



eXplore Vista PET/CT

For Small Animal Imaging

Product Datasheet Rev1.0[#]

At GE Healthcare, we understand that you expect more out of your research tools. The eXplore Vista PET/CT is a powerful new tool that can help you to *do more, see more, and eXplore more* by supporting your innovations and advancing your research to the next level.

With eXplore Vista PET/CT you can:

Expect More...

Improved flexible workflow, high throughput, performance, and support

Do More...

Dynamic scanning, whole-body PET imaging* and quantitative modeling

See More...

Biological processes, quantifiable image details, and accurate results

OVERVIEW

The new eXplore Vista PET/CT for Small Animal Imaging from GE Healthcare integrates a fully functional PET and CT, a major breakthrough in high performance functional imaging technology for biomedical research. Vista PET/CT utilizes the latest in phoswich detector technology and is comprised of a dual layer of LYSO and GSO with a combined thickness of 15mm, providing excellent stopping power and uncompromised resolution across the entire Field Of View. The eXplore Vista PET/CT offers a truly integrated workflow with automatic fusion of images and data sets at the end of the exam. The dual modality configuration delivers faster scan times with superior image resolution, improved localization and quantifiable data. In addition, the CT and or the PET, can be

used as a stand-alone modality, when dual modality is not required.

Key Features

- Dynamic Scanning
- Uniformed Resolution
- High Sensitivity per Slice
- Intuitive User Interface
- Phoswich Detection
- Automated Registration
- 3D-Rendering and Visualization
- Analysis Toolbox

Multi Modality Integration

The eXplore Vista PET/CT offers an in-line fully functional CT with the PET system. Users may select CT only scans, PET only scans, or a combination of both in any order. The fusion of the two image sets can be automatically or manually generated utilizing fiducial markers or 3-point rigid body application. Additionally, PET data is available in list mode for special post processing needs.

Data Processing Options

Various processing algorithms and corrections are available for PET including:

- FBP
- 2D OSEM
- 3D OSEM
- Random correction
- Scatter correction
- Isotope based attenuation correction
- CT-based attenuation correction (Available soon!)

Dynamic or Static Capabilities

The eXplore PET/CT can be used for a variety of different tasks for optimal

performance and maximum flexibility addressing a broad range of study needs. In addition, with eXplore Vista's flexible data output that can be sent to other workstations or exported to compatible PET applications.

PET DETECTOR TECHNOLOGY

The eXplore Vista PET/CT has a dual layer detector comprised of LYSO and GSO allowing for depth-of-interaction for improved radial resolution uniformity.

PET Depth of Interaction Detector

Ring Diameter	11.8 cm
Bore Size	8 cm
Single Axial FOV	4.8 cm
Dynamic Axial FOV	18.0 cm
Trans-Axial FOV	6.7 cm
Number Detector Modules	36
Number of Depth-of-Interaction Elements	6,084
Crystal Array Pitch	1.55mm
Crystal Size	1.45x1.45mm
Total Crystal Depth	15mm

SYSTEM PERFORMANCE

The core of the eXplore Vista PET system is driven by the detector material, ring geometry, electronics and finally complimented by the system's calibration routine. The eXplore Vista incorporates the best of all worlds by incorporating a dual layer detector with LYSO and GSO and positioning the detector as close to the animal as possible for the very high sensitivity performance per slice of any small animal PET system.



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System Performance Table

Central Spatial Resolution (FBP)	1.3-1.7 mm
Off Center Resolution	1.65 mm @10mm
Volume Resolution at 0cm	3 mm ³
Absolute Central Point Sensitivity @ 250-700 keV	3.6-4.4%
Timing Resolution	1.5 nS
Energy Resolution Uniformity	29.6%
Total Crystal Depth	15mm

Data Formats and Outputs

Flexible data outputs are available on the eXplore Vista PET/CT which include several image formats and dynamic data sets in Excel useful for various pharmacokinetic modelling software packages.

- Excel or comma delimited data
- DICOM compatible output
- JPEG
- BMP
- TIFF

Operator Console

Multi Core 64 Bit CPU computing with DVD archive and different advanced applications.

CT FUNCTIONALITY

The eXplore Vista integrated CT is a fully functional CT which uses flat panel CMOS technology with a microcolumnar CsI scintillator plate and a microfocus x-ray source.

Standard X-Ray tube

- 10 to 50 kV (Variable) Fixed Anode
- 50 Watts Continuous
- 50µm Focal spot
- 1 mA maximum current
- Forced Cooled Air

Fast Acquisition

- Acquisition time: 5 to 15 minutes for entire volume dependent on resolution
- Pre-configured & user-defined protocol selections
- Scout scan for animal positioning

Field of View (FOV)

75x75mm

Resolution Modes

- 50µm
- 100µm
- 200µm

- Enhance scientific analysis with real-time activity projection display (Persistence mode)

PET/CT SYSTEMS DIMENSIONS

- Height – 155 cm
- Width – 95 cm
- Length – 150 cm
- Weight – ~700 Kg

POWER

System power requirement is four independent 120 or 220 VAC 15amp circuits. (Varies dependent on options)

SYSTEM BENEFITS

Improved Workflow

- Intuitive GUI
- Automatic fusion of PET and CT images
- Eliminate the need to move the animal from bed to bed and reposition

Advanced Applications

- Measure dynamic imaging for time critical disease states and organ uptake
- Utilize powerful quantification tools including advanced PET parametric modeling, reformation, and PET gating