DataRay Inc.
Advancing the Technology of Laser Beam Analysis

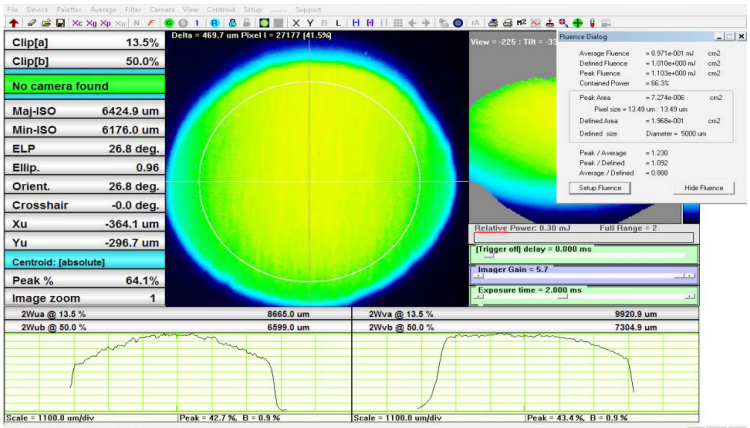
LASER 2000

WinCamD + BSF Series UV Converters

Applications

- Excimer lasers
- UV beams and lasers to x-ray

Imaged beams: to 33.2 mm
Excellent linearity & stability
Resolution to 2 µm



Description

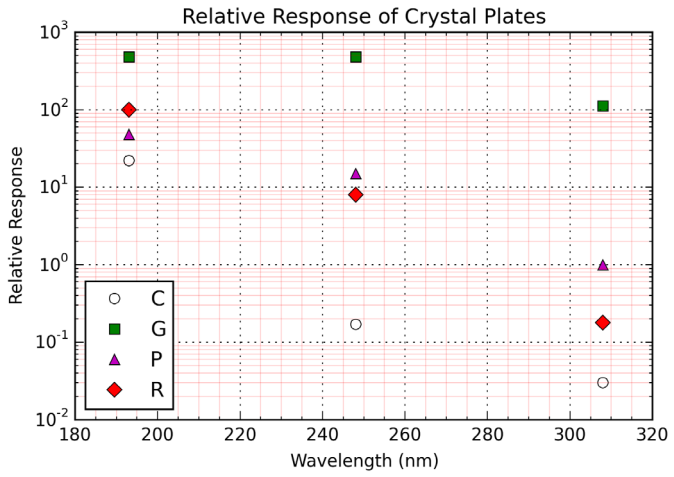
The UV beam impinges on a custom thin crystal faceplate which fluoresces in the visible. This crystal fluorescence is reimaged onto the camera.

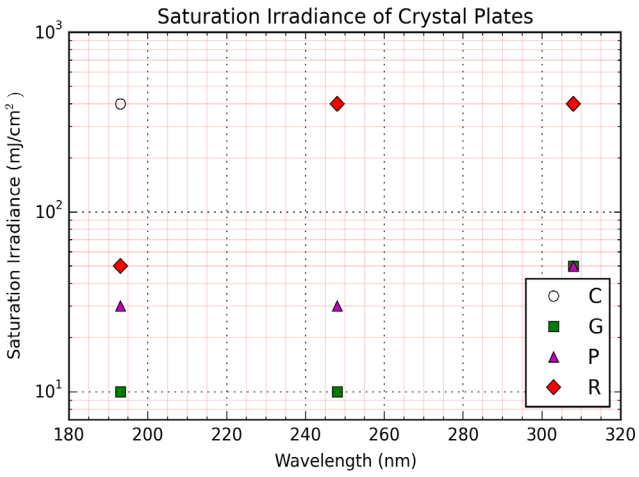
System Features

- High resolution: to 2 µm on a collimated beam
- Excellent crystal linearity: 5 to 6 decades
- Excellent long-term crystal stability: >10^7 pulses
- Add-on option to WinCamD series cameras
- Beam sizes from 50 µm to 33 x 33 mm
- Four crystal faceplates options optimized for different wavelength ranges
- Coated crystal option for coherence lengths ≥1 mm
- High dynamic range adjustment: 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/cm^2, 1.5 W/cm^2, 4 W max

Prolonged exposure to ultraviolet energy will, overtime, degrade most any sensor. The speed of the degradation is a function of the power in the beam, PRR, beam size, and wavelength; deep UV will degrade sensors much faster than will 350 nm. Whenever possible we recommend the use of a beam converter when working in the UV especially the deep UV. Converters that couple to our cameras are available for most applications.

DataRay employs a highly uniform crystal selected for its purity and damage resistance. Crystals are available over a wide range of wavelengths and power levels.





Crystal Options

Crystal	Primary application	λ nm Band	Relative response			Saturation mJ/cm²			Decay time µsec	Max Rep Rate kHz
			193 nm	248 nm	308 nm	193 nm	248 nm	308 nm		
C	193 nm	110 to 225	22	0.17	0.03	400	X	X	3-5	20-30
G	Wide λ, low fluence	1 to 400	480	480	112	10	10	50	0.5	200
P	λ<350, high fluence, fast	110 to 350	48	15	1	30	30	50	5	20
R	Wide λ, high fluence, slow	110 to 532	100	8	0.18	50	400	400	3,000	.03

UV Converter Models

# Aperture/crystal/sensor size	Aperture mm	Crystal FOV	Configuration	OAL mm	Diam. mm	Camera format
BSF 08 x 12	8	4.8 x 6.4	Axial cylinder	82	35	1/2”
BSF 08 x 23				93		2/3”
BSF 08 x LCM		5.6 x 5.6		99		1”
BSF 12 x 12	12	7.2 x 9.6		103		1/2”
BSF 12 x 23				112		2/3”
BSF 12 x LCM		8.4 x 8.4		140		1”
BSF 23 x 12	23	13.8 x 18.4		123		1/2”
BSF 23 x 23				108		2/3”
BSF 23 x LCM		16.3 x 16.3		122		1”
BSF 47 x 12, 23, LCM	47	33.2 x 33.2		125	75	1/2”, 2/3”, 1”

Camera Models for use with UV converters

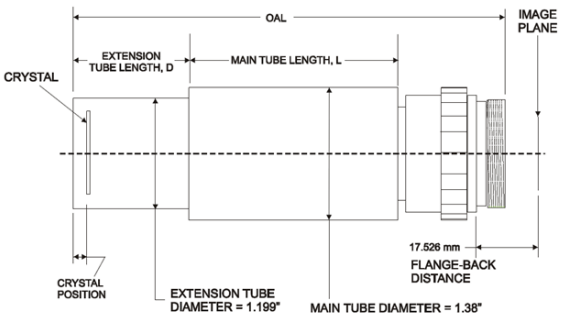
Model	S-WCD-LCM4	S-WCD-UCD23	S-WCD-UCD12	S-WCD-UHR	S-WCD-XHR
Format	1”	2/3”	1/2”	1/2”	1/2”
Smallest beam	55 µm	65 µm	46 µm	52 µm	32 µm
Best Resolution	2.0 µm	2.0 µm	2.0 µm	2.0 µm	2.0 µm
CW/ Pulsed	CW/Pulsed	CW/Pulsed	CW/Pulsed	CW	CW

Accessories

RA-10	Right angle prism UV beam splitter (max 8 mm beam)
RA-20	Right angle prism UV beam splitter (max 15 mm beam)
ETCM-3	C-mount tube set with 3 tubes (3 x 50 mm tubes & adapter rings)

RA-10/20

ETCM-3



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