



STORA-ABG

Alpha, beta, gamma radiation radiometer-dosimeter RKS-01

- Selective measurement of alpha, beta, gamma and X-ray radiation
- Recording in nonvolatile memory up to 1000 measurement results
- Operation with telescopic tube
- Mode of PC connection via Bluetooth
- Damp and dustproof body IP54

Description

A compact search device with a telescopic tube for quick detection and localization of alpha, beta, gamma, and X-ray radiation sources.

The device features an alpha, beta, gamma-sensitive Geiger-Muller counter with a mica window. A big display with luminescent backlight simultaneously indicates units of measurement, measurement

errors, threshold level, and real time. Analog indicator of radiation intensity facilitates the localization of radiation sources.

STORA-ABG allows storing up to 1000 measurement results in non-volatile memory, view them on the indicator and transfer the results to a personal computer via Bluetooth in real-time mode.

New software “RadReader” has been developed for operation with the STORA-ABG dosimeter-radiometer.

Purpose of Use

- measurement of ambient dose equivalent rate (DER) of gamma and X-ray radiation (hereinafter – photon-ionizing radiation)
- measurement of surface beta-particles flux density
- measurement of surface activity of beta-emitting radionuclides
- measurement of surface alpha-particles flux density
- measurement of surface activity of alpha-emitting radionuclides
- indication of pulse counting speed from the detector of alpha-beta-gamma radiation

Branches of Use



Medicine



[Sanitary dosimetry and ecology](#)



[Logging and woodworking industry](#)



[Construction industry](#)



[Mining industry](#)



[Metallurgy and scrap metal storage](#)



[Customs and Border Services](#)

Features

- Alpha-beta-gamma-sensitive Geiger-Mueller counter with mica window.
- Energy-compensating filter, which allows to obtain a reliable energy dependence of the radiometer readings when measuring photon ionizing radiation in the energy range from 12 KeV to 3 MeV.
- Large display with luminescent backlight, which provides simultaneous display of measurement units, measurement errors, threshold level, real time; and an analog indicator of instantaneous radiation intensity.
- Ability to perform measurements with a preset error.
- Prompt evaluation of gamma background within 10 seconds.
- Automatic subtraction of gamma radiation component when measuring beta radiation parameters.
- Automatic subtraction of gamma and beta radiation components when measuring alpha radiation parameters.
- Programming of threshold levels of the alarm system activation for each parameter of measured radiation.
- Automatic setting of measurement intervals and ranges.
- Audio signaling of each registered gamma quantum, alpha or beta particle with the possibility of its deactivation.
- Two-tone audio alarm of exceeded programmed threshold levels.
- Recording in non-volatile memory up to 1000 measurement results.
- Viewing the measurement results previously recorded in non-volatile memory on the indicator, as well as transfer the information to a personal computer via Bluetooth.
- Two AAA batteries.
- Four-level indication of the battery discharge.
- New RadReader software has been developed to work with the device.

Specifications

Measurement of gamma and X-ray radiation parameters

DER measurement range of photon ionizing radiation	$\mu\text{Sv/h}$	0.1 ... 100 000
DER indication range of photon ionizing radiation	$\mu\text{Sv/h}$	0.01 ... 100 000
Range of pulse counting speed indication from the of alphabeta-gamma radiation counter	cps	0 ... 9999
Main relative permissible error limit when measuring DER of photon ionizing radiation at ^{137}Cs calibration with 0.95 confidence probability	%	$15+2/M$, where M is a dimensionless value, equal to the DER numeric value measured in $\mu\text{Sv/h}$

Energy range of the recorded photon ionizing radiation	MeV	0.012 ... 3.00
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- Energy dependence of radiometer readings when measuring photon-ionizing radiation DER relative to 0.662 MeV (¹³⁷Cs):
- – in the energy range from 0.012 to 0.040 MeV, not more % -29 ...+30
- – in the energy range from 0.040 to 1.25 MeV, not more ±25

Measurement of beta parameters

Measurement range of beta particles surface flux density	part./(cm ² ×min)	5 ... 999 999
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Measurement range of beta-emitting radionuclides surface activity	Bq/cm ²	0.22 ... 9999for C0 type sources(⁹⁰ Sr/ ⁹⁰ Y)
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Main relative permissible error limit when measuring betaparticles surface flux density at ⁹⁰ Sr/ ⁹⁰ Y calibration with 0.95 confidence probability	%	20+150/F, where F is a dimensionless value, equal to the numeric value of beta particles surface flux density measured in part./(cm ² ×min)
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Main relative permissible error limit when measuring the beta-emitting radionuclides surface activity at ⁹⁰ Sr/ ⁹⁰ Y calibration with 0.95 confidence probability from C0 source type	%	20+10/A, where A is a dimensionless value equal to the numeric value of surface activity of beta-emitting radionuclides measured in Bq/cm ²
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Energy range of the registered beta particles	MeV	0.15 ... 3.0
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Measurement of alpha parameters

Measurement range of alpha particles surface flux density	part./(cm ² ×min)	5 ... 999 999
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Measurement range of alpha emitting radionuclides surface activity	Bq/cm ²	0.2 ... 9999for P9 source type(²³⁹ Pu)
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Main relative permissible error limit when measuring the alpha particles surface flux	%	20+150/F, where F is a dimensionless value, equal to
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density at ^{239}Pu calibration with 0.95 confidence probability		the numeric value of alpha particles surface flux density measured in $\text{part.}/(\text{cm}^2 \times \text{min})$
Main relative permissible error limit when measuring the alpha-emitting radionuclides surface activity at ^{239}Pu calibration with 0.95 confidence probability from the reference P9 source type	%	$20+10/A$, where A is a dimensionless value, equal to the numeric value of alpha emitting radionuclides surface activity measured in Bq/cm^2
Detector type		alpha-beta-gamma-sensitive GeigerMueller counter with mica window
Window area	cm^2	13.8
Typical sensitivity to photon ionizing radiation with 0.662 MeV energy (^{137}Cs)	$(\text{pulse} \cdot \text{c})/\mu\text{Sv}/\text{h}$	4.5
Time of continuous operation of the radiometer powered by two new batteries with a capacity of 1200 mA/h at a temperature of 20°C and under conditions of gamma background not more than $0.5 \mu\text{Sv}/\text{h}$, audio signaling of registered gamma radiation and display switched off, not less than	h	2000
Nominal supply voltage of the radiometer from two AAA batteries	V	3.0
Operating temperature range	$^\circ\text{C}$	-20 ... +50
Dimensions of the radiometer	mm	160 x 75 x 37
Weight of the radiometer without a telescopic tube, not more than	kg	0.4
Weight of the radiometer in the packing box	kg	4.2 (packing box – 3.2)