

# PACKAGE RADIATION MONITORING SYSTEM

MODEL ~ PIM-23A & PIM-23B

## FEATURES:

- AUTOMATIC DETECTOR SYSTEM FOR PACKAGE CONVEYOR
- **PIM-23A** ~ CAPTURES DATA & AUTOMATICALLY SORTS & SEPARATES ITEMS ONTO "CLEAN" & RADIOACTIVE/CONTAMINATED" BELTS OR CHUTES
- **PIM-23B** ~ CAPTURES DATA OF "CLEAN" & RADIOACTIVE/CONTAMINATED"
- RADIATION TRIGGER POINT IS CONTINUOUSLY ADJUSTABLE
- MANUAL OVERRIDE
- FIVE ENERGY WINDOWS (REGIONS OF INTEREST)
- REAL-TIME DATA ARCHIVE & RETRIEVAL
- 7  $\mu$ R/HR ABOVE BACKGROUND IN 1 SECOND



## DESCRIPTION:

- The PIM-23B monitors packages while they are traveling on a conveyor belt.
- Model PIM-23B Package Radiation Monitor is a sturdy, dependable, long life mechanical system with advanced electronics.
- The detector is a 3" x 3" NaI Scintillator (Optional: 5" or 7" diameter) has its own electronics to give the greatest sensitivity.
- Numerical measurement results are saved to the 60 Gig hard drive and are easily accessible for all packages: clean and radioactive.
- Color LCD computer monitor shows measurement values from all 5 Energy Isotopes.
- Indicating lights show status as "CLEAN" or "RADIOACTIVE".
- The date, time and results of all data that day, that week and that year are available for display, printout and safe storage.
- **Accessories:** One set of calibration sources is supplied with **PIM-23B** Package Monitor. This consists of one each Ba-133, Cs-137, Co-60 calibration source standards. Each Source comes with NIST Traceable calibration certificate, test data, and Calibration Factors.



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### SPECIFICATIONS:

<b>Conveyor PIM-23A:</b>	Packages pass beside the detector display shows status as "CLEAN" or "RADIOACTIVE/CONTAMINATED". Packages are physically sorted onto "CLEAN" & RADIOACTIVE/CONTAMINATED" belts or chutes
<b>Conveyor PIM-23B:</b>	One belt. Packages pass beside the detector and display shows status as "CLEAN" or "RADIOACTIVE/CONTAMINATED".
<b>Conveyor System PIM-23A:</b>	2 each conveyors. Belt #1 is 6 ft. long, (typical) belt carries packages beside detector. Belt #2 is 4 ft. long, (typical). Reversible direction conveyor. Drops CLEAN packages to one side. Drops off RADIOACTIVE/CONTAMINATED packages on the other side. <b>Optional:</b> Additional conveyors to carry away "CLEAN" & "RADIOACTIVE" Packages
Conveyor Width <b>PIM-23A &amp; PIM-23B:</b>	24"
<b>Detector:</b>	Spectroscopic Grade 3" x 3" NaI Scintillation Detector. ( <b>Optional:</b> 5" or 7" diameter) The Scintillation Detector has its' own PM tube. PMT base (dynode string circuit) Independent Modular high voltage and pre-amp discriminator. This provides improved sensitivity and easier maintenance if a PM tube is replaced.
<b>Ultimate Sensitivity:</b>	7 R/hr above background in 1 second.
<b>Background:</b>	Automatically subtracted.
<b>Shielding:</b>	2 cm lead over greater than 2. Lead shield is modular and easy to assemble (no piece over 65 lbs.)
<b>ELECTRONICS:</b>	
<b>Alarms:</b>	Alarm threshold is continuously adjustable for each energy channel/ROI. High level alarm is user settable. Alarms are audio and visual plus screen display.
<b>Operation:</b>	Selectable: Continuous Mode, Calibration Mode
<b>Computer System:</b>	1 Terabyte. Color display. Color LCD screen monitor on a movable arm for improved ergonomics.
<b>Record Keeping:</b>	Real-Time Data Archive and Retrieval. Data can be transmitted to other PC's by built in Ethernet connection ( <b>Optional:</b> Wireless cell phone, email). Graphics printer included. Print tabular or graphical records of current day, week, month or year.
<b>Environmental Conditions:</b>	45 <sup>0</sup> F to 100 <sup>0</sup> F, (8 <sup>0</sup> to 38 <sup>0</sup> C) 10% to 95% relative humidity, non-condensing
<b>Power Supply:</b>	100 - 120 V AC or 220 V 50/60 Hz with UPS
<b>Battery Backup:</b>	Uninterruptable "UPS" battery backup is supplied
<b>Energy Window:</b>	Continuously adjustable for each energy window.
<b>Data Analysis:</b>	First individual channels and then combined channels. <ul style="list-style-type: none"><li>• Noise rejection.</li><li>• Background subtraction.</li><li>• Energy Analysis Calibration and units conversion.</li></ul>



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- Statistical significance check.
- Alarm point trip level

### Electronic Functions:

Photo multiplier tube and base, Detector HV bias.  
Amplifier with 5 adjustable Energy Windows (Regions of Interest).  
Data sent to and acquired by PC.  
Data analysis.  
Alarm trigger.  
Conveyor Control  
Conveyor Status Indicators  
Data storage and Print Out  
System Power, UPS Battery Back Up

### Options:

Additional Conveyor or Conveyor Extensions  
Outlet Annunciator Panel.  
Spare detector plus other spare parts.  
Inlet Annunciator Panel.  
Calibration Jig.  
Wider Temperature Range.  
5" or 7" diameter NaI Scintillation Detector.  
Additional Regions of Interest Energy Channels.



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