

Sub-nanosecond Amplified Microchip PicoSpear Series



KEY FEATURES

- 532 nm, up to 500 mW
- Ultra-short pulses, down to 650 ps
- Excellent beam quality – TEM₀₀, M² <1.3
- Adaptable pulse energy
- Efficient, air-cooled
- Sealed package, long life

The PicoSpear laser series pushes the boundary of very compact short pulse MOPA lasers, delivering a stream of light with pulses down to 650ps, and frequencies up to 100kHz, while maintaining excellent stability and beam quality at 532nm.

The Passively Q-Switched (PQS) microchip laser technology and compact amplification brought together with this laser series offer control over the pulse energy (or effectively peak power) while leaving unchanged the pulse width and pulse shape. Other seeders may also be used if different output characteristics are required.

APPLICATIONS

- Instrumentation
 - LIDAR and laser ranging
 - Photopolymerization
 - Atmospheric monitoring
- Micromachining
 - Material ablation at μm and nm scale
 - PCB repair

TECHNICAL SPECIFICATIONS

	BNG-15E-000
Wavelength ⁽¹⁾	532 nm
Repetition Rate ⁽²⁾	> 20 kHz
Constant Pulse width range (FWHM) ⁽³⁾	<0.75 ns
Output power ⁽⁴⁾	>300 mW
Output energy ⁽⁵⁾	>15 μJ
Peak Power	> 20 kW
Short term(10min) power stability ⁽⁶⁾	<±2% rms
Long term (6 hrs) power stability ⁽⁶⁾	<±3% rms
Beam profile	Gaussian TEM00
Beam diameter at output: Horizontal Vertical	On demand On demand
M ² ⁽⁷⁾	<1.3
Beam ellipticity ⁽⁸⁾	<1.3
Polarization	Linear PER >20 dB
Energy control function	RS232, Analog 0-5 V
Synchronization signal function	Output, TTL-type Embedded photodiode

NOTES

- (1) Available also in 1064 and 355 nm. Contact factory for more information about the technical specifications.
 (2) The repetition rate can be factory-set to any higher (up to 100 kHz) or lower (down to 10 Hz) fixed value. The energy per pulse would be adjusted accordingly.
 (3) Measured with 8GHz photodiode and 6GHz oscilloscope.
 (4) Measurement performed with an OPHIR thermal power sensor (OPHIR 3A-FS-SH). Average power up to 500 mW depending on other settings.
 (5) The energy per pulse can be factory-set up to 30 μJ, the repetition rate would have to be lower than 20 kHz.
 (6) For temperature variation < ± 3°C and < 3°C/hour, stability is measured with calorimeter - detector band [DC, 2Hz].
 (7) Mean average value $M = \sqrt{XY}$, X and Y being respectively the major and minor axis of the ellipse.
 (8) Beam ellipticity is calculated as the ratio of the main axis far field divergence.

SUPPLEMENTAL INFORMATION

Environment Parameters	
Operating Temperature Range ⁽⁹⁾	10-40 °C
Maximum Power Consumption	<25 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	2 g

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

Package	
Laser Head dimensions, LxWxH ⁽¹⁰⁾	95x215x40 mm
Laser Head weight	1.25 kg
Controller dimensions, LxWxH	202x161x61 mm
Controller weight	1.0 kg

Available Controller Types			
Model	Type	Input Power	CDRH
BLC-06A-DR1 ⁽¹¹⁾	Desktop	100-240 V AC	Yes
BLC-06A-MR1	Module (default)	12 V DC	No

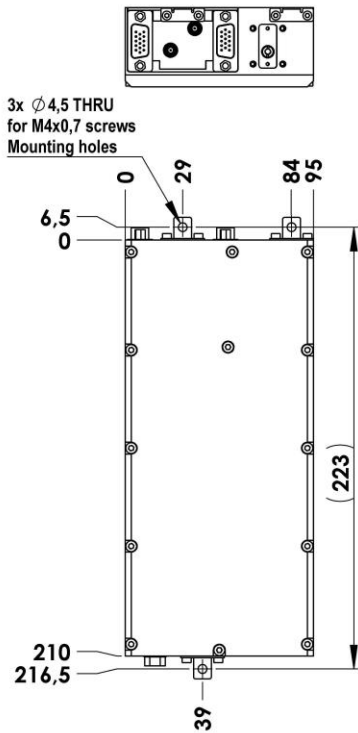
NOTES

(9) Device requires a heat dissipation surface underneath, typically an heatsink with forced air cooling, to keep its internal temperature stable. Please refer the factory for details.

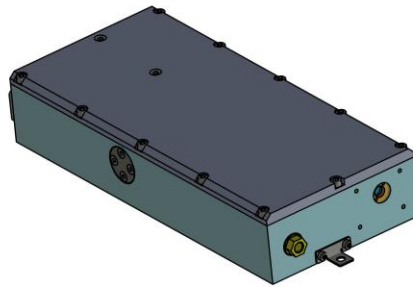
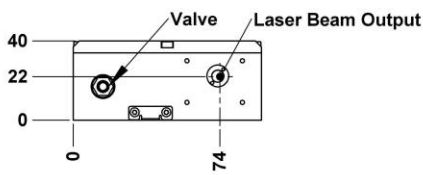
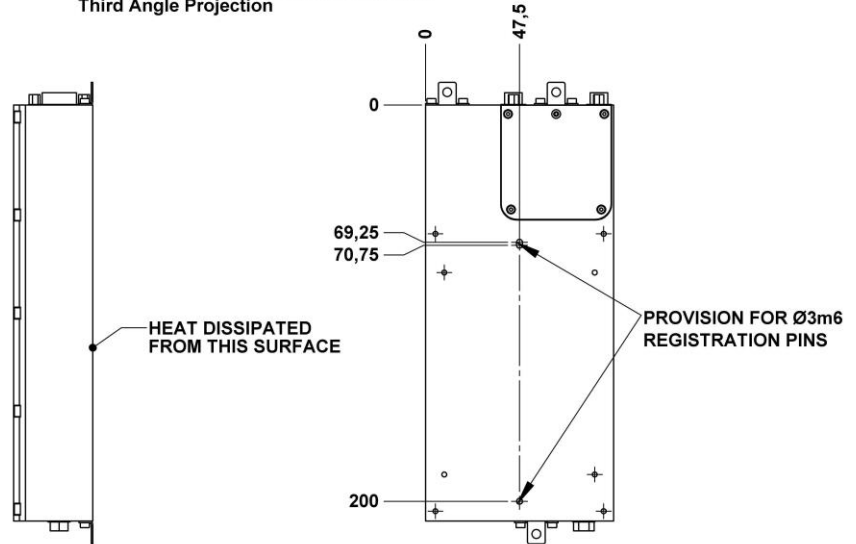
(10) Bulk dimensions, without additional features, e.g. shutter, which could be added on request. Without heatsink.

(11) Desktop controller unit to consider for CDRH compliance, in addition to other options such as mechanical shutter. Contact factory for CDRH compliant configuration.

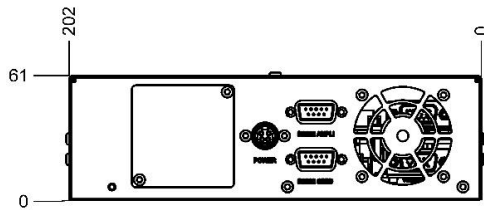
LASER HEAD MECHANICAL DRAWINGS



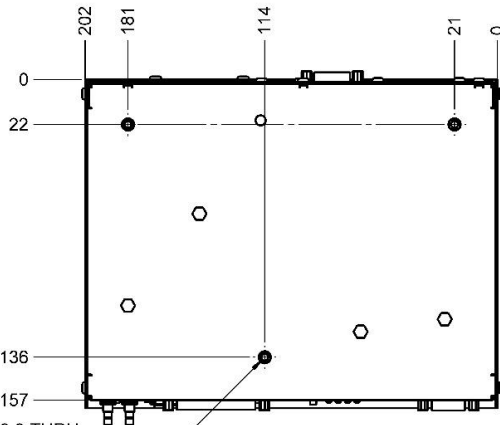
NOTES: All dimensions are in millimeters
Third Angle Projection



BLC-06A-MR1 CONTROLLER UNIT MECHANICAL DRAWINGS



NOTES: All dimensions are in millimeters
Third Angle Projection



4x \varnothing 3.3 THRU
M4x7 - 6H THRU
Mounting holes
useful thread 8 mm

