

Accessories for UV lasers

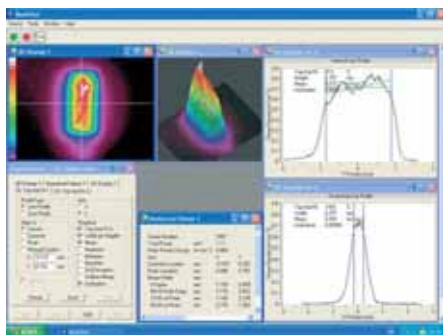
Integral Reimaging UV Image Converters

The UV image converters are fluorescent plates that convert UV radiation that is poorly imaged by silicon cameras into visible light that is then imaged onto the CCD of the camera. These fluorescent plates are specially designed for UV conversion and have a high light output, wide linear dynamic range and high damage threshold.

There are 3 versions available:

1. The 4X UV image converter for large beams converts to visible and then images onto the CCD while reducing the beam size 4X.
2. The 1:1 UV image converter converts to visible and images the beam onto the CCD without changing the size.
3. The 4X expander with UV converter converts to visible and images a beam enlarged 4X onto the CCD.

All of the above imagers allow a beam splitter to be mounted at 45 deg angle in front of the imager so as to allow imaging of higher power/energy beams.



Shown here is a profile of a 248nm Excimer laser beam



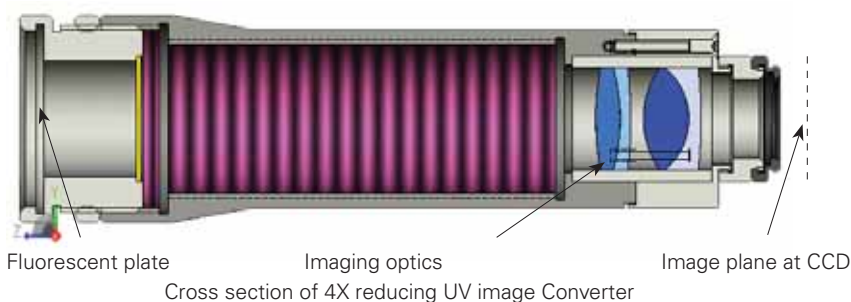
4X beam reducing UV Image Converter as mounted on camera



1X UV Image Converter with Optional Beam Splitter



4X beam expander with UV converter



Fluorescent plate

Imaging optics

Image plane at CCD

Cross section of 4X reducing UV image Converter

Specifications	4X UV Image Reducing Converter	1X UV Image Converter	4X Beam Expander with UV converter
Beam Reduction	4X reduction $\pm 2\%$ with included correction factor	1:1 imaging $\pm 2\%$ with included correction factor	4X expansion $\pm 2\%$ with included correction factor
Resolution	50 μm x 50 μm	20 μm x 20 μm	15 μm x 15 μm
Spectral range	193 to 360nm		
Minimum signal	$\sim 1\mu\text{J}/\text{cm}^2$ with blank filter	$\sim 50\mu\text{J}/\text{cm}^2$ with blank filter	$\sim 1\mu\text{J}/\text{cm}^2$ with blank filter
Saturation intensity	$\sim 30\text{mJ}/\text{cm}^2$ at 193nm, $\sim 15\text{mJ}/\text{cm}^2$ at 248nm with included filter 20 times above values with optional beam splitter	$\sim 15\text{mJ}/\text{cm}^2$ at 193nm, $\sim 20\text{mJ}/\text{cm}^2$ at 248nm with included filter 20 times above values with optional beam splitter	$\sim 30\text{mJ}/\text{cm}^2$ at 193nm, $\sim 15\text{mJ}/\text{cm}^2$ at 248nm 20 times above values with optional beam splitter
Effective Aperture	$\varnothing 30\text{mm}$ but effective beam size is limited to 4X CCD dimensions (see pages 138-143)	$\varnothing 18\text{mm}$ but effective beam size is limited to CCD dimensions (see pages 138-143)	1/4 the size of the CCD dimensions (see pages 138-143)
Damage threshold	100W/cm ² or 2J/cm ² with beam splitter		
Dimensions	$\varnothing 50\text{mm}$ dia x 185mm length	$\varnothing 31\text{mm}$ dia x 120mm length	$\varnothing 29\text{mm}$ dia x 69mm length

Ordering Information

Item	Description	P/N
1X UV image converter	Screw on imaging telescope that converts UV image to visible and images same size on CCD. For beam intensities from 50 $\mu\text{J}/\text{cm}^2$ to 15mJ/cm ² . Fits 4.5mm recess and CS mount cameras	SPZ17023
Beam splitter for above	45 degree wedged beam splitter to reduce intensities on image converter by $\sim 20\times$. For beam intensities of up to 300mJ/cm ² at 193nm	SPZ17015
4X reducing UV image converter	Screw on imaging telescope that converts UV image to visible reduces the size 4X and images on CCD. For beam intensities from 1 $\mu\text{J}/\text{cm}^2$ to 15mJ/cm ² . Fits 4.5mm recess cameras only.	SPZ17024
Beam splitter for above	45 degree wedged beam splitter to reduce intensities on by $\sim 20\times$. For beam intensities of up to 300mJ/cm ² at 193nm.	SPZ17007
UV converter assembly for 4X beam expander	Screw on assembly which has UV plate to convert 193 – 360nm radiation to visible. The plate is at the object plane of the 4X expander (P/N SPZ17022) and produces a 4X enlarged image on the CCD	SPZ17019