



## PRD GUARDER

### Personal radiation dosimeter DKG-24

- Determining the direction toward the source of gamma radiation
- Data transfer to a remote server via smartphone
- Adaptive configuration (optional detectors of different sensitivity based on scintillator-silicon photomultiplier, GPS/GNSS, Bluetooth 5 LE)
- Durable body protection IP67
- Complies with ANSI 42.32, ANSI 42.33

## Description

PRD GUARDER belongs to spectrometric devices and is used to detect and localize radioactive and nuclear materials by their gamma radiation in order to prevent their illegal transfer. This device is also used at enterprises and institutions where personnel work with sources of gamma radiation.

## Purpose of Use

- Measurement of ambient dose equivalent rate (DER) of gamma and x-ray radiation (photon-ionizing radiation)
- Measurement of ambient dose equivalent (DE) of gamma and x-ray radiation
- Determining gamma radiation intensity
- Storing results in non-volatile memory

## Branches of Use



Radioactive waste storage sites



Sanitary dosimetry and ecology



Vehicles monitoring, seaports and airports



Law enforcement agencies



Emergency Services and Civil Defense



## Customs and Border Services

### Features

- Highly sensitive, compact and lightweight device
- Graphic monochrome display with backlight
- Light, sound, vibration alarm
- Easy to operate with only 3 buttons (designed for use in protective gloves)
- Powered by 2 galvanic cells / AA batteries or via USB cable
- Built-in GPS / GNSS receiver:
  - automatic data logging by time or distance
  - automatic time synchronization
- Built-in Bluetooth 5 LE – smartphone connection based on Android OS
- PC connection via USB
- Determining the direction toward the source of gamma radiation
- Capability for remote software update
- Wide range of available built-in detectors based on scintillator-silicon photomultiplier

## Specifications

<ul style="list-style-type: none"> <li>• General range of indication and DER measurements of gamma radiation:</li> <li>• – indication</li> <li>• – measurement by a high-sensitivity detector</li> <li>• – measurement by a low-sensitivity detector</li> </ul>	<ul style="list-style-type: none"> <li>• 0.01 ... 10<sup>7</sup> μSv/h</li> <li>• 0.1 ... 50 μSv/h</li> <li>• 50 ... 10<sup>7</sup> μSv/h</li> </ul>
General range of indication and DE measurements of gamma radiation from a low-sensitivity detector	0.1 ... 9.9·10 <sup>6</sup> μSv
Indication range of count rate of gamma radiation	1 ... 5 000 000 imp/s
Main relative permissible error limit when measuring gamma radiation DER with a confidence probability of 0.95 ( <sup>137</sup> Cs)	15 %
Main relative permissible error limit when measuring gamma radiation DE with a confidence probability of 0.95 ( <sup>137</sup> Cs)	15 %
Energy range of registered gamma radiation	0.02 ... 10 MeV
Energy dependence of the device's readings when measuring gamma radiation DER in the energy range from 0.05 MeV to 1.25 MeV	± 25 %
Set-up time of the device operation when background radiation is not less than 0.1 μSv/h, not more	1 min
Calibration time by the level of gamma background	10 ... 90 s
Response time to over 10 times change of gamma radiation DER	0.25 s
<ul style="list-style-type: none"> <li>• Operating supply voltage of the device from two:</li> <li>• – lithium type FR6 or alkaline type E91 batteries (AA)</li> <li>• – nickel-metal hydride type HR6 batteries (AA)</li> <li>• – from the USB port</li> </ul>	<ul style="list-style-type: none"> <li>• 3 V</li> <li>• 2.4 V</li> <li>• 5 V</li> </ul>
Continuous operation of the device when powered under background of gamma radiation not more than 0.5 μSv/h: · switched-off display backlight, with no alarm triggering and switched-off navigation receiver and Bluetooth, not less than	

– for two new FR6 lithium batteries or two new alkaline E91 batteries	400 h
– for two new fully charged HR6 nickel-metal hydride batteries with a capacity of 2 700 mAh	300 h
· switched-off display backlight, with no alarm triggering and switched-on navigation receiver and Bluetooth, not less than	
– for two new FR6 lithium batteries or two new alkaline E91 batteries	55 h
– for two new fully charged HR6 nickel-metal hydride batteries with a capacity of 2 700 mAh	40 h
Operating temperature range	– 20 ... + 50 °C
Dimensions without case cover, not more	60 × 110 × 30 mm
Weight without case cover, not more	0.25 kg

### Delivery Kit

- personal radiation dosimeter
- device case cover
- USB cable
- PC software
- key for battery compartment
- two AA batteries
- operating manual
- package

**Note.** Device is supplied with two alkaline batteries.  
Nickel-metal hydride batteries and charging device are available upon customer's request.