

LAUNDRY MONITORING SYSTEM

Model # LIM-23C-55

FEATURES:

- AUTOMATIC CONVEYOR FOR LAUNDRY
- AUTOMATICALLY SEPARATES CLOTHES INTO "CLEAN" AND "CONTAMINATED" BASKETS
- CONTAMINATION TRIGGER POINT IS CONTINUOUSLY ADJUSTABLE
- MANUAL OVERRIDE
- COUNTS ENTIRE GARMENT SIMULTANEOUSLY VIA FOUR PLASTIC SCINTILLATION DETECTORS

SYSTEM DESCRIPTION: The LIM-23C-55 monitors laundry including pants, shirts, overalls etc., while they are traveling on conveyor belt.

Model **LIM-23C-55** Laundry Contamination Monitor is a sturdy, dependable, long life mechanical system with advanced computer and data processing.

Model **LIM-23C-55** is suitable for use in Nuclear Power Plants.

The detectors each have 230 cm² active area and each has its own electronics to give greatest sensitivity.

Garments are carried by a conveyor. They pass under a bridge with four detectors above and four detectors below.

Garments are physically sorted by the second conveyor into TA baskets or users containers, one for CLEAN and the other for CONTAMINATED garments.

Numerical measurement results are saved to the 50 Gig hard drive and are easily accessible for all garments: clean and contaminated.

Color LCD computer monitor shows measurement values from all 4 detectors. Indicating lights show status or step of operation and background. Ready to Count, New Garment Moving into Position, Count in Progress, Count OK-CLEAN, or Count Alarm-CONTAMINATED, ETC. The date, time and results of each garment measured in that batch, that day, that week and that year are available for display, print-out and safe storage. Statistical reports are also created.

Batch Mode: Authorized user sets alarm level, count time, motor speed, location where clothing was used, work group who wore them, etc., number of garments to be measured At this time, with these parameters.

Automatic Mode is very similar to batch mode, but in Automatic Mode the garments are checked automatically, all day, or until there are no more garments to check. The test parameters can be changed in automatic mode, at the beginning of the day, or by activating the manual override.

Accessories: One set of calibration sources is supplied with LIM-23C-55 Laundry 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.

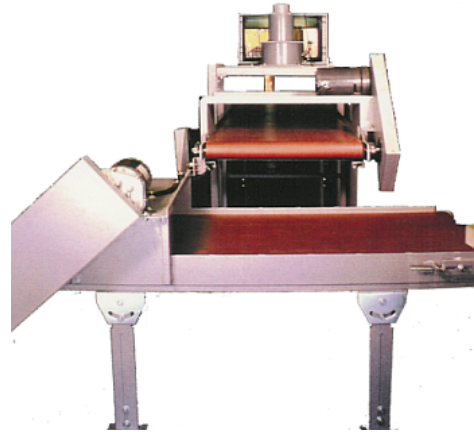


Figure 1: LIM-23C-55

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SPECIFICATIONS:

Conveyors:	Clothing passes under the four (4) detectors Clothing is physically sorted onto "CONTAMINATED" basket and "CLEAN " basket.
Detectors:	Four each beta-gamma plastic scintillators. Detector Active Area: Four detectors each 230 cm ² active area.
Counting	Sensitivity Sees 22,000 dpm/100cm ² in less than 20 sec.
Ultimate Sensitivity:	1.0 Bq/cm ² based on 100 x 100 mm Co60 distributed source. Background of 0.3 μ Sv/h. Conveyor of 50 mm/sec.
Background:	Automatically subtracted.
Shielding:	2 cm lead over greater than 2 pi. Lead shield is modular and easy to assemble (no piece over 65kg)
Electronics:	Each plastic scintillator has it's own PM tube. PMT base (dynode string circuit) Independent Modular high voltage pre-amp and discriminator. This provides improved sensitivity and easier maintenance if a PM tube is replaced.
Alarms:	Alarm threshold is continuously adjustable. High level alarm is user settable. Alarms are audio and visual plus screen display.
Operation:	Selectable: Continuous Mode, Calibration Mode
Computer System:	Pentium II 1 Giga Hz. High Resolution Graphics Display 1024 x 768, 256 colors. Color LCD screen monitor on a movable arm for improved ergonomics.
Record Keeping:	All data automatically stored on 50 Gig hard drive. Data can be transmitted to other PC's by built in Ethernet connection (telephone modem is optional). Graphics printer included. User can print tabular or graphical records of current day, week, month or year.
Conveyor Speed:	Continuously variable, user controlled. 150 mm/sec typical.
Useful Width:	24" (610mm).
System Weight:	175 Kg plus Shielding
Conveyor System:	2 each conveyors. Belt #1 is 6 ft. long, (typical) belt carries clothes under detector. Belt #2 is 4 ft. long, (typical) reversible direction conveyor, drops CLEAN clothes to one side and drops off CONTAMINATED clothes on the other side.
Environmental Conditions:	32 ^o F to 122 ^o F, (0 ^o to 50 ^o C) 10% to 95% relative humidity, non-condensing
Power Supply:	100 - 120 V AC or 220 V 50/60 Hz with UPS

TA **TECHNICAL ASSOCIATES**
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\$Revision: 1.1 \$

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Battery Backup:	Uninterruptable "UPS" battery backup is supplied.
Energy Threshold:	Continuously adjustable for each detector.
Data Analysis:	First in individual channels and then combined channels. Noise rejection Background subtraction Energy Analysis Calibration and units conversion Statistical significance check. Alarm point trip level
Open Source:	All Technical Associates generated software is provided with source code to users.
Software Environment:	Technical Associates utilizes "Labtech notebook" software which allows user to make changes in system operation without being a programmer.
Electronic Functions:	Photo multiplier tube and base, Detector HV bias. Amplifier with adjustable energy threshold. Data sent to and acquired by PC. Data analysis. Alarm trigger. Data storage. Data printout. Optional data transmission (Ethernet). Conveyor control. Conveyor status indicators. System power UPS battery back-up.
Options:	Conveyor Extensions. Outlet Annunciator Panel. Spare detector plus other spare parts. Inlet Annunciator Panel. Calibration Jig. Accessory Control Panel. Bar-code System .

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