Adjustable field mask aperture

Adjustable field mask aperture enabling ultra-fast imaging with iXon EMCCD

OptoMask is a C-mount to C-mount relay device with precise aperture control which inserts easily between the microscope output and the camera. OptoMask is used in combination with the Crop Mode software feature on iXon EMCCD cameras, resulting in significant increases in Region of Interest (ROI) frame rates. In order to enable Crop Mode it is necessary to accurately optically mask the area of the sensor outside the ROI.

Using the OptoMask, a sub-array can be readily defined through positioning of the masking blades, and a cropped area subsequently matched to this in software.

Above: iXon EMCCD Camera with OptoMask mounted to an upright microscope.

Optically Centred Crop Mode with OptoMask

The Andor iXon Ultra and iXon Life series come with 'Optically Centred Crop Mode', which gives the user the option to break away from the corner tethered requirement of standard Crop Mode and select a number of pre-defined ROIs that are located in the centre of the image field. Optically centring of the ROI makes this mode extremely appealing to a number of microscopy techniques, including 'pointillism' live cell super-resolution microscopy.

Shift Register
Gain Register
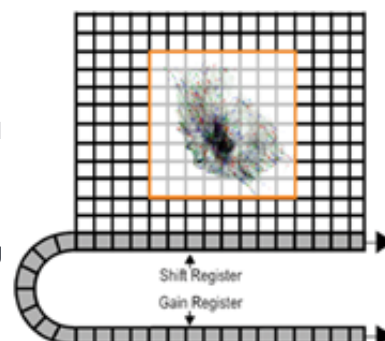
Above: Optically centered ROI

Key Benefits

- > 95 % transmission efficiency
- Spectral range - 450 to 900 nm
- Compact size (see dimensions for specific measurements)
- Flexible optical masking of sensor
- 4 x adjustable blades (independent adjustment for OPTMSK-L only))
- Lock off indicators at 256, 128 and 64 pixel square (or other sizes on request). Available on Optically Centered Optomask only (OPTMSK-OC-L).
- Fits easily onto microscope C-mount
- Designed for Crop Mode
- Instant changeover from cropped to full sensor mode
- Range of magnification and demagnification
- Ultra-fast frame rates (see table below)

Applications

- ☑ Live Cell Super-resolution Microscopy
- ☑ Super-resolution & tracking
- ☑ Single molecule Imaging
- ☑ Vesicle Trafficking
- ☑ Cell Motility
- ☑ Calcium/Ion Signalling
- ☑ Voltage sensitive dyes
- ☑ High speed TIRF
- ☑ High Speed Spinning Disk Confocal Microscopy
- ☑ Adaptive Optics

Frame rates available in Crop Mode
('Optically Centred' ROI speeds shown in brackets)

iXon Ultra/Life 897

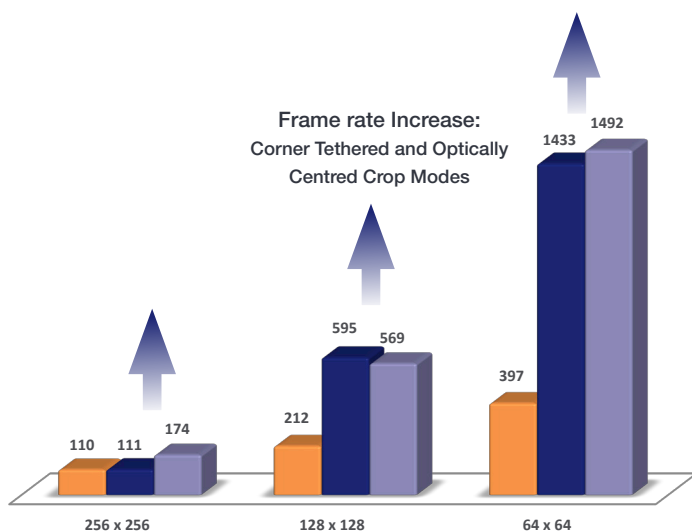| Binning	Array Size			
	256 x 256	128 x 128	64 x 64	32 x 32
1 x 1	111 (174)	595 (569)	1433 (1492)	3532 (3024)
2 x 2	215 (329)	1085 (1014)	2433 (2329)	5325 (4054)
4 x 4	402 (594)	1802 (1662)	3577 (3237)	6579 (5252)
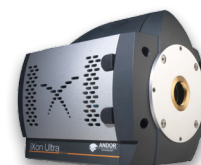
iXon Ultra/Life 897 EMCCD

iXon Ultra/Life 888

Binning	Array Size			
	512 x 512	256 x 256	128 x 128	64 x 64
1 x 1	93 (78)	190 (251)	670 (697)	2053 (1319)
2 x 2	170 (143)	350 (426)	1150 (1019)	3123 (1646)
4 x 4	291 (245)	601 (653)	1772 (1504)	4109 (1857)

New

iXon Ultra/Life 888 EMCCD

Frame Rate Performance Comparison

iXon Ultra/Life 897

Frame rate Increase:
Corner Tethered and Optically Centred Crop Modes

- 256 x 256: 110, 111, 174
- 128 x 128: 212, 595, 569
- 64 x 64: 397, 1433, 1492

iXon Ultra/Life 888

Frame rate Increase:
Corner Tethered and Optically Centered Crop Modes

- 512 x 512: 50, 93, 78
- 256 x 256: 95, 190, 251
- 128 x 128: 171, 670, 697
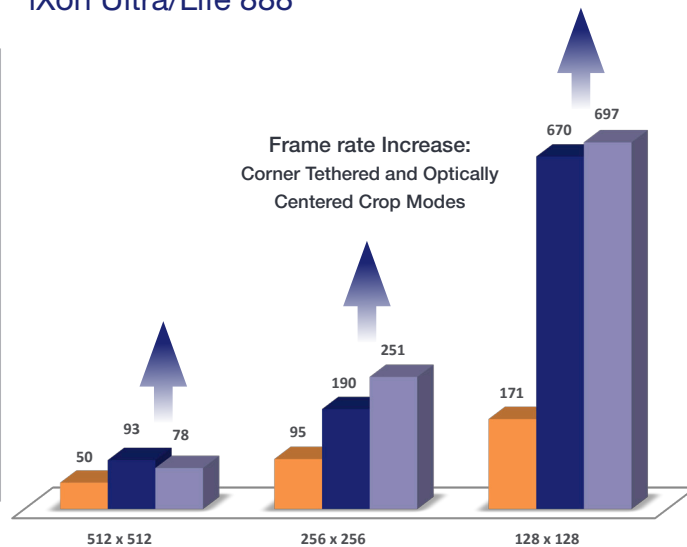
- 🟧 Standard ROI Mode
- 🟦 Corner Tethered Mode
- 🟪 Optically Centred Crop Mode

Above: Significant increases in frame rates may be achieved in Corner Tethered Mode and Optically Centred Crop Mode. Shown at selected ROIs for iXon Ultra & Life 897 (left) and iXon Ultra & Life 888 (right).

Ordering your OptoMask

There are three different OptoMask variants available for use with the Optically Centred Crop Mode and the Corner Tethered Crop Mode. The options are detailed below:

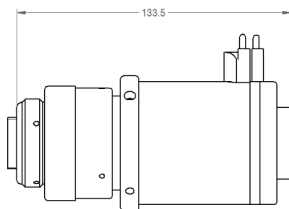| Product Code	Description
OPTMSK-OC-L	Longer OptoMask for use exclusively with Optically Centred Crop Mode. Suitable for iXon Ultra/Life 888 or iXon Ultra/Life 897. Not for use with 'Corner Tethered' Crop Mode.
OPTMSK-OC-S	Short OptoMask for use exclusively with Optically Centred Crop Mode. Suitable for iXon Ultra/Life 897. Not for use with 'Corner Tethered' Crop Mode.
OPTMSK-L	Longer OptoMask for use with Corner Tethered or Optically Centred Crop Mode. Suitable for iXon 888 or iXon 897.

Above: OPTMSK-L (top), OPTMSK-OC-L (bottom)
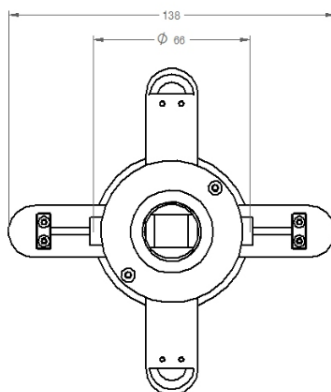
Items supplied with the OptoMask:
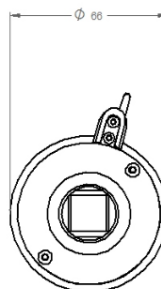
1 x OptoMask
1 x OptoMask support

OptoMask

Adjustable field mask aperture enabling ultra-fast imaging with iXon EMCCD

ANDOR
an **Oxford Instruments** company

Product Drawings

(Short OptoMask Model: OPTMSK-OC-S)

(Long OptoMask Models: OPTMSK-OC-L and OPTMSK-L)

Front of OptoMask- with Optically Centred (OC) version shown to the right.
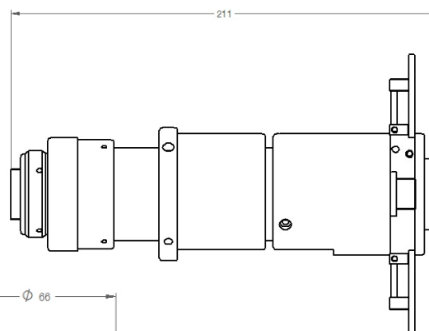
Compatible Software

Optically Centred Crop Mode is supported in the following software applications:

MetaMorph® μ-Manager The Open Source Microscopy Software NIS-Elements Advanced Solutions for your Imaging World Solis

Order Today

Need more information? At Andor we are committed to finding the correct solution for you. With a dedicated team of technical advisors, we are able to offer you one-to-one guidance and technical support on all Andor products. For a full listing of our regional sales offices, please see **andor.com/contact**

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