

## Model 329-32

### Laundry Contamination Monitor



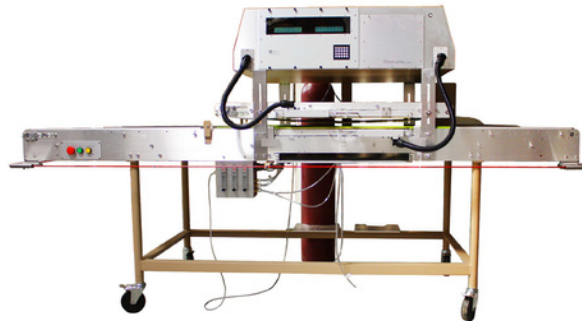
Ludlum Measurements, Inc.

#### Features

- Highly Automated System
- Simultaneous Monitoring of Upper and Lower Surfaces
- Lockable Caster Wheels
- 32 Alpha and 32 Beta Channels
- Audible Alarm is Accompanied by Visual Indicator LEDs for Indicating Approximate Location of Contamination
- Real-Time Performance Status LEDs
- Pass-Through Tunnel Adjusts up to 17.8 cm (7 in.) Height



Laundry Contamination Monitor Part Number 48-2113 (2 views)



#### Introduction

The Ludlum Model 329-32 Laundry Contamination Monitor is intended for automatic monitoring of both alpha and beta-gamma contamination on clothing or other light articles presumed to be free of radioactivity, or within release or reuse limits. A motor-driven steel-mesh conveyor belt carries articles between two gas proportional detector arrays. An audible alarm will sound when contamination exceeds the given alarm setpoint. A light-emitting diode (LED) array spanning the belt shows the approximate position of the alarm on the conveyor, and provides the operator with the status of the machine. A dual liquid crystal display (LCD) shows the counts and the current operating conditions, such as conveyor speed and gas flow. A security-code protected 20-key keypad also allows the changing of alarm set points, operating parameters, and other system information. The entire system is mobile, with lockable casters to prevent unwanted movement of the monitor.

Each lower and upper detector array has 16 individual gas proportional detectors, providing 32 alpha channels and 32 beta-gamma channels for a total of 64 counting channels. A spare detector array (supplied with each system) allows for easy replacement, reducing down time. The detector arrays are staggered providing an even response across the conveyor. The usable detection width is 86.4 cm (34 in.) with an overall belt width of 91.4 cm (36 in.).

All three detectors (upper, lower, and spare) slide out of the conveyor bed for cleaning and repair. The electronics is microprocessor-based, and housed in two slide-out drawers. There are two alarm levels, each fully adjustable. The first alarm level (ALERT) can pause the conveyor, stop the conveyor, allow the conveyor to continue, or re-scan. Re-scan reverses the belt to clear the probe that caused the alert, and then passes the article through the monitor again. A master yellow alert lamp will light for the duration of any ALERT. The second alarm level (ALARM) can either stop the conveyor and light the red master lamp and audio, re-scan once, twice, always, or it may continue conveyor operation and latch all alarms. Fail detection features include high-voltage failure, low count, and high background. The high voltage, conveyor belt speed, and output gas flows are monitored by the central processor. Pressing the BACKGROUND UPDATE button manually enters the background mode. Automatic background updates allow updating after the conveyor has become free of articles.

The conveyor drive system consists of a 1/8 hp gear motor driving both upper and lower conveyors. An infrared sensor detects articles approaching the detectors. The upper-to-lower conveyor spacing adjusts between 0 and 17.8 cm (0 and 7 in.).

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### Specifications

**SYSTEM CONTROL PANEL:** two 40-character wide by 8-line LCD displays with back lights, and 20-key control pad (provides count readings for each channel and system parameter information and control)

**ARRAYS:** two arrays (one top, one bottom), each of sixteen 100 cm<sup>2</sup> (15.5 in<sup>2</sup>) gas proportional detectors in two staggered rows of eight, providing a 86.4 cm (34 in.) wide continuous detection area

**SPARE ARRAY:** stored under unit and connected to gas for quick replacement if necessary

**DETECTOR WINDOW:** 0.4 mg/cm<sup>2</sup> aluminized metalized polyester

**ACTIVE AREA (each array):** approximately 2000 cm<sup>2</sup> (310 in<sup>2</sup>)

**OPEN AREA (each array):** approximately 1600 cm<sup>2</sup> (248 in<sup>2</sup>)

**EFFICIENCY (4π):** approximately 22% for 90Sr/90Y; 15% for 230Th

**HIGH VOLTAGE:** adjustable from 200 to 2500 volts

**COUNT TIME:** adjustable from 1 to 12 seconds

**RECOMMENDED COUNTING GAS:** P-10 (10% methane; 90% argon)

**ARTICLE SIZE:** maximum 17.8 x 86.4 cm (7 x 34 in.) (W x H), upper conveyor adjustable from 0 to 17.8 cm (0 to 7 in.) above lower conveyor

**BACKGROUND UPDATE:** manually or automatically when no articles are on conveyor belt

**THRESHOLD:** alpha: 125 mV; beta-gamma: 2.5 mV; beta-gamma window: 50 mV

**AUTOMATIC RE-SCAN:** performs automatic reverse and re-scan of articles when alarm is indicated

**OPERATOR CONTROLS and NOTIFICATIONS:** include pilot light (system ON), 3 run buttons, 3 stop buttons augmented by safety pull cable; update background, audio acknowledge, alert lamp, alarm lamp, audio annunciator, upper conveyor crank, conveyor belt tightener. Status lights notify users when system is counting, article is sensed, detectors are functioning properly, conveyor speed is within limits, motor is operating, background update is in progress, main and auxiliary gas bottles are in use or registering empty or have low output, update required, low count, high background, HV fail, and Trouble (error) detected.

**SERIAL PORT:** RS-232 compatible port

**CONVEYOR BELTS:** 2 stainless steel woven mesh belts (one upper, one lower); useable detection width is 86.4 cm (34 in.) with overall belt width of 91.4 cm (36 in.)

**CONVEYOR SPEED:** adjustable from 0.25 to 14 cm (0.10 to 5.5 in.) per second

**EMERGENCY STOP:** conveyor is encircled by a cable pull that will stop the conveyor

**POWER:** 95 to 135 Vac at 2 amps maximum; 220 Vac available

**TEMPERATURE RANGE:** -15 to 50 °C (5 to 122 °F)

**CONSTRUCTION:** steel frame and aluminum electronics housing

**SIZE:** 150 x 116 x 282 cm (59 x 45.8 x 111 in.); **SHIPPING SIZE:** 152 x 122 x 301 cm (60 x 48 x 119 in.)

**WEIGHT:** 250 kg (550 lb) **SHIPPING WEIGHT:** 568 kg (1250 lb)