

# *pico*REGEN™ Industrial

All-in-one picosecond regenerative amplifier system



<i>pico</i> REGEN™	UC-10000 HP	UC-30000 HP
Wavelength	1064 nm	
Pulse width (FWHM), typical <sup>1)</sup>	12 ps	
Average output power	10 W	30 W
Pulse repetition rate <sup>2)</sup>	Single pulse - 1 MHz (TTL-Trigger)	
Pulse energy	20 µJ @ 500 kHz, 70 µJ @ 100 kHz	60 µJ @ 500 kHz, 200 µJ @ 100 kHz
Laser material	Nd:Vanadate (Nd:YVO <sub>4</sub> )	
Power stability, typical	< 1 % RMS (12h)	
Beam quality (TEM <sub>00</sub> )	M <sup>2</sup> ≤ 1.2 @ 500 kHz, ≤ 1.3 @ 100 kHz	M <sup>2</sup> ≤ 1.3 @ 500 kHz, ≤ 1.5 @ 100 kHz
Beam diameter <sub>1/e<sup>2</sup></sub> / divergence	1.2 mm / 1 mrad	
Polarization	horizontal or vertical	
Beam height	101.6 mm (4"), not including pedestals	
Laser head size	860 x 400 x 160 mm <sup>3</sup> (l x w x h), not including pedestals	
Controller size <sup>3)</sup>	19" rack, 600 x 550 x 1170 mm <sup>3</sup> (l x w x h), including closed-loop, recirculation water chiller	
Controller supply	100 – 240 V, 50 – 60 Hz, < 3.7 kW	
Operation ambient temp.	18 °C to 26 °C	
<b>Optional SHG and THG modules<sup>4)</sup></b>		
Max. average output power	4 W @ 532 nm / 2 W @ 355 nm (@ 500 kHz)	12 W @ 532 nm / 6 W @ 355 nm (@ 500 kHz)
Module size	150 x 400 x 160 mm <sup>3</sup> (l x w x h)	

Main Features	Customer benefits
• Integrated <i>pico</i> TRAIN™ Ultra Compact seed laser	• Industrial MTBF and up-time
• Passive self-starting modelocking by saturable bragg reflectors	• Service interval > 1 year
• Field replaceable fiber-coupled diode module	• Integrated pulse-picker: TTL pulse enable and attenuator function
• Shock and vibration tested	• Burst mode for arbitrary pulse sequences
• Modular Pockels-cell and Pockels-cell driver	• High temporal and spatial stability
• All-in-one controller system	• TCP/IP remote control (optional USB/CAN bus)
• Diode modules with de-rated pump current (long lifetime)	• Remote maintenance via internet

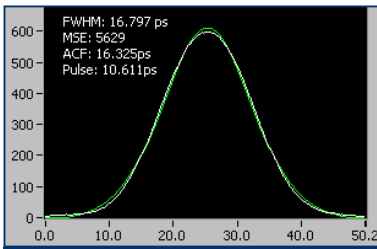
All specifications are typical data and subject to change without notice in order to provide the best product possible.

1) +/- 10%, other pulse widths on request

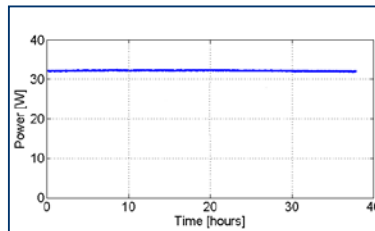
2) up to 2 MHz on request

3) Without wheels (125 mm)

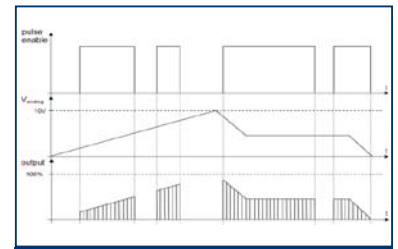
4) with controller upgrade (zero air module)



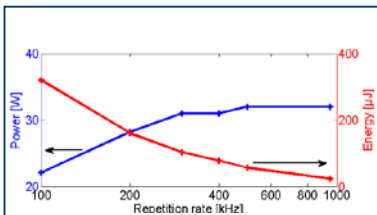
**Typical Intensity Autocorrelation**  
Autocorrelation duration 16.3 ps  
Pulse duration 10.6 ps (sech<sup>2</sup>)



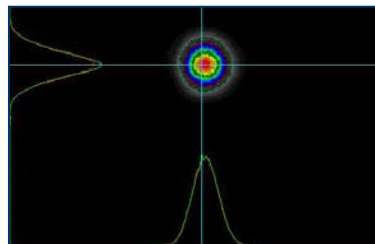
**Typical power stability**  
Measurement duration 40 h  
RMS 0.3 %



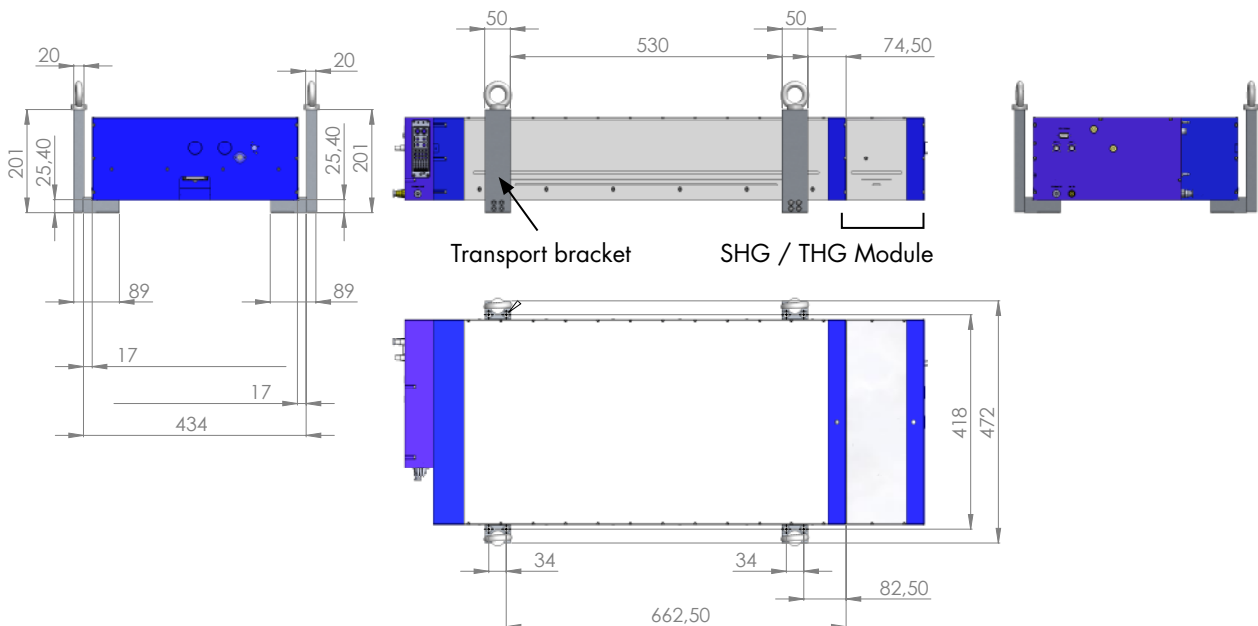
**TTL pulse enable and fast 300 kHz attenuator signal resulting in burst mode for arbitrary pulse sequences**



**Typical relation of power and pulse energy versus repetition rate**



**Typical IR beam profile of picoREGEN™**



## Applications

- Material processing
- Thin film structuring
- Nano processing
- Solar cell structuring
- OPA pumping
- Pulsed laser deposition
- Ultrafast spectroscopy

## Please Inquire About

- Application laboratory for Nano Processing
- *picoTUNE*™ OPA: Tunable output from 300 nm - 3000 nm
- Long pulse version up to 150 ps
- OEM and customized models

