

OPTOSPLIT III

DATASHEET

Three-way image splitter

The Optosplit III triple image splitter from Cairn Research is a simple device for dividing an image into two, or three separate, spatially equivalent components which can be displayed side-by-side on a single camera chip.

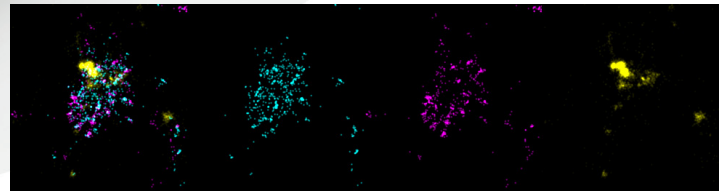


Splitting is usually performed on the basis of wavelength and/or polarisation, allowing applications where there is a requirement for simultaneous, or high speed acquisition of multiple image emission bands or polarisation states. The simultaneous acquisition of up to three images offers a major benefit over manual or electronic filter changers, as there is no longer a need to pause acquisition while the filter position is changed. This allows your camera to be operated in high speed stream modes and reduces demands on the 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 29.4mm diagonal (25mm using single channel cube)
- Budget friendly alternative to three cameras
- 425nm to 875nm AR coatings on all optical surfaces
- 40mm diameter proprietary optics
- Simple & precise controls for image registration
- Interchangeable filter / dichroic holders
- Emission filter dimensions – 25mm diameter
- Recommended dichroic dimensions – 26x38x2mm ($\lambda/2$ flatness)
- Single channel 'Bypass' cube to easily switch to single channel operation
- Fixed or variable centre fully adjustable rectangular mask to delimit region of interest

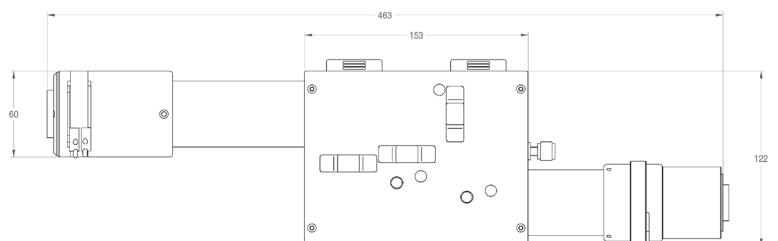
SD-dSTORM images from hippocampal rat neurons (DIV21) stained for MPP2 (cyan), GABAAR $\alpha 1$ (magenta), homer1 (yellow)



With thanks to Bettina Schmerl, Niclas Gimber, Jan Schmoranzner, Sarah Shoichet (Charité Berlin)

APPLICATIONS

- Förster Resonance Energy Transfer (FRET)
- Ratiometric calcium, voltage & pH imaging
- 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



MULTICHANNEL EMISSION SPLITTING RANGE

NO.1 IN OPTICAL PERFORMANCE, STABILITY AND USABILITY

DATASHEET



OptoSplit II & III

With an elegant configuration for simple side by side image splitting, 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 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 (each). Perform simultaneous recording of multiple wavelengths, polarisation states or z depths using the full camera FOV without having to reduce their size. Variable rectangular aperture allows for the use of cropped sensor modes for the fastest speeds. Includes interchangeable camera mounts for C, F and T-mount cameras.



OptoMask

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



OptoSpin 25 & 32

An intelligently designed, fast-spinning and stepping filter wheel, now with 25mm and 32mm wheels available and a range of microscope adapters. 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 and mount two units together in the same 35mm optical path length for versatile combinations. (6 position for one filter wheel, 10 position for two).

