

# 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 to 2500 VDC  
ALPHA PARAMETERS: threshold: -1 to -180 mV, meter scale: 0 to 1000 cpm  
BETA PARAMETERS: threshold: -1 to -4 mV, window: adjustable 4 to 70 mV, meter scale: 100 to 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 to 5 seconds, alpha varies between 5 to 15 seconds  
COUNT TIME: adjustable between 0 to 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 LEDs updating background, checking, check on, RED LEDs: 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