ThunderScan

Ultra High Speed 3D Scanning

3D Imaging Without Moving Objective or Specimen

Unleash Full Potential of High Speed Cameras

Applications

3D functional imaging of neuronal activity

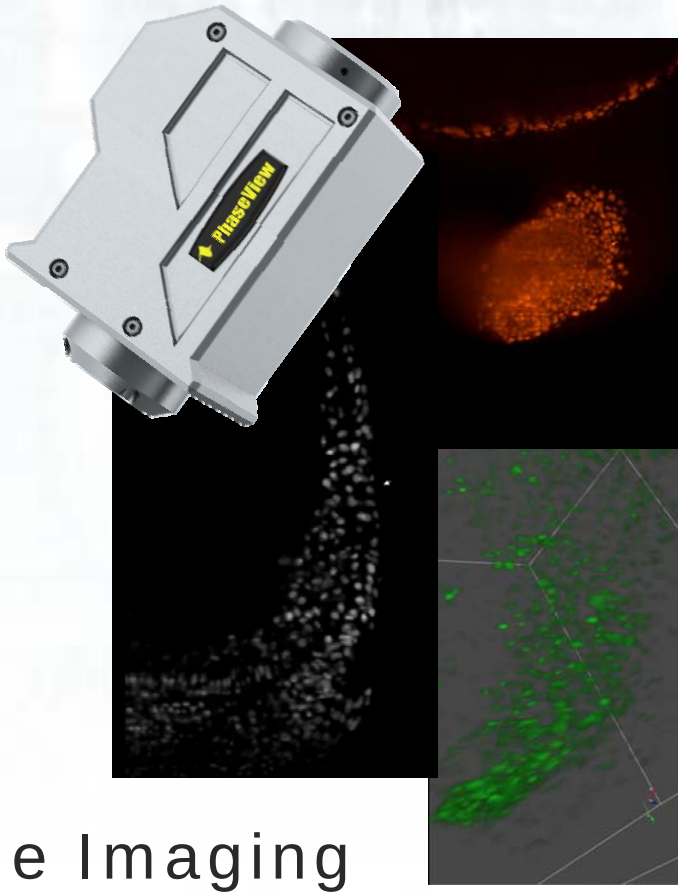
Fast 3D recording of dynamic events or moving specimens

High-speed volumetric imaging of weak fluorescent specimens

Live Imaging of cellular dynamics in three dimensions

Electrophysology

Microfluidics



High Speed Volume Imaging

Widefield Fluorescence Microscopy

Light Sheet Microscopy

PhaseView®
THE SIMPLEST WAY TO 3D

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 seemless scanning method. The speciment remains in fixed position preventing any risk of sample perturbation, furthermore the remote focusing method allows easy microscopy imaging using either air or immersion objectives.

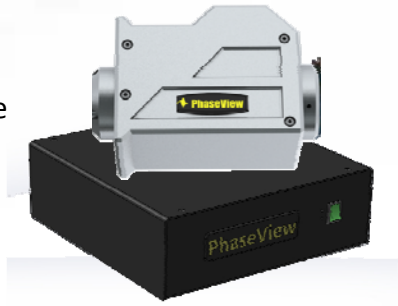
3D Volume Imaging Using Full capabilities Of High Speed Cameras

ThunderScan wth its flexible scanning range can be used on any microcsope 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.

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Flexible Imaging Setup

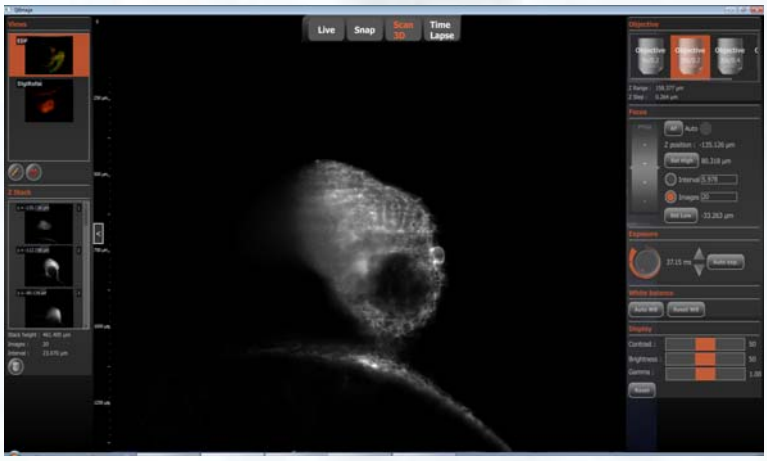
ThunderScan is fully compatible with any microscope equipped with video port and with scientific cameras with large field of view, high quantum efficiency, low noise readout and fast frame rate, enabling new 3D imaging capabilities for the most demanding applications.

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	Up to 100 images / second
PC Interface	USB 2.0
Power Supply	110 / 220 AC
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

Objective Mag / NA	Z Range (µm)	Z Step(µm)
5X / 0.10	920	0.46
10X / 0.25	230	0.12
20X / 0.45	57.5	0.03
50X / 0.8	9.2	0.005

Scanning Range & Speed performance

Z range and Z step are objective dependant, see typical performance for standard objective magnification..
For any other magnification, the following formula can be applied:

Scanning Range = 23mm / $(G\_Obj)^2$

G_Obg = Objective magnification

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