

PicoOne Series

High-Energy Sub-Nanosecond Pulses with Exceptional Stability



KEY FEATURES

- 1064nm, 532nm
- High pulse energy stability 0.3 % (σ)
- Rep rate up to 100 kHz
- Excellent beam quality – TEM00, $M^2 < 1.2$
- Efficient, air-cooled

The PicoOne Series combines the robustness of a passively Q-switched microchip laser with efficient fiber amplification to deliver high-energy, sub-nanosecond pulses at 1064 nm and 532 nm. With pulse energies exceeding 25 μ J, peak powers above 38 kW and repetition rates up to 100 kHz, PicoOne provides an outstanding combination of high peak power, excellent beam quality and pulse-to-pulse stability.

Adjustable pulse energy and gating capabilities provide added flexibility for demanding applications in precision micromachining, spectroscopy, sensing and biophotonics. Its compact, air-cooled architecture makes PicoOne particularly suitable for integration into advanced instruments and OEM systems.

APPLICATIONS

- Precision Micromachining & Selective Ablation
- PCB & Electronics Processing
- LIBS / Micro-LIBS
- LIDAR & Laser Ranging
- Time-Resolved Spectroscopy
- Photoacoustic & Biophotonic Applications

TECHNICAL SPECIFICATIONS

	ANP-20E-000	ANG-10E-000
Wavelength	1064 nm	532 nm
Repetition Rate ⁽¹⁾	>70 kHz	>70 kHz
Constant Pulse width range (FWHM) ⁽²⁾	<0.65 ns	<0.65 ns
Output power ⁽³⁾	>1750 mW	>700 mW
Output energy ⁽⁴⁾	>25μJ ⁽⁷⁾	>12μJ ⁽⁸⁾
Peak Power	>38kW	>15kW
Short term (10min) power stability ⁽⁵⁾	<±2%	<±2%
Long term (6 hrs) power stability ⁽⁵⁾	<±3%	<±3%
Energy stability ⁽⁵⁾ (150 000 pulses) σ peak-to-peak	0.5 % 4%	0.5 % 4%
Beam profile	Gaussian TEM00	Gaussian TEM00
Full angle divergence @1/e ² Horizontal	TBD	TBD
Vertical	TBD	TBD
M ² ⁽⁶⁾	<1.2	<1.2
Beam ellipticity ⁽⁷⁾	<1.3	<1.5
Polarization	Linear PER>20dB	Linear PER>20dB
Energy control function	RS232, Analog 0-5V	RS232, Analog 0-5V
Gating function	TTL 0-5V	TTL 0-5V
Options (described on page 3)	-xSx, -xxI	-xSx, -xxY

NOTES

- (1) The repetition rate can be factory-set to any fixed higher (up to 100 kHz) or lower (down to 30 kHz) value. The energy per pulse would decrease / increase accordingly.
- (2) Measured with 8Ghz photodiode and 6GHz oscilloscope.
- (3) Measurement performed with an OPHIR thermal power sensor (OPHIR 3A-FS-SH).
- (4) The energy per pulse of the ANP-20E-000 and the ANG-10E-000 can be factory-set up to 30μJ and 15μJ, respectively. The repetition rate would have to be decreased.
- (5) For temperature variation < ± 3°C and < 3°C/hour, stability is measured with calorimeter - detector band [DC, 2Hz]. Standard deviation (or σ) is a measure of how dispersed the data is in relation to the mean.
- (6) Mean average value $M = \sqrt{(XY)}$, X and Y being respectively the major and minor axis of the ellipse.
- (7) Beam ellipticity is calculated as the ratio of the main axis far field divergence.

SUPPLEMENTAL INFORMATION & OPTIONS

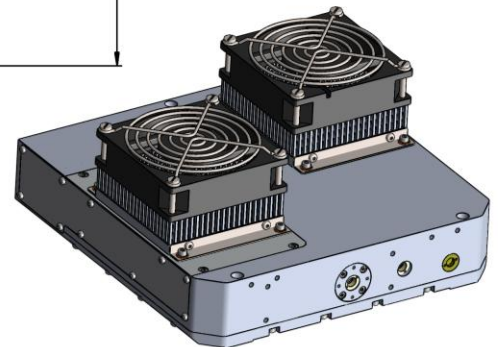
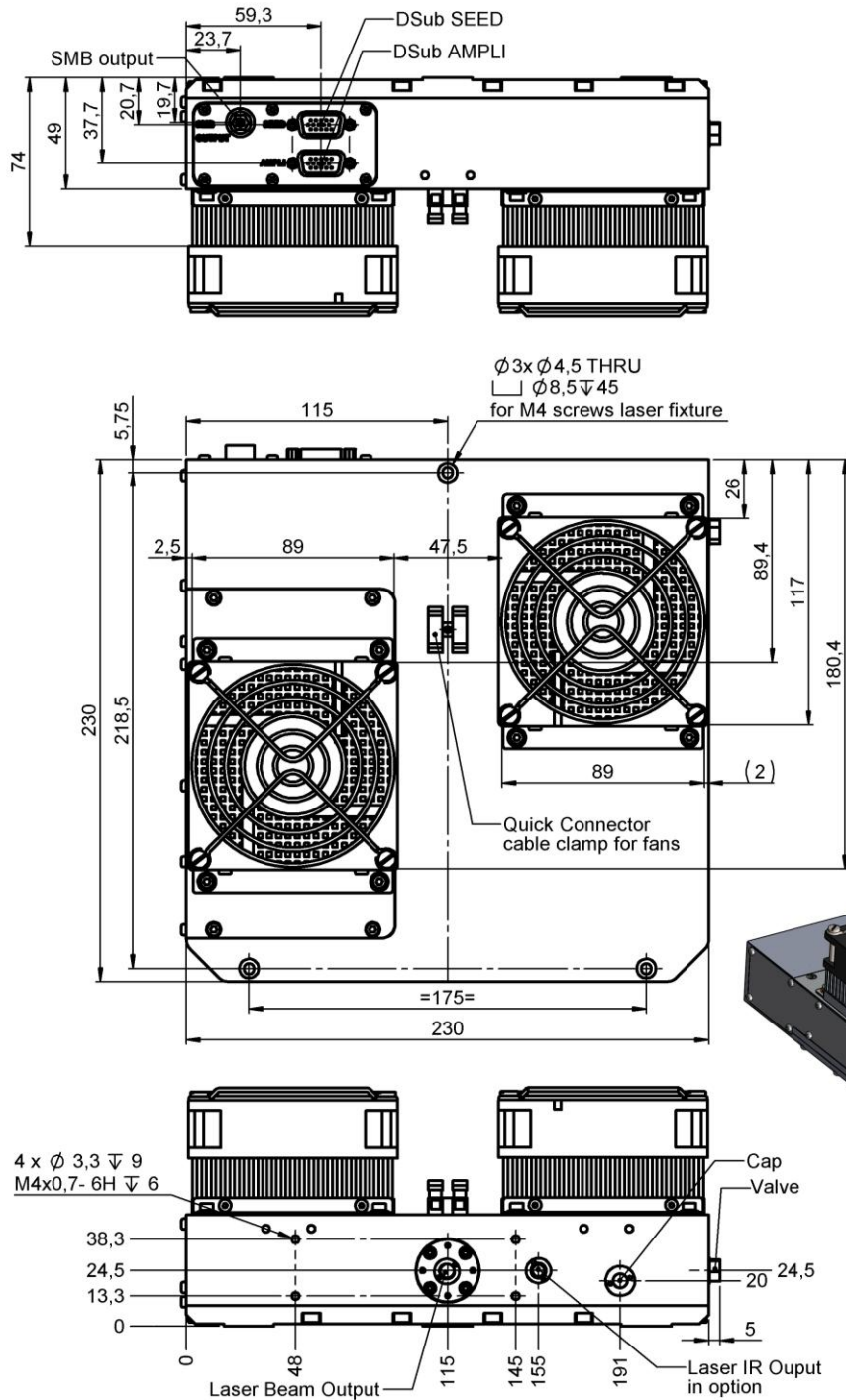
Environment Parameters	
Operating Temperature Range	15-30°C
Maximum Power Consumption	<25W
Storage Temperature	0-50°C
Shock of 11ms according to IEC 68-2-27, non operating	25g
Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6	2g

Certification	
Laser classification according to IEC 60825-1:2007	4
CDRH compliance	In Process
RoHS	Yes

Package	
Laser Head dimensions, LxWxH	See mechanical drawings on page 4
Laser Head weight	4.5 kg
Controller dimensions, LxWxH	See mechanical drawings on page 5
Controller weight	1.1 kg

Options	
Synchronization output (-xSx)	TTL compatible output signal for synchronization/monitoring
Optical Isolator option (-xxI)	1064 nm return signal Optical Isolator added inside the laser head
Additional Infrared Output for Synchronization (-xxY)	Additional output emitting Infrared 1064nm light that can be used for Synchronization/Monitoring. <i>The performances of this 1064nm light are not factory tested, and consequently not specified.</i>

LASER HEAD MECHANICAL DRAWINGS



CONTROLLER UNIT MECHANICAL DRAWINGS

