

# The UGA-42 Series for Olympus MVX10

## Systems for Localized Photomanipulation

The UGA-42 series comprises a variety of scanning devices for photomanipulation in microscopy and macroscopy applications. All devices allow the positioning of a laser beam virtually anywhere in the field of view of the camera for sequential illumination of points and / or scanning of regions of interest (ROIs).



The UGA-42 series for the Olympus macroscope MVX10 is available in two basic models, UGA-42 *Firefly* and UGA-42 *Geo*. Due to the modular design, these basic models can be combined to create a variety of customized, versatile and multipurpose systems. For all UGA-42 devices, Rapp OptoElectronic offers turn-key laser systems with a large spectrum of wavelengths covering the near UV, the visible and the near IR range.

### The UGA-42 family

- **UGA-42 *Firefly*** – small spot with high power density for general photomanipulation applications
- **UGA-42 *Geo*** – variety of preset spot shapes and sizes for illumination of larger areas without scanning
- **Customized systems** – combinations of different UGA-42 modules

## UGA-42 Hardware Features:

- The beam path of UGA-42 devices are coupled via dichroic mirrors to the microscope, enabling:
  - Parallel coupling of a fluorescence light source for imaging
  - Simultaneous photomanipulation and image acquisition (no change of mirrors is required during the experiment)
  - Combinable with most other imaging techniques without interference
- **Small spot sizes down to a few micrometers** are possible with the **UGA-42 Firefly**; actual spot size on the sample depends on the final system
- **Different spot shapes and sizes** available with the **UGA-42 Geo**; actual spot size on the sample depends on the optical system
- **Up to four lasers** independently usable **within** the same **experiment**
- **Broad range of laser wavelengths** (UV / VIS / IR)
- **Digital and analog laser modulation**
- **Two TTL output (master) and two TTL input (slave) channels** for synchronization with other devices

### Applications

- **Photolysis / Uncaging**
- **Photobleaching / FRAP**
- **Photoswitching / Photoactivation of fluorescent dyes**
- **Optogenetic photostimulation / - inhibition of cellular processes**
- **Mapping**
- **Localized temperature-jump**