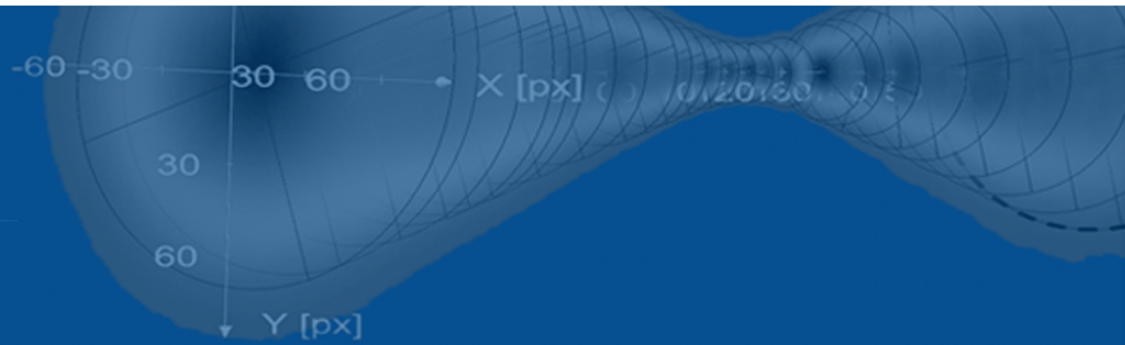
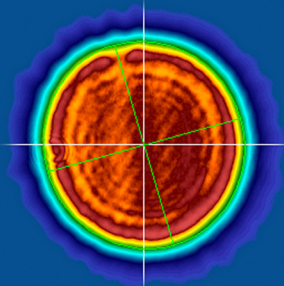




Laser Beam Profiling Solutions

IR Beam Profiler

Laser detection in a new dimension

1.5 μ m - 12 μ m



- LaserDec -

IR Laser Beam Profiler - LaserDec -

DISCONTINUED!

UV-NIR Beam Profiler

Expands beam profiling capabilities

150nm - 1700nm



- CinCam -

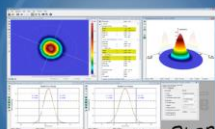
UV-NIR Laser Beam Profiler - CinCam -

- Product Description: CCD / CMOS
- Technical Data
- Accessories
- CinCam Application: Beam Quality M² - CinSquare
- CinCam Application: Beam Focus Measurement - CinSpot
- CinCam Application: Laser Line Characterization - CinLine
- CinCam Application: Near-Field Measurement - NFBP

Beam Profiling Software

What you have never seen before

Lite / Standard / Pro



ISO Standard

- RayCi -

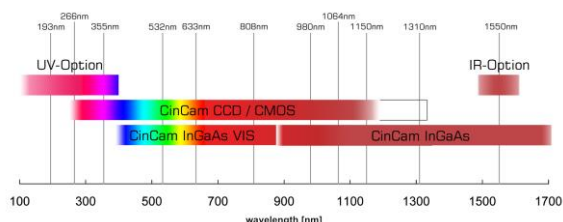
Beam Profiling Software - RayCi -

- Product Description
- Visualization Options
- Measurement Options
- Version Overview

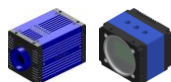


CinCam CCD/CMOS/InGaAs - Product Description -

CINOGY Technologies CinCam is optimized to provide excellent sensitivity in the UV / VIS / NIR spectral range. Thanks to its high resolution and its small pixel size, the CinCam is a high performance tool for laser beam analysis of continuous wave (cw) and pulsed laser modes.



Spectral response:	<150nm - 1320nm / 900nm - 1800nm
Pixel size:	2.2µm² - 30.0µm²
Pixel:	0.1MPixel - 16MPixel
Technologies:	CCD / CMOS / InGaAs
Data output:	8Bit / 10Bit / 12Bit / 14Bit
Interface:	USB / FireWire / GigE



CinCam CCD
CinCam CCD Large Format

CinCam CCD beam profilers enable high accuracy laser beam analysis from <150nm to 1150nm with best price/performance ratio. Due to its high dynamic range the CinCam captures even higher laser modes with outstanding detail. The passive cooled sensor is constructed without cover glass to avoid interference patterns.



CinCam CMOS
CinCam CMOS-Nano
CinCam CMOS-Pico

The particular cost-effective entry-level beam profiler CinCam CMOS is optimized to provide excellent sensitivity from <150nm to 1150nm (1320nm). The CMOS sensor is constructed without cover glass to avoid interference patterns. The lightweight and ultra-compact design facilitates easy integration in optical assemblies.

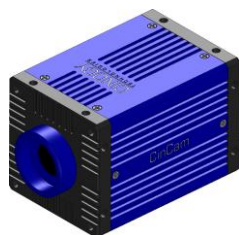


CinCam InGaAs

The CinCam InGaAs based on the latest InGaAs technology, allowing high sensitivity imaging in the range from 900nm to 1800nm. The 15µm/30µm square pixel beam profiler enables images with high dynamic range and resolution for accurate laser beam analysis.

The portable CinCam is designed to be used in a variety of applications in industry, science, R&D, including:

- Laser beam analysis of cw and pulsed lasers
- Quick control of laser modes and adjustment errors
- Test equipment for scientific research
- Near-Field and Far-Field analyses of lasers, LED devices and other light sources.

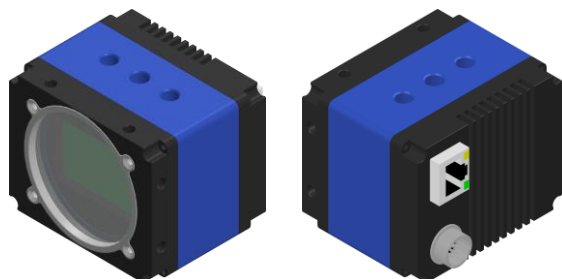


CinCam CCD - Technical Data -

	CCD-1201	CCD-2301	CCD-2302
	<i>Standard Series</i>	<i>Standard Series</i>	<i>Standard Series</i>
SENSOR DATA			
Format:	1/2"	2/3"	2/3"
Active area (without cover glass):	6.5mm x 4.8mm	9.0mm x 6.7mm	8.5mm x 7.1mm
Number of pixel:	1388 x 1038 (1.4MP)	1388 x 1038 (1.4MP)	2452 x 2056 (5MP)
Pixel size:	4.65µm x 4.65µm	6.45µm x 6.45µm	3.45µm x 3.45µm
Spectral response:			
Standard: absorptive built-in ND filter	400nm - 1150nm	400nm - 1150nm	400nm - 1150nm
RT: reflective built-in ND filter	320nm - 1150nm	320nm - 1150nm	320nm - 1150nm
UV: phosphor sensor coating	<150nm - 1150nm	<150nm - 1150nm	<150nm - 1150nm
OM: sensor without microlenses	-	-	-
IR: phosphor sensor coating	1470nm - 1605nm	1470nm - 1605nm	1470nm - 1605nm
Beam diameter min / max (recommended):	46.5µm / 4mm	64.5µm / 5mm	34.5µm / 5.5mm
Sensor cooling:	passive	passive	passive
CAMERA FEATURES			
Mount:	C-Mount	C-Mount	C-Mount
Bit depth (output):	14Bit (12Bit GigE)	14Bit (12Bit GigE)	14Bit (12Bit GigE)
Dynamic:	60dB (1:1000)	67dB (1:2200)	54dB (1:500)
Frame rate:	up to 15Hz	up to 16Hz	up to 6Hz
Exposure time:	500µs-300ms	500µs-300ms	500µs-300ms
Interface:	FireWire 1394b / GigE	FireWire 1394b / GigE	FireWire 1394b / GigE
I/O connector:	12-Pin Hirose	12-Pin Hirose	12-Pin Hirose
Mode:	cw or pulsed	cw or pulsed	cw or pulsed
Trigger:	TTL-Signal	TTL-Signal	TTL-Signal
SPECIFICATIONS			
Mechanical dimensions (W x H x L):	60mmx60mmx103.9mm	60mmx60mmx103.9mm	60mmx60mmx103.9mm
Weight:	300g	300g	300g
Electrical requirements:	DC 8V-36V	DC 8V-36V	DC 8V-36V
Storage temperature*:	-10°C...+60°C	-10°C...+60°C	-10°C...+60°C
Operating temperature*:	+5°C...+45°C	+5°C...+45°C	+5°C...+45°C
Regulations:	CE, RoHS	CE, RoHS	CE, RoHS

* Without condensation

Design and specification of the described product(s) are subject to change without notice.



CinCam CCD-3501 - Technical Data -

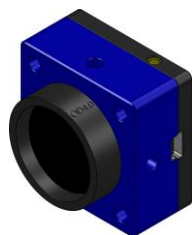
CCD-3501

Large Format Series

SENSOR DATA	
Format:	35mm CCD
Active area (without cover glass):	36mm x 24mm
Number of pixel:	4864 x 3232 (15.7MP)
Pixel size:	7.4µm x 7.4µm
Spectral response:	400nm - 1100nm
Beam diameter min / max (recommended):	74µm / 16mm
CAMERA FEATURES	
Mount:	Filter-Mount (M48x0.5)
Bit depth (output):	12Bit
Dynamic:	59dB (1:900)
Frame rate:	up to 2Hz@single tap; 4.6Hz@quad tap
Exposure time:	0.5ms-1s
Interface:	GigE
I/O connector:	12-Pin Hirose
Mode:	cw or pulsed
Trigger:	TTL-Signal
SPECIFICATIONS	
Mechanical dimensions (W x H x L):	66mmx53.3mmx59.1mm
Weight:	370g
Electrical requirements:	DC 7V-25V, PoE
Storage temperature*:	-10°C...+60°C
Operating temperature*:	+5°C...+45°C
Regulations:	CE, RoHS

* Without condensation

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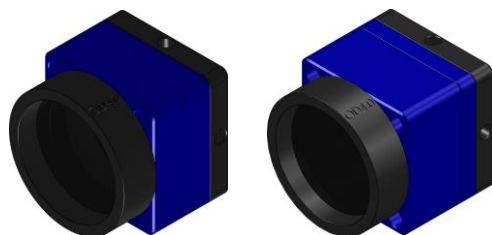


CinCam CMOS - Technical Data -

	CMOS-1201	CMOS-1202	CMOS-1203	CMOS-1204
	<i>Standard Series</i>	<i>Standard Series</i>	<i>Standard Series</i>	<i>Standard Series</i>
SENSOR DATA				
Format:	1/2"	1/1.8"	1/1.8"	1/2.5"
Active area (without cover glass):	6.7mm x 5.3mm	6.8mm x 5.4mm	7.2mm x 5.4mm	5.7mm x 4.3mm
Number of pixel:	1280 x 1024 (1.3MPixel)	1280 x 1024 (1.3MPixel)	1600 x 1200 (2MPixel)	2560 x 1920 (5MPixel)
Pixel size:	5.2µm x 5.2µm	5.3µm x 5.3µm	4.5µm x 4.5µm	2.2µm x 2.2µm
Spectral response:				
Standard: absorptive built-in ND filter	400nm - 1150nm	400nm - 1320nm	400nm - 1320nm	400nm - 1150nm
RT: reflective built-in ND filter	320nm - 1150nm	320nm - 1320nm	320nm - 1320nm	320nm - 1150nm
UV: phosphor sensor coating	<150nm - 1150nm	<150nm - 1150nm	<150nm - 1150nm	<150nm - 1150nm
OM: sensor without microlenses	-	240nm - 1150nm	240nm - 1150nm	240nm - 1150nm
IR: phosphor sensor coating	1470nm - 1605nm	1470nm - 1605nm	1470nm - 1605nm	on request
Beam diameter min / max (recommended):	52µm / 4mm	53µm / 4.1mm	45µm / 4mm	22µm / 3.2mm
CAMERA FEATURES				
Mount:	Filter-Mount	Filter-Mount	Filter-Mount	Filter-Mount
Bit depth (output):	8Bit	8Bit	8Bit	8Bit
Dynamic:	68dB (1:2500)	62dB (1:1250)	62dB (1:1250)	70dB (1:3150)
Frame rate:	up to 20Hz	up to 20Hz	up to 14Hz	up to 5Hz
Exposure time:	100µs-140ms	100µs-300ms	100µs-300ms	200µs-200ms
Interface:	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Shutter:	Rolling	Global	Global	Rolling
Mode:	cw	cw or pulsed	cw or pulsed	cw
Trigger:	-	TTL-Signal	TTL-Signal	-
SPECIFICATIONS				
Mechanical dimensions (W x H x L):	40mmx40mmx20mm	40mmx40mmx20mm	40mmx40mmx20mm	40mmx40mmx20mm
Weight:	46g	50g	50g	50g
Electrical requirements:	Power supply via USB	Power supply via USB	Power supply via USB	Power supply via USB
Storage temperature*:	-10°C...+60°C	-10°C...+60°C	-10°C...+60°C	-10°C...+60°C
Operating temperature*:	+0°C...+40°C	+0°C...+40°C	+0°C...+40°C	+0°C...+40°C
Regulations:	CE, RoHS	CE, RoHS	CE, RoHS	CE, RoHS

* Without condensation

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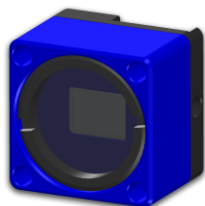


CinCam CMOS Nano - Technical Data -

	CMOS-1201-Nano	CMOS-1.001-Nano
	<i>Nano Series</i>	<i>Nano Series</i>
SENSOR DATA		
Format:	1/1.8"	1"
Active area (without cover glass):	6.8mm x 5.4mm	11.3mm x 11.3mm
Number of pixel:	1280 x 1024 (1.3MPixel)	2048 x 2048 (4.2MPixel)
Pixel size:	5.3µm x 5.3µm	5.5µm x 5.5µm
Spectral response:		
Standard: absorptive built-in ND filter	400nm - 1320nm	400nm - 1320nm
RT: reflective built-in ND filter	320nm - 1320nm	320nm - 1320nm
UV: phosphor sensor coating	<150nm - 1150nm	<150nm - 1150nm
OM: sensor without microlenses	240nm - 1150nm	240nm - 1150nm
IR: phosphor sensor coating	1470nm - 1605nm	1470nm - 1605nm
Beam diameter min / max (recommended):	53µm / 4.1mm	55µm / 7.5mm
CAMERA FEATURES		
Mount:	Filter-Mount	Filter-Mount
Bit depth (output):	10Bit	10Bit
Dynamic:	62dB (1:1250)	60dB (1:1000)
Frame rate:	up to 40Hz (higher on request)	up to 20Hz (higher on request)
Exposure time:	100µs-100ms	100µs-100ms
Interface:	USB 3.0	USB 3.0
Shutter:	Global	Global
Mode:	cw or pulsed	cw or pulsed
Trigger:	TTL-Signal	TTL-Signal
SPECIFICATIONS		
Mechanical dimensions (W x H x L):	29mmx29mmx20mm	29mmx29mmx24mm
Weight:	26g	28g
Electrical requirements:	Power supply via USB	Power supply via USB
Storage temperature*:	-10°C...+60°C	-10°C...+60°C
Operating temperature*:	+0°C...+40°C	+0°C...+40°C
Regulations:	CE, RoHS	CE, RoHS

* Without condensation

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CinCam CMOS Pico - Technical Data -

CMOS-1201-Pico

<i>Standard Series</i>	
SENSOR DATA	
Format:	1/2.5"
Active area (without cover glass):	5.7mm x 4.3mm
Number of pixel:	2560 x 1920 (5MPixel)
Pixel size:	2.2µm x 2.2µm
Spectral response:	
Standard: absorptive built-in ND filter	400nm - 1150nm
RT: reflective built-in ND filter	320nm - 1150nm
UV: phosphor sensor coating	<150nm - 1150nm
OM: sensor without microlenses	240nm - 1150nm
IR: phosphor sensor coating	1470nm - 1605nm
Beam diameter min / max (recommended):	22µm / 3.2mm
CAMERA FEATURES	
Mount:	Filter-Mount
Bit depth (output):	12Bit
Dynamic:	70dB (1:3150)
Frame rate:	up to 4.6Hz
Exposure time:	200µs-200ms
Interface:	USB 2.0
Shutter:	Rolling
Mode:	cw
Trigger:	-
SPECIFICATIONS	
Mechanical dimensions (W x H x L):	15mmx15mmx11.5mm
Weight:	20g
Electrical requirements:	Power supply via USB
Storage temperature*:	-10°C...+60°C
Operating temperature*:	+0°C...+40°C
Regulations:	CE, RoHS

* Without condensation

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e-mail info@cinogy.com · www.cinogy.com



CinCam InGaAs - Technical Data -

	CinCam-InGaAs-320	CinCam-InGaAs-640
	<i>Standard Series</i>	<i>Standard Series</i>
SENSOR DATA		
Type:	InGaAs, progressive scan	InGaAs, progressive scan
Active area (without cover glass):	1", 9.6mm x 7.7mm	1", 9.6mm x 7.7mm
Number of pixel:	320 x 256	640 x 512
Pixel size:	30µm x 30µm	15µm x 15µm
Spectral response:	0.9µm - 1.8µm	0.9µm - 1.8µm
Beam diameter min / max (recommended):	300µm / 5.7mm	150µm / 5.7mm
Quantum efficiency:	>70% (1000nm-1640nm)	>75% (1000nm-1640nm)
Pixel operability:	>99.5%	>99.5%
Sensor cooling:	TEC (stabilized +5°C, -20K relative)	TEC (stabilized +5°C, -30K relative)
CAMERA FEATURES		
Mount:	Filter-Mount	Filter-Mount
Bit depth (output):	12Bit (A/D 14Bit)	12Bit (A/D 14Bit)
Frame rate:	up to 100Hz (300Hz)	up to 60Hz (100Hz)
Exposure time:	10µs-20ms	10µs-100ms
Dynamic range:	60dB (gain 1)	59dB (gain 0)
Interface:	GigE	GigE
Mode:	cw and pulsed	cw and pulsed
SPECIFICATIONS		
Mechanical dimensions (W x H x L):	55mmx55mmx78mm	55mmx55mmx78mm
Weight:	340g	370g
Electrical requirements:	10.8V to 30.0V or vie PoE	10.8V to 30.0V or vie PoE
Storage temperature*:	-30°C...+60°C	-30°C...+60°C
Operating temperature*:	-20°C...+50°C	-20°C...+50°C
Regulations:	CE, RoHS	CE, RoHS

* Without condensation

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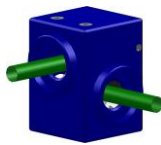
CinCam CCD/CMOS/InGaAs - Accessories -

Neutral Density Filter



Types:	Absorptive (AR) / Reflective
Optical density:	0.3 / 1.0 / 2.0 / 3.0 / 4.0 / 5.0
Flatness:	$\lambda/4$ / $\lambda/10$
Scratch-Dig:	40-20 / 20-10
Power ($P_{\max}$):	<1W
Intensity ($I_{\max}$):	<10W/cm ² (A), <100W/cm ² (R)

Prism Attenuator



Spectral range:	190nm-2.000nm
Material:	Fused silica wedges
Free aperture:	15mm
Power ($P_{\max}$):	<100W / <200W
Intensity ($I_{\max}$):	<10kW/cm ² / <25kW/cm ² (cw)
Intensity ($I_{\max}$):	2GW/cm ² / 30J/cm ² (pulsed)

Beam Reducer Objective

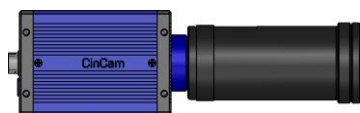


UV-Range:	350nm-700nm
VIS/IR-Range:	650nm-1080nm
NIR-Range:	1040nm-1650nm
Ratio:	2x; 3x; 4x
Free aperture:	22mm
Intensity ($I_{\max}$) - UV:	300W/cm ² / 0.4J/cm ² (pulsed)
Intensity ($I_{\max}$) - VIS:	500W/cm ² / 2J/cm ² (pulsed)
Intensity ($I_{\max}$) - NIR:	300W/cm ² / 2J/cm ² (pulsed)



CinCam CCD/CMOS/InGaAs - Accessories -

IR-Module



Sensitivity:	1470nm-1605nm
Material:	Phosphor (anti-stokes)
Intensity ($I_{\max}$):	1W/cm ²
Beam profiler:	1/4" CinCam CCD / CMOS

IR Sensor Coating

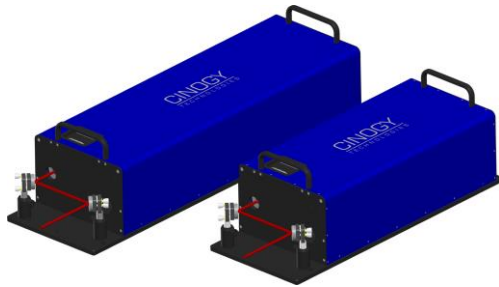


Sensitivity:	1470nm-1605nm
Material:	Phosphor (anti-stokes)
Particle size:	5µm-9µm
Intensity ($I_{\max}$):	100mW/cm ²

UV Sensor Coating



Sensitivity:	150nm-450nm
Material:	Fluorescence (Lumigen)
Thickness:	1µm
Intensity ($I_{\max}$):	10mW/cm ²



CinCam Application Beam Quality M² - CinSquare -

The CinSquare CS200 / CS300 system is a compact and fully automated tool to measure the beam quality of cw and pulsed laser systems from the UV to NIR spectral range. This system consists of a fixed focusing lens in front of a motorized translation stage carrying a CinCam CCD/CMOS/InGaAs beam profiler. To analyse the beam caustic according to ISO 11146-1/2 the software calculates the beam size of several measurement planes via 2nd Moment method. The whole measuring process is fully automated and controlled by CINOGY's software RayCi.

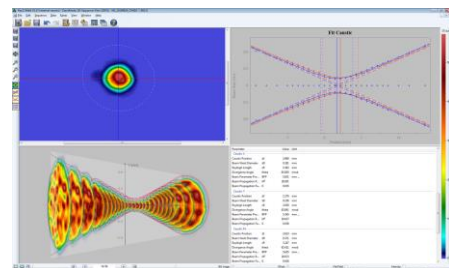
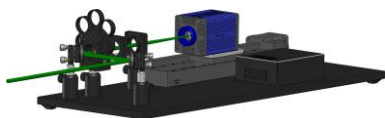
The CinSquare measurement system is equipped with two alignment mirrors for exact positioning of the laser beam through the measurement set-up. An additional filter wheel allows incremental beam attenuation. Its operational robustness and reliability ensures continuous use applications in industry, science, research and development.

- Confirm to ISO 11146-1/2
- Robust and compact system in industrial design
- Up to 6 focusing lenses and 6 ND filters assembled
- Reliable and fully automated M² measurement in <1 minute (~30s fast scan)
- Camera-based system
- 'CinCal' algorithm for high measurement accuracy
- 2D- and 3D-Caustic fit
- Compatible with cw and pulsed laser systems
- Measurement data as printable protocol (pdf)

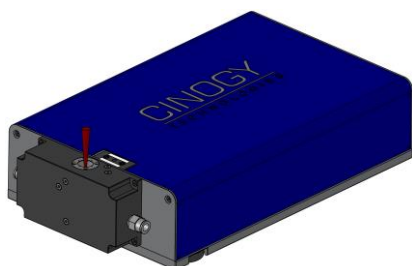
Spectral response:	250nm-950nm@CCD / 350nm-1320nm@CMOS / 900nm-1700nm@InGaAs
Pixel size:	3.75µm ² @CCD / 5.3µm ² @CMOS / 15µm ² @InGaAs
Number of pixel:	1.3MPixel@CCD / CMOS / 0.3MPixel@InGaAs
Technology:	CCD / CMOS / InGaAs
Data output:	14Bit / 10Bit / 14Bit
Beam diameter (1/e ²):	0.5-10mm
Stage length:	200mm (400mm)@CS-200 / 300mm@CS-300
ND filter:	up to 6 ND filters pre-assembled
Focusing lens:	up to 6 lenses pre-assembled
Input power:	up to 50W
Software:	RayCi-Pro
Dimensions CS200:	560 x 220 x 190mm ³
Dimensions CS300:	745 x 220 x 190mm ³

The software RayCi reports M², K, beam waist diameter, beam waist position, divergence angle, Rayleigh length, etc. Incomparable visualization modes, extensive analytical capabilities and new developed algorithms ensure the highest accuracy for beam quality measurements.

For scientific beam quality measurements CINOGY Technologies provides a pre-assembled and flexible measurement set-up in open design.



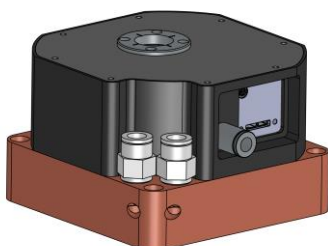
CINOGY's experienced team provides CinSquare systems tailored to customer's requirements.



CinCam Application Focus Beam Profiler - CinSpot FBP-50M-

The Focus-Beam-Profiler FBP-50M is a compact and fully automated tool to measure the focused laser beam from the UV to NIR range. The integrated CinCam beam profiler is moved precisely by the translation stage along the focus region. Its operational robustness and reliability ensures continuous use applications especially in industrial applications. A modular attenuation unit allows focus analysis up to 50W laser power. The whole measuring process is controlled by CINOGY's software RayCi.

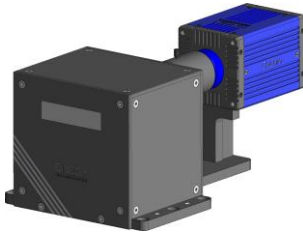
SENSOR DATA	
Spectral response:	340nm-1150nm
Pixel size:	5.3µm²
Number of pixel:	1.3MPixel
Technology:	CMOS (CCD)
Data output:	10Bit
Interface:	USB 2.0 / GigE
FEATURES	
Objective:	4x (NA 0.1) / 10x (NA 0.25) / 20x (NA 0.4)
Focus spot size:	>16µm@4x / >6µm@10x / >3µm@20x (accept focal lengths >80mm)
Stage length:	100mm (accuracy 10µm / speed 10mm/s)
Input power (without attenuator):	max 100mW
Input power (with attenuator):	max 50W (water cooling / 2l/min, 1bar, 20-25°C)
Replaceable ND filter:	Absorptive type: OD1.0 / OD2.0 / OD3.0 / OD4.0 / OD5.0 (400nm - 1150nm)
Replaceable ND filter:	Reflective type: OD1.0 / OD2.0 / OD3.0 (340nm - 1150nm)
Accuracy:	Waist position 50µm / Spot size 2-4% (measurement position is calibrated)
Software:	RayCi-Pro
SPECIFICATIONS	
Mechanical dimensions (W x H x L):	334mm x 220mm x 84mm³ (without attenuator) / 370mm x 220mm x 84mm³ (with attenuator)
Weight:	~6kg
Electrical requirements:	36V
Water-cooling:	Water-cooled absorber, Tap or DI-water; 2l/min, 1bar, 20-25°C, Ø 8mm hose
Storage temperature:	-10°C...+60°C
Operating temperature:	+0°C...+40°C
Regulations:	CE, RoHS



CinCam Application Focus Beam Profiler - CinSpot FBP-1KF-

The Focus-Beam-Profiler FBP-1KF is a compact tool to measure the focused laser beam from the UV to NIR range for up to 400W laser input power. It works with a fixed measurement position and is characterized by very compact design. The operational robustness and reliability ensures continuous use applications especially in industrial applications. The whole measuring process is controlled by CINOGY's software RayCi.

SENSOR DATA		
Spectral response:	340nm-1150nm (1320nm)	340nm-950nm
Pixel size:	5.3μm²	3.45μm²
Number of pixel:	1.3MPixel	3.2MPixel
Technology:	CMOS	CMOS
Data output:	10Bit	12Bit
Interface:	USB 2.0 / USB 3.0	USB 2.0 / USB 3.0
FEATURES		
Collimated beam size:	0.5m-3mm	
Focus spot size:	≥65μm@single mode / ≥300μm@multi mode	≥42μm@single mode / ≥300μm@multi mode
Max NA / Divergence:	0.05 / 100mrad	
Input laser power:	max 400W@single mode / max 700W@multi mode	
	Measurement time with water-cooling @22°C: no limitation	
	Measurement time without water-cooling: 20s@400W	
Accuracy:	Waist position 50μm / Spot size 2-4% (measurement position is calibrated)	
Software:	RayCi-Pro	
SPECIFICATIONS		
Mechanical dimensions (W x H x L):	98mm x 98mm x 65mm	
Weight:	~2kg	
Electrical requirements:	Power supply via USB	
Water-cooling:	Water-cooled absorber, Tap or DI-water: 2l/min, 1bar, 20-25°C, Ø 8mm hose	
Dust protection:	Flushing with clean air to avoid contamination of the optics (cleaned, oil-free, dry, particles <10 nm)	
Storage temperature:	-10°C...+60°C	
Operating temperature:	+0°C...+40°C	
Regulations:	CE, RoHS	



CinCam Application Laser Line Characterization - CinLine -

The CinLine tool is a compact and unique tool to measure beam profiles of cw and pulsed laser systems from UV to NIR spectral range. This system includes a special designed diffusion screen and the camera-based CinCam CCD/CMOS beam profiler with imaging optic.

The sophisticated screen architecture enables speckle-free beam profiling especially of laser lines, rectangle profiles or laser with large beam diameter. Several versions are available to open up new opportunities in laser characterization. The compact measurement system is designed to be used in industry, science, research and development.

- Speckle-free diffusion screen
- Confirm to ISO standard
- Pre-assembled and compact measurement system
- Accurate and reliable measurements
- Compatible with cw and pulsed laser systems
- Measurement data as printable protocol

Spectral response:	320nm – 1150nm
Beam Profiler:	CinCam CMOS / CCD
Input Power (max):	500mW
Input Intensity (max):	10W/cm ²
Resolution:	Up to 17µm
Interface:	FireWire / USB / GigE

The CinLine system is available with its specifically designed beam profiling software RayCi, which utilizes unique analytical capabilities and incomparable visualization modes. This ensures the highest accuracy in beam profile analysis.

I. Option



Active Area: 30mm x 30mm
Beam Diameter (max): 20mm x 20mm

II. Option

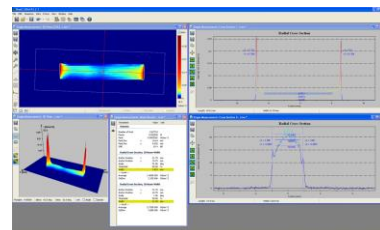


Active Area: 40mm x 20mm
Beam Diameter (max): 27mm x 13mm

III. Option



Active Area: 60mm x 15mm
Beam Diameter (max): 40mm x 10mm



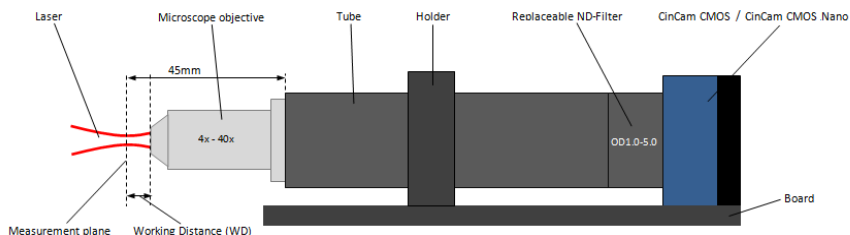
CINOGY's experienced team provides CinLine systems tailored to customer's requirements.

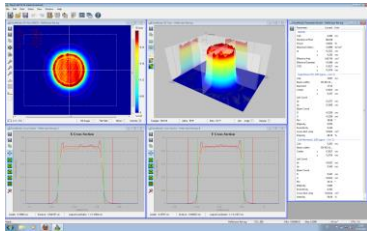


CinCam Application Near-Field Beam Profiler - NFBP -

CINOGY Technologies near field beam profiling option is suitable for focus spot measurements and near field imaging of fiber ends or output surfaces from laser diodes over a wide wavelength range. The set-up based on the compact CinCam CMOS models and can be assembled with different microscope objectives. These calibrated microscope objectives assured maximum accuracy and enables imaging of small beam structures on the diffraction limit.

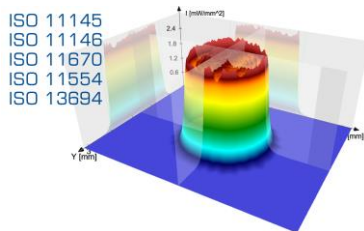
	4x System	10x System	20x System	40x System
Magnification:	4x (calibrated)	10x (calibrated)	20x (calibrated)	40x (calibrated)
Numerical aperture (NA):	0.1	0.25	0.4	0.65
Working distance (WD):	15.8mm	10.0mm	3.3mm	0.6mm
Focal length:	29.8mm	15.26mm	8.55mm	4.39mm
Optical resolution:	~2µm	~1.5µm	~1.2µm	~1.0µm
Spectral range:				
Standard:	400nm - 1150nm	→ CMOS-1201 / 1202 / 1203 / 1204 // CMOS-1201-Nano / 1.001-Nano		
RT:	320nm - 1150nm	→ CMOS-1201 / 1202 / 1203 / 1204 // CMOS-1201-Nano / 1.001-Nano		
NIR: residual silicon response phosphor	400nm - 1320nm	→ CMOS-1202 / CMOS-1203 // CMOS-1201-Nano / 1.001-Nano		
IR: sensor coating	1470nm - 1605nm	→ CMOS-1201 / 1202 / 1203 / 1204 // CMOS-1201-Nano / 1.001-Nano		
Input power (max):	100mW@4x, 10x / 10mW@20x, 40x / Power level for 1320nm and 1550nm on request			
Replaceable ND filter:	Absorptive type: OD1.0 / OD2.0 / OD3.0 / OD4.0 / OD5.0 (400nm - 1320nm, 1470nm -1605nm) Reflective type: OD1.0 / OD2.0 / OD3.0 (320nm - 1320nm)			
Beam profiler resolution:				
CinCam CMOS-1201	1280 x 1024 pixel	→ 5.2µm x 5.2µm		
CinCam CMOS-1202	1280 x 1024 pixel	→ 5.3µm x 5.3µm		
CinCam CMOS-1203	1600 x 1200 pixel	→ 4.5µm x 4.5µm		
CinCam CMOS-1204	2560 x 1920 pixel	→ 2.2µm x 2.2µm		
CinCam CMOS-1201-Nano	1280 x 1024 pixel	→ 5.3µm x 5.3µm		
CinCam CMOS-1.001-Nano	2040 x 2040 pixel	→ 5.5µm x 5.5µm		
Field of view:				
CinCam CMOS-1201	1664µm x 1331µm	666µm x 533µm	333µm x 267µm	167µm x 134µm
CinCam CMOS-1202	1696µm x 1357µm	678µm x 543µm	339µm x 272µm	170µm x 136µm
CinCam CMOS-1203	1800µm x 1350µm	720µm x 540µm	360µm x 270µm	180µm x 135µm
CinCam CMOS-1204	1408µm x 1056µm	563µm x 422µm	282µm x 211µm	141µm x 106µm
CinCam CMOS-1201-Nano	1696µm x 1357µm	678µm x 543µm	339µm x 272µm	170µm x 136µm
CinCam CMOS-1.001-Nano	2825µm x 2825µm	1130µm x 1130µm	565µm x 565µm	283µm x 283µm
Beam size:				
CinCam CMOS-1201	~13µm - 666µm	~5.2µm - 267µm	~2.6µm - 134µm	~1.3µm - 67µm
CinCam CMOS-1202	~14µm - 678µm	~5.3µm - 272µm	~2.6µm - 136µm	~1.3µm - 68µm
CinCam CMOS-1203	~11µm - 675µm	~4.5µm - 270µm	~2.3µm - 135µm	~1.1µm - 67µm
CinCam CMOS-1204	~5.5µm - 528µm	~2.2µm - 211µm	~1.1µm - 106µm	~0.6µm - 53µm
CinCam CMOS-1201-Nano	~14µm - 678µm	~5.3µm - 272µm	~2.6µm - 136µm	~1.3µm - 68µm
CinCam CMOS-1.001-Nano	~13µm - 1875µm	~5.5µm - 750µm	~2.8µm - 375µm	~1.4µm - 188µm





Beam Profiler Software RayCi - Product Description -

CINOGY Technologies beam profilers are available with the specifically designed analysis software, RayCi, which supports XP / Vista / Windows 7 / 8 operating systems. It is available as 32 Bit / 64 Bit version and can control several beam profiler cameras on a single computer simultaneously.



XP / Vista / Windows 7 / 8
Pentium IV / AMD Processor (Dual / Quad Core)
512MB graphic, Open GL V1.4 (NVIDIA)
2GB RAM
500MB free memory
PCI / PCIe slot
USB ports
CD / DVD-ROM drive
Internet access for update request

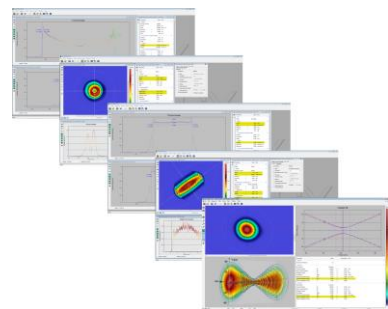
Due to its clearly designed menu structure, RayCi shows self-explanatory functions, which help the user to access quickly standard settings. Incomparable visualization modes, extensive analytical capabilities as well as new developed correction algorithms ensure the highest accuracy in laser beam analysis.

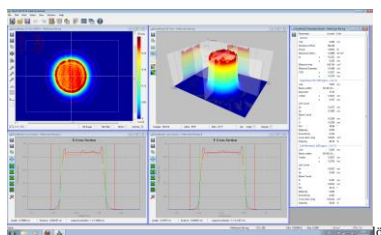
A wide range of beam width techniques e.g. 2nd Moment, Knife Edge, Moving Slit, Plateau and Gauss-Fit can be applied to determine quick and reliable standard beam parameters. The unique measurement tool enables the continuous monitoring of beam parameters, beam position and power density distribution. Moreover a new beam quality M^2 tool enables accurate beam quality analysis.

The extraordinary graphical and analytical tool of RayCi can be used for live data (LiveMode) and stored data (SaveMode) simultaneously, while each mode has its own individual functions. This makes RayCi the most advanced analysis software on the market. Helpful features like AOI Tracking, AOI Optimization, Zoom Functions, Look-Up Tables, etc. simplify the laser beam analysis.

RayCi is equipped with flexible data and image output capabilities. This permits the user to store data and images in the format that is compatible with their needs. A clearly arranged and printable protocol view displays the measurement parameters as well as the most important laser beam analysis results.

CINOGY'S laser beam profiler can easily be integrated in different automation systems and processes. The supplied Software Development Kit (SDK) based on a XML-rpc interface. The user can write programs in a number of platforms, such as Python, Visual Basic, LabVIEW, etc. which will remote-control the beam profiler.

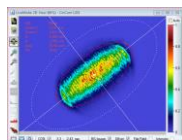




Beam Profiler Software RayCi - Visualization Options -

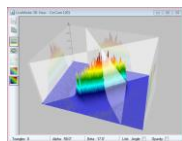
RayCi's incomparable illustration capabilities ensure the optimal visualization of measurement results during beam profiling. Several visualization windows allow the monitoring and analyses of live data and previously stored data simultaneously. Thanks to its clearly designed menu structure and the self-explanatory functions RayCi can easily be operated by any user.

2D-View



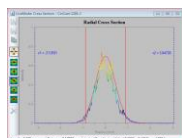
Options:	3D-View, Histogram, Cross Sections, Beam Results, Saturation
Illustrations:	2D Data, Beam Width, Cuts, Centroid, Coordinate System
Features:	LUT, Adjustable LUT, Auto Contrast, Auto / Manual AOI, Zooming, Summing
Calibration /Correction:	Background, Baseline, Flat Field, Linearity, Power

3D-View



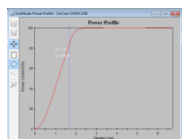
Options:	Data Style, Opacities
Illustrations:	3D Data, Beam Width, Cuts, Fits, Coordinate System
Features:	Rotating, Zooming, Linking 3D-Views

Cross Sections



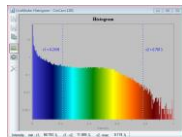
Options:	Type (X, Y, Radial, Circular, Arbitrary)
Illustrations:	Cross Section Data, Beam Width, Fits, Coordinates
Features:	Tracking, Zooming, Analysis (1D Beam Width, Edge Steepness)

Power Profile



Options:	Virtually Aperture
Illustrations:	Power Content versus Beam Diameter (Position of Virtually Aperture)
Features:	Zooming, Analysis Areas (Square / Circular / Numerical Aperture)

Histogram

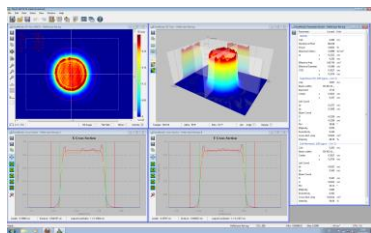


Options:	Linear, Logarithmic
Illustration:	Frequency Distribution of Data
Features:	Zooming, Cursor

Beam Results



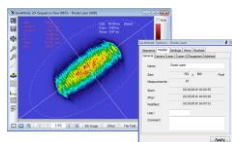
Option:	Data Recording
Illustrations:	AOI, Centroid, Statistics, 1D / 2D Beam Width, Beam Parameter
Feature:	Data Export



Beam Profiler Software RayCi - Measurement Options -

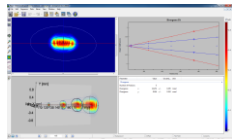
RayCi's extraordinary analytical tools enable the monitoring of beam parameters, beam position, power density distribution and beam caustic to ISO standard. Several measurement windows allow the monitoring and analyses of live data and previously stored data simultaneously. Thanks to its clearly designed menu structure and the self-explanatory functions RayCi can easily be operated by any user.

Single Measurement/ Time Series



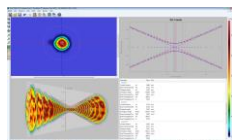
Charts: 2D-View, 3D-View, Histogram, Cross Sections, Beam Results
Features: LUT, Adjustable LUT Dynamic, Auto Contrast, Auto / Manual AOI
Data: Arithmetic's, Image Transformations, Filter, Optimization Function
Output: Data, Export, Image, Protocol
ISO: ISO 11145 / ISO 11146 -1 / 2 / ISO 13694

Divergence Measurement



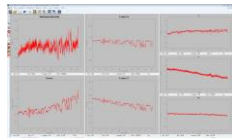
Charts: 2D-View, 3D-View, Fit, Results
Features: Data Selection, Zooming, Optimization Function, Coordinates
Data: Fit, 3D-Fit, Measurement Planes
Output: Data, Export, Protocol

Beam Quality M^2 Measurement



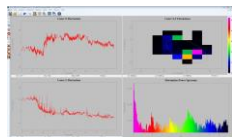
Charts: 2D-View, 3D-View, Caustic Fit, Results
Features: Data Selection, Zooming, Optimization Function, Coordinates
Data: Caustic X / Y Fit, Caustic Fit, 3D-Caustic Fit, Measurement Planes
Output: Data, Export, Protocol
ISO: ISO 11145 / ISO 11146 -1 / 2

Beam Stability Measurement

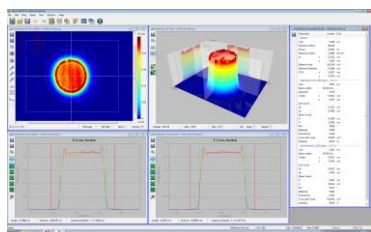


Charts: Power, Peak, Centroid X / Y, Beam Width
Features: Flexible Time Interval, Statistical Data, Zooming, Linking
Output: Data, Export, Protocol
ISO: ISO 11554

Pointing Stability Measurement



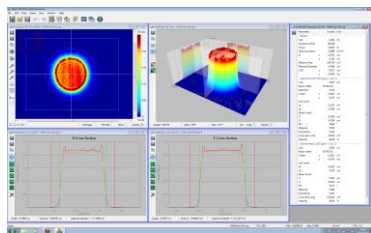
Charts: Centroid Fluctuation X / Y, Centroid Position Analysis, Power Spectrum
Features: Flexible Time Interval, Statistical Data, Zooming, Linking
Output: Data, Export, Protocol
ISO: ISO 11670



Beam Profiler Software RayCi - Version Overview -

	Lite	Standard	Professional
System			
XP, Vista, Windows 7, Windows 8	32Bit / 64Bit	32Bit / 64Bit	32Bit / 64Bit
Beam Profiler			
Multi-Use (Several Beam Profilers simultaneously)	○	○	●
Support for USB / FireWire / GigE / CameraLink Beam Profiler	● / ● / ● / ○	● / ● / ● / ●	● / ● / ● / ●
CW Mode / Pulse Mode (Software Trigger)	● / ●	● / ●	● / ●
Live Mode (live data) and Save Mode (stored data) can be used simultaneously	●	●	●
Automatic Update Support / Email Support	○ / ●	● / ●	● / ●
Visualization Windows			
2D-View (2D Profile, AOI Features, Beam Width, Cuts, Coordinate System)	●	●	●
3D-View (3D Profile, Coordinate System, Rotation, Cuts, Fit)	○	●	●
Cross Section (X/Y-Cut, Radial-Cut, Circular-Cut, Arbitrary-Cut, Beam Width, Cursor)	● (X, Y)	● (All)	● (All)
Number of Cross-Section Windows	1	2	2
Cross Section Analysis (1D Beam Width, Sinc ² Fit, Edge Steepness)	○	●	●
Power Profile (Power Content Virtually Aperture)	○	●	●
Histogram (Probability Density Distribution, Cursor)	○	●	●
Beam Results (Highlighting, Separating, Pass / Fail Criteria)	● / ● / ○	● / ● / ●	● / ● / ●
AOI Parameter (Center xy, Diameter, Area, Intensity)	●	●	●
Centroid Position	●	●	●
Power Profile Position	○	●	●
Statistics (Number of Pixel, Power, Peak)	●	●	●
Beam Parameter (Beam Width, Centroid, Uniformity, etc.)	●	●	●
Beam Profiler Dynamic (Saturation, Intensity, Power)	●	●	●
Measurement Windows (ISO 11146, ISO 13694, ISO 11670)			
Single Measurement (2D / 3D-View, Histogram, Cross Section, Beam Results)	●	●	●
Time Series (2D / 3D-View, Histogram, Cross Section, Beam Results)	○	●	●
Divergence Measurement (2D / 3D-View, Fit, Divergence Parameter)	○	●	●
Beam Quality M ² Tool (2D / 3D-View, Caustic Fit, 3D Caustic Fit, Caustic Parameter)	○	○	●
Beam Stability (Peak, Power, Centroid X/Y, Beam Width: d, D, Phi)	○	●	●
Pointing Stability (Centroid Fluctuation X/Y, Centroid Position Analysis, Spectrum)	○	●	●
Standard Features			
LUT / Adjustable LUT Dynamic / Auto Contrast	● / ● / ●	● / ● / ●	● / ● / ●
AOI Adjustment (Centroid, Peak, Beam Width)	●	●	●
Centroid Calculation (Data, Threshold Level, Highest Pixel)	○	●	●
Spatial Units (px, μm, mm, cm, in, m)	●	●	●
Power Units (1, nW, μW, mW, W, kW)	●	●	●
Coordinate System (Default, Standard, User-Defined)	●	●	●
Adjustable Cursors (Peak, Beam Width, Edge Steepness)	○	●	●
Zoom Function (All Visualization and Measurement Windows)	●	●	●
Camera Settings (Exposure Time, Gain, Floating Average, Frame Summing)	●	●	●
Trigger Settings (Polarity, Delay Time, Auto Pulse Finder)	●	●	●

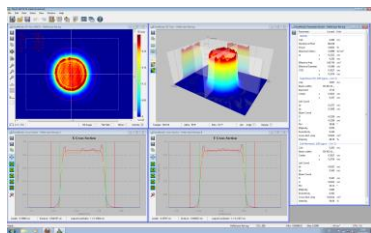
● included ○ not included



Beam Profiler Software RayCi - Version Overview -

	Lite	Standard	Professional
Correction and Calibration Tool			
Background Correction (incl. Cold and Hot Pixel)	•	•	•
Baseline Correction	•	•	•
Flat Field Calibration	•	•	•
Linearity Calibration	○	•	•
Power Calibration	•	•	•
2D Beam Width Techniques			
Threshold	•	•	•
2 nd Moment	•	•	•
Gauss-Fit	•	•	•
Super-Gauss-Fit	○	•	•
Plateau	○	•	•
Geometry Simple	○	•	•
Geometry Area	○	○	•
Knife-Edge 90/10	•	•	•
Moving Slit 86/14	○	•	•
2D Beam Parameters			
Exponent	○	•	•
Centroid at x, y	•	•	•
Beam width at x, y / Divergence at x, y (Lab Coordinates)	•	•	•
Beam width major, minor / Divergence major, minor (Beam Coordinates)	•	•	•
Azimuth Angle	•	•	•
Ellipticity / Eccentricity	•	•	•
Correlation	•	•	•
Uniformity	•	•	•
Roughness	○	•	•
Slope	○	•	•
Cross-Sectional Area	•	•	•
Intensity	•	•	•
Goodness of Fit Index (GFI)	•	•	•
Top Hat Factor (F)	○	•	•
Effective Power	•	•	•
Power Ratio	•	•	•
Effective Area	•	•	•
Mean Intensity	•	•	•
Flatness	•	•	•
Edge Steepness	•	•	•
Beam Statistics			
Number of Pixel	•	•	•
Power	•	•	•
Peak at x, y	•	•	•

• included ○ not included



Beam Profiler Software RayCi - Version Overview -

	Lite	Standard	Professional
Video			
Video capturing	○	●	●
Video playback	○	●	●
Almost all measurements / visualizations can be performed on video files	○	●	●
Work with Live Data / Save Data			
Camera Options (Binning 1x1, 2x2, 4x4, 8x8)	●	●	●
Arithmetic Operations (Add, Subtract, Multiply, Divide, Raise)	●	●	●
Image Transformation (Flip vertical / horizontal, Rotate Left / Right)	●	●	●
Filter (Median, Smoothing, Lowpass, Highpass)	●	●	●
Optimization (Baseline Correction)	○	●	●
Data (Save / Open)			
Single Measurement (TIF / Printable Report)	● / ○	● / ●	● / ●
Time Series (TS / Printable Report)	○ / ○	● / ●	● / ●
Divergence Measurement (DVG / Printable Report)	○ / ○	● / ●	● / ●
Beam Quality (M2 / Printable Report)	○ / ○	○ / ○	● / ●
Beam Stability (BST / Printable Report)	○ / ○	● / ●	● / ●
Pointing Stability (PST / Printable Report)	○ / ○	● / ●	● / ●
Export			
Data (TXT / CSV)	●	●	●
Image (BMP / JPEG / GIF / TIFF / PNG)	●	●	●
Grayscale Image 8Bit (BMP / GIF / TIFF / PNG); 16Bit (PGM)	○	●	●
Video (AVI / TS)	○	●	●
Workspaces / Settings	●	●	●
Import			
Data (CSV)	○	○	●
Grayscale Image (BMP / JPEG / GIF / TIFF / PNG / EMF / WMF / ICO)	○	○	●
Workspaces / Settings	●	●	●
XML-RPC interface that allows full remote control of all RayCi functions			
Control of all camera settings	○	●	●
Capture of data and results	○	●	●
Control of measurement settings	○	●	●
SDK			
Wrapper-DLL for C (LabView)	○	●	●
Wrapper-DLL for .NET	○	●	●
Control of External Devices			
Translation Stage for Beam Quality M ² - CinSquare	○	○	●
Trigger Device for Advanced Pulse Measurements	○	○	●
Dongle Network Server	○	●	●

● included ○ not included