WaveSource Photonics

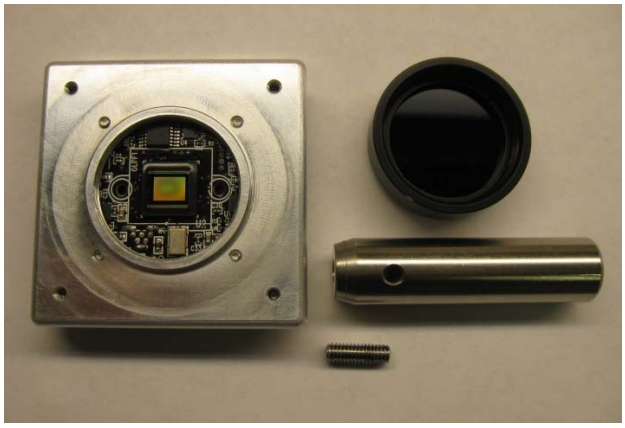
USB Camera High Performance Beam Profiler

For testing, measurement, and production

WaveSource Photonics' camera-based beam profiler has superior performance. Compared to other beam profilers in the market, it has the shortest working distance and smallest pixel size, and highest dynamic range, which enables it to capture very short working distance beams emitted from focusers, and to measure focused spot sizes to provide accurate analysis of the beam's power density distribution.

Our beam profiler contains a high-quality 12-bit camera with an active sensor size of 2.2µm x 2.2µm—the smallest in the industry, a resolution of 5.0 Megapixels—the highest resolution in the industry, and 70.1dB pixel dynamic range—the widest in the industry. The camera also has a minimum working distance of 0.4mm-the shortest working distance in the industry, which enables measurement of sharply focused beams, such as beams from focusers.

It has both metric and standard threads for mounting ND filters and posts.



Features:

- Full analysis of complex beam profiles
- CW or pulsed beam & single pulse analysis
- Extremely high resolution: 2592H x 1944H pixels
- Smallest pixel unit: 2.2µm x 2.2µm
- High dynamic range of 70dB
- 12-Bit CCD Camera
- Highest resolution 5.0 M pixels
- High 70dB dynamic range
- C-mount or SM1 ND filter mount for US and China
- Mounting thread selection for standard and metric

Technical Data

Optical Format	1/2.5" (4:3)
Spectral Range	150-1150 nm
Pixel Size	2.2 x 2.2 µm
Sensor Size	5.70 mm (H) x 4.28 mm (V)
Avtive Pixels	2593 H x 1944 V
Resolution	5.0 M pixels
Dynamic Range	70 dB
SNR (max)	38 dB
Gain Range	4x - 63x
ADC Resolution	12-bit, on-chip
Display Refresh Rate	Up to 13 fps at full resolution
Computer Interface	Mini USB
Dimensions [mm]	50mm x 50mm x 10mm
Weight	45 grams
Compliance	CE, RoHS
Power	via mini-USB
Maximum Current	250mA @5V
ND Filter Thread	C-Mount (1-32" UNC, US),or SM1 (1.035-40", China)
Camera Mounting Thread	8-32 (US),or M4 (China)
Operation Temperature	-5° - 45°
Storage Temperature	-20° - 60°

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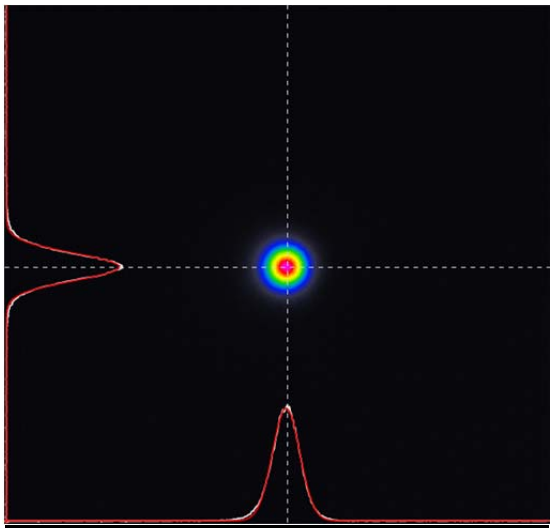
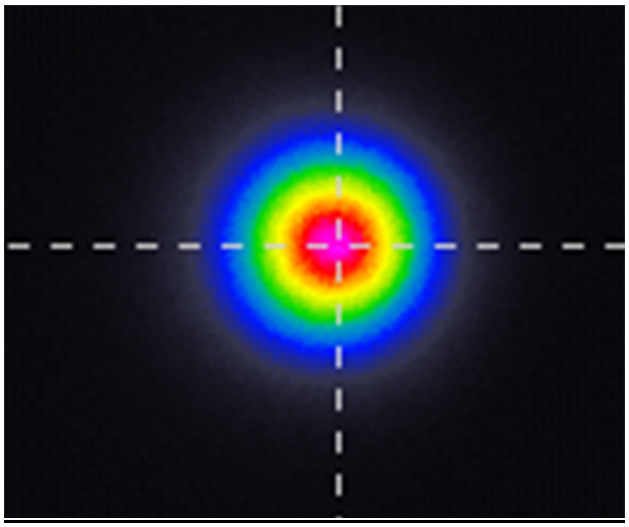
Comparison to major beam profilers in the market

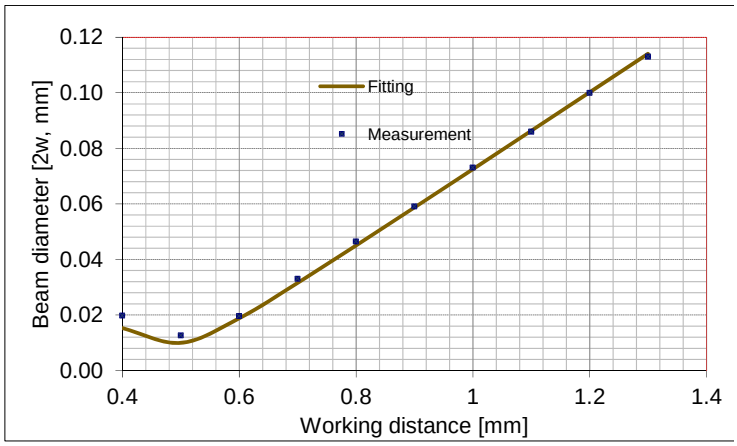
Key Parameters	WaveView	Thorlabs	Ohpir SP907	Ohpir SP928	Newport LBP2-VIS2	Newport LBP2-HR-VIS2
Optical Format	1/2.5" (4:3)	2/3"	1/1.8" format	1/1.8" format	1/1.8" format	1/1.8" format
Spectral Range	150-1150 nm	350-1100nm	190 - 1100nm	190 - 1100nm	190 - 1100nm	190 - 1100nm
Pixel Size [µm]	2.2 x 2.2	6.45 x 6.45	7.38 x 7.38	3.69 x 3.69	7.38 x 7.38	3.69 x 3.69
Sensor Size [mm]	5.70 (H) x 4.28 (V)	8.77 (H) x 6.6 (V)	7.1 x 5.3	7.1 x 5.3	7.1 x 5.3	7.1 x 5.3
Avtive Pixels	2593 H x 1944 V	1360 H x 1024 V	964 H x 724 V	1928 H x 1448 V	1928 H x 1448 V	1928 H x 1448 V
Resolution	5.0 M pixels	1.4 M pixels	0.69 M pixels	2.76 M pixels	0.69 M pixels	2.76 M pixels
Sensor Distance to Front	0.4mm	14mm	4.5mm	4.5mm	4.5mm	4.5mm
Dynamic Range	70 dB		56 dB	56 dB	56 dB	56 dB
Gain Range	4x - 63x	1x - 16x	24	24	24	24
Dimensions [mm]	50 x 50 x 10	80 x 80 x 36.5	48 x 44 x 20.2	48 x 44 x 20.2	48 x 44 x 20.2	48 x 44 x 20.2

Measurement Example: 10µm PM 980 fiber focuser for mode-locked fiber laser





Gaussian waist fit with M2			
Wavelength (mm)	1.0643E-03	DUT	
2wy0	**0.0097**	spec 2w0 [um]	10
Zy0	**0.4846**	PN	AO1064-10-PM98
M2	**1.00**	**SN:**	102019-10-5
ResSq	**3.3625E-05**	Test by	JT
DTO-CCD (mm)	2wx (mm)	Calc wx (mm)	(2wx-calc)^2
0.4	0.0198	0.015278	0.00002045
0.5	0.0126	0.009961	0.00000696
0.6	0.0196	0.018795	0.00000065
0.7	0.033	0.031552	0.00000210
0.8	0.0464	0.045011	0.00000193
0.9	0.059	0.058692	0.00000009
1	0.073	0.072469	0.00000028
1.1	0.086	0.086295	0.00000009
1.2	0.1	0.100151	0.00000002
1.3	0.113	0.114026	0.00000105



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