

FAST, ULTRA-SENSITIVE PORTAL MONITOR

MODEL # PPM-27S

FEATURES:

- INTELLIGENT MICROPROCESSOR CONTROLLED SYSTEM
- FULL DYNAMIC BACKGROUND SUBTRACT
- OUTSTANDING SENSITIVITY TO FISSION PRODUCTS SPECTRUM
- ADVANCED “ η OF 8” DESIGN
- 8 CHANNELS OF COUNTING ELECTRONICS
- AUDIO AND VISUAL RADIATION ALARMS
- HIGH BACKGROUND ALARM
- LOSS OF SIGNAL LIGHTS
- FAST FLOW THROUGH OF PEOPLE
- EASY TO READ ALARM PANEL FOR MOUNTING ON WALL OR PORTAL
- WEATHER RESISTANT PORTAL AND FOOT DECK
- CHOICE OF PORTAL FRAMES
- BATTERY BACKUP.



Figure 1: F-36 (top left),

F-25A (top right), Alarm panel (bottom)

APPLICATION: The **PPM-27S** examines people from head to toe for radioactive contamination. If placed within a passageway, a large throughput can be attained with a minimum amount of supervision.

DESCRIPTION: The **PPM-27S** consists of a walk through portal frame and separate table top, (also rack mountable) electronics. A cabinet to hold electronics is provided. Eight (8) extra large plastic scintillation radiation detectors and one motion detector, sense contamination on a person as he/she crosses the threshold. The radiation detectors are grouped into eight separate channels. This feature makes it easier to locate and remove contamination, and increases sensitivity by lowering the background count per channel.

When unoccupied, the **PPM-27S** averages background radiation over 20 second interval. A first-in-first-out shift register updates the background data every 0.2 seconds. When the portal is occupied the electronics compare the background plus 1, 1.4, or 2 times the background's standard deviation, to the personnel count. This comparison is made every 50, 100, or 200 milliseconds depending upon the setting of the front panel sample time switch. The level of confidence (“ η of 8”) can be set for each channel using the eight position switches on the electronics console. Separate alarms are provided for each channel.

TA **TECHNICAL ASSOCIATES**
7051 ETON AVENUE * CANOGA PARK, CA 91303 TELEPHONE (818) 883-7043 * FAX(818) 883-6103

\$Revision: 1.1 \$

FAST, ULTRA-SENSITIVE PORTAL MONITOR

MODEL # PPM-27S

SPECIFICATIONS:

SENSITIVITY:

Beta: 200 nanoCuries - 90% confidence level, Thallium - 204 passing through center-line at 3 ft/sec, gamma background of 100 μ R/hr.

Gamma: 200 nanoCuries - 90% confidence level, Cs¹³⁷ passing through center-line at 3 ft/sec, gamma background of 100 μ R/hr.

Meets DOE requirement to detect 1/2 gram of plutonium in 3mm brass shield and gammas of U²³⁵, 20% enriched in 3mm brass shield.

BETA-GAMMA DETECTORS:

Model: PPS-41.

Sensitive area: 96 square inches per detector.

Operating Voltage: Typically 800 to 1000 Volts.

Window Thickness: 5 mg/cm² (other thicknesses **optional**).

PORTAL FRAME AND FOOT DECK:

Frame Option: F-36

Description: Walk Straight Through.

Number of Detector

Channels: 8.

Inside Dimensions: 36" W x 80" H.

Shielding: 1 1/2" lead equiv. on 3 sides of each detector.

Weight: 2500lbs.

Shipping Weight: 2900lbs.

ELECTRONICS CHASSIS:

Front Panel Controls: Sigma Multiplier (each channel): 1, 1.4, 2.
 η of 8 Alarm Set (each channel): 1, 2, 3, 4, 5, 6, 7, 8.
Sample Time: 50, 100, 200 milliseconds.
Overflow Alarm (for background): 10, 20, 40, 80.
Reset push button.
Alarm Disable.



TECHNICAL ASSOCIATES

7051 ETON AVENUE * CANOGA PARK, CA 91303 TELEPHONE (818) 883-7043 * FAX(818) 883-6103

\$Revision: 1.1 \$

FAST, ULTRA-SENSITIVE PORTAL MONITOR

MODEL # PPM-27S

Rear Panel Controls:	Power on-off. High Voltage Adjust: 0-2000 (0-3000 V Optional)
Front Panel Indicators:	Average Background Display (each channel): Two digits. η of 8 Display (each channel): one digit. Contamination Alarm LED (each channel): red. No Signal Alarm LED (each channel): yellow.
Rear Panel Indicators:	Power on/off lamp: red. High Voltage Meter, 0-2000 volts, (0-3000V Optional).
Rear Panel Outputs:	Remote Alarm Output Terminals (each channel plus common bell and lamp) Switched AC outlet.
Common Alarms	
Indicating Contamination:	2000 Hz alarm and flashing red beacon.
Power Requirements:	110 V, 60 Hz, 1 A (220 V and 50 Hz Optional).
Dimensions:	19"W x 20"D x 11"H.
Weight:	45 lbs.
Shipping Weight:	65 lbs.
ALARM PANEL:	Wall mountable, silhouette with lights indicating location of contamination, plus sonalert and flashing red light.

TA **TECHNICAL ASSOCIATES**
7051 ETON AVENUE * CANOGA PARK, CA 91303 TELEPHONE (818) 883-7043 * FAX(818) 883-6103

\$Revision: 1.1 \$