-Beta-Gamma Hand Monitor

UNIT Completely Assembled  
Model 44-25 Alpha-Beta-Gamma  
Hand Monitor 47-1508

Quantity	Description	Part #
2EA	G-M TUBE (LND 7311)	01-5008
2EA	TUBE HOLDER	7073-037-02
1EA	LEFT MOUNTING BRACKET	7224-003-01
1EA	RIGHT MOUNTING BRACKET	7224-003-02
1EA	COVER	7224-004-01
1EA	BACK PANEL	7224-005-01
2EA	PENCIL CLIP	01-5237
2EA	RESISTOR, 3.3 MEG 1/4W 5%	10-7044
1EA	CONNECTOR, UG 706/U	13-7751
10IN.	HV WIRE	21-9312

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## Introduction

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The Ludlum Model 44-25G-M (Geiger-Mueller) Hand Monitor detects alpha, beta and gamma radiation. Its size and shape provide easy handling for surveying or personnel monitoring. The detector is energy dependant, over-responding by a factor of six in the 60 keV to 100 keV range when normalized to <sup>137</sup>Cs.

This detector operates between 850-1000 volts, with a recommendation from the tube manufacturer of approximately 900 Vdc. Recommended instrument input sensitivity is approximately 30 mV or higher to prevent the detector from double pulsing (where the detector “counts” a single pulse from the instrument multiple times.)

### Caution!

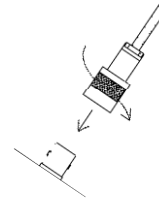
The G-M tube face can rupture above 8000 feet in altitude. When transporting this detector by air, use an airtight container in order to avoid sudden atmospheric changes resulting in tube failure.

The Ludlum Model 44-25 will operate with any Ludlum instruments or equivalent instruments that provide 900 VDC and an input sensitivity of approximately 30mV or higher.

## Operating Procedures

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### CONNECTING TO AN INSTRUMENT



Connect one end of the cable provided to the detector by firmly pushing the connector together while twisting clockwise ¼ turn until latched. Repeat the process in the same manner with the other end of the cable and the instrument.

### TESTING THE DETECTOR

1. Insure that the instrument high voltage (HV) is at the proper setting for the detector (900 volts).
2. Connect the detector to the instrument and check for a proper background reading (typically 25-50 cpm at 8-15  $\mu$ R/hr).
3. Expose the detector to a check source and verify that the instrument indicates within 20% of the check source reading from the last calibration. Alternatively, expose the detector to a source of known value and verify that the detector detects greater than or equal to the efficiency listed in the specification section of this manual.
4. Instruments and detectors that meet these criteria are ready for use. Failure to meet these criteria may indicate a malfunction in the detector.

## Specifications

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Detector: 2 EA. pancake-type halogen quenched G-M

Window:  $1.7 \pm 0.3$  mg/cm<sup>2</sup> mica

Window Area: Active – 31 cm<sup>2</sup>; Open – 18 cm<sup>2</sup>

Efficiency (4 $\pi$  geometry): typically 5% for <sup>14</sup>C; 22% for <sup>90</sup>Sr/<sup>90</sup>Y; 19% for <sup>99</sup>Tc; 32% for <sup>32</sup>P; 15% for <sup>239</sup>Pu

Sensitivity: typically 6600 cpm/mR/hr (<sup>137</sup>Cs gamma)

Energy Response: energy dependant

Dead Time: typically 80  $\mu$ s

Operating Voltage: 900 volts

Compatible Instruments: general-purpose survey meters, ratemeters and scalers.

Connector: series "C" (others available)

Construction: aluminum housing with beige powder-coat finish; stainless steel protective screen

Temperature Range: 5°F (-15°C) to 122°F (50°C); may be certified for -40°F (-40°C) to 150°F (65°C)

Size: 9.5" (24.1 cm) H  $\times$  6" (15.2 cm) W  $\times$  7.8" (19.8 cm) L

Weight: 3.3 lb (1.5 kg)



Model 44-25

## **Unpacking and Repacking**

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Remove the calibration certificate or detector functional check certificate and place it in a secure location. Remove the detector(s) and accessories (if applicable) and ensure that all items listed on the packing list are in the carton. If multiple detectors are included, refer to the calibration certificates for serial number (SN) matches. The Model 44-25 serial number is located on the side of the detector.

To return an instrument or detector for repair or calibration, provide sufficient packing material to prevent damage during shipment and affix appropriate warning labels to promote careful handling. The following items and information should also be included to insure quick turnaround time of your equipment.

- instrument(s) and related cable(s)
- brief description as to the reason for return

- description of service requested
- return shipping address
- customer name and telephone number

### **Caution!**

When shipping a Model 44-25 by air, it is necessary to ship the tube in a sealed container to avoid sudden atmospheric changes which could rupture the tube.