Model RP
Personal Radiation Detector

Features

The Model RP | Personal Radiation Detector is a next-generation all-digital personal radiation detector that combines four functions in one:

- Dose Equivalent Rate Meter
- Accumulated Dose Meter
- Radiation Survey Meter
- Radiation Source Locator

This pocket-sized, direct-reading PRD accurately detects and measures radiation exposure for workers and responders in potentially hazardous environments.

The Model RP | Personal Radiation Detector uses a YSO scintillation detector combined with a state-of-the-art silicon photomultiplier (YSO+SiPM) and multi-voltage threshold (MVT) algorithm to detect a wide range of radiation doses.

Proportional, real-time detection and measurement provide meaningful readouts that focus on real-world applications. The fast response and wide dose rate range maximize the safety of your team. Intuitive navigation allows users to adjust settings in the field.

The unique, high-contrast OLED display provides a clear indication of the wearer's equivalent dose rate, accumulated dose, and count rate. The search interface can also be used as a survey meter to locate the source of radiation.

The Model RP | Personal Radiation Detector is designed to meet the needs of emergency responders and radiation protection personnel across the United States.

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RDS Radiation Detection Systems, LLC
Total Solutions for Radiation

Specifications

Feature	Parameter
Radiological	
Detector	YSO(Ce) scintillator + SiPM
Type of Radiation Detected	Gamma; X-ray
Energy Range	20 keV–3 MeV
Dose Rate Range	1 µrem/h–100 mrem/h (0.01 µSv/h–1 mSv/h)
Integrated Dose Range	1 µrem–10,000 rem (0.01 µSv–100 Sv)
Sensitivity	340 cps/mrem/h (34 cps/µSv/h) (∝ Cs-137)
Energy Response	≤ ±20% (∝ Cs-137)
Dose Rate Linearity	≤ 10% up to 100 mrem/h (1 mSv/h)
Accuracy	±5% (∝ Cs-137)
Alarm Threshold	User-set values for dose rate: 100 µrem/h–100 mrem/h (1 µSv/h–1 mSv/h)
Alert Options	Audible (80 dB at 12 in / 30 cm)
	Visual (LED and display)
	Vibrating
Alarm Response Time	< 2 seconds
Overload Display	Activation when > 100 mrem/h (1 mSv/h)
	Overload indication up to 1,000 rem/h (10 Sv/h)
Electrical and Mechanical	
Communications	MicroUSB and RadSuite-Dose (Mac/PC software)
Ergonomics	Upward facing, tilted screen
Power Supply	Rechargeable lithium-ion battery
Battery Life	Typically 200 hours in background field
Display	Backlit LCD
Dimensions	2.7 x 1.8 x 0.7 in / 69 x 46 x 17 mm
Weight	2.1 oz / 60 g
Initialization Time	< 2 seconds
Environmental	
Operating Temperature	-4 °F to 122 °F / -20 °C to 50 °C
Storage/Transport Temperature	-4 °F to 158 °F / -20 °C to 70 °C
Relative Humidity	≤ 90% RH (non-condensing)
IP Rating	IP65
EMI/EMC	Exceeds IEC 61526 requirements
FCC ID	2AC7P-110

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Digital data acquisition	• All Digital solid-state detection
High-performance detection design	• High-performance YSO crystal • Miniaturized SiPM • High-speed chip enables fast response and the smallest dead time in industry • Patented MVT digital signal processing technology provides excellent performance and stability • Background radiation interference virtually eliminated
Rapid response	• Full-range reading and alarm response in less than 2 seconds • High sensitivity allows for earlier detection • Audible output quickly alerts responders of rapidly changing radiation levels • Real-time, active self-reading
Quality control system	• Auto-calibration • Virtual elimination of false alarms • Ability to discriminate between background and man-made source • Programmable chips enable firmware updates and system upgrades • Ultra-low power consumption • High system stability and reliability • Accurate and reliable data • Precise quantitative analysis

Benefits

- As an active self-reading device, both dose rate and accumulated dose are measured in real time, enabling users to always be aware of current exposure
- Large OLED display offers user readability in dark or bright environments
- Three types of alarms alert users in a multitude of ways: vibrating, audible, and visual
- Alarm is either preset or user programmable through entire measurement range
- Intuitive menu-driven navigation allows user to adjust settings in the field
- Easy one-handed operation with just two buttons, allowing total control with a thumb
- Proportional, real-time detection and measurement provide meaningful readouts that focus on the awareness and safety of the user during critical times
- Patented MVT sampling method resulting in no signal loss and high signal-to-noise ratio
- Low-power CMOS digital electronics combined with digital silicon photomultiplier chip (SiPM)
- Dose and dose rate alarms provide additional awareness of high radiation levels