

SPECIFICATION

Meets recommendations of IAEA, Interpol and World Customs Organization, according to the ITRAP program for handheld radiation monitors

It also meets the GOST P.51635-2000 requirements for the portable instruments of gamma sensitivity of IIIH_{γ20} category and for neutron sensitivity of IVH_{n100} category.

SEARCH AND SPECTROMETRY GAMMA CHANNEL

Detector	CsI(Tl)
Sensitivity , (s ⁻¹ / (μSv/h)) no less than:	
On ²⁴¹ Am	200,0
On ¹³⁷ Cs	200,0
Energy range of gamma radiation, (MeV) according to a special order	0,06 – 3,0 0,03 – 3,0
Coefficientn setting range , (the number of mean square deviations of background)	1,0 -9,9
The number of accumulation channels of the scintillation spectra	1024
The number of spectra , stored in non-volatile memory	до 100
Detection of gamma radiation sources at a distance of 0,2 m, velocity of 0.5 m/s and level of radiation background of no more than 0,25 μSv/h when the activity of the sources(kBq) is:	
¹³³ Ba	55,0
¹³⁷ Cs	100,0
⁶⁰ Co	50,0
Detection of the sampling sources at a distance of 0,2m,velocity of 0.5m/s and level of radiation background no more than 0,25 μSv/h when the weight of the sources (g) is:	
-Pu	0,3
-U	10

NEUTRON SEARCH CHANNEL

Detector	Slow neutron counter
Energy range , (MeV)	From thermal to 14
Coefficientn setting range , (the number of mean square deviations of background)	1,0-9,9
Detection of the ²⁵² Cf alternative source with neutron flux 1,5x10 ⁴ s ⁻¹ at a distance of 1 m , velocity of 0.5 m/s and the level of radiation background of no more than 0.25 μSv/h, equivalent of plutonium (g)	250

MEASURING GAMMA-CHANNEL

Detector	GM-counter
Dose equivalent rate measurement range (DER) , (μSv/h)	0,1 – 10 ⁵
Energy range , (MeV)	0,015 – 20
Energy response relative to 0,662 MeV (¹³⁷Cs) in the photon radiation measuring mode, (%) no more:	
-within the energy range from 0,015 up to 0,045 MeV	±40
-within the energy range from 0,045 up to 20,0 MeV	±30
The allowable limits of the main relative error of DER measurement*, (%)	±(15 +K/H)

* where H - DER value in mSv/h, K- coefficient equal 0,0015 mSv/h

MEASURING ALPHA-CHANNEL

Detector	GM-counter
α-flux density measurement range of , (min ⁻¹ ·cm ⁻²) the minimal detectable flux density (min ⁻¹ ·cm ⁻²)	from 15 to 10 ⁵ from 2
The limits of allowable main relative error of measurement of the α-flux density on ²³⁹ Pu, (%) where φ - the measured density of α - flux in min ⁻¹ ·cm ⁻² A - coefficient equal 450 min ⁻¹ ·cm ⁻²	±(20 + A /φ)

MEASURING BETA-CHANNEL

Detector	GM-counter
β- flux density measurement range , (min ⁻¹ ·cm ⁻²)	from 6,0 to 10 ⁵
The limits of allowable main relative error of measurement of β- particles within the range on ⁹⁰ Sr + ⁹⁰ Y, (%) where φ - the measured density of β- flux in min ⁻¹ ·cm ⁻² A - coefficient equal 60 min ⁻¹ ·cm ⁻²	±(20 + A /φ)

Design and specifications of the device can be changed without further notice.

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Innovative Radiation Detection Technologies Since 1992

MULTIPURPOSE HANDHELD RADIATION MONITOR PM1401K



PM1401K is a basically new instrument designed for performing all kinds of radiation control. Being worn on a belt and working in an automatic mode, the PM1401K is the smallest and the lightest instrument in the world which is capable to operate simultaneously as an alarming device, a search instrument, a radiation monitor, a spectrometer and a identifier.

Performance

- All the detectors are built into one case of small dimensions and weight.
- Waterproof shockproof case of the instrument provides the IP65 protection rate.

Use

- By the customs, border and special services for preventing both illegal trafficking of radioactive and nuclear materials and using these materials for terrorist purposes.
- By radiological and isotope laboratories.
- By emergency services.
- By fire brigades.
- By police.
- By various industry branches etc. where the nuclear technical units and ionizing radiation sources are used.



ALARM

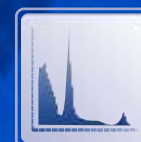
LOCATION

IDENTIFICATION

MEASUREMENT

Performance capabilities

- **Alarm:** detection of all kinds of radioactive sources on their photon, alpha, beta and neutron radiation.
- **Location:** search for radioactive and nuclear materials.
- **Identification:** determination of the source type by its gamma spectrum along with Pocket PC or PC.
- **Measurement** of photon radiation dose rate and contamination factor of the surface by alpha and beta sources.
- IRDA (IR channel) and Bluetooth® (radio channel) for the PC communication.
- Audible alarm and vibration alarm device for hidden detection.
- Operation as a part of the expert analytical complex.



IRDA



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The built-in software of the PM1401K allows storing in its non-volatile memory the information of the status of the instrument as well as different settings, results of measurement, history of the operation of the instrument and up to 100 gamma spectra.

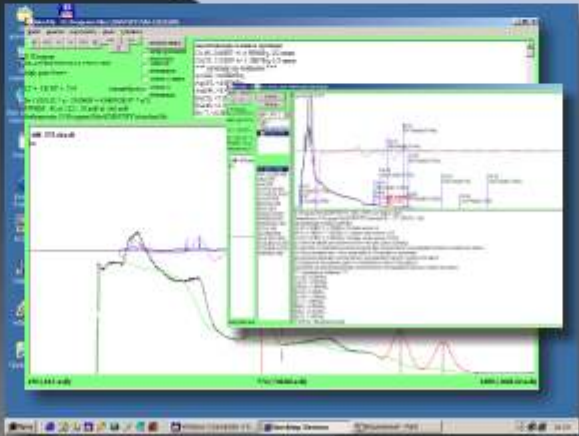
The built-in LCD allows controlling the process of spectra accumulation as well as viewing the spectra that have been already accumulated.

In the PC communication mode it is possible to enter or change the operating modes of the instrument and its parameters. It is also possible to transfer the stored information to a PC for further processing.

For radionuclide identification, the spectra stored in the instrument are transferred to a PC through IRDA (IR-channel) or through Bluetooth (radio channel) to a pocket PC.



- 1 The combined block**
Measurement of the DER of photon radiation and the flux density both of alpha and beta-particles
- 2 Photon radiation filter**
Ensures accurate measurement of DER Hp(10) of photon radiation within the wide energy range
- 3 Neutron radiation detector**
Search (detection and locating) of neutron sources
- 4 Gamma radiation detector**
Search (detection and locating) of photon radiation sources. Accumulation, storage of scintillation gamma spectra and their transfer to a PC.



Identification can be performed:

- automatically when the program analyses data and gives the list of the identified radionuclides,
- by a user himself by analyzing the spectrum shown in the LCD.



The radionuclide spectra libraries being used for identification can be selected and the instrument can be applied for resolving specific tasks



The using Bluetooth radiochannel and microcomputer allows making measurements and identification at a distance from radiation source that is safe for operator.



The spectra accumulated in the instrument can be transferred to a PC for being analyzed with the other software.

GENERAL SPECIFICATIONS OF THE INSTRUMENT

Alarming devices	visual (LCD), audible built-in, and external vibration
Data transfer communication channels	IRDA (IR-channel) Bluetooth (radiochannel)
Period of continuous operation of the instrument with one battery to, (h)	600
Battery	AA
Environmental : -temperature range, (°C)	from -30 to +50
Protection degree	IP65
Weight, (g)	650
Dimensions, (mm)	240 x 57 x 55