



# BDBG-09S for Gamma Radiation Detection

## Detecting Unit of Gamma Radiation

- High sensitive scintillator **CsI (TI)** with silicon photomultiplier
- Availability of amplitude spectrum (1024 channels)
- No microphonic effect
- Meets the requirements of IEC 61000-4-2:2008, IEC 61000-4-3:2007, IEC 61000-4-4:2008 standards
- Ingress protection rating IP67
- An option of a waterproof housing IP68

## Description

Designed to measure dose equivalent rate of gamma radiation. Used for mobile laboratories, as a part of data panels and automated radiation monitoring systems.

It is produced using a high sensitive scintillator CsI (TI) with silicon photomultiplier and a Geiger-Muller counter. If the customer chooses so, BDBG-09S can be made of duralumin or stainless steel. A special version of BDBG-09SV detecting unit with a waterproof housing IP68 has been developed for use in waters basins or artificial reservoirs.

BDBG-09S detecting unit can be used as a part of systems instead of BDBG-09 detecting unit for measurement of dose equivalent rate of gamma radiation and temperature without software change.

## Purpose of Use

- Measurement of ambient dose equivalent rate (DER) of gamma radiation

## **Branches of Use**



## **Radiological laboratories**



## **Radioactive waste storage sites**



## **Medicine**



[Sanitary dosimetry and ecology](#)



[Mining industry](#)



[Metallurgy and scrap metal storage](#)



## Nuclear power industry

### Features

- High sensitive scintillator CsI (TI) with silicon photomultiplier and Geiger-Muller counter have been used.
- Data exchange between the detecting unit and the data display system through RS-485 interface.
- Availability of amplitude spectrum (1024 channels).
- Constant self-testing.
- Availability of the statistical accuracy of measurement.
- Ingress protection rating IP67.
- Average service life of the detecting unit – not less than 10 years.

### Detector types

- Scintillation CsI (TI) detector with a photomultiplier for measurements in the range within 0.01  $\mu\text{Sv/h}$  to 50  $\mu\text{Sv/h}$  (spectrum-dose function)
- Energy-compensated Geiger-Muller counter for measurements in the range within 50  $\mu\text{Sv/h}$  to 1.0 Sv/h

## Specifications

Measurement range of gamma radiation DER and main relative error	0.01 $\mu\text{Sv/h}$ ... 1 Sv/h	
	$\pm(15+1/H^*(10))\%$ , where $H^*(10)$ is a numeric value of measured DER equivalent to $\mu\text{Sv/h}$	
Gamma radiation sensitivity ( $^{137}\text{Cs}$ ), not less than	cps/ $(\mu\text{Sv/h})$	$\geq 200$
Energy range of registered gamma and X-ray radiation and energy dependence	MeV	0.05 ... 3.0; (0.05 ... 1.25; $\pm 25\%$ )
Integration time	seconds	5 ... 40
Setup time of operating mode of the detecting unit, not more than	min	1
Operating supply voltage range of the detecting unit from external stabilized power supply	V	7 ... 32
Current consumption of the detecting unit for overall range of gamma radiation DER to be measured	mA	30
Operating temperature range	$^{\circ}\text{C}$	-30 ... +50
Relative humidity		up to 100 % given +40 $^{\circ}\text{C}$ and lower temperatures with humidity condensation
Weight	kg	0.6
Dimensions	mm	170 $\times$ 60 $\times$ 60

## Delivery Kit

- BDBG-09S detecting unit of gamma radiation
- corbel for vertical mounting of the unit
- mounting parts kit
- technical description and operating manual (one copy per one consignment of the detecting units)
- logbook
- packing box

Technological kit used for testing of the detecting units (one kit per one consignment of the detecting units) on demand.