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UpTek Solutions Corp.

Phidia

Ti: Sapphire Ultrafast Laser Amplifier

FEATURES

- Single-box amplifier
- Industrial grade seeders
- Field-proven pump laser modules
- High reliability and stability
- Super beam quality and pointing
- Series with operating repetition of 1 kHz, 10 kHz and 100 kHz
- Output power up to 7 W
- Option to any external seeders and pump lasers

APPLICATIONS

- Time resolved spectroscopy
- Pump probe
- Harmonics generation
- Optical parametric amplification (OPA)
- Precision micromachining
- Material processing

The Phidia is a one-box Ti:sapphire ultrafast amplifier with a seed laser, pump laser and amplifiers integrated inside one single enclosure. It features an industrial-grade, maintenance-free PM-fiber oscillator as a seeder as well as field-proven Q-switch pump lasers, resulting in excellent reliability for day-to-day operations.
The Phidia is capable of operating at variable repetition-rate up to 150 kHz and delivers pulse duration from <35 fs to 2 ps with output power up to more than 7 W.
The Phidia is a robust, reliable ultrafast amplifier offering the widest range of operation repetition-rate. It is an ideal ultrafast tool for scientific and industrial applications such as OPA pumping, time resolved spectroscopy, material processing, precision micromachining, etc.

- Phidia-1 series offer up to 4 W or 7 W output, capable of operating from 1 kHz to 3 kHz repetition rate due to diode pumped, second harmonic Nd:YLF pump laser (Lucia).
- Phidia-10 series are regenerative amplifiers pumped by a field-proven second harmonic Nd:YAG laser delivering up to 2 W output at 10 kHz operating repetition rate.
- Phidia-100 series features a diode-pumped Nd:YVO4 laser as a pump source and is capable of operating at 50-150 kHz with an output of up to 1.5 W femtosecond pulses.

	Phidia-1-FS / HFS	Phidia-1-SP / HSP	Phidia-1-PS [1]
Pulse Width (FWHM)	<120 fs	<35 fs	<2 ps
Output Power	>4 W / 7 W	>4 W/ >6 W	>4 W
Repetition Rate	Up to 3 KHz	Up to 3 KHz	Up to 3 KHz
Center Wavelength	790 ± 10 nm	800 ± 10 nm	800 ± 10 nm
Spatial Mode	M^2 <1.3 (TEM_{00})	M^2 <1.3 (TEM_{00})	M^2 <1.3 (TEM_{00})
Energy Stability	<0.5% RMS	<0.5% RMS	<0.5% RMS
Contrast Ratio	>1000:1 pre pulse >150:1 post pulse	>1000:1 pre pulse >150:1 post pulse	>1000:1 pre pulse >100:1 post pulse
Beam Pointing Stability	<20 μrad/ºC	<20 μrad/ºC	<20 μrad/ºC
Beam Size ($1/e^2$)	6/10 mm	6/10 mm	6 mm
Polarization	Linear, Horizontal	Linear, Horizontal	Linear, Horizontal

1. SP/HSP features an external femtosecond oscillator Aria-Ti for flexible application.

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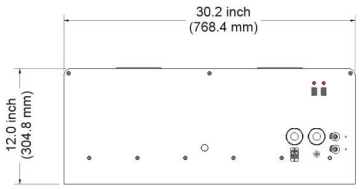
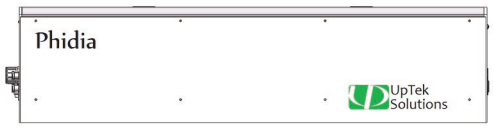
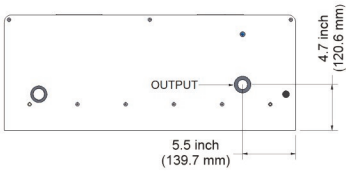
	Phidia-10-FS / HFS	Phidia-10-SP / HSP [1]	Phidia-10-PS [1]
Pulse Width (FWHM)	<120 fs	<40 fs	<2 ps
Output Power	1.0W / 2.0W	1.0W / 2.0W	1.0 W
Repetition Rate	Up to 10 KHz	Up to 10 KHz	Up to 10KHz
Center Wavelength	790 ± 10 nm	800 ± 10 nm	800 ± 10 nm
Spatial Mode	M^2 <1.3 (TEM_{00})	M^2 <1.3 (TEM_{00})	M^2 <1.4 (TEM_{00})
Energy Stability	<0.75% RMS	<0.75% RMS	<0.75% RMS
Contrast Ratio	>1000:1 pre pulse >150:1 post pulse	>1000:1 pre pulse >150:1 post pulse	>1000:1 pre pulse >100:1 post pulse
Beam Pointing Stability	<20 μrad/ºC	<20 μrad/ºC	<20 μrad/ºC
Beam Size ($1/e^2$)	~ 6 mm	~ 6 mm	~ 6 mm
Polarization	Linear, Horizontal	Linear, Horizontal	Linear, Horizontal

	Phidia-100-FS / HFS	Phidia-100-SP / HSP [1]
Pulse Width (FWHM)	<120 fs	<50 fs
Average Power	1.0W / 1.5W	1.0W / 1.5 W
Repetition Rate	50-150 KHz	50-150 KHz
Center Wavelength	790 ± 10 nm	800 ± 10 nm
Spatial Mode	M^2 <1.4 (TEM_{00})	M^2 <1.4 (TEM_{00})
Energy Stability	<0.75% RMS	<0.75% RMS
Contrast Ratio	>1000:1 pre pulse >100:1 post pulse	>1000:1 pre pulse >100:1 post pulse
Beam Pointing Stability	<20 μrad/ºC	<20 μrad/ºC
Beam Size ($1/e^2$)	~ 4 mm	~ 4 mm
Polarization	Linear, Horizontal	Linear, Horizontal







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