The TSA TM850 automatically screens railroad or vehicular traffic without the need for frequent calibration. 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. The TM850 is designed for use in harsh environmental conditions.

**Advanced Design Features**

The TSA TM850 is a train and large vehicle monitor with excellent sensitivity and reliability. The TM850 consists of two self-contained, weather resistant pillars placed on either side of the railroad track or roadway to be monitored. Each pillar contains two large plastic scintillator detectors, four neutron detector blocks with either two or four neutron detectors each, multiple occupancy sensors, and an amplifier. The master pillar also has a battery, power supply, battery charger, and a system controller.

**Programmable Detection Parameters**

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

**Easy-to-Operate**

When the system is powered up, it takes 120 seconds to acquire an initial background. The background is continually updated until the system is occupied. When the TM850 senses occupancy, the system starts comparing the current count to 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 TM850 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 TM850 is compatible with TSA RAVEN™ communications software designed to both capture and view data and video images relating to a radiological detection incident.

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**Standard Features**

- 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

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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.
TSA TM850

Specifications

Sensitivity

Gamma: Will detect 200 grams of 235U (HEU) or 3 grams of 239Pu in a 20 uR/hr background at a passage speed of 5 mph (8km/h).

Neutron: Will detect greater than 200 grams of plutonium in a shielded container that reduces the gamma flux to 1% of the unshielded gamma flux.

Detectors

Standard Gamma and Neutron: Two, 48 h x 12 w x 1.5 d in. (121.9 x 30 x 3.8 cm) organic plastic scintillator detectors per pillar; four, 2 in. diameter x 36 in. (5 x 91.4 cm) He3 tubes per pillar.

High Sensitivity Gamma and Neutron: Two, 48 h x 12 w x 1.5 d in. (121.9 x 30 x 3.8 cm) organic plastic scintillator detectors per pillar; eight, 2 in. diameter x 36 in. (5 x 91.4 cm) He3 tubes per pillar.

False Alarm Rates

Typically less than 1 in 1,000 passages

Alarm Indication

Alarms are indicated by a red strobe light mounted 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

LCD, 4 lines x 20 characters

Communications

Serial Port and Ethernet communications capability

Power Requirements

90 - 250 Vac. 47 - 63 Hz, less than 100 VA

Battery Life

Greater than 8 hours of normal operation

Dimensions

120 h x 48 w x 10 d in. (305 x 122 x 25.4 cm)

Typical Pillar Spacing

236.2 in. (6 m)

Weight

1,100 lbs (499 kg) per pillar

Environmental

-4° to 122° F (-20° to 50° C) Designed for outdoor use in most climates. For extreme conditions, optional heating/cooling is available.

Standards

UL

Definitions

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.

Options

Remote Alarm Panel

TSA RAVEN™ Communications Software

Wireless Output Capabilities

Heavy Duty Mounting Stand

Additional Lead Shielding

Heating or Cooling for Extreme Conditions

*R For neutron detection please contact your sales representative to determine availability and quantity of He3 tubes.