

HFM11-SC

Scintillation Hand & Foot Monitor



DP6 Series Alpha-Beta Probe



The HFM11-SC hand and foot monitor provides the proven class leading reliability and ease of use associated with gas-flow systems, but with the added benefit of not requiring counting gas.

OVERVIEW

The HFM11-SC hand and foot monitor uses an established technique for monitoring alpha and beta radiation simultaneously. Sprung detectors clamp both sides of the hand monitor and monitor them simultaneously. The vertically mounted detectors minimize the risk of detector contamination, and the top-mounted occupancy sensors avoid blockages. Each foot detector utilizes two photomultiplier tubes in order to minimize the variation in efficiency across the area of the foot.

An optional frisker probe may be selected from the wide range of existing probes for monitoring alpha, alpha/beta, beta and low energy X-ray contamination. Status, instructions and results are clearly shown on the large color LCD touchscreen making the monitor especially easy to use. This monitor does not require any peripherals to set up or configure; it is completely self-contained.

The HFM11-SC hand and foot monitor is also designed with economy and reliability in mind. The low power consumption means there is no need for a cooling fan which might suck in dust and dirt, and there are no moving parts to fail - solid state Flash storage is used instead of a hard disk in the industrial PC controller, and photobeams are used in the positioning sensors instead of microswitches.

The modular 'X-channel' platform, with common controller boards and simple cabling, facilitates easy, low cost maintenance. It also provides detector intelligence and powerful controller functionality - such as the automated calibration and source checking with auto source decay correction routines. The X-channel architecture also allows easy retrofitting of options such as the frisker probe. Sophisticated voltage scanning software is included which will clearly display the optimum voltage setting in order to discriminate between alpha and beta radiations.



FEATURES

- Low power fan-less operation
- Large touch-screen color LCD display - no keyboard required
- Easy to maintain detector assemblies, minimal basic tools required
- Optional frisker probe
- Hex-mesh grills for greater comfort and detector protection
- Automated detector set-up and alarm checking routines
- Simultaneous monitoring of both sides of hand in compliance with IEC 61098
- Vertically mounted sprung hand detectors to minimize cross contamination

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SPECIFICATIONS

Detectors:	Hands	Feet
Sensitive area:	260 cm ²	560 cm ²
Window:	1.2 mg.cm ⁻² of aluminized Mylar	
Scintillator:	Zinc sulphide and plastic	

Radiological Performance		Hands	Feet
Alpha: (% of surface emission rate)	241Am Nat U	34% 12%	26% 6%
Beta: (% of surface emission rate)	14C 60CO 36Cl	8% 25% 45%	
Gamma: (approx count rate in uniform field of 660 keV photons at 1 iSv/h)		130	270
Uniformity: (variation across surface of detector)		±15% ±15%	±75% ±60%

Monitor	
Alarm settings:	By the use of large area calibrated sources or by touch-screen entry of calculated efficiencies. All HFMs are factory-tested with reference sources.
Background update time:	100 s rolling average, with checking for changing background
Monitoring time:	Auto assessment of time required to meet the statistical requirements in the given background: 1 to 100 s
Control:	Audible and visual alarms occur if a hand or foot is out of position.
Indications:	Digital screen displays for alpha and beta levels for each hand and foot. Magnitude and type of contamination is displayed.
Audible indication:	Separate indications for 'Out Of Position', 'Clear' and 'Alarm' states, as on previous HFM versions.
Probability of false alarm:	0.1 to 10 sigma in 0.1 sigma steps
Probability of detection:	0 to 10 sigma in 0.1 sigma steps
Self test:	High Voltage, detector response, detector contamination and background level are monitored.
Digital I/O connections:	RS-232, Parallel printer port, Ethernet and USB.
Environmental:	Operational temperature range: 5 °C to 45 °C (41 °F to 113 °F) Humidity: up to 95% at 35 °C (95 °F) (non-condensing)
Power requirements:	90 to 264 VAC (auto-ranging power supply), 47 to 63 Hz, 85 VA max.
Dimensions:	Height: 1400 mm (55.1") 1765 mm (69.5") with lid fully open Width: 876 mm (34.5") Depth: 825 mm (32.5")
Weight:	125 kg (275 lb) approx. unpacked.

