华创鸿度
LASERION

LASER FOCUS ON RELIABILITY

Focus on High-Reliability Solid-State Laser Technology

■ Femtosecond laser ■ Picosecond laser ■ Nanosecond laser ■ Mid-infrared laser

Focus on High-Reliability Solid-State Laser Technology

LASER FOCUS ON RELIABILITY

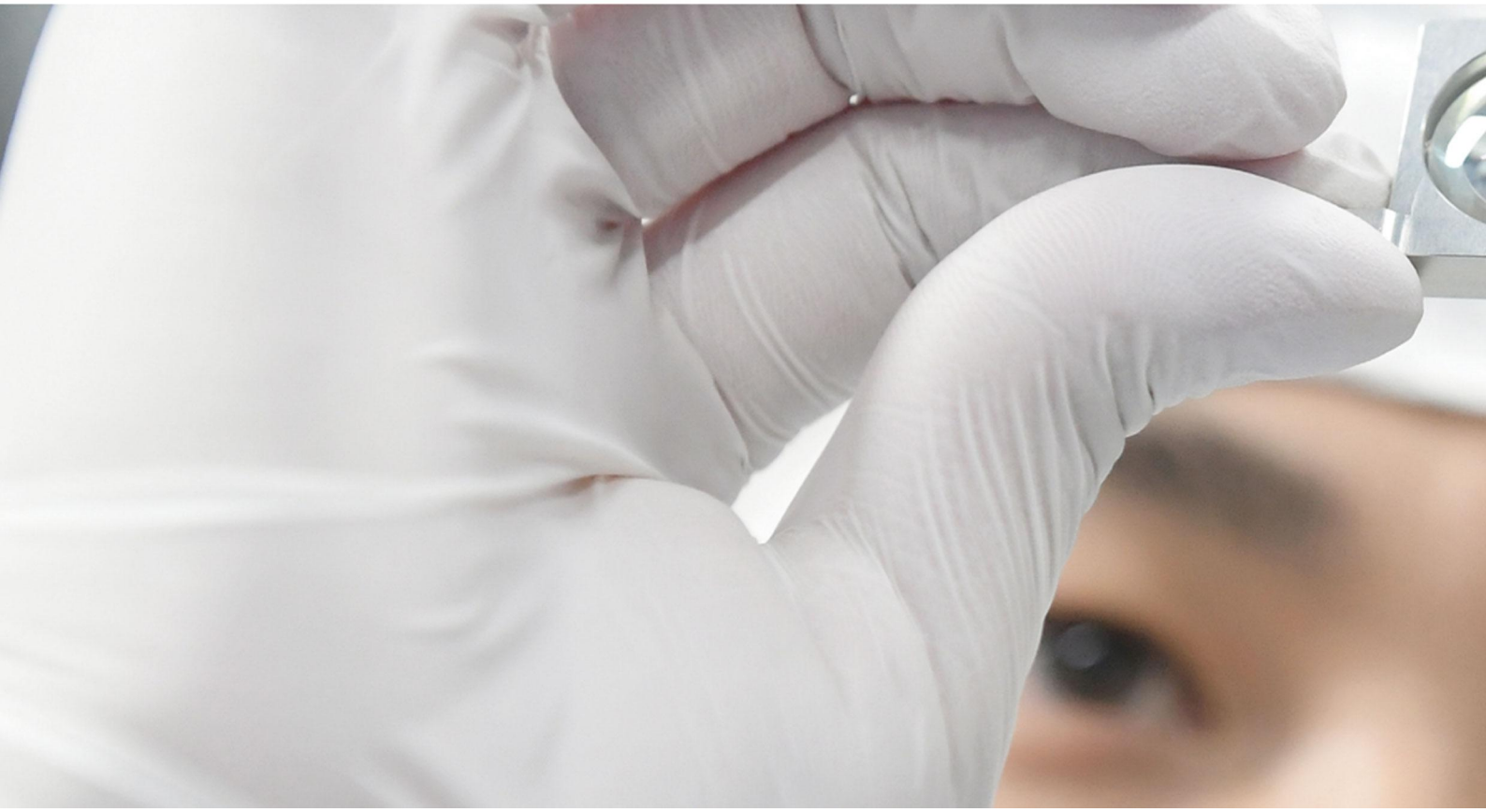
CATALOG

ABOUT US

Anhui Huachuang Hongdu Photoelectric Technology Co.,Ltd. (est.2019) is a national-level high-tech enterprise and "Small and Medium-sized Innovative Enterprise". Headquartered in Hefei, with an R&D base of nearly 8,000 m² and subsidiaries in Xi'an, Shenzhen, and Changzhou, our team boasts over 80% technical staff, with core members boasting 10+ years of expertise in ultrafast lasers.

We specialize in high-reliability solid-state laser technology, spanning femtosecond, picosecond,and nanosecond products. Our proprietary "ultra-high-power gain strip-type integrated amplification" technology enables mass production of 100–300W industrial-grade ultrafast lasers, breaking domestic technological barriers. Modular design has significantly enhanced product stability, while mid-infrared lasers serve quantum communication, biomedicine,and semiconductor detection.

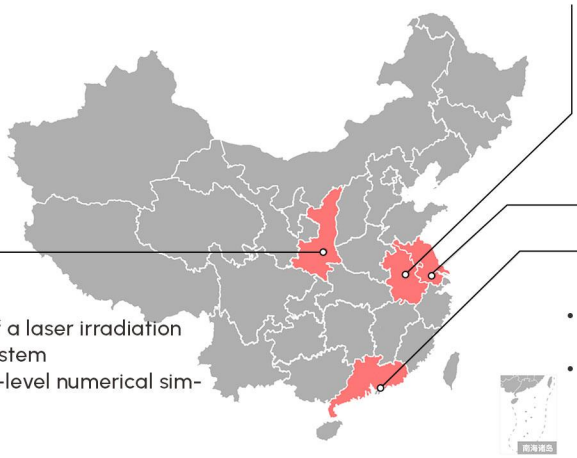
We offer two product lines: industrial-grade ultrafast lasers and research-grade precision lasers, supported by a full-chain service from light sources to applications. We are dedicated to empowering industries with laser technology, driving manufacturing upgrades and industrial innovation.



SERVICE MAP / SERVICE COVERAGE

Hefei

- Research,development, and production of a full range of ultra-fast solid-state lasers
- Developing ultra-fast laser application technologies
- Providing comprehensive laser solution services



Changzhou

Shenzhen

Xi'an

- Customized development of a laser irradiation parameter measurement system
- Self-developed engineering-level numerical simulation system

- Research and production of the core components of laser devices
- Providing pre-sale and after-sale technical services for ultra-fast lasers

SERVICE SYSTEM / OUR SERVICES

Quality Commitment

All our laser products are certified to GB/T 19001-2016 and ISO 9001:2015. Our entire production process, from raw material procurement to final inspection, strictly follows national and industry standards.

Service Commitment

Our professional technical service team provides nationwide response within 48 hours and 7×24-hour online support.

PRODUCT FRAMEWORK↘

Industrial grade

IR Femtosecond

Pulse width < 500 fs

Industrial grade

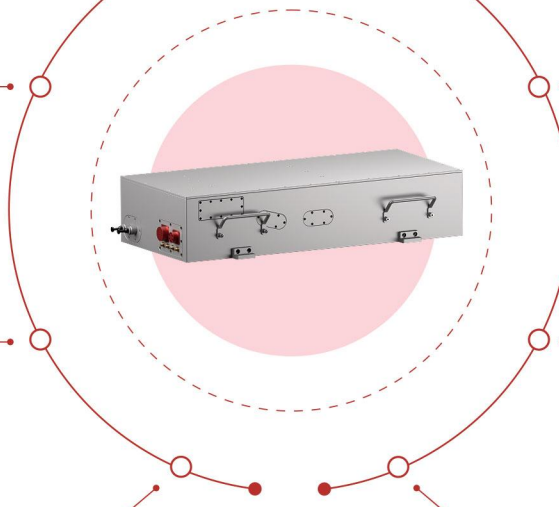
GR Nanosecond

Ultra-high power > 60 W
Lifespan up to 10,000+ hours

Industrial grade

IR Picosecond

Ultra-high power > 300 W
Pulse energy > 3.5 mJ



Industrial grade

UV Nanosecond

Ultra-high power > 40 W
Lifespan > 10,000 hours

Industrial grade

GR Picosecond

Ultra-high power > 100 W

Research

Nanosecond/Sub-Nanosecond

Ultra-high power > 100 W
Lifespan > 10,000 hours

Industrial grade

UV Picosecond

Ultra-high power > 40 W
Repetition rate 400 K – 1 MHz
Lifespan up to 15,000+ hours

Research

Mid-Infrared Laser

Wavelengt:2.7 – 4 μm

After multiple technological iterations, Laserion has achieved systematic breakthroughs in ultra-fast solid-state laser technology. Our proactive R&D team has developed a comprehensive, reliable laser product portfolio, forming a diversified matrix of nanosecond and mid-infrared lasers for complementary performance.
To ensure stable, high-quality products, we implement full-process, traceable quality control covering design, raw material procurement, manufacturing, packaging, transportation, and after-sales service.

A series of core technologies provide strong support for the efficient implementation of laser solutions

High-performance thermal management technology
Build a stable operation core barrier

- High-performance thermal design breaks through power and stability limits.
- Beam deterioration control ensures consistent,excellent optical performance.
- High environmental tolerance design enhances adaptability in complex scenarios.

Outstanding optical design capabilities
Break through the limit of high-power energy output

- Slab technology supports high-power output of hundreds of watts with large energy.
- Precise beam quality management achieves $M^2 < 1.2$
- Non-linear effect suppression enhances processing performance and quality.

Longevity Technology Solution
Build a low-maintenance operation system

- Self-cleaning tech extends UV laser lifespan by reducing pollution.
- Anti-damage membrane and auto point-changing extend machine life.
- Convenient maintenance design cuts costs and frequency.

Integrated Electronic Control Technology
Endow the product with an intelligent control core

- Multi-mode triggering (PSO/POD/PST/Gate) adapts to diverse needs.
- Full interface compatibility (RS-232, I/O, analog) ensures data interaction.
- Modular design simplifies maintenance and replacement.

High-Reliability Structural Design
Enhance tolerance to complex environments

- Lightweight, high-strength frame boosts overall reliability.
- Strict quality testing ensures performance in extreme environments.
- Fully airtight design meets complex condition requirements.

Core Component Manufacturing Upgrade
Drive continuous product performance improvement

- High-performance heat sink design ensures long-term stable operation.
- Stress-free crystal welding enhances core performance.
- Self-developed core components boost system integration.

HONORS AND QUALIFICATIONS

HONORS & CREDENTIALS

National-level honors

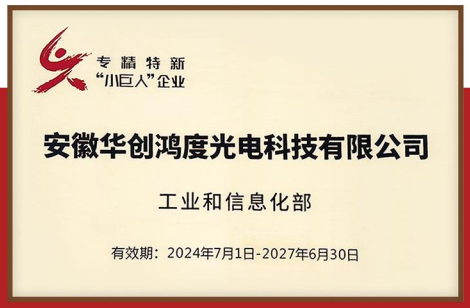
- National-level "Little Giant" Enterprise (Specialized, Refined, Innovative, High-quality)
- National-level high-tech enterprise
- National technology-based SME

Research achievements

- Participating in the National Key R&D Program
- Participated in formulating the national standard "Safety of Laser Products"

Provincial and Municipal Honors

- Anhui Provincial Specialized, Innovative, High-quality & Efficient SME
- High-level scientific & technological talent teams (Anhui & Hefei)
- First batch of major technological equipment recognized in Anhui



60+

Patented invention authorizations

40+

Laser products

80%

Proportion of R&D engineers

4+

Strategically deployed cities

24H

Customer response speed

98%

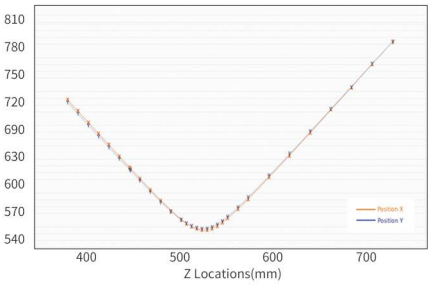
Customer satisfaction level

IR Ultrafast Laser

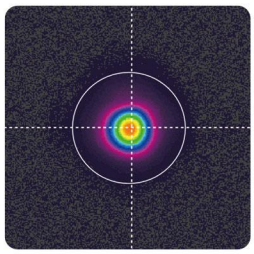
IR Picosecond / IR Femtosecond Laser

- **Max output power:** 300 W, pulse energy up to 3.5 mJ (capable of cutting glass > 19 mm thick)
- **Beam quality:** $M^2 < 1.3$
- **Control & functions:** RS232, GATE, TRIG, and PSO support
- **Design:** Modular, stable, and easy to maintain

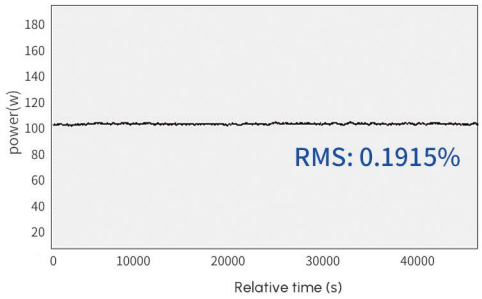
PRODUCT ADVANTAGES



Excellent beam quality



Typical spot size for high-power infrared picosecond lasers

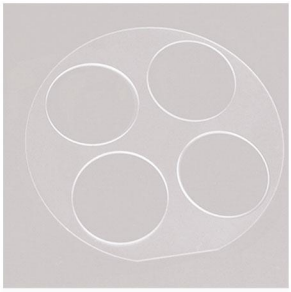


RMS power stability: 0.1915%

APPLICATION AREA

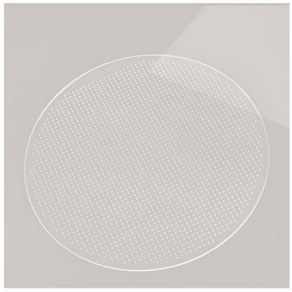
Glass cutting and drilling holes

Ultra-fast lasers enable high-precision, crack-free glass cutting and micro-hole processing, ideal for consumer electronics.



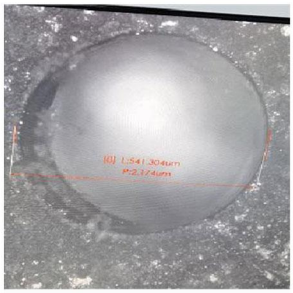
Sapphire cutting

Ultra-short pulses deliver efficient, low-loss sapphire cutting with smooth edges and no thermal damage.



TGV glass through hole

Fast, low-taper laser drilling supports high-density 3D packaging and advanced PCBs.



Aero engine special materials processing

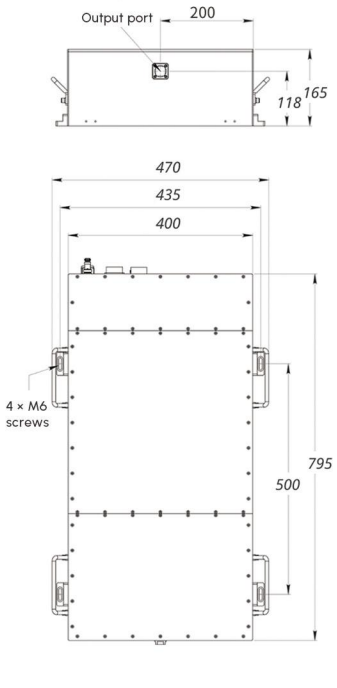
Enables precision microstructure processing of high-temperature alloys with minimal thermal impact, ideal for complex engine conditions.

TECHNICAL INDICATORS

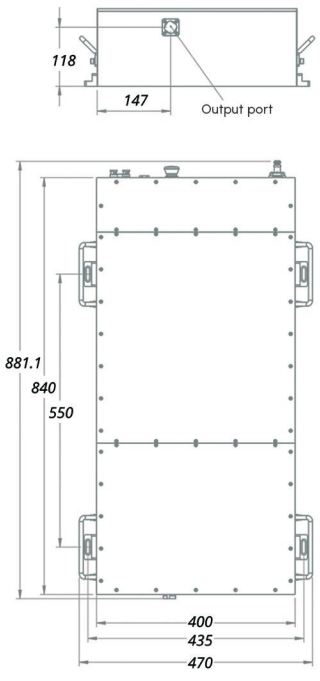
Parameter	IR Femtosecond Laser	IR Picosecond Laser				
Product series	FSIR Series	PHIR Series		PMIR Series	PLIR Series	Customized
	FSIR-50	PHIR-300	PEIR-90	PMIR-70	PLIR-20	PSIR-50-50P
Wavelength	1030 nm	1064 nm				
Repetition rate	50-2000 KHz	1 MHz-2 MHz	30-2000 KHz	30-2000 KHz	50-2000 KHz	1-2000 KHz
Pulse width	500 fs-5 ps	10 ps				50 ps-300 ps (pulse customizable)
Average power	≥ 50 W	≥ 300 W	≥ 90 W	≥ 70 W	≥ 20 W	≥ 50 W
Maximum pulse energy	≥ 500 μJ	≥ 300 μJ	≥ 3 mJ	≥ 2.3 mJ	≥ 400 uJ	≥ 10 mJ
Beam quality (M^2)	M^2 < 1.2	M^2 < 1.3				
Polarization extinction ratio	> 100 : 1					
Output beam diameter	3 mm	2 mm				
Beam divergence	< 0.7 mrad	< 1 mrad				
Power stability (RMS)	RMS < 0.8 %				RMS < 0.5 %	
Cooling method	Purified water cooling					

Note: Other indicators can be customized. Please contact our sales team for details.

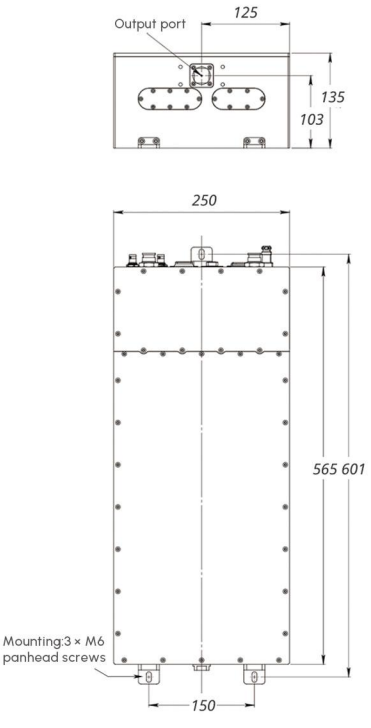
MECHANICAL DRAWING & DIMENSIONS



PHIR Series Size Chart



PMIR Series Size Chart

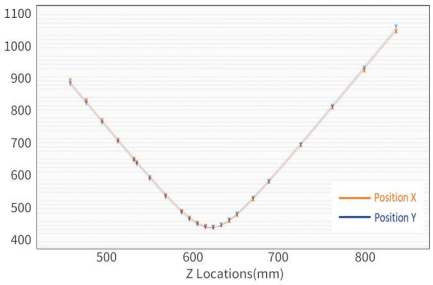


PLIR Series Dimension Chart

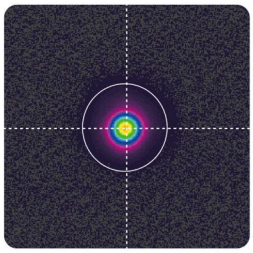
GR Picosecond Laser

- **Max power output:** 100 W
- **Beam quality:** M^2 < 1.3, supports rear-end DOE shaping and PST function
- **Control & functions:** RS232, GATE, TRIG, and PSO support
- **Design:** Modular, stable, and easy to maintain

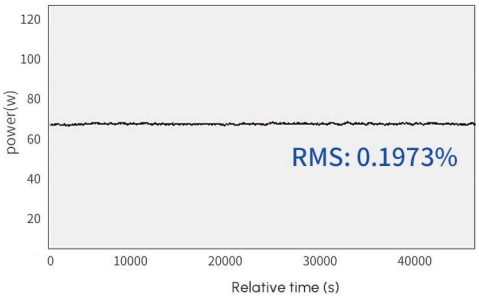
PRODUCT ADVANTAGES



Excellent beam quality

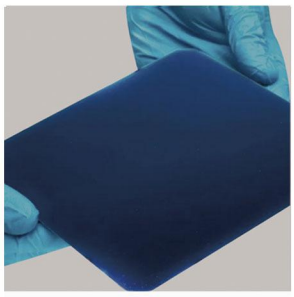


Typical spot size for high-power green picosecond lasers



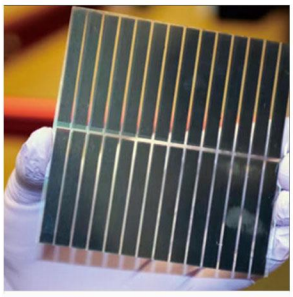
RMS power stability: 0.1973%

APPLICATION AREA



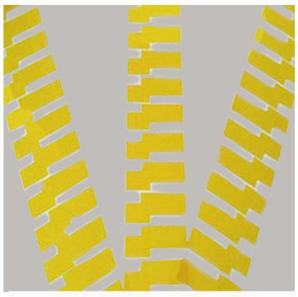
BC slotting

High-precision, low-damage, cost-effective, ideal for large-area pattern processing.



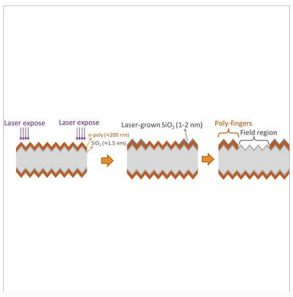
Perovskite marking

Precise depth control, base layer protection, and flexible channel width adjustment.



PI film cutting

Near-zero heat damage, no carbonization/yellowing, clean, burr-free edges.



TOPCon Poly thinning process

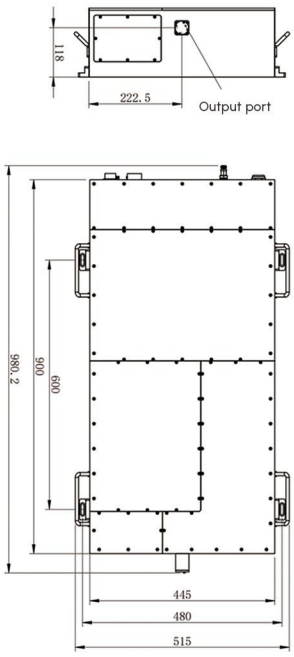
Cold processing, high precision (etching width < 20 μm), flexible parameters, and stable performance.

TECHNICAL INDICATORS

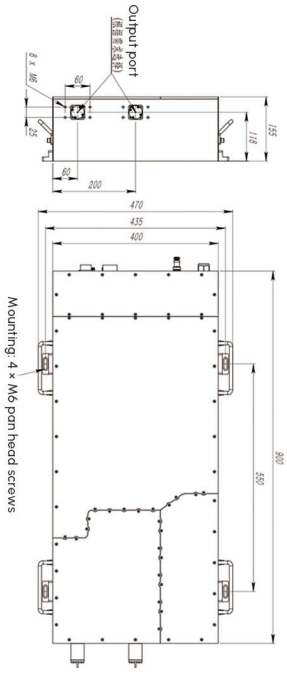
Parameter	Green (GR) Picosecond Laser				
Product series	PHGR Series		PMGR Series		PLGR Series
	GR-100	GR-60	GR-40	GR-30	GR-10
Wavelength	532 nm				
Repetition rate	400-2000 KHz	400-2000 KHz	400-2000 KHz	300-2000 KHz	200-2000 KHz
Pulse width	10 ps				
Average power	≥ 100 W	≥ 60 W	≥ 40 W	≥ 30 W	≥ 10 W
Maximum pulse energy	≥ 250 μJ	≥ 150 μJ	≥ 100 μJ	≥ 100 μJ	≥ 50 μJ
Beam quality (M^2)	M^2 < 1.3				
Polarization extinction ratio	> 100 : 1				
Output beam diameter	2 mm				
Beam divergence	< 0.5 mrad				
Power stability (RMS)	RMS < 0.8 %		RMS < 0.5 %		
Cooling method	Purified water cooling				

Note: Other indicators can be customized. Please contact our sales team for details.

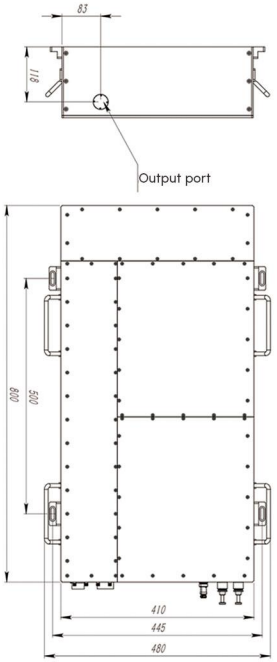
MECHANICAL DRAWING & DIMENSIONS



PHGR Series Dimension Chart



PMGR Series Dimension Chart

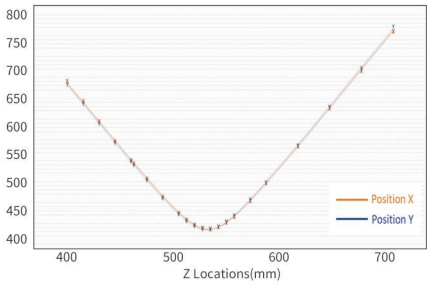


PLGR Series Dimension Chart

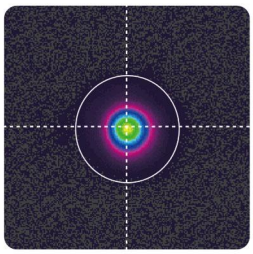
UV Picosecond Laser

- **Max output power:** 40 W, lifespan > 15,000 hours
- **Key feature:** Extremely small heat-affected zone, ideal for micro-nano applications
- **Beam quality:** $M^2 < 1.2$
- **Control & functions:** RS232, GATE, TRIG, and PSO support
- **Design:** Modular, stable, and easy to maintain

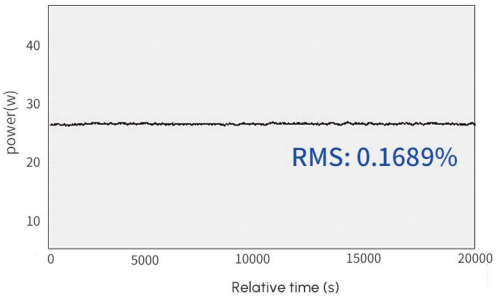
PRODUCT ADVANTAGES



Excellent beam quality for high-power UV picosecond lasers



Typical spot size for high-power UV picosecond lasers

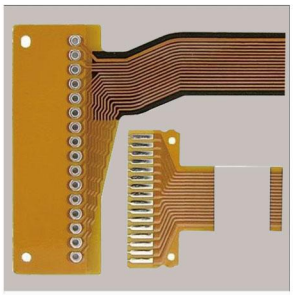


RMS power stability: 0.1689%

APPLICATION AREA

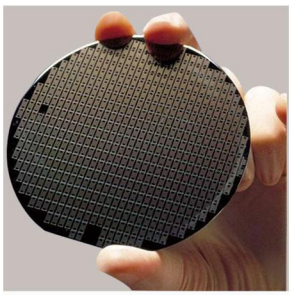
OLED cutting

Non-contact, high-precision cutting with zero thermal damage for high-end electronics.



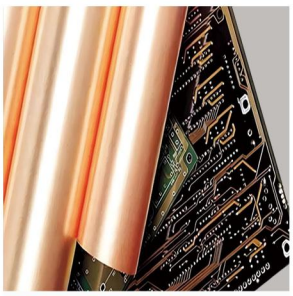
FPC cutting

Ideal for high-precision processing of complex-shaped flexible circuits.



Silicon wafer sawing and cutting

Micron-level precision cutting that preserves wafer performance for semiconductor manufacturing.



Copper foil cutting

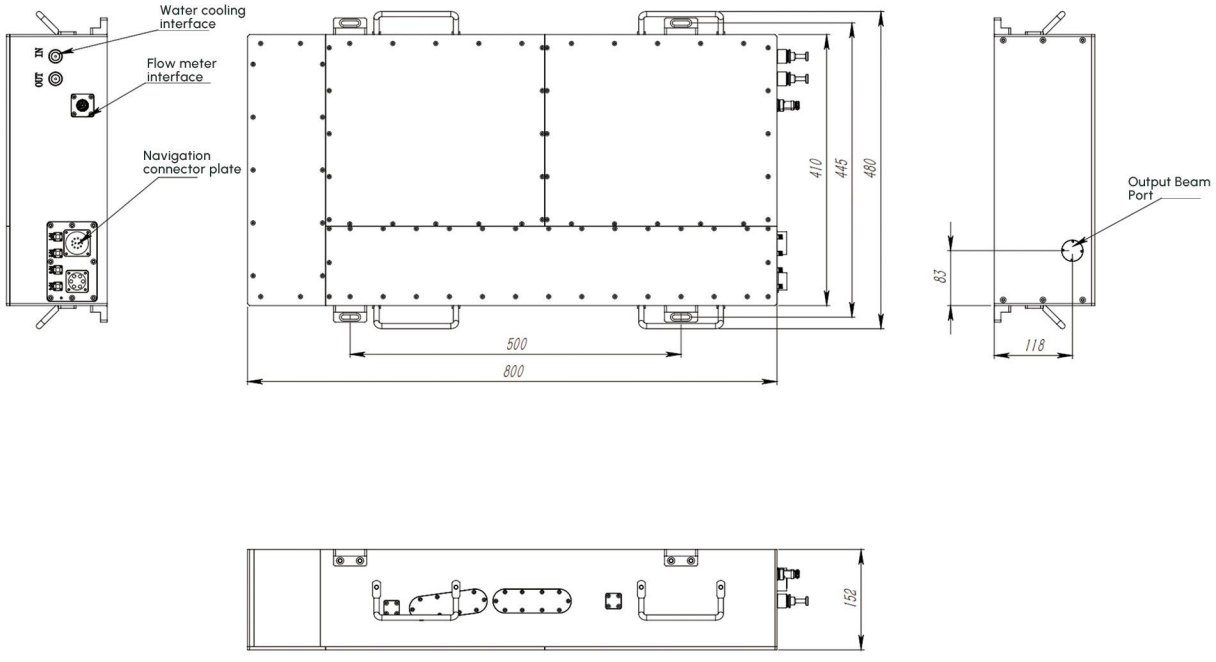
High-precision cold processing ensures burr-free, deformation-free results and intact conductivity.

TECHNICAL INDICATORS

Parameter	UV Picosecond Laser			
Product series	PHUV Series		PMUV Series	PLUV Series
	UP-40	UP-30	UP-20	UP-5
Wavelength	355 nm			
Repetition rate	500-2000 KHz			
Pulse width	10 ps			
Average power	≥ 40 W	≥ 30 W	≥ 20 W	≥ 5 W
Maximum pulse energy	≥ 80 μJ	≥ 60 μJ	≥ 40 μJ	≥ 10 μJ
Beam quality (M^2)	M^2 < 1.2			
Polarization extinction ratio	> 100 : 1			
Output beam diameter	2.2 mm ± 0.3 mm (400 mm at output beam port)			
Beam divergence	< 1.5 mrad			
Power stability (RMS)	RMS < 1 %			
Cooling method	Purified water cooling			

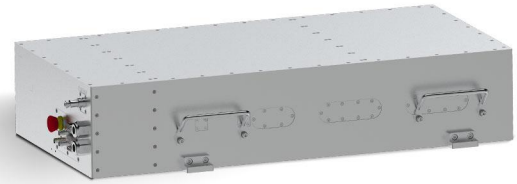
Note: Custom specifications available upon request, please contact our sales team.

MECHANICAL DRAWING & DIMENSIONS

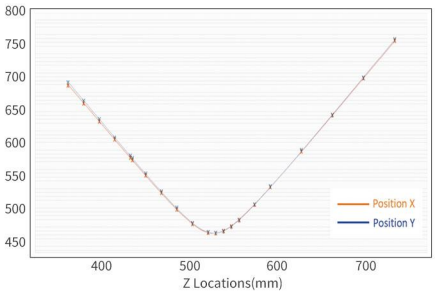


120MHz UV/DUV Picosecond Laser

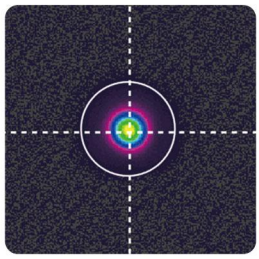
- 120 MHz max repetition rate for semiconductor testing
- Auto spot-shifting: 20,000 + hrs service life
- Superior beam quality (M^2 < 1.3)
- RS232/GATE/TRIG control + PSO function
- Modular design, stable & easy to maintain



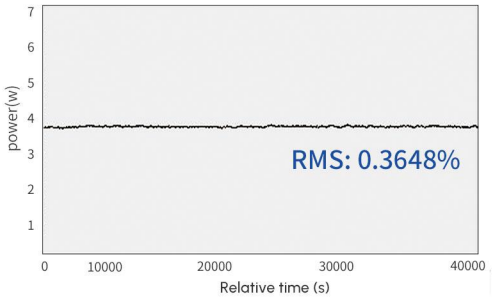
PRODUCT ADVANTAGES



Beam Quality: M^2 < 1.3, stable across propagation

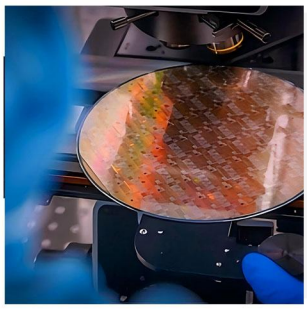


Beam Profile: Near-diffraction-limited circular spot



Power Stability: RMS < 0.4% over 40,000 s (RMS: 0.3648%)

APPLICATION AREA



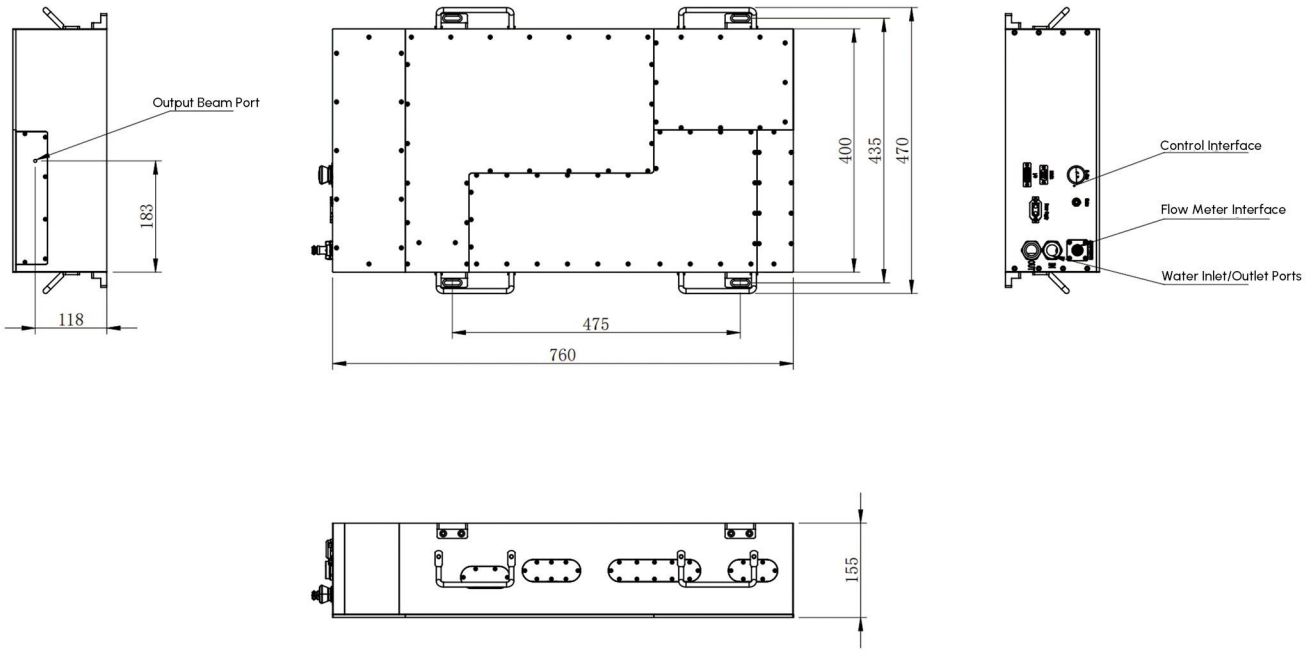
- **Semiconductor Front-End**
  Core components for measurement/annealing equipment, critical to wafer yield
- **Advanced Analysis**
  Material surface detection, LIBS, LIF, UV Raman spectroscopy
- **Precision Processing**
  Laser fine microprocessing

TECHNICAL INDICATORS

Parameter	High Repetition Rate UV/DUV Picosecond Solid-State Lasers		
Product series	DUV-2	DUV-1	UV-4
Wavelength	266 nm		355 nm
Repetition rate	120 MHz	120 MHz	120 MHz
Pulse width	10 ps		
Average power	≥ 4 W	≥ 1 W	≥ 4 W
Beam quality (M^2)	M^2 < 1.3		
Polarization extinction ratio	> 100 : 1		
Output beam diameter	3 mm		
Beam divergence	< 0.25 mrad		
Power stability (RMS)	RMS < 1 %		
Cooling method	Purified water cooling		

Note: Custom specifications available upon request, please contact our sales team.

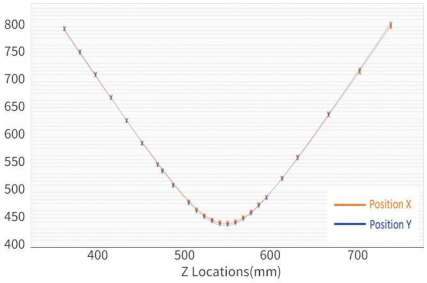
MECHANICAL DRAWING & DIMENSIONS



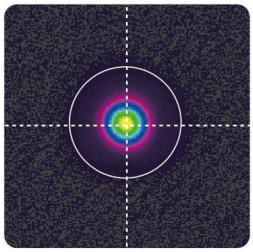
Nanosecond Laser

- **Design:** Highly integrated, compact form factor for easy system integration
- **Performance:** Higher power,greater pulse energy, superior stability
- **Beam Quality:** $M^2 < 1.3$
- **Control:** RS232, GATE, TRIG control + PSO functionality
- **Maintainability:** Modular design, stable structure, easy maintenance

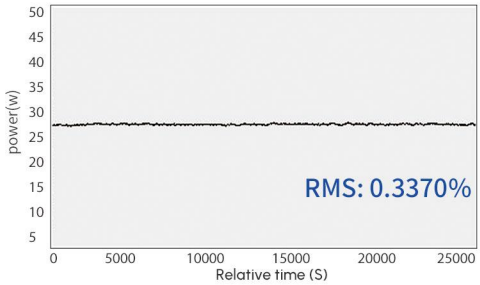
PRODUCT ADVANTAGES



Beam Quality: Consistent power output maintained across the entire propagation range, ensuring processing uniformity.

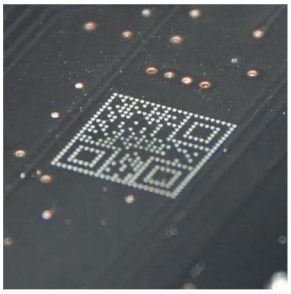


Beam Profile: Near-diffraction-limited circular spot with excellent symmetry for high-precision applications.



Power Stability: Exceptional long-term stability with an RMS fluctuation of 0.3370% over a 25,000-second continuous test.

APPLICATION AREA

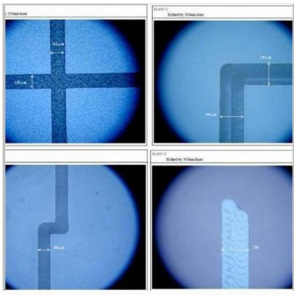


Laser Marking

High precision, low thermal damage, eco-friendly

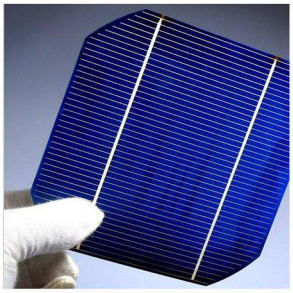
Glass Atomization

Non-contact etching, scalable production, clean processing



ITO Film Etching

Uniform etching, low stress, stable & cost-effective



Solar Wafer Cutting

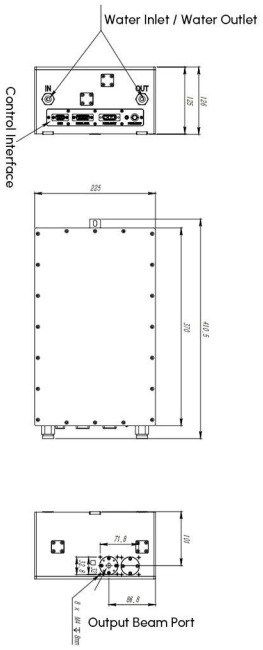
Fast grooving, high efficiency, improved cell performance

TECHNICAL INDICATORS

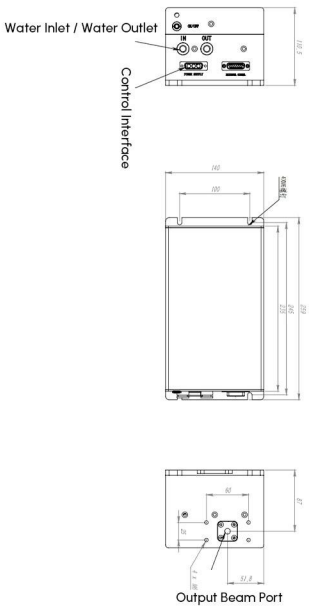
Parameter	IR Nanosecond Laser	Green Nanosecond Laser		UV Nanosecond Laser		
Product series	NSIR-50	NSGR-60	NSGR-40	NSUV-25	NSUV-20	NSUV-5
Wavelength	1064 nm	532 nm		355 nm		
Repetition rate	100-200 KHz	50-200 KHz	40-200 KHz	50-150 KHz		30-120 KHz
Pulse width	< 13ns@100k	< 30ns@50k		< 20ns@50k		< 15ns@50k
Average power	≥ 50W@100k	≥ 60W@50k	≥ 40W@40k	≥ 25W@50k	≥ 20W@50k	≥ 5W@50k
Maximum pulse energy	≥ 0.5 mJ	≥ 1.2 mJ	≥ 1 mJ	≥ 500 μJ	≥ 400 μJ	≥ 100 μJ
Beam quality (M^2)	M^2 < 1.3	M^2 < 1.2				
Output beam diameter	≈ 2 mm	≈ 1 mm				≈ 0.8 mm
Beam divergence	< 2 mrad	< 1.5 mrad				
Power stability (RMS)	RMS < 1.5 %					
Cooling method	Purified water cooling					Air-cooled/Water cooling

Note: Custom specifications available upon request, please contact our sales team.

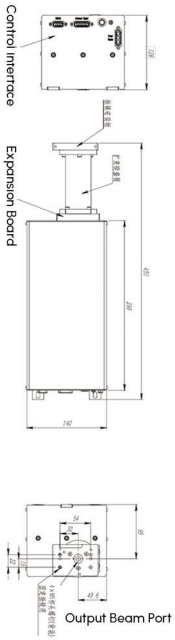
MECHANICAL DRAWING & DIMENSIONS



25 W UV / 40 W Green Laser



5 W UV Laser



5 W Air-Cooled UV Laser

Nanosecond/Sub-Nanosecond Laser

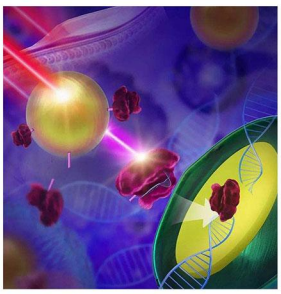
PRODUCT ADVANTAGES

- **Performance:** 10 J max pulse energy, 1 kHz max repetition rate
- **Customization:** Tailored semiconductor-pumped solid-state lasers for scientific & industrial applications
- **Reliability:** Active cleaning system for long service life (eliminates passive air purification limitations)
- **Integration:** Compact design for seamless system embedding

APPLICATION AREA

Plastic Welding

Precise energy control, strong welds, no deformation or micro-cracking



Biomedical

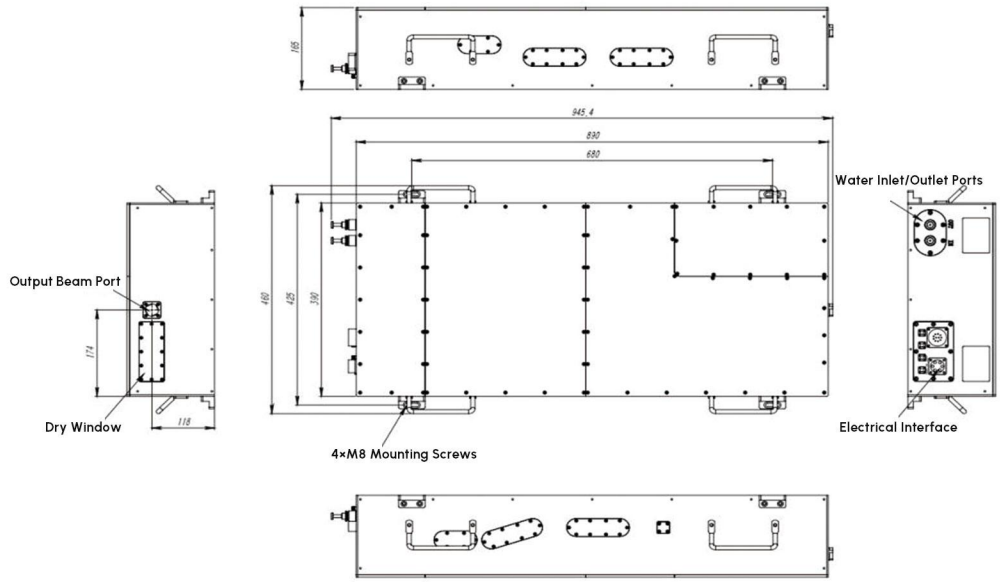
High-precision cell imaging & gene editing, minimal tissue damage

TECHNICAL INDICATORS

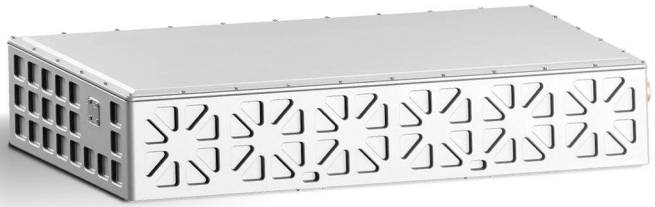
Parameter	Nanosecond/Sub-Nanosecond Laser					
Product series	NS 1030-500X	NS 532-100X	NS 1064-100L	NS 532-50L	Sub-Ns 1064-40	Sub-Ns532-20
Wavelength	1030 nm	532 nm	1064 nm	532 nm	1064 nm	532 nm
Repetition rate	50 Hz	1 KHz	20-100 KHz		10-1000 Hz	
Pulse width	< 100 ns				< 500 ps	
Average power	≥ 500 W	≥ 100 W	≥ 100 W	≥ 50 W	≥ 40 W	≥ 20 W
Maximum pulse energy	≥ 10 J	≥ 100mJ@1K	≥ 5 mJ	≥ 2.5 mJ	≥ 40 mJ	≥ 20 mJ
Beam quality (M^2)	M^2 < 6	M^2 < 2	M^2 < 2		M^2 < 4	
Polarization extinction ratio	> 100 : 1					
Output beam diameter	5-10 mm				> 8 mm	
Beam divergence	< 0.7 mrad	< 0.35 mrad	< 0.7 mrad	< 0.35 mrad	< 0.1 mrad	< 0.5 mrad
Power stability (RMS)	RMS < 3 %		RMS < 1.5 %			
Cooling method	Purified water cooling					

Note: Custom specifications available upon request, please contact our sales team.

MECHANICAL DRAWING & DIMENSIONS



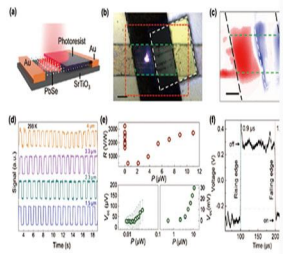
Mid-Infrared Laser (MIR)



PRODUCT ADVANTAGES

- **Advanced Technology:** Unique self-synchronous optical parametric frequency conversion
- **Broad Wavelength Range:** 2.7 – 4.0 μm continuous, stable output
- **High Performance:** Up to 20 W average power, 10 mJ pulse energy (attosecond pulse width)
- **Dual Product Lines:** Nanosecond (NX) & Attosecond (PX) series
- **Diverse Applications:** medical treatment, scientific research, gas detection

APPLICATION AREA



Mid-Infrared Photodetector

Noise suppression via balanced differential design, for gas detection, optical communication, and spectral analysis.

Optical Communication

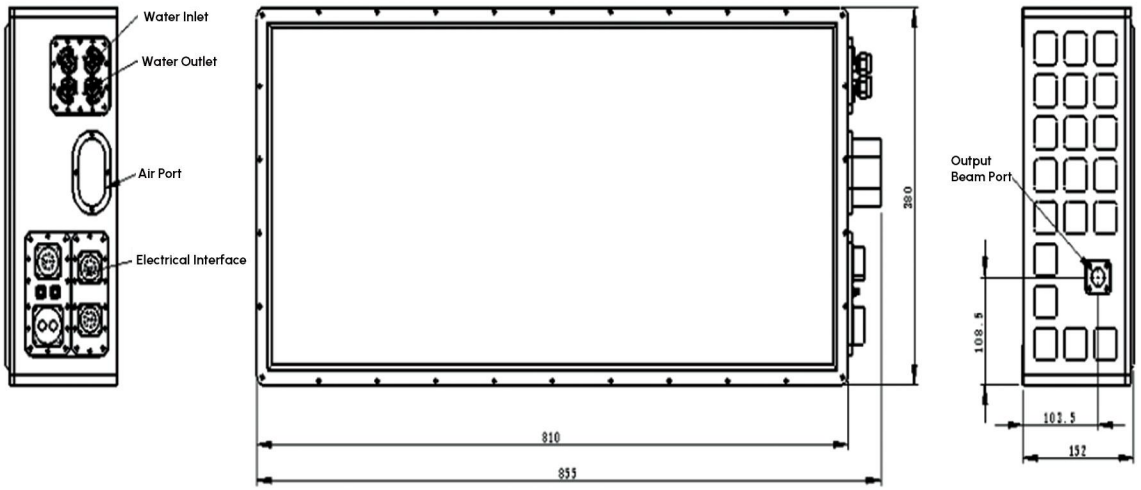
Long-distance free-space communication with enhanced speed and stability.

TECHNICAL INDICATORS

Parameter	Mid-Infrared Laser (MIR)	
Product series	MIR-PX-2	MIR-PX-3
Wavelength	~ 2.7 μm	~ 4 μm
Repetition rate	1-20 KHz	
Pulse width	1-50 ns	
Average power	≥ 20 W	
Maximum pulse energy	≥ 10 mJ	≥ 5 mJ
Beam quality (M^2)	M^2 < 3	
Output beam diameter	3 mm	
Beam divergence	< 4 mrad	< 6 mrad
Power stability (RMS)	RMS < 2 %	
Cooling method	Purified water cooling	

Note: Custom specifications available upon request, please contact our sales team.

MECHANICAL DRAWING & DIMENSIONS



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