LUDLUM MEASUREMENTS, INC.

Model 702i
Isotope Identifier with Internal Detector

Key Features
- Identifies Mixed Isotopes in One Second
- Instantly Provides Total Dose Rate & Dose Rate by Isotope
- 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

Introduction

The Model 702i Isotope Identifier with an internal NaI detector provides 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, such as the Quantum software (available upon request).

The 700-Series 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 ^{40}K 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 transflective 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 35W, 12V or 15V universal adapter (depending on system revision), and has a 9V fused accessory adapter.

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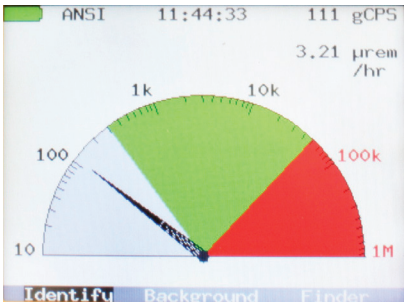
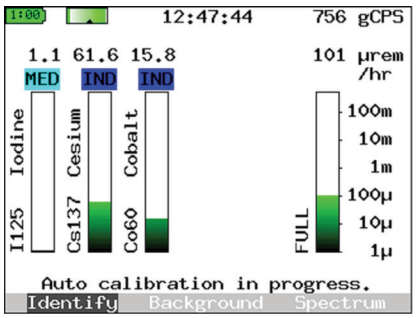
Sep 2021

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

Part Number: 48-3800

Functions: nuclide identification, spectrum analysis, dose rate calculation (rem/hr or Sv/h), total dose, audible search tool.
Detector: Internal NaI(Tl), 5.1 x 3.8 cm (2 x 1.5 in.) (D x L)
Sensitivity: 1292 cps per µSv/h (775 cpm per µR/h)
Energy Range: 18 keV to 3 MeV
Energy Resolution: 7%
Integrated Electronics: digital signal-processing MCA
ADC:

- Type: base converter 14-bit pipelined-flash
- Conv. Modes: Linear - 256, 512, 1024 channels; QCC - 256, 512 channels (U.S. Patent 5,608,222)
- LLD/ULD: 0-100% of FS adjustable in less than 0.01% steps
- Zero: -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
Display: 320 x 240 high brightness, 32,000-color, 8.9 cm (3.5 in.) transflective LCD display
Connection: Switchcraft 6-pin weathertight connector
I/O: RJ-45 Ethernet port
Trigger Lists: multiple trigger lists can be selected for different applications, including standard ANSI isotopes, medical, industrial, or SNM
Setup Options: 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: four buttons for controls (ON/OFF/ACK, Up, Down, Menu)

Alarm: visual (on screen) and audio (internal speaker or optional headphones)
Temperature Range: -20 to 50 °C (-4 to 122 °F)
Relative Humidity: < 95%
Water/Dust Resistance: IP56
Power:
Batteries: internal, 8 x 2450 mAh NiMH AA batteries
AC: 35W, 12V or 15V universal AC adapter (depending on system revision)
Auto: 9V fused accessory adapter
Dimensions: 25.1 x 11.4 x 22.1 cm (9.9 x 4.5 x 8.7 in.) (H x W x D) with handle
Weight: 2.4 kg (5.2 lb) with batteries

Options:

Car Power Adapter (4525-383): Power cord that plugs into a 12 V car power outlet.

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