NKT Photonics

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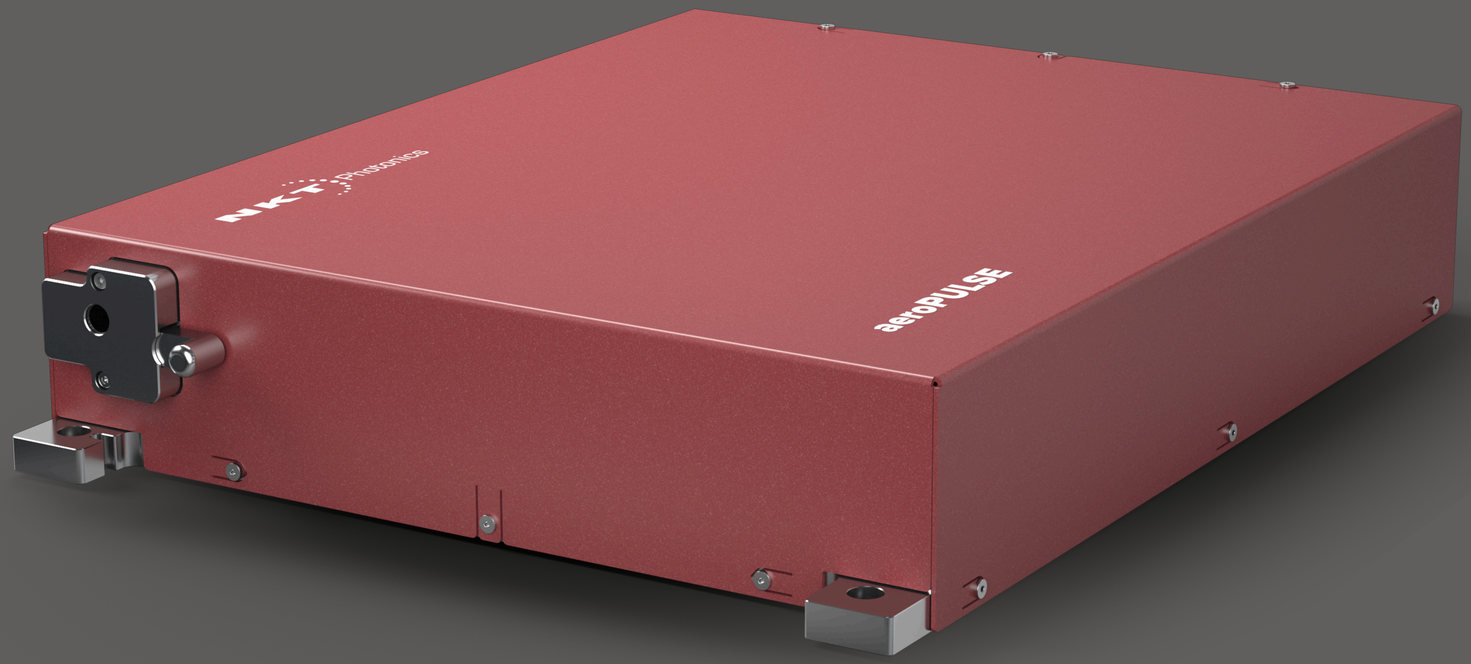


aeroPULSE PS

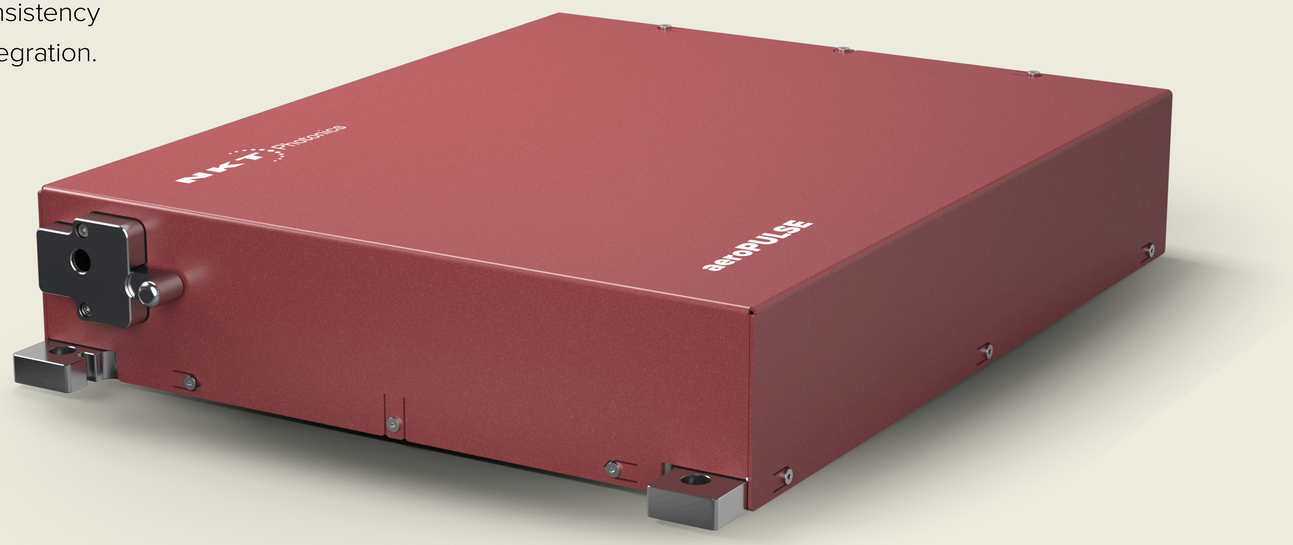
High power picosecond fiber laser platform

Compact and rugged OEM fiber laser

High-power industrial-grade picosecond fiber laser

The aeroPULSE PS series is an industrial-grade picosecond fiber laser platform based on our world-leading photonic crystal fiber platform.

Developed for demanding 24/7 OEM applications, the aeroPULSE PS series deliver a high unit-to-unit consistency and uptime, low cost of ownership, and ease of integration.



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Applications

Laser direct imaging

Material processing

Semiconductor inspection

Harmonic conversion

Raman SRS imaging

OPO pumping

Supercontinuum generation

Quantum qubit manipulation

Reliable

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High-performance flexible picosecond laser platform
These rugged and compact OEM fiber lasers use state-of-the-art mode-locking technology to deliver ultra-short picosecond pulses with outstanding long-term stability.

The aeroPULSE PS series is a flexible laser platform that allows customization of pulse width, repetition rate, center wavelength, and spectral linewidth[1]. It provides market-leading narrow linewidth, essential for applications such as higher harmonic generation.

By virtue of its highly reliable fiber-based design, the aeroPULSE PS delivers excellent TEMoo mode quality with low noise performance typically required for critical applications such as semiconductor inspection.

Dual or triple switchable wavelength output
The aeroPULSE PS can be fitted with a second harmonic generator (SHG) or a third harmonic generator (THG) to further extend the operating wavelength range.

[1] Certain combinations of specifications can be subject to restriction.

Maintenance-free and OEM-ready
The aeroPULSE PS series offers high stability with 24/7 operation and is ideal for maintenance-free OEM integration.

The system configuration consists of a 19” rack-mountable control unit and a very low profile laser head that can be mounted either horizontally or vertically. The complete system can be air-cooled for low output power performance or water-cooled for high output power performance

Features
Average power up to 40 W
Custom IR wavelengths from 1024 nm-1064 nm
Custom pulse duration from 2 ps-100 ps
Custom repetition rates from 10-400 MHz
Optional pulse picker 200 kHz-50 MHz
Optional narrow linewidth
Optional ±0.7 nm wavelength tuning option
Optional Green & UV extension
Excellent beam pointing stability
System monitoring via remote diagnostics
No warm-up time
Compact and rugged OEM design
Low cost of ownership
Maintenance-free 24/7 operation

Support and warranty

The product is covered by a comprehensive warranty. Service options are available.

For details, please enquire. All aeroPULSE lasers are completely maintenance-free and have an expected lifetime of more than 20,000 hours.

Performance

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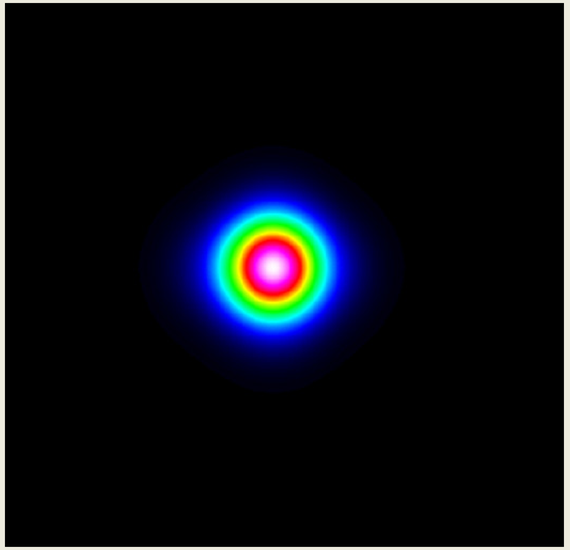
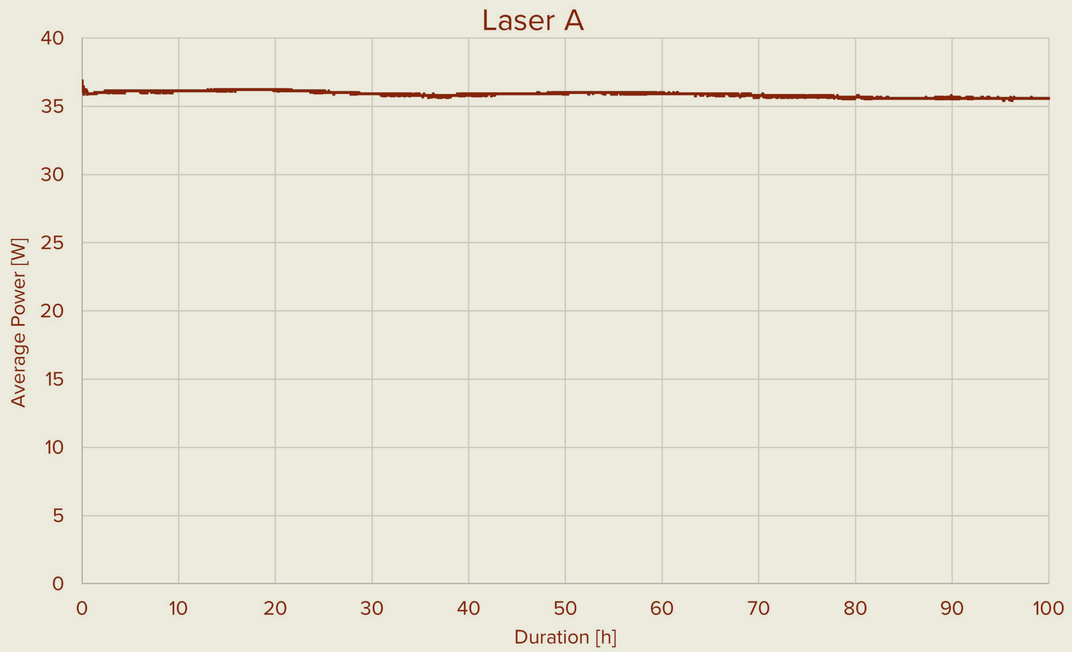
Beam quality



Power



Performance

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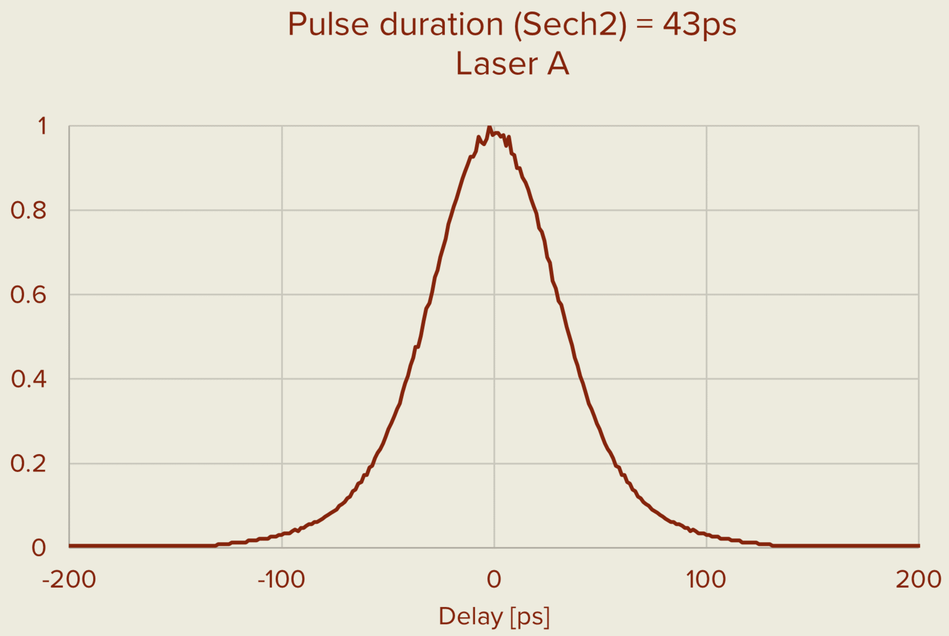
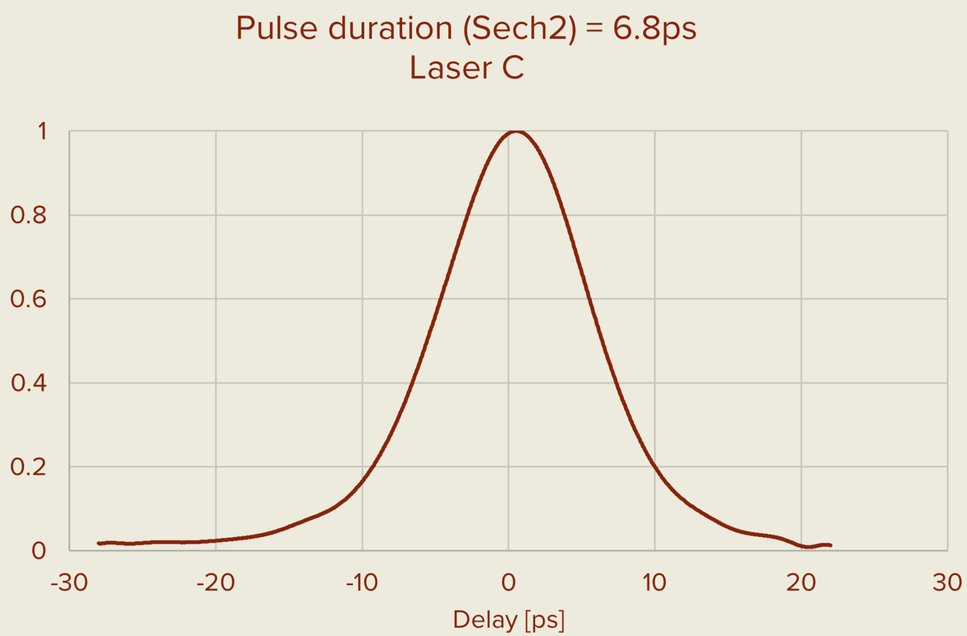
Pulse duration





Specifications

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Example optical specifications (please enquire about your requirements)

	Laser A	Laser B	Laser C	Laser D
Center wavelength [nm]	1064	1024	532	355
Power [W]	> 35	> 22	> 12	> 1
Pulse duration [ps]	< 48	< 43	< 7	< 7
Pulse energy [µJ]	> 1.4	> 0.44	> 0.25	> 0.12
Operational repetition rate [MHz]	25	50	0.2 - 50	80
Spectral width (FWHM) [nm]	< 0.2	< 0.175	< 2	<1
Beam diameter [mm]	≈ 1	≈ 1	≈ 1	1
Divergence X 1/e² [mrad]	< 1.7	< 1.3	< 1.3	<1.0
Divergence Y 1/e² [mrad]	< 1.7	< 1.3	< 1.3	<1.0
Spatial mode, fundamental	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.3$
Power stability (50 h), RMS [%]	< 0.5	< 0.5	< 0.5	< 1
Pulse-Pulse stability, RMS	< 1	< 1	< 1	< 1.5
Polarization - linear, PER [dB]	> 23	> 23	> 23	> 23

Specifications

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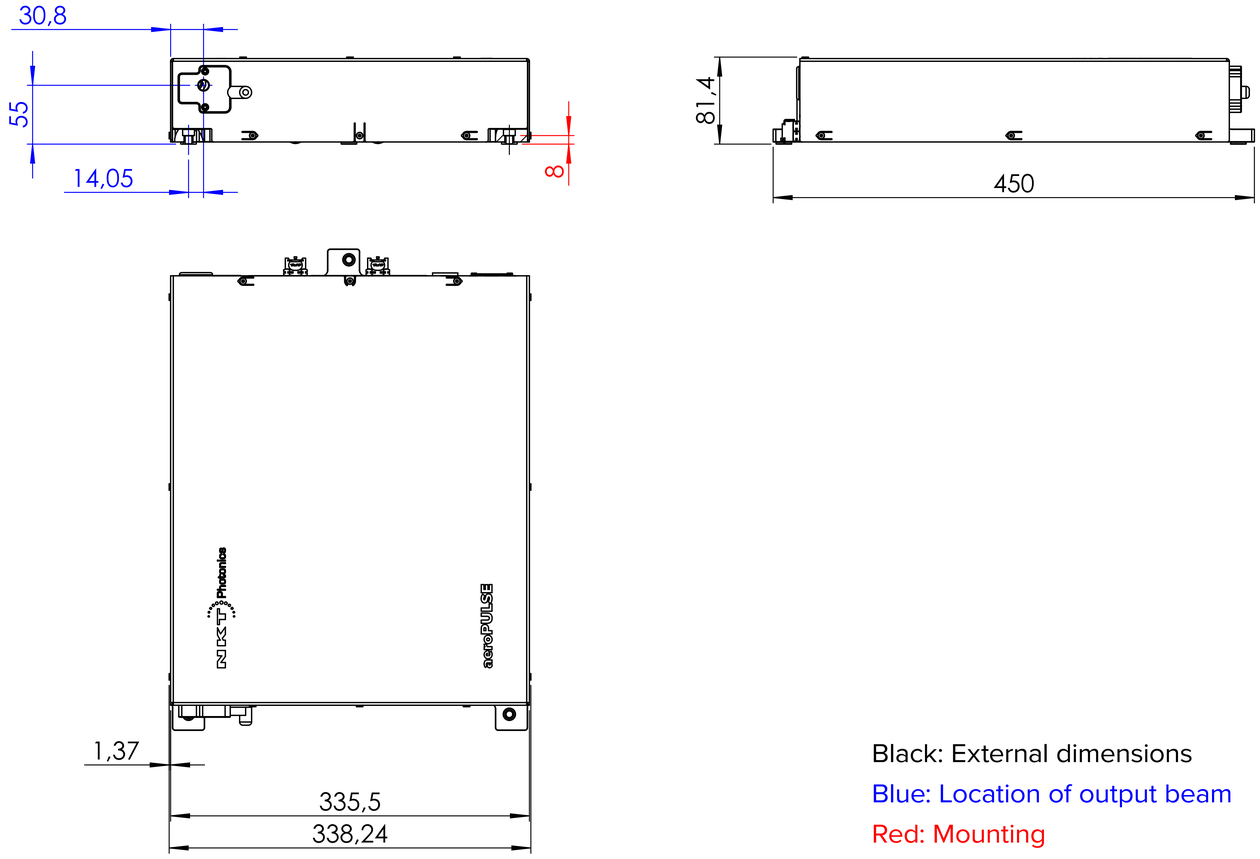
Mehanical/Electrical

Computer interface	USB 2.0, RS-232
Operating voltage	100-240 VAC, 50-60 Hz
Power consumption [W]	< 330
Operation temperature [°C]	18 – 30
Storage temperature [°C]	-10 – 60
Laser head dimensions (LxHxW) [mm]	450 x 80 x 336 679 x 84 x 338 (with SHG)
Laser head weight [kg]	10.2
Controller dimensions (LxHxW) [mm]	418 x 175 x 482 (4U 19” rack)
Controller weight [kg]	14.7
Chiller dimensions (WxHxL) [mm]	330 x 197 x 279 (floor stand) 432 x 177 x 438 (rack mount)
Chiller weight [kg]	9
Cooling	Water-cooling (air-cooling option for low power)

Technical Drawings

Laser head (IR only)



Black: External dimensions

Blue: Location of output beam

Red: Mounting

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All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

FORCE Certification
Certification of Management Systems

Technical Drawings

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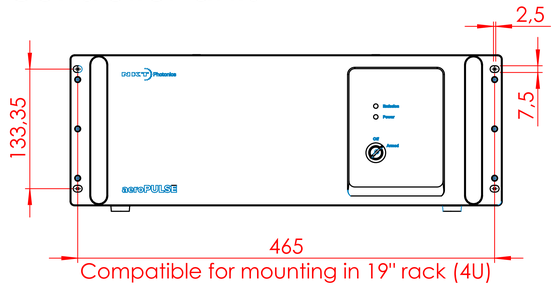
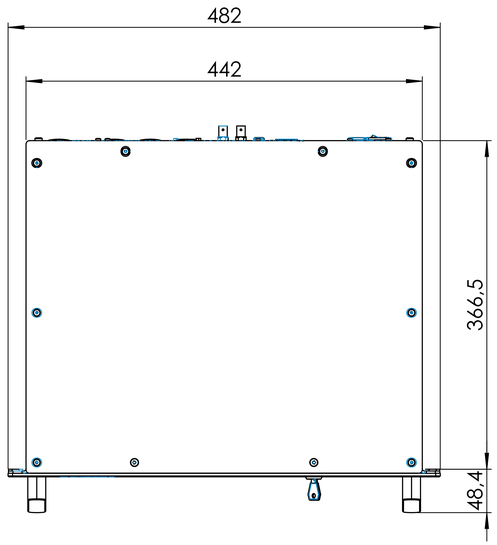
Controller unit





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FORCE Certification
Certification of Management Systems

SOLUTIONS FOR INNOVATORS

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