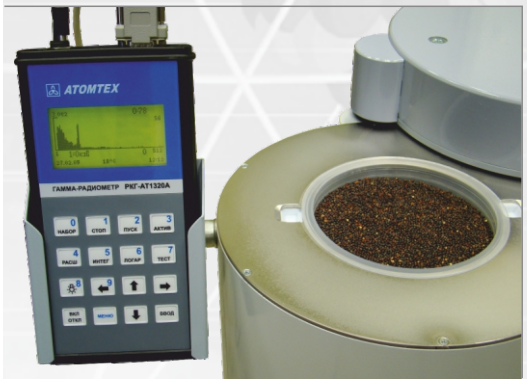
AT1320, AT1320A, AT1320B
Gamma Activity Monitors

Water, foods and other materials radioactive pollution monitoring



Applications

- Radiation protective measures in case of nuclear disasters
- Potable water monitoring
- Foodstuffs monitoring
- Agricultural products monitoring
- Mineral raw materials, construction materials, wood products monitoring
- Product, raw material and waste monitoring in smelting, mining and oil industry
- Radioactive waste and effluent monitoring in nuclear industry

Highly sensitive selective wide-range spectrometric scintillation gamma activity monitor is intended to measure the following parameters:

- Measuring ^{137}Cs radionuclide volumetric and specific activity in environmental objects
- Measuring specific and specific effective activities of ^{40}K, ^{226}Ra, ^{232}Th narural radionuclides in construction materials

Operating principle

Gamma counters operating principle is based on detection unit pulse-height distribution analysis.

Energy distribution parameters are processed in energy windows with the help of matrix method.

Matrix method is used for converting the window count rate into volumetric (specific) activity.

Measurement results are displayed on Information processing unit screen in real-time.

	Radionuclides to control	*Measuring vessels*
AT1320	^{137}Cs, ^{40}K, ^{226}Ra, ^{232}Th	1 l, 0.5 l, 0.1 l
AT1320A	^{137}Cs, ^{40}K	1 l, 0.5 l, 0.1 l
AT1320B	^{137}Cs, ^{40}K	1 l, 0.5 l, 0.1 l, 10 l (without protection unit lid)

Features

- Smart spectrometric probe
- Internal continuous automatic LED stabilisation of gamma counter energy scale, calibration integrity monitoring and automatic calibration with integrated KCl sample
- Memory function and automatic background subtraction
- "Energy Windows" algorithm is used for instrument spectrum processing
- Recording and storing in memory up to 300 measured spectra
- 20-second radiation control of mushrooms and berries in 10-litre packing box
- PC with dedicated software can be used instead of data processing unit to provide documentation function and for expanding of monitored radionuclides library
- Methodological support of measurements

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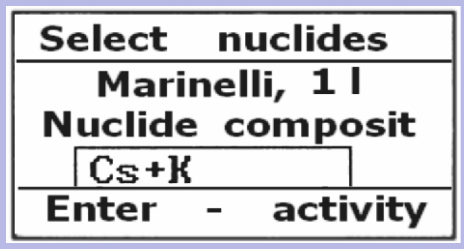
Specification

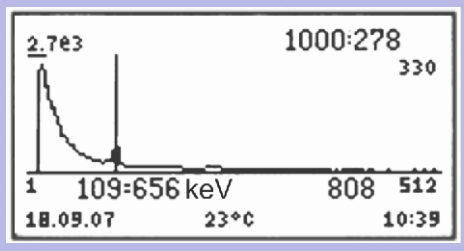
Detector	Scintillation NaI(Tl), Ø63x63 mm
Volumetric (specific) activity measuring range	
^{137}Cs	3.7...1·10^{6} Bq/l (Bq/kg)
^{40}K	50...2·10^{4} Bq/l (Bq/kg)
^{226}Ra	10...1·10^{4} Bq/l (Bq/kg)
^{232}Th	10...1·10^{4} Bq/l (Bq/kg)
Intrinsic relative error of volumetric (specific) activity measurement with confidence probability P=0.95	±20% max.
Measured sample density range	0.1...3 g/cm^{3}
Minimum measured volumetric activity of ^{137}Cs radionuclide in potable water for Marinelli beaker geometry during 1-hour measurement with ±50% statistical error (P=0.95)	5.7 Bq/l
Energy range of measured gamma radiation	50 keV...3 MeV
Number of ADC channels	512
Integral nonlinearity	±1% max.
Intrinsic background for ^{137}Cs window	<2 cps
Relative energy resolution for ^{137}Cs	<8%
Operation mode setup time	10 min
Continuous run time	≥24 h
Measurement instability during continuous service	±3% max.
Working temperature range	0°C...+40°C
Relative humidity with air temperature ≤30°C without condensation	≤75%
Power supply	230 V (+23 V/-35 V), 50±1 Hz
Power consumption	≤8 VA
Measurement vessels	
Marinelli beaker	1 litre
Flat vessel	0.5 litre and 0.1 litre
Plastic box, 380x280x100 mm	10 litre
Overall dimensions, weight	
Detection unit	ø97x350 mm, 2 kg
Processing unit	200x106x35 mm, 0.62 kg
Protection unit	ø600x700 mm, 125 kg
Mains adapter	92x62x52 mm, 1 kg

Capabilities

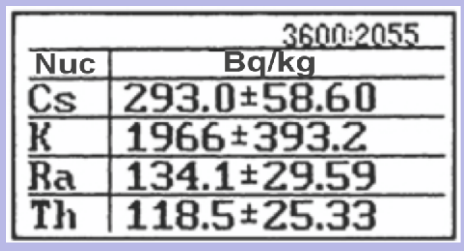
Select radionuclides to be detected



Display operational background spectrum



Determination of selected radionuclide activity



Gamma Activity Monitors meet International standard requirements:
IEC 61563:2001
Safety standard requirements:
IEC 61010-1:1990
EMC requirements:
EN 55022:1998+A1:2000+A2:2003
EN 55024:1998+A1:2001+A2:2003
IEC 61000-4-2:2001
IEC 61000-4-3:2008
IEC 61000-4-4:2004
IEC 61000-4-11:2004

Gamma Activity Monitors have the pattern approval certificates of Republic of Belarus, Russian Federation, Ukraine, Lithuania and Turkmenistan.

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