

Model 732 & 733 PC-Based Gamma MCA System

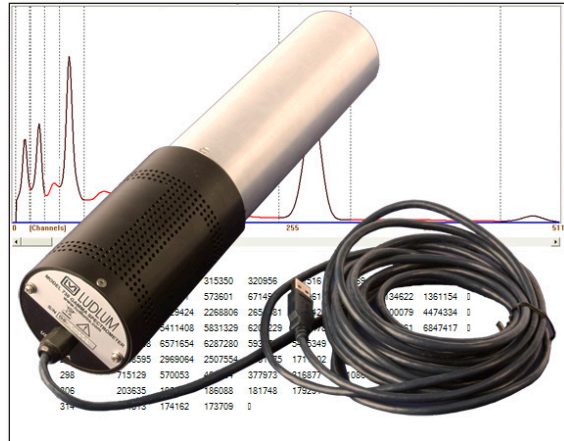


Ludlum Measurements, Inc.

Features

- 1K Multi Channel Analyzer
- NaI(Tl) Detector
 - 5.1 x 5.1 cm (2 x 2 in.) (Model 732)
 - 7.6 x 7.6 cm (3 x 3 in.) (Model 733)
- USB PC Interface
- Includes PC Spectrum Acquisition & Analysis Software

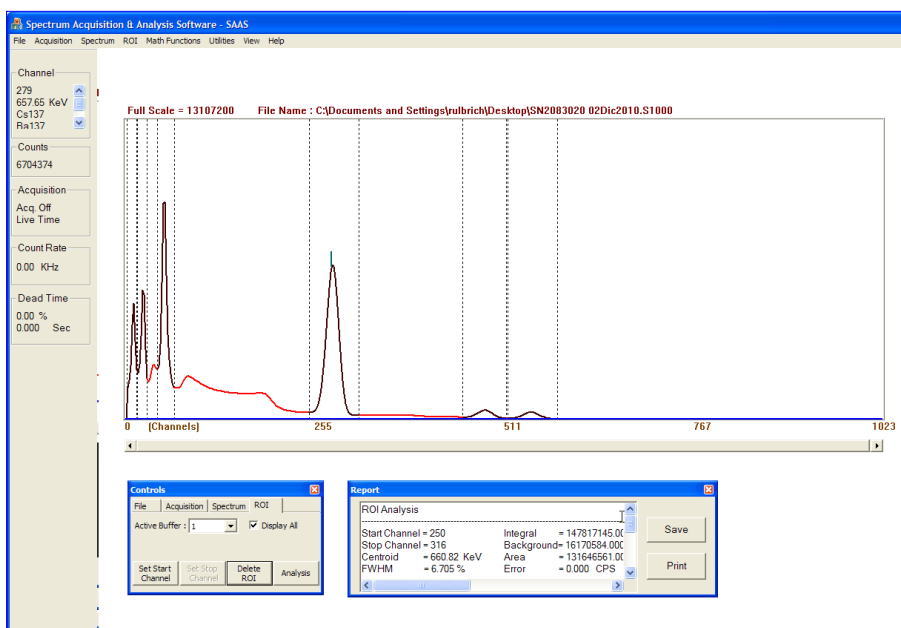
Model 732 PN 48-3834
Model 733 PN 48-3835



Introduction

The Model 732 & 733 are affordable PC-based gamma spectroscopy systems conveniently packaged to run directly on your PC. Both systems include a detector, USB cable, and PC Spectrum Acquisition & Analysis Software (SAAS). The Model 732 gamma detector is a combined MCA, HV Power Supply and 5.1 x 5.1 cm (2 x 2 in.) NaI(Tl) scintillator; the Model 733 is identical except it incorporates a larger 7.6 x 7.6 cm (3 x 3 in.) NaI(Tl) scintillator. Both detectors receive their power directly from the PC via the USB interface so no extra cables are required.

The MCA is equipped with 1024 channels and utilizes a 10 bit Wilkinson type ADC. Spectra are acquired and then sent via the USB interface to the PC once every second where it is analyzed and stored by the SAAS software. The SAAS software package is a very basic and user-friendly program that facilitates spectrum acquisition and analysis. Once calibrated, the user can acquire live streaming data or previously stored spectra and perform peak analysis, select user-defined ROIs, and exercise spectrum stabilization, stripping, smoothing, and normalization math routines. Spectral data can also be exported to more powerful MCA programs to perform additional quantitative and qualitative analysis for determining the activity and isotope identification.



Model 732 & 733

PC-Based Gamma MCA System



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Model 732 Detector Specifications

Part Number: 48-3834

DETECTOR: 5.1 x 5.1 cm (2 x 2 in.) NaI(Tl) scintillator
INTERFACE: USB
USB CABLE LENGTH: 5 m (16.4 ft)
SIZE: 6.4 x 20.3 cm (2.5 x 8 in.) (OD x L)
WEIGHT: 0.9 kg (2 lb)
POWER DRAW: \approx 4.75 V at 450 mA via PC USB interface
OVERALL SIZE WITH MCA (D x L): 76 x 31.1 cm
(3.0 x 12.2 in.)

Model 733 Detector Specifications

Part Number: 48-3835

DETECTOR: 7.6 x 7.6 cm (3 x 3 in.) NaI(Tl) scintillator
INTERFACE: USB
USB CABLE LENGTH: 5 m (16.4 ft)
SIZE: 8.3 x 24.1 cm (3.25 x 9.5 in.) (OD x L)
WEIGHT: 1.8 kg (4 lb)
POWER DRAW: \approx 4.75 V at 450 mA via PC USB interface
OVERALL SIZE WITH MCA (D x L): 8.3 x 34.9 cm
(3.25 x 13.7 in.)

MCA Specifications

MCA: 1024 channels
PMT: 14-pin base voltage divider with preamplifier
HV SUPPLY: 0 to 1200 Vdc at 0.5 mA ripple < 30 mV
HV ADJUST: software selectable
SPECTROSCOPY AMPLIFIER: 1 μ s semi-Gaussian shaping with internal PZ adjustment
GAIN SETTING FOR AMPLIFIER: software selectable
OUTPUT: 0 to 5 Vdc unipolar semi-Gaussian connected internally to ADC input
INTERFACE: USB

ADC SPECIFICATIONS

- ADC Type: 1K Channel 10-bit Wilkinson
- Clock Frequency: 48 MHz
- Conversion Time: 20 μ s for FS input
- ADC Control: through Silab F340 micro controller via USB interface
- Differential Non Linearity: 2%
- LLD Setting: software selectable
- Power Supply: from USB port of PC/Laptop

Spectrum Acquisition & Analysis Software (SAAS)

PC Requirements: (PC not supplied)

- 2 GB RAM, 80 GB hard disk
- Windows XP™ or higher operating system
- .NET version 3.5 (supplied on installation CD)
- Microsoft Office 2007 (Excel application for nuclear library)
- USB port version 2.0
- Display resolution of at least 1024 x 780 pixels

SAAS Functionality

- Energy Peak Search: identifies each peak energy as an ROI (does not identify isotope)
- ROI Analysis: start/stop channel, centroid, FWHM, integral, background, area, error, counts/channel
- Math Functions: smoothing, normalization, stripping
- Controls: File: up to 3 active buffers
 - Acquisition: preset time between 1– 999,999,999 s
 - Spectrum: expand, contract, scale up/down, stabilization
 - ROI: select start and end-energy regions, delete ROI
 - Calibration: user selectable 2 or 3 energy points
- File Type: - ANSI N42 for exporting to more powerful qualitative (isotope identification) and quantitative analysis (source activity) software SAAS type S1000

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