

Radiation Detection Product Line



Rogue radioactive materials can cause serious and long lasting effects. Rapiscan Radiation Detection systems and software help locate uncontrolled or mishandled radiation sources while keeping the world in motion.



Rapiscan Auto-Z[™] radiation detection software



Rapiscan's TSA VM250 detects radioactive emissions on moving vehicles



Rapiscan's TSA CM267 integrates with Rapiscan X-ray screening systems

Rapiscan Radiation Detection

Rapiscan Radiation Detection systems and software locate radiation sources in cargo, bags, parcels, and on people.

Rapiscan's Radiation Detection product line addresses the need for global governments and organizations to monitor and locate rogue radiation sources. The product line is comprised of software based and hardware based solutions – and can be integrated with Rapiscan's X-ray based threat detection solutions.

Rapiscan's Auto-Z[™] radiation detection software is a patent-pending detection and image analysis software solution that helps operators of Rapiscan Eagle® cargo and vehicle inspection systems identify high density fissile or shielding materials such as uranium, lead or tungsten. These materials are associated with the presence of threats of mass destruction. Auto-Z[™] software is available on the Rapiscan Eagle M60 with Material Separation option. Auto-Z has been deployed for use at customs and border entry points.

Rapiscan Systems' TSA RAVEN (for Radiation Alarm and Video Event Notification) management software is a proprietary solution that allows customers to capture and remotely view data and video images relating to a radiological detection incident from multiple radiation detection devices. The centralized monitoring software acts as a nerve center for Rapiscan TSA monitoring systems installed at any given facility.

Rapiscan TSA radiation monitors for people, cargo, bags and parcels includes a bigger and more comprehensive selection of radiation monitors than any other leading security screening company. Whether the requirement calls for the screening of sea-borne or air cargo containers, personnel as they cross borders or go-through a security checkpoint, or the screening of cars, trucks and others vehicles – Rapiscan Systems has a range of proven solutions for our customers.





















Rapiscan Auto-Z[™] integrated with the Eagle M60 mobile system



Rapiscan Auto-Z[™] designed to operate in conjunction with Rapiscan's Integrated Radiation Detection Panels



Rapiscan Eagle M60 with Auto-Z[™] screening a container

Rapiscan Auto-Z[™] Detection Software

Available on the Rapiscan Eagle® M60 with the Material Separation option, Auto-Z[™] is a detection software solution that significantly increases the speed and the performance of cargo and vehicle inspection systems in the identification of high density materials which may be missed by an inspector.

Effective and efficient detection of materials of a high density or high atomic number (high-Z) in cargo requires an advanced software detection tool that supports high throughput environments. The patent-pending Auto-Z application alerts the operator to the location of fissile and shielding materials of a higher density than those found in commercial cargo.

The Eagle Auto-Z Operator Assist tool is a cargo detection software solution which alerts the operator to the location of potential high-Z threat materials such as special nuclear material or radiation-shield material. This software solution is designed to aid the operator, helping reduce the potential for operator error, especially in high throughput environments.

Auto-Z processes single-energy x-ray image data, and applies a detection algorithm based on fundamental material properties. Offering high performance in highly-cluttered and dense cargo, Auto-Z analyzes the x-ray image data and identifies the location of high-Z material within the container, even for highly-cluttered and dense cargo not fully penetrated by the beam (i.e., partially saturated).

Fully integrated within the Rapiscan Cargo Viewer, Auto-Z provides the operator with real-time markup of areas which contain high-Z materials within the cargo. Auto-Z can also be used with other options available with Eagle systems, including Material Separation and Radioactive Material Detection. Use of Auto-Z with these complementary tools may improve detection or false alarm performance.

Auto-Z for example can detect shielded radioactive materials that may not be detectable by standard radiation portal monitors (RPMs). When used in conjunction with RPMs the software can provide a specific location for risk items which have triggered the RPM, critical intelligence in keeping inspection teams safe.

Rapiscan Auto-Z[™] Standard Features Patent pending software solution Efficient detection of high density & high-Z items Fully integrated with Rapiscan Cargo Viewer software Provides real-time markup of the X-ray scan for manual inspection intelligence Works in conjunction with Material Separation software tools Works in conjunction with Eagle Radiation Portal Detectors Automatic analysis helps speed throughput of scanned cargo Compatible with Rapiscan Eagle 6MV Portal, Gantry and Mobile systems Can detect even shielded radioactive materials which may be missed by standard RPM's Suitable for complex, cluttered and dense cargo types



















Rapiscan TSA VM250 mobile monitor



Rapiscan TSA TM850 transportation monitor



Rapiscan TSA PM700 pedestrian monitor

Rapiscan TSA Radioactive and Special Nuclear Materials (SNM) monitoring devices

Rapiscan TSA radiation monitoring devices offer ease-of-use, flexibility and integration.

Radiological threats are real, and they are making worldwide headlines. Curb those threats and address negative public perceptions with accurate, reliable and comprehensive testing and monitoring devices from the global leader in portal radiation monitors.

Rapiscan TSA is respected throughout the world for its design, manufacture and installation of detection and monitoring devices for Radioactive and Special Nuclear Materials (SNM).

With experience spanning several decades, Rapiscan TSA skillfully serves the following agencies, enterprises and institutions by detecting, measuring and monitoring Radioactive and Special Nuclear Materials (SNM):

- Customs and border agencies
- Defense ministries and departments
- Government, military and intelligence services
- Emergency services like fire departments and HazMat
- Law enforcement agencies
- Security officers
- Medical institutions and facilities

- Transportation authorities
- Mining operations
- Nuclear industry companies and organizations
- Nuclear-supervision authorities
- Parties within countries and states which ensure radiation monitoring for their domain
- Radiation control facilities for raw materials, manufactured products, waste materials, etc.

For the highest level of detection and facility-wide protection, combine Rapiscan X-ray and radiation detection products with RAVEN[™] communications software and achieve a fully integrated security solution.

TSA Systems is a part of Rapiscan Systems, combined to provide a complete yet cost effective radiological security package.













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Daily Occupancies: 0

0.00

Speed: 0.00



TSA RAVEN™ monitors multiple systems with video and data



TSA RAVEN™ monitors multiple systems in busy facilities



TSA RAVEN[™] monitors multiple systems in large facilities

TSA RAVEN™ Software

Remotely manage facility-wide operations by monitoring single or multiple radiation detectors and event data with RAVEN[™] communications software.

RAVEN[™] (Radiation Alarm and Video Event Notification) communications software helps facilities quickly react to alarm detection. The centralized monitoring software acts as a nerve center for all the Rapiscan TSA systems installed at any given facility. This type of system was available in the past through the use of multiple vendors working to set it up. Now, with RAVEN, the entire monitoring solution is provided in a single package directly from Rapiscan Systems.

RAVEN uses a holistic approach to aid in the rapid identification and location of radioactive substances by wirelessly capturing data, audio and video images related to a radiological detection incident. A thorough review of the incident can be performed remotely, and any identifying information can be relayed to response personnel in the field for possible secondary inspection or other interdiction. With RAVEN monitoring software, the remote operator can assist in pinpointing the radioactive source saving time for personnel doing secondary inspections.

RAVEN can monitor multiple systems and can simultaneously present data for each monitored location on screen. The live video feeds allow the operator to view activity at each monitor location.

For a tiered approach, optional Local Alarm Stations (LAS) can be configured to receive only data critical to a specific area while the Central Alarm Station (CAS) simultaneously monitors the entire site. Multi-layered password protection will restrict unauthorized access to sensitive data or video and will protect the privacy of innocent individuals.

TSA RAVEN™ Software Standard Components

TSA RAVEN™

RAVEN™ Software Servers Monitor Switch UPS KVM Switch Keyboard (US English) Mouse













TSA Portal Series

The TSA Portal Series continuously screens moving traffic such as trains, large and small vehicles, and pedestrians.

Automatic monitoring without the need of frequent calibrations makes TSA Portal Series monitors easy to manage while providing maximum uptime. The robust design allows for fast throughput with high detection sensitivity while staying cost effective.

Advanced design features set the TSA Portal Series apart. The large detectors and unique detection algorithm improve performance to the point of achieving or exceeding ASTM Standard C 1169 Category III sensitivity for SNM. Long-life battery packs keep the Portal Series running even during power outages.

Engineers designed the TSA Portal Series to have unrivaled ease-of-use. After the initial site preparation is completed. and the system is installed, it only takes 20 seconds to acquire an initial background. Continuous background updates keep the monitors immediately ready for occupancy. Once the system is up and running, the full range of easily programmable detection parameters enables the administrator to pinpoint sensitivity, energy discrimination, and fault levels to limit nuisance alarms.

Flexible designs and configuration options allow the system to be custom fit for specific environments and requirements. The semi-portable monitor is suitable for indoor or outdoor installation. Many other monitors are available in three configurations; Gamma, Neutron or a combination of Gamma and Neutron detection.

All TSA Portal Series monitors are fully compatible with TSA RAVEN™ communications software designed to integrate multiple monitors and capture and view data and video images relating to a radiological detection incident.

TSA Portal Series Standard Features

Pedestrian Monitors		Vehicle Monitor	Train Monitor
TSA PM700	TSA PM702	TSA VM250	TSA TM850
Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Battery Backup NEMA 4 Rated Enclosure IP66 Rated Enclosure TSA RAVEN™ Compatible	Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Battery Backup TSA RAVEN™ Compatible	Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Battery Backup Controller Mounting Options NEMA 4 Rated Enclosure IP66 Rated Enclosure TSA RAVEN™ Compatible	Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Battery Backup Controller Mounting Options NEMA 4 Rated Enclosure IP66 Rated Enclosure TSA RAVEN™ Compatible



TSA VM250 vehicle monitor



TSA TM850 train monitor



TSA PM700 pedestrian monitor



















TSA CM267 conveyor monitor



TSA CM267 conveyor monitor



TSA CM267 conveyor monitor

TSA Conveyor Monitor

Reliably screen bags, boxes or packages on a moving conveyor belt for radioactive materials with the highly sensitive TSA Conveyor Monitor.

The stand-alone TSA CM267 conveyor monitor is powered by TSA's unique design features providing reliable operation in variable background environments. The highly sensitive detectors make it perfect for transportation centers where the relatively low energy emissions from ²³⁵U and ²³⁹Pu are the main concern. The TSA CM267 also detects other radioactive isotopes present in threat materials.

The sturdy, light-weight construction and flexible positions make it adaptable for almost any setting. All the components are packed into a single, slender pillar to fit in tight places.

The quick set up process has it up and running in about an hour. Once powered on, the TSA CM267 takes about twenty seconds to acquire the initial background count, and then it is ready for screening bags, boxes and packages.

Save operating costs and keep the conveyors running with the TSA CM267. It is designed to continuously scan conveyor belt luggage and parcels without the need for frequent calibration or maintenance.

The TSA CM267 is easy to use. Occupancy sensors activate the detection process. Both audible and visual alarms are triggered if the count exceeds the alarm level. Adjustments to sensitivity, energy discrimination, and fault levels may be entered on the keypad of the SC-770 system controller. The system also automatically self-monitors for low and high background conditions.

The TSA CM267 monitor is fully compatible with TSA RAVEN[™] communications software designed to integrate multiple monitors and capture and view data and video images relating to a radiological detection incident.

TSA Conveyor Monitor Standard Features

TSA CM267

Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Universal Mount TSA RAVEN™ Compatible





















TSA MD134 mobile monitor mounted in a van



TSA MD134 mobile monitor mounted in a trailer



TSA MD134 mobile monitor not mounted

TSA Mobile Monitor

Reliable and highly sensitive, the TSA mobile monitor continuously screens moving or stationery subjects for radioactive emissions.

The TSA MD134 is designed to automatically scan vehicles or containers without the need for frequent calibration. The system can be stationary to scan moving vehicles, or it can be easily deployed by mounting it in a vehicle to scan while driving.

Operators can stay in the field without having to frequently change or charge the battery. The long 16 hour battery life makes it ideal for searching vehicles and areas that require extended search times.

In emergency situations, where fast deployment is critical, the TSA MD134 answers the call. Once powered up, it is ready to provide high sensitivity and reliable operation in variable environments after taking initial background measurements in just twenty seconds.

The TSA MD134 is engineered for easy operation. Occupancy sensors activate the detection process. Both audible and visual alarms are triggered if the count exceeds the alarm level. The system also automatically self-monitors for low and high background conditions.

TSA Mobile Monitor Standard Features

TSA MD134

Programmable Detection Parameters Audio and Visual Indicators Relay Outputs for User Interface Universal Power Supply Ethernet Connectivity Battery Backup Controller Mounting Options External Alarm Box TSA RAVEN™ Software









TSA PRM470 hand-held monitor testing construction fill



TSA PRM470 hand-held monitor covered for weather protection



TSA PRM470 hand-held can be placed alone to monitor the background

TSA Hand-Held Monitor

Actively pinpoint the source of radiation when screening people, vehicles or areas with the small, lightweight, personal TSA hand-held monitor.

The TSA PRM470 personal hand-held radiation monitor is for pinpointing possible radiation sources on people and vehicles at plant exits and material access areas, as well as contamination and background monitoring. The PRM470 hand-held is also a popular choice for locating radioactive sources and measuring intensity in the field.

The small size, light weight, and long battery life make it ideal for searching vehicles and areas that require extended search times. The TSA PRM470 uses low power electronics to provide up to 17 hours of continuous operation from the rechargeable batteries.

Featuring both audio and visual alerts, the PRM470 is versatile and easy to operate. As detected counts increase, so does the frequency of the audio signal and LED indicators helping to pinpoint radiation. The LED indicators on the PRM470 with the combined gamma and neutron option show red for gamma and blue for neutron. Count information and unit parameters are clearly displayed on the front panel.

The internal motion sensor automatically switches from background to search mode when moved. After the instrument has been at rest for a preset duration, it will revert to background monitoring.

Program the PRM470 using the front panel or with a computer (via serial port) to scale the display to CPS, μ Sv/hr or mR/hr. This conversion is not energy compensated, so the value displayed is only an approximation of actual dose rate.

TSA Hand-Held Monitor Standard Features

TSA PRM470

Programmable Detection Parameters Programmable Security Levels Audio and Visual Indicators Universal Power Supply Serial Port Connectivity NmHi Battery Pack



















TSA BM285 waste monitor with open door



TSA BM185 waste monitor with touchscreen display



TSA BM285 waste monitor with door closed

TSA Waste Monitor Series

The TSA Waste Monitor Series provides high sensitivity, efficient and accurate analysis with easy touch screen operation for a cost effective waste inspection solution.

Efficient and accurate go/no go analysis and fast scan times make the TSA Waste Monitor Series a cost effective solution that are ideal for monitoring waste prior to release.

Waste Series monitors come in three convenient sizes to match typical applications in hospitals, nuclear facilities and defense departments. The smallest monitor's inner chamber holds a volume of 1 ft³. The medium size can hold a volume of up to 15 ft³ in a 500 lb. bag, while the largest accommodates a volume of 20 ft³ in a 55 gallon drum.

High sensitivity and uniform measurement is achieved by using large volume plastic scintillator detectors on all six sides of the counting chamber for effective and accurate screening of all sides of the item. Microprocessor controlled electronics and sophisticated software algorithms achieve high sensitivity using plastic detectors with large surface areas.

Color touch screens on all three monitors enable intuitive user operation. The graphical interface helps the user quickly read results for efficient processing. BM285 and BM286 system operators are able to modify a variety of parameters depending on password protected access levels. Up to twenty preset operating parameters can be saved for fast and easy programming.

The two larger configurations have lead-lined chambers for higher sensitivity and to isolate the scanned item from any external radiation influence. The smaller BM185 has an aluminum liner which provides minimum attenuation.

TSA Waste Monitors Standard Features

TSA BM185

4pi Detector Geometry Stainless Steel Liner Lead Shielding on all Sides 20 Programmable Waste Streams User-Friendly Operator Interface Color Touchscreen Panel PC Keyboard (US English) Heavy Duty Casters

TSA BM285

Screen up to 500 lbs Large Volume Plastic Detectors Stainless Steel Liner Lead Shielding on all Sides 20 Programmable Waste Streams User-Friendly Operator Interface Color Touchscreen Panel PC Keyboard (US English) Heavy Duty Casters

TSA BM286

Screen up to 1,000 lbs Large Volume Plastic Detectors Stainless Steel Liner Lead Shielding on all Sides 20 Programmable Waste Streams User-Friendly Operator Interface Color Touchscreen Panel PC Keyboard (US English) Heavy Duty Casters





















Rapiscan global service personnel



Ready to service and support all field installations



Service options to accommodate large and small installations

Rapiscan Service and Support

We have a proven track record with over 70,000 systems in more than 100 countries. Rapiscan Systems has more than 1,000 Radiation Detection systems installed all over the globe.

An ISO9001:2008 certified company; Rapiscan manufacturing processes adhere to stringent quality control to meet the demanding expectations of clients and regulatory agencies.

Rapiscan provides our customers with a complete service that delivers outstanding customer support throughout the operational life of their system. Backed by a comprehensive warranty, Rapiscan's equipment gives customers and users confidence that they have the very best in terms of quality and support.

With a global network of Field Service Engineers delivering maintenance and repair services, we offer support programs based on the needs and requirements of individual customers. Our Field Service teams act fast and effectively, ensuring continued operation within critical security and control environments. A built in system of metrics measures performance objectively and provides data on predictive actions to prevent issues occurring.

Rapiscan has a dedicated and professionally qualified Project Management team that takes ownership of the delivery, assembly, installation and commissioning. We keep our customers informed and involved every step of the way. Operators are a critical part in the operation of our systems, to that end we invest in professional training courses, both in house and – where necessary – using specialists. Training is tailored to the exact requirements of the customer, is practically oriented and takes into account local conditions. Our training goal is to provide well qualified staff with confidence in the equipment and processes, ensuring safe and effective operation.

Rapiscan's philosophy is of continual improvement and development. Our equipment is designed to be future proof, as technically cutting edge in ten years time as it was the day it was installed.















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Series	Product	Description	Applications
Software	Rapiscan Auto-Z™	Rapiscan's Auto-Z [™] radiation detection software is a patent-pending detection and image analysis software solution that helps operators of Rapiscan Eagle® cargo and vehicle inspection systems identify high density fissile or shielding materials such as uranium, lead or tungsten.	Cargo and Vehicle Inspection integrated with the Rapiscan Eagle [®] Series
	TSA RAVEN™	RAVEN™ (Radiation Alarm and Video Event Notification) centralized communications software helps facilities manage radiation detection operations with video, event and system monitoring.	 Aviation Critical Infrastructure Customs and Border Control Event Security Law Enforcement Defense Ports
Portal Monitors	TSA PM700	A high sensitivity walk-through portal monitor to automatically scan pedestrian traffic for radioac- tive materials. The TSA PM700 automatically scans pedestrian traffic where the relatively low energy emissions from ²³⁵ U and ²³⁹ Pu are the main concern such as uranium enrichment plants, weapons manufacturing plants, weapons storage sites, nuclear laboratories, nuclear waste disposal and stor- age sites.	 Aviation Critical Infrastructure Customs and Border Control Event Security Defense Ports
	TSA PM702	A cost effective walk-through portal monitor to automatically screen pedestrian traffic for radioac- tive materials. The PM702 was designed for monitoring applications that require less sensitivity or for situations that require a semi-portable monitor such as hospitals and laboratories.	 Aviation Critical Infrastructure Customs and Border Control Event Security Law Enforcement Defense
	TSA VM250	Automatically screen moving vehicles for radioactive materials. High sensitivity allows the VM250 to be used at such as uranium enrichment plants, weapons manufacturing and storage plants, nuclear laboratories, and nuclear waste disposal and storage sites where detection of Special Nuclear Materials (SNM) is essential.	 Aviation Critical Infrastructure Customs and Border Control Defense Ports
	TSA TM850	Continuously screen moving trains or large vehicles for radioactive materials. High sensitivity allows the TM850 to be used at transportation hubs requiring a wider installation area and high throughput such as at ports and customs and border entry points.	
Conveyor Monitors	TSA CM267	Seamlessly screen bags, boxes or packages on a moving conveyor for radioactive materials. The TSA CM267 can be positioned on the side or mounted directly above a moving beltway to continuously screen moving items on a conveyor belt for both gamma and/or neutron radiation. The CM267 can be integrated with Rapiscan X-ray solutions.	 Aviation Critical Infrastructure Customs and Border Control Event Security Defense
Mobile Monitors	TSA MD134	Continuously screen moving or stationery vehicles for radioactive emissions. The system can be stationary to scan vehicles as they drive by or it can be mounted in a vehicle and driven past items to be scanned.	AviationCritical InfrastructureCustoms and Border Control
Hand-Held Monitors	TSA PRM470	Screen people, vehicles or areas with a small, lightweight hand-held personal radiation monitor. The TSA PRM470 personal hand-held radiation monitor is ideal for searching at plant exits and material access areas, as well as contamination and background monitoring.	 Aviation Critical Infrastructure Customs and Border Control Event Security Law Enforcement First Responders Defense Ports
Waste Monitors	TSA BM185	The TSA BM185 waste monitor with flexible options is designed to scan small items (less than 1 ft. ³) for radioactive emissions and is ideal for monitoring prior to release from the facility.	 Critical Infrastructure Hospitals Nuclear Facilities Defense
	TSA BM285	The TSA BM285 waste monitor with flexible options is designed to screen medium-sized items up to 500 lbs for radioactive emissions and is ideal for monitoring prior to release from the facility.	
	TSA BM286	The TSA BM286 waste monitor with flexible options is designed to screen items up to and including 55 gallon drums weighing up to 1,000 lbs for radioactive contamination and is ideal for monitoring prior to release from the facility.	



ONE COMPANY - TOTAL SECURITY

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