

# Model 177-84

## Alpha / Beta Meter

*Radiation Detection for a Safer World*



Ludlum Measurements, Inc.

### Features

- Simultaneous Alpha & Beta Counting
- Independent Alpha & Beta
  - Readouts
  - Alarms Setpoints
  - Audible Signatures
- Automatic Background Subtraction & Updating
- 50 Hour Battery Backup



Part Number: 48-2727

### Introduction

The Model 177-84 is a microprocessor based radiation survey instrument used to measure and discriminate low level alpha/beta radiation when used with an alpha/beta scintillation or proportional detector. The instrument has automatic background subtract and automatic background update. It also has an adjustable count timer which can be set from 0 to 120 seconds. Optional wall stations are available that support signaling the system when to update background or begin counting. The radiation level is displayed on two analog meters.

The Alpha meter dial indicates 0–1000 CPM on a three decade log scale. The Beta meter dial indicates 100-100,000 CPM on a three decade log scale. Each channel has its own distinguishable click per event audible tone; beta events have a low pitch and alpha events have a high pitch. Beta clicks per event can be set at 1 per 1, 10, 100, or 1000.

Each channel has its own alarm point which is adjustable from 0 to full scale. Alarms are indicated by an audible tone and LED's (*Light Emitting Diodes*).

### Specifications

**APPLICABLE DETECTORS:** gas proportional, dual phosphor scintillator (like Ludlum Models 43-93, 43-68)

**HIGH VOLTAGE:** 200-2500 VDC

**ALPHA PARAMETERS:** threshold: 1–180 mV, meter scale: 0-1000 cpm

**BETA PARAMETERS:** threshold: 1–4 mV, window: adjustable 4–70 mV, meter scale: 100-100,000 cpm

**CROSSTALK:**  $\leq 1\%$  alpha counts in beta channel,  $\leq 10\%$  gross counts in alpha channel

**LINEARITY:**  $\pm 10\%$  of true value, typically  $\pm 2\%$  of true value when measured with an electronic pulser

**RESPONSE TIME:** beta varies between 1-5 seconds, alpha varies between 5–15 seconds

**COUNT TIME:** adjustable between 0-120 seconds in 8 second increments

**METERS:** dual meters (one each for alpha and beta), 1 mA, 2 inch DC movement

**CONTROLS:** ACK/Reset button, meter readout mode (HV, Alarm, Ratemeter), power on/off (rear panel mounted)

**STATUS INDICATORS:** GREEN LED's updating background, checking, check on, RED LED's: incomplete, overload, low battery

**INPUTS:** count switch signal input via phone jack TINI-JAX #41

**DETECTOR CONNECTOR:** series type "C"

**POWER:** 117 Vac 60 Hz, and internal rechargeable 6 V (sealed-acid) battery, battery life approximately 50 hours

**SIZE:** 19.1 x 22.9 x 15.3 cm (7.5 x 9 x 6 in.) (H x W x L)

**WEIGHT:** 2.3 kg (4.9 lb.)

### Options

Model 177-84 Wall Station for Model 43-93 Detector: PN: 4347-500

Model 177-84 Wall Station for Model 43-68 Detector: PN: 4347-501