

Thermo Scientific PM12

Personnel gamma portal monitor

The Thermo Scientific™ PM12 gamma portal monitor breaks new ground in personnel monitoring. It provides a major improvement in sensitivity over similar instruments, thus leading to faster monitoring.

Key Features:

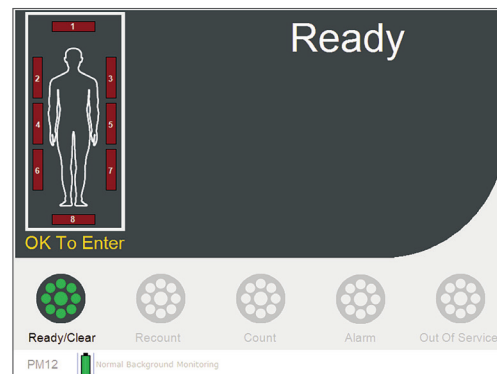
- Reduced time to count (Quickscan)
- PC controlled, with embedded Windows™ operating system
- All results logged to internal database
- Achieves measurements of 370 Bq (10 nCi) of ⁶⁰Co
- Five modes of operation: walk through, one step, two step, three step or stand and turn
- Two types of high level alarms, as well as an optimized ⁶⁰Co alarm
- Ability to check for changing background during the measurement
- Optional large touch-screen color LCD display - no keyboard required
- Automated calibration and checking routines
- Easy upload and download via USB
- Thermo Scientific™ ViewPoint™ compatibility

The PM12 utilizes eight identical large gamma-sensitive plastic scintillation detectors to monitor personnel passing through the portal. Traffic flow can be either direction. Three detector assemblies are located in each side of the portal, with additional detectors to monitor the head and feet. The PM12 maintains the simple operation of its predecessor the PM7. In its basic form no keypads or complicated displays are necessary. The only user control is an alarm acknowledge switch, which is used to silence the audible alarm after contamination has been detected. The operational status of the portal is clearly indicated by a set of vertical system indicator lights located on both sides of the portal frame.



The System Indicator Lights are as follows:

- **Contaminated:** A red light indicating the presence of contamination
- **Ready:** A green light indicating that the PM12 is ready to use and is measuring background
- **Count:** A yellow light indicating that the portal is monitoring a user for contamination
- **Re-count:** A white light indicating that the user left the monitoring position before the count interval was complete
- **Out of service:** A blue light indicating that the personnel monitor is undertaking internal checks or has a failed component



Along with these indicators, a human silhouette, located on the right hand side of the portal frame, indicates which of the eight detector zones are “contaminated” thus aiding in localizing the contamination on an individual. The monitor will utilize double detector and triple detector sum-zones for monitoring of low level distributed activity. Voice commands may be utilized to help with the positioning of the user.

PM12 Specifications

The PM12 may operate in either minimum count time or maximum sensitivity mode. The user enters the desired alarm level in terms of activity located in the centre of the monitor, or activity located adjacent to a detector (or both) and the personnel monitor determines the appropriate alarm level and minimum necessary count time to achieve these levels. The typical MDA for activity on the surface of the body is 200 Bq (6 nCi) of ⁶⁰Co.

An optional touch screen LCD is provided which will provide additional instructions to the users, and display monitoring results. The LCD is used for the calibration and configuration of the portal, and also may be used for retrieving measurement and calibration data from the portal's database. The portal may also be calibrated using a laptop PC connected to the portal's Ethernet port. The Thermo Scientific software is highly intuitive and provides detailed high voltage scanning, calibration and report generation.

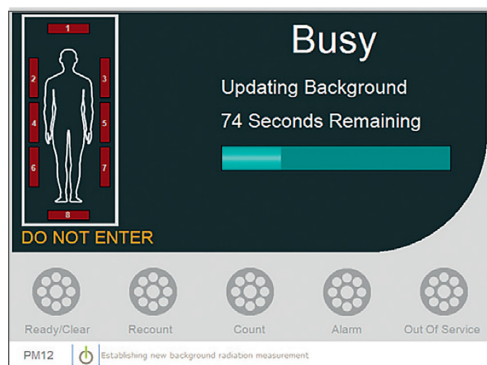
| Products | | | |
|------------------|---------------------------------------------------------------------|--------------------|-------------------------------------------------------------------|
| PM12A-05L | LCD and 0.5 inch of lead shielding | PM12B-05L | No LCD and 0.5 inch of lead shielding |
| PM12A-10L | LCD and 1 inch of lead shielding | PM12B-10L | No LCD and 1 inch of lead shielding |
| PM12C-05L | LCD, 0.5 inch lead shielding. Entry barrier and Bi-fold exit doors. | PM12C-10L-E | LCD, 1 inch lead shielding. Entry barrier and Bi-fold exit doors. |

General:

- The monitor has eight identically sized detectors
- The outer dimensions of the monitor are 603 x 940 x 2190 mm (23.7 x 37 x 86.2 in). The LCD protrudes a further 290 mm (11.4 in)
- The internal passage width is 710 mm (28 in) in centre of portal
- The monitor is available both with and without an LCD display
- There are two thicknesses of shielding: 12.7 mm (0.5 in) and 25.4 mm (1 in)
- The mass of the monitor is either 820 kg (1800 lbs) or 1000 kg (2200 lbs), depending on the shielding used. PM12C version, add 150 kg, (330 lbs)

Features:

- The monitor may be used in five modes: walk-through, one step, two step, three step, stand and turn. The two step mode is the most sensitive for contamination on the body. The three-step mode is a combination of one step and two step
- The software allows both an activity alarm and a high activity alarm
- An alarm may be set on each individual detector, as well as double detector sum zones and triple detector sum zones, and gross sum (8 detector) zone.
- Quickscan may be used, which significantly reduces the counting time, without compromising the statistical probabilities of detection or false alarm.
- A low energy check may be used if a user is contaminated with contamination from medical radionuclides
- An additional ⁶⁰Co alarm will monitor for the presence of ⁶⁰Co, with greater sensitivity than the standard alarm
- A changing background indication will indicate significant changes in background radiation
- A changing conditions alarm will indicate if there is a significant change in the count rate during the monitoring period, which would invalidate the measurement
- Rapid recovery from background changes with a dynamic background counting time
- All background, measurement, source checking, event log, voltage scanning is stored to an SQL database within the monitor
- Set-up and configuration and diagnostic information is accessed via a touchscreen LCD, or an optional external PC
- User screens and voice prompts in a wide range of user-selectable languages
- When used with user identification, may be used to monitor lung burden trends on individuals over a period of time
- Dongle security, with three security levels
- Battery and sensor diagnostics
- Calibration integrity checking
- Selectable languages English, French, Chinese, other available upon request.
- Video camera, barcode reader, and dry contact status output options



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