

Sample Gamma Spectroscopy System

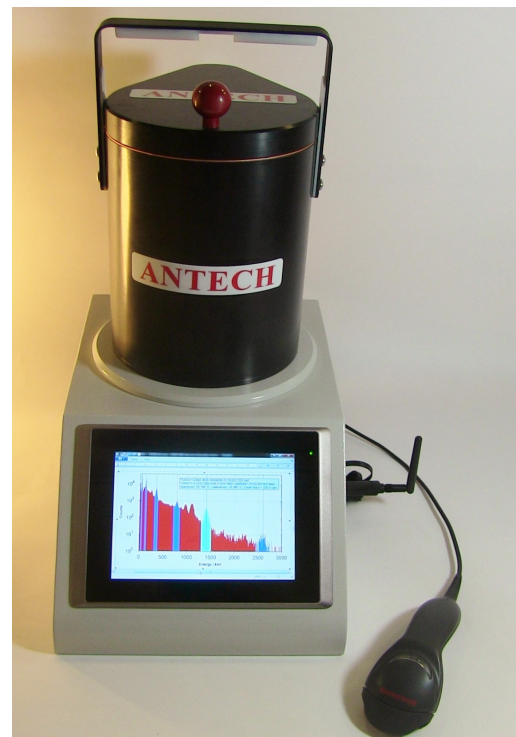
G3002 Series

Introduction

The ANTECH Sample Gamma Spectroscopy System (SGSS), G3002 Series is a Low Resolution Gamma Spectroscopy (LRGS) system designed for use in measuring low activity Radioactive Materials contained in small sample Marinelli beakers. The G3002 Series can accommodate a range of sizes of Marinelli Beaker (0.25 litre, 0.5 litre, 1 litre), ensuring close coupling with the system detector.

The SGSS instruments feature either a 2" x 2" (Standard) or 3" x 3" Sodium Iodide (NaI) detector housed within a lead measurement chamber with copper lining and an easily operable swivel lid which can be locked shut with a carry handle. The chamber is well shielded to remove any contribution from background radiation.

The monitor is a desktop transportable instrument that can be used in a laboratory or in the field. It incorporates a barcode reader for automated sample identification and a built-in load cell to determine sample weight. Measured gamma spectroscopic data and both measured and recorded sample parameters are written to an N42 (2006) date file that can be analyzed locally or transferred for external analysis.



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|------------|----------------------|
| G3002-2000 | 2" x 2" NaI Detector |
| G3002-3000 | 3" x 3" NaI Detector |

Features

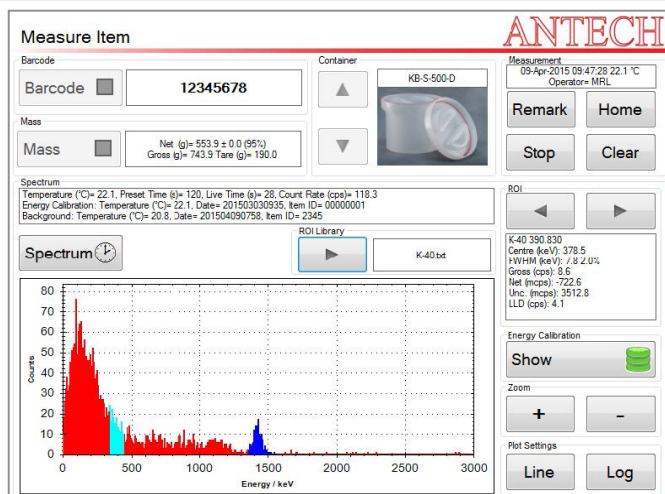
- Employs a 2" or 3" Sodium Iodide detector and digital spectrometer
- Semi-automated barcode reading of Marinelli beaker sample identification.
- Integrated Weigh Scale assembly
- Graded virgin lead (0.5 inch thick) shield measurement chamber
- Built-in 8-inch MS Windows touch-screen computer.
- Automated measurement sequence with automated temperature measurement and compensation.
- Short sample measurement time.
- Designed for easy wipe down and cleaning.

Measurement Software

The ANTECH SGSS features a complete software package for measurement setup, calibration and maintenance. The package is installed on a touch screen computer operating the latest MS Windows operating system and is designed for easy operation as a touch screen interface. Within the software, the operator can;

- Measure a Sample
- Carry out Background Measurements
- Carry out Mass and Energy Calibrations
- Setup containers and measurement parameters

The measurement software performs automatic calibration of the gamma ray detector energy scale and an automatic quality check of the internal load cell when supplied with normalization standard



(contained in a Marinelli beaker with a calibrated activity). A sample measurement typically takes 30 minutes. The measured spectrum file is recorded with sample weight and sample identification data in N42 format. Spectrum analysis is performed and based on the calibration, specific activities of key radionuclides such as Ra-226, Ra-228, and K-40 are determined. Corrections are made for interfering gamma ray peaks. The analysis results are also recorded in the N42 file and displayed (and printed if required). The results can also be transmitted automatically with the normalization measurement data so that they can be examined by a remote Subject Mater Expert (SME).

Ancillary Equipment

The SGSS is supplied with a variety of ancillary equipment, including a bespoke ruggedised shipping case with lifting straps to easily remove the system for deployment. The shipping case is fitted with wheels and a transit handle to allow for easy transportation, with additional handles provided for lifting and manual handling.

Sample IDs can be input into the software utilising a handheld barcode reader connected via USB. Additional USB ports are provided for connection of other User Interface equipment, such as a keyboard or mouse. The instrument also includes a RJ45 connector for Ethernet integration for data transfer and remote connection.

The SGSS can also be provided with calibrated samples housed within a Marinelli Beaker to be used for detector and load cell calibration verification. The beakers can be provided with a mixed range of radionuclides.



Benefits

- Accurate sample measurement in a portable instrument
- Data output as an industry standard N42 file containing instrument data, measured spectrum and other measurement results
- Rugged capacitive touch-screen for operator control
- Extra USB ports included for connecting additional devices such as keyboard or mouse
- Automated network transfer of measured data as an N42 file
- Bespoke shipping case for easy transportation and deployment
- Designed for easy wipe down and cleaning
- Easy integration with high through-put batch measurement plant

Specification

| | | |
|------------------------|---|--|
| Detector | Shielded 2-inch Sodium Iodide Shielded 3-inch Sodium Iodide | |
| Sample Size(s) | 0.25 litre, 0.5 litre, 1.0 litre Marinelli Optional 2.0 litre variant available upon request | |
| Analysis software | Windows™ Operating System <i>SampleScan</i> menu-driven analysis software for easy use | |
| Power supply | 110 -240 Vac, 50-60 Hz supplying 12 Vdc | |
| Network connection | Ethernet or USB | |
| Dimensions (H x W x D) | Instrument | 505 mm (19.9") x 260 mm (10.2") x 437 mm (17.2") |
| | Packing Case | 691 mm (27.2") x 414 mm (16.3") x 698 mm (27.5") |
| Weight | Instrument | 39.4 kg (86.7 lb) |
| | In Packing Case | 54.2 kg (119.2 lb) |