**Laser scanning Confocal Microscope**

**Nikon - Model AI(R)**



**Confocal laser scanning microscopy** (**CLSM** or **LSCM**) is a technique for obtaining high-[resolution](http://en.wikipedia.org/wiki/Image_resolution) optical images with depth selectivity. The key feature of [confocal microscopy](http://en.wikipedia.org/wiki/Confocal_microscopy) is its ability to acquire in-focus images from selected depths, a process known as [optical sectioning](http://en.wikipedia.org/wiki/Optical_sectioning). Images are acquired point-by-point and reconstructed with a computer, allowing three-dimensional reconstructions of [topologically](http://en.wikipedia.org/wiki/Topology) complex objects.

Specifications

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| **Laser** | **Compatible Laser** | 405 nm, 440/445 nm, 488 nm, 561/594 nm, 638/640 nm, Ar laser (457 nm, 488 nm, 514 nm), HeNe laser (543 nm) |
|  | **Modulation** | Method: AOTF (Acousto-Optic Tunable Filter) or AOM (Acousto-Optic Modulator) device |
|  |  | Control: power control for each wavelength, return mask, ROI exposure control |
|  | **Laser unit** | Standard: LU4A 4-laser module A or C-LU3EX 3-laser module EX |
|  |  | Optional: C-LU3EX 3-laser module EX (when 4-laser module A is chosen as standard laser unit) |
| **Standard fluorescence detector** | **Wavelength** | 400-750 nm |
| **Detector** | 4 PMT |
| **Filter cube** | 6 filter cubes commonly used for a microscope mountable on each of three filter wheels |
| Recommended wavelengths: 450/50, 482/35, 515/30, 525/50, 540/30, 550/49, 585/65, 595/50, 700/75 |
| **Diascopic detector (Option)** | **Wavelength** | 450-650 nm |
| **Detector** | PMT |
| **FOV** | | Square inscribed in a o18 mm circle |
| **Image bit depth** | | 4096 gray intensity levels (12 bit) |

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| **Scnning head** | **Standard image acquisition** | Scanner: galvano scanner x2 |
| Pixel size: max. 4096 x 4096 pixels |
| Scanning speed: |
| Standard mode: 2 fps (512 x 512 pixels, bi-direction), 24 fps (512 x 32 pixels, bi-direction) |
| Fast mode: 10 fps (512 x 512 pixels, bi-direction), 130 fps (512 x 32 pixels, bi-direction)\*1 |
| Zoom: 1-1000x continuously variable |
| Scanning mode: X-Y, X-T, X-Z, XY rotation, Free line |
| **High-speed image acquisition** | Scanner: resonant scanner (X-axis, resonance frequency 7.8 kHz), galvano scanner (Y-axis) |
| Pixel size: max. 512 x 512 pixels |
| Scanning speed: 30 fps (512 x 512 pixels) to 420 fps (512 x 32 pixels), 15,600 lines/sec (line speed) |
| Zoom: 7 steps (1x, 1.5x, 2x, 3x, 4x, 6x, 8x) |
| Scanning mode: X-Y, X-T, X-Z |
| Acquisition method: Standard image acquisition, High-speed image acquisition, Simultaneous photoactivation and image acquisition |
| **Dichroic mirror** | Low-angle incidence method, Position: 8 |
| Standard filter: 405/488, 405/488/561, 405/488/561/638, 405/488/543/638, 457/514, BS20/80 |
| Optional filter: 457, 405/488/543, 457/514/561, 440/514/594 |
| **Pinhole** | 12-256 μm variable (1st image plane) |
| **Spectral detector (with galvano scanner) (Option)** | **Number of channels** | 32 channels |
| **Wavelength detection range** | 400-750 nm |
| **Spectral image acquisition speed** | 4 fps (256 x 256 pixels), 1000 lps |
|  | Pixel size: max. 2048 x 2048 |
| **Wavelength resolution** | 80 nm (2.5 nm), 192 nm (6 nm), 320 nm (10 nm) |
|  | Wavelength range variable in 0.25 nm steps |
| **Unmixing** | High-speed unmixing, Precision unmixing |
| **Z step** | | Ti-E: 0.025 μm, FN1 stepping motor: 0.05 μm |
| **Compatible microscopes** | | ECLIPSE Ti-E inverted microscope, ECLIPSE FN1 fixed stage microscope, ECLIPSE Ni-E upright microscope (focusing nosepiece type and focusing stage type) |
| **Option** | | Motorized XY stage (for Ti-E/Ni-E), High-speed Z stage (for Ti-E), High-speed piezo objective-positioning system (for FN1/Ni-E), VAAS |

Accessories:

1. Laser Scanning Confocal Microscope AI(R)
2. Halogen lamp 12V-100W LL, MXA 20434
3. HG F lamp, 85V 120W
4. CF I Apochromat TIRFE 60XH NA 1.49
5. CF I Apochromat TIRFE 100XH NA 1.49