

AT6101 AT6101B

SPECTROMETERS

Portable multifunctional scintillation gamma radiation spectrometers to search, detect and identify radionuclides, measure gamma radiation energy distribution, ambient gamma radiation dose equivalent rate $H^*(10)$ and alpha and beta radiation flux density

Features

- Spectrometric smart probes with computer interface
- Effective search mode
- Spectrometric dose rate measuring method by transformation operator 'Spectrum-dose'
- Built-in G-M counter in the processing unit (PU) to extend the dose rate measuring range
- Dose rate and flux density measuring with automatic background subtraction
- Continuous automatic LED stabilization of the energy scale and its periodic calibration check-up using a KCl check sample
- Digital temperature compensation of the measuring path by an internal temperature sensor
- Audible and visual alarm at searching and identifying gamma radiation radionuclides, at dose rate and flux density threshold exceeding
- Logging up to 300 spectra
- Spectrometric data readout on a backlit matrix LCD 128x64
- Wide-temperature operation under field conditions
- Hermetic enclosure 121x477 mm, for submerging

IDENTIFICATION

natural - ^{40}K , ^{232}Th , ^{238}U
 industrial - ^{241}Am , ^{133}Ba , ^{57}Co , ^{60}Co , ^{137}Cs , ^{192}Ir ,
 ^{237}Np , ^{226}Ra , ^{228}Th , ^{22}Na , ^{54}Mn , ^{152}Eu ,
 ^{75}Se
 medical - ^{67}Ga , ^{123}I , ^{125}I , ^{131}I , ^{111}In , $^{99\text{m}}\text{Tc}$, ^{201}Tl ,
 ^{133}Xe , ^{51}Cr
 nuclear materials - ^{239}Pu , ^{233}U , ^{235}U



Application

- Environmental monitoring
- Radioactive waste monitoring
- Illicit trafficking of radioactive sources and materials monitoring
- Radiation monitoring of scrap metal
- Nuclear industry
- Geological survey
- Nuclear medicine
- Scientific research
- Emergency

BDPA-01
BDPB-01



BDKG-05
BDKG-11



PU



ATOMTEX

INSTRUMENTS AND TECHNOLOGIES FOR
NUCLEAR MEASUREMENTS AND RADIATION MONITORING

Specification

Detectors

AT6101 (BDKG-05)	Nal(Tl)	40x40 mm
AT6101B (BDKG-11)	Nal(Tl)	63x63 mm
PU	G-M counter	CI-29BG

Gamma radiation detection in energy ranges

BDKG-05, BDKG-11	20 - 1500 and 40 - 3000 keV
------------------------	-----------------------------

Alpha radiation detection in energy range

BDPA-01	4 - 7 MeV
---------------	-----------

Beta radiation detection with maximum energies

BDPB-01 from 155 keV (¹⁴ C) to 3.5 MeV (¹⁰⁶ Ru+ ¹⁰⁶ Rh)
--

Integral non-linearity not more than 1%

Relative energy resolution on ¹³⁷Cs

BDKG-05	not more than 9 %
BDKG-11	not more than 9.5 %

Maximum input statistical load not less than 5·10⁴ s⁻¹

Number of channels 512

Continuous operation time

with built-in accumulator unit not less than 12 h

Energy scale instability for

continuous operation of 12 h not more than 1 %

Gamma radiation ambient dose equivalent rate measuring range

BDKG-05	0.01 - 300 Sv/h
BDKG-11	0.01 - 100 Sv/h
PU	1 Sv/h - 10 mSv/h

Energy sensitivity response respect to ¹³⁷Cs:

BDKG-05, BDKG-11 (50 - 3000 keV)	±20%
PU (60 - 3000 keV)	-25 +35%

Alpha radiation flux density

BDPA-01 0.5 - 10⁵ part/(min·cm²)

Beta radiation flux density

BDPB-01 3 - 5·10⁵ part/(min·cm²)

Intrinsic measurement error

dose rate	not more than ±20%
flux density	not more than ±20%

Detection time of a ¹³⁷Cs source, 50 kBq

at 20 cm less than 2 s

Sensitivity on

	²⁴¹ Am
BDKG-05	5600 cps/ Sv·h ⁻¹
BDKG-11	12700 cps/ Sv·h ⁻¹
	¹³⁷ Cs
BDKG-05	670 cps/ Sv·h ⁻¹
BDKG-11	1960 cps/ Sv·h ⁻¹
	⁶⁰ Co
BDKG-05	330 cps/ Sv·h ⁻¹
BDKG-11	1030 cps/ Sv·h ⁻¹
	radiation background 0,08 Sv/h
BDKG-05	100 cps
BDKG-11	270 cps

Operating temperature range -20 +50 °C

Relative air humidity at 35°C 95%

Operation mode

setup time not more than 1 min

Protection class IP54

Radio disturbance

EN 55022:2006

Electromagnetic compatibility

EN 61000-4-2:1995

EN 61000-4-3:2002

Weight

BDKG-05	1.2 kg
BDKG-11	1.9 kg
BDPA-01	0.55 kg
BDPB-01	0.65 kg
PU	0.8 kg

Dimensions

BDKG-05	62x320 mm
BDKG-11	80x345 mm
PU	110x230x38 mm
BDPA-01	87x205 mm
BDPB-01	87x205 mm

Complete set: spectrometric gamma radiation smart probe, processing unit, AC adapter, check sample, shoulder strap, Manual, packing case and package.

External alpha and beta radiation smart probes, telescopic bar, 1.1 m, hermetic enclosure, kit of accessories to connect to PC and applied software to acquire and process spectra on PC are options and they are supplied **on additional order**.

The spectrometers AT6101 and AT6101B have pattern approval certificates of Republic of Belarus and Russian Federation.

They comply with IEC 62327 International standard requirements. They also conform with the 89/336/EEC directive complying with EN 61000-6-3 and EN 61000-6-2 standard requirements.

**5, Gikalo st., 220005 Minsk,
Republic of Belarus**

tel. +375 17 2928142

tel. / fax +375 17 2928142, 2882988

e-mail: info@atomtex.com

http://www.atomtex.com



ATOMTEX