

# RTM870 PRE

Body Contamination Monitor



*detection  
monitoring  
radiation*



**Hand and Foot Monitor, Video Display  
Large Area Gas Flow**

- **easy operation**
- **forearm measurement**
- **position sensor for proximity to detectors**
- **speech processor for user guidance**
- **service friendly industrial grade PC**
- **automatic adjustment of measurement time**
- **operation in cps, cpm, Bq and Bq/cm<sup>2</sup>**

The RTM870 PRE monitors the parts of the body most likely to be contaminated - it is easy to use and employs a user-friendly guidance system with a video display and voice prompts. The design and features of the Rados RTM870 PRE Body Monitor make it an effective, secure and safe contamination monitor for personnel. It enables high throughput of personnel leaving a controlled area, while providing accurate, clear results that are available locally and at a central control point.

## Functional characteristics

### measurement principle:

- large area gas flow proportional counters
- beta or alpha/beta measurement options
- maximum detection sensitivity for both front and back side due to proximity switch
- coverage of front and back of body, feet, hands and forearms
- background compensation with a unique method using two median filters

### operation:

- display of amount of activity volume and position of contamination
- user guidance by speech processor up to four languages user selectable
- monitoring of the measurement position by optical sensors
- measurements in cps, cpm, Bq and Bq/cm<sup>2</sup>
- measurement performed in two steps:
  - 1. front measurement of the body as well as the head, right hand and forearm, and right foot
  - 2. reverse side: back measurement, including head, left hand and forearm, and left foot

### service and maintenance:

- easily replaceable detectors
- new software provides a calibration menu with a protocol (MOWIN) and includes a plateau plotter (MPP)
- very easy adjustment of all programmable parameters
- data storage on floppy disk or data printout for analysis

## characteristics of the detectors

- detectors/detectors window surface:
  - body: 3 x RGZ 2100 each 2100 cm<sup>2</sup> (325 in<sup>2</sup>)
  - hand, forearm: 2 x RGZ 800 each 800 cm<sup>2</sup> (124 in<sup>2</sup>)
  - foot: 1 x RGZ 800 800 cm<sup>2</sup> (124 in<sup>2</sup>)
  - total surface: approx. 8900 cm<sup>2</sup> (1379 in<sup>2</sup>)
- alpha and beta efficiency: referring to a large-area test source of 100 cm<sup>2</sup> (15.5 in<sup>2</sup>), standard grid

isotope	body	hand	foot
<sup>36</sup> CL	abt.38%	abt.35%	abt.29%
<sup>60</sup> Co	abt.24%	abt.22%	abt.18%
<sup>90</sup> Sr/ <sup>90</sup> Y	abt. >70%	abt. >70%	abt.>60%
<sup>137</sup> Cs	abt.28%	abt.31%	abt.28%
<sup>241</sup> Am	abt.20%	abt.20%	abt.20%

- detection limit:
  - 50 Bq<sup>60</sup>Co in 4 seconds
  - (0.1 µSv/h detection probability 2 Sigma, false alarm rate 3 Sigma, source in contact)
- electronics/display:
  - computer PC board Pentium - 200 MHz
  - ATEWIS2000 plug-in board for detector communication and binary control
  - RAM 64 MB
  - interface 4 X serial, 1 x parallel RS232
  - graphic display VGA on board
  - keyboard with trackball
  - HDD\_1.28 MB
  - FDD 3.5 in, 1.44 MB
  - one or two monitors: TFT - LC display colour
  - sound and network card on board
- software:
  - operating system QNX /QNX Photon
  - multitasking and real time
  - TCP / IP network
  - ...for central database (IRMOS system)
- gas consumption: 3 - 5 l/h (0.8 - 1.3 g/h)
- sensor: several opto-sensors and proximity switches

