



Nucline™ TH-22, TH-33, TH-45

digital high resolution SFOV gamma camera

for thyroid, heart, mamma
and small organ imaging



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Digital High Resolution, SFOV Gamma Camera for Thyroid, Heart, Mammo and Small Organs Imaging

DETECTOR

Small/medium field of view high stability detector represents high optical performance and excellent mechanical quality

- NaI(Tl) scintillation crystal
size: 230x210 or 260x246 or 300x300 mm
thickness: 6.5 mm
(optionally 9.5 or 12.5 mm)
- photomultipliers
22 or 33 or 45 pcs of high quantum efficiency PMTs characterized by improved energy resolution, magnetic shielding and long-term stability
- lead shielding thickness: 12–28 mm

DETECTOR ELECTRONICS

A compact, highly integrated, one board easily serviceable construction without tuning potentiometers

- computer controlled PMT autotuning processor for fast PMT gain stabilisation and adjustment
- computer controlled ODC (Optical Distortion Correction) electronics
- high precision summation electronics
- active high voltage bleeder with integrated HV module

ACQUISITION CONSOLE

Full-digital electronics assembled from the latest "high-tech" components including fast PCI bus acquisition interface

- Windows XP based computer
 - Intel® Core™ 2 Duo 3.0 GHz dual-core processor
 - 2 GB RAM
 - 1 TB hard disk drive
 - CD-DVD-RW drive
 - keyboard, mouse
 - full DICOM 3.0 compatibility (send/ receive, print, query/retrieve)
 - 19" high resolution (1280x1024) LCD monitor
- integrated Gigabit Ethernet controller
- 40 MHz X,Y,Z A/D conversion
- 4 independent energy channels
- multi-channel analyser up to 1024 channels (40–600 keV)
- 4096 x 4096 pixel image digitising
- digital corrections:
 - direct addressing TS[®] simulation linearity correction with FOV increasing technology
 - energy correction
 - uniformity correction without count rate loss
 - automatic real time uniformity cross-correction for the different collimators
 - three-phase pile up recovery and resolution enhancing technology for high count rates

- small (TH/22) and medium (TH/33 and TH/45) FOV high resolution detector

- light weight motorised detector stand

- wide range of collimators

- easily exchangeable collimators

- typical intrinsic spatial resolution FWHM ≤ 2.7 mm

- integrated ECG triggering device

CLINICAL PROCESSING WORKSTATION

Dedicated nuclear medicine workstation with **InterView™ XP** software package running on Windows XP

Processing workstation:

- Intel® Core™ 2 Duo 3.0 GHz dual-core processor
- 2 GB RAM
- 1 TB hard disk drive
- CD-DVD-RW drive
- keyboard, mouse
- full DICOM 3.0 compatibility (send/receive, print, query/retrieve)
- 19" high resolution (1280x1024) LCD monitor (24" optional)
- integrated Gigabit Ethernet controller

GANTRY

Light weight, simply adjustable gantry

- 500 mm motorized vertical detector motion with digital height display
- multi-directional hand-controlled detector positioning
- small space demand; less than 2 m² with patient
- weight: 180 kg with detector

COLLIMATORS

Light, easily interchangeable collimators

- LEGP (Low Energy General Purpose) collimator
- LEHR (Low Energy High Resolution) collimator
- LETH special ^{99m}Tc and HETH ¹³¹I collimators for thyroid
- LEPH ^{99m}Tc and HEPH ¹³¹I pinhole collimator

DOCUMENTATION

Automated bi-level macro-controlled printing and reporting. High quality inkjet colour and b/w hardcopy

- on normal paper
- on premium photo paper
- 2400 dpi print quality
- special printing software for faithful printing

NEMA SPECIFICATIONS

CRYSTAL THICKNESS 6.5 MM

- Field of view:
 - 180x180 or 215x215 or 250x250 mm
- Energy range: 40–400 keV
- Intrinsic energy resolution for ^{99m}Tc: 9.9%
- Uniformity
 - differential CFOV: 1.9%
 - integral CFOV: 2.4%
 - differential UFOV: 2.4%
 - integral UFOV: 2.9%
- Intrinsic spatial resolution (FWHM)
 - CFOV: 2.9 mm
 - UFOV: 3.0 mm
- Intrinsic linearity
 - differential CFOV: 0.18 mm
 - absolute CFOV: 0.38 mm
 - differential UFOV: 0.20 mm
 - absolute UFOV: 0.40 mm

- Max. count rate with full correction: 220,000 cps (20% window)

- System spatial resolution (without scatter, with LEGP coll.)
 - FWHM: 8.5 mm
 - FWTM: 16.5 mm
- System sensitivity (with LEGP coll.): 240 cpm/ μ Ci

OPTIONAL ACCESSORIES

- ECG triggering device for cardiac gated studies
- Light weight imaging table
- Integrated mobile stand, easily manoeuvrable
- Tuning and test phantoms
- Refillable isotope pen for anatomical marking