

# TSA PM700

A high sensitivity walk-through portal monitor to automatically scan pedestrian traffic for radioactive materials.

High Sensitivity Portal Monitor

Continuously Scan Moving Pedestrians

Gamma and Neutron Radiation Detection Options

Fast, Seamless Integration



The TSA PM700 automatically scans pedestrian traffic without the need for frequent calibration. They are intended for applications where the relatively low energy emissions from  $^{235}\text{U}$  and  $^{239}\text{Pu}$  are the main concern. They are currently in use at uranium enrichment plants, weapons manufacturing plants, weapons storage sites, nuclear laboratories, nuclear waste disposal and storage sites where detection of Special Nuclear Materials (SNM) is essential.

## Advanced Design Features

The TSA PM700 monitor is a stand-alone pedestrian portal monitor with excellent sensitivity and reliability. The PM700 large detectors and unique detection algorithm improve its performance to the point that it can achieve ASTM Standard C 1169 Category III\* sensitivity for SNM. All of the essential components are contained in the pillars; radiation detectors, controller, and occupancy detector. The system operates from an internal battery. The battery is constantly charged from the site's AC line during normal operation. In the event of a power outage, the battery permits continued operation for at least 12 hours.

## Programmable Detection Parameters

Selectable settings for sensitivity, energy discrimination, and fault levels may be entered by the administrator.

## Easy-to-Operate

After the initial site preparation is completed, the system can be installed and operating in less than an hour. When the system is powered up, it acquires an initial background count typically within 20 seconds. The background count is continually updated until the system is occupied. When the monitor senses occupancy, the system starts comparing the current count with the most recent background data. Alarm comparisons are made every 200ms. If the count exceeds the alarm level, both audible and visual alarms will be triggered. The system monitors itself and indicates low and high background conditions.

## Flexible Detection Options

The TSA PM700 is available in three configurations; Gamma, Neutron or a combination of Gamma and Neutron detection. Gamma provides detection of ionizing radiation and Neutron provides detection of Special Nuclear Materials (SNM) while the combined Gamma and Neutron provides the most powerful detection capabilities for radioactive isotopes even in shielded materials.

## Interface Options

With the optional Remote Alarm Panel operators can view alarms up to 300m from the monitor. The TSA PM700 is compatible with TSA RAVEN™ communications software designed to both capture and view data and video images relating to a radiological detection incident.

## Standard Features

- 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



TSA RAVEN™ (Radiation Alarm and Video Event Notification) communications software is used remotely to assist response personnel in the field to pinpoint radioactive sources. RAVEN can monitor multiple detectors and aid in managing individual detector activity.


## Markets

- Aviation
- Critical Infrastructure
- Customs and Border Control
- Event Security
- Defense
- Ports

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## Specifications

Sensitivity	Gamma: Will detect 3g HEU or 0.08g <sup>239</sup> Pu when tested in accordance with ASTM Standard C 1169 for Category III* monitors. Neutron*: Will detect 10g HEU or 0.3g <sup>239</sup> Pu when tested in accordance with ASTM Standard C 1169 for Category III* monitors: will detect 120g of 99% shielded <sup>239</sup> Pu based solely on neutron detection.
Detectors	Gamma: Two 36 h x 10 w x 1.5 d in. (90 x 25 x 3.8cm) organic plastic scintillator detectors per pillar; provides approximately 2,080 in <sup>3</sup> (35.4 liters) of detector volume per system. Neutron: Two 36 h x 10 w x 1.5 d in. (90 x 25 x 3.8cm) organic plastic scintillator detectors and two 2" diameter x 36" (5 x 91cm) He <sup>3</sup> neutron detectors per pillar. The scintillator detectors are shielded on five sides with 0.375 in. (10 mm) of lead
Alarm Level	SPRT for neutron, N* sigma for gamma entered from the numeric keypad
False Alarm Rates	Typically less than 1 in 1,000 passages, as tested in accordance with ASTM Standard C 1169*
Alarm Indication	Gamma alarms are indicated by a red strobe light on the master pillar. High and low faults along with other fault conditions are indicated by an amber light. Neutron alarm is indicated by a blue strobe light
Display	Alphanumeric LCD, 4 lines x 16 characters
Communications	RS-232 Serial Port and Ethernet communications capabilities.
Data Storage	256k bytes of flash memory is used to store average hourly background and alarm data
Power Requirements	90 - 250 Vac, 47 - 63 Hz, less than 100 VA
Battery Life	Greater than 12 hours normal operation
Dimensions	84 h x 26 w x 8 d in. (214 x 66 x 20 cm)
Typical Pillar Spacing	35 in. (889 mm)
Weight	Gamma: ~ 400 lb (182kg) per pillar Neutron: ~600 lb (273kg) per pillar
Environmental	-30° to 122° F (-34° to 50°C); designed for use in sheltered area.
Standards	

\*ASTM Standard C 1169 is available for purchase from The American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428 (610) 832-9585

## Options

- Gamma Detection - For the detection of ionizing radiation.
- Neutron Detection - Typically used to detect Special Nuclear Materials (SNM).
- Gamma and Neutron Detection - For full spectrum detection capabilities.
- Remote Alarm Panel
- TSA RAVEN™ Communications Software
- Additional Lead Shielding

With continual development of our products Rapiscan Systems reserves the right to amend specifications without notice. Product pictures are for general reference. Please note that due to US laws and regulations, not all Rapiscan products are available for sale in all countries without restriction. Please contact your Rapiscan Systems sales representative for more information.

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