GEORADIS

Laboratory Gamma Spectrometer

RT-50



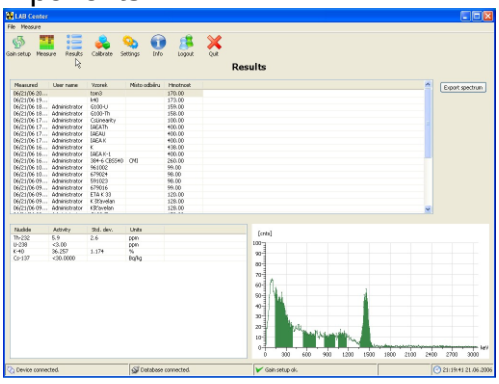
The RT-50 is a state-of-the-art gamma spectrum analyzer to monitor and detect the presence of radiation in metals, metals by-products, geological samples, construction materials, environmental commodities, food, and many other materials. Floor standing and easy to operate, the RT-50 spectrum analyzer is an indispensable part of any analytical laboratory, it rapidly detects and accurately measures extremely low levels of radioactive contamination.

New, sophisticated evaluation techniques allow a high sensitivity precision measurement and a complete analysis in less than 5 minutes. A real time graphic displays the spectrum as it is accumulated. Analysis data is viewed on screen, printed (as required), and automatically archived together with all sample information to provide a complete log. All Data is accessible for transfer to an external network as needed.

In steel samples the final accuracy of the measured contamination is as low as 0.02 Bq/g using a measurement time of only 5 minutes.

The RT-50 system assembly comprises three distinct components:

- The multichannel gamma spectrum analyzer (MCA) in a high-density shielding floor standing cabinet.
- The LabCenter software package.
- A set of calibration standards.



The MCA is a highly reliable self-contained 1024 channel pulse amplitude analyzer. Internal digital processing performs real time energy linearization and provides a fully linear spectrum. The MCA is controlled by the LabCenter software.

LabCenter is a multiplatform (Windows, Linux) software package which integrates calibration, sample measurement and results archiving. It provides easy database browsing with the possibility of re-evaluation of spectra with different standards. An open-source SQL database facilitates flexible and rapid integration into user defined database structures. LabCenter simplifies user input of sample descriptors and output protocols.

Different evaluation methods from simple total count to background count comparisons or a complex multi-component analysis can be chosen by the user. With the RT-50 you get high quality data and reliability having completely analyzed your sample right in your laboratory.

The option for measurement of samples in Marinelli beakers is available. The protection of the detector is limited in this arrangement.

APPLICATIONS

- ***Fast monitoring of radioactive contamination in metal, slag and dust***
- ***Applicable in steel, scrap and other metal industry***
- ***Measurement of natural radioisotopes concentration***
- ***Applicable in geology and geophysics***
- ***Measurement of radioactive contamination***
- ***Applicable in food and food processing industry***

Technical data:

Detector
NaI(Tl) volume 0.35 l, 76 x 76 mm (3”x3”), with bi-alkali PMT
Resolution better than 7.5 % FWHM at 662 keV.

High voltage
Supply range 500 — 1000 V digitally controlled.

Output
Positive impulses, rising time better than 0.5 ps.
Amplitude linear range max 2.5 V Bipolar Shaping.
Time constant 1 ps. Coarse gain HV controlled.
Fine gain +/- 3 % in 1000 gain steps.

Spectrum stabilization
Two points — offset and gain correction, 662 keV typ. at ch. 220.
Precision ± 0.1 channel.

ADC
Approximation, double buffered, high speed and high linearity
Conversion time 1.5 ps.
1024 channels down sampled from 65535.
Digitally adjustable ADC zero +/- 80 mV.
Digitally adjustable LLD range from 2nd — 30th channel.
Automatic Dead time correction, precision better 0.25 %.

Nonlinearity
Integral max. 0.1 % of full scale within 95 % of range.
Differential max. 3 % of full scale within 95 % of range.

Communication interface
USB

Reference source
^{137}Cs - 9 kBq (0.25 pCi).

Power consumption
Power over USB, max 100 mA.

Shielding
Steel, minimal thickness 85 mm, optionally Lead.

Environmental
Operating temperature range 0°C to +40°C.
Storage temperature range -20°C to +70°C.

Size and weight
H x W x D: 770 mm x 360 mm x 620 mm
Weight: 410 kg (580 kg for Lead shield)

Software requirements
Operating System Windows 7, 10, 11, or Linux with Kernel 2.6 Firebird SQL 2.0

FEATURES

- ***Sensitivity** Accurately measure the radioactivity in a given sample utilizing a high sensitivity NaI(Tl) scintillator. Measurement sensitivity 0.02 Bq/g*
- ***Multichannel** Analyzer Self-contained 1024 channel pulse amplitude analyzer*
- ***Speed** Full sample analysis in only 5 minutes*
- ***Ease of use** With little training the operator can use the graphic menu driven interface*
- ***Calibration** Optimized calibration eliminates long calibration times*
- ***Integration** All data stored in multiplatform open-source SQL database to allow easy integration into customer's own systems*
- ***Analysis** Data May be viewed, printed, archived, or transferred to a network*



Specifications are subject to change without notice

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