

# PicoMega Series

## Ultrashort Picosecond Pulses at High Repetition Rates



### KEY FEATURES

- 1064nm or 532nm
- Repetition rate up to 150 kHz
- Ultrashort pulses down to 120 ps
- Excellent beam quality – TEM00,  $M^2 < 1.3$
- Efficient, air-cooled, very compact

The PicoMega Series combines a passively Q-switched microchip seeder with fiber amplification to generate ultrashort picosecond pulses at high repetition rates. Delivering pulses below 200 ps at 1064 nm and 532 nm, with repetition rates up to 150 kHz and excellent TEM00 beam quality, PicoMega provides a compact and cost-effective alternative to more complex picosecond laser architectures.

Its combination of short pulse duration, high repetition rate and multi-kW peak power makes PicoMega particularly well suited to time-resolved instrumentation, nonlinear optics, spectroscopy, LIDAR and precision laser processing.

### APPLICATIONS

- LIDAR & Time-of-Flight
- Time-Resolved Spectroscopy
- Time-Gated Raman
- Supercontinuum & Nonlinear Optics
- Precision Micromachining
- Seeding for High-Power Amplification

## TECHNICAL SPECIFICATIONS

|                                                    | ANP-500P-000       | ANG-150P-000                   |
|----------------------------------------------------|--------------------|--------------------------------|
| Wavelength                                         | 1064 nm            | 532 nm                         |
| Repetition Rate <sup>(1)</sup>                     | [100 kHz ;150 kHz] | [100 kHz ;150 kHz]             |
| Constant Pulse width range (FWHM)                  | <200 ps            | <170 ps                        |
| Output power                                       | >300 mW            | >120 mW                        |
| Output energy <sup>(2)</sup>                       | >3 µJ              | >1 µJ                          |
| Peak Power                                         | >2 kW              | >6 kW                          |
| Short term (10 min) power stability <sup>(3)</sup> | TBD                | <±2% rms                       |
| Long term (6 hrs) power stability <sup>(3)</sup>   | TBD                | <±3% rms                       |
| Beam profile                                       | Gaussian TEM00     | Gaussian TEM00                 |
| Full angle divergence @1/e <sup>2</sup>            |                    |                                |
| Horizontal                                         | TBD                | [6;10] mrad<br>(typ. 8.2 mrad) |
| Vertical                                           | TBD                | [3;7] mrad<br>(typ. 5.2 mrad)  |
| M <sup>2</sup> <sup>(4)</sup>                      | <1.3               | <1.3                           |
| Beam ellipticity <sup>(5)</sup>                    | <1.8 (typ. 1.4)    | <1.8 (typ. 1.4)                |
| Polarization                                       | Linear<br>PER>20dB | Linear<br>PER>20dB             |
| Option (described on page 3)                       | none               | -xxY                           |

### NOTES

(1) The repetition rate is fixed and factory-set at a value in this specified range. It is possible to target a fixed repetition rate in a narrower range closer to 150kHz, or to 100kHz, upon request.

(2) Adjustable by analog signal on utility connector of the controller.

(3) For temperature variation < ± 3°C and < 3°C/hour, stability is measured with calorimeter - detector band [DC, 2Hz].

(4) Mean average value  $M = \sqrt{XY}$ , X and Y being respectively the major and minor axis of the ellipse.

(5) Beam ellipticity is calculated as the ratio of the main axis far field divergence.

## SUPPLEMENTAL INFORMATION & OPTIONS

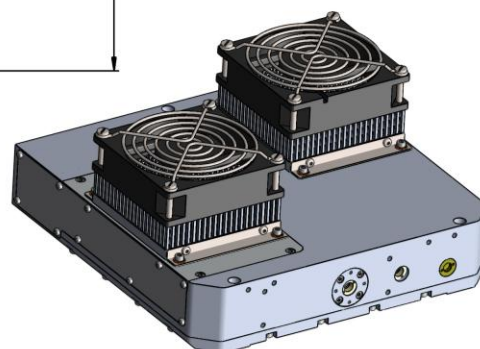
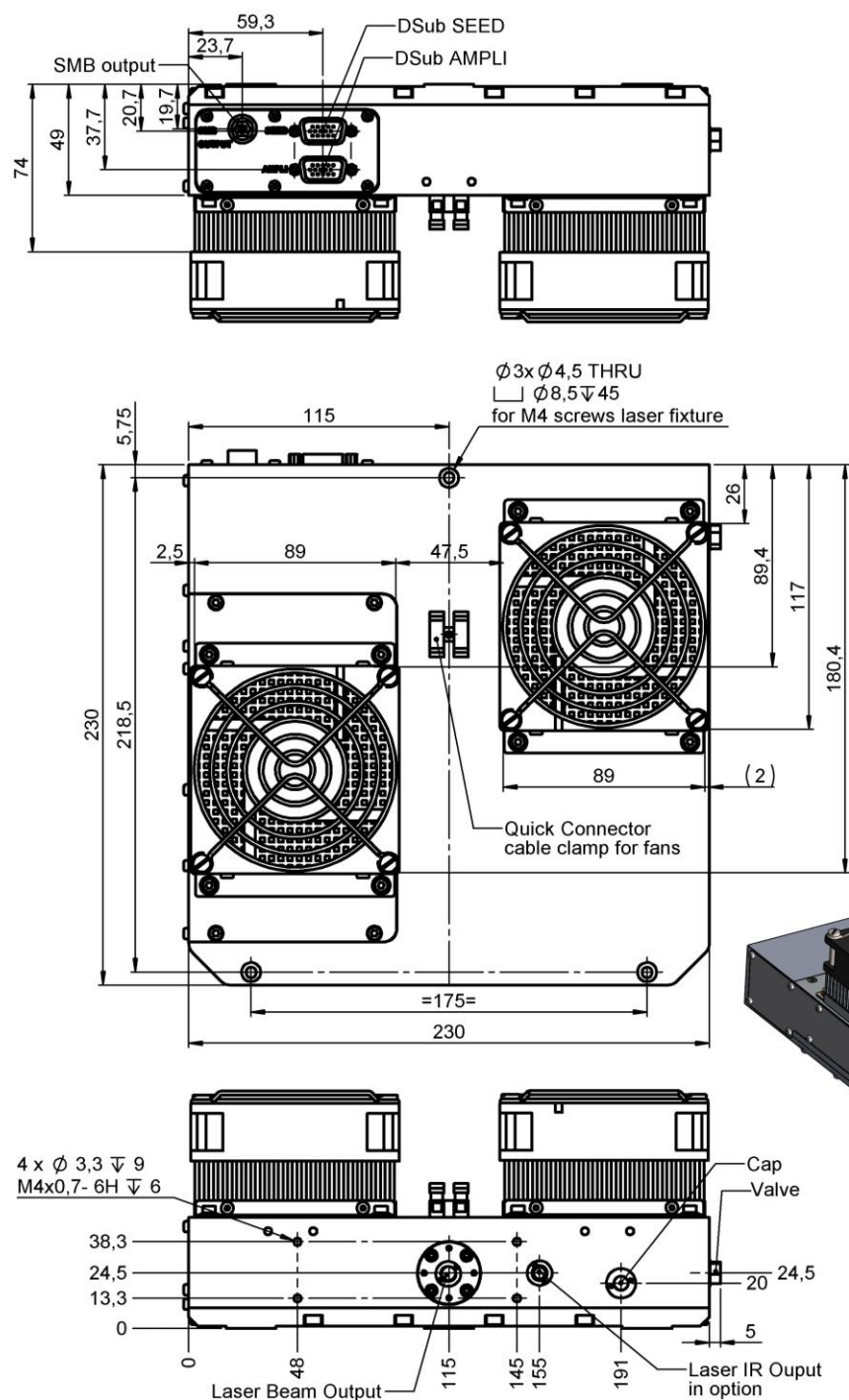
| Environment Parameters                                    |              |
|-----------------------------------------------------------|--------------|
| Operating Base Plate Temperature Tolerance                | +20°C, +30°C |
| Maximum Power Consumption                                 | <25 W        |
| 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                                    | No  |
| 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                                               |                                                                                                                                                                                                           |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional Infrared Output for Synchronization (-xxY) | Additional output emitting Infrared 1064nm light that can be used for Synchronization/Monitoring.<br><i>The performances of this 1064nm light are not factory tested, and consequently not specified.</i> |

## LASER HEAD MECHANICAL DRAWINGS



## ALC-05A-DP1 CONTROLLER PRELIMINARY MECHANICAL DRAWINGS

