AT1125 Radiation Monitor

- Instant radiation background measurement

- Express monitoring of ^{137}Cs + ^{134}Cs and ^{137}Cs radionuclide content in food

Portable high-sensitivity radiation monitor is designed for searching and detecting gamma radiation sources, measuring ambient equivalent power and gamma radiation ambient dose equivalent, performing express estimation of ^{137}Cs + ^{134}Cs and ^{137}Cs specific activity in foods.

Operating principle

Scintillation NaI(Tl) detector provides high sensitivity and low response time to minor changes in radiation background. Furthermore, it allows accurate dose rate measurement over a wide range of gamma-ray energy from 0.05 MeV to 3 MeV with the help of the "spectrum-dose" corrective function.

Sample radiometric radionuclide content monitoring

In this device we realised the possibility of sample radiometric radionuclide content monitoring indoors with a lead protecting unit and express-monitoring in field conditions without a lead protection unit.

Sample monitoring with lead protection unit

Sample express monitoring in field environment

Applications

- Powerful search, detection and localization function for sources of ionizing radiation
- Background radiation monitoring
- Radiation monitoring of ecological environment, areas, facilities, stock and material
- On-line radiation monitoring of ^{137}Cs + ^{134}Cs and ^{137}Cs radionuclide in foods, wild mushrooms, berries, etc.
- Individual working places radiation monitoring and radiometric surveillance in manufacturing facilities, research laboratories and health care institutions
- Scrap metal radiation monitoring

Features

- Multiple functions
- High sensitivity
- Spectrometric method of measurement
- Field operation capability over a wide temperature range
- Efficient LCD display back-lit function
- Integrated system for measurement path LED stabilization
- Threshold level exceeding alarm
- Memory function for 100 measurement results
- PC connection function and dedicated application software interoperability
- Low level of ^{134}Cs and ^{137}Cs specific activity detection with lead protecting unit is 50 Bq/kg (external background radiation level is 0.1 μSv/h)

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Specification

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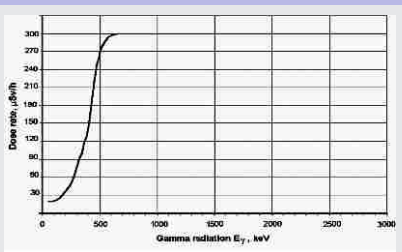
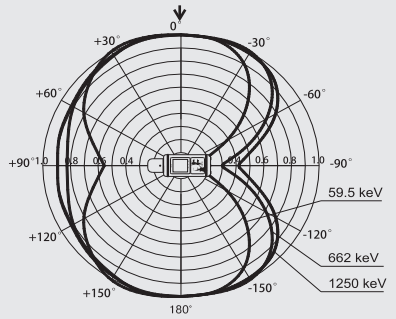
Detector	Scintillation, NaI(Tl); Ø25x40 mm
Measurement range for:	
Ambient gamma radiation dose equivalent rate	30 nSv/h…300 μSv/h
Ambient gamma radiation dose equivalent	10 nSv…10 mSv
Intrinsic relative error of dose rate and dose measurement	±15% max.
Sensitivity energy dependence within energy ranges of 50 keV…3 MeV	±15%
Measured gamma radiation energy range	50 keV…3 MeV
Sensitivity to gamma radiation of ^{137}Cs radionuclide	350 cps/μSv/h^{-1}
Natural radiation background measurement time of 0.1 μSv/h with statistical error ±20% (P=0.95)	≤15 sec
Power supply	Internal rechargeable Ni-MH battery or AC power adapter
Internal battery run time	≥24 h
Operation mode setup time	1 min
Working temperature range	-20°C…+50°C
Relative humidity with air temperature ≤35°C without condensation	≤90%
Protection class	IP54
PC interface	RS232 or USB
Overall dimensions	258x85x67 mm
Weight	1.0 kg

AT1125 Radiation Monitor with lead protection unit

Specific activity measuring range for ^{137}Cs, ^{137}Cs + ^{134}Cs radiometric monitoring with 0.5 l Marinelli beaker	
W/o lead protecting unit	10^2 Bq/kg…10^5 Bq/kg
With lead protecting unit	50 Bq/kg…10^5 Bq/kg
Intrinsic relative error of specific activity measurement	±30% max.
Protection unit	
Overall dimensions	Ø150x155 mm
Weight	10.5 kg



Normal relationship between upper limit of dose rate measuring range and gamma radiation energy of scintillation detection channel



Normal radiation monitor anisotropy

AT1125 Radiation Monitor meets 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

At1125 Radiation Monitor has the pattern approval certificates of Republic of Belarus, Russian Federation, Ukraine and Kazakhstan.

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