GAMMA-1S/NB1-01

PORTABLE SCINTILLATION GAMMA SPECTROMETER

INTENDED USE

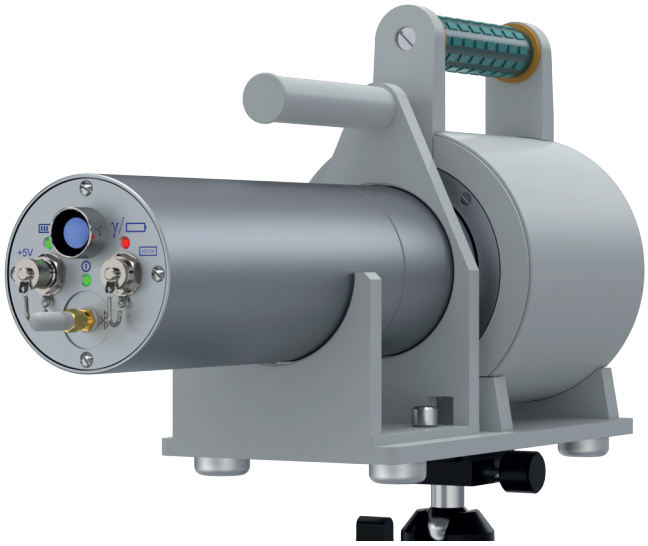
- Determination of the isotope composition of radioactive materials, activity of open sources and radionuclides in packages, enrichment of uranium compounds in transport containers, measurement of gamma dose rates
- Qualitative and quantitative analysis of various items for the presence of gamma-emitting radionuclides both in laboratory and field conditions

APPLICATION

- Non-intrusive customs inspection of legally and illegally transported radioactive and fissile materials without opening their transport or shielding containers
- Radiation monitoring of areas close to radiation hazardous facilities: nuclear power plants, nuclear fuel cycle facilities, military sites, etc.
- Environmental monitoring of various objects for contamination with gamma emitting radionuclides, also as part of radiological mobile laboratories
- Radiochemical monitoring of technological processes

FEATURES

- Gamma detecting device based on (Ø40×40) mm NaI(Tl) crystal
- Stabilization of measuring path based on a special LED with gain temperature correction
- Digital processing of signals
- RS, USB or Bluetooth connection of the detecting device to the PC
- Mains or battery power supply
- Extended temperature range
- Applied algorithms of spectra processing ensure high reliability and validity of results
- Possibility to use a standard Marinelli vessel as a measurement geometry



GAMMA-1S/NB1-01

SPECIFICATIONS

Range of detected gamma energies	0.05 to 3 MeV
Relative energy resolution for the 662 keV gamma line (^{137}Cs), max	8.0 %
Absolute efficiency of gamma-quanta registration with energy of 662 keV (^{137}Cs) at a distance of 25 cm from the source to the detector, min	0.0003 $Bq^{-1}s^{-1}$
Number of channels	1024
Limits of integral non-linearity	±1 %
Time instability over the 24-h period of continuous operation, max	1 %
Maximum statistical input load, min	1.5×10^5 cps
Operating mode setting time, max	30 minutes
Continuous operation in battery mode, min	8 hours
Continuous operation in ~220 V mains mode	unlimited
Activity measurement range for a ^{137}Cs radionuclide	8* to 1×10^5 Bq
Limits of tolerable relative error for activity measurement (P = 0.95)	±(10 to 50) %
Range of gamma dose rate measurement with the tolerable relative error of ±20 %	0.1 to 100 μSv/h
Environmental	-20 to +50 °C, 95 % at +35 °C and lower temperatures without moisture condensation
Dimensions and weight: - Detecting device UDS-GCA-40×40-RS - Detecting device UDS-GCA-40×40-RS-BT1 - Collimator in assembly	 (Ø79×376) mm; 1.4 kg (Ø79×395) mm; 1.4 kg (251×146×215) mm; 16 kg

* The lower limit of the measured activity range (i.e. minimum measured activity) is given for measurement time of 1 hour when using a collimator

CERTIFICATION

- Registered in the State Register of Measuring Instruments under the No 16367-10
- Complies with the requirements for products of safety class 4N according to NP-001-97, NP-001-15, NP-016-05, NP-033-11
- Complies with the requirements of the Technical Regulations of the Customs Union on safety of low voltage equipment (TR CU 004/2011), Technical Regulations of the Customs Union on electromagnetic compatibility of technical means (TR CU 020/2011)

STANDART SET

- Digital scintillation gamma detecting device UDS-GCA-40×40-RS or UDS-GCA-40×40-RS-BT1
- Rugged notebook with spectrometric application software
- Collimator
- Tripod to mount the detecting device in the collimator or without it
- Carrying case