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TECHNOLOGY GROUP

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High Peak Power High Repetition Rate Sealed Q-switched 1064, 532 & 355nm PowerChip Laser

PNP / PNG / PNV series

The Teem Photonics 1064nm, 532nm and 355nm **Q-switched PowerChip microlasers** produce sub nanosecond tens of microJoules pulses at hundreds Hertzs to one kiloHertz repetition rates. These lasers are housed in compact, turnkey packages.
Licensed previously to Nanolase by MIT in the 1990s, the PowerChip laser is now licensed to Teem Photonics, which acquired the Microlaser business in 2005.



Photographs of an CDRH PNx version.

Application:

- **MALDI-TOF for Genomics and Proteomics**
- **Laser Induced Fluorescence**
- **Laser Induced Breakdown Spectroscopy (LIBS)**
- **Material processing**
- **Nitrogen laser replacement**

Performance:

Parameter	PNP-005025-xx0	PNG-002025-xx0	PNV-001025-xx0	PNV-001525-xx0
Wavelength (nm)	1064	532	355	355
Minimum Energy/Pulse (µJ)	50	20	10	15
Maximum Energy/Pulse (µJ)	80	40	20	30
Pulse width (FWHM) (ns)	< 0.75	< 0.75	< 0.5	< 0.5
Repetition rate (kHz) **Standard** **Customized**	 1 0.1 to 1	 1 0.1 to 1	 1 0.1 to 1	 1 0.1 to 1
Beam Profile	Elliptical[1]	Elliptical[1]	Elliptical[1]	Elliptical[1]
Ellipticity (typical)	1.2:1	2:1	2:1	2:1
Polarization ratio	>100:1	>100:1	>100:1	> 100:1
Beam diameter at 1/e² (mm) (Typical)	2	2	2	2
Beam divergence (full angle at 1/e²) (mrad) (Typical)	2	2	1	1
Power stability over five minutes[2]	± 7.5 % peak to peak	± 7.5 % peak to peak	± 7.5 % peak to peak	± 7.5 % peak to peak
Power stability over one hours[3]	< ± 3 % peak to peak	< ± 3 % peak to peak	< ± 3 % peak to peak	< ± 3 % peak to peak
Operating temperature range (°C)	15 to 35			
Storage temperature range (°C)	-20 to 60			
OEM Electrical Parameter (-0x0)				
Voltage (V)	24 DC			
Operating current (Max current) (A)	3 (5)			
CDRH Electrical Parameter (-1x0)				
Voltage (V)	Auto ranging: AC 85 to 132 or AC 170 to 264			
Maximum power consumption (A) **At 115 V AC** **At 230 V AC**	 1.2 0.6			
Class (according to IEC 60825-1 1993)	3B			
Class (according to 21 CFR 1040.10)	IIIB			
Certification	CE (OEM), CDRH			
Warranty	12 months or 5000 hours whichever occurs first			

Notes: all specifications are given in permanent laser operation and after a minimum of 10 minutes warm-up with laser permanently emitting; insufficient warm-up and/or intermittent emission (as allowed by external mode) may transitively affect the laser performances

1. 1064, 532 and 355 nm beam profile: close to Gaussian energy distribution along each axis.
2. For temperature variation <±3% and <3°C/hour, short term stability is a pulse to pulse stability measured with 60,000 pulses on a fast detector.
3. For temperature variation <±3% and <3°C/hour, long term stability is measured with calorimeter – detector band [DC,5Hz].

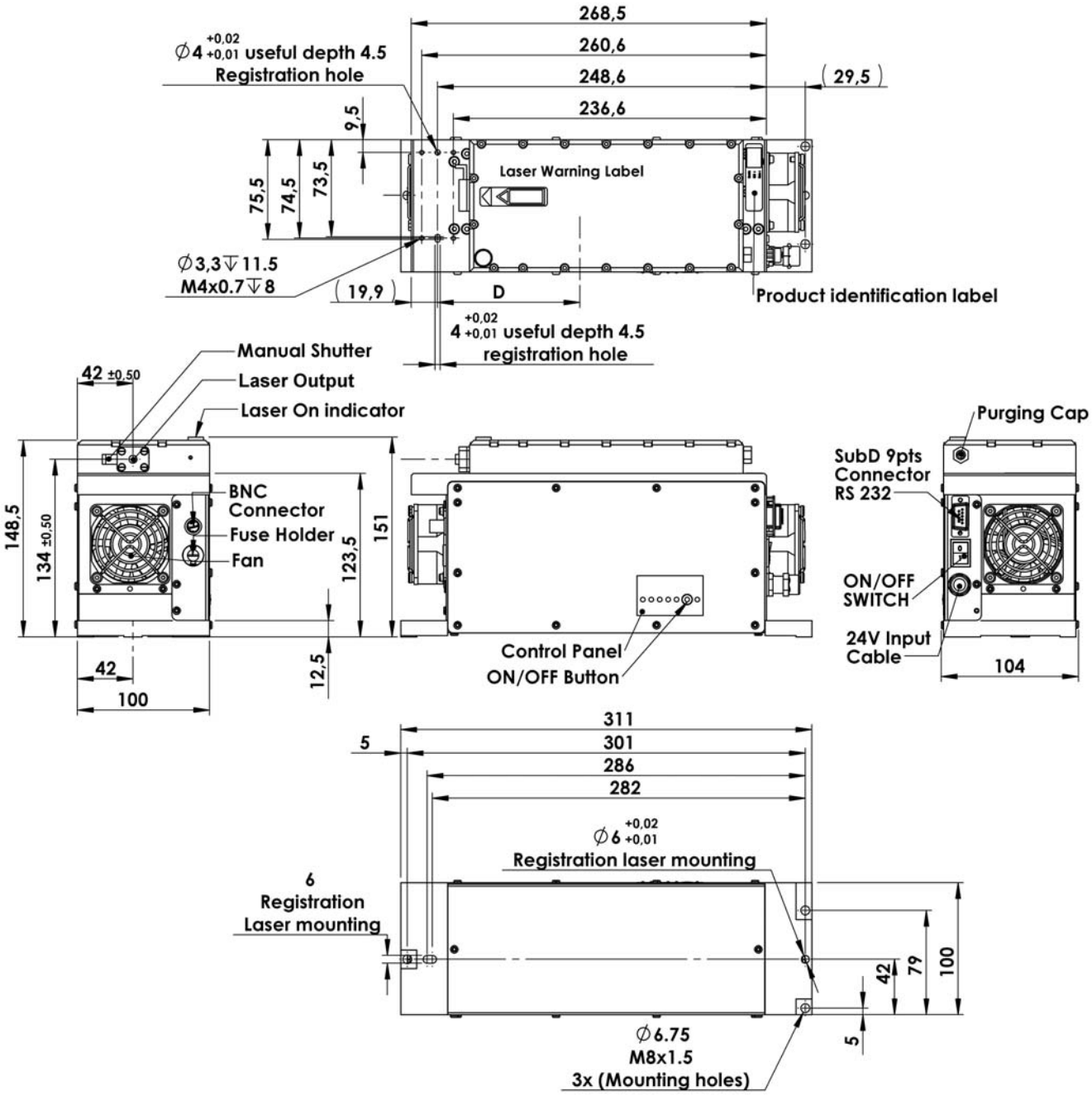
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Features and Benefits:

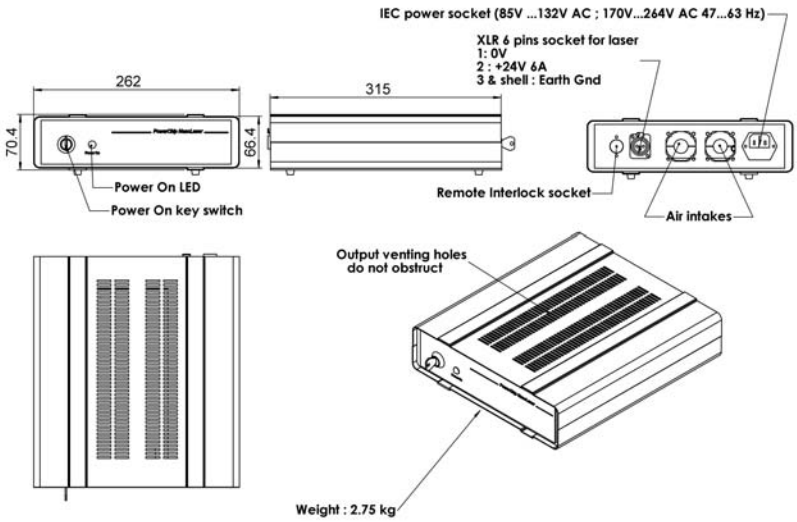
- **Passive Q-switching results in a compact and reliable laser design**
- **High energy and peak output power**
- **Hermetically-Sealed Laser cavity**
- **Hands-off operation**
- **Built-in heatsink for easy system integration**

Mechanical footprint:

CDRH PowerChip Laser Head



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Patent information:

5,495,494 self-aligned, monolithic, solid microlaser with passive switching by a saturable absorber and production process.

Ordering:

To place an order or obtain additional information, please contact a sales representative:
Representatives contact: Europe – Asia – US
Email: sales@teemphotonics.com

Ordering code: **Laser sources & systems**

PNX-0bcd25-xyz

a – Primary wavelength:
P = 1064 nm
G = 532 nm
V = 355 nm

b – Laser Source :
0 = laser source (laser head with laser controller included)

c – Specifications
2 = energy/pulse

d – Voltage
5 = 24V DC

e – Packaging
0 = OEM
1 = CDRH
letter = customer specific

xyz – Power / Energy
mW / (µJ)
/ (010)
/ (015)
/ (020)
/ (050)

xyz – Operating mode:
00 = internal mode (1kHz)
30 = internal mode (Non-standard frequency TBD)
40 = external mode
50 = auto external mode
letter = Customer Specific

CDRH AC/DC Converter

PCR-240500-100

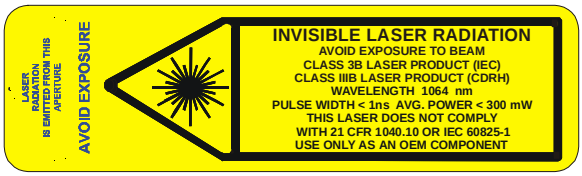
Output DC voltage:
24 = 24 Volts

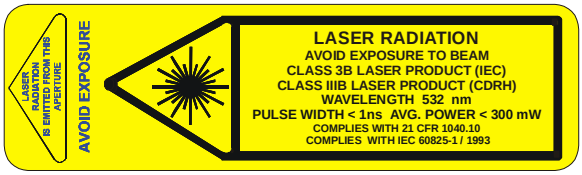
Output DC current:
05 = 5 Amps

Input AC voltage:
0 = any AC voltage

Laser Safety:

PowerChip lasers PNP, PNG and PNV series are Class III B Laser Sources.







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