

Ampheia™

Ultra-Low Noise | Single frequency | Fiber Amplifier



Applications

- Atom Trapping
- Particle Analysis
- Optical Metrology
- Laser Interferometry
- Frequency Conversion
- Quantum Sensing

Features

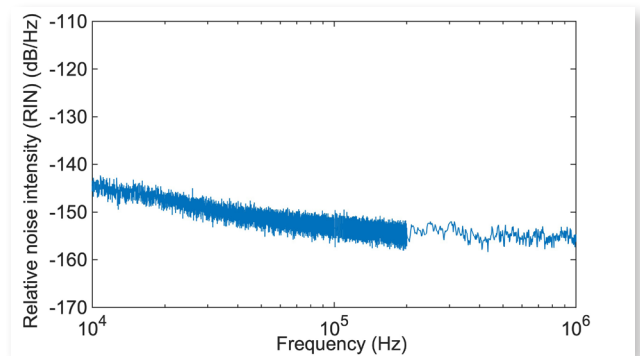
- Up to 50 W, CW, single-frequency emission
- Ultra-low noise and perfect beam quality
- Single-stage fiber amplifier with integrated seed laser
- Signal to noise ratio (OSNR > 60 dB)
- Robust and maintenance free
- Easy installation and user-friendly interface

The Ampheia™ Series is a family of high-power fiber amplifiers, which with a pinnacle of perfection seamlessly boosting ultra-low relative intensity noise (RIN) and single-frequency operation while delivering 20 W, 40 W, and 50 W at 1064 nm in a perfect beam.

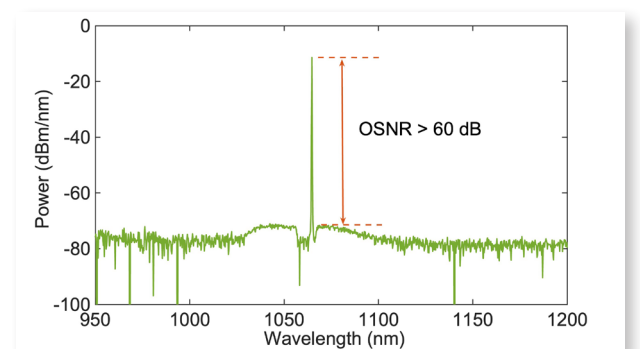
Ampheia™ is a single-stage fiber amplifier built around an internal seed laser and presents affordable, outstanding laser performance tailored for quantum applications. Offered in a 19 inch 3U rack case, this amplifier offers excellent robustness.

With single-frequency precision, the fiber amplifier offers a long coherence length. Thoroughly designed and manufactured, Ampheia™ Series of fiber amplifiers guarantee a high level of reliability, making them ideal for stand-alone use or seamless integration as an OEM component. It caters to a spectrum of applications ranging from atomic trapping, optical metrology, laser interferometry, frequency conversion to quantum sensing.

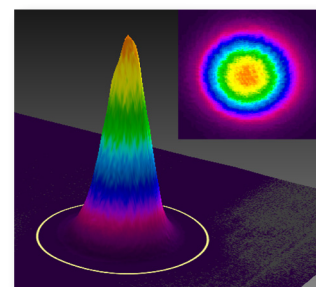
Typical Relative Intensity Noise (RIN)



Typical Optical Signal to Noise Ratio (OSNR)



Typical TEM₀₀ Beam



HÜBNER Photonics



Optical Specifications

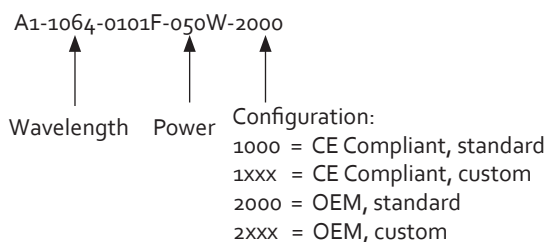
	Ampheia™		
Wavelength	1064.2 ±0.6 nm		
Output power after integrated isolator	20 W	40 W	50 W
Operation mode	Continuous wave		
Spectral linewidth (FWHM)	< 30 kHz		
Coherence length	> 1 km		
Polarization extinction ratio (PER) (Vertiacally polarized)	> 30 dB		
Beam quality (M ²)	< 1.1	< 1.15	< 1.2
Spatial mode	TEM ₀₀		
Nominal beam diameter at 1/e ²	1± 0.1 mm		
Noise [100 Hz- 10 MHz]	< 0.05 % RMS		
Relative intensity noise (RIN) [10 kHz- 1 MHz]	< - 145 dB/Hz		
Optical signal to noise ratio (OSNR)	> 60 dB		
Output power tunability	5 to 100 %		
Fiber delivery cable length	2 m	1.2 m	1.0 m

Electrical/Meachanical/Operational Enviromental Specifications

Fiber amplifier rack weight	14.3 kg (31.5 lbs.)
Fiber amplifier rack dimensions (LxWxH)	470.5x423x133 mm (18.52x16.65x5.24 in.)
Laser head weight	0.56 kg (1.23 lbs.)
Laser head dimensions (LxWxH)	155x55x45 mm (6.10x2.17x0.87 in.)
Intended use environment	Laboratory (indoor)
Ambient temperature, operation	18 - 30 °C (Air-cooled)
Ambient temperature, storage	-10 to +60 °C
Humidity	0 - 60 % RH non-condensing
Laser head heat sink thermal impedance (at 30°C ambient)	< 2 K/W
System power consumption	< 300 W
Maximum heat dissipation of laser Head	< 2 W ¹

1. With emergency shutter 50W closed, under less than 60s.

Model Number



Communication Interface

Communication	USB or RS-232
Standard Baudrate	115200



WARNING
 VISIBLE OR INVISIBLE
 LASER RADIATION
 Avoid Exposure to beam
 Class 4 Laser Product
 Classified per
 IEC 60825-1:2014



Wvl (nm) Max.Pwr (W)
 1064 50

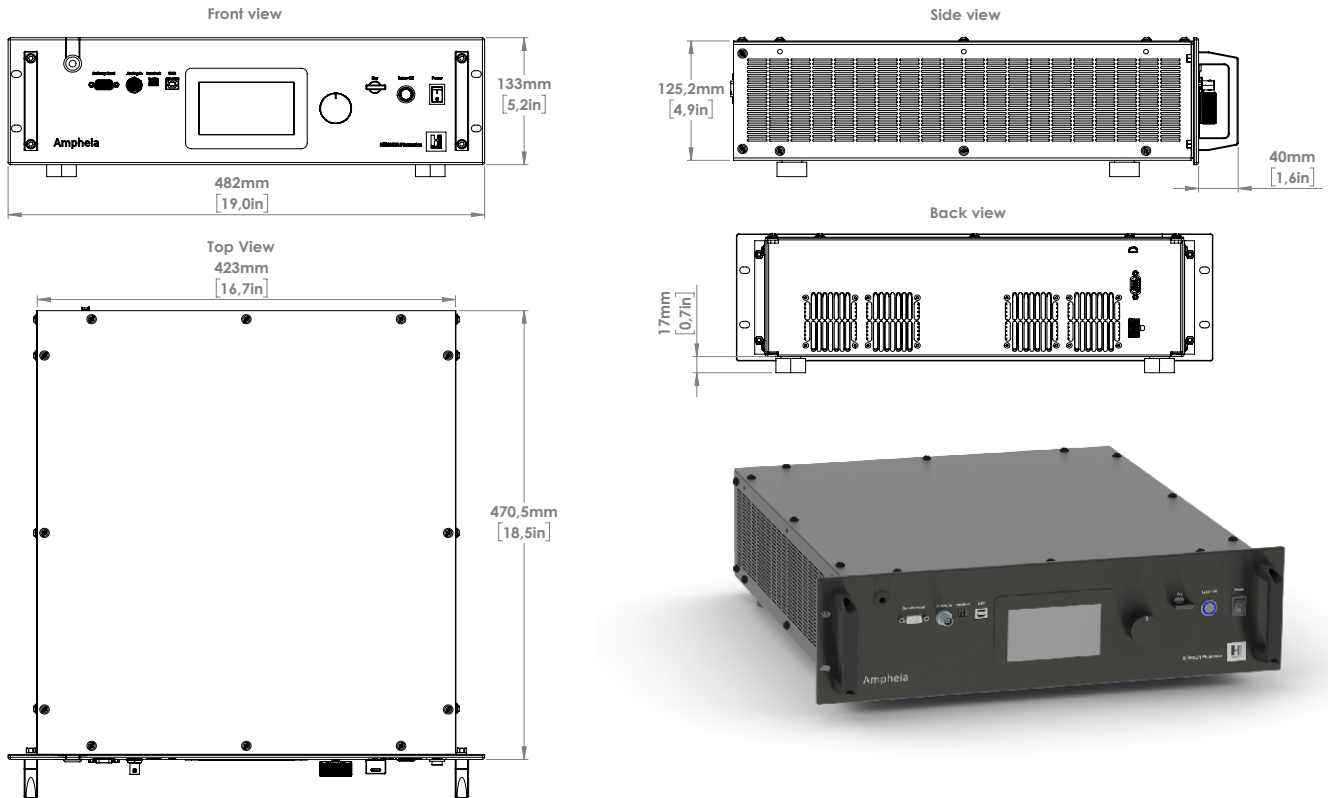


This device is
 sensitive to
 Electrostatic
 Discharge
 (ESD).

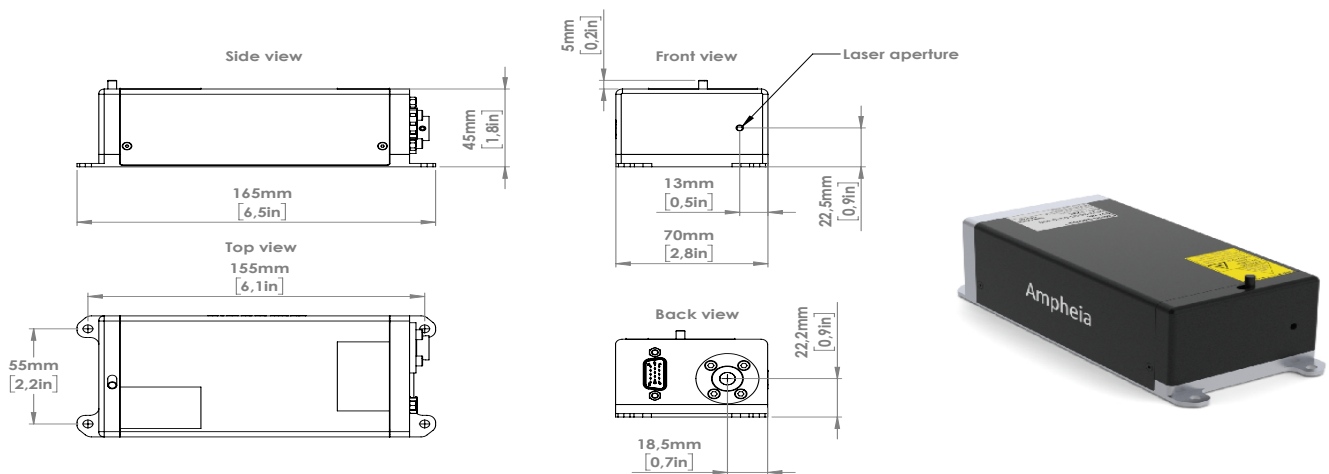
Ampheia™

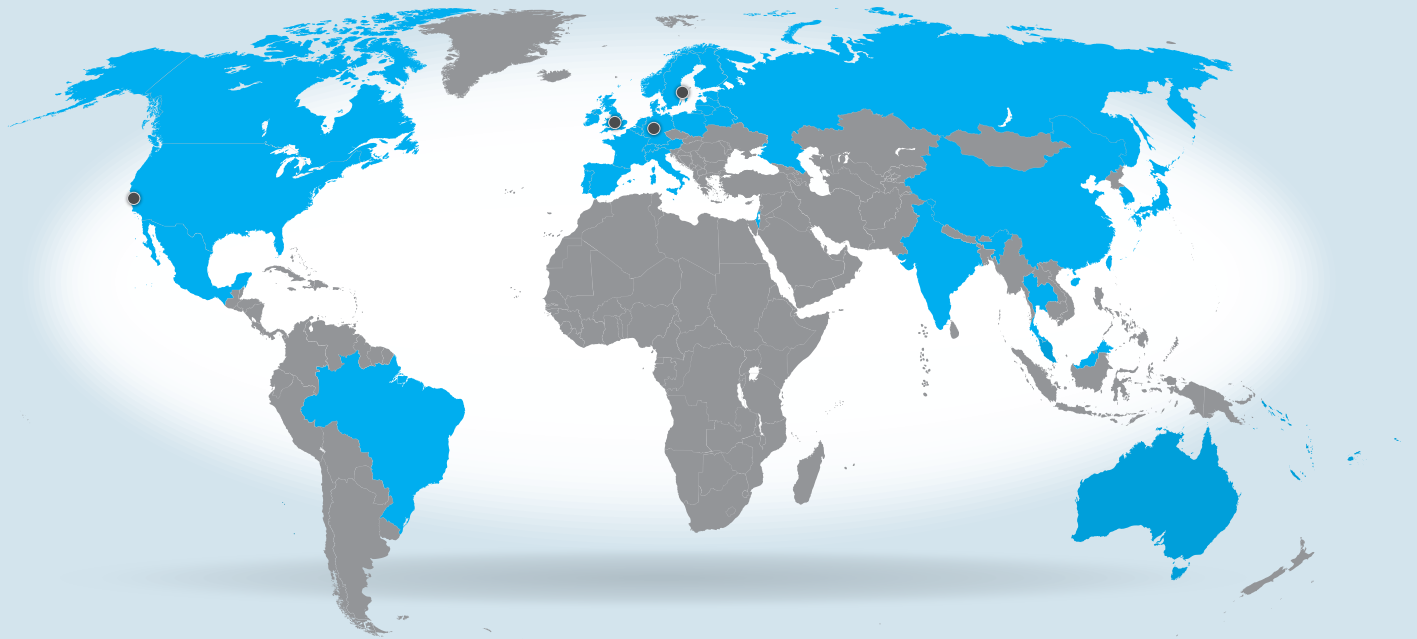
Mechanical Specifications

Fiber Amplifier Rack dimensions



Laser head dimensions





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