

AT1320M Gamma Activity Monitor



Liquid radioactive waste control in medicine and pharmacy

AT1320M Gamma activity monitor is a fixed scintillation radiometric unit, designed to measure volume gamma radiation activity of ^{51}Cr , $^{99\text{m}}\text{Tc}$, ^{111}In , ^{123}I , ^{125}I , ^{131}I , ^{201}Tl radionuclides in liquid radioactive waste.

Measurement geometry - Marinelli beaker, 1.0 litre.

Operating principle

AT1320M Gamma activity monitor operating principle is based on sample radionuclide gamma radiation detection by scintillation detector, instrument spectrum measuring and further matrix method processing with measuring of monitored radionuclide volume activity.

Setting up procedure and parameter check is performed with ^{133}Ba check sample.



Measurement results are displayed on Information processing unit (PU) screen in real time.

Detection units of gamma activity monitors can be connected to PC.

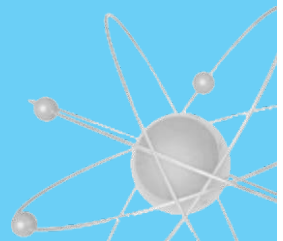
Application software replaces Information processing unit functions and is used for controlling radioactivity monitor modes, measurement data display, spectra processing, electronic history logging and recording of measurement results.

Applications

- Nuclear medicine
- Radiopharmacy
- Radioecology
- Radioactive waste control

Features

- Spectrometric smart probe with built-in continuous automatic LED stabilisation of energy scale and parametric temperature stabilization
- Memory function and automatic background subtraction for volumetric activity measurement
- Recording and storing in memory up to 300 measured spectra
- PC with dedicated software can be used instead of data processing unit to provide documentation function
- Methodological and metrological support of measurements



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Zievert

Ionizing radiations
detectors and
instruments

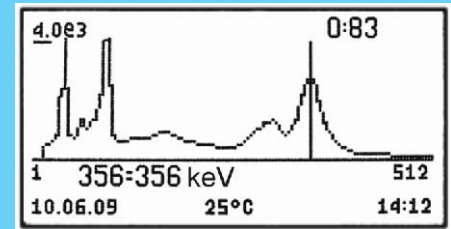
AT1320M Gamma Activity Monitor

Specification

Detector	Scintillation NaI(Tl), Ø63x63 mm
Volume activity measurement range	
¹²⁵ I	5 – 2·10 ⁶ Bq/l
²⁰¹ Tl, ^{99m} Tc, ¹²³ I, ¹¹¹ In, ¹³¹ I	3 – 2·10 ⁵ Bq/l
⁵¹ Cr	20 – 2·10 ⁶ Bq/l
Limits of tolerable intrinsic relative error	±30%
Measured samples density	1 g/cm ³
Energy range of measured gamma radiation	20 – 500 keV
Number of ADC channels	512
Operation mode setup time	10 min
Continuous operation time	≥24 h
Measurement instability during continuous service	≤3%
Operation temperature range	0°C to +40°C
Relative air humidity with air temperature ≤30°C without condensation	≤75%
External background radiation level	0.2 µSv/h max.
Protection class	IP40
Measurement vessels	Marinelli beaker, 1.0 l
PC connection	USB 2.0
Overall dimensions	
Information processing unit	106x220x35 mm
Detecting unit	Ø98x350 mm
Protection unit	Ø600x700 mm
Weight	
Information processing unit	0.5 kg
Detection unit	2.0 kg
Protection unit	125 kg

Capabilities

Instrument spectrum displaying



Radionuclide activity displaying

1:2		600:600	
Nuclide	Bq/l	%	
I-125	102	22	
Tl-201	411	2	
Tc-99m	211	5	
I-123	50.2	31	

2:2		600:600	
Nuclide	Bq/l	%	
In-111	218	3	
Cr-51	1485	5	
I-131	204	4	

The gamma activity monitor complies with:
 GOST 27451-87, GOST 17209-89, GOST 23923-89,
 Safety requirements of IEC 61010-1:2010,
 EMC requirements of EN 55011:2009, IEC
 61000-4-2:2008, IEC 61000-4-3:2008

Design and specifications are subject to change without notice