

Hand-Foot Contamination Monitor

HF series



The HF series hand-foot contamination monitors are intended to measure surface contamination by alpha, beta and gamma emitting radionuclides on hands, feet, and clothing. Typical usage is at nuclear power plants, radio-chemical plants, research institutes, hospitals, etc.

Purpose

The HF series hand-foot contamination monitors are intended for the measurement of surface contamination by alpha, beta and gamma emitting radionuclides on hands, feet, and clothing (when equipped with optional frisking probe).

The monitor can be used in nuclear power plants, radio-chemical plants, research institutes with reactors, PET centres, etc. For different workplaces an appropriate one or two channel model can be utilised, optimized for the measurement of alpha; alpha + beta; alpha + beta + gamma; alpha / beta and alpha / beta + gamma radiation.

Description

Scintillation detectors are used in the HF monitors. Of those four detectors (alternatively two) are applied for hand contamination measurements and two for feet contamination.

The monitor measures and evaluates the background level throughout its standard operation. As soon as any detector (hand or foot detector) detects that a person is present, the background measurement is interrupted and after reaching all measuring positions, the contamination measurement is started. Information about the potentially wrong positioning of any hand or foot is indicated on the display. A sophisticated algorithm is used to achieve the shortest measurement time and the highest throughput. Maximum and minimum measurement times can be pre-set for the unit as well.

Messages with the monitor and measurement process status, measurement results and/or potential faults are displayed on the touch screen display. Information about contamination / no contamination is also shown by two optical signalling elements (LEDs).

If contamination higher than a pre-set threshold is detected, the acoustic warning alarm will sound.

Main Advantages

- Gas-less smart scintillation detectors
- Excellent tight geometry for high efficiency alpha contamination hands measurement
- A variety of detectors for optimizing measurements of differing radiation types; one or two channel monitor
- High throughput thanks to the short time and advanced statistical algorithm measurement
- Two basic versions – with two or four detectors for hands
- User friendly graphic interface with touch screen TFT display
- Ethernet LAN connection as standard
- Voice messages in different languages
- Frisking probe (optional)
- Personal ID card reader (optional)
- Relay I/O connections, e.g. for automatic door control, etc. (optional)

Standards and Certification

Type Approval Certificate TCM 441/12 - 4955 issued by the Czech Metrology Institute

EN 61098 Radiation protection instrumentation – Installed personnel surface contamination monitoring assemblies

Electromagnetic compatibility (EMC):
EN 55022, EN 61000-6-1--4

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Description

The monitor provides user-friendly voice messages to guide the worker during the measurement process and inform about the results of the measurement.

The data evaluation, storage and display are secured by an industrial PLC unit installed inside the device. A connection of the device to the Ethernet LAN, storing the measured data in the internal memory, and exporting the data measured via USB to flash drive is provided as standard.

The service software on the PC connected by USB is used to control the monitor, i.e. for all internal parameters setting and calibration, full diagnostics etc. Simple user software tool for changing the alarm levels, etc. is provided as standard with each unit. Limited control is provided by the touch screen display, i.e. switch to service mode, starting the data export to USB flash disk, import/export of parameters etc.

Models and Accessories

Type	Radiation detected	Channel	Detector
HF-50 K1010	Alpha	one	ZnS(Ag)
HF-100 K1011	Alpha + Beta	one	Plastic scintillator
HF-150 K1012	Alpha / Beta	two	Plastic scintillator + ZnS(Ag)
HF-300 K1013	Alpha + Beta + Gamma	one	Plastic scintillator
HF-350 K1014	Alpha / Beta + Gamma	two	Plastic scintillator + ZnS(Ag)

Optional Accessories

K093X	Smart Frisking Probe, SFP-100 series (for cloth measurement)
<ul style="list-style-type: none"> Relay and digital I/O connections, e.g. for door automatic control and/or other safety interlocks. Personal ID card reader. The card code is related to the personal data measured and stored in the local or remote database. 	

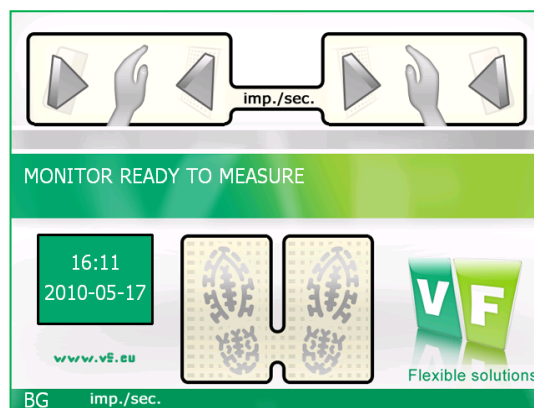
Related products

K118X	Hand Contamination Monitor, HM-4 series
K130X	Personnel Exit Monitor, ExitScan-2 series
K1382	FCM-02 Frisking Contamination Monitor



Specification

Detectors type	scintillation
Detecting area - hands	4 x 286 cm ² (4 x 44.33 in ²) (alternatively 2 x 286 cm ²)
Detecting area - feet	2 x 525 cm ² (2 x 81.5 in ²)
Detector window	aluminized light-tight foil
Reference nuclides	²⁴¹ Am, ²⁰⁴ Tl, ¹³⁷ Cs
Energy range for beta	¹⁴ C ~ 3.0 MeV
Effective energy range	0.2 ~ 2.5 MeV
MDA	alpha < 0.04 Bq/cm ² beta < 0.2 Bq/cm ²
Display unit	TFT touch screen display
Units displayed	cps, Bq, Bq/cm ²
Communication interface	Ethernet
Power supply	230 VAC or 110 VAC
Dimensions (W x H x D)	822 x 1438 x 825 mm (32.4 x 56.6 x 32.4 in)
Weight	app. 52 kg (115 lb)
Ambient temperature	0 ~ 40 °C (32 ~ 104 °F)



Basic screen



Optional Smart Frisking Probe SFP-100 utilized for cloth contamination measurement

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Contact Address

Czech Republic

VF, a.s., Svitavská 588
CZ 679 21 Černá Hora
tel. +420 516 428 611
fax +420 516 428 610
info@vf.eu

Slovak Republic

VF, s.r.o., M. R. Štefánika 9
SK 010 02 Žilina
tel. +421 415 072 411
fax +421 415 072 410
info@vf.eu

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