



Nikon A1 Confocal Laser Microscope System

A1R

Input/output port:	Laser input port: 3 (FC x2, direct x1) Signal output port: 4 (SMA x2, FC x1, VAAS x1)
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Laser

Wavelength and power:	405LD: max. 38mW, Multi-Ar (457/488/514): max. 65mW, 488DPSS: max. 75mW, 561DPSS: max. 25mW, 543HeNe: max. 1mW, 638LD: max. 10mW 440LD: max. 15mW (available as option)
Modulation:	Method: AO (Acousto) device or drive current control Control: power control for each wavelength, Return mask, ROI exposure control
Laser unit:	Standard: LU4 4-laser unit Optional: C-LU3EX 3-laser unit EX

Standard fluorescence detector

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, 525/25, 595/50, 700/75, 540/30, 515/30, 585/65

Diascopic detector

Detector:	PMT
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Scanning head

Scanning:	Scanning range: square inscribed in a $\varnothing 18\text{mm}$ circle Standard image acquisition Scanner: non-resonant scanner x2 Pixel size: max. 4096 x 4096 pixels Scanning speed: 4 fps (512 x 512 pixels) Zoom: 1-1000x continuously variable Scanning mode: X-Y, XY rotation, Free line, Line Z
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	High-speed image acquisition Scanner: resonant scanner (X-axis, resonance frequency 7.8kHz), non-resonant scanner (Y-axis) Pixel size: max. 512 x 512 pixels Scanning speed: 30 fps (512 x 512 pixels) to 230 fps (512 x 64 pixels), 15,600 lines/sec (line speed) Zoom: 7 steps (1x, 1.5x, 2x, 3x, 4x, 6x, 8x) Scanning mode: X-Y, Line Acquisition method: Standard image acquisition, High-speed image acquisition, Simultaneous photo activation 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
Pinhole:	12-256µm variable (1st image plane)

Spectral detector

Number of channels:	32 channels
Spectral image acquisition speed:	4 fps (256 x 256 pixels), 1000 lps
Maximum wavelength and resolution:	80nm (2.5nm), 192nm (6nm), 320nm (10nm) Wavelength range variable in 0.25nm steps
Unmixing:	High-speed unmixing, Precision unmixing
Z step:	0.025µm
Compatible microscopes:	ECLIPSE Ti-E inverted microscope, ECLIPSE TE2000-E inverted microscope, ECLIPSE 90i upright microscope, ECLIPSE FN1 fixed stage microscope
Option:	Motorized XY stage, High-speed Z stage, VAAS

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Software

Display/image generation:	2D analysis, 3D volume rendering/orthogonal, 4D analysis, spectral unmixing
Image format:	JP2, JPG, TIFF, BMP, GIF, PNG, ND2, JFF, JTF, AVI, ICS/IDS
Application:	FRAP, FLIP, FRET, photo activation, three-dimensional time-lapse imaging, multipoint time-lapse imaging, colocalization

Control computer

OS:	Microsoft Windows® XP 32bit SP (English version)
CPU:	Intel Xeon 5160 (3GHz/1333MHz/dual core) or higher
Memory:	4GB or more
Hard disk:	SAS (15,000rpm), 160GB or more x2, RAID 0 configuration
Data transfer:	Dedicated data transfer I/F
Monitor:	1600 x 1200 or higher resolution, 2 LCD monitor configuration recommended
Installation condition:	Temperature 5 - 35°C, humidity 65% (RH) or less (non-condensing)

Power Source

Controller:	Input voltage: 100–240VAC $\pm$ 10% 50–60Hz Current rating: 5A @100VAC Overcurrent protection: main breaker 15A
LU-LR 4-laser power source rack:	Power source for Ar laser and control circuit: 100VAC, 15A/115VAC, 15A/230VAC, 7.5A, 50/60Hz (breaker 15A) Power source for lasers except Ar laser: 100VAC, 3A/115VAC, 3A/230VAC, 1.5A, 50/60Hz (breaker 5A)

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