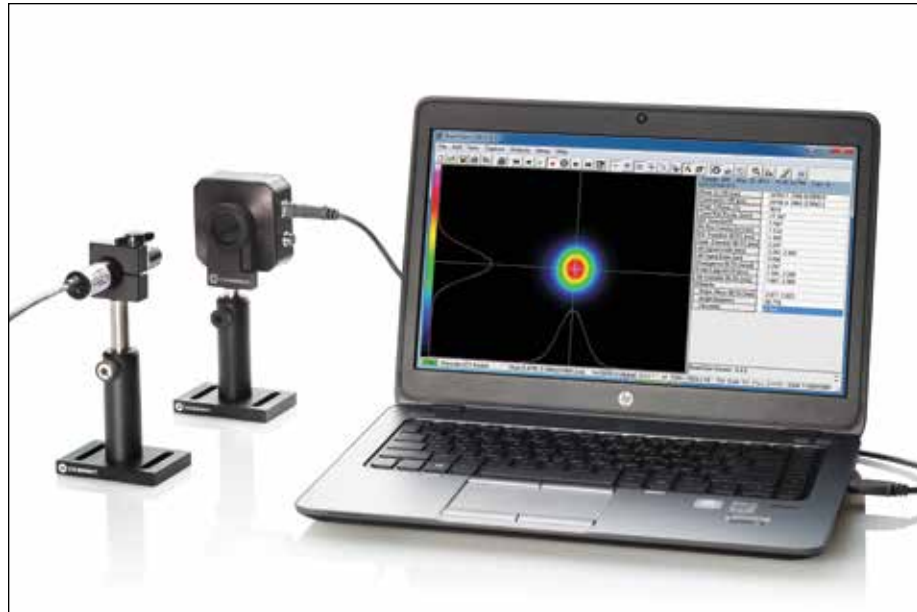


# LaserCam-HR II

## Introduction to Camera-Based Beam Diagnostics

Coherent BeamView Analyzer systems are the recognized leader in software, hardware and optical components for laser beam analysis. Constant product improvement based on customer feedback, and innovation from beam analysis experts, have made BeamView Analyzer products the first choice for laboratory, factory and field measurements.

The key elements of a typical camera-based beam profiling system are the camera itself, Coherent Beamview analysis software running on an appropriate computer and, when necessary, beam attenuation optics. The key choice to make is matching the appropriate camera technology to your application.



Coherent beam diagnostic cameras are specifically designed or modified for laser analysis. They provide low noise, maximum linearity, and uniformity of response—needed for maximum measurement accuracy. All of these diagnostic cameras accept C-Mount optical accessories and are delivered without a cover (glass/plastic window) over the sensor array. Instead, a LDFP (Low-Distortion Face Plate) filter is supplied with each camera—a laser-grade neutral density filter made of glass specified and polished specifically for laser diagnostic analysis. The LDFP filter is mounted in a standard C-Mount ring and provides attenuation of ambient room light so that the camera can be used with normal room lights.

### USB 2.0 Beam Diagnostic Camera Family

Coherent pioneered the ease-of-use of digital USB 2.0 bus-powered, high-resolution, large area cameras requiring only a single cable for both video transfer and camera power. The LaserCam-HR family of beam diagnostic cameras includes the LaserCam-HR II CCD cameras, the LaserCam-HR-UV and the LaserCam-HR-InGaAs models, covering the measurement spectrum from the deep ultraviolet to the near-infrared wavelengths.

With a broad spectral range covering 190 nm to 1700 nm, there is a LaserCam-HR camera profiler system ideally suited for nearly any demanding laser measurement application including scientific, excimer lasers, telecommunications sources, and military laser systems.

### Important Considerations

- Ease-of-use connectivity
  - High-speed USB 2.0 Interface
  - USB bus-powered low voltage operation

- Broad spectral range
  - LaserCam-HR II 190 nm to 1100 nm (400 to 1100 nm with LDFP) (190 to 355 nm with BIP-12F)
  - LaserCam-HR-UV DUV to 355 nm
  - LaserCam-InGaAs 900 nm to 1700 nm
- Large dynamic range
- Digital output through USB 2.0 eliminates the need for an interface card (frame-grabber)
- High-accuracy beam diameter calculations
- Excellent beam spatial uniformity
- Variable camera exposure time
- Compact size
- High-speed image capture rates (15 to 25 frames per second)
- Pass/Fail TTL level output
- RS-232 and TCP/IP communication protocols
- All LaserCam-HR camera systems are RoHS compliant

Multiple channel camera support of different LaserCam-HR camera models is available for all three LaserCam-HR camera types (UV, visible, and InGaAs).

Variable camera exposure time available with the entire LaserCam-HR camera family allows imaging of higher repetition rate sources and lets the user decrease/increase the signal intensity levels using exposure time instead of external attenuation. This feature is especially suited for the LaserCam-HR-InGaAs, with its impressive spatial uniformity characteristics.

POWER & ENERGY

Power & Energy Meters

USB/RS Power Sensors

DB-25 Power Sensors

USB/RS Energy Sensors

DB-25 Energy Sensors

Custom & OEM

BEAM DIAGNOSTICS

CALIBRATION & SERVICE

Laser Cross-Reference Index

Model Name Index

# Beam Diagnostic Cameras

## LaserCam-HR II and LaserCam-HR-UV



LaserCam-HR II



LaserCam-HR-UV

### Features

- USB 2.0, 10-bit to 14-bit digital output
- Large area arrays
- Compact 68 x 68 x 34 mm package
- Metric and English mounts included
- CW and pulsed operation including external triggering
- Variable exposure time and trigger delay
- Long-term UV sensor stability (with the LaserCam-HR-UV camera)
- C-mount thread for additional accessories

Device Specifications	Model	LaserCam-HR II 1/2-inch	LaserCam-HR II 2/3-inch	LaserCam-HR-UV
** <b>C24</b>	Sensor Elements (pixels)		1280 x 1024	
	Effective Pixel Resolution (µm)	n/a	n/a	20 x 20
	Pixel Size (µm)	4.6 x 4.6	6.5 x 6.5	n/a
	Sensor Active Area (mm)(H x V)	5.9 x 4.8	8.3 x 6.6	8.5 x 6.8
	Camera Bit Depth	12-bit	14-bit	10-bit
	Spectral Range (nm)			
	without LDFP	190 to 1100 <sup>1</sup>	190 to 1100 <sup>1</sup>	190 to 355
	with LDFP included	400 to 1100	400 to 1100	
	with BIP-12F accessory	190 to 355	190 to 355	
	Recommended Beam Diameters (mm)	0.15 to 4.0 <sup>2</sup>	0.2 to 6.0 <sup>2</sup>	0.5 to 6.0
	Capture Modes		Continuous (CW), pulsed	
	Variable Exposure Time	1 msec to 500 msec, default at 5 msec	1 msec to 500 msec, default at 5 msec	1 msec to 1 sec, default at 10 msec
	Trigger Delay (µs)	75	20	160
	Maximum Pulse Trigger in Rate <sup>3</sup> (Hz)	200	200	100
	Damage Threshold			
without LDFP	32 mJ/cm <sup>2</sup> at 1064 nm	32 mJ/cm <sup>2</sup> at 1064 nm	200 µJ/cm <sup>2</sup> at 1064 nm <sup>4</sup>	
CW Saturation				
with LDFP	13 mW/cm <sup>2</sup> at 633 nm	5 mW/cm <sup>2</sup> at 633 nm	90 mW/cm <sup>2</sup> at 248 nm <sup>5</sup>	
without LDFP	5 µW/cm <sup>2</sup> at 633 nm	2 µW/cm <sup>2</sup> at 633 nm	90 µW/cm <sup>2</sup> at 248 nm <sup>4</sup>	
with LDFP	70 mW/cm <sup>2</sup> at 1064 nm	25 mW/cm <sup>2</sup> at 1064 nm		
without LDFP	340 µW/cm <sup>2</sup> at 1064 nm	125 µW/cm <sup>2</sup> at 1064 nm		
Pulsed Saturation				
with LDFP	0.4 mJ/cm <sup>2</sup> at 1064 nm	0.15 mJ/cm <sup>2</sup> at 1064 nm		
without LDFP	2 µJ/cm <sup>2</sup> at 1064 nm	0.7 µJ/cm <sup>2</sup> at 1064 nm		
USB 2.0 Cable	10 ft. standard A/B cable included			
Trigger	Connector BNC receptacle (trigger cable included)			
Part Number	1282868	1282870	1149004	

<sup>1</sup> There is a risk of degradation in the range of 190 nm to 300 nm due to DUV exposure. The optional BIP-12F (page 114) UV-to-visible fluorescence converter can be used to prevent drift.

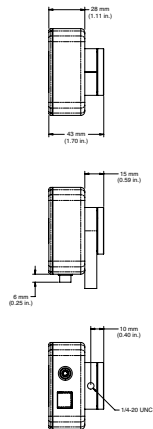
<sup>2</sup> It is possible to measure beams <0.2 mm in diameter, but resolution is reduced.

<sup>3</sup> Without averaging adjacent pulses.

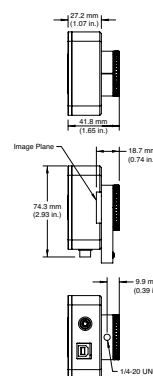
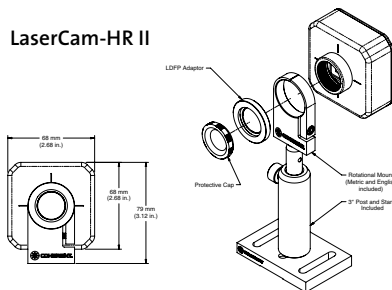
<sup>4</sup> Without LDFP-UV.

<sup>5</sup> With LDFP-UV.

\*\*C24 Quick Ship program: eligible for next business day shipment.



### LaserCam-HR II



### LaserCam-HR-UV

