

HAND and SHOE MONITOR

Model # HSM-10A /AM

Model # HSM-10B /BS

FEATURES:

- NOW WITH FULL DYNAMIC BACKGROUND SUBTRACT
- COMPLETELY AUTOMATIC MONITORING
- ILLUMINATED READ-OUT PANEL
- ALARM SETTINGS AS LOW AS BACKGROUND.
- POSITIVE WARNING OF INCOMPLETE CHECK.
- EXTERNAL CLOTHING PROBE WITH SEPARATE CIRCUITRY, METER, AND SPEAKER
- COMPLETELY SOLID STATE MODULAR ELECTRONICS

APPLICATION: Models HSM-10A, HSM-10AM, HSM-10B and HSM-10BS Hand and Shoe Monitors are health physics instruments designed to provide completely automatic detection and measurement of beta-gamma (plus alpha in case of HSM-10B and HSM-10BS) contamination on the palm and back of each hand, the bottom surfaces of both shoes, and also the hair and clothing. Extremely simple operation allows the individual worker to perform this check without direct supervision of the health physicist.

DESCRIPTION: The HSM-10 series monitors feature illuminated multi-colored panels that enable the user to tell – in one look – whether he is contaminated, and where. Separate read-outs are provided below the monitor panel, showing the total count on each hand and the combined count for both shoes.

An outstanding feature of the instrument is the new lower warning levels, which permit alarm settings as low as the background count.

A separate rate meter circuit is utilized for the EXTERNAL CLOTHING PROBE, including a speaker for audible check and a meter for visual check. All the detecting elements and sections exposed to contamination are designed for easy decontamination. A roll of kraft paper is mounted in the base for use over the shoe deck to prevent contaminated material from dropping into the detector chambers. (In the HSM-10B and HSM-10BS monitors, quarter mil mylar can be substituted for the kraft paper to allow detection of alphas.)

OPERATION: No skill is required in the operation of HSM-10 series monitors. The user merely steps on the shoe deck and inserts hands into the two waist-high probe openings. The counting process is started and continued by pressure of the fingertips at the rear of the probe openings, and by the weight of the person on the shoe deck. As soon as the counting starts, the "Ready for Use" panel darkens, and the yellow "Counter in Operation" panel lights up.



Figure 1: HSM-10AM (analog), (digital) available in 10B series.

TA

TECHNICAL ASSOCIATES

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

\$Revision: 1.2 \$

HAND and SHOE MONITOR

Model # HSM-10A /AM

Model # HSM-10B /BS

NOTE: If at any time during the counting cycle, the user removes either hand from the hand probe or steps off the shoe deck, the cycle will automatically stop and the orange panel reading "Check Incomplete – Reset and Repeat" will light up. This positive warning prevents erroneous readings.

As soon as the preset time has elapsed, the "Counter in Operation" panel darkens and either the green "Check O.K." panel or the bold red "Decontamination Required" panel lights up, depending upon whether the radioactivity present is above or below the alarm setting. If decontamination is required, bold red panels marked "Left Hand", "Right Hand", or "Shoes" will light up, indicating the location of contamination. The degree of contamination is indicated on the monitor panel behind the cabinet door below the hand inserts. After the check is completed, the user pushes the large red "Reset" button on the front panel, and the instrument is ready for the next user.

The CLOTHING PROBE, mounted on the right side of the instrument is used to detect contamination on the hair and clothing. The output of the clothing probe is read visually on the count rate meter and aurally by the speaker, the meter is mounted on the monitor panel. The clothing Probe consists of the extremely sensitive T/A Model P-11 Pancake Unit. It has a wide face and a thin window for fast checking of surfaces and high sensitivity.

SPECIFICATIONS:

HSM-10A

Sensitivity:	Less than .01 μ C of 0.2 MeV or higher beta.
Detectors:	Four T/A type T-1100 halogen quenched, stainless steel, 30 mg/cm ² , side window GM tubes monitor each hand and two T/A T-1100 probes monitor each foot. clothing probe is a T/A Model P-11 with a T-1190 pancake alpha, beta gamma sensitive GM tube.
Counters:	Three five-digit LED Solid State Counters with overflow for hand and shoe probes.
Shielding:	Hand and Shoe detectors are shielded by 1/2" lead.
Count Time:	Resettable 1, 3, 10, 30, 100 seconds.
Count Range:	0-99,999 counts Digital with overflow indicators each hand or both feet; clothing probe has four analog ranges 0-500; 5,000; 50,000; 500,000 cpm.
Alarm:	100; 300; 1,000; 3,000; or 10,000 total counts, either hand or both feet.
Readout:	Ready for Use, Counter in Operation, Check Incomplete, Reset and Repeat, Check O.K., Decontamination Required, Left Hand, Shoes, Right Hand. Also 3" meter for clothing probe, plus aural signal.
Power Requirements:	105 to 125 volts, 60 cycle A.C., 300 watts.
Dimensions:	Cabinet: 67-3/4" high x 27-1/2" wide x 24" deep. Shoe Deck: 23" long x 18" wide x 4-1/2" high.
Finish:	Grey baked enamel.
Shipping Weight:	650 lbs.



TECHNICAL ASSOCIATES

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

\$Revision: 1.2 \$

HAND and SHOE MONITOR

Model # HSM-10A /AM

Model # HSM-10B /BS

HSM-10AM	Identical to HSM-10A except that a four range alarm ratemeter Module MAM-5R is used instead of each counter in the hand and shoe systems.
Count Time:	As above. Ratemeter time constant is adjustable.
Count Range:	0-500; 5,000; 50,000; 500,000 cpm.
Alarm:	Can be set at any point on any scale.
HSM-10B	Identical to HSM-10AM except that thin window (1.5 mg/cm ²) pancake tubes are used in place of side window GM tubes. Overall sensitivity is thus increased and betas below 0.2 MeV may be detected as well as alphas of 4 MeV or over.
Detectors:	Four T/A type 1190 thin window pancake GM tubes for each hand and four for both feet. A T/A P-11 probe with type 1190 pancake tube serves as clothing monitor.
Sensitivity:	Less than .005 μ C of beta above 0.2 MeV. Alpha or lower energy betas are also detected but with less sensitivity. If protective kraft paper or plastic is used in shoe probes, these become insensitive to alpha and soft beta radiation.
HSM-10BS	Combines the scaler versatility and sensitivity of the HSM-10A with the increased sensitivity and added capability for soft betas and alphas of the thin window pancake tubes found in the HSM-10B.



TECHNICAL ASSOCIATES

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

\$Revision: 1.2 \$