easyPET

easyPET.3D

intelligent PET scanner for molecular imaging

RI.TE
RADIATION IMAGING TECHNOLOGIES, LDA

March
2021

easyPET 3D

entry-level benchtop PET

Simple, intuitive and cost-effective scanner

State of the art technology

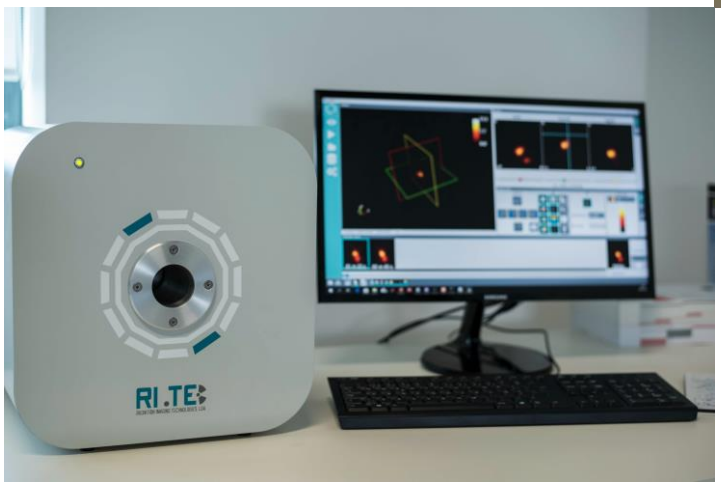
The new easyPET technology is based on a patented intelligent scanning method that allows reaching super high resolution and real time 3D image reconstruction using a reduced number of detector cells.

easyPET.3D is a uniquely compact and affordable preclinical PET scanner, making PET imaging more accessible, promoting an inclusive and equitable high-quality education, training and research for all.

The system allows generalizing the practical learning of PET imaging, a valuable resource for students, technologists and researchers in molecular imaging, nuclear medicine, medical physics, radiopharmacy, biomedical engineering, among others.

Advantages

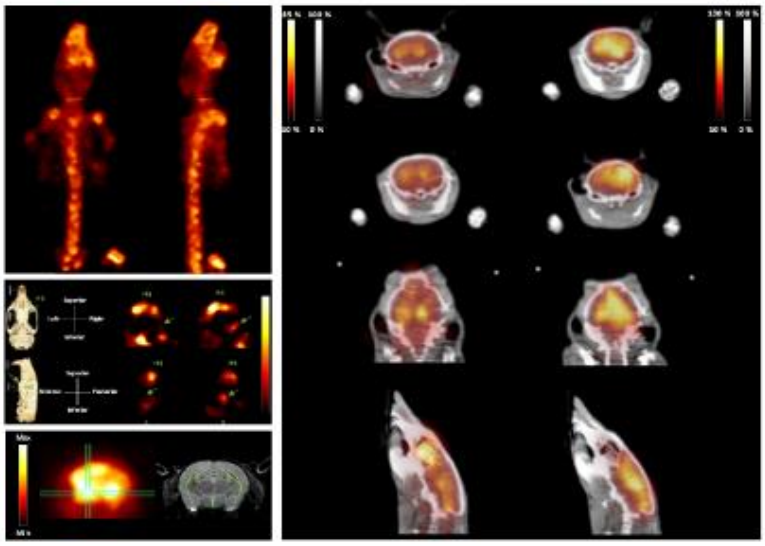
- Compact and portable
- Cost-effective, high performance
- Fast 3D reconstruction
- High spatial resolution < 1 mm
- State-of-the-art detectors
- User-friendly



easyPET.3D scanner

- Inhalable anesthesia compatible
- Motorized bed with embedded animal vital signs monitoring
- Adjustable field-of-view up to 48 mm
- Real-time imaging
- All-in-one, streamlined software

Applications



Small mice imaging with easyPET.3D

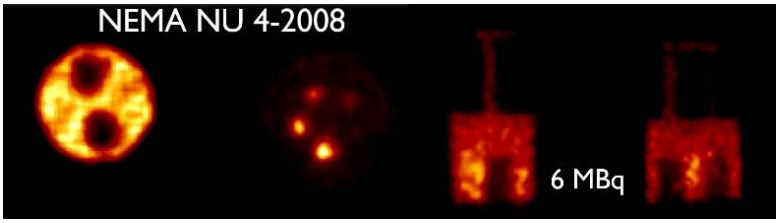
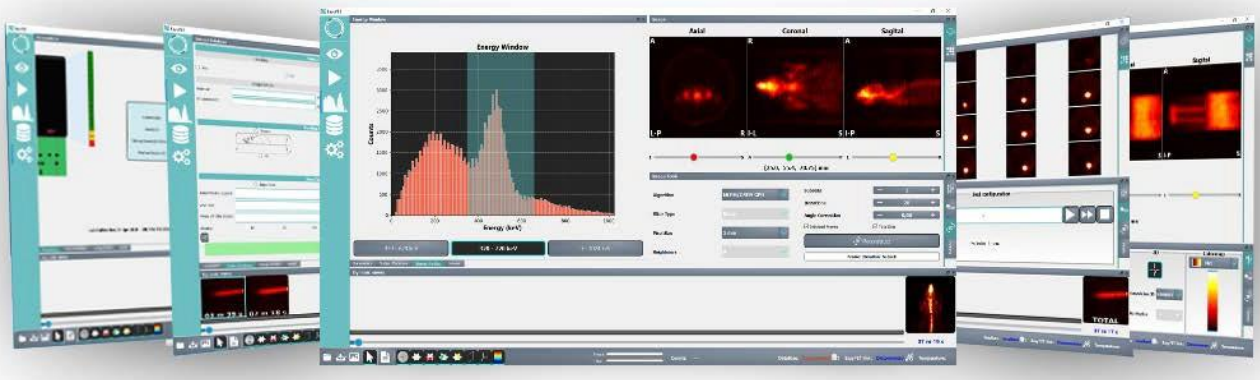


Image of NEMA phantom after 40 iterations LM-MLEM GPU algorithm

- Small animal imaging studies with ^{18}F, ^{68}Ga, ^{124}I, ^{89}Zr, ^{64}Cu or other
- Quick imaging in first minutes post injection (injection or positioning quality control)
- PET image reconstruction and post-processing studies
- practical PET lab activities (e.g. with ^{22}Na)
- Training of PET imaging procedures: calibrations, QC, imaging protocols, static/dynamic studies
- Preclinical studies in oncology, neurology, cardiology, other
- Tumor identification, characterization and follow-up
- Validation of new molecules for diagnosis or therapy; quantification of metabolic activity

easyPET.3D software

The easyPET.3D software is an integrated solution for system control, image acquisition, visualization and analysis: a streamlined graphic user interface that includes a database to organize information of all scans and users, as well as dedicated resources for training of PET procedures such as calibrations, image processing, application of different parameters and image reconstruction algorithms, filters, etc.



All-in-one software

easyPET.3D specifications

Performance

Field of view (FoV)	up to 4.8 cm Ø (adjustable) × 7.2 cm axial
Energy resolution	15 - 20 % @ 511 keV
Spatial resolution	~ 1 mm FWHM in whole FoV
Sensitivity	up to 2 %
Frame time	from 1 minute

Detector modules

Scintillators	LYSO - 2 × 2 × 30 mm^3
Photodetectors	SiPM - 1.3 × 1.3 mm^2

General

Dimensions (W×H×D)	35 × 36 × 38 cm^3
Weight	20 kg
Power supply	AC/DC adapter 24 V / 90 W
PC connectivity	USB
Acquisition console	PC with 8-core processor and GPU + 24" monitor (included)
Imaging bed	5 cm Ø, motorized, heated, anesthesia-compatible
Mouse monitoring	physiological parameters: temperature, heart rate, oximetry

Software

Scanning modes	fast, medium, slow (customized)
Database	MySQL. Controlled access, organized acquisition info, easy search, auto-report
View	real-time image: 3D volume & slices, dynamic frames & total scan , zoom, pan, filters: pixel size, energy, DOI, interpolation + 5 image filters and 20 colormaps
Reconstruction	FBP 2D/3D, MLEM, OSEM (GPU accelerated)
Export	raw data, DICOM, Interfile
Operating system	Windows

Conformance Statement:

The supplied software complies with DICOM standard.

Directive 2014/30/EU - EN 61326-1; EN 61000-4; EN 55011 +A1

CE

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