

Leica AF6500 System Specifications

Microscope

The system is built on a fully automated inverted Leica DMI6000 microscope, equipped with the following objectives:

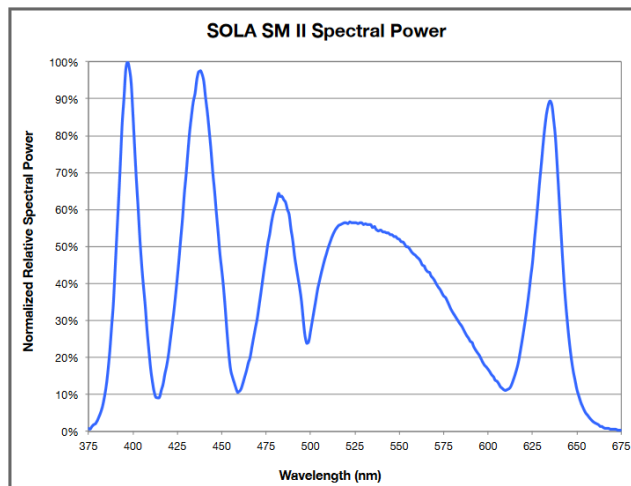
Objectives	Imm	Numerical Aperture (NA)	Contrast	Free Working Distance (mm)	Specifications
5x	Dry	0.15	No	13.7	0.15 HCPL FLUOTAR ∞
10x	Dry	0.30	No	11	K1KG/01 0.30 HCX PL S-APO ∞/-/D
20x	Dry	0.50	DIC	0.59	HC PL APO 20x/0.70 CS ∞/0.17/C
40x	Oil	1.25-0.75	DIC	0.10	HCX PL APO Lbd Blue ∞/0.17/D
63x	Oil	1.30	DIC	0.19	1.30 OIL HCX PL S-APO ∞/0.17/E
100x	Oil	1.40-0.70	DIC	0.09	H3KG/05 1.40-0.70 OIL HCX PL APO ∞/0.17/D
100x	Oil	1.40	DIC/PH	0.09	1.40 OIL Ph3 CS HCX PL APO C9MG/06 ∞/0.17/D

The fluorescence filter sets come in two configurations, the standard Full Multiband filter set and the Pinkel Filter set. In the latter the excitation filter is separated in an ultrafast external wheel. The following filter sets are available:

CONFIGURATION	Filter Name	Excitation filter	Dichroic Mirror	Emission filter	FLUOROPHORES
FULL MULTIBAND FILTER SET	ATL	BP360/40	400	LP425	Dapi, Hoechst
	EGFP Selective	BP482/18	495	BP520/28	GFP
	mKO	BP546/10	560	BP585/40	Kusabira Orange
	Y3 Et	BP545/25	565	BP605/70	Alexa 555, TagRFP
	Y5 Et	BP620/60	660	BP700/75	Cy5
PINKEL FILTER SET	C/Y	BP430/24	453	BP467/23	CFP
		BP500/20	518	BP535/30	YFP
	G/R	BP470/40	497	BP521/40	GFP
		BP572/35	596	BP632/62	m-Cherry

Fluorescence Light Source

SOLA Light Engine: Solid state excitation white light Led. Spectral output:





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Motorized XY Stage

For mosaic and multiposition acquisitions. Characteristics:

- Travel range 123 x 83mm
- Speed 120mm/sec
- Resolution 0,05µm
- Reproducibility < 1µm
- Accuracy +/- 3µm

The stage is provided with several inserts to hold slides, plates and 96-multiwell plates.

Camera

Two different cameras are built in the system:

1. Digital CCD camera ORCA-R2. Parameters:

- Image sensor type: ER-150 chip; 1.37 million pixel interline CCD with peak QE over 70%.
- Wavelength sensitivity: UV to NIR.
- Frame rate at full resolution: 8.5 or 16.2 frames per second (at 14MHz and 28MHz readout modes respectively).
- Exposure time: 10 microseconds to 70 minutes
- Spatial resolution (pixel size): 6.45 microns.
- 12 bit and 16 bit digitalizers included and software selectable.

2. DFC-550 color camera. Parameters:

- Image sensor type: CCD ICX285AQ for progressive scanning
- Sensor size: 8.8mm x 6.6mm.
- Number of pixels: 1360px x 1024px, 1.4 Mpixels.
- Maximum resolution: 4080px x 3072px, 12.5 Mpixels.
- Spatial resolution (pixel size): 6.45 microns.
- Color filter: RGB Bayer.
- Binning mode: 3x3, 5x5
- Analogic amplification: 1x-8x.
- 14 bit analog-to-digital converter.

Environmental control

1) Temperature control based on the 37-2 digital controller (PECON) equipped with a heating insert P #0426.100.

2) UNO Stage-Top Incubator (OKO-LAB). Includes #H301-K stage incubator equipped with inserts for petri dishes and slides (#GS35-M and #2x35-M). CO₂ and humidity is regulated through the manual UNO-H-T-CO₂ controller (OKO-LAB) equipped with a Air/CO₂ mixer, an air pump and a humidity module.

Workstation&Software

HPZ440 64bits Workstation, IntelXeon E5-1620v3 3.5 GHz, 64GB RAM, under Windows 7 Professional 64bits.

The system is controlled by the Leica LAS_X (2016) software, with two built in modules:

- **Wide Field Dynamic tree**, which controls all image acquisition parameters, allows for time-lapse and multiposition acquisitions and autofocus, provides tools for organizing and archiving image data sets ("experiments") and tools for measuring and processing them.
- **Live Data Mode (LDM)**, which provides interactive recording of both manual and automatic workflows.