

# MULTISPLIT

DATASHEET

## Four-way image splitter

The MultiSplit image splitter from Cairn Research provides four separate, spatially equivalent image components which can be displayed as four quadrants on a single camera chip.



Images as seen on camera sensor

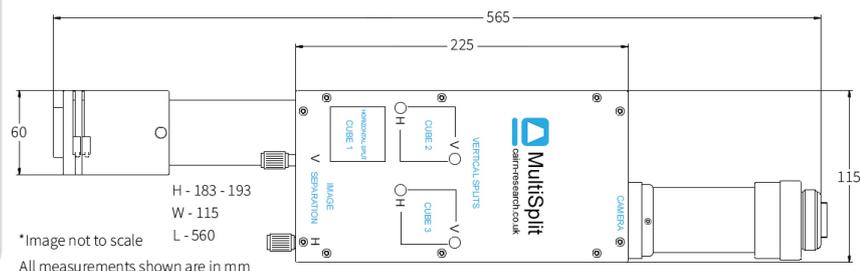
Image splitting is usually performed on the basis of wavelength, multi-depth and/or polarisation, this enables applications where there is a requirement for simultaneous, or high speed acquisition of multiple image emission bands, mini z stacks or polarisation states. The simultaneous acquisition of up to four images offers a major benefit over manual or electronic filter changers, as there is no longer a need to pause acquisition while the filter position is changed. This allows cameras to be operated in high speed stream modes and reduces the demand on software.

### KEY BENEFITS

- Compact design with C-mount input and output ports as standard (F and T mount on request)
- Support for sensors up to 32mm diagonal (split mode only)
- Budget friendly alternative to four cameras
- 425nm to 875nm AR coatings on all optical surfaces
- 40mm diameter proprietary optics
- Simple & precise controls for image registration
- Magnetic cube mount for enhanced registration
- Interchangeable filter / dichroic holders
- Emission filter dimensions – 25mm diameter
- Recommended dichroic dimensions – 26x38x2mm ( $\lambda/2$  flatness)
- Optional polarisation splitting kit including beamsplitter cube and rotatable polariser

### APPLICATIONS

- Ratiometric calcium, voltage & pH imaging
- Förster Resonance Energy Transfer (FRET)
- Simultaneous multi fluorescent probe imaging
- Polarisation studies (anisotropy)
- Simultaneous phase contrast / DIC and fluorescence
- Simultaneous multi Z depth imaging
- Total Internal Reflection Fluorescence (TIRF)
- Spinning disk confocal
- Single Plane Illumination Microscopy (SPIM)
- 3D super resolution PALM/STORM (using cylindrical lenses)



\*Image not to scale  
All measurements shown are in mm

# MULTICHANNEL EMISSION SPLITTING RANGE

DATASHEET

NO.1 IN OPTICAL PERFORMANCE, STABILITY AND USABILITY



## OptoSplit II & III

With an elegant configuration for simple side by side image splitting and optimised for sensors up to 18.8mm diagonal, the OptoSplit delivers high throughput imaging at a realistic price. Ideal for FRET, ratiometric imaging, polarisation studies and most simultaneous imaging applications requiring two or three images. User-configurable cubes and intuitive x, y and focal adjustments offer convenience and simplicity.



## Optosplit II Bypass

This builds on the success of the OptoSplit II, but adds a convenient single lever bypass mode making it more suitable for multi-user microscopes where simultaneous dual channel imaging is required for specific experiments alongside single wavelength recordings.



## MultiSplit

Up to four channels simultaneously on one camera chip! The MultiSplit uses the four quadrants of a single camera in a 2x2 square format. The MultiSplit has the further possibility of simultaneous multi-depth imaging which is particularly attractive, as we can now do this at four depths rather than just two or three.



## Multi Camera Adapters

Splitters for up to four channel imaging using multiple cameras (up to 22mm diagonal). Perform simultaneous recording, polarisation states or z depths without having to reduce their size. Variable rectangular aperture allows for the use of cropped sensor modes for the fastest speeds. Now with new more rigid camera mounting clamps and magnetically aligned filter cube facility.



## OptoMask

Enables precise FOV control for the high-speed, cropped sensor mode offered by several camera manufacturers including Andor and Roper Scientific.



## OptoSpin

An intelligently designed, fast-spinning and stepping filter wheel. This slim unit has low inertia, enabling smooth operation and the ability to step between emission filters in 30ms, and spin continuously at 7500rpm when synchronised with a suitable light source. Change filters without moving the camera. Mount two units together in the same 35mm optical path length for versatile combinations. (6 position for one filter wheel, 10 position for two).

