

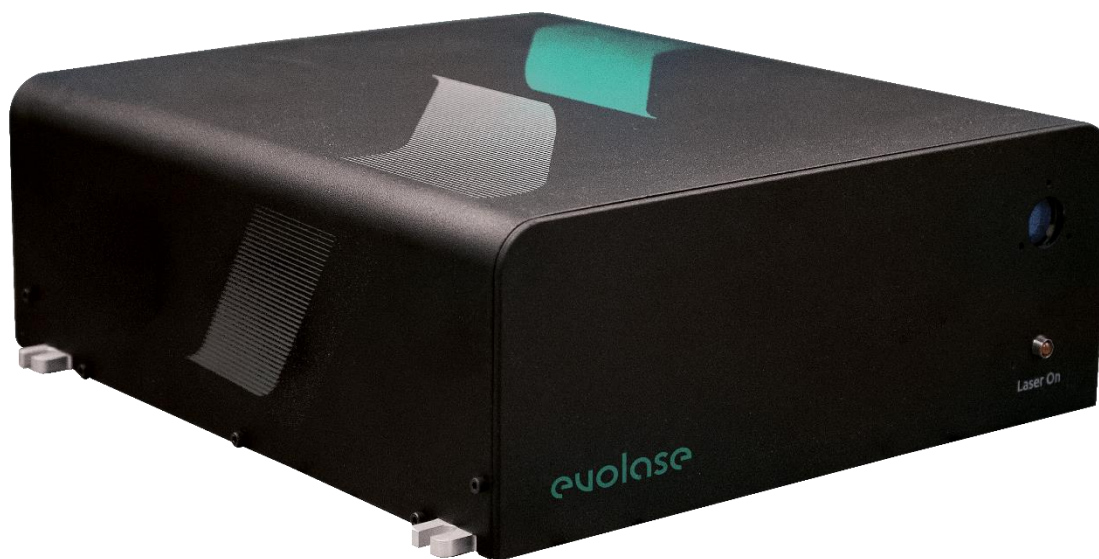
IGUL LASERS

Air cooling

IGUL-1064-50-10-20
IGUL-1064-50-10-60
IGUL-532-50-5-10
IGUL-532-50-5-30

Water cooling

IGUL-1064-50-100-60
IGUL-532-50-40-30
IGUL-355-50-15-12



Key Features

- Up to 100 W at 1064 nm
- Up to 40 W at 532 nm
- Up to 15 W at 355 nm
- 50 kHz–30 MHz repetition rate
- Up to 60 μ J pulse energy
- Pulse duration 50 ps
- Excellent beam quality $M^2 < 1.3$
- Monolithic, sealed and rugged design
- Air- and water-cooled models
- Low life-time ownership cost

Applications

- Inner volume marking of transparent materials
- Marking and structuring
- Micromachining of brittle materials
- Biological Imaging
- Pumping of femtosecond OPO/OPA
- Microscopy

Ordering information

IGUL – 1064/532/355 – 50 – 5/10/15/40/100 – 10/12/20/30/60

IGUL (Infrared-Green-Ultraviolet Laser) – "wavelength" – "pulse duration" – "maximum output power" – "maximum pulse energy"

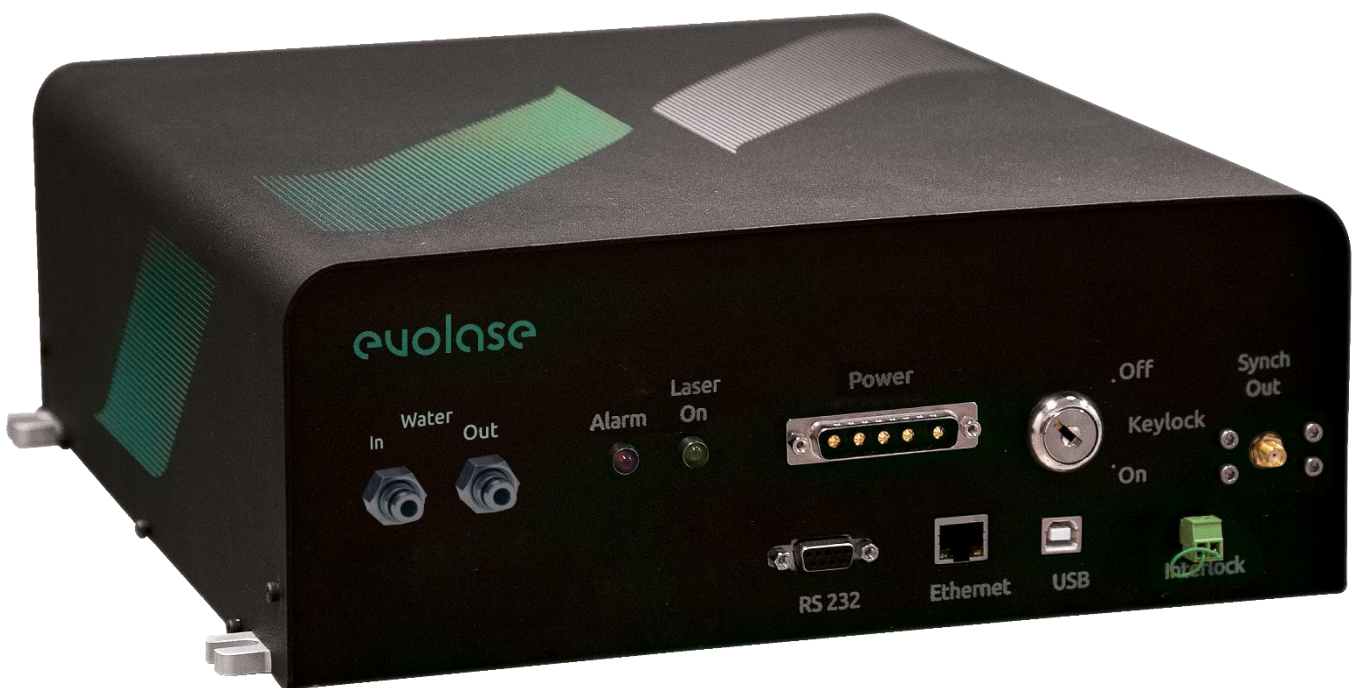
Example: IGUL-1064-50-10-20

wavelength: 1064 nm

pulse duration: 50 ps

maximum output power: 10 W

maximum pulse energy: 20 μ J

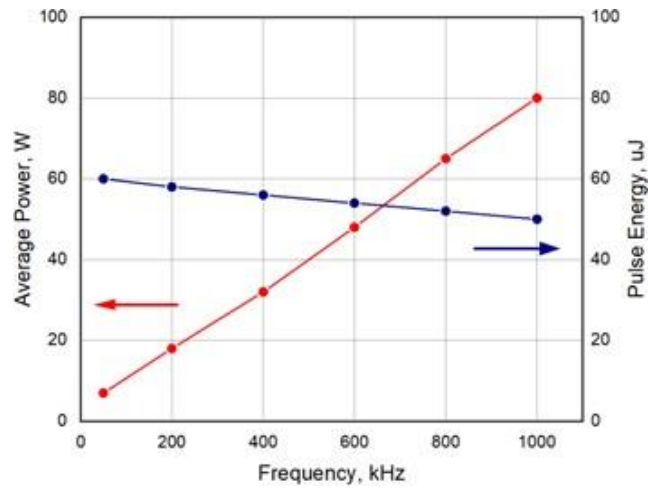


Specifications

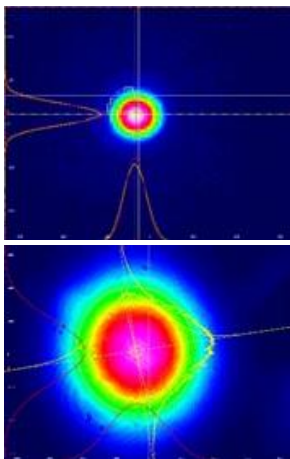
Model	IGUL-1064-50-10-20	IGUL-1064-50-10-60	IGUL-1064-50-100-60	IGUL-532-50-5-10	IGUL-532-50-5-30	IGUL-532-50-40-30	IGUL-355-50-15-12
MAIN SPECIFICATIONS							
Central wavelength	1064±1 nm			532±1 nm		355 ± 1 nm	
Laser pulse repetition rate (PRR) range	50 kHz–30 MHz						
Maximal average output power (1064 nm)	>10W	>10W	>100W	-	-	-	-
Maximal average output power (532 nm)	-	-	-	> 5W	> 5W	> 40W	-
Maximal average output power (355 nm)	-	-	-	-	-	-	> 15W
Pulse energy at lowest PRR (1064 nm)	20µJ	60µJ	60µJ	-	-	-	-
Pulse energy at lowest PRR (532 nm)	-	-	-	10µJ	30µJ	30µJ	-
Pulse energy at lowest PRR (355 nm)	-	-	-	-	-	-	12µJ
Power long term stability over 8 h after warm-up (Std.dev.)	<1.0 %						
Pulse duration (FWHM) at 1064 nm	50±5 ps						
M ² parameter	<1.3						
Polarization (PER)	>15dB						
Beam circularity, far field	>0.85						
Beam divergence, full angle	<3mRad						
Astigmatism	<0.1						
Beam pointing stability (pk-to-pk)	<70µRad						
Beam diameter (1/e ²) at 50 cm distance from laser aperture	1±0.2 mm						
Control interfaces	RS232, LAN, USB, external TTL triggering, TTL signal output synchronized with optical pulse						
OPERATING REQUIREMENTS							
Mains requirements*	24 VDC	24 VDC	24 VDC; 36 VDC	24 VDC	24 VDC	24 VDC; 36 VDC	24 VDC; 36 VDC
Maximal power consumption	100W	110W	400W	170W	180W	400W	400W
Chiller power consumption	Not required	Not required	300W	Not required	Not required	300W	300W
Operating ambient temperature	18–27°C						
Relative humidity	10–80 % (non-condensing)						
Air contamination level	ISO 9 (room air) or better						
PHYSICAL CHARACTERISTICS							
Cooling	Air	Air	Water	Air	Air	Water	Water
Laser size (W×H×L)	345×330×121 mm						535x304x121 mm
CLASSIFICATION							
Classification according EN60825-1	CLASS 4 laser product						

*Can be powered by 220V 50Hz when using the optional "IGUL Power Supply"

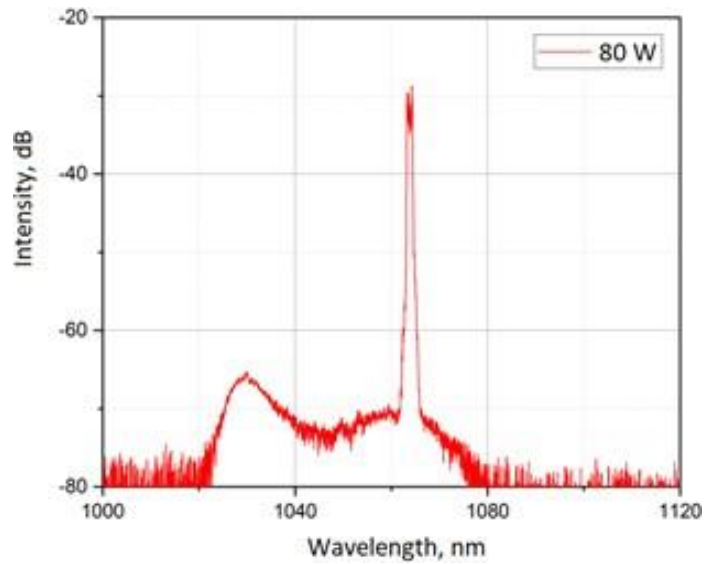
Performance



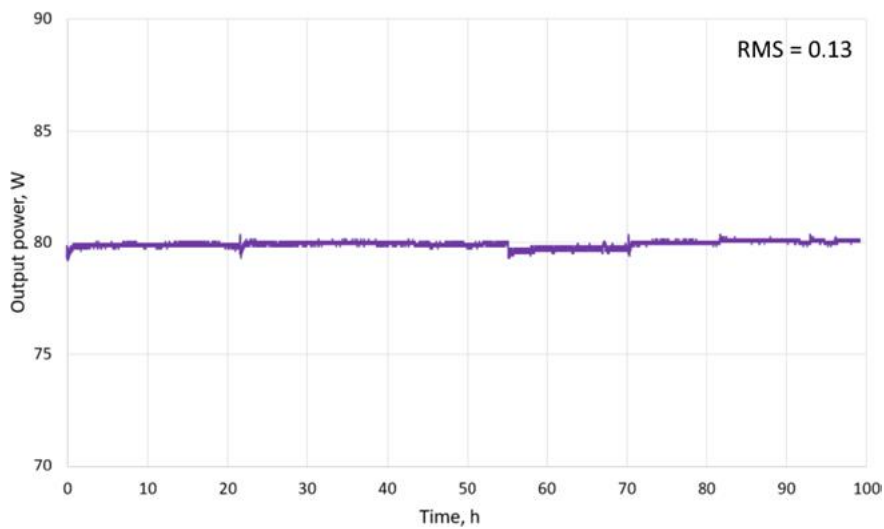
Average power and pulse energy versus frequency at a wavelength of 1064 nm



Typical beam profile at 1064 nm at maximum average power

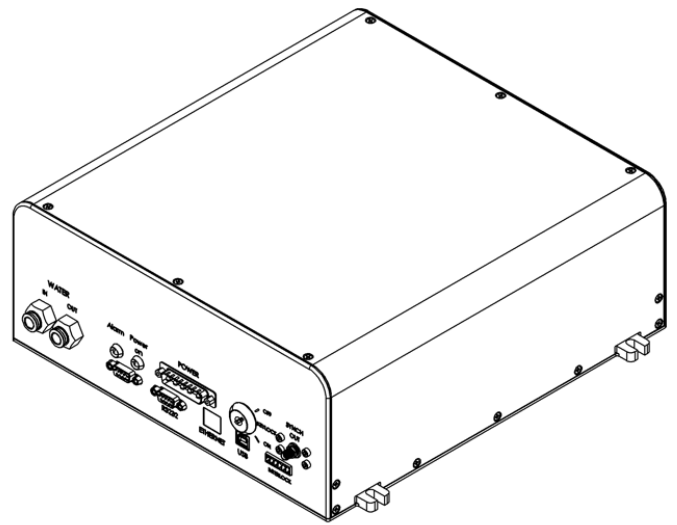
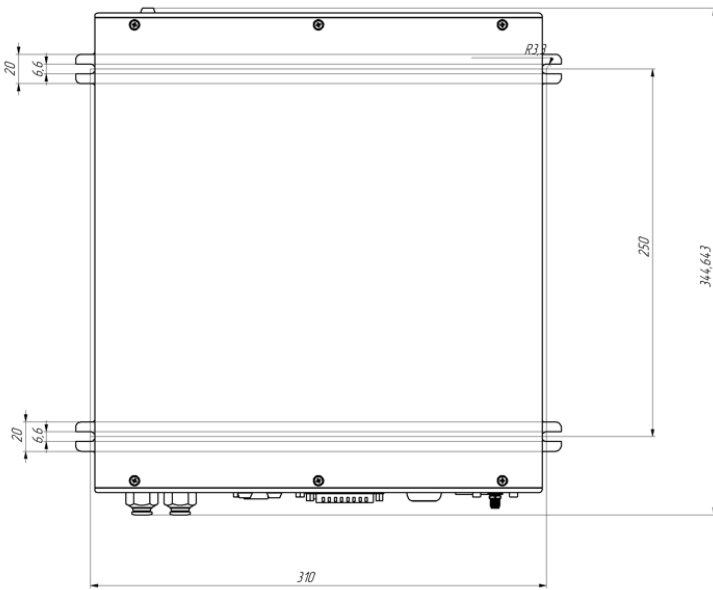
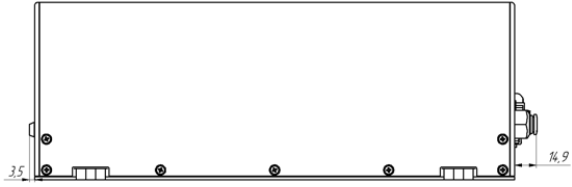
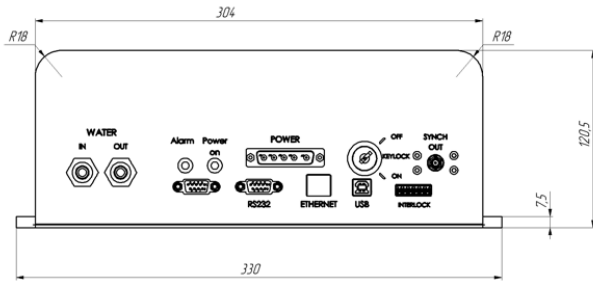


Spectrum at maximum average power at 1064 nm



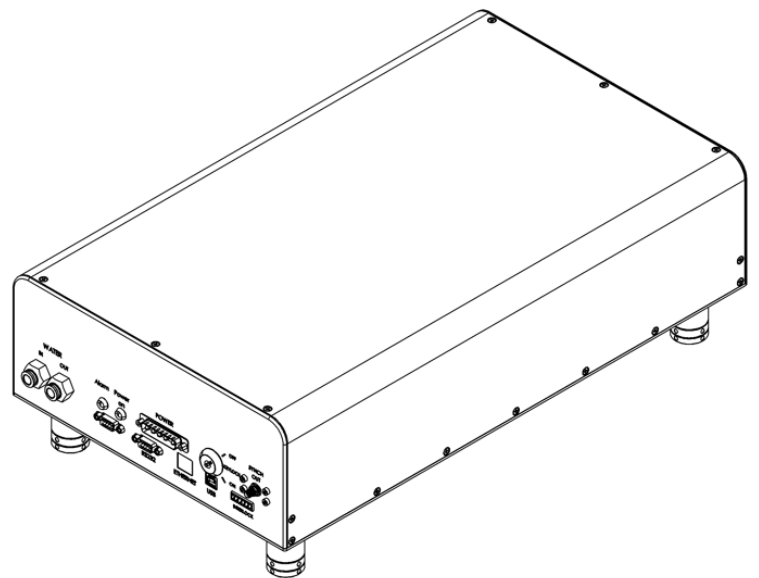
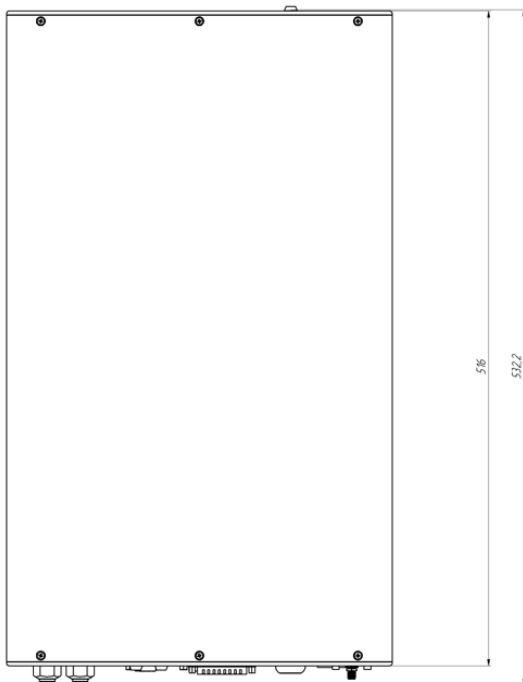
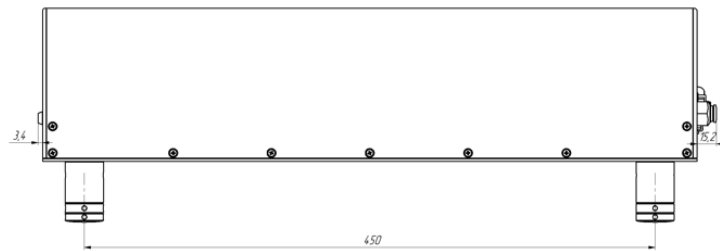
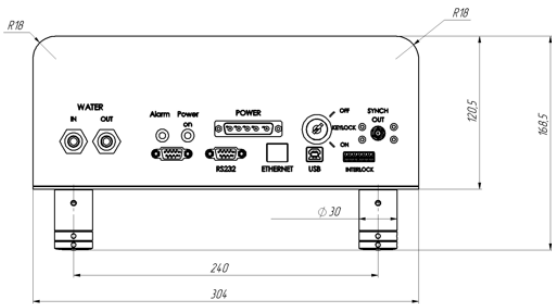
Average output power versus time at a wavelength of 1064 nm (RMS = 0.13)

Drawings



IGUL-1064 and IGUL-532 series laser dimensions

Drawings



IGUL-355 series laser dimensions