



SPC DOZA

RADIOACTIVE CONTAMINATION MONITORS

RADIATION
MONITORING
EQUIPMENT

Radioactive contamination monitors



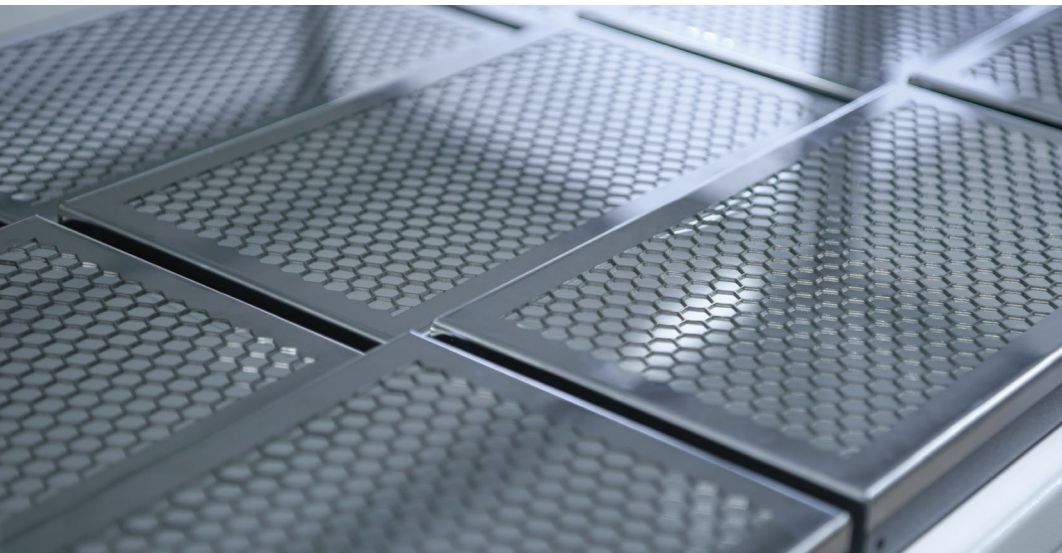
One of the most important tasks of radiation monitoring is measurement or assessment of contamination of surfaces.

The need to solve this task arises in almost all areas of human activity related to the use of ionizing radiation: nuclear power engineering, nuclear industry, nuclear medicine and other branches.

Contamination monitoring equipment finds a variety of applications – from the assessment of contamination of small items (clothing or personal belongings of working personnel) to the survey of large area surfaces (assessment of contamination of territory, survey of floors/walls of industrial premises).



Our company has developed a unique detector unit

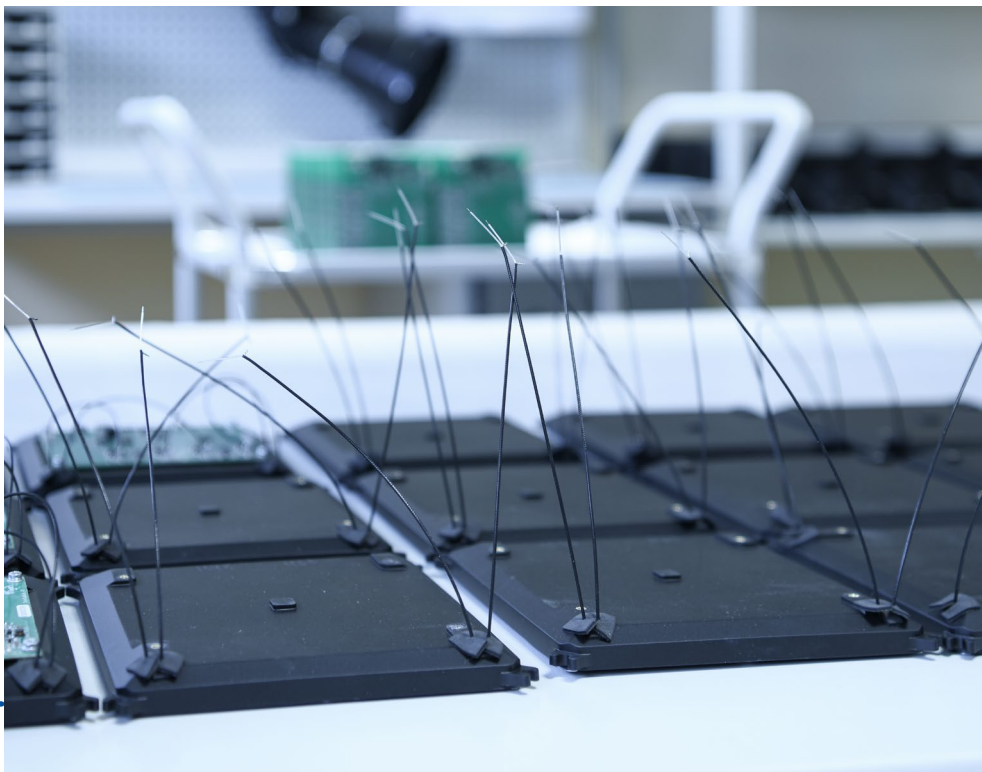


To solve these tasks, our company has developed a unique detector unit that has a high sensitivity with smaller dimensions and weight than the traditionally used units, and it is made entirely of Russian components. This allowed us to design and put into mass production in a short time about a dozen different monitors and measuring instruments:

- Whole body contamination monitor RZBA-09D
- Hand-foot contamination monitor RZBA-08D / RZA-08D;
- Hand-foot contamination monitor RZBA-07D;
- Portable objects contamination monitor (UKZO);
- Object/tool contamination monitor RZBA-25D;
- Laundry and small-items contamination monitor RZBA-20D;
- Dosimeter-radiometer MKS-17D;
- Universal monitor UIM-MD



Detectors manufacturing



Currently, SPC Doza is successfully implementing supply projects of contamination monitors for personnel of Russian and foreign facilities. The monitors have already proven themselves well at Kursk and Kalinin NPP, at “SevRAO” FSUE, “RFNC-VNIIEF” FSUE, NMIC of Neurosurgery n.a. Burdenko, at facilities in Turkey, Kazakhstan and many other enterprises.

RZBA-09D

Whole Body Contamination Monitor



The Monitor allows full beta-contamination monitoring of the employee's body surface in just two measurements. It can be completed with detachable detector units of alpha or beta radiation. Its operational simplicity allows the maintenance by personnel of any qualification.

APPLICATION

- determination of radioactive beta- and alpha-contamination level of clothing, shoes and skin surface;
- measurement of flux density of beta and alpha radionuclides;
- measurement of surface activity of radionuclides $^{90}\text{Sr}+^{90}\text{Y}$ and ^{239}Pu ;
- detection of gamma radiation at personnel monitoring;
- personnel pass-through monitoring and alarm when exceeding the set levels

FEATURES

- 23 stationary high-sensitivity detector units BDZB-18D, area 465 cm² each, a stationary high-sensitivity detector unit BDZB-09D, area 146.4 cm², and a detachable detector unit, area 146.4 cm² (detachable detector units BDZB-09D for beta radiation or BDZA-07D for alpha radiation are optional);
- contamination assessment of employee's whole body surface, including head, sides of arms and legs, without the use of detachable units;
- stationary detector unit to monitor the level of beta radiation of small items and personal belongings;
- complete measurement in a minimum time – not more than 10 seconds;
- maximum simplicity: voice and visual guidance during the whole measurement process;
- voice and light alarm, large touch screen;
- automatic compensation of external gamma background at each measurement;

- possibility of video recording of measurement procedure;
- monitoring by every detector unit during operation, alarm in case of contamination and need for service work;
- technical characteristics comply with, and in a number of parameters exceed, the requirements of STO.



TECHNICAL CHARACTERISTICS

Measurement range of beta radiation flux density of the Detector units BDZB-18D

- $1.0 \div 5.0 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Measurement range of beta radiation flux density of the Detector units BDZB-09D

- $1.0 \div 1.0 \cdot 10^6 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Energy range of registered beta radiation

- $0.075 \div 3.54 \text{ MeV}$.

Measurement range of surface activity of radionuclide $^{90}\text{Sr}+^{90}\text{Y}$ of the Detector units BDZB-18D

- $3.4 \cdot 10^{-2} \div 1.7 \cdot 10^4 \text{ Bq} \cdot \text{cm}^{-2}$.

Measurement range of alpha radiation flux density

- $0.1 \div 1.0 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Energy range of registered alpha radiation

- $4.0 \div 8.0 \text{ MeV}$.

Measuring range of surface activity of radionuclide ^{239}Pu

- $3,4 \cdot 10^{-3} \div 3.4 \cdot 10^3 \text{ Bq} \cdot \text{cm}^{-2}$.

Sensitivity of the Detector units to beta radiation $^{90}\text{Sr}+^{90}\text{Y}$

- BDZB-18D, not less: $4.5 \text{ cps}/(\text{min}^{-1} \cdot \text{cm}^{-2})$
- BDZB-09D, not less: $1.4 \text{ cps}/(\text{min}^{-1} \cdot \text{cm}^{-2})$.

Sensitivity of the Detector unit BDZA-07D to alpha radiation ^{239}Pu , not less

- $0.8 \text{ cps}/(\text{min}^{-1} \cdot \text{cm}^{-2})$.

Registered range of gamma radiation

- $0.05 \div 3.0 \text{ MeV}$.

Warm-up time, not more

- 10 min.

Exposure time in case of detection of contamination exceeding the established standards, not more

- 10 s.

Overall dimensions (DxWxH), not more

- Monitor: 1200×980×2300 mm;
- Detector unit BDZB-09D: 70×168×176 mm;
- Detector unit BDZA-07D: 70×168×176 mm.

Weight, not more

- Monitor: 450 kg;
- Detector unit BDZB-09D: 1.4 kg;
- Detector unit BDZA-07D: 1.4 kg.

STANDARDS

- IEC 61098;
- STO 1.1.1.02.004.1078-2015.



RZBA-08D

Hand-foot contamination monitor



A beta- and gamma-nuclide contamination Monitor of hands, feet (shoes) and clothing of personnel. Additional detachable detector units allow an alpha contamination assessment. the Monitor has a modern intuitive interface and various versions.

APPLICATION

- control of beta-, gamma- and alpha-radionuclide contamination level of hands, feet (shoes) and clothing of personnel and alarm when exceeding the permissible levels;
- measurement of beta and alpha radiation flux density from the surface of hands, feet (shoes) and clothing of personnel;
- measurement of surface activity of alpha and beta radionuclides of hands, feet (shoes) and clothing of personnel;
- measurement of ambient dose equivalent rate (ADER) of gamma radiation.

FEATURES

- guidance with voice and visual instructions of personnel actions when positioning hands and feet
- and in the process of measurements;
- smooth setting of alarm thresholds in the entire measurement range and alarm when they are exceeded for each detector unit;
- message “Clean” or “Dirty” upon measurement results (the message includes: light signal, voice message, representation on the display of contamination place and type, measurement results);
- possibility of simultaneous connection of two detachable detector units;
- self-testing detector units and alarm in case of their contamination or malfunction;
- user-friendly interface for viewing, configuring
- and editing the work parameters of detector units;
- USB interface for transferring information to PC;
- wall-mount bracket with possibility of changing Monitor’s inclination angle to wall.



TECHNICAL CHARACTERISTICS

Area of sensitive zone of the Detector units

- BDZB-18D (stationary): 465 cm²;
- BDZB-19D (detachable): 146.4 cm²;
- BDZA-07D (detachable): 146.4 cm².

Energy range of registered radiation

- beta radiation: 0.075 ÷ 3.54 MeV;
- alpha radiation: 4.0 ÷ 8.0 MeV;
- gamma radiation: 0.075 ÷ 3.0 MeV.

Measurement range of beta radiation flux density of the Detector units

- BDZB-18D (stationary): 1.0 ÷ 5.0·10⁵ min⁻¹·cm⁻²;
- BDZB-19D (detachable): 1.0 ÷ 1.0·10⁶ min⁻¹·cm⁻².

Measurement range of surface activity of radionuclide ⁹⁰Sr+⁹⁰Y of the Detector units

- BDZB-18D (stationary): 3.4·10⁻² ÷ 1.7·10⁴ Bq·cm⁻²;
- BDZB-19D (detachable): 3.4·10⁻² ÷ 3.4·10⁴ Bq·cm⁻².

Measurement range of alpha radiation flux density of the Detector units

- BDZA-07D (detachable): 0.1 - 1.0·10⁵ min⁻¹·cm⁻².

Measurement range of surface activity of radionuclide

- ²³⁹Pu of the Detector units
- BDZA-07D (detachable): 1.0·10⁻² ÷ 3.4·10³ Bq·cm⁻².

Measurement range of surface activity of radionuclides ²³⁸U and ²³⁴U of the Detector units

- BDZA-07D (detachable): 4.0·10⁻³ ÷ 1.7·10³ Bq·cm⁻².

Measurement range of ADER of gamma radiation (¹³⁷Cs) from the source at distance 10 cm from the surface of the Detector unit

- 0.1 ÷ 2.0·10³ μSv/h.

Range of readings of gamma radiation flux density

- 5.0·10² ÷ 1.0·10⁷ min⁻¹·cm⁻².

Exposure time in case of detection of contamination exceeding the threshold levels, not more

- 10 s.

Warm-up time, not more

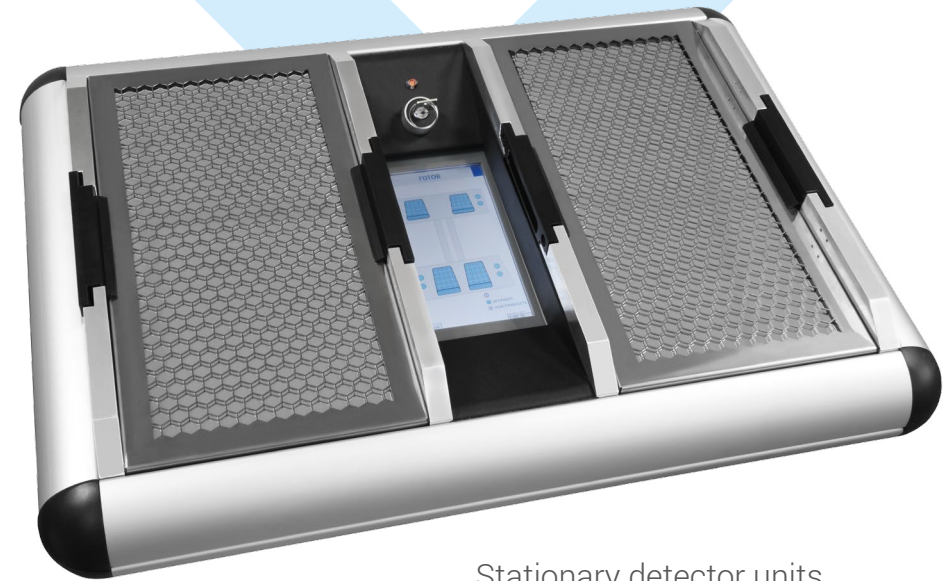
- 10 min.

Overall dimensions (DxWxH), weight

- main version: 810×615×1440 mm, 60 kg;
- version 01 (without rack/ wall-mount bracket): 435×615×145 mm, 25 kg;
- Detector unit BDZA-07D: 70×170×180 mm, 1.2 kg;
- Detector unit BDZB-19D: 70×170×180 mm, 1.2 kg.

STANDARDS

- IEC 61098;
- STO 1.1.1.02.004.1078-2015.



Stationary detector units
BDZB-18D



Detachable detector unit
BDZA-07D

Detachable detector unit
BDZB-19D

RZA-08D

Hand-foot contamination monitor



An alpha-nuclide contamination Monitor of hands, feet (shoes) and clothing of personnel. The Monitor has a modern intuitive interface and various versions.

APPLICATION

- control of alpha-radionuclide contamination level of hands, feet (shoes) and clothing of personnel and alarm when exceeding the permissible levels;
- measurement of alpha radiation flux density from the surface of hands, feet (shoes) and clothing of personnel;
- measurement of surface activity of alpha radionuclides of hands, feet (shoes) and clothing of personnel.

FEATURES

- guidance with voice and visual instructions of personnel actions when positioning hands and feet and in the process of measurements;
- smooth setting of alarm thresholds in the entire measurement range and alarm when they are exceeded for each detector unit;
- message “Clean” or “Dirty” upon measurement results (the message includes: light signal, voice message, representation on the display of contamination place and type, measurement results);
- possibility of connection of a detachable detector unit;
- self-testing of detector units and alarm in case of their contamination or malfunction;
- user-friendly interface for viewing, configuring and editing the work parameters of detector units;
- USB interface for transferring information to PC;
- wall-mount bracket with possibility of changing Monitor’s inclination angle to wall.

VERSIONS

- main version (hands and feet monitoring), in the form of a rack
- version 01 (hand monitoring), in the form of a wall-mount, desk-mount panel or separate rack.
- Additionally, the Monitor can be completed with a detachable Detector unit BDZA-07D intended for clothing contamination monitoring.

TECHNICAL CHARACTERISTICS

Area of sensitive zone of the Detector units

- BDZA-09D (stationary): 465 cm²;
- BDZA-07D (detachable): 146.4 cm².

Energy range of registered alpha radiation

- 4.0 ÷ 8.0 MeV.

Measurement range of alpha radiation flux density

- 0.1 ÷ 1.0·10⁵ min⁻¹·cm⁻².

Measurement range of surface activity of radionuclide ²³⁹Pu

- 1.0·10⁻² ÷ 3.4·10³ Bq·cm⁻².

Measurement range of surface activity of radionuclides ²³⁸U and ²³⁴U

- 4.0·10⁻³ ÷ 1.7·10³ Bq·cm⁻².

Warm-up time, not more

- 10 min.

Exposure time in case of detection of contamination exceeding the threshold levels, not more

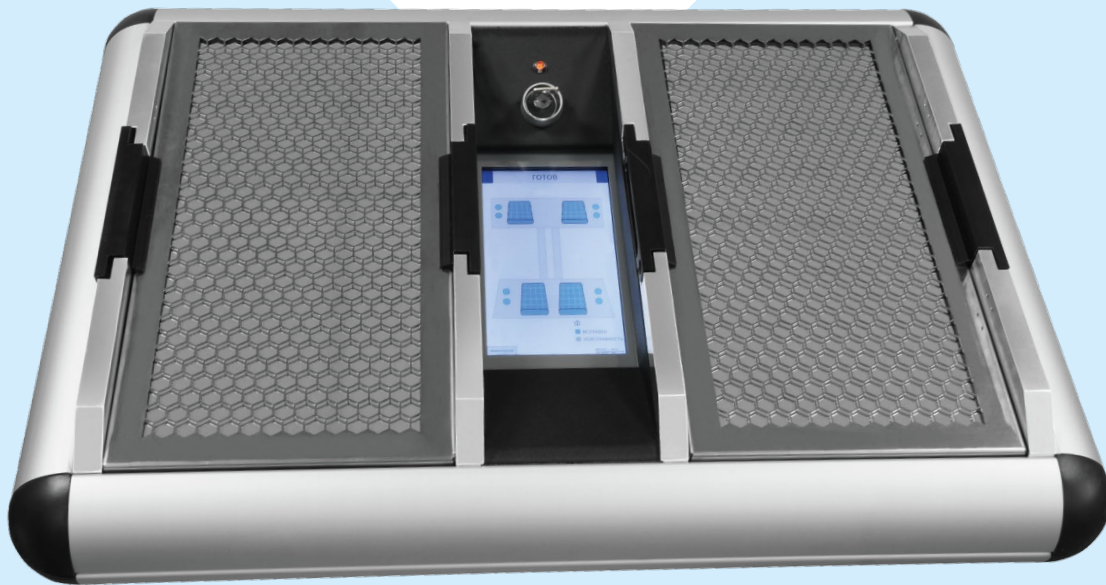
- 10 s.

Overall dimensions (DxWxH), weight

- main version: 810×615×1440 mm, 60 kg;
- version 01 (without rack/ wall-mount bracket): 435×615×145 mm, 25 kg;
- Detector unit BDZA-07D: 70×170×180 mm, 1.2 kg.

STANDARDS

- IEC 61098;
- STO 1.1.1.02.004.1078-2015.



Stationary detector units BDZA-09D



Detachable detector unit BDZA-07D

RZBA-07D

Hand-foot contamination monitor



A high-sensitivity surface contamination Monitor having a large colour touch screen and intuitive interface. Its maximum operational simplicity allows the use by personnel of any qualification.

APPLICATION

Measurement of:

- alpha and beta radiation flux density
- surface activity of radionuclides $^{90}\text{Sr}+^{90}\text{Y}$ and radionuclide ^{239}Pu
- ambient dose equivalent rate (ADER) of gamma radiation

Control of a contamination level of personnel's hands and feet (shoes) and personnel's protective clothing by beta-, gamma- and alpha-active materials and alarm when exceeding the permissible levels of personnel contamination at nuclear power plants, nuclear fuel cycle enterprises (NFC), in radiological laboratories, at other enterprises and organizations using radioactive materials.

FEATURES

- possibility of version with detachable detector units of beta radiation (BDZB-19D) or alpha radiation (BDZA-07D);
- capability of contamination monitoring of hands on both sides simultaneously;
- possibility to set sensitivity coefficients to beta, gamma and alpha radiation of the corresponding detector units;
- smooth setting of alarm thresholds in the entire measurement range;
- determination of hands/ feet position in the detected area, voice and visual guidance of correct positioning;
- colour and audible alarm of measurement results;
- automatic compensation and correction of external gamma background after each measurement;
- alarm about malfunction and contamination of detector units.

TECHNICAL CHARACTERISTICS

Energy range of registered beta radiation

- max: $0.156 \div 3.54$ MeV;
- middle: $0.49 \div 1.508$ MeV.

Energy range of registered alpha radiation

- $4.0 \div 8.0$ MeV;

Energy range of registered gamma radiation

- $0.075 \div 3.0$ MeV;

Measurement range of beta radiation flux density by detector units:

- BDZB-18D (stationary): $1.0 \div 5.0 \cdot 10^5$ $\text{min}^{-1} \cdot \text{cm}^{-2}$;
- BDZB-19D (detachable): $1.0 \div 1.0 \cdot 10^6$ $\text{min}^{-1} \cdot \text{cm}^{-2}$.

Measurement range of surface activity of radionuclides $^{90}\text{Sr}+^{90}\text{Y}$ by detector units:

- BDZB-18D (stationary): $3.4 \cdot 10^{-2} \div 1.7 \cdot 10^4$ $\text{Bq} \cdot \text{cm}^{-2}$;
- BDZB-19D (detachable): $3.4 \cdot 10^{-2} \div 3.4 \cdot 10^4$ $\text{Bq} \cdot \text{cm}^{-2}$.

Measurement range of BDZA-07D detector unit:

- Alpha radiation flux density $0.1 \div 1.0 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$
- surface activity of radionuclide ^{239}Pu : $1.0 \cdot 10^{-2} \div 3.4 \cdot 10^3 \text{ Bq} \cdot \text{cm}^{-2}$

Measurement range of ambient dose equivalent rate (ADER) of gamma radiation (^{137}Cs) of built-in detector unit:

- $0,1 \cdot 10^{-6} \div 5 \cdot 10^{-3} \text{ Sv/h}$.

Overall dimensions (DxWxH), weight

- Monitor RZBA-07D: 809×614×1444 mm, 85 kg;
- Detector unit BDZB-19D: 168×176×70 mm, 1.4 kg;
- Detector unit BDZA-07D: 168×176×70 mm, 1.4 kg.

Exposure time

- 10 s.

Continuous operation time

- not less 24 hours

Operating conditions

- $0 \div +50 \text{ }^\circ\text{C}$

Power supply

- 220 V, 50 Hz

Power consumption

- not more 150 W.

Mean life time

- not less 30 years



STANDARDS

- IEC 61098;
- STO 1.1.1.02.004.1078-2015.

FEATURES

- possibility of version with detachable detector units of beta radiation (BDZB-09D) or alpha radiation (BDZA-07D);
- capability of contamination monitoring of hands on both sides simultaneously;
- exposure time not more than 10 s;
- smooth setting of alarm thresholds in the entire measurement range;
- determination of hands/feet position in the detected area, voice and visual guidance of correct positioning;
- colour and audible alarm of measurement results;
- automatic compensation and correction of external gamma background after each measurement;
- alarm about malfunction and contamination of detector units.



UKZO

Portable objects contamination monitor



APPLICATION

A portable Monitor to detect radioactive contamination of monitored objects: parcels, hand luggage, etc.

FEATURES

- high-sensitivity detector unit with a highly responsive area to detect the presence of beta and gamma contamination;
- additional detachable unit for alpha contamination detection;
- a Monitor with PC connection and special software for laboratory application allows you to determine the segment of the detector unit where contamination is detected;
- light weight, small number of component modules, carrying handles allow you to use Monitor as a mobile device.

TECHNICAL CHARACTERISTICS

Area of sensitive zone of the detector assembly of beta and gamma radiation

- 2,380 cm².

Area of the detector unit of alpha radiation

- 144 cm².

Weight of object to be monitored that is mounted on the detector unit

- not more 20 kg.

Warm-up time

- not more 10 min.

Overall dimensions (DxWxH), not more

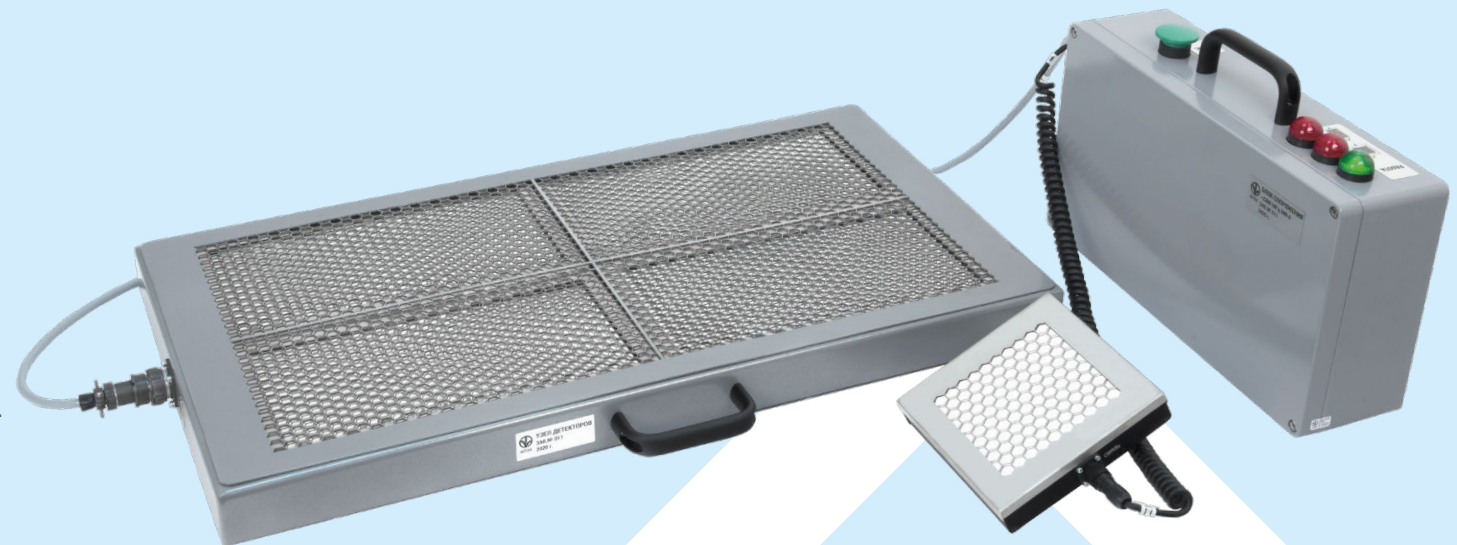
- Interface unit: 420×290×120 mm;
- Detector assembly: 810×470×70 mm;
- Detachable detector unit: 170×180×75 mm.

Weight, not more

- Interface unit: 10 kg;
- Detector assembly: 20 kg;
- Detachable detector unit: 1.5 kg.

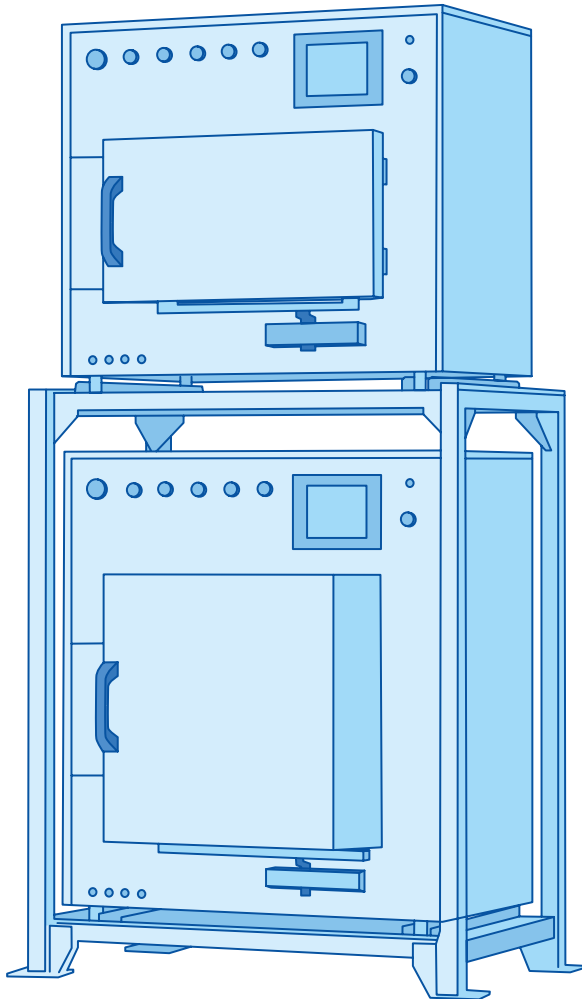
STANDARDS

- IEC 60325.



RZBA-25D

Object/tool contamination monitor



APPLICATION

Assessment of contamination of small-size items (tools, measuring instruments) when removing from the controlled areas.

FEATURES

- highly sensitive scintillation detector units of large area;
- several versions to assess beta and gamma contamination of items of different sizes.

VERSION

- for small-size items;
- for mid-size items.

TECHNICAL CHARACTERISTICS

Energy range

- beta radiation: 0.1 ÷ 2.2 MeV;
- gamma radiation: 0.05 ÷ 3.0 MeV.

Registration range of flux density

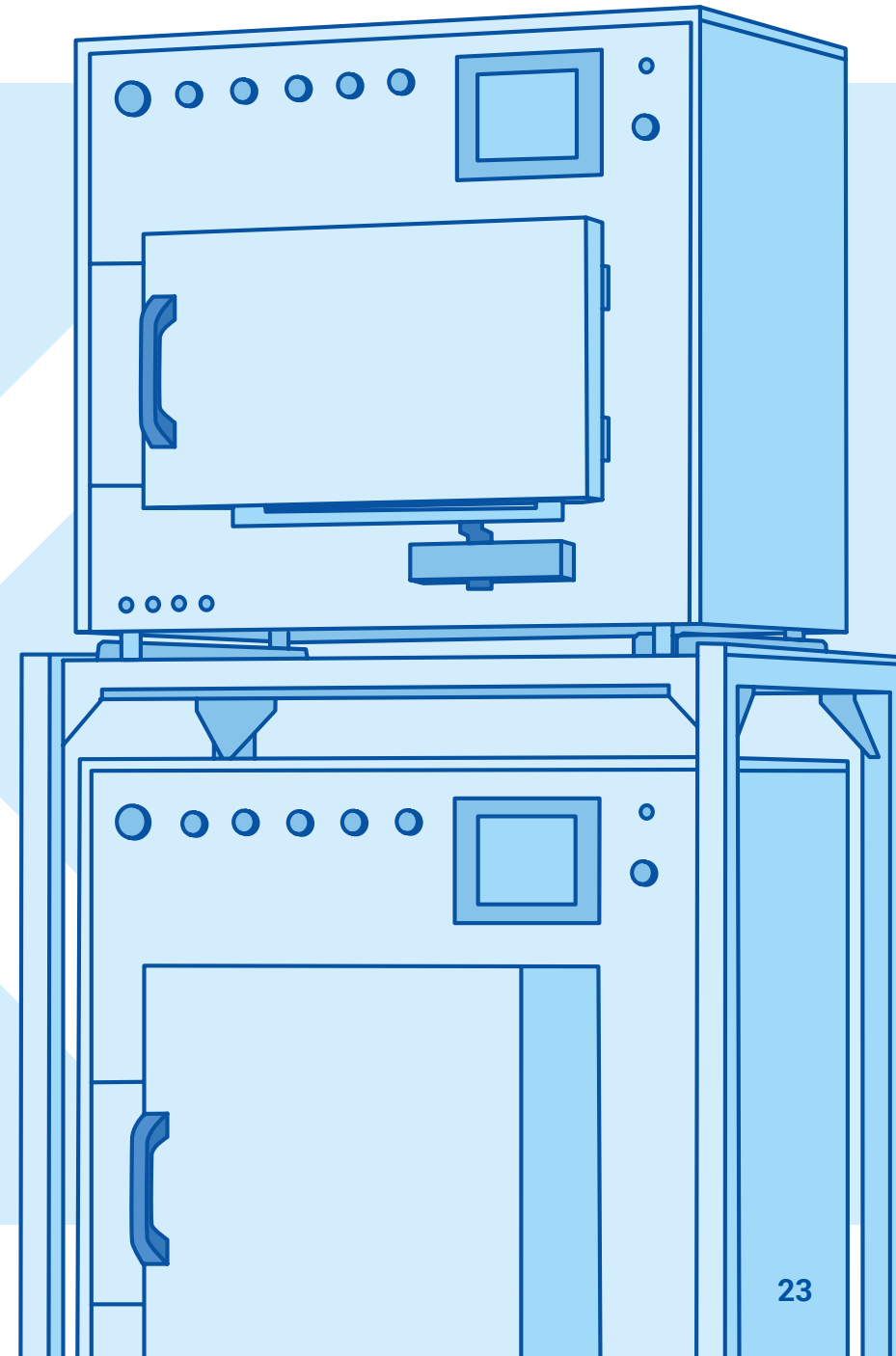
- beta radiation: 1 ÷ $4.5 \cdot 10^4$ particle/(min⁻¹·cm²).

Dimensions of Monitor's measuring chamber

- mid-size version: not less 400×400×400 mm;
- small-size version: not less 400×200×400 mm.

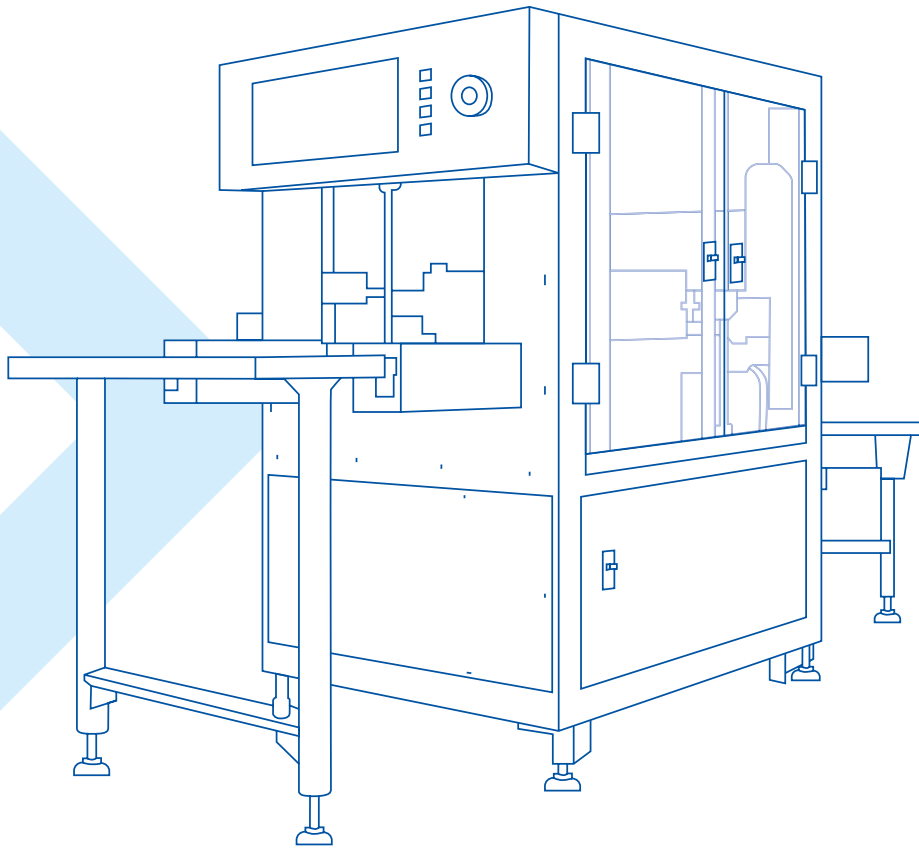
Weight of monitored items

- mid-size version: not more 20 kg;
- small-size version: not more 10 kg.



RZBA-20D

Laundry and small-items
contamination monitor



APPLICATION

- monitoring alpha-, beta-, and gamma-radionuclide contamination of protective clothing;
- sorting of protective clothes depending on beta- and alpha-nuclide contamination degree;
- detection of gamma radiation when monitoring in specialized laundries in accordance with the requirements of sanitary and epidemiological regulations.

FEATURES

- highly responsive scintillation detector units of large area;
- control method is simultaneous on two sides.

TECHNICAL CHARACTERISTICS

Measurement range of beta radiation flux density

- $1.0 \div 5 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Energy range of registered beta radiation

- $0.075 \div 3.54 \text{ MeV}$.

Measurement range of alpha radiation flux density

- $0.1 \div 2.0 \cdot 10^4 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Energy range of registered alpha radiation

- $4.0 \div 8.0 \text{ MeV}$.

Sensitivity of detector units to beta radiation $^{90}\text{Sr}+^{90}\text{Y}$, not less

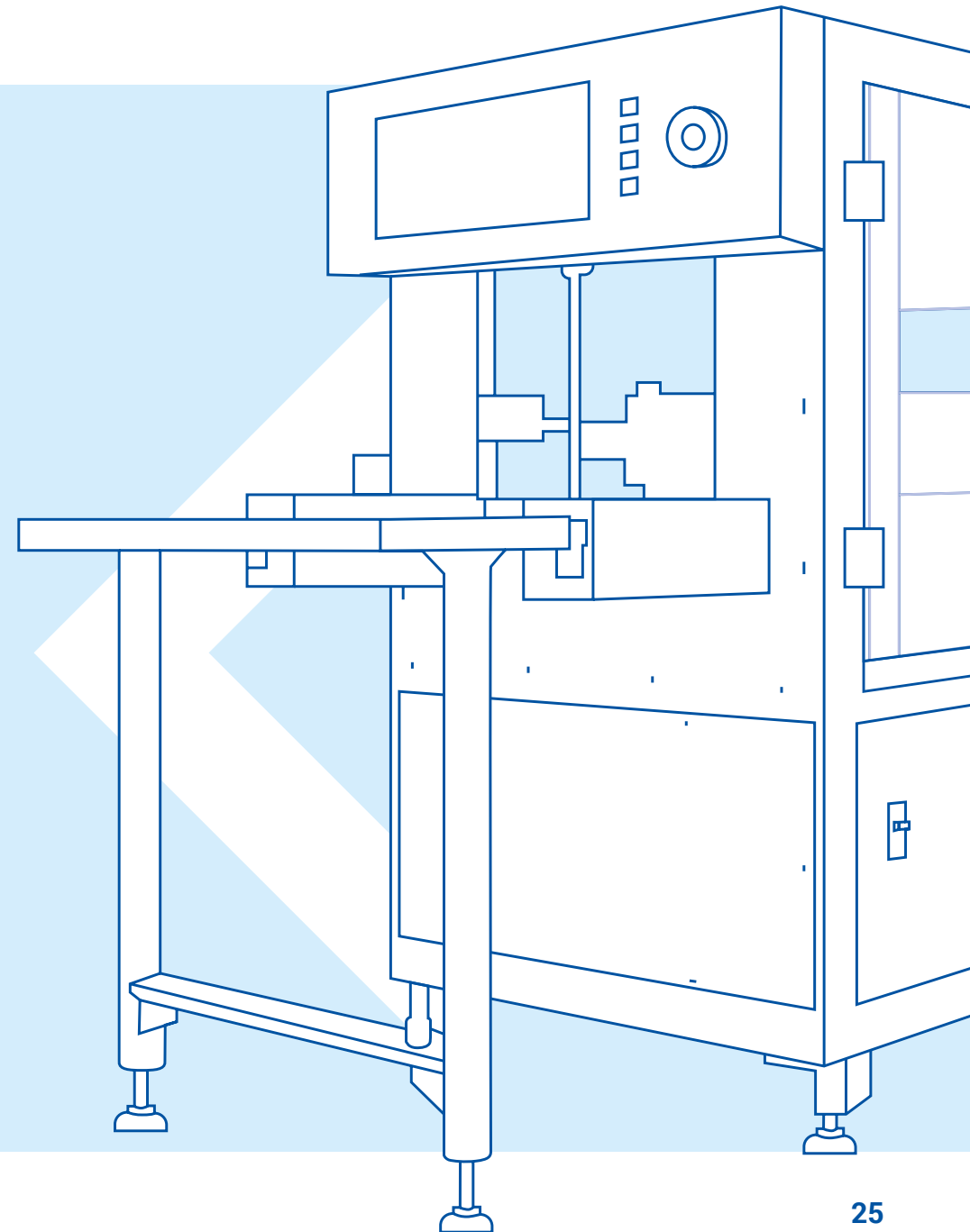
- $4.5 \text{ cps}/(\text{min}^{-1} \cdot \text{cm}^{-2})$.

Sensitivity of detector units to alpha radiation ^{239}Pu , not less

- $0.7 \text{ cps}/(\text{min}^{-1} \cdot \text{cm}^{-2})$.

Energy range of registered gamma radiation

- $0.05 \div 3.0 \text{ MeV}$.



MKS-17D

Dosimeter-radiometer



A universal Dosimeter-radiometer with possibility of wireless operation of the control unit with the external probes and computer. External alpha probe BDZA-R5D and external beta and gamma probe BDZB-R5D allow you to use MKS-17D as a contamination monitor.

APPLICATION

- measurement of alpha and beta radiation flux density and fluence;
- measurement of alpha and beta surface activity;
- measurement of ambient dose equivalent rate (ADER) and ambient dose equivalent (ADE) for photon radiation;
- measurement of ambient dose equivalent rate (ADER) for neutron radiation;
- operational search for ionizing radiation sources and radioactive materials.

FEATURES

- high-sensitivity scintillation detector units of large area;
- simultaneous indication of beta radiation flux density and ADER of gamma radiation with the use of BDZB-R5D;
- radio channel or wired interface for communication of the external probe with the control unit;
- communication with PC via radio channel;
- bright, high-contrast display with graphical interface;
- headphone connection;
- calibration interval 2 years.

TECHNICAL CHARACTERISTICS

BDZA-R5D external alpha probe

Energy range of registered alpha radiation

- $4.0 \div 8.0$ MeV.

Measurement range of alpha radiation flux density

- $0.1 \div 1.0 \cdot 10^5$ $\text{min}^{-1} \cdot \text{cm}^{-2}$.

Measurement range of alpha fluence (at flux density within the measurement range)

- $0.5 \div 3.0 \cdot 10^5$ cm^{-2} .

Measurement range of surface activity of radionuclide ^{239}Pu

- $3.4 \cdot 10^{-3} \div 3.4 \cdot 10^3$ Bq/cm^2 .

Sensitivity to alpha radiation of radionuclide ^{239}Pu , not less

- 1.2 cps/ $(\text{min}^{-1} \cdot \text{cm}^{-2})$.

BDZB-R5D external beta and gamma probe

Average energy range of registered beta radiation

- $0.049 \div 1.508$ MeV.

Maximum energy range of registered beta radiation

- $0.156 \div 3.54$ MeV.

Energy range of registered photon radiation

- $0.05 \div 3.0$ MeV.

Measurement range of beta radiation flux density

- $1 \div 1.0 \cdot 10^6$ $\text{min}^{-1} \cdot \text{cm}^{-2}$.

Measurement range of beta radiation fluence (at flux density within the measurement range)

- $0.5 \div 3.0 \cdot 10^6$ cm^{-2} .

Measuring range of surface activity $^{90}\text{Sr}+^{90}\text{Y}$

- $3.4 \cdot 10^{-2} \div 4.0 \cdot 10^4$ Bq/cm^2 .

Sensitivity to beta radiation of radionuclide $^{90}\text{Sr}+^{90}\text{Y}$, not less

- 2.0 cps/ $(\text{min}^{-1} \cdot \text{cm}^{-2})$.



MKS-17D detector units for photon and neutron radiation

BDKG-R20D external gamma probe

Energy range of detected photon radiation

- 0.05 ÷ 3.0 MeV

Measurement range of ambient dose equivalent rate (ADER) for photon radiation H* (10)

- 0.1 $\mu\text{Sv/h}$ ÷ 10.0 Sv/h

Measurement range of ambient dose equivalent (AED) for photon radiation H* (10)

- 0.1 μSv ÷ 10.0 Sv

Limits of permissible basic relative measurement error of ADER and AED of photon radiation

- $\pm 13\%$

Sensitivity to gamma radiation with 0.662 MeV (Cs-137) energy,

- ADER in the range 0.1 $\mu\text{Sv/h}$ ÷ 1 mSv/h:
- 500 cps / ($\mu\text{Sv/h}$)
- ADER in the range 1 mSv/h ÷ 10 Sv/h:
- 4 cps / ($\mu\text{Sv/h}$)



BDKN-R5D external neutron probe

Energy range of detected neutron radiation

- 0.025 eV ÷ 10 MeV

Measurement range of ambient dose equivalent rate (ADER) of neutron radiation

- 0.1 $\mu\text{Sv/h}$ ÷ 0.1 Sv/h

Sensitivity anisotropy of radiation of source Pu-Be

- $\pm 35\%$

Limits of permissible basic relative measurement error of ADER of neutron radiation

- $\pm 25\%$



GENERAL CHARACTERISTICS

Warm-up time, not more

- 10 s.

Continuous operation time from fully charged batteries under normal conditions, not less

- 18 h.

Non-volatile memory capacity

- 715 measurements.

Overall dimensions (DxWxH), weight, not more

- Control unit UPI-01D: 132×28×89 mm, 0.24 kg;
- External probe BDZA-R5D: 180×180×176 mm, 1.55 kg;
- External probe BDZB-R5D: 180×180×176 mm, 1.79 kg.
- External probe BDKN-R5D in a neutron moderator with MBS-03: 430×340×250 mm, 9.00 kg.



STANDARDS

- IEC 60325

VERSION

To work as a contamination monitoring device, MKS-17D is completed with the external probes:

- BDZB-R5D – measurement of flux density, fluence and surface activity of beta radiation;
- BDZA-R5D – measurement of flux density, fluence and surface activity of alpha radiation.
- Optional: a pole to monitor alpha and beta contamination of flat surfaces (floors, walls).



UIM-MD

Universal monitor



A stationary System for monitoring various environmental radiation parameters depending on a type of connected detector units. It can be used as a contamination monitor of personnel to assess alpha, beta and gamma contamination of surfaces of objects, personnel clothing and small items.

APPLICATION

- measurement:
 - alpha and beta radiation flux densities;
 - surface activity of radionuclides ^{239}Pu and $^{90}\text{Sr}+^{90}\text{Y}$;
- alarm about exceeding the set thresholds.

FEATURES

- smart detector units;
- TFT colour display to represent measurement results and the detector units' statuses;
- light and audible alarms about exceeding the set threshold values for each detector unit;
- setting two alarm thresholds (warning and alarm) for each detector unit;
- possibility of the detector unit's installation at distance up to 500 m from the Display unit;
- possibility of connection of external alarm units or actuators (relay connector);
- desktop or wall mounting the Display unit UIM-3D with the use of attachment fitting;
- any brackets complied with standard VESA 100×100 can be used to mount the Detector units BDZA-09D, BDZB-18D;
- monitoring of alpha, beta and gamma contamination of feet (shoes).

CONFIGURATION OF THE CONTAMINATION MONITORING SYSTEM

- Display unit UIM-3D;
- Detector unit BDZA-07D: 146.4 cm²;
- Detector unit BDZA-09D: 465 cm²;
- Detector unit BDZB-18D: 465 cm²;
- Detector unit BDZB-19D: 146.4 cm².



TECHNICAL CHARACTERISTICS

Alpha radiation flux density

- $0.1 \div 1 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Measuring range of surface activity of radionuclide ^{239}Pu

- $0.1 \cdot 10^{-2} \div 3.4 \cdot 10^3 \text{ Bq/cm}^2$.

Beta radiation flux density

- BDZB-18D: $1.0 \div 5 \cdot 10^5 \text{ min}^{-1} \cdot \text{cm}^{-2}$;
- BDZB-19D: $1.0 \div 1 \cdot 10^6 \text{ min}^{-1} \cdot \text{cm}^{-2}$.

Measuring range of surface activity of radionuclide $^{90}\text{Sr}+^{90}\text{Y}$

- BDZB-18D: $3.4 \cdot 10^{-2} \div 1.7 \cdot 10^4 \text{ Bq/cm}^2$;
- BDZB-19D: $3.4 \cdot 10^{-2} \div 3.4 \cdot 10^4 \text{ Bq/cm}^2$.

Number of simultaneously connected Detector units

- 2.

Warm-up time, not more

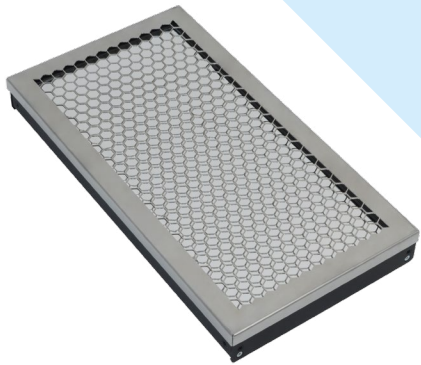
- 10 min.

Alarm type

- light, audible, colour.

STANDARDS

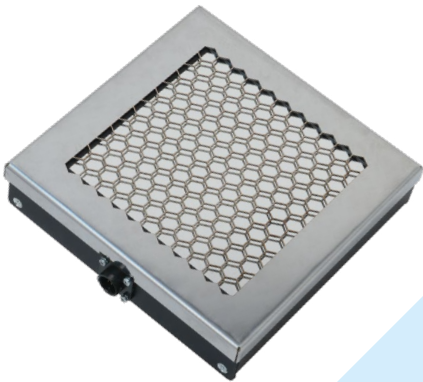
- IEC 61098.



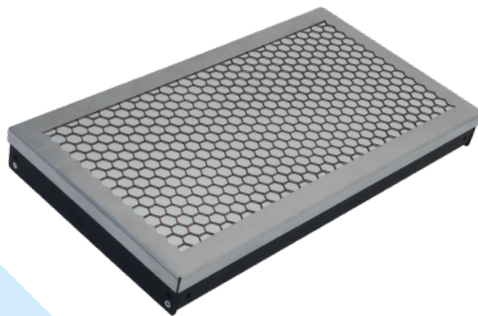
Detector unit BDZA-09D



Detector unit BDZA-07D



Detector unit BDZB-19D



Detector unit BDZB-18D



CONTENTS

RADIOACTIVE CONTAMINATION MONITORS	1
RZBA-09D Whole Body Contamination Monitor	4
RZBA-08D Hand-foot contamination monitor	8
RZA-08D Hand-foot contamination monitor	12
RZBA-07D Hand-foot contamination monitor	16
UKZO Portable objects contamination monitor	20
RZBA-25D Object/tool contamination monitor	22
RZBA-20D Laundry and small-items contamination monitor	24
MKS-17D Dosimeter-radiometer	26
UIM-MD Universal monitor	32



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