

Thermo Fisher Scientific PM-7 Frequently Asked Questions

Question: What is the PM-7 and what are the main features?

Answer: The PM-7 gamma portal monitor is a microcomputer-based radiation detection system which provides a rapid and sensitive indication of personnel contamination. The main features are microcomputer controlled, automatic background subtraction, RS-232C serial communication port, and large-area plastic scintillation detectors.

Question: What is the PM-7 used for?

Answer: The PM-7 Personnel Monitor is a gamma-sensitive portal intended for contamination screening.

Question: What type of detectors and electronics are used in the PM-7?

The PM-7 uses six large plastic scintillation detectors to surround the 24" x 78" portal opening. Each detector is supported by an individual, microprocessor-based, interface board which controls the detector high voltage, supplies the amplifier/discriminator circuitry, and supports a serial communication channel. An annunciator board controls the audible and visual indicators and also serves as the master with respect to the RS-485 communication bus which interconnects the detector interface boards.

Question: What is the PM-7 Manager program?

Answer: PM-7 Manager v1 makes calibrating and configuring the Thermo Electron PM-7 quicker and easier than ever. The new utility provides a standard Windows graphical user interface (GUI). The functionality of PM-7 Manager v1 is the same as the previous PM-7 calibration and configuration software; now, however, the specific procedures for calibrating and configuring the PM-7 are different.

Question: What is the current Desktop PC program version?

Answer: The PM7 Manager Software is currently Rev 1.02

Question: What is the basic operating mode of the PM-7?

Answer: The operating mode of the PM-7 is based on minimum count time. The user enters the desired Reliably Detectable Activity (RDA) and the personnel monitor determines the appropriate alarm level and minimum necessary count time to achieve the RDA. The PM-7 continuously counts while a user is within the sensitive region of the portal even though the required count time may be less than the time the user is within this region. The recount alarm sounds if the user exits the portal before at least one count interval can be satisfied. A typical RDA level for a 0.4 second walk through time is 100 nCi.

Question: How is calibration and configuration accomplished?

Answer: Calibration and configuration of the PM-7 is accomplished using a PC connected to a built-in RS-232C communication port. The software is menu driven for the setup of the portal. The PC calibration program will perform automatic detector plateau, efficiency calculations, and report generation.

Question: How is the operational status indicated?

Answer: The PM-7 utilizes large lights, graphics, and audible tones to indicate operational status.

Question: How is the operation of the PM-7 initiated?

Answer: An ultrasonic ranging device detects personnel entering the portal from either direction. This ranging device may be used alone, or with the photoelectric switch, to suspend background updating and initiate the contamination survey.

Question: How does the alarm function operate?

Answer: The alarming algorithm in the PM-7 ensures the maintenance of a user selected Reliably Detectable Activity (RDA), regardless of background radiation level, by continually adjusting count time and verifying user residence time in the portal.

Question: How is the PM-7 calibrated?

Checkout and calibration of the PM-7 is performed using a PC compatible portable computer executing custom applications software provided by Thermo. This software performs automatic detector high voltage plateaus and efficiency checks as well as exercises the visual and audible annunciator. Miscellaneous other functions are available to the user including access to current count rates, background averages, channel parameters, count times, calibration source decay correction, figure of merit calculations, and statistical variance tests. Calibration reports are stored on diskette and can be printed out to provide hardcopy documentation of the calibration.

Question: Is there a battery backup?

Answer: The PM-7 is provided with battery backup for continued operation in the event of a power failure.

Question: What optional equipment is available for the PM-7?

Answer: Optional equipment for the PM-7 include a remote annunciator assembly, calibration computer, interconnecting cables, printer, and a calibration source jig.