

NuSCAN WBC

WHOLE BODY
SCANNING COUNTER



The NuSCAN is a whole body scan counter designed as a vertical whole body or sitting up straight positions scanner working in screening and diagnostic modes. Device enables measurement of the content of gamma emitting radionuclides incorporated into lungs, body or thyroid. Moreover, scanning of the selective radionuclides incorporation areas, primary processing of the data, storage of scanned gamma spectra, and transmission of measurement results to the existing NPP databases, including the NPP local area network, will be available.

Benefits

- Two HPGe semiconductor detectors
- Low background radiation shielding
- Continuous 24 h operation time
- Comprehensive measurement of body, thyroid and lungs

Key Figures

10 people/h ↳ Monitoring capacities

50 keV - 2 MeV ↳ Gamma Energy Range

500 Bq ↳ Minimum measured activity of Cs-137

Product Description

Main components of the system

- Two HPGe semiconductor detectors (standard detectors: ORTEC, 25% rel. efficiency; other detectors - alternative manufacturer, different efficiency - on request)
- Cryostats
- Two 7.5 liters Dewar containers
- Standard 30 liters Dewar container for transport
- Liquid nitrogen feeding unit
- Digital multichannel analyzer MCA ORTEC DSPEC 502
- Low background radiation shielding
- Vertical scanning drive
- Stadiometer
- Personal computer with licensed OS
- Printer
- Adjustment, calibration, maintenance and measurement software
- Cables

Control Software

- Relational SQL database common SQL database used for data storage of measured results (including spectra and report files)
- SCAN Operator Software Windows application with graphical user interface, used for measurement task
- SCAN Database Software used for data search and review
- GAMWIN Software used for various special gamma spectrometry tasks and setting of the analysis
- GAMWIN Libraries used for routine gamma spectra analysis (used automatically by SCAN Operator Software)
- ORTEC Maestro Software used for advanced settings and diagnostic of MCA and detectors (e.g. virtual oscilloscope)
- ORTEC drivers used by SCAN Operator SW and GAMWIN SW for communication with MCA
- PLC drivers used by SCAN Operator SW for communication with PLC

Product Applications

Lungs, body and thyroid measurement.

Product Specifications

Measured nuclides	Lungs: Cr-51, Mn-54, Fe-59, Co-58, Co-60, Zn-65, Zr-95, Nb-95, Ag-110m, Te-132, Ce-141, Ce-144 Body: Cs-134, Cs-137 or Ba-140 Thyroid gland: Tc-99m, I-131, I-132
Minimum measured activity	500 Bq (Cs-137 in the body of an adult during 3 min measurement time) 440 Bq (Co-60 in the lungs of normal adult during 3 min measurement time) valid for maximum level of gamma background of 0.2 μ Sv/h)
Intrinsic relative error of activity measurement	< 30%
Temporal measurement stability	< 3%
Monitoring capacity	10 people (measurements)/hour
Power supply	200 - 240 V AC, 50 Hz
Power consumption	< 1000 VA
Weight	< 4000 kg
Average lifetime of HPGe detector	10 years (subject to continuous cooling)
Scales	Up to 200 kg with 0.1 kg measurement resolution
Scales platform dimensions	450 × 600 × 130 mm
Stadiometer	Min. and max. measured height: 1500 and 2000 mm
Detector vertical lifting mechanism	Lifting range of 2000 mm, max. vertical speed of 10 mm/s
Ambient temperature	From 10°C up to 35°C
Temperature instability	Max. \pm 5%
Relative humidity	85% (at air temperature < 30 °C without condensation)
Air pressure	86 - 106 kPa
Radiation background	Max 0.2 μ Sv/h