



NitroSPEC

HPGe Hand Held Spectrometer

Application

- Customs and Homeland security
- Environmental monitoring
- Waste Management
- Nuclear Industry
- Nuclear Medicine
- First Response

Features

- Reliable;
- Low cost;
- Easy to operate;
- Ready for operation in slightly over 1 hour;
- 20 hours of autonomous operation;
- Simple in maintenance;
- No additional vibrations;
- Minimal size and weight;
- No high costs for servicing;
- Completely integrated solution;
- Can be placed in an ordinary case;
- Minimal time to reach the operating temperature.

The NitroSPEC the world's smallest liquid nitrogen cooled Spectrometer which is based on High Purity Germanium (HPGe) semiconductor detectors. The NitroSPEC is providing the complete range of functions and features which are offered by regular laboratory Spectrometer based on HPGe detectors but in a really miniature composition of all major components. During the development of the NitroSPEC, Baltic Scientific Instruments R&D specialists were aimed at HPGe detector, Dewar vessel for liquid nitrogen, MCA with software package and visualization monitor integration in only one miniature monounit to provide easy and comfortable use. Due to the fact that during the measurement no cables are needed, the operator is unrestricted in his mobility. Power supply is no longer an issue as everything is integrated.

The NitroSPEC can be equipped with a wide range of HPGe detectors depending on the application.

HPGe planar GPD detectors are available for analysis of Gamma and X-rays. HPGe coaxial GCD detectors are available with relative efficiencies up to 20%. Standard or with extended energy range (X series).

The NitroSPEC includes preamplifier, Digital MCA with 16K channels, High and Low Voltage power supply and a set of batteries to provide maximal flexibility.

In field mode the NitroSPEC is used as identifier simultaneously acquiring and saving data for performance of quantitative and qualitative analysis in laboratory conditions. Communication between working station and the NitroSPEC is possible via USB or wireless connection.

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Specification

Parameter	Value
Relative efficiencies available, %	10 or 20
Energy range, keV	40 - 3000*
Energy resolution for 10% efficient coaxial detector at energy 122 keV, eV	850
at energy 1.33 MeV, keV	1.80
Dewar vessel volume, l	0.6
Time for reaching of operating temperature after liquid nitrogen filling, h	1.5
Detector holding time, h	> 20
Li-Ion Battery operation time, h	> 8
Navigation system	GPS
Operational temperature range, °C	0...+40
Maximum number of quantization levels of ADC	16K
Channel capacity	2 ³²
Integral nonlinearity, %	< 0.04
Differential nonlinearity, %	< 1
Temperature instability, %/°C	< 0.01
Dimensions, mm	154 x 324 x 217
Weight, kg	< 5.9
Power consumption, W	< 3.5
Voltage, V	12
Ingress Protection	IP64

* Available with extended Energy range (X series)

Complete set (standard)

- HPGe detector (Coaxial or Planar)
- Digital Multi Channel Analyzer
- Analytical software package
- Touch screen display
- Dewar vessel
- Communication interface (USB, wireless)
- Adaptor

Accessories (optional)

- Lead Shielding with collimators
- Hand-cart
- Hard-sided transport case
- Funnel for LN₂ filling
- Car charger
- Spare Battery

