

BEAMAGE

CMOS beam profiling cameras



KEY FEATURES

- > **USB 3.0 FOR THE FASTEST TRANSFER RATES**
Up to 10X faster than regular USB 2.0 connections
- > **HIGH RESOLUTION**
2.2 and 4.2 Mpixels resolutions give accurate profile measurements of very small beams
- > **LARGE APERTURES**
 - 11.3 x 6.0 mm for the Beamage-3.0
 - 11.3 x 11.3 mm for the Beamage-4M
 - 20.5 x 20.5 mm for the Beamage-4M-FOCUS
- > **AVAILABLE WITH IR COATING**
Beamage-IR cameras have a special phosphor coating for IR wavelengths (1495-1595 nm)
- > **ISO COMPLIANT**
D4 definition of diameter, centroid, ellipticity and orientation are ISO 11146:2004 and 11146:2005 compliant
- > **EXTERNAL TRIGGER**
To synchronize the camera with a pulsed laser

INTUITIVE SOFTWARE INTERFACE

Easy to navigate interface, with many displays and control features:

- 2D, 3D and XY Displays
- Background Subtraction Function
- Unique "Animate" Function
- Gaussian Fit
- Semi-Log Graph

ACCESSORIES



Stand with delrin post



BA series optical attenuators



Stackable ND filters (0.5, 1.0, 2.0, 3.0, 4.0 & 5.0)



UV and IR filters



Pelican carrying case



UV converters & IR adaptors



	BEAMAGE-3.0	BEAMAGE-3.0-IR	BEAMAGE-4M	BEAMAGE-4M-IR	BEAMAGE-4M-FOCUS
SENSOR TECHNOLOGY	CMOS	CMOS (with phosphor coating)	CMOS	CMOS (with phosphor coating)	CMOS (with fiber optic taper)
EFFECTIVE APERTURE	11.3 x 6.0 mm	11.3 x 6.0 mm	11.3 x 11.3 mm	11.3 x 11.3 mm	20.5 X 20.5 mm ^a
MEASUREMENT CAPABILITY					
Wavelength range					
Camera only	350 - 1150 nm	1495 - 1595 nm	350 - 1150 nm	1495 - 1595 nm	350 - 1150 nm
With UG11-UV filter	250 - 370 nm	---	250 - 370 nm	---	---
With B3-IR-filter	1250 - 1350 nm	---	1250 - 1350 nm	---	---
Pixel count	2.2 MPixels	2.2 MPixels	4.2 MPixels	4.2 MPixels	4.2 MPixels
H x V	2048 x 1088	2048 x 1088	2048 x 2048	2048 x 2048	2048 x 2048
Minimum measurable beam	55 µm	70 µm	55 µm	70 µm	120 µm
Frame rate	---			6.2 fps at 4.2 MPixels (Full Frame)	
	11 fps at 2.1 MPixels (Full Frame)			11.4 fps at 2.1 MPixels (2048 x 2048)	
	20 fps at 1.1 MPixels (2048 x 544)			18.6 fps at 1.1 MPixels (2048 x 544)	
	32 fps at 0.066 MPixels (256 x 256)			32 fps at 0.066 MPixels (256 x 256)	
RMS noise	1000:1 (60 dB)	1000:1 (60 dB)	1000:1 (60 dB)	1000:1 (60 dB)	1000:1 (60 dB)
DAMAGE THRESHOLDS					
Maximum average power	1 W with ND filter	1 W with ND filter	1 W with ND filter	1 W with ND filter	1 W with ND filter
Maximum density (1064 nm)	10 W/cm ² 0.1 J/cm ²	10 W/cm ² 0.1 J/cm ²	10 W/cm ² 0.1 J/cm ²	10 W/cm ² 0.1 J/cm ²	10 W/cm ² 0.1 J/cm ²
SOFTWARE					
Displays	2D, 3D, XY and Beam Tracking				
Display Features	2D: Print Screen, Reset View, Show/Hide Beam Diameter 3D: Print Screen, Reset View, Top View XY: Save Data, Zoom, Gaussian Fit, Semi-Log, Show/Hide Cursor, Show/Hide FWHM, Show/Hide 1/e ² Beam Tracking: Save Data, Print Screen, Reset View, Zoom				
Beam Diameter Definitions	D4σ (ISO compliant), 1/e ² along crosshairs (13.5%) FWHM along crosshairs (50%) Custom (%)				
Buffer Controls	Open File, Save Current Data, Save All Data, Previous/Next Image, Clear Buffer, Animate				
Printing and Reports	Full Report in Print Ready Format (2D, 3D, XY, Measures, Parameters) Print Screen in BMP format (2D and 3D)				
PHYSICAL CHARACTERISTICS					
Sensor size	11.3 x 6.0 mm	11.3 x 6.0 mm	11.3 x 11.3 mm	11.3 x 11.3 mm	11.3 x 11.3 mm
Sensor area	0.67 cm ²	0.67 cm ²	1.28 cm ²	1.28 cm ²	1.28 cm ²
Effective aperture	Same as sensor	Same as sensor	Same as sensor	Same as sensor	20.5 x 20.5 mm
Dimensions (not including filter)	61H x 81.1W x 19.7D mm	61H x 81.1W x 19.7D mm	61H x 81.1W x 19.7D mm	61H x 81.1W x 19.7D mm	61H x 81.1W x 46.5D mm
Weight (head only)	138 g	138 g	138 g	138 g	235 g
ORDERING INFORMATION					
Product page					

a. With a typical pixel multiplication factor (PMF) of 1.8.

BEAMAGE

Software features

Capture Controls:

Start/Stop,
Subtract Background

Buffer Controls:

View Data Offline

Data:

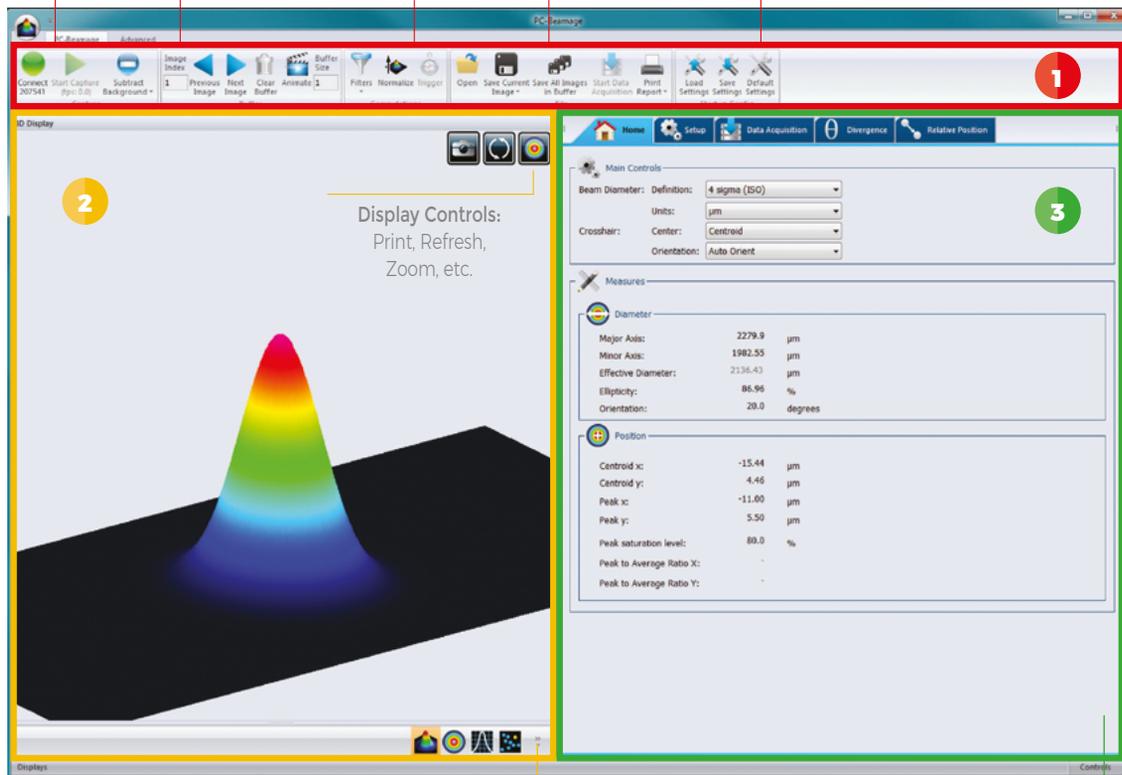
Computation

File Controls:

Save and Open Data

Startup Configuration:

Save and Load Settings



Displays:
3D, 2D, XY Graphs and Beam Tracking

Home, Setup and Acquisition Tabs:
Set your capture parameters and get the resulting measurements

1

MAIN CONTROLS

The upper part of the software includes all the main controls in a ribbon format. These controls are grouped by family: Capture Controls, File Controls, Buffer Controls, M2 Controls and Data Computations. The last includes very useful filters and a normalization function.

2

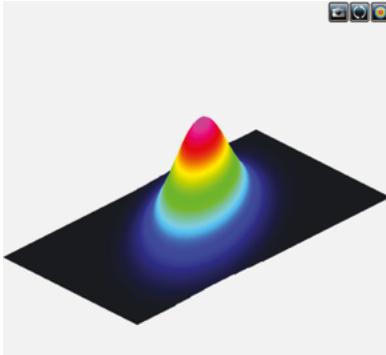
DISPLAYS

The left-hand side of the software is the display panel. Four displays are available: 3D, 2D, XY (cross-sectional graphs along the crosshairs) and Beam Tracking. The desired display is selected by clicking on the corresponding icon at the bottom of the panel. Print screen controls are available for the 3D, 2D and Beam Tracking displays. They allow the user to save an image of the current view in BMP format.

3

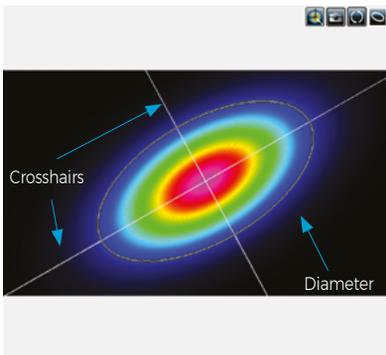
HOME AND SETUP TABS

The right-hand side of the software contains the Home, Setup and Data Acquisition tabs. The Home tab allows the user to select the main controls for his measurements (Beam Diameter Definition, Crosshair Center and Orientation) and displays the resulting measurements below. The Setup tab allows the user to set the measurement parameters (Exposure Time, Image Orientation and Averaging, Active Area, etc.) and the Data Acquisition tab allows the user to save measurements with or without full images, to enter the Sampling Rates and a Total Duration for the Acquisition. More tabs with advanced controls are available when clicking on the Show/Hide Options button in the Computations panel.



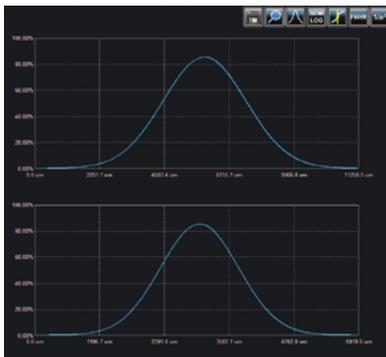
3D DISPLAY

The 3D display shows the actual shape of the beam. It is possible to easily zoom, pan and rotate the image. The Reset button puts the data back in its original configuration. This display also features a Print Screen button to save the latest image in BMP format.



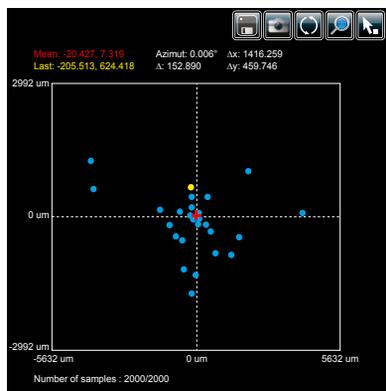
2D DISPLAY

The 2D display features the crosshairs (set to the major and minor axis or along a specific angle) and the measured diameters of the beam. These diameters vary with the chosen definition (4-sigma, FWHM, 1/e², etc.) and the display can be turned ON or OFF. The Print Screen button allows to save a picture of the current screen in BMP format.



XY DISPLAY

The XY display plots cross-sectional graphs of the beam along the crosshairs. This display features many useful tools like zoom, cursor, and FWHM and 1/e² level bars. It is also possible to display the graphs in semi-log format to enhance the details in the low intensity parts of the beam.



BEAM TRACKING DISPLAY

The Beam Tracking Display allows the user to visualize the variation of the beam's centroid position on the sensor. This display shows the latest calculated position as well as the previous ones, until the user resets the view. The display also shows the mean position of all computed values and gives information regarding position stability for both X and Y axes. This tool is great to monitor the beam pointing stability over time.

