

Specifications Digital Video Microscope

➤ Personal Computer

- Processor > 3GHz
- 2 GB RAM
- 4x Raid 0 controller incl. 4x HD (Data storage rate >100 MB/s)
- 1 HD > 200 GB
- Fast 3D graphic board including *256MB RAM*
- DVD-R/W
- 2 x 19" TFT-Monitor
- Windows XP

➤ CCD Camera

The system supports up to two CCD cameras LaVision Imager Pro 1600 CCDs

- 1600 x 1200 pixel resolution
- Full well capacity 40000 e⁻
- Quantum efficiency 55% @ 500 nm
- 14bit dynamic range
- Frame rate 26 fps at full resolution (with two CCDs)
- Binning and ROI possible
- Excellent read out noise of 12 e⁻ rms @ 10MHz pixel clock
- Thermo-electrical cooling of delta -50°C vs. ambient

➤ ImSpector Software

32bit data acquisition and processing software

- Control of all hardware components (flashlights, delay, CCD, stage)
- Acquisition of 4D data stacks
- Supports the following microscopy modes:
 - transmission DIC
 - simultaneously multi color imaging with 2 CCDs
 - sequential multicolor imaging with filter wheel
- Flash light illumination
 - 1 color with up to 70 Hz frame rate
 - 2 color with up to 70 Hz frame rate (2 CCDs and flash lamps)
 - Particle tracking-mode 1- or 2- color illumination
variable delay between flashlight 1 and 2
(delta t > 20 μs, variable)
- Acquisition of 4D Data Stacks (x, y, t, $\lambda_{\text{excitation}}$, Delay), parameters can be arbitrarily combined, e.g. for physiological analysis
- Various mathematical evaluation algorithms, e.g. for multi-exponential life time measurements
- Linear spectral unmixing routines
- Automated storage of data on HD

➤ **Flash lamp**

The system supports up to two flash lamps

- Features-Single shot tunable high pulse energy (user selectable) with high repetition rate, up to 70Hz
- Up to 150 J / pulse, adjustable
- Pulse length:
 - 2 to 400 μ s at full width half maximum
 - 7 to 500 μ s at 1/3 of maximum
- White spectrum (200-1100 nm) or filter selected spectral output
- Quartz optics
- Fiber optically coupled system
- Choice of light guides available from 100 μ m to 25 mm diameter
- Manual and external (TTL compatible) trigger, electrically isolated

➤ **Filter Wheel**

Fast filter wheel synchronized to CCD camera and flash light; the systems supports up to two filter wheels

- 8 positions
- < 65 ms response time in between 2 positions
- Embedded in LaVision BioTec ImSpector Software

➤ **Delay line**

The delay line synchronizes up to two CCDs and two flash lamps

- Flash length: 1 μ s – 1 ms [1 μ s steps]
- Delay length: 1 μ s – 8 s [500 ns steps]

Options

- Integration of exciting scientific Microscopes (Olympus, Zeiss, Nikon)
- CCD cameras
- Video Cameras
- Video Recorders
- Integration of various stages (Burleigh Gibraltar, Luigs & Neumann, Märzhäuser)
- PiFoc Objective lens z-drives

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