



IN-VIVO COUNTING

2280 ACCUSCAN II™

*Scanning Germanium Whole
Body Counter*



FEATURES

- Stand-up whole body counter
- Low background steel personnel shield
- 5 cm thick lead detector shield
- Scanning detector mechanism for linear geometry
- Accommodates up to two germanium detectors
- Includes Apex-InVivo™ software for control and analysis

DESCRIPTION

The ACCUSCAN II system is a high resolution, stand-up whole body counter. It is designed to identify and quantify radionuclides with energies between 100 keV and 1336 keV in complicated combinations. The ACCUSCAN II counter also provides information on the location of the radioactive materials found in the body through its scanning mechanism and the system's Apex-InVivo™ software.

These features make the ACCUSCAN II system an ideal companion to complement the FASTSCAN™ counter for large facilities like nuclear power plants. In this case the FASTSCAN system can be used for routine monitoring and the ACCUSCAN II counter can be used to investigate radioactivity found during routine counts and to provide information on the location of the radioactivity in the body. The ACCUSCAN II counter also makes an excellent stand-alone product for smaller facilities that have a wider range of radionuclides to monitor for, and a smaller number of people to count on a routine basis.

The standard ACCUSCAN II system includes a shield and scanning detector mechanism, a 25% coaxial germanium detector and cryostat assembly, a digital spectrum analyzer, as well as the Mirion Apex-InVivo whole body counting and Genie™ spectroscopy software packages. This turnkey system also includes complete factory integration and calibration, as well as training. A complete Mirion proposal will also include installation services by a Mirion Field Service Engineer or authorized representative.

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Mirion also offers a second detector option for the standard ACCUSCAN II system. The standard second detector option includes a 25% coaxial germanium detector with a cryostat, a digital signal processor, an all-in-one cable assembly and the second detector holder for the scanning mechanism. Adding a second detector allows for shorter counting times and improved detection limits.

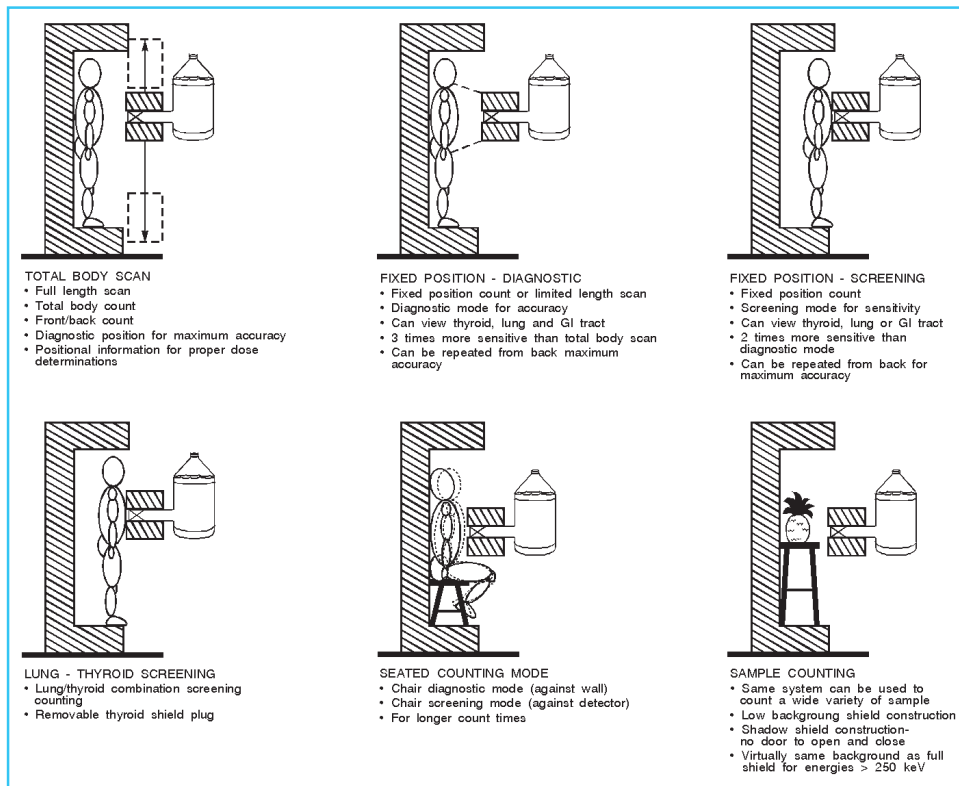
The ACCUSCAN II counter uses a shadow shield to shield against elevated ambient background. The system's shadow shield is composed of two major assemblies, a low background steel personnel enclosure and a scanning tower assembly with a lead detector shield assembly. The personnel shield or enclosure provides shielding from the back and sides of the person and the lead detector shadow shield shields the detectors from the front.

The personnel shield is fabricated with a full 10 cm (4 in.) of low background steel. This low background steel is manufactured with a special cobalt free process. This process guarantees steel free of the ⁶⁰Co contamination normally found in steel, an important consideration in monitoring personnel for fission product contamination. The shield assembly also includes plastic liners designed to make decontamination fast and easy.

The ACCUSCAN II counter includes a scanning detector assembly with the lead shadow. The lead detector shield is attached to scanning mechanism, which is operated through the systems controller. The ACCUSCAN II system's detector shield provides 5 cm (2 in.) lead around the detector and includes a copper liner to reduce the effect of lead X-rays. Mirion can also provide an optional detector cryostat that includes lead shielding between the detector and the Dewar.

SYSTEM OPERATION

The subject enters the ACCUSCAN II shield assembly and stands against the back wall. There are molded positioning devices on the back wall that make it natural for the subject to stand in the correct location. The operator starts the count using the Apex-InVivo software included with the system. The software starts the data collection and brings up a subject demographics screen. The operator fills in a brief demographics screen about the count (subject name, ID number, reason for count, etc.). The rest is completely automatic. The Apex-InVivo software displays the spectral data during the acquisition. It stops the count when the pre-programmed count time has elapsed, it stores the data, analyzes the spectral data and reports the results. Once the reporting phase of the count is completed the Apex-InVivo software automatically resets the system for the next count. Count times are normally in the 8-15 minute range for a single detector system and in the 5-10 minute range for a two-detector system.



The flexibility of the ACCUSCAN II system makes it ideal for all facilities

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SPECIFICATIONS

Shield

- Total weight: 4000 kg (8700 lb)
- Heaviest item weight: 400 kg (900 lb)
- Floor space required: 1.2 m x 0.9 m (48 in. x 35 in.)
- Room height required: 2.41 m (95 in.)
- Cable separation from shield: 9 m (30 ft)

Electricity

- Specify: 110/220 V ac, 50 or 60 Hz
- Requirements: Vary depending upon computer and electronics

Environment

- Operating temperature: Stable to within ± 5 °C
- Operating humidity: Non condensing
- Meets the environmental conditions specified by EN 61010, Installation Category I, Pollution Degree 2
- Background radiation: Normal background assumed
- General: Clean, dust free area

Options

- Electronic console
- Single pedestal desk: 81 cm x 183 cm (32 in. x 72 in.)
- 2257 Transfer Phantom
- Second detector option: Includes 25% coaxial germanium detector, cryostat, digital signal processor and cables
- U/Pu lung counting option: Includes two 3800 mm² broad energy germanium detectors, the Apex-InVivo lung counting option software, and a multiple chest wall thickness calibration.

