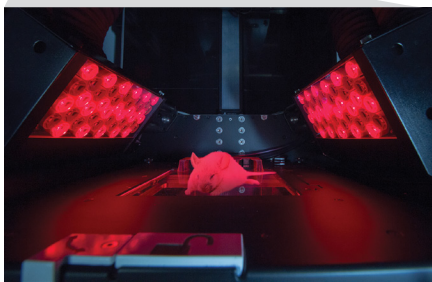


IR VIVO™

PRECLINICAL IMAGER

IR VIVO™ PRECLINICAL IMAGING SYSTEM OPENS A NEW WINDOW ON LIVING BODIES



IR VIVO is an infrared multispectral imager for small animal studies. This system benefits from reduced light scattering, absorption and auto-fluorescence by using a detection system in the near and short wave infrared. This allows for deeper, clearer and more quantitative imaging than standard optical imaging in the visible wavelengths. IR VIVO takes advantage of the most recent developments in SWIR imaging with an ultra-low noise InGaAs camera (Alizé 1.7 or ZephIR 1.7), novel homogeneous illumination and a powerful analytical software to provide an unprecedented combination of fast, high resolution and deep imaging.

www.photonetc.com

TECHNICAL SPECIFICATIONS

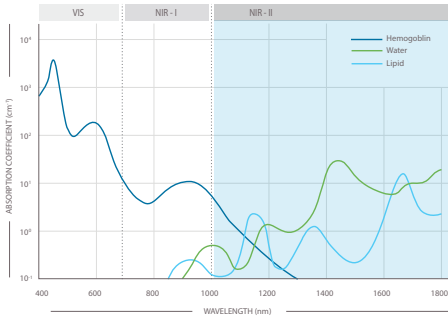
Emission spectral range	850-1620 nm <i>Extension available in the visible</i>
Filter types	Multispectral: filter wheel Hyperspectral: HyperCube™ (<4nm spectral resolution (FWHM)) Single point detection: spectral probe
Illumination source	760 nm or 808 nm laser at 1 mW/mm ² Other sources available upon request
Illumination area	15.6 x 12.5 cm for three mice model
Field of view	Variable from 8 x 4 cm to 15.6 x 12.5 cm
Dimensions (L x W x H)	Tabletop: 77 x 60 x 98 cm
Stage temperature	Up to 40°C
Anesthetic tubing and nosecone	3 mice anesthetic gaz manifold supplied
Preprocessing	Spatial filtering, Statistical tools, Spectrum extraction, Data normalization, Spectral calibration
Hyperspectral data format	HDF5, FITS
Single image data format	HDF5, FITS, PNG, JPG
Spectrum data format	HDF5, CSV, JPG, PNG
Software	PC (Windows10 - 64-bits) with PHYSpec™ control and analysis software (Computer included)
Power requirement	120 VAC / 12A / 60Hz 230 VAC / 12A / 50Hz
Acquisition modes available	Unfiltered (broadband), filtered

CAMERA

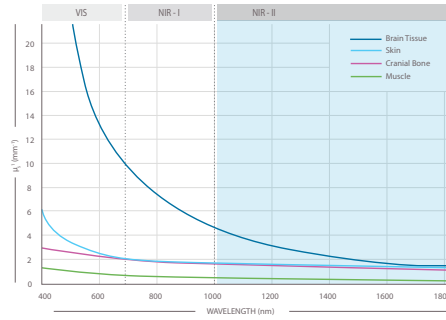
Type	InGaAs (Alizé™ 1.7 or ZephIR™ 1.7)
FPA	640 x 512 pixels
Pixel size	15 µm
Lens	Wide lens: 30mm focal length, f#/1.4 NIR-II Macro lens: 50mm focal length, f#/1.4 NIR-II
Quantum efficiency	>75% from 900 to 1600 nm

NIR-II IMAGING PROPERTIES

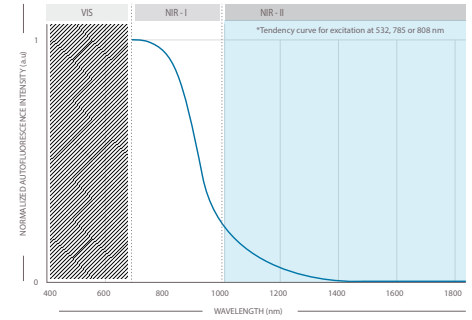
- » High spatial resolution
- » High temporal resolution (real-time dynamics)
- » Non-ionizing & non-invasive
- » Good penetration depth (10x greater than traditional visible optical systems)



LOW ABSORPTION BY TISSUE



LOW SCATTERING



LOW AUTOFLUORESCENCE

When imaging in the second biological window (NIR-II, from 1000 to 1700 nm) the reduced absorption, scattering and auto-fluorescence results in a much better image contrast, sensitivity, and penetration depth into tissue compared to traditional visible or NIR-I optical imaging (i.e. 400 - 1000 nm). Reaching a penetration depth of up to 3 centimeters has a huge impact when imaging small animals like mice. It opens a new window of possibilities since it allows the visualization of full organs as well as cellular processes in real-time with high spatial resolution.

EXAMPLES OF NIR II IMAGING APPLICATIONS

- » Visualize microvasculature
- » Identify cancer tissue, guide real-time surgeries
- » Monitor blood flow & metabolic imaging
- » Monitor cell environment (pH, lipid, mRNA)
- » Monitor heart and respiratory rates contact-free

MONITOR METABOLIC RATES ACCUMULATION AND EXCRETION

