

Imaged beam: To 37.5 x 28 mm standard
 Performance: Excellent linearity & stability
 Resolution: 5 μ m best
 Applications: X-ray to 355 nm

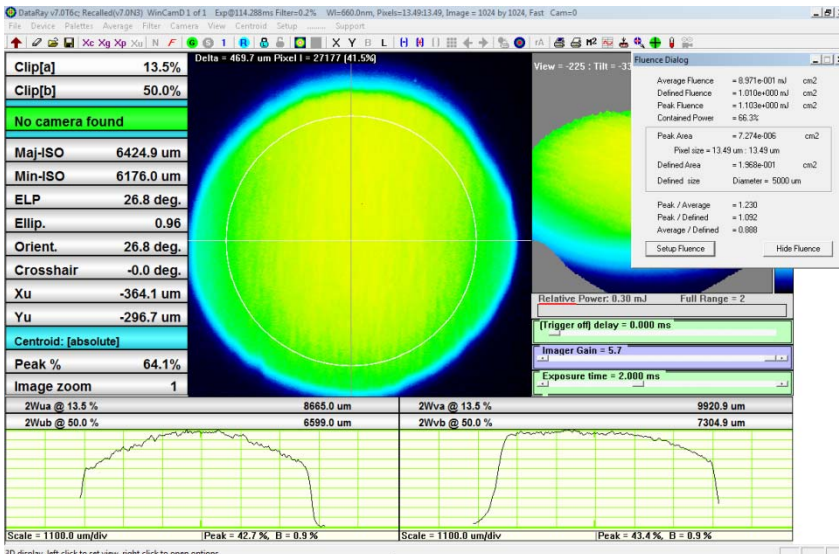
WinCamD + BSF series UV Converters

Applications

- Economical, accurate, compact Beam Profiling of pulsed & CW UV sources.
- X-ray^{Note 3} to 355 nm

Description

- The UV beam impinges on a custom thin crystal faceplate which fluoresces in the visible.
- This crystal fluorescence is reimaged onto the camera.
- Coated crystal option for coherence lengths ≥ 1 mm.



Features

- High resolution:** 5 μ m on a collimated beam
- Excellent crystal linearity:** 5 to 6 decades
- Excellent long-term crystal stability:** $>10^7$ pulses
- Add-on option** to a standard port-powered USB 2.0 WinCamD-U series camera.
- Beam sizes** from 50 μ m to 38 x 28 mm.
- Four crystal faceplates options** optimized for different wavelength ranges. See page 2 and [BSF_Selection.xls](#).
- High Dynamic Range Adjustment:** An integral iris diaphragm, f/2.8 to f/28, adds a 100:1 dynamic adjustment range to the cameras dynamic range, *particularly useful when dealing with pulsed lasers.*
- High Damage threshold:** 500 mJ/cm², 1.5 W/cm², 4 W max total. Higher power level? Contact DataRay.
- 5% sampling prism for powers above saturation.

BSF12R12N Imaged beam example: 193 nm, 0.2 mJ/pulse, 1 mJ/cm², f/4

AR1 option, AR-coated G and R crystals

- Use when the coherence length is ≤ 1 mm in order to avoid fringing from the crystal faceplate. Contact us if unsure.
- Definitely use for solid-state & some gas lasers:
 - 213 nm quintupled YAG
 - 244 nm doubled Argon Ion
 - 266 nm quadrupled YAG
 - 325 nm HeCd
 - 351 nm Argon ion
 - 355 nm tripled YAG
- Generally not required with Excimer lasers
- Standard AR is damaged at 193 nm. Contact factory for AR193 [C crystal with 193 nm specific coating option].



Outline Specifications - Contact DataRay for a specific configuration recommendation for your beam.

[The table refers to standard in-line axial configurations. BFR23 Right-angle, BSZ47 6:1 Zoom & Vacuum (V) are available.]

Part # ^{Notes 1, 2}	Aperture (mm)	Configuration	OAL x Diam. mm (See final page)
BSF08x12N	6.4 x 4.8	Axial cylinder	89 x 35
BSF12x12N	9.6 x 7.2	Axial cylinder	113 x 35
BSF23x12N	19.2 x 13.8	Axial cylinder	128 x 35
BSF47x12N	37.6 x 28.2	Axial cylinder	140 x ≤75
-AR1	As required	-	-
RA08-12, 23	For BSF08 & 12, 23	5% sample, 90° bolt –on prism	72 x 72 mm right angled

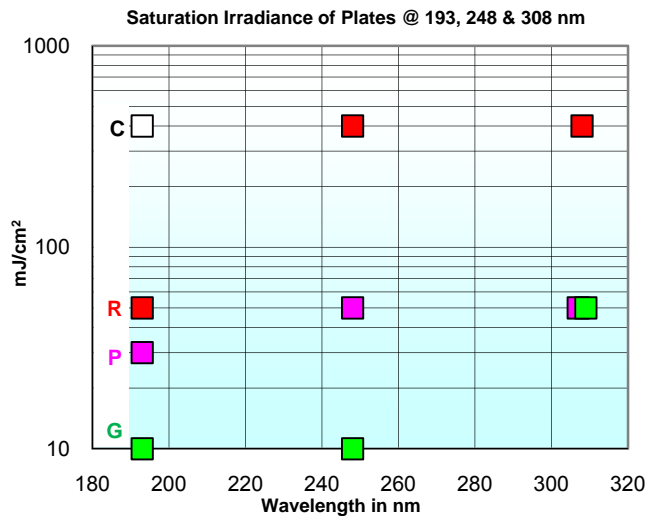
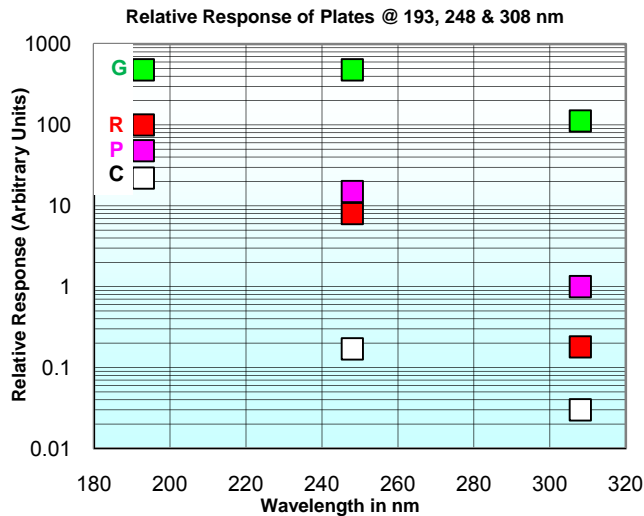
¹ x = Crystal	Primary Options & Application	λ nm Band	Relative response @193, 248, 308 nm	Saturation mJ/cm ² @ 193, 248, 308 nm	Decay time
C	193 nm	110 to 225	22, 0.17, 0.03	400, N/A, N/A	3-5 μs
G	Wide λ, low fluence	¹ Note 3 to 400	480, 480, 112	10, 10, 50	0.5 μs
P	λ <350, high fluence, fast	110 to 350	48, 15, 1	30, 30, 50	5 μs
R	Wide λ, high fluence, slow	110 to 532	100, 8, 0.18	50, 400, 400	3,000 μs

² Part #'s are for ½" CCDs. E.g. **BSF08G12N**

For 2/3" CCDs, replace ...x12N by ...x23N. E.g. **BSF08G23N**. Adds 7 mm to OAL length.

For AR coating add -AR1 to the part number. e.g. **BSF23G12N-AR1**.

³ X-rays: Use G crystal for λ ≥ 1 nm (≤1.24 keV) & vacuum flanged versions of the converters. Contact factory.



Use

- Inspect the UV converter. It has an aperture ring which allows you to vary the irradiance on the camera by a factor of 100:1 by varying the aperture from (typically) f/1.6 to f/16.
- Unscrew the ND4.0 filter and screw-on the UV converter. Remove the front cover cap.
- Start the software. Read the **PMF** = section on the label on the UV converter. In the **Setup** pull-down menu, choose **Capture Setup Dialog**. In the **USB Capture Setup** menu enter the **PMF** value on the label. (Don't know how to do this? You skipped e) above.)
- Measure the power in your beam/energy in order to ensure that it does not approach the 500 mJ/cm² damage threshold or the saturation level.
- With the UV converter aperture set to f/4, 'walk' the beam onto the converter from one side. If the camera saturates, and increasing the aperture f/# does not help, then you need to add additional attenuation/sampling before the converter. (The RAxx series 5% right angle prism sampler is an available accessory.)

