



Versatile gamma-ray spectrometer for geological applications

A highly sensitive unit providing Survey, Scan and natural nuclides Assaying.

The RS-125 Gamma Spectrometer from Radiation Solutions Inc, Canada, is the state-of-the art in portable natural nuclides assaying. Thanks to its small size and yet very high sensitivity and reliability, it is widely regarded as the leading portable unit in this geophysical field.

It offers an integrated design with a large detector and built-in large data memory. It offers weather protection with ease of use. Additionally it has Bluetooth connectivity providing wireless connection to an external GPS unit, an earphone or a computer.

Applications

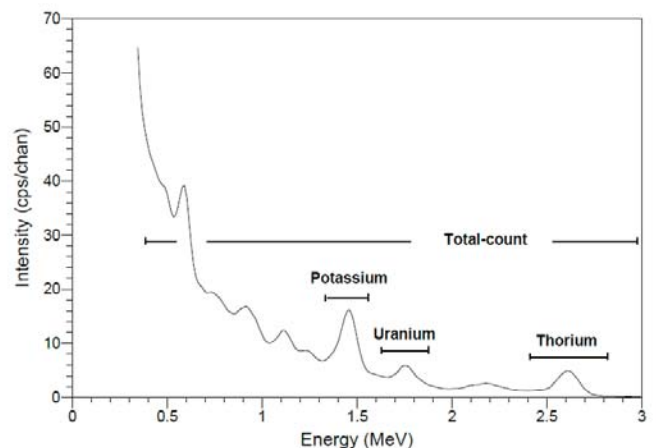
- Exploration for Uranium, Thorium and other associated metals such as REMs**
- Geophysical research**
- Geological mapping**
- Baseline surveying**
- Core scanning**
- Classification of building materials**
- Mining geology**
- Radon risk assessment**

The compact RS-125 unit includes a large (103 cm³) NaI (Sodium Iodine) detector, a 1024 channel spectrometer and a powerful processor. The mechanical design provides ease-of-use, weather protection as well as shock protection.

All functions are handled with one button on the handle. Bluetooth (BT) simplifies data transfer, reporting and – if required – storage of GPS coordinates with the survey data. The scan function allows for surface mapping.



The RS-125 spectrometer comes with a protective boot and a shoulder strap for hands-free surveying



RS-125 is auto-stabilizing on the naturally occurring radioactivity. It does not require any test sources.

Survey mode



The large (103 cm³) NaI detector gives the user a high level of system sensitivity. The unit has a front panel with a large 5 digit easy-to-read display, updating at a 1/sec rate for easy source location. The integrated Audio system scans at a 20/sec data rate for fast easy eyes-free searching. In noisy areas users can utilize the Bluetooth linked audio headset for easy-to-hear operation.

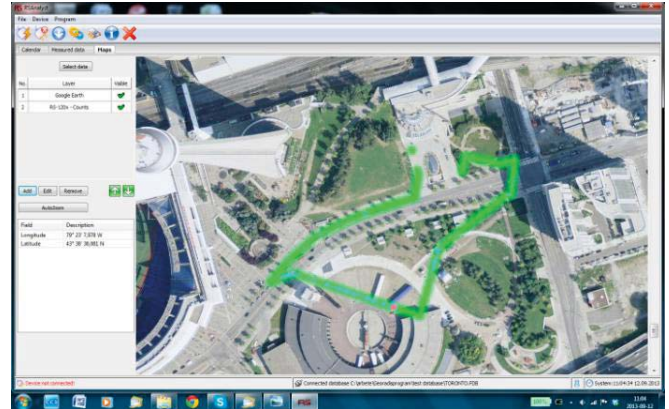
The last 100 readings are shown in graphical form. This feature helps the user look for small changes in radiation which they might have missed.

Scan Mode

The unit has an integrated mapping capability using an external GPS that is integrated via Bluetooth. This scan capability enables the users to move through a large area with the unit recording data at typically a one reading per second rate with GPS location. Companion software then permits a map to be made with high precision in the positioning of data points.



RS-125 with a wireless Bluetooth GPS device



The map above shows the famous Toronto Tower and its vicinity. In green, you see data points with low background counts. The blue dots represent slightly higher radiation, while the red dot shows where the highest radiation was detected.

Assay Mode

The Assay mode provides the concentrations of K, U, and Th as shown in the display below. The sample time is selected by the user from 30 seconds and up; in most cases 120 seconds is sufficient.

In Assay mode the complete 1024 channel sample spectra and the results of the calculation of concentrations (plus position data if available) are stored for later retrieval.



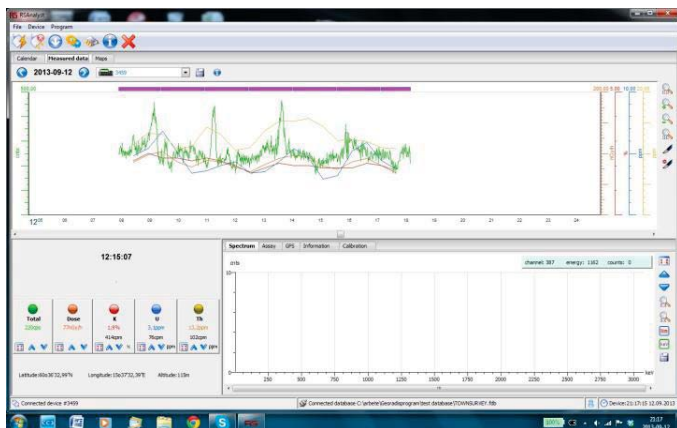
On-fly-assays

In Scan mode, the user can select the scan data rate for recording assays together with total counts. These on-fly assays do not store complete spectra but only the average assays over the scan period. See illustration at the top left of this page

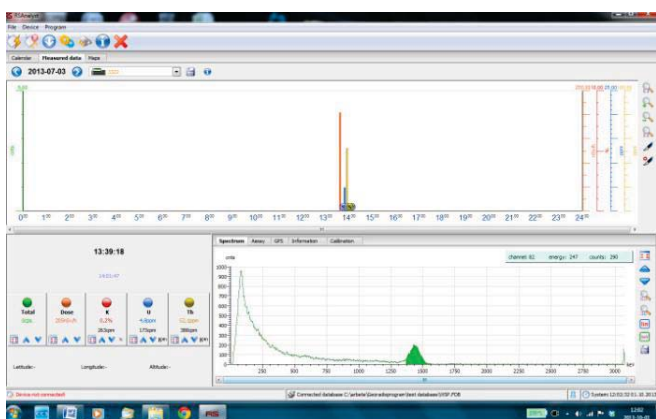
RS-Analyst Software

The RS-125 is provided with utility software to download the data stored in the spectrometer's memory. All data in memory is output via Bluetooth or USB to the RS-Analyst program on a PC. This may take the form of an Assay result, a full 1024 channel spectra, survey data or scan data with GPS. The program gives graphical and numeric views of the data and allows for data export as a text file for further processing.

The user may download the latest upgrades of the RS-Analyst software via the internet, when available. This service is free of charge for the life of the product.



Presentation of scan data via RS-Analyst



Presentation of a full 1024 ch spectrum (From a Potassium-rich site)

Summary of features

- High sensitivity with large NaI detector 2 x 2" (103 cm³)
- Lightweight and rugged, 2,0 kg, including batteries
- Rechargeable or alkaline AA size batteries provides 8+ hours operation time. An extra battery pack is supplied with the unit for extended field time
- Easy to learn and use thanks to single button operation
- Three functions:
 - **Survey mode** with last 100 readings in histogram form
 - **Scan mode** with positioning using external GPS receiver
 - **Assaying** natural elements: Potassium (% K), Uranium (ppm eU) and Thorium (ppm eTh)
- Auto-stabilization. No radioactive sources are required for proper operation
- Graphic LCD display with high count rate – 65 535 cps. Scrolling histogram graph display of the last 100 readings. Backlight selectable, with automatic dimming.
- Fast audio output with adjustable audio threshold set point – Bluetooth earphone audio support for noisy area surveying. The audio is proportional to the count rate.
- Full IP66 weather proofing with protection against streaming water and fully dust protected
- Bluetooth communication with external GPS, earphone or PC
- USB communication with PC



System specifications

Mechanical

- Display: 128 x 64 pixels, 29 x 60 mm
- Size & Package Style: 259 mm x 81 mm x 96 mm
1 mm rugged aluminum outer case with “rubberized” outer coating which provides additional thermal insulation
Supplied with an integrated handle for easy carrying
- Short term water immersion protection and fully dust protected
- Weight: 2,0 kg including batteries

Environmental

Temperature Range: -20 °C to +50 °C

Technical

- Detector: NaI, Sodium Iodine, cylindrical 2” x 2” (103 cm³)
- Number of channels: 1024
- Energy Response: 20 keV to 3000 keV
- Memory: 4 MB, memory can be partitioned for desired storage. Typically set for :
Scan Total Count - 345 000 samples , plus
On-Fly-assaying 4700 assays at 30 s, plus
Spectra: 527 complete 1024 channel spectra
- Internal Sampling for Audio Analysis: 20 times per second
- Sensitivities:
For Potassium: 55 cpm/%
For Uranium: 5 cpm/ppm
For Thorium: 2 cpm/ppm

Firmware

The user may download the latest upgrades of the RS-125 firmware via the internet. This service is free of charge for the life of the product.

Optional equipment & services

(Not included in standard deliveries)

Bluetooth GPS receiver
Collimator
Re-calibration services

Delivery information



A complete shipment includes

- One RS-125 Spectrometer with handle
- One removable protective boot with shoulder strap
- Four AA rechargeable batteries
- One battery charger for 100 – 240 V, 50/60 Hz with set of adaptors for various countries
- One car battery charger cable
- One CD with RS-Analyst utility software, technical manuals, technical notes and IAEA “Tecdoc” related to gamma spectrometry
- One Spare battery cartridge (Two in total)
- One USB cable
- One Instruction manual (English language)
- One Quick Start manual (Eng, Ger, Spa, Fra or Swe)
- One “Storm” transport case with molded insert

Shipping weight: 8,5 kg

Dimensions: One carton, 47 x 19 x 35 cm

Customs code for international shipments: 9030 1000 99

The RS-125 is made in the European Union

Specifications are subject to change.