

Pulsed RGB LASER

The RGB series DATASHEET, June 2023



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The RGB-ALPHA series of VCSEL pumped master-oscillator based laser produce narrow spectrum at tens of nanosecond pulse duration at various repetition rates. The highly stable telescopic Electro-Optically Q-Switched cavity produces a smooth TEM00 spatial mode where FP etalon and self-seeding electronics assure narrow spectrum Single Longitudinal Mode (SLM) operation and excellent beam properties. Temperature stabilized, high efficiency harmonic crystals are used for red, green and blue light generation. A Piezo-driven active laser cavity stabilization assures stable SLM laser operation for long time.



Typical Laser Specifications^{*)}

Model	RGB-ALPHA		
Output Wavelength	660 nm	532 nm	440 nm
Output energy ¹	3.5 mJ	5 mJ	2.5 mJ
Pulse duration ²	~45 ns	~30 ns	~45 ns
Energy Stability (RMS) ³	< 2 %	< 2 %	< 3 %
Beam Divergence	Near Diffraction Limit for beam size		
Line width ⁴	SLM (~0.003 cm ⁻¹)		
Beam Profile	Fit to Gaussian		
Pulse Repetition Rate ⁵	30 / 60 / 100 / 120 Hz		
Beam Pointing	< 150 μrad		
Polarization	Horizontal or Vertical, > 98%		
Q-Switching Type	E-O		
Optical Pulse Jitter ⁶	≤ 10 ns		
Triggering mode	External / Internal		
Beam Diameter (1/e ²) ⁷	~ 5 ... 7 mm		
Laser Head (L x W x H)	942 x 535 x 217 mm		
Power Cabinet (L x W x H)	600 x 520 x 286 mm		
Mains Voltage ⁸	220 VAC (±10%), single phase 50/60 Hz		
Umbilical length	1.5 m		

**) Typical specifications are illustrative; they are indications of typical performance and will vary with each unit we manufacture. Due to continuous improvements all specifications are subject to change. Specifications are subject to be discussed with particular client.*

- 1) Other nonstandard wavelengths may be also available on request.*
- 2) FWHM level at harmonic wavelengths.*
- 3) Averaged from 60 seconds under stable (±0.5°) environmental conditions.*
- 4) Coherence length ≥1 m.*
- 5) Max. repetition rate is fixed at desired rate.*
- 6) In respect to external Q-switch triggering rising edge pulse.*
- 7) Beam diameter is measured at 50 cm distance from laser output.*
- 8) Laser can be powered from appropriate different mains on request.*

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Application

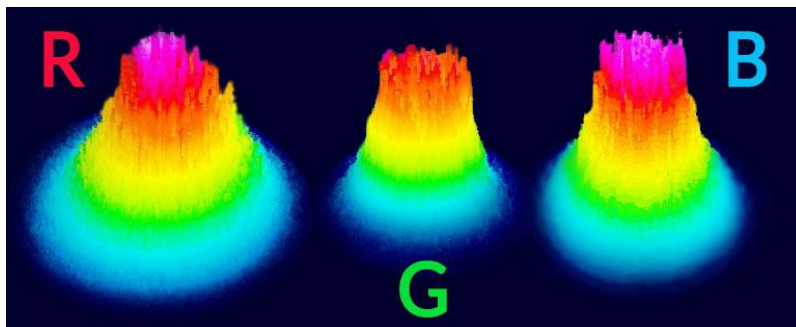
All task where smooth transversal and temporal beam shape, narrow spectrum (coherence length >1 m) and a few-mJ per channel energy level with separate or coinciding output beams (white light collinear output) is required.

- Digital or Analogue holography
- LCD and OLED display panel repair
- Plasma research

Features and Add-ons

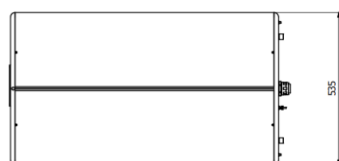
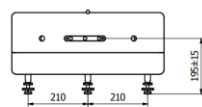
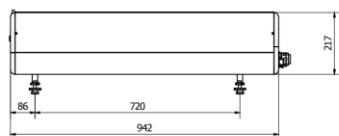
- Active cavity stabilization
- White-Light combiner (optional)
- Energy monitoring with statistics
- Beam attenuation in each RGB channel (optional).
- Square or round Top-Hat beams (optional).
- Customers inspired mode of operations: Energy accumulation mode and Pulse cut off Burst mode

Typical beam profile

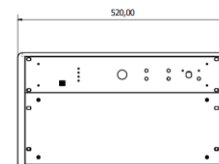
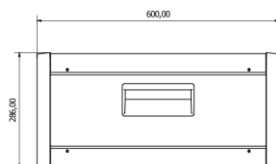


Dimensions

Laser head



Laser controller



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