

# WAVELENGTH MANAGEMENT

## UV CONVERTERS

UV Converters take advantage of a phenomenon called fluorescence to extend the performance range of the Beamage beam profiling camera to ultraviolet wavelengths. A fluorescent crystal located at the entrance of the converter absorbs UV wavelengths and reemits longer wavelengths (in the visible spectrum), which are less energetic and detected by the CMOS sensor.

### MAIN CHARACTERISTIC

- Transforms wavelengths contained between X-Rays and 400 nm to visible and near-IR wavelengths.
- Images larger beams due to the magnification properties of the optics.
- Built with an iris at the output port for a control of the exposure on the CMOS sensor.
- Removable extension tube that is easily fixed onto the entrance port of the Beamage camera.
- Ready to use within minutes



### SPECIFICATIONS

MODEL	BSF23C23N	BSF23P23N	BSF23R23N	BSF23G23N
Input Aperture Ø	23 mm			
Closest Standard Optical Camera Format	2/3"			
Main Tube Length (L)	76.3 mm			
Extension Tube Length (D)	30 mm			
Overall Length (OAL)	124.8 mm			
Max Input Beam Size	12.5 x 18.4 mm			
Max Beam Size on CMOS	6.0 x 8.8 mm			
Magnification	2.1			
Crystal Type	C	P	R	G
Wavelength Range	110 - 225 nm	110 - 350 nm	110 - 535 nm	X-ray - 400 nm
Relative Response	193 nm: 22 248 nm: 0.17 308 nm: 0.03	48 15 1	100 8 0.18	480 480 112
Saturation Level	193 nm: 400 mJ/cm <sup>2</sup> 248 nm: N/A 308 nm: N/A	30 mJ/cm <sup>2</sup> 30 mJ/cm <sup>2</sup> 50 mJ/cm <sup>2</sup>	50 mJ/cm <sup>2</sup> 400 mJ/cm <sup>2</sup> 400 mJ/cm <sup>2</sup>	10 mJ/cm <sup>2</sup> 10 mJ/cm <sup>2</sup> 50 mJ/cm <sup>2</sup>
Decay Time	3 - 5 µs	5 µs	3000 µs	0.5 µs
Max Repetition Rate	30 - 20 kHz	20 kHz	30 Hz	200 kHz
Product Number	202325	202329	202331	202327

A complete procedure on how to choose the appropriate UV Converter (UV Converter Application Note) is available on our website at [www.gentec-eo.com](http://www.gentec-eo.com).

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# WAVELENGTH MANAGEMENT

## IR ADAPTOR

Typically, a CMOS silicon sensor is operating at its full potential when imaging lasers with wavelengths between 350 nm and 1150 nm\*. If you want to extend the performance range of your Beamage beam profiling camera to the near-IR telecom wavelengths band, you can use the IR Adaptor. This ideal solution takes advantage of a multi-photon absorption process to extend the sensitivity range of the camera sensor to a portion of the near-IR spectrum (1495 nm – 1595 nm).

### MAIN CHARACTERISTICS

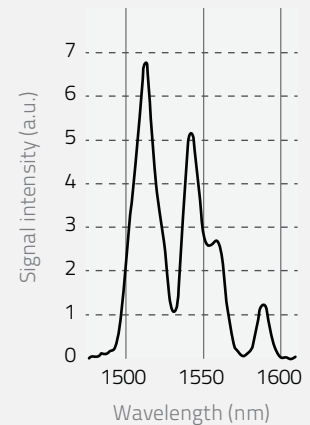
- Converts wavelengths between 1495 nm and 1595 nm to shorter wavelengths between 950 nm and 1075 nm.
- Images larger beams due to the convergent properties of the optics (3.29X).
- Built with a high quality coated anti-reflection input window that allows wavelength conversion with low distortion and maximum image resolution.
- Removable and easily C-mounted onto the entrance port of the camera.
- Ready to use within minutes.



### SPECIFICATIONS

MODEL	IR ADAPTOR
Active Area	27.5 mm Ø
IR Spectral Range	1495 nm – 1595 nm
Peak IR Sensitivity	1510 nm and 1540 nm
Converted Wavelengths	950 nm – 1075 nm
Pixel Multiplication Factor	3.29
Minimum Beam Size	230 µm
Maximum Beam Size	19 mm
Maximum Resolution	12 lp/mm over active area 40 lp/mm at sensor focal plane
Distortion	-1.0% barrel distortion (inverted image)
Linearity	Non-Linear, IR converted output $\propto$ IR input intensity $^{1.41}$
Spectral Transmission	360 nm – 2000 nm @ F30.8
Damage Threshold	1 W/cm <sup>2</sup>
Dimensions	46 mm Ø x 97 mm L
Operating Temperature	-10°C to +40°C
Weight	210 g
Product Number	201061

### EXCITATION SPECTRUM



\* The Beamage-3.0 is also offered with an optional phosphor coated CMOS sensor (Beamage-3.0-IR), which is sensitive to wavelengths between 1495 nm and 1595 nm. See page 179 for more details.

# WAVELENGTH MANAGEMENT

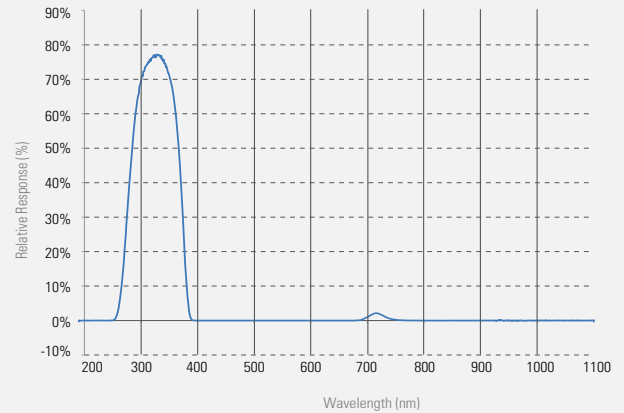
## UV BANDPASS FILTER

We also offer a color glass filter specially designed for the UV spectrum. Depending on the wavelength, the UG11-UV filter transmits 20% to 70% of the input beam power. It is particularly useful for applications with wavelengths contained between 250 nm and 370 nm. Other wavelengths are blocked by the filter. The UG11-UV is SM1 threaded and comes with a SM1 to C-mount adaptor.

MODEL	UG11-UV
Spectral Range	250 nm – 370 nm
Diameter	25 mm Ø
Clear Aperture	80% of area
Dimensional Tolerance	+0.0/-0.2 mm
Thickness	3 mm
Thickness Tolerance	+0.0/-0.2 mm
Parallelism	< 3 arcmin
Surface Flatness	< $\lambda/4$
Maximum Power	1 W
Surface Quality	40-20 Scratch-Dig
Damage Threshold	30 W/cm <sup>2</sup> (typical)
Product Number	202602

\* Data specified at 633 nm

### SPECTRAL TRANSMISSION

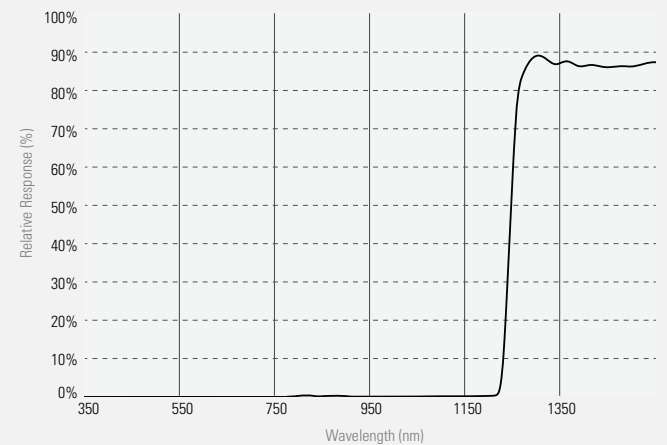


## IR FILTER

The B3-IR-FILTER is a color glass filter specifically designed for IR applications. Acting as a longpass filter, the B3-IR-FILTER cuts all the wavelengths below 1250 nm and only lets the IR wavelengths pass. It transmits approximately 70% of the incident light. The B3-IR-FILTER is SM1 threaded and comes with a SM1 to C-mount adaptor so you can mount it on the Beamage camera.

MODEL	B3-IR-FILTER
Spectral Range	1250 – 1350 nm
Diameter	25 mm Ø
Clear Aperture	80% of area
Dimensional Tolerance	+0.0/-0.2 mm
Thickness	6.3 mm max
Parallelism	< 3 arcmin
Surface Flatness	< $\lambda/4$
Maximum Power	1 W
Surface Quality	80-50 Scratch-Dig
Damage Threshold	30 W/cm <sup>2</sup> (Typical)
Product Number	202855

### SPECTRAL TRANSMISSION



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