DataRay Inc.
Advancing the Technology of Laser Beam Analysis

海纳光学有限公司
HIGHLIGHT OPTICS CO., LTD.

λ Range: 8 – 14 µm
Smallest pixel: 17 µm
Smallest Beam: 170 µm
Imaged Areas: 10.9 x 8.2 mm

Compact, Portable, Port-Powered, USB 2.0 *10.6 µm* Beam Profiling for Windows 7, 8, 32 or 64 bit operating systems

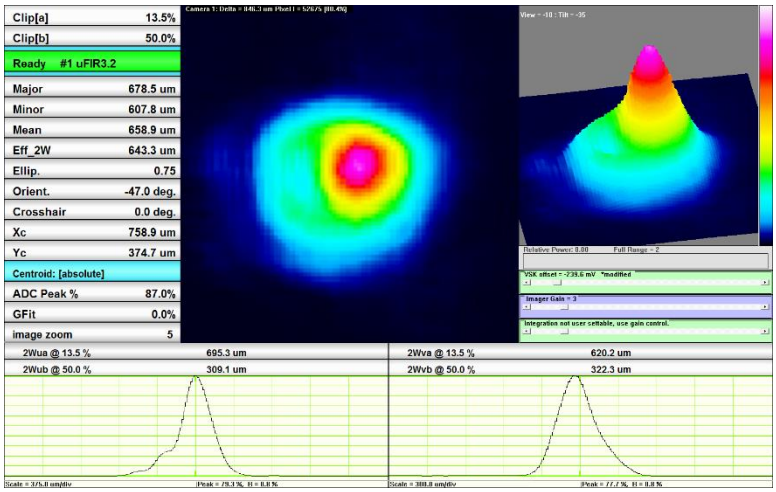
Features

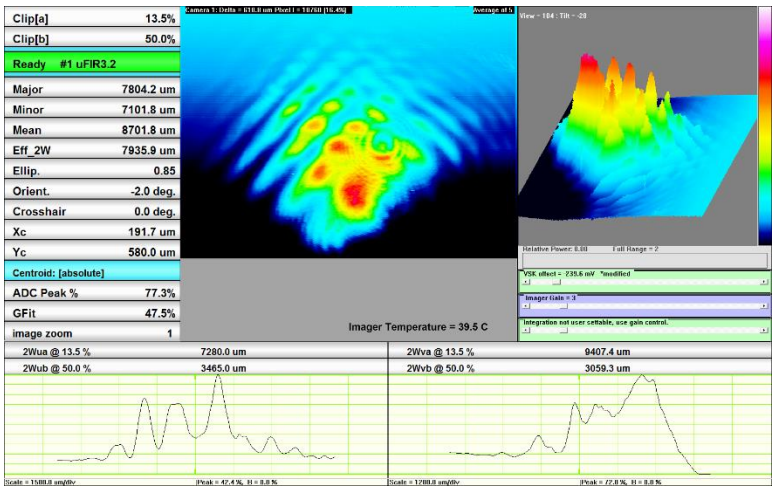
- **17 µm pixel pitch**, **640 x 480 pixels**, **WinCamD-FIR8-14-HR**
- **8 to 14 µm** wavelength range microbolometers
- **Port Powered USB 2.0**; flexible 3 m cable, *no power brick*
- **14-bit ADC**, 4 MB image buffer & on-board microprocessor
- **16 ms time constant**
- **No Chopper** Measure Pulsed or CW Beams
- **Room Temperature** - no cooling required

2.40 x 2.65 x 1.1" (0.9" without filter)
[61 x 67 x 27.9 mm]

Applications

- MIR/FIR/ CO_2 laser profiling
- Field servicing of CO_2 lasers and laser-based systems
- Optical assembly & instrument alignment
- Beam wander & logging





Full featured software; 2D, 3D and Log display with OCX interface to LabVIEW or other programs

Shown above is a 3 micron incoherent source.

Shown above laser 2.94 µm λ, 13 mW laser.

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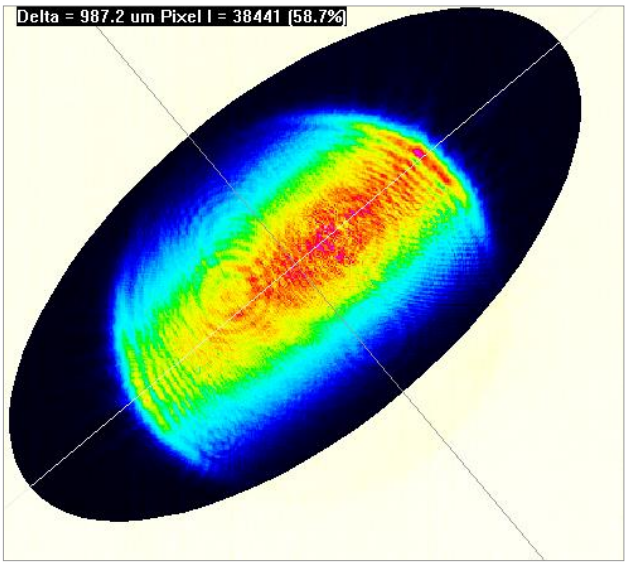
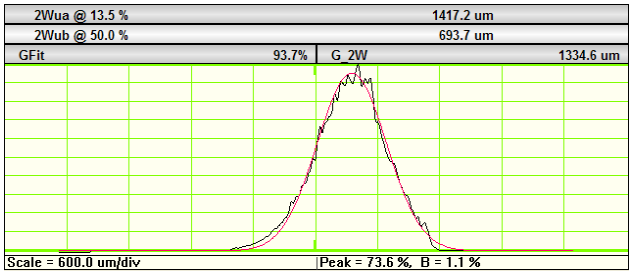
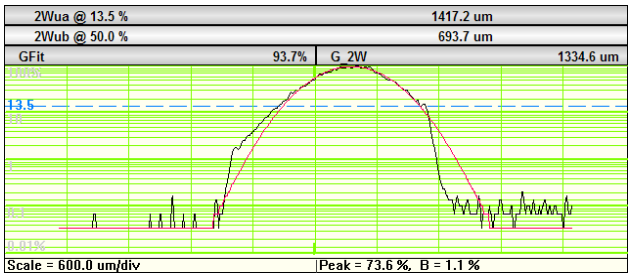
Powerful Beam Analysis Software

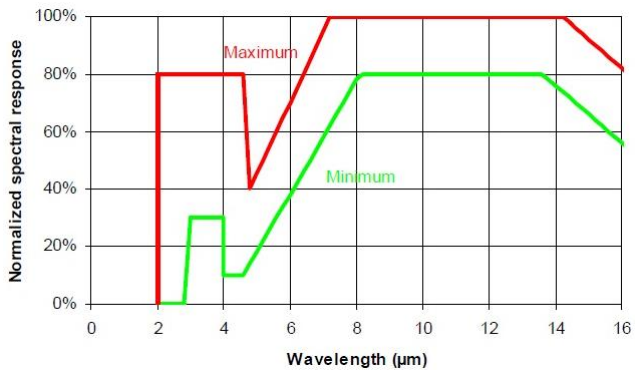


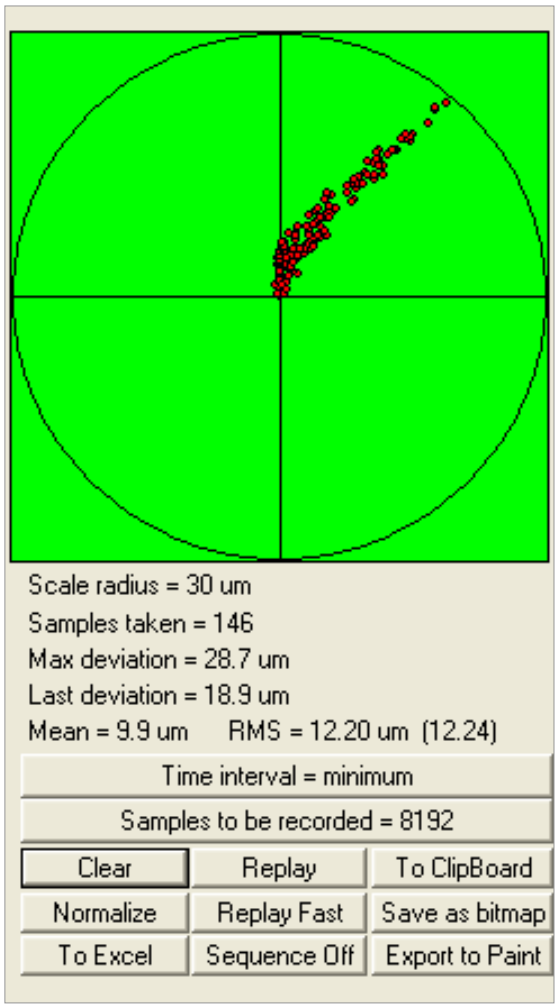


Standard Linear Profile with Gaussian Fit.

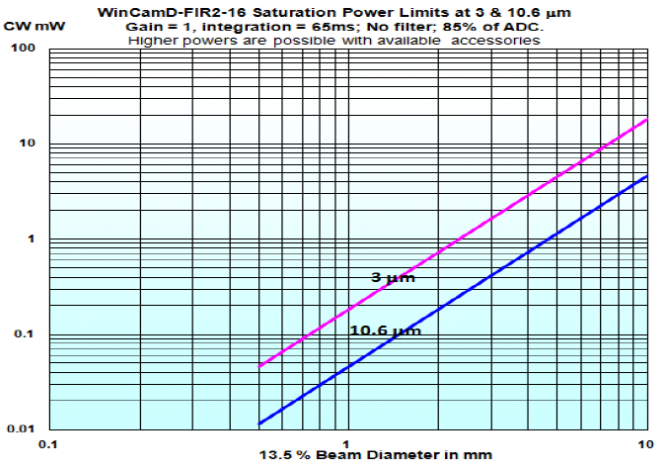


Logarithmic Profile shows more detail near baseline





Beam Wander on a drifting Laser
Up to 8192 samples at a User Set interval. Mean, RMS and Max. deviation. Replay Fast or Slow Export to Excel, Paint, Bitmap or Clipboard



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Features:

- ◊ Digital serial link for EMI immunity
- ◊ XY profiles and centroids
- ◊ Linear and logarithmic displays
- ◊ Gaussian and Top Hat least squares fits
- ◊ Ellipse Angle, Major, Minor, Mean Diameters
- ◊ Background capture and subtraction
- ◊ Image & Intensity Zoom
- ◊ Linear and area filters
- ◊ Image Averaging, 1 to continuous
- ◊ PC Or Mac-Intel Operation

WinCamD-FIR8-14-HR Specifications: [Preliminary specifications- subject to change without notice]

Wavelength Ranges	8 to 14 µm
Compact	2.40" x 2.65" x 1.1" [61 x 67 x 27.9 mm]
Interface	USB 2.0 for laptops & desktops. 3 m standard thin cable, 5 m option.
ISO 11146	Beam profile Second moment processing
Certification	RoHS, WEEE, CE
Measurable Sources	CW beams, Pulsed sources.
Measured Beam Powers	*See the Saturation Beam Power/Pulse Energy Graph and Notes, above.*
Manual Beam Attenuation:	Contact Application Engineer for options
Measurement Accuracy	5 µm processing resolution for interpolated diameters. Absolute accuracy is beam profile dependent – ~10 µm accuracy is frequently achievable. Centroid accuracy is also beam dependent. It can be as good as ±10 µm since it is arithmetically derived from all pixels above the centroid clip level.
Pixel Count & H x V:	307 kPixel 640 x 480
Sensor image area (mm):	10.88 x 8.16
Pixel dimension (µm):	17 x 17
Min. beam (10 pixels):	170 µm
Shutter type: Max. full frame rate:	Rolling 5-8 Hz
Max. 'every pulse' PRR:	5-8 Hz
Single pulse capture PRR:	Dependent on Duty cycle- contact DataRay
Signal to RMS Noise: (Opt./Elec.* dB):	TBD
ADC:	14-bit
NETD:	<0.05 K
Multiple Heads:	1 – 8 cameras. Parallel capture, serial read.
Measured & Displayed Profile Parameters	Beam Diameter: Diameter at two user set Clip levels Gaussian & Second Moment beam diameters Equivalent diameter above a user defined Clip level Equivalent Slit and Knife Edge diameters Beam Fit: Gaussian & Top Hat profile fit & % fit Equivalent Slit profile Ellipticity: Major, Minor & Mean diameters. Auto-orientation of axes. Centroid Position: Relative and absolute Intensity Weighted Centroid and Geometric Center Beam Wander Display and Statistics Smoothing Filter: Triangular running average up to 10% FWHM
Displayed Profiles & Plots	X-Y Profiles, 2D, 3D Plots. Zoom to x10 10, 16, 256 or max. colors or gray. Contoured display at 10 and 16 color.

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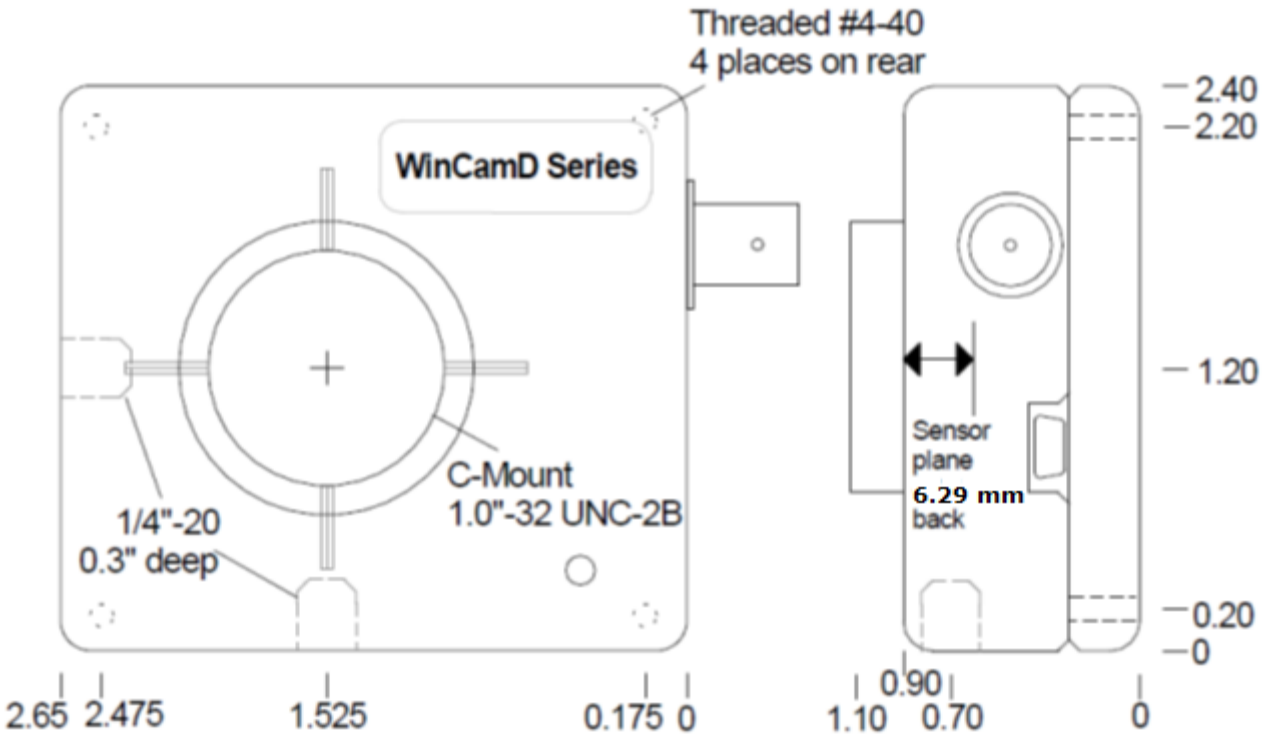
Processing Options	Image & profile averaging, 1, 5, 10, 20, Continuous Background Capture and Subtraction ***.job** files save all WinCamD custom settings for particular test configurations
Pass/**Fail** display	On-screen, in selectable **Pass**/**Fail** colors. Ideal for QA & Production.
Averaging	Beam dimension running average up to 50 samples
Log data and statistics	Min., Max., Mean, Standard Deviation. Up to 4096 samples
Relative Power Measurement	Rolling histogram based on user's initial input. Units of **mW**, **µJ**, **dBm**, **%** or user choice (relative to a reference measurement input)
Fluence	Fluence, within user defined area
Camera Head Weight	155 gm (5.5 oz);
Minimum Computer Requirements:	2 GHz processor running Windows 7/ Vista/XP, 32 or 64-bit; 1 GB RAM; 60 GB Hard Drive space; 1024 x 768 monitor, USB 2.0 hi-power (500 mA) port. PC or Intel- Mac

Ordering Information

◊ **1 Year Warranty** ◊ **Free Software Upgrades** ◊ **30 Day Sale or Return on qualified Evaluation POs**

A Complete System comprises: USB 2.0 Camera, ND filter, Software, 3 m (10 ft) Cable, User Manual.



Model S-WCD-8-14-HR