

## The UGA-42 Series for Zeiss AxioZoom.V16

## **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 Zeiss stereo zoom microscope AxioZoom.V16 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	<ul> <li>small spot with high power density for general photomanipulation applications</li> </ul>
• UGA-42 <i>Geo</i>	<ul> <li>variety of preset spot shapes and sizes for illumination of larger areas without scanning</li> </ul>
Customized systems – combinations of different UGA-42 modules	
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## **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)
  - o 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

