

Model RW-S100 Area Radiation Monitor

Features

RadWall S100 | Area Radiation Monitor is a next-generation all-digital area radiation monitor that combines three functions in one:

- Alarm and display unit
- Built-in scintillation detector
- Self-healing and self-forming mesh network capable monitor



RadWall S100 | Area Radiation Monitor uses a high-performance YSO scintillation crystal combined with a state-of-the-art SiPM (YSO+SiPM) and multi-voltage threshold (MVT) algorithm to detect a wide range of radiation doses.

RadWall S100 | Area Radiation Monitor has high detection accuracy, high sensitivity, and fast response, as well as other significant advantages.

RadWall S100 | Area Radiation Monitor communicates with a wireless radiation monitoring network for data management. 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. The high-contrast OLED display provides a clear indication of dose rate.

RadWall S100 | Area Radiation Monitor can be used as a standalone area radiation monitor, or multiple units can be combined to form a protected mesh network communicating via ZigBee IEEE standard.

RadWall S100 | Area Radiation Monitor is an alarm and display unit (ADU), providing detection and measurement with an internal scintillation detector.

Forming the backbone of a scalable RadSafe Radiation Monitoring Solution, RadWall S100 | Area Radiation Monitor includes the RadSuite Monitoring Software to accommodate applications of any size or complexity.

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Features & Benefits

1 | Features

Digital Data Acquisition

- All Digital solid-state detection

High Performance Detection Design

- Large size scintillator provides ultra-high detection efficiency and accuracy
- 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
- Higher sensitivity allows for earlier detection
- Audible output quickly alerts responders of rapidly changing radiation levels
- Real-time, active self-reading

Quality Control System

- Virtual elimination of false alarms
 - Ability to discriminate between NORM 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
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2 | Benefits

- As an active self-reading device, dose rate is measured in real time, enabling user to always be aware of current exposure while simultaneously transmitting data to Radiation Monitoring System (RMS)
- Two types of alarms alert users in multiple ways: audible and visual
- Alarm is either preset or user programmable through entire measurement range
- Alarm, alarm thresholds, and configuration are programmable via wireless connection with RadSuite workstation
- Proportional, real-time detection and measurement provide meaningful readouts which 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 silicon photomultiplier chip (SiPM)
- Built-in wireless communication for real-time, remote radiation monitoring, personnel tracking, and automatic reporting
- Ability to generate online surveys and inspection reports
- Dose rate alarms provide additional awareness of high radiation levels
- Wireless communication with the RadSafe intelligent radiation management platform enables a networked RMS
- Radiation monitoring combined with video surveillance allow discovery and resolution of anomalies remotely
- Power redundancy with both electrical supply and UPS backup
- Scalable platform achieves a variety of high and low intensity ranges with various types of Neutron and Gamma radiation probes
- RadWall S100 accurately monitors environmental radiation intensity through wireless communication forming a large area network
- Real-time monitoring of each data control point with a central computer enables layout for mounting positions in public places and intuitive planning for radiation intensity distribution

REAL LIFE USES

- Airports, train stations, and subways
 - Major events security and crowded areas
 - Monitoring health physics, medicine, and other fields that use radioactive sources
 - Radiological diagnosis, treatment equipment, and shielded facilities
 - Dispensing and using of radiopharmaceuticals and disposal sites of radioactive waste
 - Online monitoring of radioactive sources and radiation devices
 - Metal recycling, building materials production, and other risks of radioactive pollution
 - Production, use, storage, and disposal of radioactive sources and radiation devices
 - Immigration office
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Area Radiation Monitor

Specifications

Feature	Parameter
Radiological	
<i>Detector</i>	YSO(Ce) scintillator + SiPM
<i>Type of Radiation Detected</i>	Gamma; X-ray
<i>Energy Range</i>	20 keV–3 MeV
<i>Dose Rate Range</i>	1 μ rad/h–1 mrad/h (0.01 μ Gy/h–10 mGy/h)
<i>Sensitivity</i>	110 cps/mrad/h (11 cps/ μ Gy/h) (\propto Cs-137)
<i>Energy Response</i>	$\leq \pm 30\%$ (\propto Cs-137)
<i>Dose Rate Linearity Error</i>	$\leq 15\%$ up to 100 mrad/h (1 mGy/h)
<i>Accuracy</i>	$\pm 5\%$ (\propto Cs-137)
<i>Alarm Threshold</i>	User-set values for dose rate: 100 μ rad/h–1 mrad/h (1 μ Gy/h–10 mGy/h)
<i>Alert Options</i>	Audible (80 dB at 12 in / 30 cm) Visual (display)
<i>Alarm Response Time</i>	≤ 6 seconds
<i>Overload Display</i>	Activation when > 1 mrad/h (10 mGy/h) Overload indication up to 1,000 rad/h (10 Gy/h)
Electrical and Mechanical	
<i>Communications</i>	Self-forming and self-healing mesh network via ZigBee and RadSuite-Monitor (PC software)
<i>Power Supply</i>	AC 100–240 V, 50–60 Hz (UL certified) Rechargeable lithium-ion battery
<i>Battery Life</i>	Typically 10 hours in background field
<i>Display</i>	OLED
<i>Dimensions</i>	5.9 x 3.5 x 2.4 in / 150 x 90 x 60 mm
<i>Weight</i>	12.0 oz / 340 g
<i>Accessories</i>	AC adapter (UL certified) IoT-Cloud (FCC ID: 2AC7P-113)
<i>Initialization Time</i>	< 10 seconds
Environmental	
<i>Operating Temperature</i>	-4 °F to 122 °F / -20 °C to 50 °C
<i>Storage/Transport Temperature</i>	-4 °F to 158 °F / -20 °C to 70 °C
<i>Humidity</i>	$\leq 90\%$ RH (non-condensing)
<i>IP Rating</i>	IP65
<i>EMI/EMC</i>	Exceeds IEC 61526 requirements
<i>FCC</i>	Complies with Part 15 of FCC regulations