symetrica
Verifying Radioactive Threats

Pedestrian: sRPM

A modular and configurable solution with high certainty threat detection

Key Features

- **Reliable performance:** High certainty isotope detection and identification with low false alarms using Symetrica's Discovery Technology algorithms.
- **Single person or wide lane detection:** single or multi-detector payloads configured for either for restricted are detection or wider areas using Symetrica's patented directional detection.
- **Minimises operator workload:** Simple user interface enables targeted searching in a crowned scene when configured to use Symetrica's patented directional detection and identification.
- **Designed for harsh environments:** Resistant to Salt, sand, water and wind (IP67 and storm force winds rated).
- **Flexible integrations:** Can be deployed standalone or integrated into legacy or new infrastructure using wired or wireless communication.
- **Highly available:** enabled by predictive maintenance, remote, real-time, diagnostics.
- **Simple to maintain:** modular system design enables rapid upgrade and repair time.

These modular crystal (NaI) and ^{3}He-free spectroscopic radiation portal monitors (RPM) use Symetrica's patented Discovery Technology® which have a field-proven high certainty isotope identification along with a reduction in the false and nuisance alarm rate in challenging real-world environments.

High system reliability and low through-life costs are attained through our continuous and automatic end-to-end digital stabilization, calibration and health monitoring system which also removes the necessity for annual calibration and maintenance activities.

The modular system architecture enables a highly flexible solution that can be easily configured to meet your current, new and evolving requirements. Our detectors can be fitted into our own IP54 indoor housings, IP65 outdoor housings or we can fit them into your existing compatible structures.

The type, number and size of detectors is also configurable, with large and small gamma and/or neutron detector options available alongside a definable detection zone of up to 2 x 2m. This design methodology ultimately allows us to provide you with a solution that exactly suits your needs.

Pedestrian: sRPM Specification

Configuration

Detector Modules	NaI crystal or PVT gamma module *Optional:* ^{6}Li:ZnS ^{3}He-free neutron detectors
Functions	Isotope detection and identification, neutron detection (*optional*) with instant and automatic reporting
Detection Zone Configurations	Configurable 0 to 2m
Start-up Time	300 s from initial power on to fully stabilized
Directionality	PVT or NaI system with multiple detectors

Performance*

Identification	NaI 42.38 full isotope identification PVT 42.35 isotope classification
Isotope Library	47 isotopes in a customizable library (NaI) 13 categories (PVT)
False Alarm Rate	< 1:10,000
Energy Range	25 keV to 3 MeV
Dose Rate Range	10 nSv/h to 100 mSv/h (1 µR/h to 10 R/h) ^{137}Cs with automatic scintillator shutdown protection
Recovery Time after Over-range Exposure	< 45 s
Effective Resolution	NaI 2.2% PVT 10% FWHM at 662 keV
Neutron Sensitivity (optional)	^{252}Cf 20,000 n/s @ 1.2 m/s @ 1.5 m (4 ft/s @ 4.9 ft)
Stabilization & Health Monitoring	Automatic and continuous end-to-end digital calibration [±0.5% at 662 keV], stabilization and health monitoring
Maintenance	5-year calibration and service interval
Replay	Replay tool can be provided to confirm performance and enable optimisation

Integration

Power	Single-phase AC supply voltage of 110-240 AC, 47-63 Hz
Data	PDF reports, ANSI N42.42, native rich data format (SML) files
Connectivity	PLC modual and software API *Optional:* Optical fibre, 3/4G, Wi-Fi
User Interface	Integrates with Symetrica Discovery for central commanding control Basic console (human machine interface) Built in web browser interface

Environmental

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Relative Humidity	Up to 93% relative humidity, non-condensing, 40°C (104°F)
Ingress Protection	IP54 as per IEC 60529 *Optional:* IP65 as per IEC 60529

[1] *Discovery Technology outperforms other systems with the same scintillator by increasing the effective resolution during identification. Contact us for more information.*

* *Performance depends on number, type and configuration of detectors.*

Discovery Technology® is a combination of Symetrica's hardware and patented algorithms and is deployed in thousands of systems globally from handheld RIIDs to fixed infrastructure Radiation Portal Monitors (RPM). It is the current technology of choice (through competitive evaluation) of multiple US and international government agencies.
Discovery Technology uses on-board processing for spectral enhancement backed up with Symetrica's extensive analysis of real-world data resulting in:

- High true-positive and low false-positive isotope identification.
- World-beating classification and identification performance of NORMs and non-NORMs.
- Fully functional and accurate operation through temperature shock.
- Switch on and operate in high radiation fields.
- Identification of masked isotopes that cannot normally be resolved when analyzing raw spectra.
- Reliable and scalable ^{3}He-free neutron detection even in high gamma exposed fields.
- Predictive maintenance and no annual calibration required.

Directional (option)

Simply locate the source in real-time

Identify the source and its location

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