



# Model 703e

## Integrated Spectroscopy with External Detector

### Key Features

- Identifies Mixed Isotopes in One Second
- Provides Total Dose Rate & Dose Rate by Isotope Instantly
- Externally Housed 3 x 3 in. NaI Detector
- Ethernet Connectivity for Remote Operation

### Additional Features

- Single-Handed Operation
- User and Administrator Operating Modes
- Sunlight Readable LCD
- Compact Flash Card Spectra Storage
- Quadratic Compression Conversion (QCC)

### Applications

- Emergency Response
- Law Enforcement
- Homeland Security
- Undercover Surveillance
- Industrial & HAZMAT
- Medical & Health Physics
- Radiation Safety
- Passenger and Freight Monitoring
- Non-Proliferation Enforcement
- Environmental Waste Monitoring



Part Number: 48-4075



### Introduction

The Model 703e Integrated Spectroscopy with External Detector is equipped with a larger 7.6 x 7.6 cm (3 x 3 in.) detector. It was developed to give end users like first responders a simple tool to quickly locate any abnormal levels of radioactivity and accurately identify the isotopes present. It additionally offers several advanced features for well-trained experts seeking to perform more detailed analysis either in the field or in a laboratory. Connection to a PC is available via a built-in Ethernet connection where stored or real-time collected data can be processed by optional isotopic analysis programs.

The 700-Series employs time-slicing and patented QCC technology that delivers improved energy resolution, real-time background subtraction, and the highest degrees of sensitivity. These units have a trace amount of 40K embedded to provide gain stabilization and self-calibration. The use of a Model 4-40 eliminates the need of a radioactive source to accomplish the same result. All captured spectra data are stored to a removable compact flash card in ANSI N42.42 standard format.

This convenient storage medium facilitates quick removal for review elsewhere as well as allowing virtually an unlimited number of spectra to be collected while in the field. These instruments were the very first ones designed to meet ANSI N42.34 Performance Criteria for Handheld Instruments for the Detection and Identification of Radionuclides. The design was also optimized for portability, user-friendliness, and rugged use out in the field.

An ergonomic shape and excellent balance allow them to be operated with a single (gloved) hand with easy thumb access to a set of very large tactile type control buttons. The 8.9 cm (3.5 in.) color LCD is a transreflective type, which actually brightens with use in bright sunlight conditions that typically render other types of LCDs useless. The use of color on the different displays is intelligently applied signifying the appropriate activity levels for capturing spectra, labeling isotope categories, and presenting alarms. Audible feedback and voice alerts further enhance the user interface. This instrument is powered with rechargeable NiMH batteries delivering up to eight hours of portable use.

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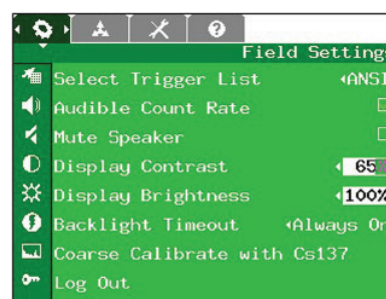
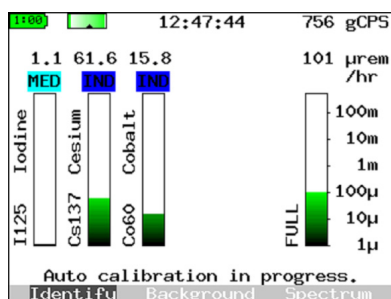
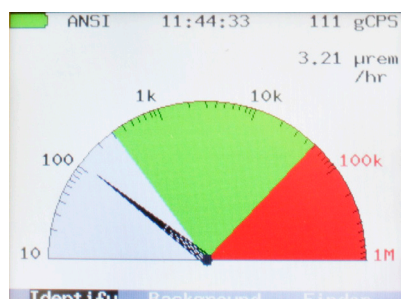
Note: specifications subject to change without notification. We are not responsible for errors or omissions.



# Model 703e

## Integrated Spectroscopy with External Detector

### Sample Model 703e Screens



Quickly determines location of detected materials and where to collect data for further analysis.

Continuously displays the detected isotopes, class, and dose rate for physics-oriented user.

Color-coded menus and icons make it easy to find options and stored data at the touch of a finger.

### Specifications

**Functions:** nuclide identification, spectrum analysis, dose rate calculation (rem/hr or Sv/h), total dose, audible search tool.

Integrated Electronics: digital signal-processing MCA

#### ADC:

- Type: base converter 14-bit pipelined-flash
- Conv. Modes: Linear 256, 512, 1024
- QCC 256, 512 (U.S. Patent 5,608,222)
- LLD/ULD: 0 100% of FS adjustable in less than .01% steps
- -5% to +5% of full scale, digitally adjustable

**Pulse Processor:** trapezoidal filter with adjustable time constant and pulse shape discrimination

**Gain:** 0.5 to 16.0

**Detector:** NaI(Tl), externally housed, 7.6 x 7.6 cm (3 x 3 in.) (D x L)

**Energy Range:** 18 keV – 3 MeV

**Energy Resolution:** 8 to 8.5% (<sup>137</sup>Cs)

**Sensitivity:** 2300 cpm/µR/h (<sup>137</sup>Cs)

**Display:** 320 x 240 high brightness, 32,000-color, 89 cm (3.5 in.) transfective LCD display

**I/O:** RJ-45 Ethernet

**Power:** 8 standard NiMH rechargeable AA batteries and spare battery holder included; alkaline AAs can also be used. Universal AC power adapter included.

**Water/Dust Resistance:** IP56

**Temperature Range:** -20 to 50 °C (-4 to 122 °F)

**Trigger Lists:** multiple trigger lists can be selected for different applications, including standard DHS isotopes, medical, industrial, or user-defined lists.

**Setup Options:** can be password-protected for use by non-technical personnel

**Calibration:** automatic calibration (temperature) stabilization with low-level <sup>40</sup>K source. Coarse and fine energy calibration and dose-rate calibration done at factory, but available for expert users.

**Clock:** battery-backed, real-time clock/calendar

#### Controls:

- Handle Keypad: three buttons for screen controls (Left, Right, and Enter function)
- Instrument Body keypad has 6 buttons for
  - instrument On/Off and ACKnowledgement
  - Up key
  - Down key
  - Menu key
  - Left key
  - Right key

**Alarm:** visual (on screen) and audio (internal speaker or optional headphones)

**Dimensions:** 16.5 x 11.4 x 22.8 cm (6.5 x 4.5 x 9 in.) (H x W x L); 21.6 cm (8.5 in.) height with handle **Weight:** 3.4 kg (7.4 lb) with batteries