



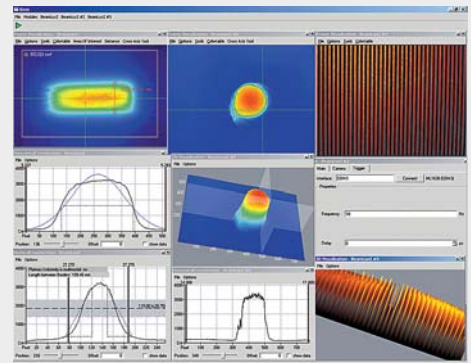
- Software beamlux II
- Industrial cameras
- Attachments for beam diagnostics
- Attenuators
- Power and energy sensor heads
- Focus beam profiler
- beamlux II CW - scan
- Wavefront sensor
- squarelux M² - meter
- VUV - spectrophotometer
- NIR - spectrometer
- Adjustable vacuum slit
- EUV / X-ray - spectrometer
- Customized solutions

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

beamlux II - New Performance for Laser Beam Profiling

beamlux II software

- Online analysis of laser beams and other light sources
- ISO compliance data analysis
- CW and pulsed laser measurement
- Simultaneous multi camera input (USB2.0, IEEE1394, Camera Link, analog)
- Fast measurement
- High dynamic range
- Stepper motor control
- Software module for laser line analysis
- Software control for laser synchronization device, attenuators, energy meters, power meters, linear translation stages and other attachments



Industrial cameras

- optimized for laser beam diagnostics
- CCD sensors with high linearity
- High dynamic range (12 Bit, 14 Bit ADC)
- High signal to noise ratio
- High spatial resolution (up to 4000 x 2500 pixels)
- Extended wavelength range (EUV to NIR)
- Area and line cameras
- Single pulse resolution (up to 32 kHz)
- Frame rates of up to 100 fps
- Wide selection of accessories, i.e. converters, objectives, N/D filters



camlux ML3743

CCD-Sensor (VIS & UV)	2/3"
Pixel #	1392 x 1040
Pixel size	6.45 x 6.45 μm
Array size	8.98 x 6.71 mm
max. frame rate	14.8 fps
Exposure time	20 μs - 82 ms
long-time exposure	up to 136 min
Binning	x2, x4, x8
S/N ratio	63 dB
A/D conversion	12 bit
Full well capacity	18000 e ⁻

New



Attachments for beam diagnostics

- Micro controller to synchronize the laser to beamlux II software, trigger in / out
- Stepper motor controller controlled by beamlux II, multiple stepper motors (up to three 2-phase motors)
- Linear stages with 2-phase stepper motors
- Camera tube with UV converter
- UV converter, coated or doped
- UV photo diode for pulse shape analysis



Fixed attenuator

- Fixed attenuation factor
- Wedge attenuator, polarizing or non polarizing
- Filter wheels with N/D filters
- Metal coatings for UV
- Wedges for large beam sizes



Variable attenuator

- Devices for variable attenuation of laser beams
- Allows continuous adjustment of laser beam energy
- Attenuation by dielectric filters
- No displacement of attenuated beam
- Available for all Excimer and YAG wavelengths
- Large beam diameters of up to 50 x 20 mm²
- Manual or motorized control
- beamlux II software interface
- Optical switching < 100 ms



Power and energy sensor heads

- Pyroelectric energy sensor heads or thermoelectric power sensor heads with calibration certificate
- Universal use absorption sensors (black coatings) with constant absorption for 185 nm to 25 μm
- Special sensors with metal or ceramic coatings for high energy and power densities (pulse rates of up to 5 kHz)
- Sensors with KF vacuum flange for VUV
- Small footprint digital meter with RS232, MMC/SD card slot for calibration upload
- Analogue power meter with large display as tuning aid
- Interfaced to beamlux II software
- OEM-design with small size for direct integration into lasers, customer specified solution



Beam Diagnostic Systems

Focus beam profiler

- Camera based instrument for beam analysis
- High power laser diagnostics system
- Wavelength range: VUV to 1100 nm (IR optional)
- Pulsed and CW
- CCD sensor
- modular + flexible
- measures laser spots with high power density



beamlux II CW - scan

- The proven measurement unit for analysis of laser lines
- Automated measurement of intensity distribution of laser lines (800 mm max.)
- Wavelength range: 130 nm to 1064 nm
- Complete beam profile analysis, ISO compliant
- CW & pulsed lasers
- Resolution 2 μm
- Laser lines are scanned step by step and combined to one panorama picture



Wavefront sensor

- Wavefront sensor for laser beam characterization
- Sensor based on Hartmann-Shack principle
- on-line testing of lasers
- Wavelength range from 193 nm to 1064 nm
- Computation of the Zernike coefficients
- Accuracy $< \lambda / 20$
- Repeatability $< \lambda / 200$
- comprehensive accessories for calibration and beam adjustment



squarelux M² - meter

- Instrument for laser beam propagation measurements
- Pulsed and CW (up to 1 kHz)
- Real time M²
- M² - ISO compliant
- Automatic attenuation adjustment
- Expandable for any beam diameter and power
- Specifically developed for industrial application
- UV optional
- High accuracy



VUV - spectrophotometer

- Spectral range from 115 nm to 300 nm
- Resolution < 0.5 nm
- Step width < 0.1 nm
- Angle resolved reflection and transmission measurements
- Transmission measurements in gases
- Accuracy for transmission < 0.5 %
- Accuracy for reflection < 0.7 %
- Many accessories



NIR - spectrometer

- Spectral range from 1200 nm up to 1900 nm
- High sensitivity
- Compact and robust
- PC software for data acquisition
- SMA-905 fiber connector
- Fiber optic cable and probes as accessories



Adjustable vakuum slit

- X-ray, EUV
- Stainless steel housing
- Adjustment possible under vacuum (manual)
- Slit width 0 to 400 μm , step width < 1 μm
- Adjustable slit length (0 to 20 mm)
- Optically polished stainless steel blades



EUV / X-ray - spectrometer

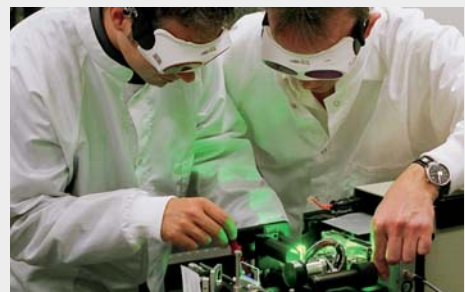
- Fully adjustable
- Easy positioning
- Wavelength range 1 nm to 20 nm
- Resolution better than $\lambda / 600$
- Custom design solutions



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Customized solutions

Our Competency

- Over 10 years of developing and manufacturing of optical measurement equipment
- Software development
- Custom solutions development, prototyping and manufacturing
- Specialty parts



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