



# PORTABLE SCINTILLATION GAMMA SPECTROMETER "GAMMA-1S/NB1-03"

## 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 (Ø25×25) mm LaBr<sub>3</sub>(Ce) 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/NB1-03"

### SPECIFICATIONS

Range of detected gamma energies	0.05 to 3 MeV
Relative energy resolution for the 662 keV gamma line ( $^{137}\text{Cs}$ ), max	3.5 %
Absolute efficiency of gamma-quanta registration with energy of 662 keV ( $^{137}\text{Cs}$ ) at a distance of 25 cm from the source to the detector, min	0.0001 $\text{Bq}^{-1}\text{s}^{-1}$
Number of channels	1024
Maximum statistical input load, min	$2.5 \times 10^5$ cps
Limits of integral non-linearity	$\pm 1$ %
Time instability over the 24-h period of continuous operation, max	1 %
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 $^{137}\text{Cs}$ radionuclide	$8^*$ to $1 \times 10^5$ Bq
Limits of tolerable relative error for activity measurement ( $P = 0.95$ )	$\pm(10$ to $50)$ %
Range of gamma dose rate measurement with the tolerable relative error of $\pm 20$ %	0.1 to 100 $\mu\text{Sv/h}$
Environmental	-20 to +50 °C, 95 % at +35 °C and lower temperatures without moisture condensation
Dimensions and weight: - Detecting device UDS-GCA-B380-25×25-RS-BT1 - Collimator in assembly	( $\emptyset 79 \times 395$ ) mm, 1.4 kg (146×251×215) 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

- 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)
- Registered in the State Register of Measuring Instruments under the No 77614-20

### STANDART SET

- Digital scintillation gamma detecting device UDS-GCA-B380-25×25-RS-BT1
- Rugged notebook with spectrometric application software
- Collimator
- Tripod to mount the detecting device in the collimator or without it
- Carrying case