

ADVANCED RADIATION DETECTION EQUIPMENT
product catalog





Direct-reading electronic dosimeters are designed for dose equivalent and dose equivalent rate measurements with alarm to warn once preset threshold levels are exceeded. These instruments are compact and lightweight, feature an extended battery life and non-volatile memory to record and save data, which can be downloaded via Bluetooth/USB/IrDA channels to user's PC for further processing and analysis.

PM1211

- continuous measurement of ambient dose equivalent rate and dose equivalent of gamma and X-ray radiation
- indication of the time of safe stay next to the detected radiation source
- visual and sound alarm in case preset dose rate and dose thresholds are exceeded
- Indication of time, date and temperature
- PC communication via USB

Dose rate range: 0.1 $\mu\text{Sv/h}$ – 100 mSv/h

Dose range: 1 μSv – 25 Sv

Energy range: 48 keV – 3 MeV



PM1300 PM1300-01 PM1300GN

- direct-reading electronic personal dosimeter
- the real-time control of radiation situation and measurement of personnel exposure.
- may be used both for autonomous work and as a part of automated personnel dosimetry system
- technical characteristics of the dosimeter comply with the requirements of IEC 61526 and ANSI 42.20 standards.

PM1300 – gamma dosimeter

PM1300-01 – gamma dosimeter, no RF-interface

PM1300GN – gamma-neutron dosimeter

Dose rate range:

gamma 1 $\mu\text{Sv/h}$ – 10 Sv/h

neutron 50 $\mu\text{Sv/h}$ – 0.2 Sv/h (PM1300GN)

Dose range:

gamma 1 μSv – 20 Sv

neutron 10 μSv – 20 Sv (PM1300GN)

Energy range:

gamma 15 keV – 20 MeV

neutron 0.025 eV – 15 MeV (PM1300GN)

PM1603A PM1603B

- ambient dosimeters
- for use in the harshest weather conditions.

Dose rate range: 0.01 $\mu\text{Sv/h}$ – 6.5 Sv/h (**PM1603A**)

0.01 $\mu\text{Sv/h}$ – 13 Sv/h (**PM1603B**)

Dose range: 0.01 μSv – 9.99 Sv

Energy range: 48 keV – 3 MeV

PM1611
PM1611B

- compact personal dosimeters
- measurement of continuous and pulse X-ray and gamma radiation
- vibration, audible and visual alarms
- PC connection via USB (Type-C)

PM1611: built-in rechargeable battery
PM1611B: one battery type AAA/LR03
 Dose rate range: 0.1 $\mu\text{Sv/h}$ – 10 Sv/h
 Dose range: 0.05 μSv – 20 Sv
 Energy range: 20 keV – 10 MeV



PM1621
PM1621A
PM1621M
PM1621MA

- X-ray and gamma personal dosimeters work in a wide energy range
- models PM1621M and PM1621MA feature additional search mode and vibration and light alarms.

Dose rate range: 0.1 $\mu\text{Sv/h}$ – 0.1 Sv/h (**PM1621/M**)
 0.1 $\mu\text{Sv/h}$ – 1.0 Sv/h (**PM1621A/MA**)
 Dose range: 0.01 μSv – 9.99 Sv
 Energy range: 10 keV – 20 MeV





Highly sensitive Personal Radiation Detectors (PRDs) are designed for detection and location of gamma and neutron radiation sources, as well as for dose rate measurement.

PM1401MA PM1401GNM

- devices can detect even small amounts of radioactive and nuclear materials in vehicles, luggage, transport containers, etc.
- for use in the harshest conditions
- audible and visual alarm, external vibration alarm
- PC connection via USB
- instruments are compliant with the main requirements of the IAEA recommendations (ITRAP program), ANSI N42.32, ANSI N42.33 (1).

PM1401MA PM1401MA is equipped with a CsI(Tl) scintillator to search for gamma radiation sources.

PM1401GNM is equipped with a CsI(Tl) scintillator and a ^3He counter to search for gamma and neutron sources, as well as the Geiger-Muller counter, which allows measuring the dose rate of gamma radiation up to 10 Sv/h.

Gamma sensitivity for ^{137}Cs : 100 cps per $\mu\text{Sv/h}$

Gamma energy range: 33 keV– 3 MeV

Neutron sensitivity:

- for Pu- α -Be 0.1 counts·cm²/neutron

- for thermal neutrons 7.0 counts·cm²/neutron

Neutron energy range: 0.025 eV – 14 MeV

Dose rate range: 0.05 – 40 $\mu\text{Sv/h}$

(PM1401MA)

0.1 – 9999 $\mu\text{Sv/h}$

(PM1401GNM)



PM1401P PM1401PB

PM1401P-01 PM1401P-01B

Instruments combine the dosimeter, and a portable gamma radiation monitor functions. Instruments implement an improved search algorithm for detecting and localizing gamma radiation sources, as well as for measuring ambient dose equivalent rate and dose equivalent.

- **PM1401P** and **PM1401PB** – ambient dosimeters.
- **PM1401P-01** and **PM1401P-01B** – personal dosimeters.
- comply with the GOST P 51636-2000 detection requirements
- PC connection via USB-C (all modifications) and Bluetooth (**PM1401PB** and **PM1401P-01B**)

Radiation sensitivity for ^{137}Cs not less than:

100 cps per $\mu\text{Sv/h}$

Registered energies range:

33 keV – 3 MeV

Dose rate measurement range:

0.1 $\mu\text{Sv/h}$ to 300 mSv/h



PM1405P

Control of alfa, beta and gamma radiation.

- measurement of the ambient dose equivalent rate and the ambient dose equivalent of gamma and X-ray radiation
- measurement of alfa and beta particles flux density
- search for alfa, beta, gamma and X-ray radiation sources

Dose rate measurement range:

0.1 $\mu\text{Sv/h}$ – 300 mSv/h ($\delta: \pm 20\%$)

Dose measurement range:

0.1 μSv – 1.0 Sv ($\delta: \pm 20\%$)

Registered energies range:

50 keV – 3.0 MeV

Flux density measurement range:

$\alpha: 2 - 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$

$\beta: 6 - 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$





Multifunctional instruments equipped with multiple detectors (internal or external) for searching, locating, measuring, and identifying radiation sources.

PM1401K-3 PM1401K-3M

Instrument combines the functions of:

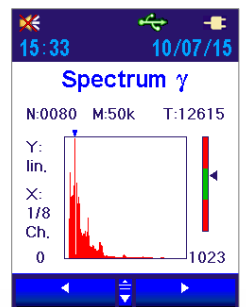
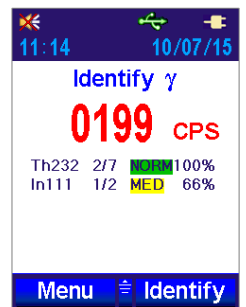
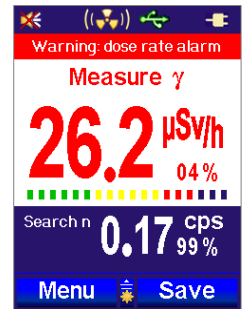
- search device,
- radiometer,
- dosimeter,
- spectrometer,
- radioisotope identifier.

Instrument:

- one of the smallest and lightest radiometers in the world
- detects alpha, beta, gamma and neutron radiation
- accumulates gamma spectra
- measures the dose rate of gamma radiation
- determines the level of surface contamination with alpha and beta radionuclides
- PC communication via USB
- has GPS module
- waist belt mount
- protective case IP65.

PM1401K-3 is equipped with built-in alpha, beta, gamma and neutron detectors.

PM1401K-3M is equipped with built-in alpha, beta and gamma detectors and does not have a neutron channel.



PM1403

Multifunctional radiation monitor is designed for:

- search, detection, location of sources of alpha, beta, gamma and neutron radiation
- measurement of their radiation intensity
- identification of radioactive materials
- has a built-in GPS module.

The monitor kit contains:

- **Display Unit**
- set of external detection blocks (smart probes) for:
 - gamma radiation (**BDG2** and **BDG3**),
 - alpha, beta radiation (**BDAB**)
 - neutron radiation (**BDN**).

Smart probes can be integrated in the radiation monitoring systems.

Display Unit: visual, audible alarm, smart probes control, GPS, USB

BDG2: gamma measurement (GM)

Dose rate range: 0.1 $\mu\text{Sv/h}$ – 10 Sv/h
 Energy range 30 keV – 3.0 MeV

BDG3: gamma measurement and search (CsI)

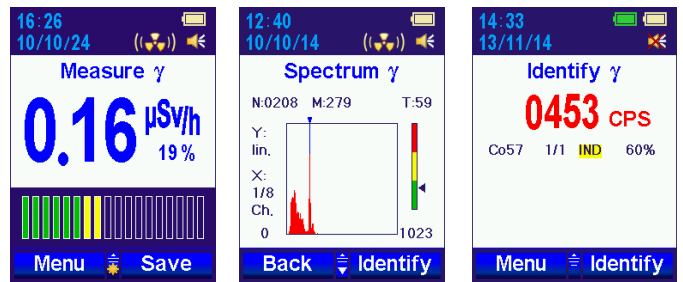
Dose rate range: 0.1 – 40 $\mu\text{Sv/h}$
 Sensitivity for ^{137}Cs : 200 cps per $\mu\text{Sv/h}$
 Energy range 50 keV – 3.0 MeV

BDN: neutron search (^3He)

Dose rate range: 1 – 5000 $\mu\text{Sv/h}$
 Energy range: thermal– 14.0 MeV

BDAB: α - β measurement (proportional counter)

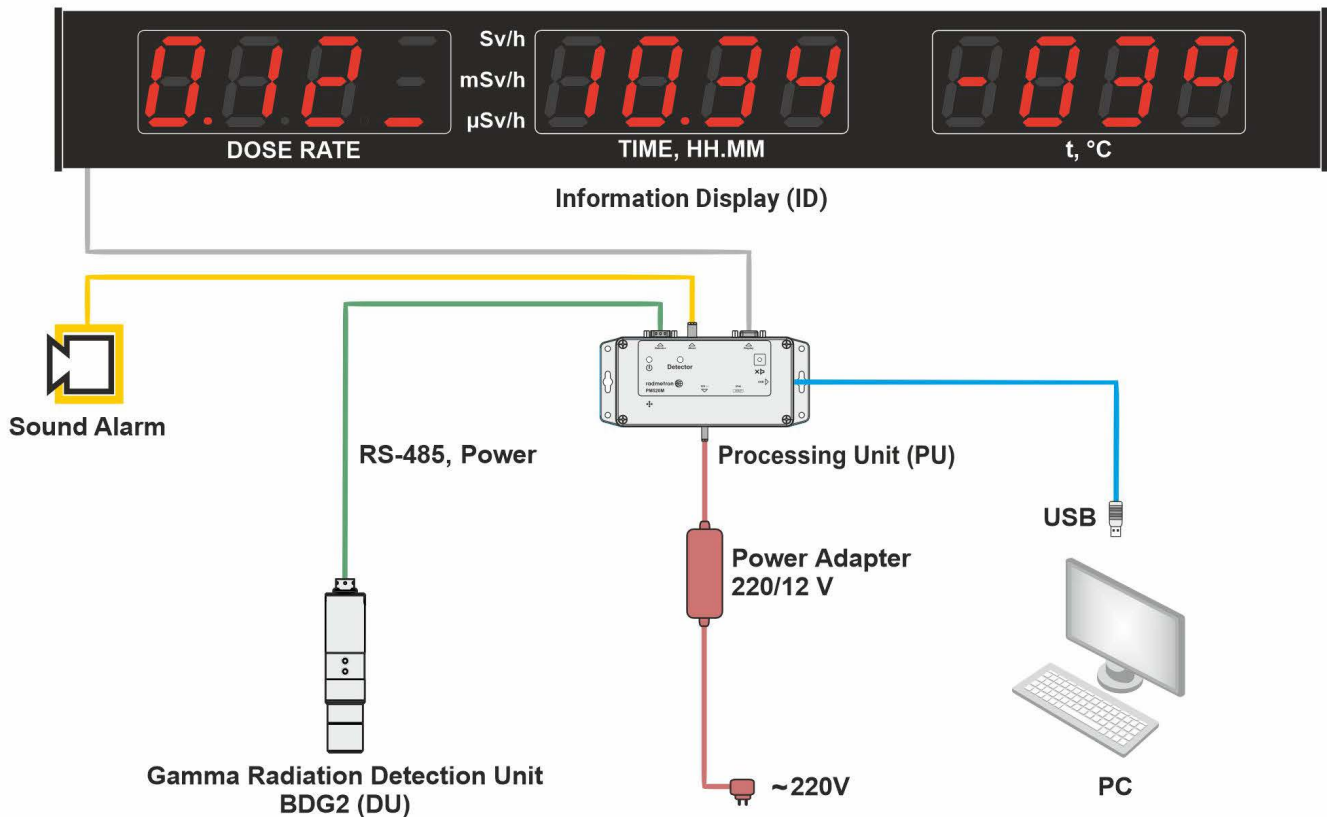
Flux density range: α : 1 – 5 · 10⁵ min⁻¹cm⁻²;
 β : 10 – 10⁶ min⁻¹cm⁻²
 Energy range: α : 4 – 7 MeV;
 β : 0.15 – 3.5 MeV





PM520M

Radiation Monitoring System with Information Display PM520M is designed to monitor the radiation situation and ensure the radiation safety at various facilities.



PM520M includes:

- Information Display (ID)
- Processing Unit (PU)
- Gamma Radiation Detection Unit (DU).

DU continuously measures the **ambient dose equivalent rate** and displays the measurement result on the ID.

The software allows you to set the DER threshold value. When threshold value is exceeded, sound and light alarms are triggered.

ID and DU are connected to the PU and powered via the RS485 communication line up to 1000 m.

PM520M has 3 versions:

- **PM520M-01** displays the measured DER value, current time and temperature;
- **PM520M-02** displays the measured DER value and current time;
- **PM520M-03** displays only the measured DER value.



Combined Gamma Radiation and Chemical Agent Detector



PM2012M PM2012MB

Combined detector:

- measures gamma dose and dose rate
- detects and differentiates organophosphorus and arsenic-containing compounds.

Instruments are equipped with a Geiger-Muller detector for radiation detection and ionizing chamber with a beta source for chemical agent detection.

PM2012M transmits all recorded data to a PC via **USB**.

PM2012MB transmits all recorded data to a PC via **USB** and **Bluetooth**.

Dose rate range:

- 1 $\mu\text{Sv/h}$ – 9.99 Sv/h

Dose range:

- 1.0 μSv – 9.99 Sv (**PM2012M**)
- 1.0 μSv – 14.9 Sv (**PM2012MB**)

Energy range:

- 60 keV – 3.0 MeV

Chemical module sensitivity:

- organophosphorus $(5\pm 1.5) \cdot 10^{-5}$ mg/l for 10 s
- arsenic-containing $(3\pm 0.9) \cdot 10^{-4}$ mg/l for 15 s



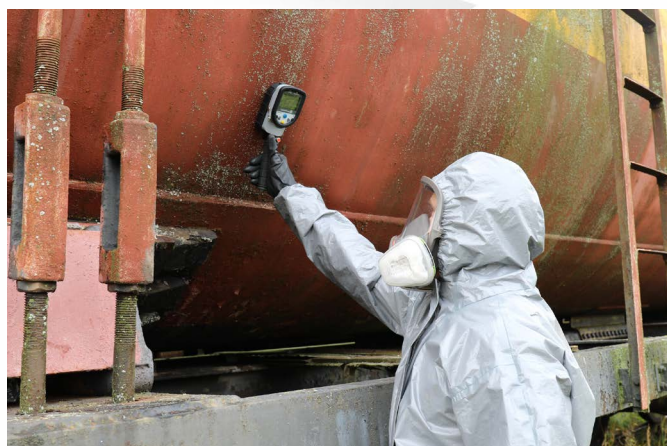
Contraband Detector



PM2030 PM2030 NB

Contraband Detector of non-destructive examination is a portable security instrument that detects hidden items (drugs, explosives, weapons, currency, etc.) within the closed cavities of transport vehicles, freight containers and other objects.

- detect hidden items (depth of scanning up to 150 mm)
- search for gamma radiation sources
- wireless sound alarm (PM2030) and the vibration alarm from the handle for covert detection and for work in noisy areas.



Radiation Portal Monitors



These types of detectors are widely used for the detection of radioactive materials that may be illicitly trafficked or unintentionally moved across international land borders, sea ports, airports, and similar locations, as well as at recycling plants or controlled access facilities.

Technical parameters of the equipment comply with the recommendations and requirements of the IAEA (ITRAP). The networking capability allows for collecting and transferring data to a remote control center.

PM5000B series

- radiation monitoring of vehicles and trains at border crossings
- detection **gamma and gamma-neutron** radiation sources

Modular design of the monitors allows for flexible system configuration according to customer's specification.



PM5000KM series

- radiation monitoring of road and rail transport at industrial and cargo checkpoints
- can be used to control scrap metal
- detection **gamma** radiation sources
- ease of installation
- PC connection via the Ethernet port or WiFi
- suitable for use in difficult climatic conditions.



PM5000P series

- radiation monitoring of **pedestrians, luggage and commodities** at different checkpoints
- detection **gamma and gamma-neutron** radiation sources.





PM9100 series

Automatic Irradiation Calibration Systems PM9100 series are designed for:

- calibration,
- verification,
- graduation,
- testing

of a wide range of **gamma radiation** measurement and test equipment of various manufacturers.

Calibration Systems PM9100 series form the reference radiation fields compliant with ISO 4037-01.

PM9100 is available in two modifications which differ in the maximum activity of the sources of gamma radiation.



PM9200 series

Neutron Irradiation Calibration Systems PM9200 series are designed for:

- calibration,
- verification,
- graduation,
- testing

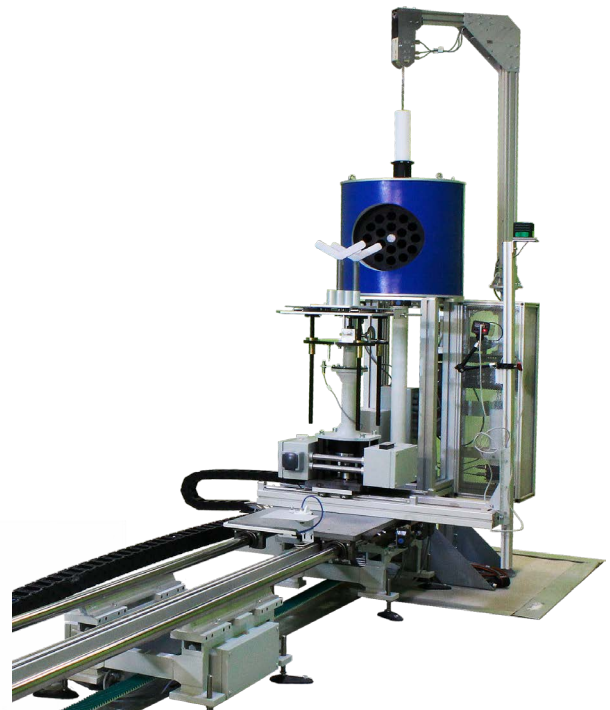
of the instruments that measure:

- flux density,
- ambient dose equivalent rate,
- personal dose equivalent rate

of **neutron radiation**.

Installation with a set of neutron sources provides the field of **fast and thermal neutron radiation field** in a **collimated beam**, as well as the formation of a neutron field in an **open geometry**.

PM9200 is available in three models which differ in irradiators.



PM9300

Self-Contained Gamma Irradiator PM9300 is designed for:

- calibration,
- verification,
- graduation,
- testing

of **gamma radiation** dosimeters and dose rate meters.

PM9300 is used to reproduce:

- air kerma and air kerma rate,
- exposure dose and exposure dose rate,
- ambient dose equivalent and ambient dose equivalent rate,
- personal dose equivalent and personal dose equivalent rate.

The PM9300 is a compact and safe indoor unit that does not require a separate room to calibrate most personal dosimeters.

- Does not require a specially designed room or any additional shielding.
- Demountable design allowing to easily transfer the parts manually.



Radmetron is a Belarusian science & technology company that develops and manufactures a wide range of equipment, instruments and software for radiation control.

The company's focus is manufacturing dosimetric, radiometric, spectrometric and complex instruments for personnel dose control, prevention of illicit traffic of radioactive and nuclear materials, raw materials, end & waste products radiation control, radiation environment monitoring at facilities, territories, crowded public places for the purpose of security and incidents prevention.

Many years' experience in designing radiation detection equipment for various types of users allows serial and unique products to be developed to ensure radiation safety of professionals who work with ionizing radiation sources, specialists responsible for human and environmental safety as well as everyone around the world.

Applications

- Prevention of illicit trafficking of radioactive and nuclear materials
- Prevention, detection, and response to terrorist or other malicious acts with the use of radioactive materials
- Protection of nuclear facilities and transport against sabotage
- Emergency response to accidents involving radioactive or nuclear materials
- Monitoring occupational exposure for professionals working with radiation sources in health care facilities, research institutes, nuclear reactors and their support facilities, nuclear weapon production facilities
- Controlling of radioactive materials in scrap metal at recycling facilities and other industrial or domestic waste
- Wide range of radiation safety tasks related to search and location of radiation sources, radiation surveys and monitoring.

Users

- Border guards
- Customs services
- Medical professionals
- Security and safety officers
- Mining and industry workers
- Staff of nuclear power plants
- First-responders and firefighters
- Radioisotope and research laboratories



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