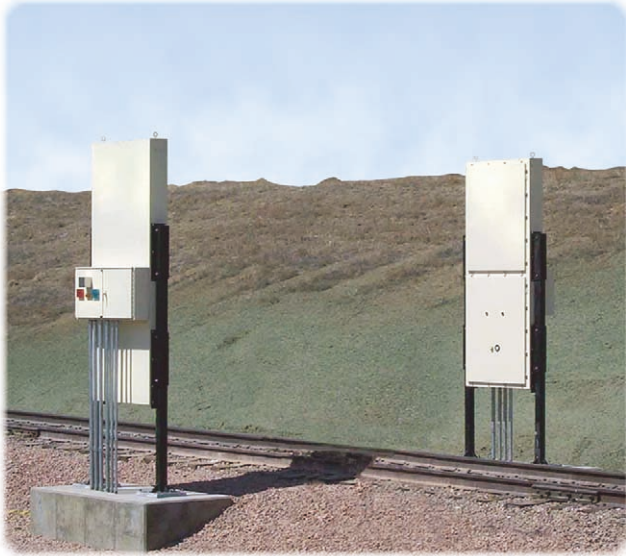


Train Portal Monitor



TM-850

Gamma-Neutron train portal monitor

Description

TSA's train monitor TM-850 consists of two self-contained weather resistant pillars placed on either side of the railroad track to be monitored.

Each pillar contains two organic plastic scintillator detectors, 8 neutron detector tubes, an occupancy detector, and an SCA-775 amplifier/controller. The master pillar also has a battery, power supply/battery charger and an SC-770 system controller.

These systems require two conduits, one to provide ac power to the battery charger, and one for the pillar to pillar connections. A third conduit may be required to route signals to TSA's AM-270 alarm monitor.

The pillars are usually bolted to a concrete footing, with the interconnecting conduits installed under the railroad tracks. The pillar spacing varies from 23 feet (7m) to 32 feet (10m) depending on local requirements for sensitivity and railroad traffic.

OPERATION: When the system is powered up, it takes twenty seconds to acquire an initial background. The background is continually updated until the system is occupied.

When the detector 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. A closed circuit tamper output is available for connection to TSA's AM-270 or site security system. System status is continuously updated on TSA's system controller SC-770, located in the master pillar.

Specifications

Model TM-850 SPECIFICATIONS

- **SENSITIVITY:** Contact TSA Systems for specific sensitivity requirements.
- **DETECTORS:** Two, 48" h x 12" w x 1.5" d (122 x 30 x 4cm) organic plastic scintillator detectors per pillar and eight, 2" diameter x 36" (5 x 91cm) ³He tubes per pillar; provides approximately 3,456 in³ (56.6 liters) of detector volume per system. The scintillator detectors are shielded on four sides with 0.375" (10mm) of lead.
- **FALSE ALARM RATE:** 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 alarms along with other fault conditions are indicated by an amber light. Neutron alarm is indicated by a blue strobe light. Audio alarm is triggered for gamma or neutron alarm conditions.
- **DISPLAY:** Alphanumeric LCD, 4 lines x 16 characters
- **COMMUNICATIONS:** RS-232 and Ethernet communications capability
- **DATA STORAGE:** Flash memory (256 KB) is used to store average hourly background data and alarm data. Under normal conditions the memory should be adequate to store data for at least 3 months of operation.
- **POWER REQUIREMENTS:** 90 - 250 Vac, 47 - 63 Hz, less than 100 VA
- **BATTERY LIFE:** Greater than 12 hours of normal operation
- **DIMENSIONS:** 120" h x 48" w x 10" d (305 x 122 x 25cm)
- **WEIGHT:** ~600 lb (272kg) per pillar
- **ENVIRONMENTAL:** -30° to 122°F (-34° to 50°C) Designed for outdoor use in most climates. For extreme conditions, optional heating/cooling is available.
- **OPTIONAL COMPONENTS:** Heaters and Insulation, AM-270

Applications

TSA's train monitor is designed to automatically scan railroad traffic without the need for frequent calibration.

It is intended for applications where the relatively low energy emissions from ²³⁵U and ²³⁹Pu are the main concern.