

LAUNDRY MONITORING SYSTEM

MODEL # LIM-21GFA

FEATURES:

- FULL DYNAMIC BACKGROUND SUBTRACT
- OUTSTANDING SENSITIVITY TO FISSION PRODUCTS SPECTRUM
- ADVANCED η OF 8 DESIGN
- 8 CHANNELS OF COUNTING ELECTRONICS
- AUDIO AND VISUAL RADIATION ALARMS
- HIGH BACKGROUND ALARM
- LOSS OF SIGNAL LIGHTS
- FAST FLOW THROUGH OF LAUNDRY
- EASY TO READ ALARM PANEL FOR MOUNTING ON WALL OR PORTAL

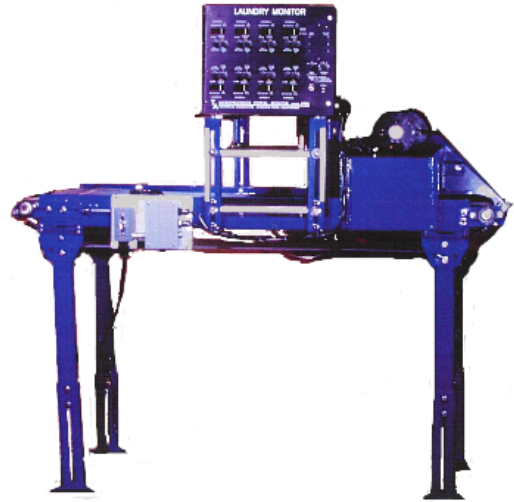


Figure 1: LIM-21GFA

APPLICATION: The **LIM-21GFA** examines each garment for radioactive contamination. A large throughput can be attained with a minimum amount of supervision.

DESCRIPTION: The **LIM-21GFA** consists of conveyer belt with eight detectors and separate table top, (also rack mountable) electronics. A cabinet to hold electronics and counting gas bottle is optional. Eight gas flow radiation detectors and one motion detector, sense contamination on an item of clothing. The eight radiation detectors are divided into eight separate channels, one for each detector. This feature makes it easier to locate and remove contamination, and increases sensitivity by lowering the background count per channel.

When unoccupied, the **LIM-21GFA** averages background radiation over 20 second interval. A first-in-first-out shift register updates the background data every 0.2 seconds. When the belt is occupied the electronics compare the background plus 1, 1.4, or 2 times the background standard deviation, to the laundry radiation count. This comparison is made every 50, 100, or 200 milliseconds depending upon the setting of the front panel sample time switch. The level of confidence (η of 8) can be set for each channel using the eight position switches on the electronics console. Separate alarms are provided for each channel.

SPECIFICATIONS:

- SENSITIVITY:** 80 nanoCi Cs¹³⁷ is detected with 95% confidence in 0.4 sec.
- GAS FLOW DETECTORS:** LIM-21GFA.
- Sensitivity:** 20% of 4π Cs¹³⁷ Betas. Detectors can detect lower energy betas down to .05 MeV.
- Sensitive area:** 400 square centimeters per detector.
- Operating Voltage:** Typically 1900 V with P-10 gas or 2800 V (optional) with Propane.
- Window Thickness:** 5 mg/cm² (other thicknesses optional).
- Optional:** LIM-21GFAT for enhanced gamma sensitivity.

TA

TECHNICAL ASSOCIATES

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\$Revision: 1.2 \$

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CONVEYOR SPECIFICATIONS:

- Conveyor Speed:** Continuously variable, user controlled. 150 mm/sec typical.
- Useful Width:** 24" (610 mm).
- System Weight:** 175 kg plus shielding.
- Conveyor System:** 2 each conveyors.
Belt #1: is 6 ft. long, belt carries clothes under detector.
Belt #2: is 4 ft. long, reversible direction conveyor, drops CLEAN clothes to one side and drops CONTAMINATED clothes on the other side.
- Environmental Conditions:** 32^oF to 122^oF, (0^o to 50^oC).
10% to 95% relative humidity, non-condensing.
- Power Supply:** 100-120 VAC or 220 V 50/60 hz with UPS.

ELECTRONICS CHASSIS:

- Front Panel Controls:** Sigma Multiplier (each channel): 1, 1.4, 2.
 η of 8 Alarm Set (each channel): 1, 2, 3, 4, 5, 6, 7, 8.
Sample Time: 50, 100, 200 milliseconds.
Overflow Alarm (for background): 10, 20, 40, 80.
Reset push button.
Alarm Disable.
- Rear Panel Controls:** Power on-off
High Voltage Adjust: 0-2000 V for P-10 or Geiger gas.
(0-3000 V for propane optional)
- Front Panel Indicators:** Average Background Display (each channel): Two digits. N of 8 Display (each channel): one digit. Contamination Alarm LED (each channel): red. No Signal Alarm LED (each channel): yellow.
- Rear Panel Indicators:** Power on/off lamp: red.
High Voltage Meter, 0-2000 volts, (0-3000V **Optional**).
- Rear Panel Outputs:** Remote Alarm Output Terminals (each channel plus common bell and lamp) Switched AC outlet.
- Alarms Indicating Contamination:** 2000 Hz alarm and flashing red beacon.
- Power Requirements:** 110 V, 60 Hz, 1 A (220 V and 50 Hz optional).
- Dimensions:** 19"W x 20"D x 11"H - Electronics Console.
- Weight:** 45 lbs - Electronics Console.
- Shipping Weight:** 65 lbs - Electronics Console.
- ALARM PANEL:** Wall mountable, silhouette with lights indicating location of contamination, plus sonalert and flashing red light.
- GAS FLOW SYSTEM:** Flow meter and micro metering valve are included. Gas tank and pressure regulators are normally supplied by user. Timer and solenoid operated valve is available as an option to further minimize gas usage.

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