

# AT6130 Radiation Monitor

## Handheld Radiation Monitor



Compact device intended for ambient dose equivalent rate and ambient gamma and X-radiation dose equivalent rate measurement, as well as for measurement of beta particle flux density on contaminated surfaces. In search mode it measures count rate in counts per second.

### AT6130 HAS TWO VARIANTS:

- w/o PC communication interface
- with Bluetooth interface

### Operating principle

Device operating principle is based on the process of count rate measurement of impulses, generated in Geiger-Muller counter tube under the influence of X, gamma and beta radiation.

Count rate is converted automatically into measurable physical values throughout the range. Energy compensating filter allows correcting energy dependence of sensitivity efficiently in entire energy range of photon radiation.

Microprocessor-based unit is responsible for controlling the radiation monitor operating modes, calculations, storing and displaying measurement results and for self-checking function.

Rated sensitivity of each measurement range sets up automatically during calibration procedure.

To facilitate the process of surface contamination evaluation the radiation monitor can be secured in a holder.

### Applications

- Radiation protective measures in case of nuclear disasters
- Civil protection
- Radioecology
- Fire-fighting service
- Customs service
- Dosimetric monitoring in manufacturing facilities, health care and other institutions
- Identification of banknote, identity document, personal belongings, clothing, etc. contamination with radioactive substances

### Features

- Low weight and small size
- Automatic compensation of intrinsic detector background
- Sound and visual alarm in case threshold level is exceeded for dose, dose rate and flux density
- Rapid reaction to statistically significant change of dose rate (measurement process restart)
- Selective measurement of beta and gamma radiation in mixed fields
- Field operation capability over a wide temperature range
- In search mode each registered gamma quantum (beta particle) is indicated by a sound signal
- Up to 2000 measurement results can be stored in non-volatile memory with information about measurement date and time
- Measurement results, current time, date and battery life indicator is displayed on matrix LCD screen
- Measurement results can be transmitted to a PC via Bluetooth interface (If available)
- Headphones can be attached when working in noisy environment



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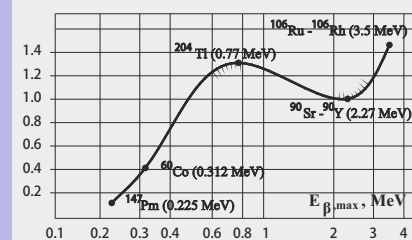
INSTRUMENTS AND TECHNOLOGIES FOR NUCLEAR  
MEASUREMENTS AND RADIATION MONITORING

# AT6130 Radiation Monitor

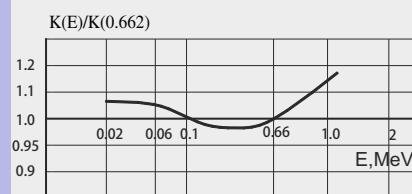
## Specification

<b>Ambient gamma and X radiation dose rate equivalent measurement range</b>	0.1 $\mu\text{Sv/h}$ ...10 mSv/h or 10 $\mu\text{rem/h}$ ...1 rem/h *
<b>Ambient gamma and X radiation dose equivalent measurement range</b>	0.1 $\mu\text{Sv}$ ...100 mSv or 10 $\mu\text{rem}$ ...10 rem *
<b>Beta particles flux density (or count rate) measurement range</b>	10...1·10 <sup>4</sup> particle/min·cm <sup>2</sup> (or 0.1...1·10 <sup>4</sup> cps) *
<b>Intrinsic relative error of measurement</b>	±20% max.
<b>X and gamma radiation energy range</b>	20 keV...3 MeV
<b>Spectrum maximum energy range of registered beta particles</b>	155 keV...3.5 MeV
<b>Energy dependence</b>	
- When gamma radiation dose rate is measured for <sup>137</sup> Cs	±30%
- When beta particles flux density is measured for <sup>90</sup> Sr + <sup>90</sup> Y	-60%...+50%
<b>Sensitivity</b>	
To <sup>137</sup> Cs gamma radiation	2.8 cps/ $\mu\text{Sv}\cdot\text{h}^{-1}$
To <sup>90</sup> Sr + <sup>90</sup> Y beta radiation	0.36 cps/particles·min <sup>-1</sup> ·cm <sup>-2</sup>
<b>Radiation overloading</b>	Radiation monitor can withstand 100-fold rise of dose rate measurement and beta particles flux density upper range limit for 5 minutes with readings not lower than maximum
<b>Continuous run time</b>	≥500 h
<b>Working temperature range</b>	-20°C...55°C
<b>Relative humidity with air temperature ≤35°C without condensation</b>	≤95%
<b>Drop protection</b>	From ≤1.5 m to hard surface
<b>Protection class</b>	IP57
<b>Power supply</b>	2 x AAA-size batteries (LR 03) or 2 x AAA-seize rechargeable cells with nominal voltage 1.2 V
<b>Overall dimensions</b>	110x60x38 mm
<b>Weight</b>	0.25 kg

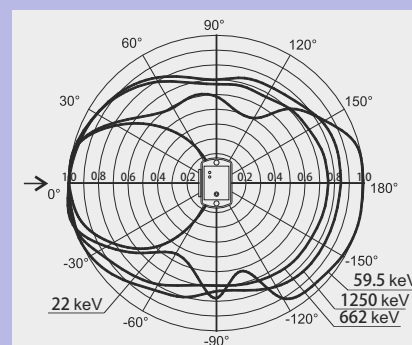
\* Units of measure are choosed during ordering procedure and cannot be altered later.



Normal relationship between monitor sensitivity and maximum beta spectrum energy during beta radiation flux density measurement



Normal energy relationship between monitor sensitivity and <sup>137</sup>Cs gamma radiation energy of 662 keV



Normal relationship between monitor sensitivity and gamma radiation incidence angle relating to the calibration direction

The radiation monitor AT6130 meets International standard requirements:  
IEC 60846-1:2009  
IEC 60325:2002  
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

The radiation monitor AT6130 has the pattern approval certificates of Republic of Belarus, Russian Federation, Ukraine, Kazakhstan and Lithuania.



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