

PERSONAL RADIATION DETECTOR

PM1703GNA-II MBT



A new generation gamma-neutron PRD with improved search algorithm and NORM suppress function

The instrument is used for detection and localization of gamma-neutron radioactive sources and measurement of personal dose equivalent rate (DER) and personal dose equivalent (DE).

A wide measurement range of gamma radiation DER and DE is provided by built-in GM counter.

The implemented suppress NORM algorithm allows to define the category of detected radiation material providing the light alarm which differentiates the danger level: **green** – Natural Occurring Materials (NORM), **red** – other radionuclides types (IND, NUC, MED).

In the search mode the instrument displays the current value of gamma and neutron radiation in counts per second.

The instrument measures the current dose rate in $\mu\text{Sv/h}$ or $\mu\text{rem/h}$ with indication on LCD in $\mu\text{R/h}$ in the measurement mode, and in numerical range from 0 to 9 in additional measurement mode "Mode 0...9".

Device can exchange data with mobile devices in real time via Bluetooth 4.0. Free mobile app **POLISMART** is available at Google Play.

The audio, visual and vibration alarms alert the user about gamma radiation thresholds excess. The events history is stored in the instrument non-volatile memory. The stored data can be transferred from the detector to a PC via USB or Bluetooth.

The instrument is user-friendly, highly sensitive, waterproof and shockproof. No special training to operate with the instrument is required.



ALARM

LOCATION

MEASUREMENT

Functions

- Search for radioactive and nuclear materials
- Audio, visual and vibration alarms
- Measurement of gamma radiation personal DER
- Measurement of gamma radiation personal DE

Applications

- Emergency service
- Customs and border patrol
- Civil defense and police

Features

- Highly sensitive CsI(Tl) scintillation gamma detector
- GM counter for extended DER and DE measurement range
- Highly sensitive $^6\text{LiF/ZnS}$ -film based neutron detector
- Compliance with ITRAP/IAEA, ANSI N42.32, ANSI N42.42 and IEC 62401, IEC 60846
- PC communication via USB and Bluetooth
- Shockproof hermetic case IP65
- Lightweight less than 240 g
- Long lifetime from one AA battery
- User-friendly, two-buttons operation
- Low operation cost
- High operational availability

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SPECIFICATIONS

Detector gamma gamma neutron	CsI(Tl) SiPM GM counter 6LiF/ZnS
Gamma sensitivity , at least for ¹³⁷ Cs for ²⁴¹ Am	100 cps per μSv/h (1 cps per μrem/h) 500 cps per μSv/h (5 cps per μrem/h)
Neutron sensitivity , at least for Pu-a-Be for thermal neutrons	0.035 counts x cm²/neutron 1.2 counts x cm²/neutron
Energy range gamma (in search mode) gamma (in measurement mode) neutron	0.033 – 3.0 MeV 0.06 – 1.33 MeV from thermal to 14.0 MeV
Personal Dose Equivalent Rate (DER) range	0.01 μSv/h – 200 mSv/h (1 μrem/h – 20 rem/h)
Accuracy of DER measurement in the range from 0.1 μSv/h to 200 mSv/h, no more	± (20 + (0.0025 mSv/h) / H) %, where H – DER, mSv/h
Indication range in search mode gamma count rate neutron count rate	1.0 – 9999 cps 1.0 – 999 cps
Personal Dose Equivalent (DE) range	0.01 μSv – 10 Sv (1 μrem/h – 1000 rem)
Accuracy of DE measurement in the range from 0.1 μSv to 10 Sv (10 - 1000 rem), no more	± 20 %
Response time	0.25 s
Alarm type	audio, visual, vibration
Data recording	2000 data points
Communication with PC	USB Bluetooth 4.0
Power supply	one AA size alkaline or rechargeable battery
Battery lifetime	no less 800 hours no less 400 hours (in Bluetooth mode)
Environmental protection	IP65
Drop test on concrete floor	0.7 m
Operating conditions • temperature • relative humidity	-40°C to 50°C (-40°F to 122°F) up to 98% at 35°C (95°F)
Dimensions, no more	98x72x32 mm (3 55/64 x 2 53/64 x 1 17/64 in)
Weight, no more	240 g (8.46 oz)

The instrument complies with the requirements of ITRAP/IAEA, ANSI N42.32, ANSI N42.42 and IEC 62401, IEC 60846.

The instrument design and specifications of can be changed without further notice.

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Quality management system
ISO 9001

- Customer focus
- Customer satisfaction
- Continuous improvement
- System/process effectiveness

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