

Continuous Wave Deep UV Laser for the Next Level UV Light Processes

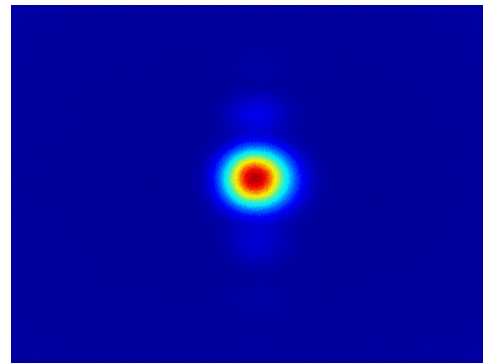
FEATURES

- 1 W, 266 nm, true CW, DPSSL
- 24/7 hands-free operation
- Outstanding proved lifetime > 15,000 hours
- Unmatched ultra-low noise < 0.2 %rms
- Automated laser stability servo loops
- Air cooled with full remote control

APPLICATIONS

- Semiconductor Inspection
- Lithography
- Grating Writing

The FQCW266 laser family is growing, in time with the operating mode, and the product line is expanding to reach the next performance level. The new designed FQCW266-1000 emits at 266 nm wavelength with 1,000 mW output power. Based on the successfully patented platform, the frequency converted DPSSL will uphold the deep UV laser performance by using a novel high-efficient resonant ring-cavity. Assisted by nonlinear optical materials with ultra-high purity unleash the strength and reliance in the single frequency regime and spatial mode.



The OEM design provides a sophisticated crystal shifter for the key-components, fully automated laser features to maintain the absolute wavelength over a pro-longed emission time, as well as, the beam pointing and the beam propagation parameters over the complete lifespan. CryLaS sets a state-of-the-art benchmark in combination with systematic production testing procedures and tracked photo contamination control. The outstanding power stability and the ultra-low noise laser intensity are managed by the patented noise eater module. This eliminates spontaneous and triggered drop-outs, actively compensating parasitic power fluctuations and reduce significantly the relative intensity noise over a wide-range of the frequency domain of interest. The laser is including suitable interfaces for OEM integration with highest wall-plug efficiency with air-cooling for ease thermal management.

This high-power version will broaden CryLaS' product portfolio and reinforce its position for applications in the semiconductor industry. The company from Berlin, Germany, is a well-known deep UV specialist with their field-approved laser sources at 266 nm and 213 nm. Reliable hands-free 24/7 operation in an industrial environment is efficiently supporting the confidence that is needed to enable high-throughput UV light processes with low cost of ownership.

Consistency is the key in accordance with CryLaS' commitment to deep UV wavelengths. The production release is scheduled for the second half of 2021. For more information, visit us on the web at www.crylas.de, call +49 30 53 04 24 00 or send an e-mail to info@crylas.de

FQCW 266-1000

Diode Pumped Continuous Wave Solid State Laser

PRELIMINARY

- 266 nm
- Continuous Wave
- Single Frequency
- Low Intensity Noise
- $M^2 < 1.3$, TEM₀₀
- Up to 1000 mW
- Air Cooled
- Patented Design (*)



lithography · inspection · spectroscopy · analytics

Optical Data	Wavelength	266 ± 1 nm
	Nominal Output Power	1000 mW
	Output Power Adjustability	100 – 1000 mW
	Linewidth	< 300 kHz
	Coherence Length	> 1000 m
	Beam Propagation Factor M ²	< 1.3, TEM ₀₀
	Polarisation orientation and purity	vertical, > 500:1
	Beam Diameter	1.0 ± 0.2 mm
	Beam Divergence	< 0.45 mrad
	Beam Pointing Stability ⁽²⁾	< 3 µrad/K, < 3 µrad/h
	Static Alignment Tolerance ⁽²⁾	lateral ± 0.25 mm, angular ± 2.5 mrad
	Power Stability (0.5 Hz over 2 h) ⁽¹⁾	< 0.2 %rms
	Intensity Noise (1 Hz – 100 kHz)	< 1 %rms
Intensity Noise (100 kHz – 250 MHz)	< 0.2 %rms	
Electrical Data	Power Consumption Mean (Max)	< 200 W (450 W)
	Line Voltage	90 - 250 V AC (50-60 Hz)
	Communication Interfaces	USB / RS232 / Ethernet
	Safety Features	key switch, interlock, electrical shutter
Miscellaneous	Warm-up Time	< 45 min
	Operating Temperature (laser head)	20 - 30 °C non-condensing
	Laser Head Dimensions	143 x 325 x 739 mm ³ (H x W x L)
	Control Unit Dimensions	184 x 483 x 411 mm ³ (H x W x L)
	Laser Head Weight	36 kg
	Control Unit Weight	12 kg
Required Options	Purge Interface for Laser Head	CDA 1.5 LPM, 50 PSI, SH<10 PPM

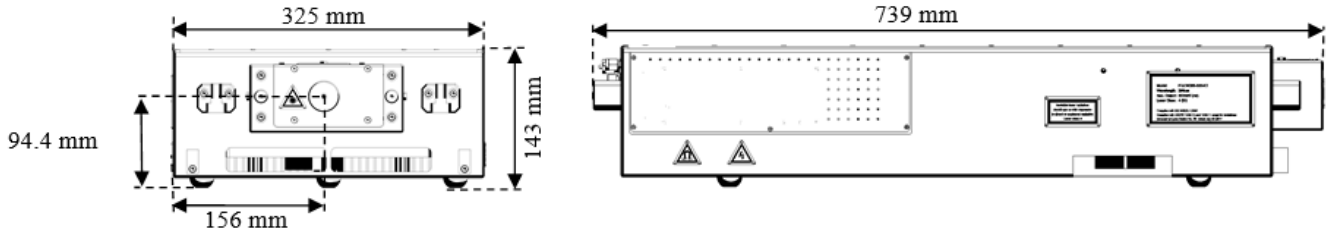
Notes

1. After 30 minutes warm-up in the temperature range 20 - 35 °C, temperature change < 1 K/h.
2. Position and angle of static alignment tolerances are specified with regard to laser beam exit.
3. The exit window is equipped with the Manual Window Shifter (MWS) in case of external photo contamination. This laser system is equipped with the Automatic Crystal Shifter (ACS).

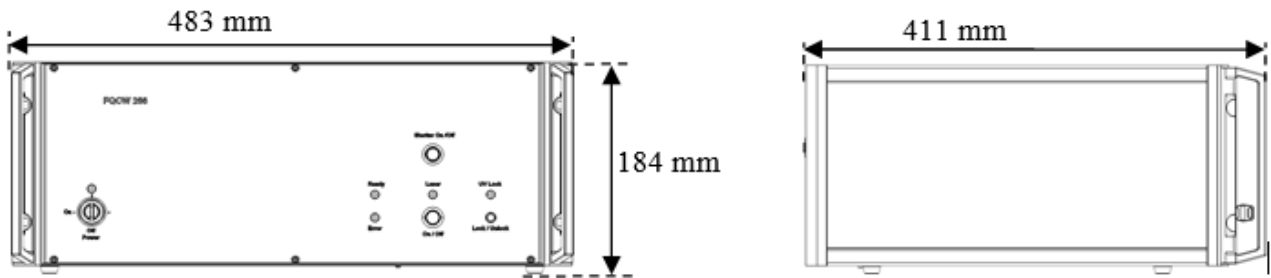
(*) Protected by patents: DE10339210B4, EP1344105B1, US7027209B2, DE102010064382B4, US9429814B2, DE102012212428B4, US9024247

Dimensions

Laser Head:



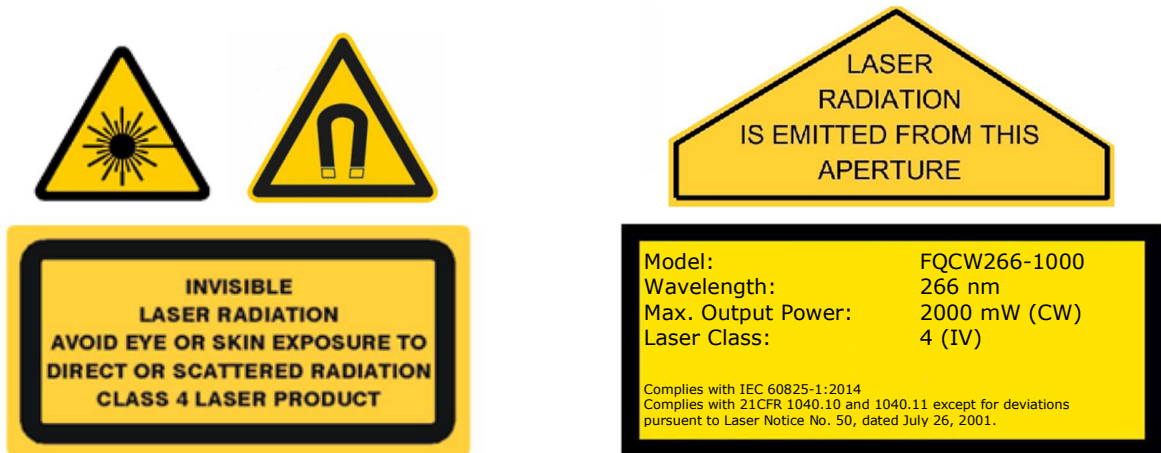
Control Unit:



All dimensions in mm

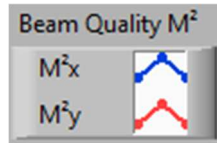
Laser Safety Labels

FQCW266 laser sources are class 4 / IV lasers according to IEC 60825-1

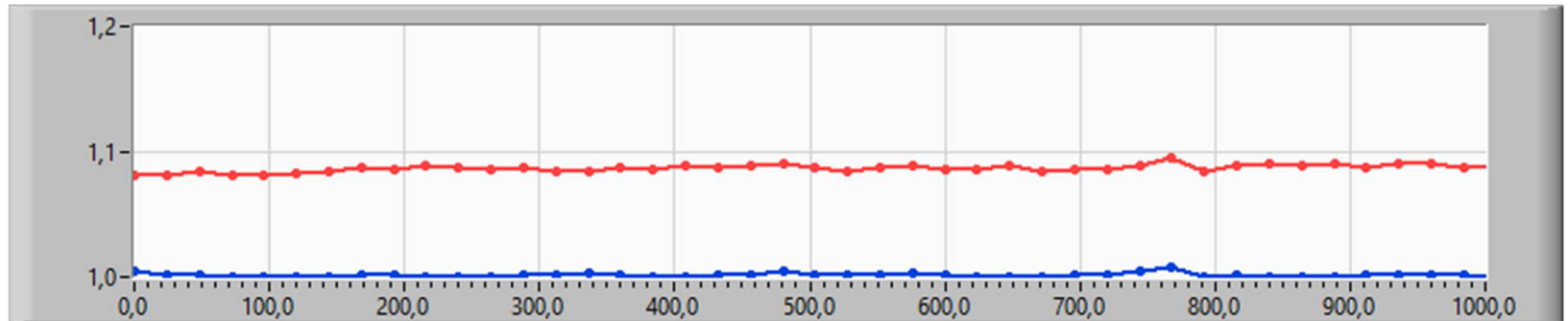


CRYSTAL SPOT LIFE DATA

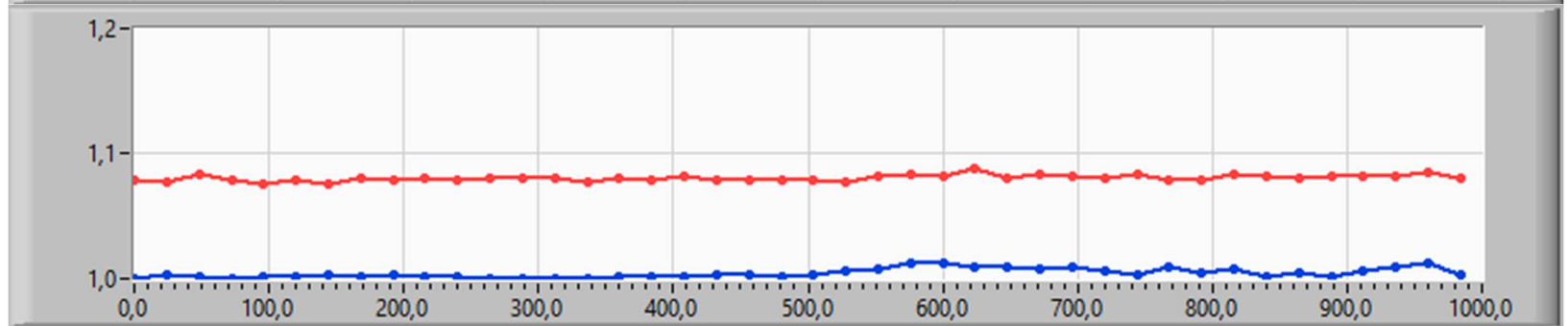
At least fifteen crystal spots continuously deliver 1,000 hours of operation in deep UV at maximum output power. This results in a maximum life span of 15,000 hours until the first regular service interval. CryLaS thus sets a technical benchmark compared to its competitors. CryLaS is continuously working to improve the maximum time utilization of a crystal spot to reduce service costs and to spread the service intervals over time.



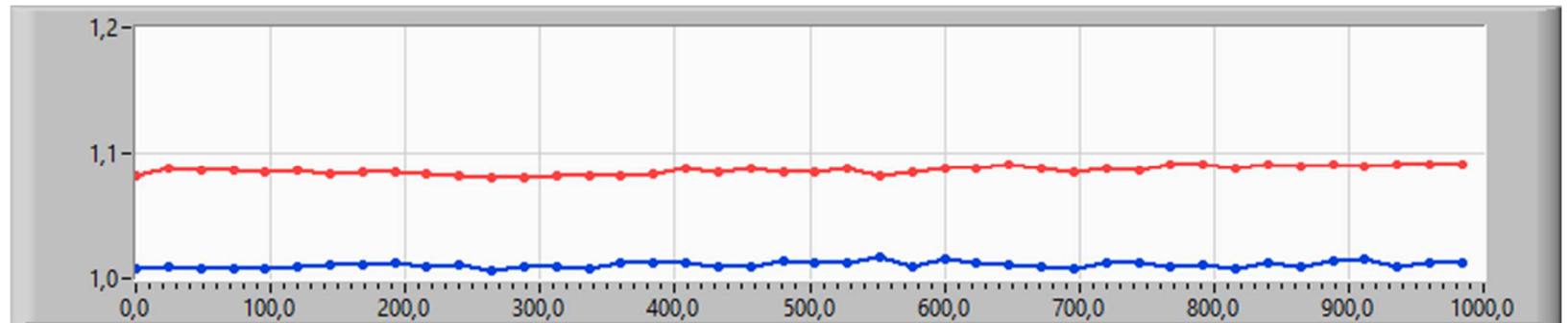
Spot #1

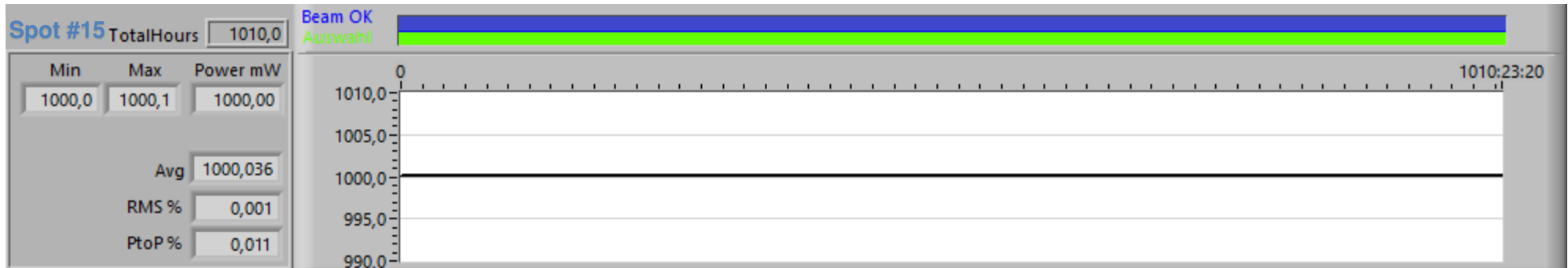
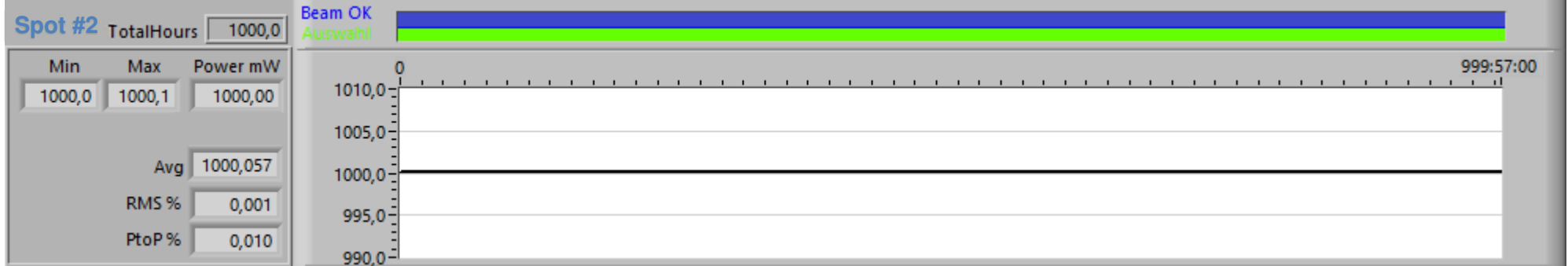
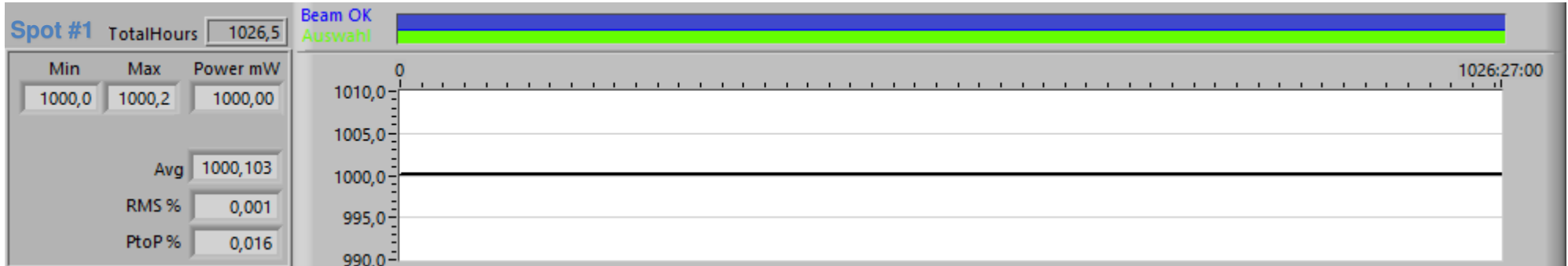


Spot #2



Spot #15





POWER PROFILE

The output power is continuously adjustable from 100 mW to 1,000 mW by the integrated attenuator and adjusts within a few seconds due to the high-speed control loop. The reserve is used to compensate degradation processes, which is an outstanding management in terms of the photo contamination. This feature is unique in this laser class.

