



IN DEVELOPMENT



DOSIMETER DRG-07A TOPAZ

SEARCH FOR GAMMA RADIATION SOURCES, MEASUREMENT OF THE DOSE RATE OF $H^*(10)$ AND GAMMA RADIATION EXPOSURE DOSE

INTENDED USE

- Monitoring of radiation situation, search and localization of gamma radiation sources, radiation mapping of the area
- Monitoring of fissile and radioactive materials trafficking, radiation monitoring of areas as part of anti-terrorist activities, etc.

OPERATION PRINCIPLE

The dosimeter uses a tissue- equivalent plastic scintillation detector to convert ionizing radiation quanta into pulse amplitude which is further analyzed with a multi-channel amplitude analyzer.

DESIGN

The dosimeter is designed as a portable cylindrically shaped device containing a scintillation gamma detector, electronics units, and devices for wired and wireless communication.

The dosimeter has several options for mounting the base unit:

- on the handle (with the smartphone holder);
- on the telescopic rod;
- on the wall (with the possibility of power supply from an external source).

The telescopic rod is designed for making measurements in places that are difficult to reach and remote from the operator.

The smartphone is used to continuously display the measured dose and count rate of the pulses received from the gamma detector. Specialized software allows the user to transfer files between the gamma detector and the smartphone, as well as transfer, process, store and view measurement data.

The device comes with a carrying bag that holds the device with accessories for field operation.





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SPECIFICATIONS

Polystyrene scintillator	50×50 mm
Range of ADER measurement	30×10 ⁻⁹ to 1 Sv/h
Range of ED measurement	1×10 ⁻⁷ to 10 Sv/h
Energy range of the registered photon radiation	0.025 to 6 MeV
Sensitivity of the BDS-GC 50×50 mm to ¹³⁷ Cs photon radiation	600 cps per 1 μSv/h
Time of the response to the EDR change (at EDR ≥ 1 μSv/h), max	2 seconds
Limits of the permissible basic relative error of the EDR measurement, 0.02 to 100 μSv/h	±15 %
100 μSv/h to 10 mSv/h	±20 %
10 mSv/h to 1 Sv/h	±30 %
Limits of the permissible basic relative error of the ED measurement	15 %
Run time on the built-in batteries	16 hours
Ingress protection	IP67 (or IP54)
Environmental	-20 to +50 °C, 98 % at +35 °C
Service life	8 years
Mean time between failures, min	10,000 hours
Dimensions and weight, BDS-GC 50×50 scintillation gamma detector	(650×168×130) mm; 1.5 kg

FEATURES

- Portable device with a wide range of recorded energies and exposure dose rate
- Quick availability
- Audible and visual alarm
- Database of alarm events
- Data transmission using a Bluetooth wireless data network up to 30 m or serial protocol (MODBUS)
- Shock-resistant housing

