

u-MATRIX

Rapp OptoElectronic



Pattern Illumination Device

The u-MATRIX is a computer controlled illumination device which uses a DLP chip to create different patterns or projects images onto the sample in the field of view of the microscope.

In combination with wide field, spinning disk confocal or laser scanning microscopy methods, the u-MATRIX is a powerful tool in the study of fast biological response signals. While performing similar functions as its scanner based sister devices, the u-MATRIX enables the light induced events to occur simultaneously at multiple locations, eliminating the delay introduced by the scanning process.

The u-MATRIX system consists of the optical module, the coupling to the microscope, the controller and the software. The optical module is coupled to the microscope without interfering with other existing devices (i.e. spinning disk, LSM, etc.).

Features:

- Up to 3 fiber coupled light sources solid state lasers and/or Lumencor Spectra Light Engines
- Standard picture formats
- Vibration free, no moving parts
- TTL IN/OUT lines for synchronization
- Available for several microscope models

DMD Module

- Transmission ranges: 350 700 nm
- Light source: light guide coupled diode lasers and Lumencor light engines
- Magnification: standard 1 : 1, other available upon request
- Pictures: binary (B/W) or 8 bit (256 gray levels)
- Frame rate: binary 20,000 fps, 8 bit 250 fps
- Formats: jpg, jpeg, bmp, png
- TTL triggered sequences and/or frame transitions
- Modules available for several modern research microscope brands and models.

Software Features

Illumination

- Points and/or regions of interest
- ROI shapes: lines, circles, polygons, free-hand drawn shapes

- o? Projection of pictures

Running Modes

- o Picture mode: series of pictures are preloaded and projected onto the field of view at fixed, user-selected frame rate
- o Sequence Mode: a preprogrammed sequence of points and/or ROIs is run a single or multiple times with timelines set by the user. Sequence elements located in the same timeline are displayed sequentially. Sequence elements located in different timelines can be displayed either sequentially or simultaneously. Unlimited number of timelines.

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