

Model 702i

Isotope Identifier/MicroR Meter



Ludlum Measurements, Inc.

Key Features

- Identifies Mixed Isotopes in One Second
- Provides Total Dose Rate & Dose Rate by Isotope Instantly
- Internally-Housed 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 & Freight Monitoring
- Non-Proliferation Enforcement
- Environmental Waste Monitoring



Part Number: 48-3800
Other views shown below.



Introduction

The Model 702i Isotope Identifier and MicroR radiation surveillance and measurement system was developed to provide end users such as first responders a simple tool to quickly locate 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.

It employs time-slicing and patented Quadratic Compression Conversion (QCC) technology that delivers improved energy resolution, real-time background subtraction, and the highest degree of sensitivity. Trace amount of ⁴⁰K are embedded to provide gain stabilization and self-calibration. All captured spectra data are stored to a removable compact flash card in ANSI N42.42 standard format. This convenient storage medium permits quick review of data as well as allowing virtually an unlimited number of spectra to be collected while in the field.

The instrument's design is optimized for ease of portability, user-friendliness, and rugged use out in the field. The ergonomic shape and overall balance allow the Model 702i to be operated with a single (gloved) hand, with easy thumb access to a set of large tactile-type control buttons. The detector is internal, allowing for a sensitive but compact isotope identification instrument.

The 8.9 cm (3.5 in.) color LCD is a transfective type that brightens with use in the bright sunlight conditions that typically render other types of LCDs useless. The employment of the different colors on the different displays is intelligently applied to signify the appropriate activity levels for capturing spectra, labeling isotope categories, and presenting alarms. Audible feedback and voice alerts further enhance the user interface. The instrument is powered with eight internal rechargeable AA NiMH batteries, and comes with a universal (110-240 V, 50/60 Hz) AC power supply, adapter (depending on system revision), and has a 9V fused accessory adapter.

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

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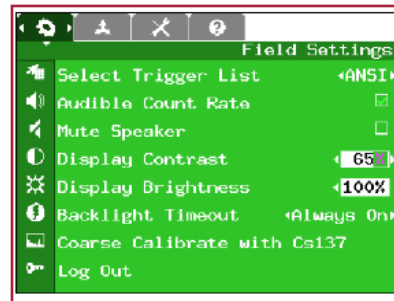
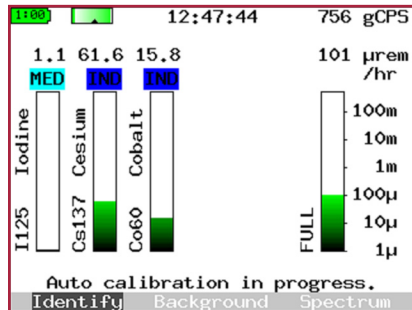
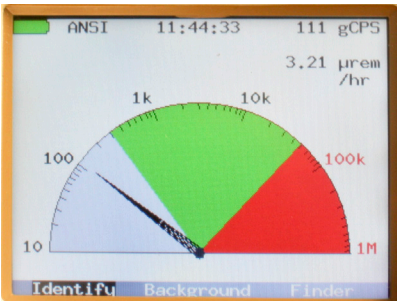
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Sample Model 702i Screens



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

Continuously displays 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
- Zero: $\pm 100\%$ of FS adjustable by channels

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

Gain: 0.5 to 16.0

Detector: NaI(Tl), internally housed, 5.1 x 3.8 cm (2 x 1.5 in.) (D x L)

Energy Range: 18 keV – 3 MeV

Energy Resolution: 7%

Sensitivity: 1292 cps/ μ Sv/h (775 cpm/ μ R/h)

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

I/O: 10/100 Ethernet port and optional RS-232 adapter cable

Power: 8 standard NiMH 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.

Ease of Use: setup options can be password-protected for use by non-technical personnel.

Calibration: automatic calibration (temperature) stabilization with low-level ^{40}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 4 buttons for
 - instrument on/off and also acknowledgement
 - up key
 - down key
 - menu 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: 2.2 kg (4.8 lb) with batteries

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