

## Model 732 & 733 PC-Based Gamma MCA System

### Features

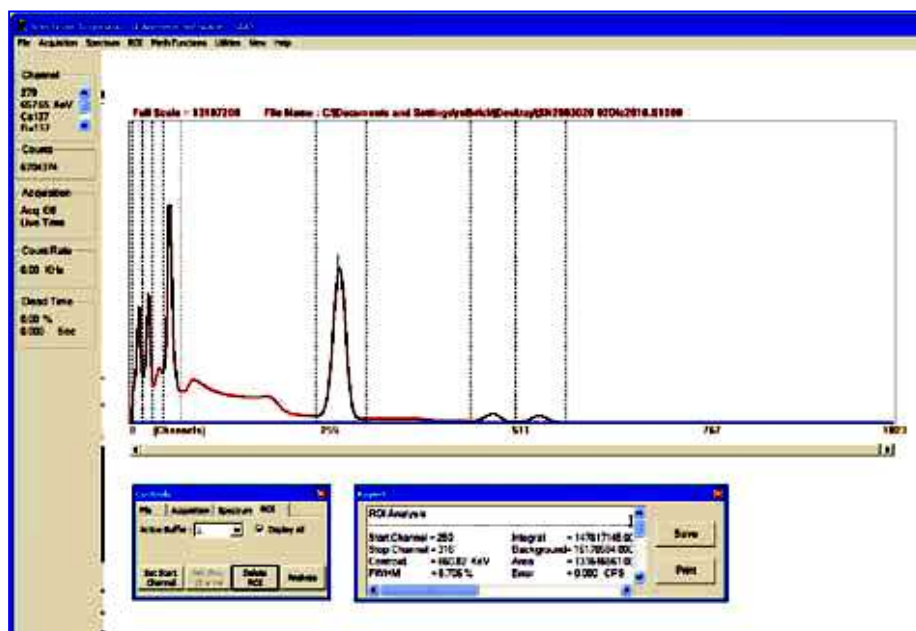
- 1K Multi Channel Analyzer
- NaI(Tl) Detector
  - \* 5.1 x 5.1 cm (2 x 2 in.) (Model 732)
  - \* 7.6 x 7.6 cm (3 x 3 in.) (Model 733)
- USB PC Interface
- Includes PC Spectrum Acquisition & Analysis Software



### 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*

## **Model 732 Detector Specifications**

**DETECTOR:** 5.1 x 5.1 cm (2 x 2 in.) NaI(Tl) scintillator

**MCA:** 1024 channels

**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 @ 450 mA via PC USB interface

**PART NUMBER:** 48-3834

## **Model 733 Detector Specifications**

**DETECTOR:** 7.6 x 7.6 cm (3 x 3 in.) NaI(Tl) scintillator

**MCA:** 1024 channels

**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 @ 450 mA via PC USB interface

**PART NUMBER:** 48-3835

## **MCA Specifications**

**PMT:** 14-pin base voltage divider with preamplifier

**HV SUPPLY:** 0 to 1200 Vdc @ 0.5 mA ripple < 30 mV

**HV ADJUST:** software selectable

**SPECTROSCOPY AMPLIFIER:** 1  $\mu$ sec 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 Willkinson
- Clock Frequency: 48 MHz
- Conversion Time: 20  $\mu$ sec 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 seconds  
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