A ThunderScan microscope is shown in a laboratory setting. The microscope is white and black, with a large camera mounted on top. The camera has a lens and a sensor. The microscope is mounted on a black base. The background is dark with some blue and green lights. The text "ThunderScan" is visible on the side of the camera. The text "High Speed Volume Imaging" and "Brightfield . Fluorescence . Light Sheet Microscopy" is overlaid on the top of the image. The text "ThunderScan" is overlaid on the bottom of the image. The text "Fast 3D Scanning At Camera Frame Rate", "3D Imaging Without Moving Objective or Stage", and "Unleash Full Potential of High Speed Cameras" is overlaid on the bottom of the image. The text "Fast 3D Scanning At Camera Frame Rate" is in white on a black background. The text "3D Imaging Without Moving Objective or Stage" is in white on a black background. The text "Unleash Full Potential of High Speed Cameras" is in white on a black background. The text "High Speed Volume Imaging" is in black on a white background. The text "Brightfield . Fluorescence . Light Sheet Microscopy" is in black on a white background. The text "ThunderScan" is in white on a black background. The text "Fast 3D Scanning At Camera Frame Rate" is in white on a black background. The text "3D Imaging Without Moving Objective or Stage" is in white on a black background. The text "Unleash Full Potential of High Speed Cameras" is in white on a black background. The text "High Speed Volume Imaging" is in black on a white background. The text "Brightfield . Fluorescence . Light Sheet Microscopy" is in black on a white background. The text "ThunderScan" is in white on a black background. The text "Fast 3D Scanning At Camera Frame Rate" is in white on a black background. The text "3D Imaging Without Moving Objective or Stage" is in white on a black background. The text "Unleash Full Potential of High Speed Cameras" is in white on a black background.

High Speed Volume Imaging
Brightfield . Fluorescence . Light Sheet Microscopy

ThunderScan

Fast 3D Scanning At Camera Frame Rate

3D Imaging Without Moving Objective or Stage

Unleash Full Potential of High Speed Cameras

ThunderScan

Optimum Temporal Resolution

Based on an innovative remote focusing method without objective or specimen move, rapid volume imaging can be achieved without limitation due to mechanical movement constraints. This innovative approach allows analysis of fast dynamic processes in sensitive living samples while preserving specimen from photo toxicity and photo bleaching in fluorescence microscopy.

Record Multiple Optical Sections At Optimum Speed

ThunderScan offers unrivaled high speed 3D acquisition to record optical sections when combined with high speed cameras thanks to its seamless scanning method. The specimen remains in fixed position preventing any sample perturbation, furthermore the remote focusing method allows easy microscopy imaging using either air or immersion objectives.

3D Volume Imaging Using Full capabilities Of High Speed Cameras

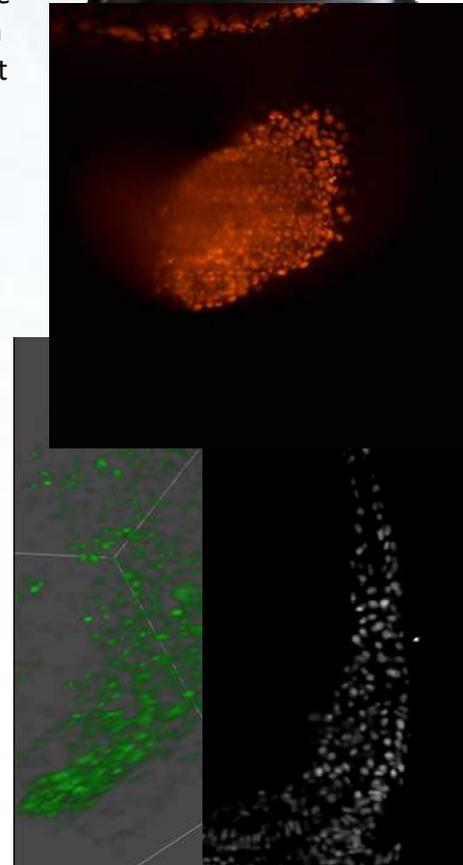
ThunderScan with its flexible scanning range can be used on any microscope equipped with video port and without need of additional accessories. When used with a light sheet microscope setup, **ThunderScan** provides the highest temporal resolution in addition to quality optical sectioning.

Add-On For Any Microscope Using Video Port and C-mount Adaptor

Principle

Instead of using stepper motors or piezo devices for scanning the depth of a sample, PhaseView smart acquisition method relies on a digitally controlled tunable lens with suitable aperture for microscope use. The lens power is driven by software thus enabling to select a particular image plane at any position along the Z axis with appropriate speed.

The **ThunderScan** optical device integrates precise aberration correction and is diffraction limited to ensure optimal imaging when used with top quality objectives, in addition **ThunderScan** allows microscopy imaging from deep UV to NIR without transmission loss.



ThunderScan

Flexible Imaging Setup

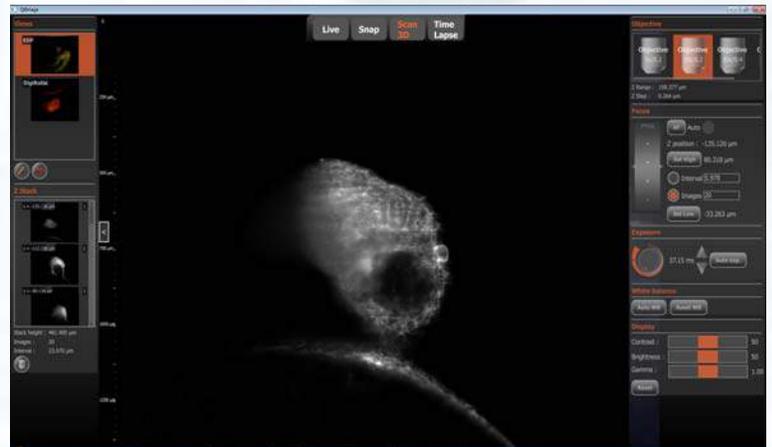
ThunderScan is fully compatible with any microscope equipped with video port and with scientific cameras with large field of view, high quantum efficiency, low noise readout and fast frame rate, enabling new 3D imaging capabilities for the most demanding applications.

QtImage Digital Imaging Software

QtImage user interface touchscreen compatible lets you zoom, tap, drag and scroll right on screen only using your fingers.

QtImage provides all controls for fast Z stacking, multiple image display and key processing tools for life science microscopy applications including:

*Z-stacking. Digital Refocusing. Time Lapse.
Deconvolution. Multi Focus Image*



Microscopy Automation

Software Development Kit

The ThunderScan SDK comprise a set of APIs written in C. The supported Operating Systems are Windows Vista, Windows 7, Windows 8.

ThunderScan specifications

Camera compatibility (camera not included)	Format 1" or Less, C-mount (see compatibility list)
Microscope Interface	Video Port – Recommended 1X C-mount adapter
Scanning speed	Limited by camera frame rate i.e 100 images / second 4Mpixels
Scanning Range / Step	Scanning Range = 23mm / (G_Obj) ² Step= Z range/ 2048 G_Obj = Objective magnification
PC Interface	USB 2.0
Physical Dimensions (mm), Weight (g)	ThunderScan Head: 180(L) x 70 (W) x 100(H) mm, 670g Control Unit: 50(H) 160(W) 150(D) , 220 g

Applications

- 3D functional imaging of neuronal activity
- Fast 3D recording of dynamic events or moving specimens
- High-speed volumetric imaging of weak fluorescent specimens
- Live Imaging of cellular dynamics in three dimensions
- Electrophysiology . Microfluidics



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