LUDLUM MEASUREMENTS, INC.

Model 711i
Isotope Identifier with Internal Detector

Key Features

- Identifies Mixed Isotopes in One Second
- Instantly Provides Total Dose Rate & Dose Rate by Isotope
- Internally Housed LaBr Detector
- Ethernet Connectivity for Remote Operation
- High LaBr Detector Resolution

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

Additional Features

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

Introduction

The Model 711i Isotope Identifier with an internal LaBr detector provides end users such as first responders a simple tool to quickly locate any abnormal levels of radioactivity and to 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 the 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. These units have a trace amount of ^{40}K 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 facilitates quick removal for review elsewhere, as well as allowing virtually an unlimited number of spectra to be collected while in the field.

The design is also optimized for portability, user-friendliness, and ruggedness for use in the field. The ergonomic shape and overall balance allow the controls to be operated with a single (gloved) hand, with easy thumb access to a set of large tactile type control buttons.

The 8.9 cm (3.5 in.) color LCD is a transflective type, which actually brightens with use in bright sunlight conditions that typically render other types of LCDs useless. Colors used on the different displays are 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 LaBr detector provides an extreme high resolution for ^{137}Cs at 661 KeV of 3.5% to 5%. This translates to a higher confidence level of isotope differentiation and identification than most other equipment that just use a NaI scintillator.

The instrument is powered with eight rechargeable AA NiMH batteries, and comes with a 35W 12V or 15V universal adapter (depending on revision), and has a 9V fused accessory adapter.

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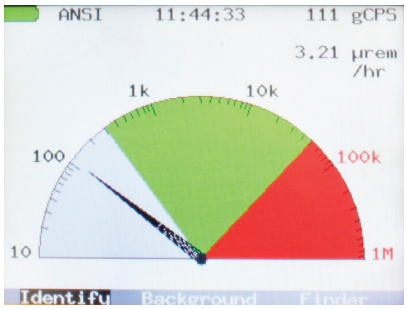
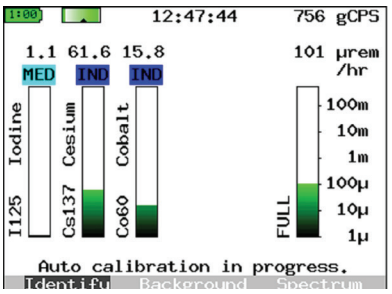
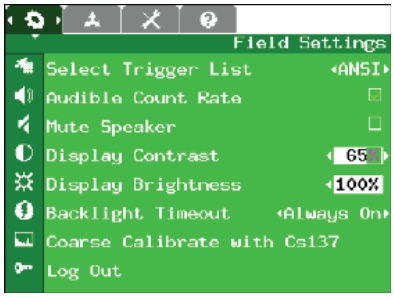
Sample Model 711i Screens



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: 48-3967

Functions: nuclide identification, spectrum analysis, dose rate calculation by isotope (rem/hr or Sv/h), total dose, audible search tool.
Detector: internal LaBr, 3.8 x 3.8 cm (1.5 x 1.5 in.) (D x L)
Sensitivity: 1083 cps per µSv/h (600 cpm per µR/h) (^{137}Cs)
Energy Range: 18 keV to 3 MeV
Energy Resolution: 3.5–5% (^{137}Cs)
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: 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: 2.2 kg (4.8 lb) with batteries

Options:

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