

DoubleHelix[®]

More Than Double the 3D Data with SPINDLE²

The only microscope splitter/combiner optimized for Light Engineering™

Select from a range of Light Engineering™ Applications

Super-resolution:

Reconstruct 3D super-resolution images with the best precision-depth combination and no axial stitching,

Nanoscale precision for both axial and lateral localization.

3D Particle Tracking:

Extended depth enables capture of longer particle tracks and faster acquisition.

Extended Depth of Field:

Single-shot depth range up to 30x clear aperture

Multi-channel Multi-modal Imaging:

3D particle tracking, 3D SMLM, FRET, SOFI, Widefield and more

Cost-effectively augment your research tools by instantly turning your existing 2D imaging systems into simultaneous, multi-color 3D imaging and tracking systems.

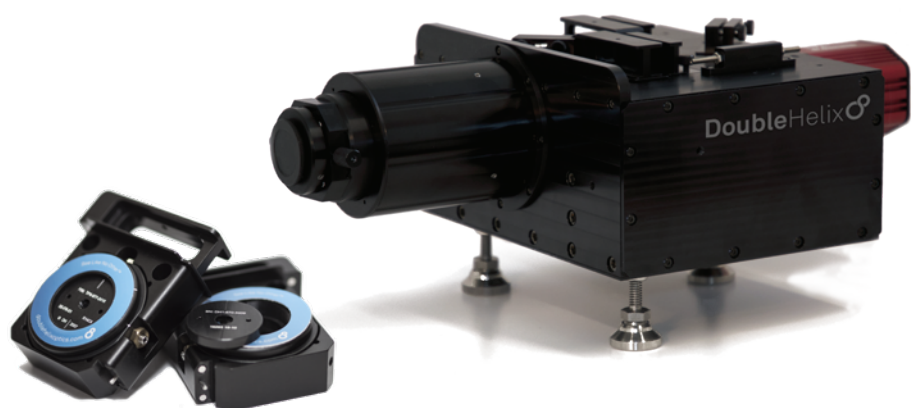
The SPINDLE² brings unparalleled precision depth capability to a range of applications, from particle tracking and single molecule localization to extended depth whole-cell imaging and beyond.

Transform your R&D with Instant, Advanced Capabilities

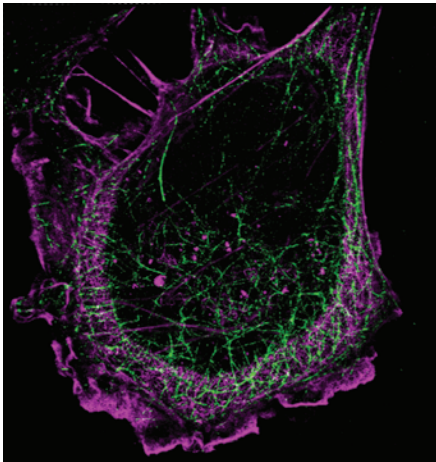
- Simultaneous **multi-color 3D imaging**, from single molecule to whole cell
- **Two channels on a single camera** to reduce cost and complexity
- **Single-shot** extended depth imaging
- Up to **30x additional depth and 10x precision** with Double Helix Optics' patented phase masks
- **Affordable and adaptable**
- **Easily switch** between four modalities: two-channel, single channel, multi-focus, or by-pass mode for non-3D experiments

“
We are seeing biology we would have missed without the Double Helix SPINDLE[®]”

*J. R. Wheeler, MD, PhD
BioFrontiers Institute, University of Colorado*



Replaceable mask to fit with your wavelength and application needs



3D Double Helix super-resolution reconstruction with two simultaneous fluorescent tags. Double Helix three-dimensional super resolution image of microtubules in an African green monkey kidney cell. In this image, the depth of the cell is encoded in color. Microtubules form a network that spans throughout the cytosol of the cell, giving the cell structure and facilitating intracellular trafficking. The microtubules extend away from the bottom surface to surround the large cell nucleus.

Affordable and Adaptable

Small footprint allows easy installation even in space-constrained environments

Input and output C-mount adapters provide easy support for commercial and custom-built microscopes and cameras

Highly reliable system with no moving parts. Switchable phase mask cartridges, auxiliary emission filter holders or maximum experiment flexibility

Modular design evolves your existing system into an advanced 3D imaging system with super-resolution capabilities

DoubleHelix 
See Like No Other™

Intelligent data analysis

3DTRAX™ software, a FIJI plugin provides

- Modules available for 3D SMLM, 3D tracking, and extended depth whole-cell imaging
- SMLM module calculates the position of every particle
- 3D tracking localizes and tracks particles over entire depth range of PSF
- Whole cell extended depth of field imaging sees deeper into sample without scanning
- Automated drift correction available in all modules
- **Intuitive plots** help ensure quality data throughout the analysis process
- **Flexible file export** for extended analysis
- **Quantitative analysis**

Specifications

Dimensions	100 mm x 195 mm x 300 mm
Single Shot Depth Range	Up to 30x clear aperture
Field of View (FOV)	up to 25 mm diagonal
Lateral (x-y) precision	20 nm
Axial precision	55 nm
Light efficiency	> 95%
Mask library wavelength range	400 nm to near IR

*Custom masks available upon request

Precision specifications listed are based on results generated using Double Helix mask library and will vary according to NA of the objective used and the photon count of the specific experiment. Precision may be better than indicated.

About Double Helix Optics

Double Helix Optics enables visualization and data capture of objects at an unmatched depth and precision quality. Its Light Engineering™ point-spread function-based technology is advancing the field of 3D imaging, allowing for new discoveries in research and new capabilities of promise to a range of applications. The SPINDLE², SPINDLE®, engineered phase masks, and 3DTRAX™ software are currently in use by globally recognized scientists.

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