



GR-135G

Handheld Gamma Ray Spectrometer

Features

- ✦ 1000 Channel Operation
- ✦ Assay Mode for %K, PPM eU, PPM eTh
- ✦ Automatic Gain Stabilization
- ✦ Graphics Display
- ✦ Internal Memory

General

The GR-135G is an ideal instrument for the exploration geologist/geophysicist looking for a light weight spectrometer. The 4.5 cubic inch crystal provides more sensitivity than many handheld scintillometers, plus with automatic gain stabilization the spectrum is free from drift, dramatically improving data quality.

The GR-135G allows long integration times, up to an hour or more. With the automatic gain stabilization these long integration times will yield accurate data. Typical precision in assay mode with a two minute integration is 0.4% K, 1 PPM eU, and 3 PPM eTh.

For general reconnaissance work the GR-135G may be operated in Scan mode, with readings every second. This mode provides a variable audio tone corresponding to count rate. The graphics display uses a chart recorder type output in this mode, displaying the last 60 readings. Time is stored with each reading. Memory storage is 10,000 samples or 200 spectra.

The GR-135G is truly a portable instrument, weighing just 2.2 Kg. An ergonomically designed handle and carrying case with shoulder strap make it easy to carry in the field. Built for rugged field conditions it will operate from -10°C to 50°C, and is weatherproof.

A Base Station mode is available to monitor changes in local site conditions. This may be useful to record radon flux changes. Power is supplied by rechargeable battery pack, or two alkaline D-cell batteries. Current battery condition is displayed. Memory back up is provided by an internal lithium battery.

A single 4-way toggle switch handles all set up and control procedures. Simple menus on the LCD display guide the user easily through set up. The display features adjustable contrast for viewing in any light condition.

For Health Physics applications the GR-135G is also offered as the GR-135 miniSpec. With an EPROM change the software converts to Dose Meter Mode, and Analysis Mode. The GR-135 miniSpec becomes a real time dosimeter that can be used to locate and measure radioactive sources. The Analysis mode can be used to identify the isotopes involved.

RADIOMETRIC SYSTEMS

Specifications

Detector: 1.5" x 1.5" x 2" (4.5cu. ins. 0.07L) Sodium-Iodide detector for high sensitivity and high energy resolution.

Spectrometer: The system utilizes a 256 channel Gamma-Ray spectrometer permitting high resolution analysis of the spectra. The system may be set in the 0 - 0.75MeV or 0 - 1.5MeV mode to more accurately identify isotopes in the lower portion of the spectrum - or to the full 0 - 3.0MeV range, permitting analysis of all nuclides in the spectrum.

Spectrum Stabilization: Automatic gain stabilization is used to eliminate drift. The unit displays system performance parameters including gain and detector resolution.

Spectrum Display: In this mode the accumulated spectrum is displayed and the user can use the 4-way switch to move a cursor up and down the spectrum to inspect special peaks. The display also gives the current channel number and count rate. This feature is used for detailed analysis of the spectrum.

Peak Analysis: All the peaks that can be identified are listed, showing their energy and intensity.

Nuclide Identification: The system has a built-in library of isotopes. Peaks are automatically identified and individual nuclides determined; then displayed for easy interpretation.

Assay Mode: %K, PPMeU, PPMeTh based on internal calibration constants.

Assay Accuracy: 120 sec. count in a normal background area with 2%K, 2ppm U and 8ppm Th.

Assay Precision: K= $\pm 0.35\%$, U= $\pm 1.5\text{ppm}$, Th= $\pm 2.6\text{ppm}$

Exposure Rate: The user can select the display of exposure rate in appropriate units- selections are $\mu\text{R/h}$, $\mu\text{Sv/h}$ or $\mu\text{Gy/h}$. Measuring range 0.5 $\mu\text{R/h}$ - 10mR/h.

Survey Mode: In this mode the GR-135G operates as a Gamma Ray scintillator indicating counts/sec with adjustable integration time, audible alarm and chart recorder display.

Scan Mode: In this mode the system is being used in a search mode, primarily to locate a source of radiation. The audio tone varies with radiation levels to permit easy "eyes-only" scanning.

Controls: A special molded handle has an integrated 4 way switch (joy stick) permitting user friendly, "one-button", menu driven operation.

Data Storage: The GR-135G can store up to 10,000 single readings or 200 full 256-channel spectra. Data storage is backed up with an internal lithium battery protecting the data while changing the main battery. The data is Time/Date tagged for accuracy.

Data Output: The data storage in memory may be retrieved via an RS-232 data output at 9600baud. Special software is available to display trends in Survey or Dose data. Full spectral data may also be downloaded to a computer.

Base Station: In this mode the system can be set to cycle at a regular rate (1min - 1hr) and store data in memory. This mode is intended for long term local site monitoring. Data can be total count rate or full spectrum recording.

Remote: All functions of the GR-135G can be controlled remotely from an external computer or modem.

Mechanical: This instrument is well balanced and housed in a rugged aluminum case with full weather proofing, including short term water immersion. Operating temperature range is -10 C to 50 C . Size is 4.0" x 9.0" x 3.5" (101 x 228 x 89mm). Weight is 51 lbs (2.2kgs) including internal battery.

Battery: The GR-135G is powered by 2 D-cell alkaline batteries permitting typically 30 hours of operation at 25 C . Rechargeable D-cells also can be used. The supplied battery charger permits recharging overnight without removing the batteries.

Functions: Measurement mode setting (survey, analyses, calibrate, stabilize, exposure rate.) Internal parameter setting (exposure rate units, alarm threshold, energy range, time of measurement, data output, integration time). Spectrum display (moving cursor, vertical rage). Start, Stop and Menu switching.

Display: High contrast 128 x 128 dots backlit graphic display.

Connectors: in back panel RS-232 serial port, external charger.

Standard Components

GR-135G, carrying strap, RS-232 cable and software, shipping case, and instruction manual.

Ordering Information

Description	Order Number
GR-135G	250-200-0200
Health Physics EPROM	250-200-0210