3.5.8 Imaging UV lasers

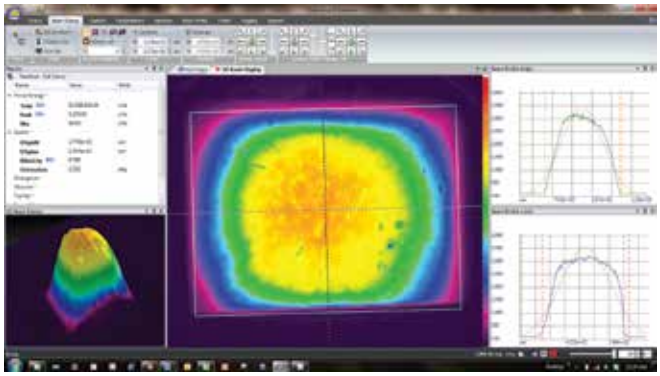
Integral Reimaging UV Image Converters

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:

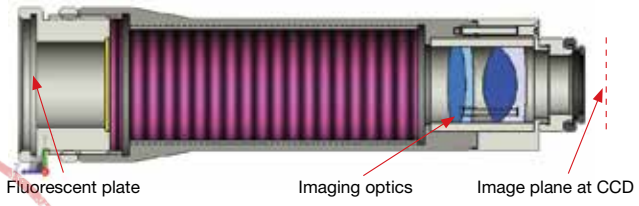
1. The 4X UV image converter is a screw on telescope for large beams that converts to visible and then images onto the CCD while reducing the beam size 4X.
2. The 4X expander with UV converter converts 193 - 360nm to visible and images a beam enlarged 4X onto the CCD.
3. The 1:1 UV image converter is a crew on telescope that convert 1:1 UV image to visible and images the beam onto the CCD without changing the size, fits 4.5mm recess and CS cameras.

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 355nm UV laser. The beam is converted to a visible wavelength, reduced in size and imaged by the beam profiling camera

Cross section of 4X reducing UV image Converter



Specifications

Model	4X UV Image Reducing Converter	1X UV Image Converter	4X Beam Expander with UV converter
Beam Reduction	4X reduction ±2% with included correction factor	1:1 imaging ±2% with included correction factor	4X expansion ±2% with included correction factor
Resolution	50µm x 50µm	35µm x 35µm	15µm x 15µm
Wavelengths	193-360nm		
Minimum signal	~1µJ/cm² with blank filter		
Saturation intensity	~30mJ/cm² at 193nm, ~15mJ/cm² at 248nm with included filter 20 times above values with optional beam splitter	~15mJ/cm² at 193nm, ~20mJ/cm² at 248nm with included filter, 20 times greater with optional beam splitter	~30mJ/cm² at 193nm, ~15mJ/cm² at 248nm 20 times above values with optional beam splitter
Effective Aperture	Ø30mm but effective beam size is limited to 4X CCD dimensions	Ø18mm but effective beam size is limited to CCD dimensions	1/4 the size of the CCD dimensions
Damage threshold	100W/cm² or 2J/cm² with beam splitter		
Dimensions	Ø50mm dia x 185mm length	Ø31mm dia x 120mm length	Ø29mm dia x 69mm length
Part number	**SPZ17024**	**SPZ17023**	**SPZ17022 + SPZ17019**

Accessories		
1st Wedge Splitter (BB)	45 degree wedged beam splitter for 1X UV image converter to reduce intensities on image converter by ~20X. For beam intensities of up to 300mJ/cm² at 193nm.	**SPZ17015**
Beam splitter for 4X reducing UV image converter	45 degree wedged beam splitter to reduce intensities by ~20X. For beam intensities of up to 300mJ/cm² at 193nm.	**SPZ17007**
20mm diameter UV imaging plate	Ø20mm diameter UV image conversion plate only. For customers that have own imaging system. Converts UV image to visible. For beam intensities 50µJ/cm² to 10mJ/cm².	**SPF01177**
30mm diameter UV imaging plate	Ø30mm diameter UV image conversion plate only. For customers that have own imaging system. Converts UV image to visible. For beam intensities 50µJ/cm² to 10mJ/cm².	**SPF01150**
50mm X 50mm UV imaging plate	50X50mm diameter UV image conversion plate only. For customers that have own imaging system. Converts UV image to visible. For beam intensities 1mJ/cm² to 20mJ/cm². Not suitable for 193nm.	**SP90082**

4X beam reducing UV Image Converter as mounted on camera (SPZ17024)

1X UV Image Converter with Optional Beam Splitter (SPZ17023 + SPZ17015)

4X Beam Expander with UV Converter (SPZ17022+SPZ17019)