

Purpose

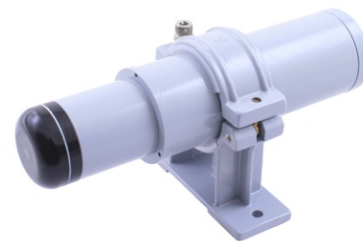
The radiation detectors are aimed to measure of ambient dose equivalent rate of gamma-radiation. It is used as a part of dosimeter-radiometer MKS-2020 or in an automated radiation monitoring system for operative and periodical control of radiation situation at nuclear stations, plants of nuclear industry, nuclear fuel cycle enterprises, and also at the companies which use the sources of ionization radiation.

Features:

- single-block, functional and constructive complete device;
- operative mode – continuous or turning the power on and off without limits;
- efficiency control of all main parts in real time and data exchange about the measured values, cases of exceeding of setting threshold levels, condition and settings at the request of external workstations via line RS-485 using communication protocols Modbus RTU or DiBUS;
- there is a possibility to set a sensitivity coefficients, dead time and thresholds (preliminary and alarm) in radiation detector by user;
- to provide a light-sound alarm at the installation place by means of a warning device BUS-04 (if there is in the order);
- the average service life of radiation detector no less 10 years in case of the parts that have developed their resource are replaced.



BDBG-310



BDKS-310



BDVG-310

SPECIFICATIONS

Measurement range of ambient dose equivalent rate of gamma-radiation

BDBG-310	0,04 $\mu\text{Sv}\cdot\text{h}^{-1}$ – 30,0 $\text{Sv}\cdot\text{h}^{-1}$
BDKS-310	0,01 $\mu\text{Sv}\cdot\text{h}^{-1}$ – 30,0 $\text{Sv}\cdot\text{h}^{-1}$
BDVG-310	0,01 $\mu\text{Sv}\cdot\text{h}^{-1}$ – 100,0 $\mu\text{Sv}\cdot\text{h}^{-1}$

Energy range

BDBG-310	from 50 keV to 3 MeV
BDKS-310	from 15 keV to 10 MeV
BDVG-310	from 50 keV to 3 MeV

Sensitivity, not less

BDBG-310:	
▪ sensitive subrange	4,0 $\text{s}^{-1}\cdot\mu\text{Sv}^{-1}\cdot\text{h}$
▪ rough subrange	4,0 $\text{s}^{-1}\cdot\text{mSv}^{-1}\cdot\text{h}$
BDKS-310:	
▪ sensitive subrange	4,0 $\text{s}^{-1}\cdot\mu\text{Sv}^{-1}\cdot\text{h}$
▪ rough subrange	2,0 $\text{s}^{-1}\cdot\text{mSv}^{-1}\cdot\text{h}$
BDVG-310	2500 $\text{s}^{-1}\cdot\mu\text{Sv}^{-1}\cdot\text{h}$

Limits of tolerable intrinsic relative error, %

BDBG-310	
BDKS-310	$\pm (15 + 2/\text{Ax}) \%$
BDVG-310	

Energy dependence, %

BDBG-310	
BDKS-310	$\pm 25 \%$ (calibration by ^{137}Cs)
BDVG-310	

Anisotropy of radiation detector, no more

BDBG-310	
BDKS-310	$\pm 20 \%$
BDVG-310	

Type of detector

BDBG-310	a Geiger–Muller counter
BDKS-310	tissue equivalent scintillation detector ($\varnothing 30 \times 15 \text{ mm}$)
BDVG-310	scintillation detector NaI(Tl) ($\varnothing 63 \times 63 \text{ mm}$)

Time of setting the operating mode	no more 10 minutes
Time of continuous work	24 h
Uncertainty of measurements during continuous operation of radiation detectors, no more	no more 5 %
Communication interface	RS-485
Ambient temperature range	
BDBG-310	from minus 40 to +60 °C
BDKS-310, BDVG-310	from minus 20 to +40 °C
Relative humidity (at 30°C)	up to 98 %
Atmospheric pressure	from 86 to 108 kPa
Protection class, not worse	IP67
Power supply of radiation detectors is carried out from a direct current power supply	from 8 to 42 V
Dimensions and weight of radiation detectors, no more	
BDBG-310	Ø 51x280 mm, 0,7 kg
BDKS-310	Ø 61x260 mm, 1,2 kg
BDVG-310	Ø 88x315 mm, 2,3 kg

Delivery set: a radiation detector BDBG-310/BDKS-310, a warning device BUS-04*, a junction box KK-2*, an operation manual.
 * - if there is in the order.