

HAND-FOOT-CLOTHES GAMMA MONITOR

VITRUVIUS 8220

MAIN FEATURES

- Four plastic scintillator detectors for high sensitivity measurements of gamma contamination
- Pre-recorded voice messages
- Detachable probe for clothes monitoring
- MDA: 0.3 Bq/cm² for ⁶⁰Co in 10 s; 0.4 Bq/cm² for ¹³⁷Cs in 10 s
- Stainless steel structure for easy decontamination
- Management and visualization software
- Automatic background subtraction with background follower
- User defined alarm thresholds
- Audible and visual alarm annunciation
- Colour LCD graphic display 7"
- External keyboard for system set-up
- Ethernet interface

DESCRIPTION

The hand-foot-clothes monitor **VITRUVIUS 8220** is an instrument specifically designed for checking gamma contamination on the body of workers operating in areas where it's possible to come into contact with radioactive material. In particular, **VITRUVIUS 8220** monitor performs the measurement of gamma contamination of hands, feet and clothes of the operator.



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The contamination is measured by means of plastic scintillator detectors, located at hands/feet positions and coupled to photomultipliers and related amplification electronics for signal conditioning. The detector at the right hand position can be detached from the structure in order to measure clothes in a close counting geometry. A possible contamination is indicated both visually and acoustically by the software application that manages the monitor.

A pre-recorded voice guides the operator through all the measurement procedure, giving also warning messages should an anomaly or an alarm occur.

The operator interacts with the monitor through control/management panels and virtual self-explaining buttons.

TECHNICAL SPECIFICATIONS

Detectors

- Detector type: Plastic Scintillator PVT
- 2 Hand detectors, dimensions: (WxHxD) 25x15x2 cm³, 375 cm² (each)
- 2 Foot detectors, dimensions: (WxHxD) 35x15x2 cm³, 525 cm² (each)
- Clothes detector (right hand): weight = 3 kg, cable length = 220 cm

Processing electronics

- Low ripple HV circuit
- Low electronic noise preamplifier
- Discriminator circuit with adjustable thresholds

Mechanical structure

- Stainless steel

Acquisition and control unit

- CPU unit for data processing and storage
- Windows operating system
- Ethernet interface
- Colour LCD graphic display 7"

Management software

- Automatic background subtraction
- Alarm threshold adjustable for each detector

- Separate parameter set (thresholds, calibration factor, etc.) for each
- detector and user defined isotope
- Measurement display in cps or Bq/cm²
- Visual and audible indication when the alarm threshold is crossed
- Pre-recorded voice messages management

Performance(*)

- Efficiency ISO 7503-1 hands/clothes detectors:
 - 32% for ⁶⁰Co
 - 18% for ¹³⁷Cs
- MDA hands/clothes detectors:
 - 0.3 Bq/cm² of ⁶⁰Co
 - 0.4 Bq/cm² of ¹³⁷Cs
- Efficiency ISO 7503-1 feet detectors:
 - 23% for ⁶⁰Co
 - 7% for ¹³⁷Cs
- MDA feet detectors:
 - 0.2 Bq/cm² of ⁶⁰Co
 - 0.7 Bq/cm² of ¹³⁷Cs

Power supply, weight and dimensions

- Power supply: 220 V, 50 Hz AC
- Dimensions: (WxHxD) 62x128x80 cm³
- Weight: 60 kg

(*) Source surface 150 cm² and 10 seconds measurement time.



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