



# Discovery Mobile

Modular and deployable mobile radiation detection and identification system with smart connectivity



## Key Features

- ⦿ **High Confidence Detection:** Dynamic background management results in users only being notified for sources of interest.
- ⦿ **Modular System:** Multi-use system which can be mounted within a vehicle or rapidly deployed (inside or outside) in a single or dual-sided configuration for area monitoring or as a pop-up portal for vehicles, pedestrians or baggage.
- ⦿ **Enhanced Situational Awareness:** Supports remote, real-time monitoring and control of deployed and in-the-field systems, instant email reporting of automatically generated reports, real-time events list and dose mapping.
- ⦿ **Low Training Burden:** Simple and intuitive user interface with automatic background optimization. Plug-and-play hardware for easy and fast of deployment.
- ⦿ **Smart Wireless Connectivity:** Remotely operate and instantly email automatically generated reports using 4G or Wi-Fi.
- ⦿ **High Reliability:** A fully modular system with a continuous and automatic end-to-end digital stabilization, calibration and health monitoring system.

Discovery Mobile is a modular and stackable vehicle-mountable or deployable radiation detection and identification system. It uses the patented and field-proven Discovery Technology® and its modular design allows it to be configured for different detector configurations and operational scenarios, such as in-vehicle parked or driving, deployed single-side for area monitoring or double sided as a vehicle, baggage or as a pedestrian portal.

Discovery Mobile provides enhanced situational awareness through its high accuracy bi-directional detection (2-sided only), isotope classification and identification, source location and highly visual dose mapping capabilities.

These features can be utilized when driving, parked or deployed as our adaptive detection algorithms provide dynamic background management which caters for natural variations in the surrounding environment. This significantly reduces false and nuisance alarms as well as enabling fast discrimination between NORM and threat isotopes.

The on-board smart connectivity allows the intuitive and easy-to-use user interface to be viewed locally and remotely through our webserver-based software. It also provides real-time remote diagnostics and automatic reporting, providing all users involved in the operation full, up-to-date information for quick and effective planning and decision making.



# Discovery Mobile Specification

## Configuration

|                        |                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Detectors              | 2x4x16" or 4x4x16" NaI detector, one or two per side<br><i>Optional:</i> $^6\text{Li:ZnS}$ $^3\text{He}$ -free NNS:2000 neutron detectors, one per side |
| Functions              | Isotope detection and identification, spectral analysis, neutron detection ( <i>optional</i> ), dose rate meter, instant online reporting               |
| Operational Modes      | Mobile, Park, Deployed and Manual                                                                                                                       |
| Detection Zone Options | Single-sided or dual-sided                                                                                                                              |
| Module Weight          | From 25 kg                                                                                                                                              |
| Cold Start Time        | < 60 s                                                                                                                                                  |
| Recommended Vehicles   | Full size SUV or short wheel-base van                                                                                                                   |

## Performance\*

|                                   |                                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------|
| Identification                    | Exceeds ANSI N42.43                                                                                 |
| Directionality                    | Left / right directionality (dual-sided configurations only)                                        |
| Energy Range (gamma)              | 25 keV to 3 MeV                                                                                     |
| Dose Rate Range                   | 10 nSv/h to 1 mSv/h (1 $\mu\text{R/h}$ to 100 mR/h) with automatic scintillator shutdown protection |
| Raw Resolution                    | 8% FWHM at 662 keV ( $^{137}\text{Cs}$ )                                                            |
| Effective Resolution              | 2.2% FWHM at 662 keV ( $^{137}\text{Cs}$ )                                                          |
| Neutron Sensitivity               | $^{252}\text{Cf}$ 20,000 n/s @ 2.2 m/s @ 3 m (7.2 ft/s @ 9.8 ft)                                    |
| Sampling Time                     | 30 s to 300 s (Manual mode only)                                                                    |
| Response Time                     | Instant response to sources (0.1 s) with continuous operation through temperature shock             |
| Stabilization & Health Monitoring | Automatic and continuous end-to-end digital calibration, stabilization and health monitoring        |
| Library                           | 47 isotopes in a customizable library                                                               |
| Maintenance                       | 5-year calibration and service interval                                                             |

## Input / Output

|                                  |                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power                            | 12 V DC or 230 AC power supply with UPS                                                                                                                |
| Battery Life ( <i>Optional</i> ) | 8 hrs in stand-alone operation<br><i>Optional:</i> Additional battery box                                                                              |
| Battery Type                     | Sealed lead-acid                                                                                                                                       |
| Positioning & Mapping            | GPS with real-time dose mapping and vehicle tracking at reach-back<br><i>Optional:</i> 360° Imaging, Scene Reconstruction, Day/Night Vision Capability |
| Data & Connectivity              | PDF reports, ANSI N42.42 compliant, 4G, Wi-Fi, USB & Ethernet<br><i>Optional:</i> Bluetooth, Camera System, Mobile Traffic Light System                |
| User Interface                   | Touchscreen tablet controller in CAB and ruggedized laptop in local or remote command center                                                           |

## Environmental

|                       |                                                                 |
|-----------------------|-----------------------------------------------------------------|
| Operating Temperature | -20°C to 50°C (-4°F to 122°F), within vehicle                   |
| Relative Humidity     | Up to 93% relative humidity, non-condensing, 35°C (95°F)        |
| Ingress Protection    | IP54 as per IEC 60529<br><i>Optional:</i> IP65 as per IEC 60529 |
| Shock & Vibration     | ANSI N42.43                                                     |

\* 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.

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**Discovery Technology®** is a combination of Symetrica's hardware and patented algorithms and is deployed in thousands of systems globally from handheld RIIIDs 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  $^3\text{He}$ -free neutron detection even in high gamma exposed fields.
- Predictive maintenance and no annual calibration required.



Deployed Configuration: Pop-up Vehicle Portal



Mobile Configuration: Van-Mounted for Mobile or Static Use

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