

Previous model number: 5103

G5332-400

Pedestrian Contamination Portal Monitor

Introduction

The ANTECH G5332-400 Contamination Pedestrian Portal Monitor is designed to detect gamma-ray emitting substances, including materials contaminated with fission and activation products such as ^{137}Cs and ^{60}Co . The gamma-ray measurement is made by sensitive shielded and collimated plastic scintillator detectors that use low noise photomultiplier tubes and are connected to high-speed charge collection amplifiers and counting electronics.

ANTECH portal monitoring technology is derived from work performed at the Los Alamos National Laboratory (LANL) in the United States and implemented in the late 1980's by Jomar Systems. Since the transfer of this technology to ANTECH, extensive improvements have been made. ANTECH portal monitoring technology represents the current state of the art for contamination monitoring.

The G5332-200 is automated by an onboard microprocessor controller with associated counting electronics comprising a flexible Master Control Unit (MCU). The MCU performs input monitoring, background discrimination, alarm initiation and system diagnostic testing. The controller employs algorithms based on the Sequential Probability Ratio Test (SPRT), implemented originally by Fehlau and others at LANL. The G5332-400 contains all the necessary electronics, including controller, power supplies, amplification, single channel analysers and high voltage bias supplies to constitute a stand-alone instrument capable of attended or unattended operation while communicating with a remote control station via Ethernet.

The G5332-400 contains an occupancy circuit. The MCU is incorporated into a local panel that contains lights and sounder. It is also possible for data and alarms to be displayed on an operator screen. An optional battery and charger suitable for a minimum of 12 hours off-line working may also be incorporated into the local panel.

The G5332-400 Contamination Pedestrian Portal Monitor is available in the standard configuration of twin vertical pillars and top cover (as illustrated above) or it can be re-configured for special applications. The bottom (floor) unit containing detectors is optional. The G5332-400 is compliant with the requirements of ASTM C1112-93 and ASTM C993-92 and is calibrated to follow the guidelines of ASTM C1189-95.

Features

- Micro-controller based automated operation with diagnostic functions
- RS-232/Ethernet interface for controller set-up or remote monitoring
- Indicators of occupancy and of gamma-ray detection
- User selectable alarm provided as visual, audio or electronic signal
- Archiving of detection and background statistics
- Operation in continuous pass through measurement mode



Benefits

- Reliable operation with a low rate of false alarms, typically less than 1 in 10000. Sensitivity and the resulting false alarm rate can be set by the user.
- Uses digital electronics with reduced electrical noise
- Shielded plastic scintillator detectors have high sensitivity for gamma-rays
- Unattended automatic operation with optional operator screen
- Applicable both to indoor or harsh out-door operation

Specification

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| Typical external dimensions of twin pillar configuration (H x W x L) | 2200 mm x 1800 mm x 500 mm (86.61 in x 70.87 in x 19.96 in) |
| Detection levels | < 1 µCi of ¹³³ Ba, ¹³⁷ Cs, or ⁶⁰ Co (unshielded sources) |
| Transit speed | 1/2 m/s (0.8s passage time) |
| Battery back-up | 12 hours fully functional |
| Alarms | Preset values for gamma-ray counts (user adjustable) |