

Leica DMIRB Datasheet

Dry objectives: 10x, 20x, 40x and 100x (NA information and working distance?)

Immersion objectives: 40x and 100x (NA information and working distance?)

Bright-field Imaging

Phase Contrast: 20x

Difference Interference Contract (DIC): 10x, 20x, 40x dry objectives

Fluorescence Imaging

Filter cubes:

- DAPI (UV 340 - 380 nm / LP 425)
- FITC (Blue 450 – 490 / LP 515)
- Rhodamine (Green 515-560 / LP 590)

Camera

The Hamamastu ORCA II – a dual scan air cooled CCD Camera (-40 to -50 degree) – combines high resolution, high sensitivity measurement, and readout versatility with 1280 x 1024 effective pixels. The ORCA II has two independent clock rates:

- 1.25MHz clock rate for high precision imaging, achieving 3 to 5 electrons read-out noise
- 10 MHz clock readout for high frame rate imaging (up to 5.3 Hz)

Frame rate with binning (frames/second)

Scan mode	No binning	2x2	4x4	8x8
Fast scan mode	5.3	10.1	17.8	28.8
High precision scan mode	0.8	1.6	3.0	5.2

Open Lab Software

- **Automater**

Automater allows users to perform time-lapse experiments by maneuvering the microscope through Open lab software. For example, the program can automatically adjust magnification, z translation, fluorescence filters and all the image capture parameters. This feature has been used to capture microtubule motion, and could be applied to observing other dynamic process such as cell migration, cell division, and in situ microinjection and manipulation.

- **Image Analysis**

Colorization comes with set colors for many widely used probes for artificially coloring the images with your preferences.

Three-color imaging can be used to produce digital images of single-, double-, and triple-labeled fluorescent samples. The use of red, green and blue (**RGB**) color is most informative for displaying the distribution of up to three fluorescent probes, where any co-localization is observed as a different additive color when the images are colorized and merged into a single three-color image.

Micrometry can be used to make basic linear measurements, as well as the area or volume of a specimen, and can be used to count cells, particles and fibers.

- **Other Available Openlab Modules:**

Deconvolution Module Bundle includes Nearest Neighbor Deconvolution, Volume Deconvolution and 3D Restoration.

3D Module Bundle includes 3D Rendering and 3D Slicing modules. The 3D Rendering module allows visualizing deconvolved or raw data sets in three dimensions and 24 bit real color. The 3D Slicing module allows you to visualize deconvolved data sets by slicing the image stack at angles orthogonal to the XY plane.

Morphology Module Bundle includes Advanced Measurements, Density Slicing and Binary Operations modules for morphological analysis. The Advanced Measurements module upgrades the standard Measurements module with features including automatic measurement of multiple objects in binary images. It can perform straight line, irregular line, point counts and object tracking. The density Slicing module allows creation of binary masks for direct object measurement.

Ratioing Module allows for rapid ratioing of image sequences of up to 16 bit monochrome data (used for Ca²⁺ signaling).

FRET module can create FRET result images given the availability of FRET filter cubes.

Registration Module is a tool for correcting X, Y displacement in images acquired from multilabeled fluorescent samples.

Colocalization Module provides a route for rapid visualization and quantization of colocalization in multi-labeled fluorescent samples (FRET analysis, for example). For any pair of selected images, the module creates a scatter plot display of intensity distribution and degree of colocalization.

Eppendorf Transferman NK2

The tool follows the joystick movement directly with maximum travel distance of 20 mm along x, y, z axis. The resolution per micrstep is approximately 40 nm with maximum travel speed of 7500 m/second.