

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 up-time, low cost of ownership, and ease of integration.

Applications

- Laser direct imaging
- Material processing
- Semiconductor inspection
- Harmonic conversion
- Raman SRS imaging
- OPO pumping
- Supercontinuum generation
- Quantum qubit manipulation

AEROPULSE PS

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 linewidth¹⁾. 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 TEM₀₀ 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.

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 >40 W
- Excellent beam pointing stability
- Narrow linewidth
- Compact and rugged OEM design
- Low cost of ownership
- Available wavelengths from 1024 nm-1064 nm
- Custom pulse output from 2 ps-100 ps
- Maintenance-free 24/7 operation
- System monitoring via remote diagnostics
- No warm-up time
- Customizable repetition rates from 10-400 MHz
- Optional pulse picker
- ±0.7 nm wavelength tuning option
- Green & UV extension available

Support and warranty

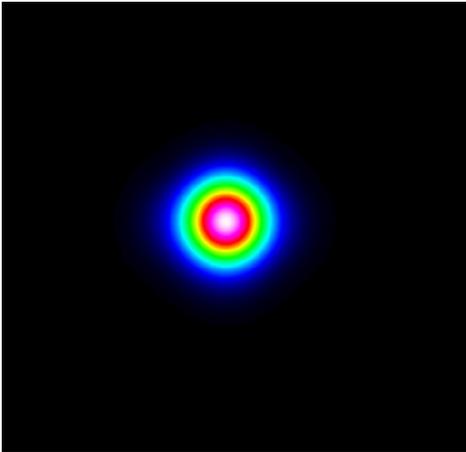
The product is covered by a comprehensive warranty. Service options are available. For details, please enquire.

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

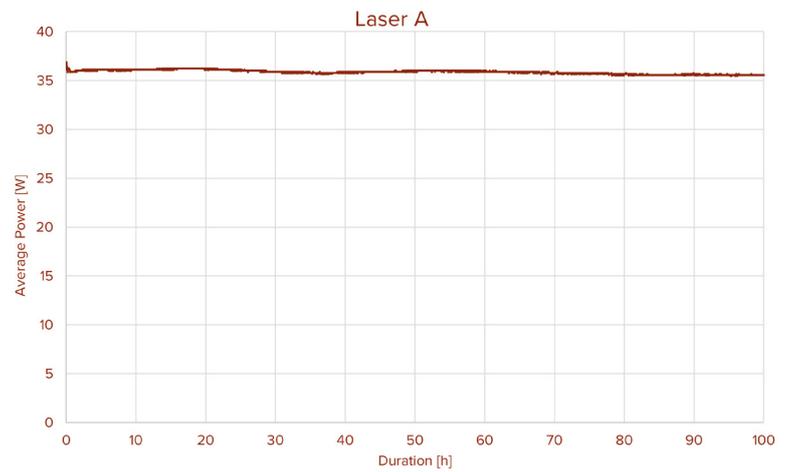
¹⁾ Certain combinations of specifications can be subject to restriction.

PERFORMANCE

Beam quality

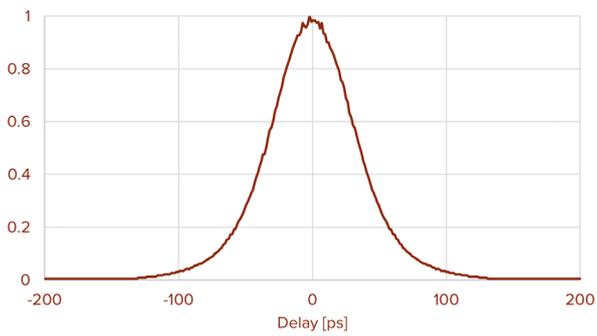


Power



Pulse duration

Pulse duration (Sech2) = 43ps
Laser A



Pulse duration (Sech2) = 6.8ps
Laser C



CUSTOMIZED PERFORMANCE

Example optical specifications (please enquire about your requirements)

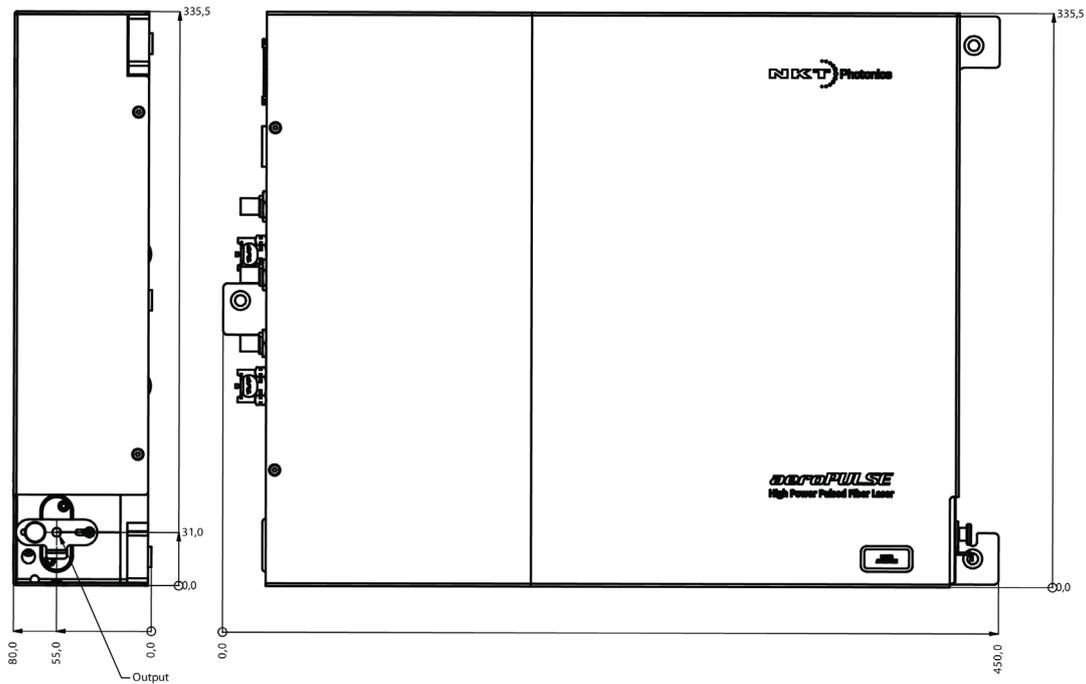
	Laser A	Laser B	Laser C
Center wavelength [nm]	1064	1024	532
Power [W]	> 35	> 22	> 12
Pulse duration [ps]	< 48	< 43	< 7
Pulse energy [μ J]	> 1.4	> 0.44	> 0.25
Operational repetition rate [MHz]	25	50	0.2 - 50
Spectral width (FWHM) [nm]	< 0.2	< 0.175	< 2
Beam diameter [mm]	≈ 1	≈ 1	≈ 1
Divergence X $1/e^2$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

Mechanical/Electrical

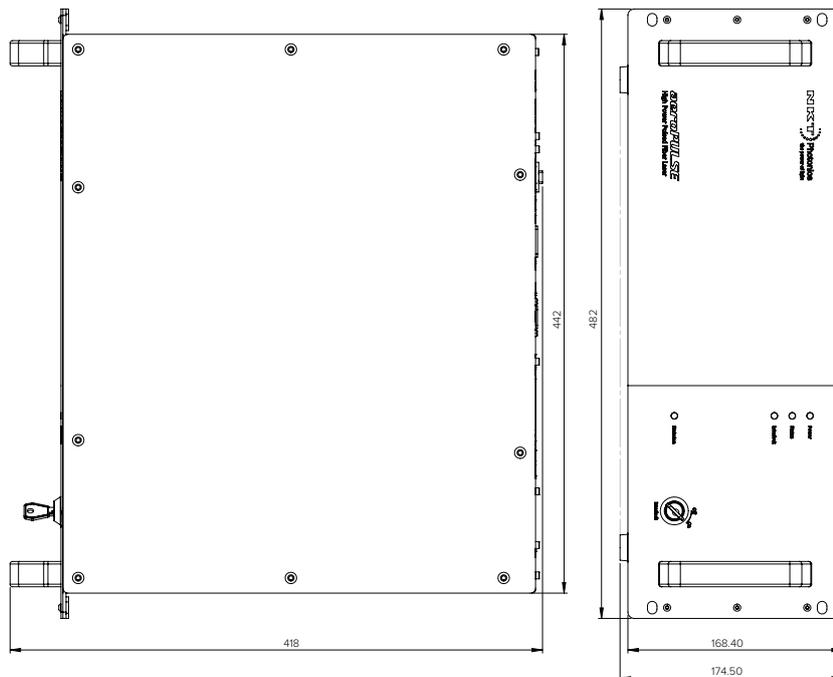
Computer interface	USB 2.0, RS-232
Operating voltage	100-240 VAC, 50-60 Hz
Power consumption [W]	< 330
Operation temperature [$^{\circ}$ C]	18 – 30
Storage temperature [$^{\circ}$ C]	-10 – 60
Laser head dimensions (LxHxW) [mm]	450 x 80 x 336 679 x 84 x 338 (with SHG)
Laser head weight [kg]	10.2
Controller 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



Controller unit



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

