

PNx High Peak Power Powerchip Series

Key features

- ▶ **Peak power up to 200kW**
- ▶ **Pulse width down to 350ps**
- ▶ **Wavelength down to 266nm**
- ▶ **Single shot to 1000Hz**
- ▶ **Synchronization output**
- ▶ **All-in-one package**



Teem Photonics' PowerChip series are ultra-high peak power passively Q-switched MicroChip lasers capable of producing hundreds of picoseconds and several tens of micro-joules pulses at kilohertz repetition rates with excellent beam quality. Furthermore, the PowerChip is a completely integrated platform which includes the laser head, power supply and air cooling in a compact, rugged, turnkey package.

Applications

- ▶ Materials processing
 - Inscribing glass
 - Via drilling printed circuit boards
 - Micromachining
- ▶ MALDI-TOF
- ▶ Microdissection
- ▶ Laser Induced Fluorescence (LIF)
- ▶ Time Resolved Fluorescence
- ▶ Laser Induced Breakdown Spectroscopy (LIBS)
- ▶ Light Detection and Ranging (LIDAR)

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Technical specifications:

	PNP-M08010 -XXX	PNG-M02010 -XXX	PNG-M04005 -XXX	PNV-M02510 -XXX	PNU-M01510 -XXX⁽⁶⁾
Wavelength	1064nm	532nm	532nm	355nm	266nm
Max Repetition Rate RR_{max}⁽¹⁾	1000Hz	1000Hz	500Hz	1000Hz	1000Hz
Constant Pulse width range (FWHM)	<500ps	<400ps	<400ps	< 350ps	<350ps
Output energy	>80μJ	>20μJ	>35μJ	> 25μJ	>12μJ
Peak Power	>160kW	>50kW	>80kW	> 60kW	>35kW
Short term (1min) pulse to pulse stability 1σ	≤ 1 %	≤ 3 %	≤ 3 %	≤ 3 %	≤ 3 %
Long term (1h) output power stability⁽²⁾	± 3%	± 3%	± 3%	± 5%	± 5%
Beam profile	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	Gaussian TEM00	See note (5)
Beam divergence (Full@1/e²)	2.0±0.5mrad	2.0±0.5mrad	5.0±1mrad	3.3±0.5mrad	<0.9mrad <0.9mrad
Horizontal	2.0±0.5mrad	2.0±0.5mrad	4.0±1mrad	3.0±0.5mrad	
Vertical					
M²⁽³⁾	<1.3	<1.3	<1.3	<1.3	<1.4
Beam ellipticity⁽⁴⁾	<1.3	<1.3	<1.3	<1.3	-
Polarization	> 20 dB	> 20 dB	> 20 dB	> 20 dB	> 20 dB

Notes

(1)	See options p3
(2)	For temperature variation <±3°C and <3°C/hour
(3)	Mean average value $M = \sqrt{XY}$, X and Y being respectively the major and minor axis of the ellipse
(4)	Beam ellipticity is calculated as the ratio of the main axis far-field divergence.
(5)	Beam exhibits different profile in horizontal (Gaussian) and vertical ((sin x /x) ² in far-field) plans
(6)	Contact factory for availability
(7)	More compact separated leaser head and electronics package may be available upon request – Contact factory for further details

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Complementary information & options:

Environment parameters

Operating Temperature	20-35 °C
Maximum Power Consumption	<75 W
Storage Temperature	0-50 °C
Shock of 11ms according to IEC 68-2-27, non operating	25 g
Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6, non operating	2 g

Certification

Laser Classification according to IEC 60825-1:2007	Class 3B Except PNU : Class 4
CDRH	-1xx versions used with PCR power supply only
ROHs	Yes

Package

Laser Head dimensions, LxWxH⁽⁷⁾	311x100x149 mm
Laser Head weight	5 kgs
PCR-240500-100 AC/DC converter dimensions, LxWxH	315x262x77 mm
PCR-240500-100 AC/DC converter weight	1.5 kgs

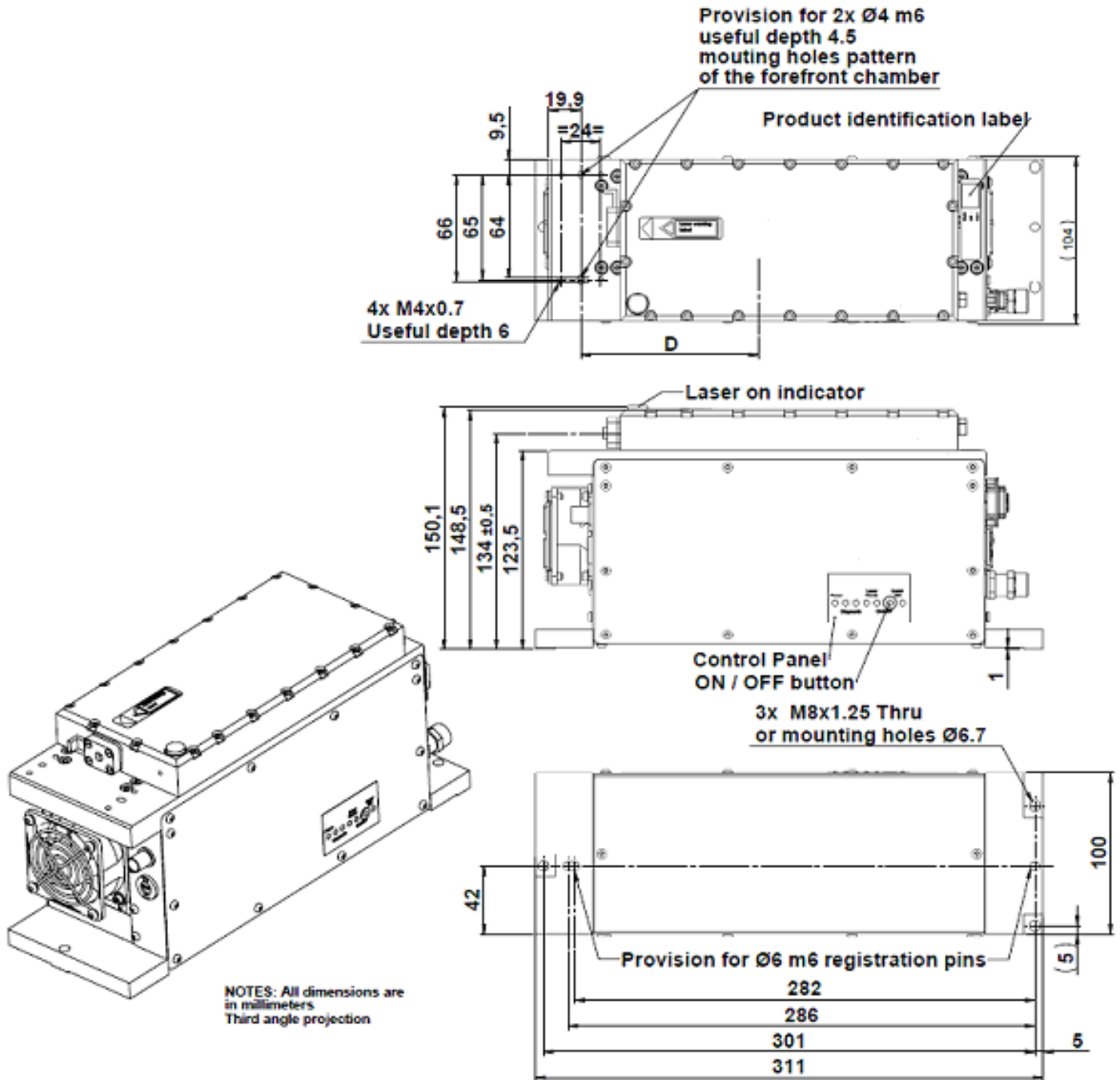
Options

CDRH	-1x0 version ; with a mechanical shutter
Fixed Repetition Rate = RR_{max}	-x00 version
Fixed Repetition Rate ≠ RR_{max}	-x10 version ; RR to be chosen over 10Hz-RR _{max}
External Variable Repetition Rate	-x20 version ; single shot to RR _{max} , 1 optimized RR value
External Variable Multi-Repetition Rate	-x30 version ; single shot to RR _{max} , 3 optimized RR values

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Mechanical Drawings : CDRH Laser Head



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Mechanical Drawings : PCR-240500-100 (CDRH compliant AC/DC converter)

