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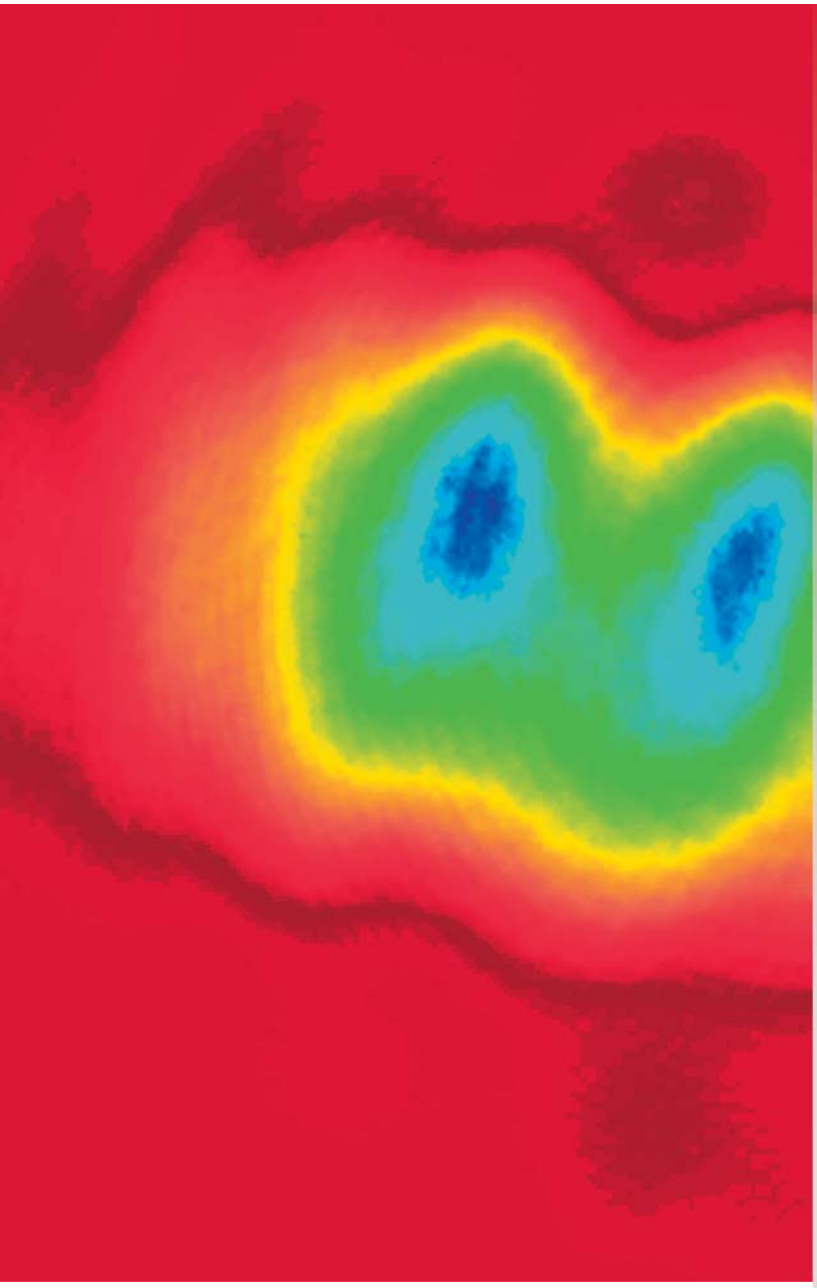
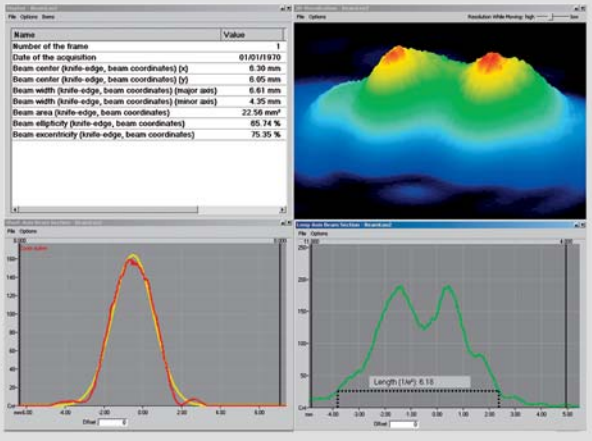
ML4500 Beam Diagnostic Systems



- **Reliable quality control online**
  with our ML1200 beamlux II software for production with PASS/FAIL output
- **Improve efficiency**
  with real time evaluation of beam size and homogeneity
- **Speed up production**
  online monitoring and evaluation of laser beam, faster set-up, faster production, faster throughput
- **Reliable results**
  with evaluations in compliance to ISO Norm
- **Save on your production cost**
  on-line results while adjusting of optical components (tuning)
- **Improve productivity**
  real time evaluation of laser beam profile, 1D, 2D, 3D display
- **Shorten time in quality control**
  customize evaluation, instant display in table format, Pass/Fail, all raw data preserved if needed for evaluation.



Everything can be improved • We give you a tool to be faster

Beam Profiler

Beam Profiler ML4500

The typical application for ML4500 is general beam profiling. It consists of a ML3743 camera and ML1200 beamlux software.

With our comprehensive accessories almost all cw or quasi-CW lasers can be analysed.

It is an ideal tool for online adjustment and improvement of your laser and optical set up.

Due to its high dynamic range camera with long exposure time it is a perfect tool for recording caustics of laser spots for M² measurements.

Specifications

Wavelength range	320 nm - 1100 nm
with optional UV-converter	10 nm - 320 nm
Power density cw	< 1 nW/cm² - 1 mW/cm²
with optional attenators	10.000 W/cm²
Beam size	500 µm - 5 mm
with optional extension tubes	< 5 µm - 150 mm

camlux ML3743

CCD-Sensor	2/3"
Pixel #	1392 x 1040
Pixel size	6.45 x 6.45 µm
Array size	8.97 x 6.71 mm
Max. frame rate	14.8 fps
	60 fps with binning
Exposure time	20 µs - 1 s
Long-time exposure	up to 20 min
Binning	x2, x4, x8
S/N ratio	63 dB
Dynamic	12 bit
Full well capacity	18000 e^-

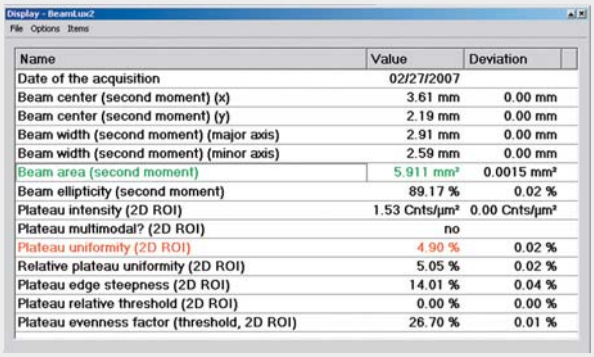
CE/UL certified

beamlux II Software ML1200

- Automatic gain and shutter control
- Noise and background control
- Best fit to Gaussian or top hat profile
- Numerical data files of profiles
- Centroid beam wander screen and tracking
- 2D contour map and best-fit ellipse
- 3D display viewable from any angle or elevation with zoom
- Store and recall screens in single or video fashion
- Fully flexible screen format including save configuration
- Full on-line instructions and help
- Progression view (time dependent view of all important laser beam parameters, for long time measurements of your laser beam)
- Decreasing measurement errors by averaging
- ISO standard compliant

Evaluation results

with Pass / Fail indication



Name	Value	Deviation
Date of the acquisition	02/27/2007	
Beam center (second moment) (x)	3.61 mm	0.00 mm
Beam center (second moment) (y)	2.19 mm	0.00 mm
Beam width (second moment) (major axis)	2.91 mm	0.00 mm
Beam width (second moment) (minor axis)	2.59 mm	0.00 mm
Beam area (second moment)	5.911 mm²	0.0015 mm²
Beam ellipticity (second moment)	89.17 %	0.02 %
Plateau intensity (2D ROI)	1.53 Cnts/µm²	0.00 Cnts/µm²
Plateau multimodal? (2D ROI)	no	
Plateau uniformity (2D ROI)	4.90 %	0.02 %
Relative plateau uniformity (2D ROI)	5.05 %	0.02 %
Plateau edge steepness (2D ROI)	14.01 %	0.04 %
Plateau relative threshold (2D ROI)	0.00 %	0.00 %
Plateau evenness factor (threshold, 2D ROI)	26.70 %	0.01 %

beamlux II advanced upgrade

- Laser beam synchronization
- Control of more than one camera synchronously
- Control of stepper motors
- Script support
- Remote control via TCP/IP
- Customizable software

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