

Ampheia™ - LS Series

Ultra-Low Noise | Single Frequency | Fiber Laser Systems



- Up to 50 W at 1064 nm and up to 5 W at 532 nm
- Continuous wave, single-frequency emission
- Ultra-low relative intensity noise and perfect beam quality
- Single-stage fiber amplifier with integrated seed laser
- Optical signal to noise ratio (OSNR > 70 dB)
- Robust and maintenance free

The [Ampheia™ - LS Series](#) is a family of high-power fiber laser systems, delivering ultra-low relative intensity noise (RIN) and single-frequency operation with up to 50 W of power at 1064 nm and 5 W at 532 nm in a perfect beam.

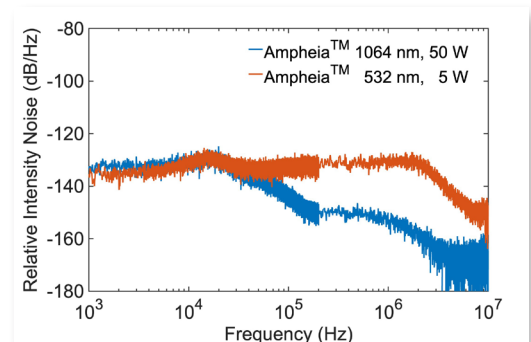
Ampheia™ - LS Series is delivered with an integrated seed laser and beam delivery head. A complete laser system that is affordable, with outstanding laser performance.

Based on established manufacturing processes, the Ampheia™ - LS Series guarantees a high level of reliability, ideal for stand-alone use in research labs or integration into a commercial system. The Ampheia™ - LS Series addresses applications ranging from atom trapping and optical tweezers in quantum applications to coherent laser pumping, particle analysis, and semiconductor inspection.

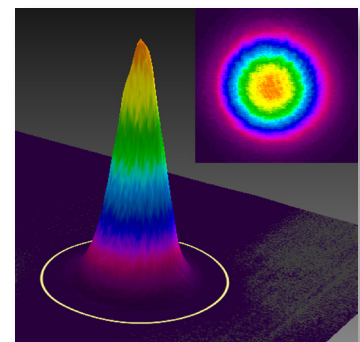
Applications

Optical Tweezers
Optical Levitation
Cell Trapping, Sorting, and Manipulation
Quantum Gas Microscopy
NV-Center Magnometry
Quantum Optomechanical Sensing
Raman Spectroscopy and Microscopy
Holography
Semiconductor Inspection and Defect Detection
Particle and Flow Analysis
Coherent Pump Source for OPO/SHG

Typical Relative Intensity Noise (RIN)



Typical TEM₀₀ Beam Profile



HÜBNER Photonics



Ampheia™ - LS Series

Optical Specifications

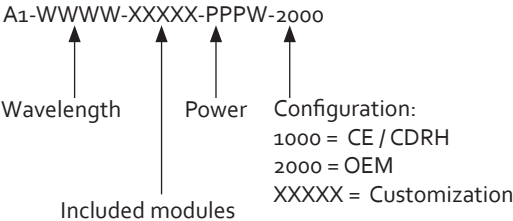
		Ampheia™ - LS			
Wavelength in air		532.1 ± 0.3 nm	1064.2 ± 0.6 nm		
Available Power Levels		5 W	20 W	40 W	50 W
Output power range		1 % to 100 %	5 % to 100 %	2.5 % to 100 %	2 % to 100 %
Spectral linewidth (FWHM, 1 ms)		< 100 kHz	< 50 kHz		
Optical signal to noise ratio (OSNR)		> 70 dB			
Wavelength stability (±2°C and 8hrs)		< 1 pm			
Power stability (±2°C and 8hrs)		< 1.0 %	< 0.5 %		
Noise, 100 Hz - 10 MHz (rms)		< 0.1 %	< 0.05 %		
Relative intensity noise (RIN)	1 kHz - 100 kHz	< -125 dB/Hz	< -130 dB/Hz		
	100 kHz - 1 MHz	< -130 dB/Hz	< -140 dB/Hz		
Beam diameter at aperture*		1.0 ± 0.2 mm			
Beam symmetry at aperture		> 0.90:1			
Spatial mode (TEM ₀₀)		M ² < 1.05			
Beam divergence (full angle)		< 0.9 mrad	< 1.7 mrad		
Polarization extinction ratio (linear, vertical)		> 1000:1 [> 30 dB]			
Beam position accuracy (mm)		< 0.5			
Beam angle accuracy (mrad)		< 5			
Delivery fiber cable length		1.0 m			

*The beam diameter may vary with output power and can only be guaranteed at nominal power.

Operational Enviromental Specifications

Standard power supply	36 VDC, 10 A
Voltage acceptance	36 V
System power consumption	300 W
Maximum delivery head heat dissipation	5 W
Ambient temperature, operation	18 - 30 °C
Maximum baseplate temperature	40 °C
Laser head heat sink thermal impedance (at max ambient temperature)	< 2 K/W
Ambient temperature, storage	-10 -> +60 °C
Intended use environment	Laboratory (indoor), pollution degree 2
Humidity	0- 60 % RH non-condensing
Altitude	0-2000 m
Ambient Air pressure	800 - 1050 mbar
Overvoltage category	II

Model Number



Communication Interface

Communication	USB and RS-232
Standard Baudrate	115200



WARNING VISIBLE AND INVISIBLE LASER RADIATION!

Avoid eye or skin exposure to direct or scattered radiation.
Class 4 Laser Product
Classified per IEC 60825-1:2014

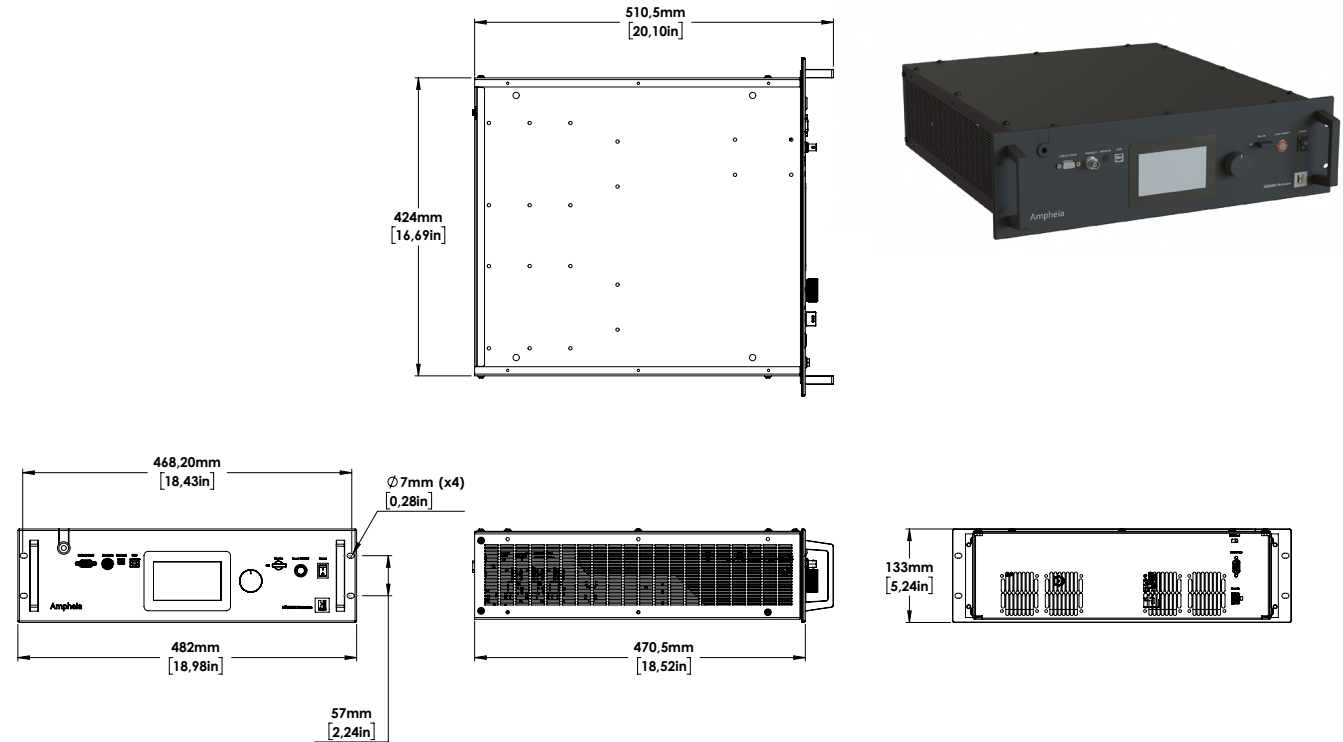
Wvl (nm)	Max.Pwr (W)
532	20
1064	200

Ampheia™ - LS Series

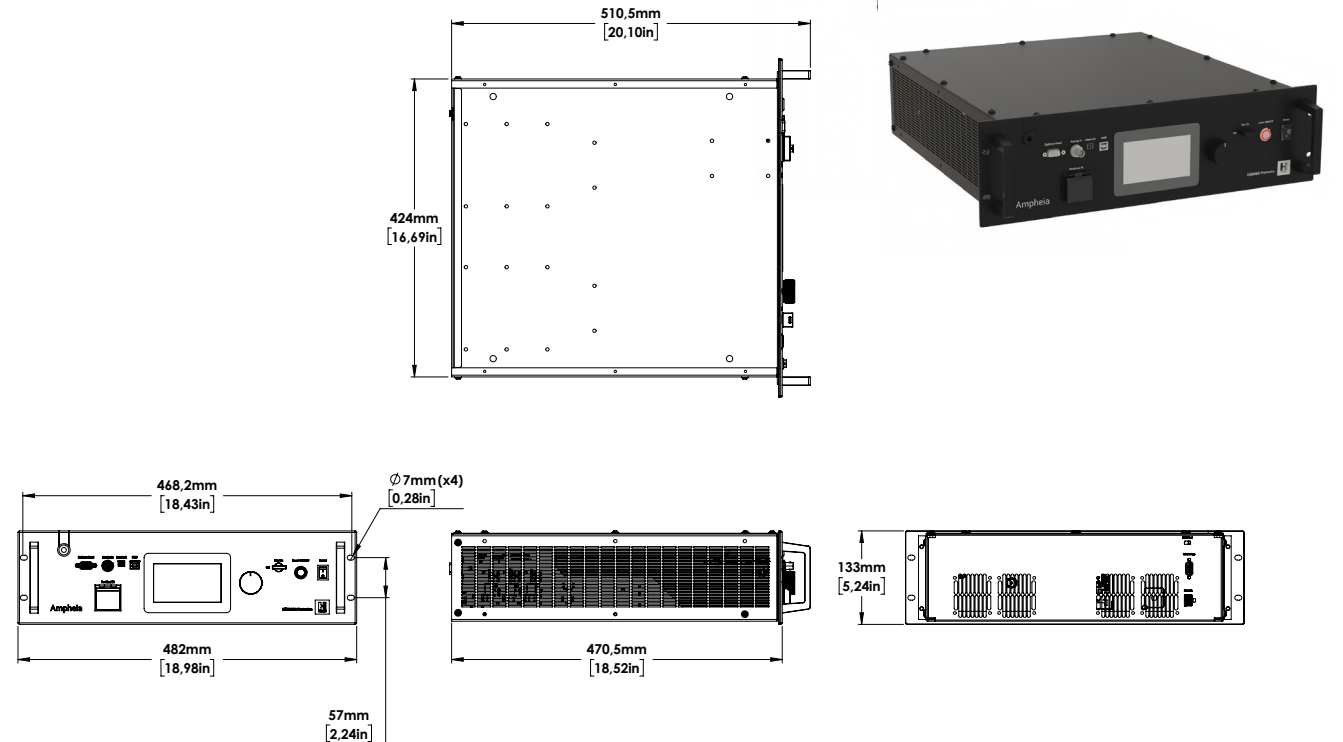
Mechanical Specifications

	Ampheia™ - LS	
	532 nm	1064 nm
Fiber amplifier chassis weight	19 kg (41 lbs.)	18 kg (39 lbs.)
Fiber amplifier chassis dimensions (LxWxH)	470.5 × 423 × 133 mm (18.52 × 16.65 × 5.24 in.)	
Delivery head weight	0.62 kg (1.37 lbs.)	0.76 kg (1.68 lbs.)
Delivery head dimensions (LxWxH)	155 × 55 × 45 mm (6.10×2.17×0.87 in.)	

Ampheia™ - LS 1064 nm - Fiber amplifier chassis dimensions:



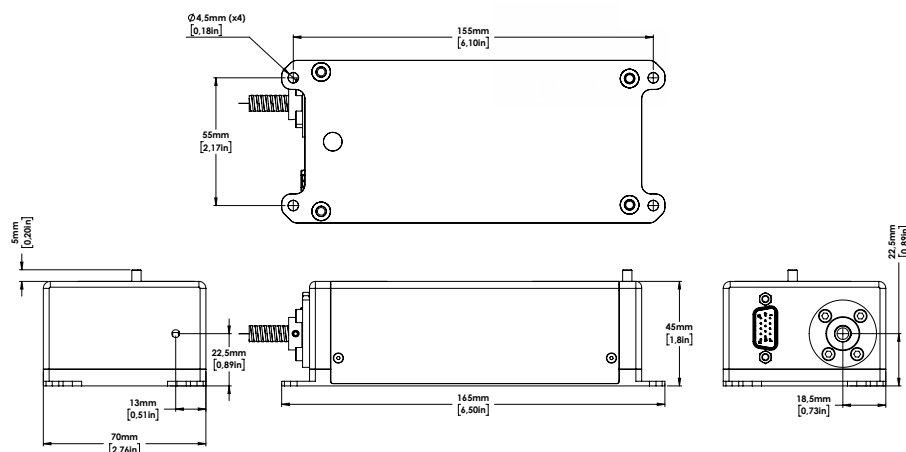
Ampheia™ - LS 532 nm - Fiber amplifier chassis dimensions:



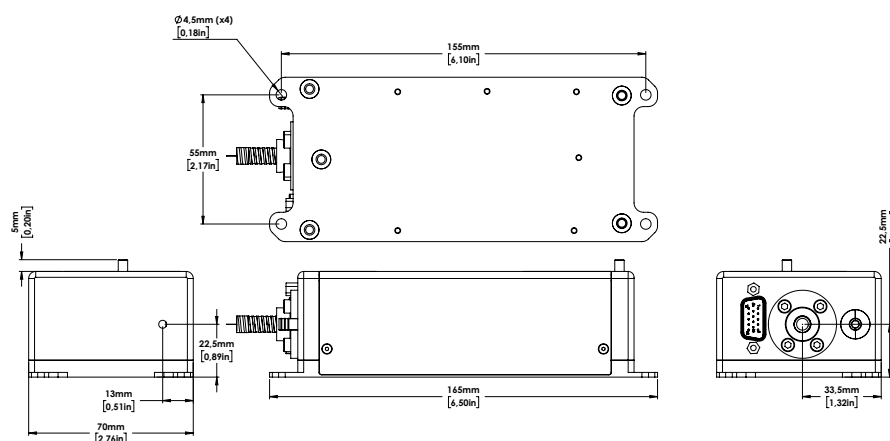
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Mechanical Specifications

Ampheia™ - LS 1064 nm : Delivery head dimensions



Ampheia™ - LS 532 nm : Delivery head dimensions



Find more info
Ampheia™-LS Series



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