

*ULASER PRODUCT BROCHURE*

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# 213nm Nd:YVO<sub>4</sub> q-switched picosecond laser

## MB Microchip laser system



### DESCRIPTION

213nm laser is the laser with shortest wavelength among ULaser’s products. It is a deep uv laser, which is based on Nd:YVO<sub>4</sub>. 550ps and 600ps are optional.

Our 213nm laser has narrow laser pulse width and high pulse repetition frequency. Compact laser head makes 213nm laser integrate easily. Our 213nm laser is compatible with internal and external triggers.

Our 213nm laser can replace ArF excimer laser in lots of areas. It performs well in industry, like laser ablation and marking. Our 213nm laser can also be used in some precision field like fabrication of fiber Bragg grating, photolithography process and so on.

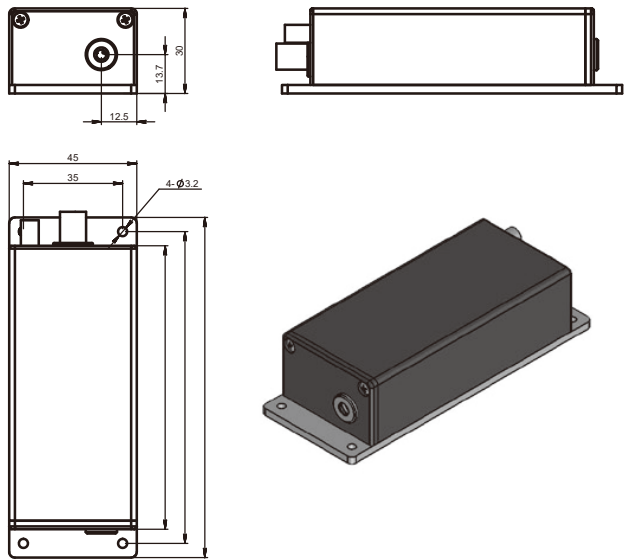
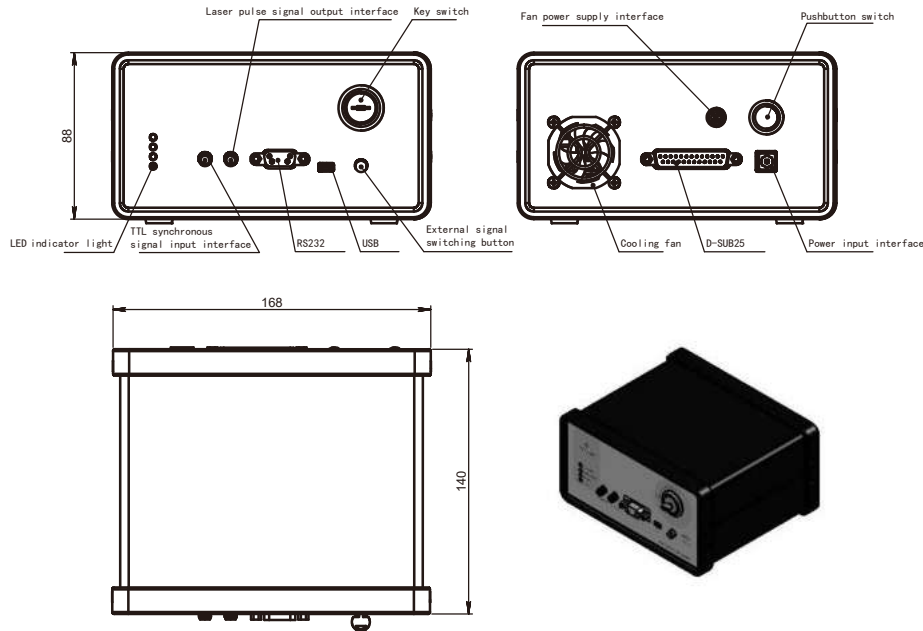
### FEATURES

- Pulse energy up to 400μJ
- Fully sealed design, high reliability
- Beam mode is TEM
- High polarization direction stability

### APPLICATIONS

- Seed source
- Laser ultrasonic testin
- Optical parametric oscillation pump source
- Micromachining
- Laser ionization mass spectrometry
- Laser induced breakdown spectroscopy

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL213- 1KHz- 4μJ- MB001
Optical parameter	Wavelength(nm)	213
	Repetition frequency (KHz)	1*
	Average power(mW)	4
	Output energy(uJ)	4
	Pulse width (ps)	500
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	4
	Vertical @1/e <sup>2</sup>	4
	Polarization characteristics	>100:1
System parameters	System power consumption (W)	≤25
	power input	100-240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15-35
	Storage temperature (°C)	0-60

1. \* the light outlet of the laser head is side outlet. Please refer to the mechanical dimension drawing for details.
2. the built-in beam expanding function can be customized to meet the requirements of small divergence angle (less than 2mrad).





# 237nm Nd:YAG q-switched nanosecond laser

## MI Microchip laser system



### DESCRIPTION

237nm laser is an excellent laser used in the earlier period. ULaser can provide a kind of 237nm microchip laser with 2ns. By frequency doubling of Nd:YAG crystal's excitation light, we can get commensurable harmonic wave.

Our 237nm laser has advantage of compact structure and high stability. And it has high polarization direction stability. As a deep uv laser, it has accepted little heat effect and high precision.

Rely on these advantage, our 237nm laser is perfect in laser induced fluorescence, laser ultrasound, radar ranging and raman spectrometer.

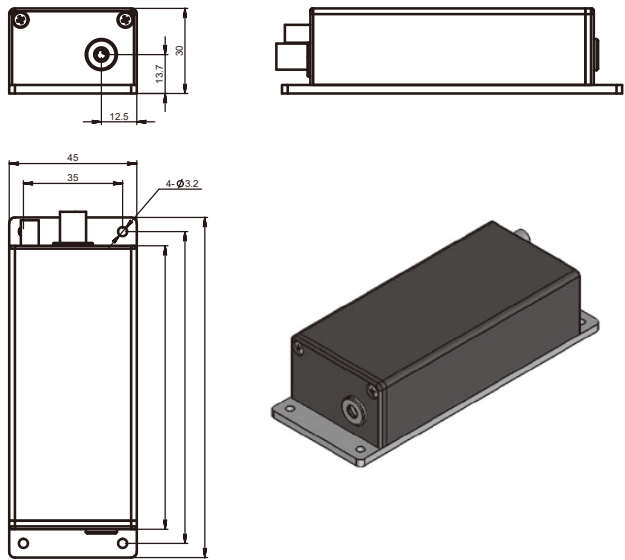
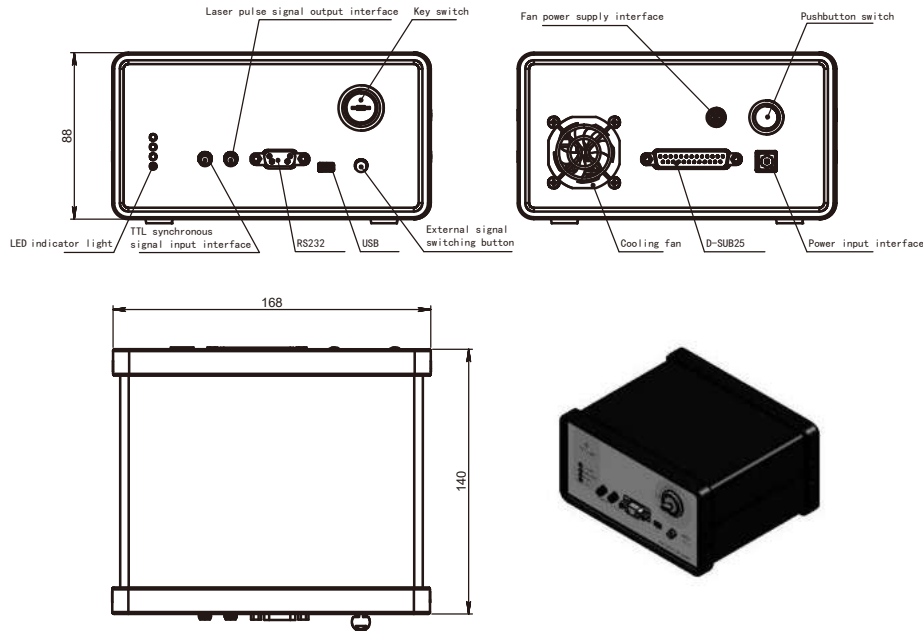
### FEATURES

- Compact structure and high stability
- High polarization direction stability
- Beam mode is TEM<sub>00</sub>
- Repetition rate up to 5KHz

### APPLICATIONS

- laser induced fluorescence
- Ultrasonic testing
- Radar ranging
- Raman spectroscopic detection

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL237- 2KHz- 1μJ- MI001
Optical parameter	Wavelength(nm)	237
	Repetition frequency (KHz)	2*
	Average power(mW)	2
	Output energy(uJ)	1
	Pulse width (ps)	1500
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	6
	Vertical @1/e <sup>2</sup>	6
Polarization characteristics		>100:1
System parameters	System power consumption (W)	≤25
	Power input	100-240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15-35
	Storage temperature (°C)	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details  
2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 257nm Nd:YAG q-switched picosecond laser

## MJ Microchip laser system



### DESCRIPTION

257nm laser is one of the series of solid state laser provided by ULaser. It is based on the fourth harmonic wave of Nd:YAG crystal. Q-switched crystal bonded with laser crystal is used to emit 800ps output beam. And it can also be called as 257nm microchip laser.

Our 257nm laser has pure and stable output light. It has very low full angle beam divergence. Both horizontal and vertical one can down to 2mrad@1/e<sup>2</sup>. Our 257nm laser supports internal and external triggers. And it has fully sealed modules for secondary development.

Our 257nm laser can performs well in ultraviolet way. It is perfect in micromachining, laser spectra, photoacoustic imaging, etc.

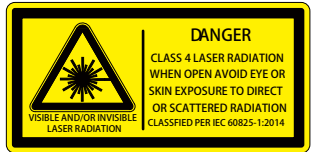
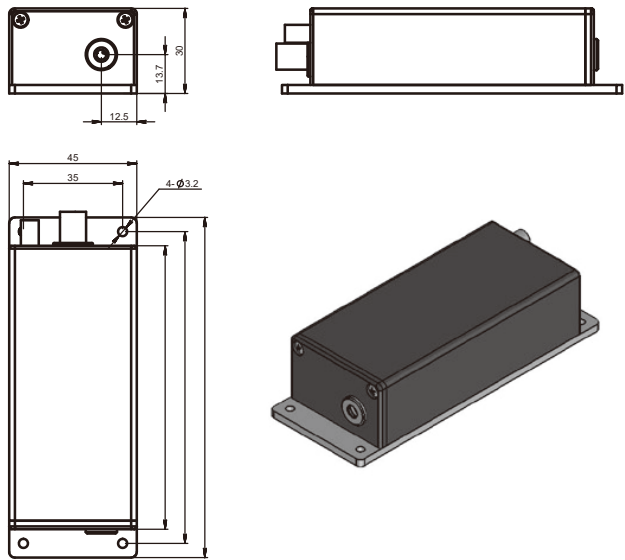
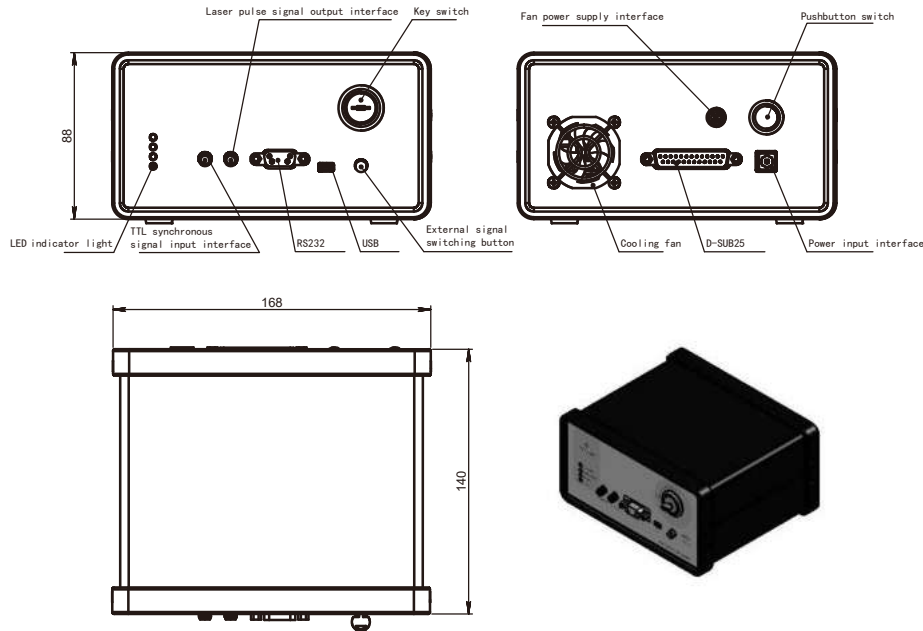
### FEATURES

- Pulse width up to 800ps
- Pulse energy up to 100μJ
- Beam mode is TEM<sub>00</sub>
- Maximum repetition rate up to 2KHz

### APPLICATIONS

- Material micromachining
- Spectral detection
- Lidar
- Pump source
- biomedical science

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL257-1KHz-8μJ-MJ001	UL257-2KHz-5μJ-MJ002
Optical parameter	Wavelength(nm)	257	257
	Repetition frequency (KHz)	1*	2*
	Average power(mW)	8	10
	Output energy(uJ)	8	5
	Pulse width (ps)	800	800
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	2	3
	Vertical @1/e <sup>2</sup>	2	3
	Polarization characteristics	>100:1	>100:1
System parameters	System power consumption (W)	≤15	≤25
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35
	Storage temperature (°C)	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details  
2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 266nm Nd:YAG q-switched nanosecond laser

## MA Microchip laser system



### DESCRIPTION

266nm laser is one of the series of solid state laser provided by ULaser. It is based on the Nd:YAG crystal. ULaser especially recommends our 266nm picosecond laser including of 2000ps, 550ps, 750ps and 350ps ones. If you need others, you can consult our sale staffs.

Our 266nm laser has pure and stable pulse. Thus, it has very high quality in pulse beam. Besides, it is a compact laser which is easy in install and integrate. Though our 266nm is a microchip laser which has small size and light weight, it is still a high energy laser.

Our 266nm laser has wide applications in the various walks of life. It can be used in micromachining, time resolved Raman spectroscopy, laser ultrasound, laser induced breakdown spectroscopy and so on.

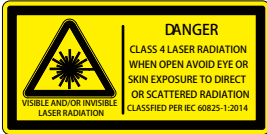
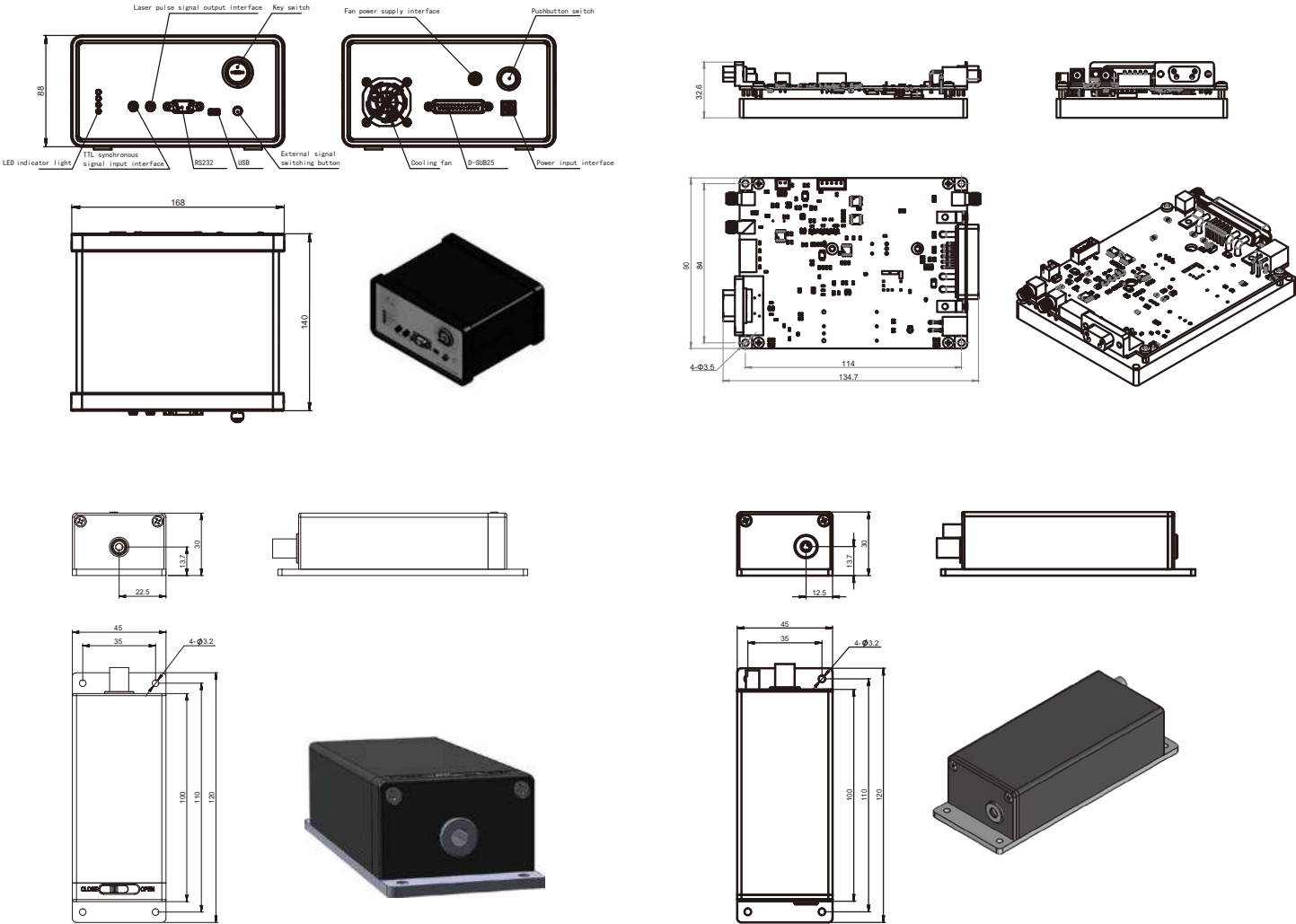
### FEATURES

- Pulse width up to 1ns
- Pulse energy up to 200μJ
- Beam mode is TEM<sub>00</sub>
- Repetition frequency up to 20kHz
- Fully sealed design, high reliability

### APPLICATIONS

- Lidar
- Laser Ranging
- Atmospheric monitoring
- Optical metrology
- Laser ionization mass spectrometry
- Biomedical Science

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL266-1KHz-15μJ-MA001	UL266-5KHz-8μJ-MA002	UL266-10KHz-3μJ-MA003	UL266-20KHz-2μJ-MA004
Optical parameter	Wavelength(nm)	266	266	266	266
	Repetition frequency (KHz)	1*	5*	10*	20*
	Average power(mW)	15	40	30	40
	Output energy(μJ)	15	8	3	2
	Pulse width (ps)	1500	1200	1200	1200
	Power stability (8h)	±3%	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	5	5	5	5
	Vertical @1/e <sup>2</sup>	5	5	5	5
	Polarization characteristics	> 100:1	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤35	≤35	≤35	≤35
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 266nm Nd:YAG q-switched picosecond laser

## MB Microchip laser system



### DESCRIPTION

266nm laser is one of the series of solid state laser provided by ULaser. It is based on the Nd:YAG crystal. ULaser especially recommends our 266nm picosecond laser including of 2000ps, 550ps, 750ps and 350ps ones. If you need others, you can consult our sale staffs.

Our 266nm laser has pure and stable pulse. Thus, it has very high quality in pulse beam. Besides, it is a compact laser which is easy in install and integrate. Though our 266nm is a microchip laser which has small size and light weight, it is still a high energy laser.

Our 266nm laser has wide applications in the various walks of life. It can be used in micromachining, time resolved Raman spectroscopy, laser ultrasound, laser induced breakdown spectroscopy and so on.

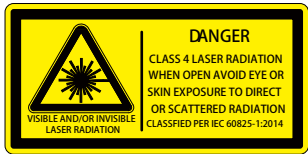
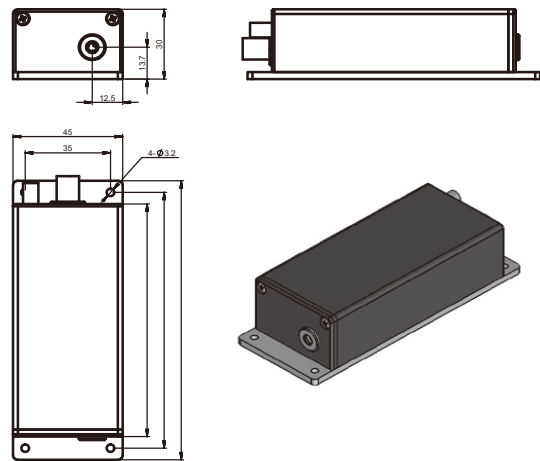
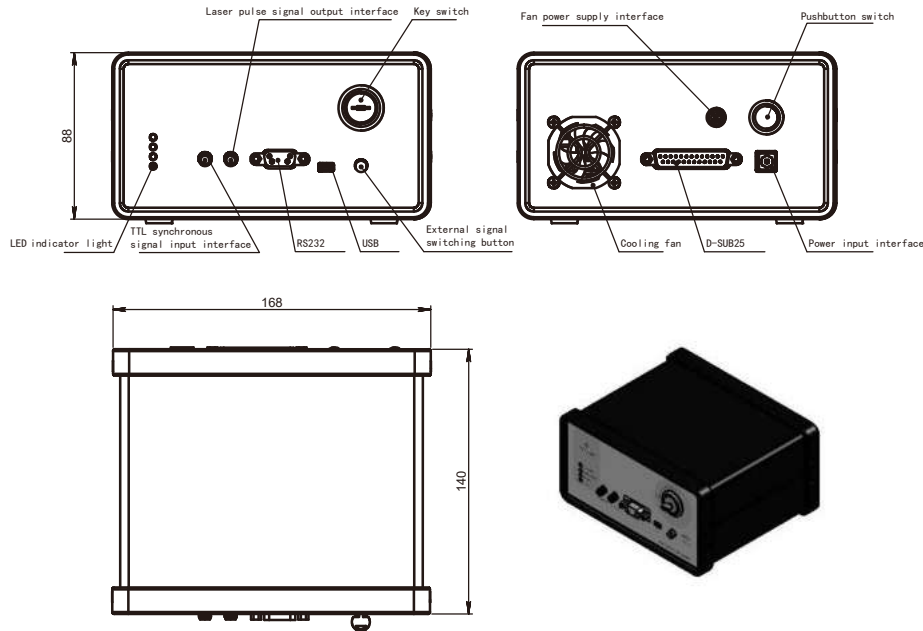
### FEATURES

- Pulse energy up to 180μJ
- High polarization direction stability
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- biomedical science
- Laser ultrasonic testing
- Laser ionization mass spectrometry
- Nonlinear optical measurement

### OUTLINE SIZE(mm)



PARAMETERS

Model	UL266- 1KHz- 12μJ- MB002	
Optical parameter	Wavelength(nm)	266
	Repetition frequency (KHz)	1
	Average power(mW)	12
	Output energy(uJ)	12
	Pulse width (ps)	500
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	4
	Vertical @1/e <sup>2</sup>	4
	Polarization characteristics	> 100:1
System parameters	System power consumption (W)	≤25
	Power input	100- 240 VAC,50/60Hz
	Control interface	RS232、 USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15- 35
	Storage temperature (°C)	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 266nm Nd:YAG q-switched picosecond laser

## MC Microchip laser system



### DESCRIPTION

266nm laser is one of the series of solid state laser provided by ULaser. It is based on the Nd:YAG crystal. ULaser especially recommends our 266nm picosecond laser including of 2000ps, 550ps, 750ps and 350ps ones. If you need others, you can consult our sale staffs.

Our 266nm laser has pure and stable pulse. Thus, it has very high quality in pulse beam. Besides, it is a compact laser which is easy in install and integrate. Though our 266nm is a microchip laser which has small size and light weight, it is still a high energy laser.

Our 266nm laser has wide applications in the various walks of life. It can be used in micromachining, time resolved Raman spectroscopy, laser ultrasound, laser induced breakdown spectroscopy and so on.

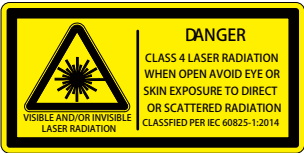
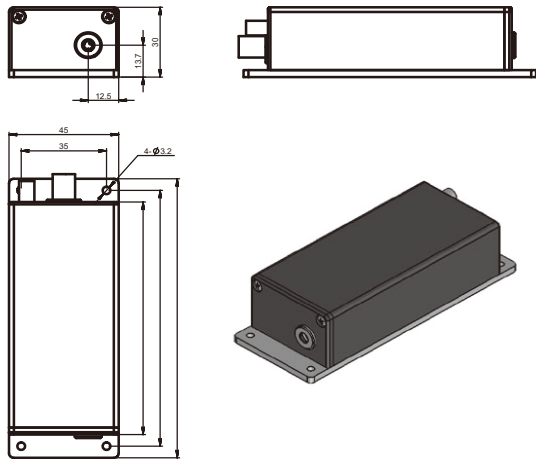
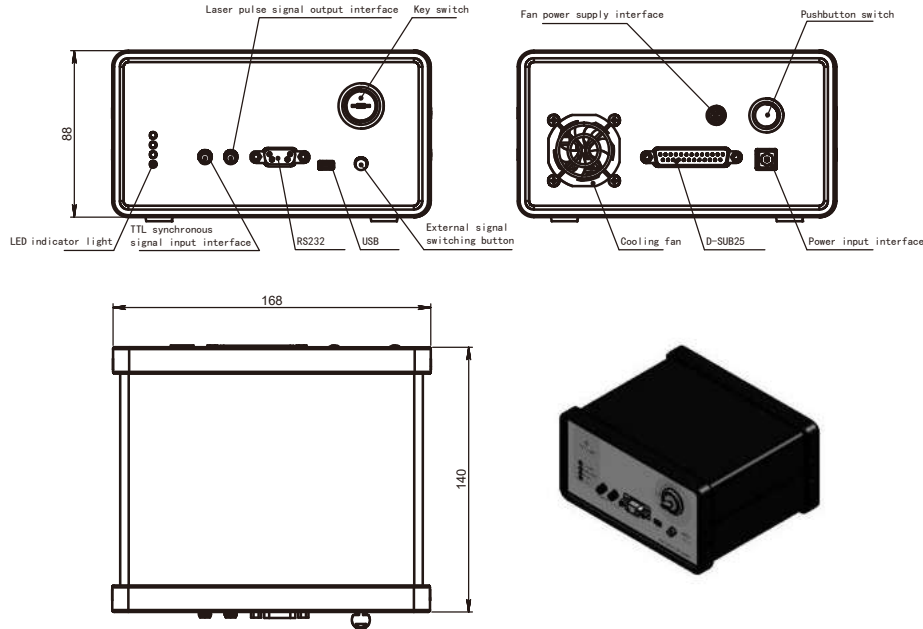
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Laser ultrasonic testing
- Micromachining
- Pump source
- Laser induced fluorescence
- Laser ultrasonic image

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL266-1KHz-10μJ-MC001	UL266-5KHz-8μJ-MC002	UL266-10KHz-4μJ-MC003
Optical parameter	Wavelength(nm)	266	266	266
	Repetition frequency (KHz)	1*	5*	10*
	Average power(mW)	10	40	40
	Output energy(μJ)	10	8	4
	Pulse width (ps)	650	650	650
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	5	8	8
	Vertical @1/e <sup>2</sup>	5	8	8
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤25	≤30	≤30
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 266nm Nd:YAG q-switched picosecond laser

## MD Microchip laser system



### DESCRIPTION

266nm laser is one of the series of solid state laser provided by ULaser. It is based on the Nd:YAG crystal. ULaser especially recommends our 266nm picosecond laser including of 2000ps, 550ps, 750ps and 350ps ones. If you need others, you can consult our sale staffs.

Our 266nm laser has pure and stable pulse. Thus, it has very high quality in pulse beam. Besides, it is a compact laser which is easy in install and integrate. Though our 266nm is a microchip laser which has small size and light weight, it is still a high energy laser.

Our 266nm laser has wide applications in the various walks of life. It can be used in micromachining, time resolved Raman spectroscopy, laser ultrasound, laser induced breakdown spectroscopy and so on.

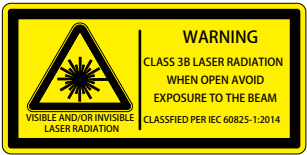
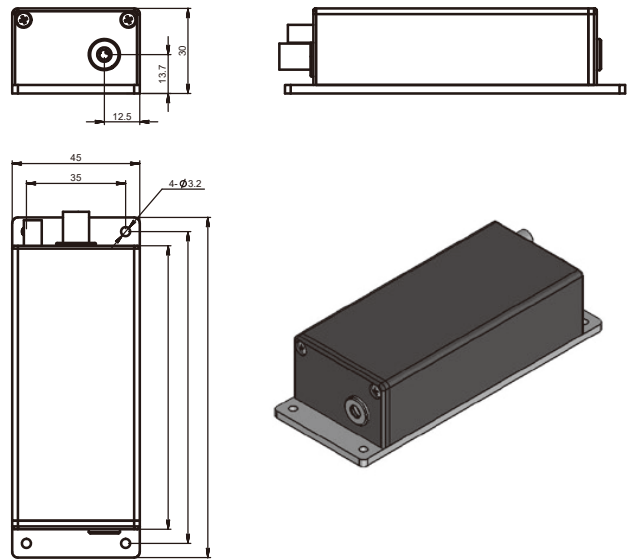
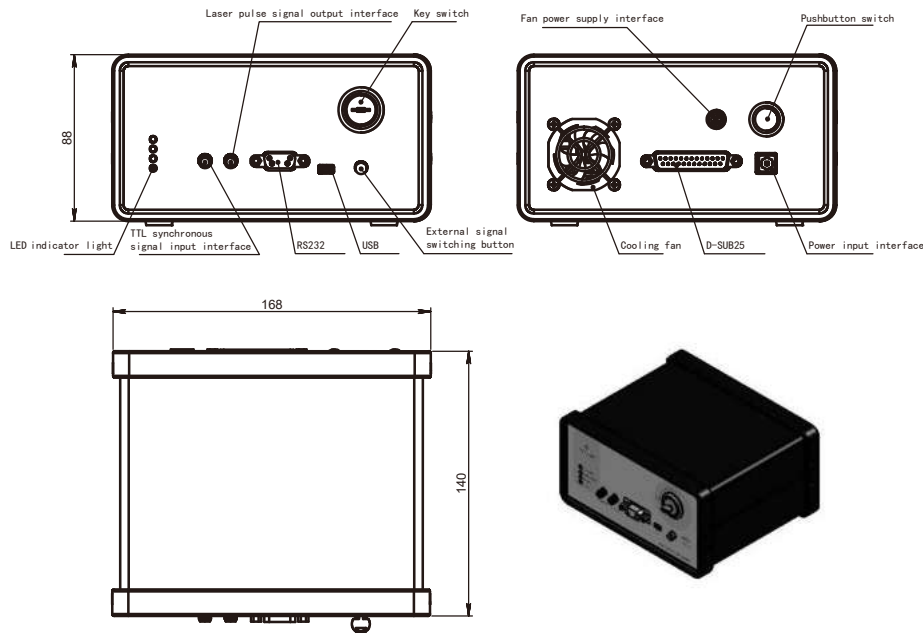
### FEATURES

- Pulse width up to 300ps
- Pulse energy up to 150μJ
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability
- Maximum repetition rate up to 1kHz
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Laser micromachining
- Laser ionization mass spectrometry
- Nonlinear optical measurement
- Laser induced fluorescence
- Laser induced breakdown spectroscopy

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL266- 1KHz- 5μJ- MD001
Optical parameter	Wavelength(nm)	266
	Repetition frequency (KHz)	1*
	Average power(mW)	5
	Output energy(uJ)	5
	Pulse width (ps)	300
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	8
	Vertical @1/e <sup>2</sup>	8
	Polarization characteristics	> 100:1
System parameters	System power consumption (W)	≤25
	Power input	100- 240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15- 35
	Storage temperature (°C)	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 266nm Nd:YAG q-switched picosecond laser

## MO Microchip laser system



### DESCRIPTION

266nm laser is one of the series of solid state laser provided by ULaser. It is based on the Nd:YAG crystal. ULaser especially recommends our 266nm picosecond laser including of 2000ps, 550ps, 750ps and 350ps ones. If you need others, you can consult our sale staffs.

Our 266nm laser has pure and stable pulse. Thus, it has very high quality in pulse beam. Besides, it is a compact laser which is easy in install and integrate. Though our 266nm is a microchip laser which has small size and light weight, it is still a high energy laser.

Our 266nm laser has wide applications in the various walks of life. It can be used in micromachining, time resolved Raman spectroscopy, laser ultrasound, laser induced breakdown spectroscopy and so on.

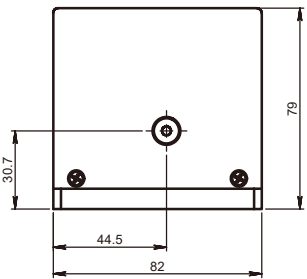
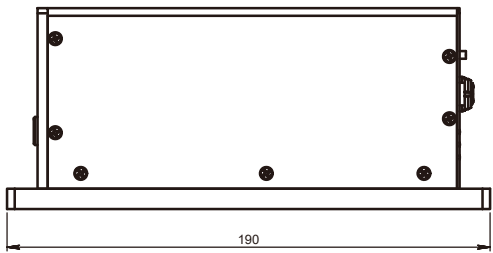
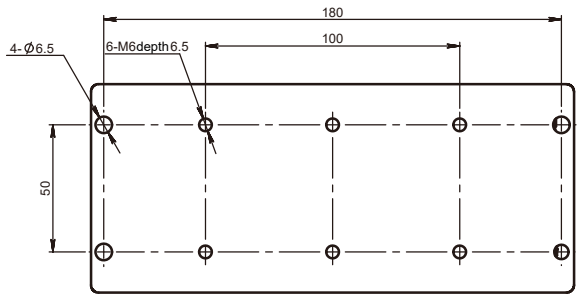
### FEATURES

- Pulse width < 1ns
- The repetition frequency is adjustable from 1 to 200Hz
- The laser energy is adjustable on the machine
- Optical trigger output signal jitter < 100ps
- Fully sealed design, high reliability
- Plug and play, including upper computer software

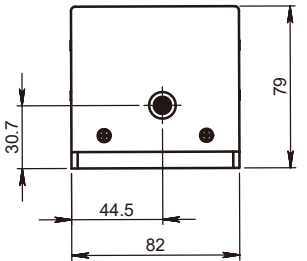
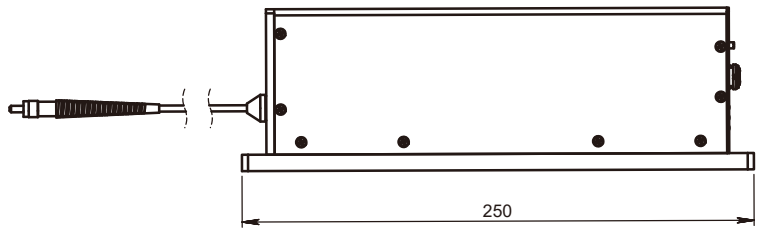
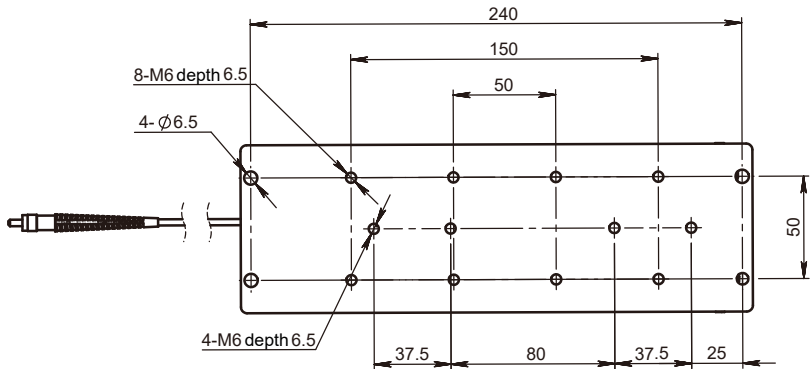
### APPLICATIONS

- Laser engraving
- Laser photoluminescence
- Laser capture micro-cutting
- Raman spectroscopy detection
- Laser induced breakdown spectrum
- Laser remote sensing

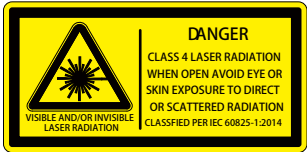
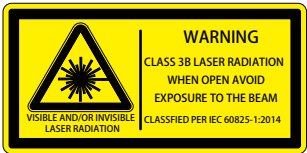
OUTLINE SIZE(mm)



Space output size diagram



Optical fiber output size diagram



PARAMETERS

Model	UL266-200Hz-15/10μJ-MO001	
Optical parameter	Wavelength(nm)	266
	Repetition frequency (Hz)	1-200
	Maximum output energy of space beam (μJ)	15
	Fiber Coupling Maximum Output Energy (μJ)	10
	Pulse width (ns)	≤1
	Energy Stability(rms)	≤3%
	Energy Regulation Step Accuracy	≤2%
	Beam mode (spatial beam output)	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	≤2
	Vertical @1/e <sup>2</sup>	≤2
	Polarization characteristics	≥100:1
System parameters	Fiber parameters (fiber coupled output optional)	200μm/0.22NA
	Power input	24V DC
	Modulation input	TTL0-5V,SMB connector
	Control interface	RS232
	Power supply size (W×H×L, mm)	< 20
	Laser head size (W×H×L, mm)	< 10
	Laser head size (W × H × L, mm)	82×79×190(space)/ 82x79x250(optical fiber)
	Working temperature (°C)	10-40
	Storage temperature (°C)	0-60

- 1. The supported operating frequency is 16~200Hz in continuous mode and burst mode.
- 2. Fiber core diameter: 200μm.
- 3. The power supply adapter is shipped with matching power supply, which can support 90~260VAC power supply input.



# 343nm Yb:YAG q-switched picosecond laser

## MJ Microchip laser system



### DESCRIPTION

343nm laser is one of the series of solid state laser provided by ULaser. It is based on the Yb:YAG crystal. With q-switched crystal, it can emit laser of 800ps.

As a uv laser, our 343nm laser has advantages of low thermal stress and high photon energy. Compared to 1030nm laser, it has shorter pulse width and smaller full angle beam divergence. At the same time, our 343nm laser possesses same small shell. Thus, it can adapt to most applications.

Like 1030nm laser, our 343nm laser can used in industrial field, especially in micro-drilling of photochemical ablation. Besides, our 343nm laser can be applied in mass spectrometer and so on.

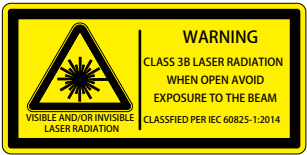
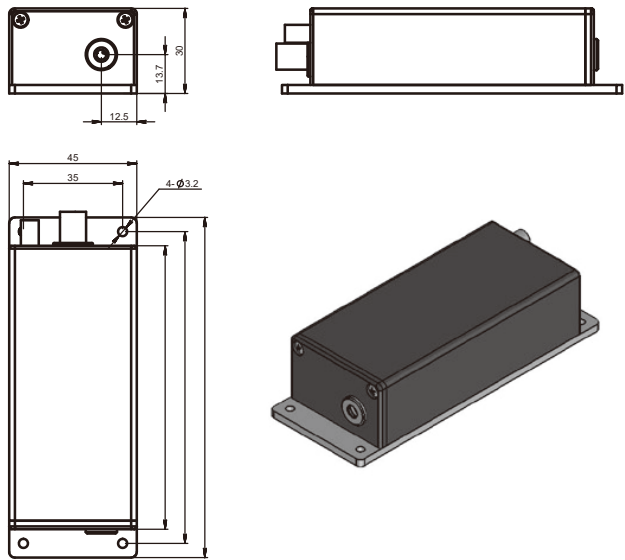
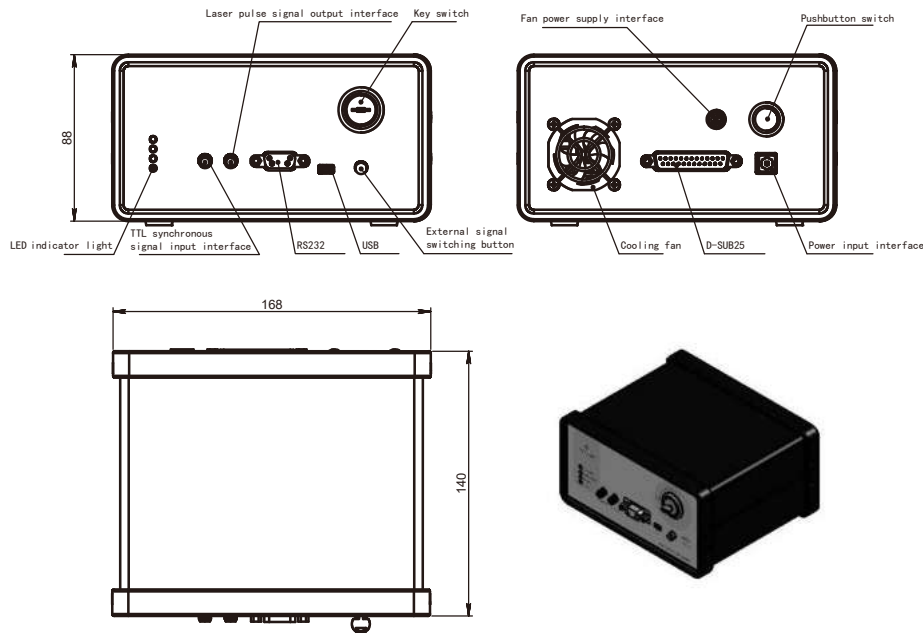
### FEATURES

- Pulse width up to 800ps
- Pulse energy up to 100μJ
- Beam mode is TEM<sub>00</sub>
- Maximum repetition rate up to 2KHz

### APPLICATIONS

- Material micromachining
- Spectral detection
- Lidar
- Pump source
- biomedical science

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL343- 200Hz- 30μJ- MJ003	UL343- 1KHz- 20μJ- MJ004	UL343- 2KHz- 30μJ- MJ005
Optical parameter	Wavelength(nm)	343	343	343
	Repetition frequency (KHz)	0.2*	1*	2*
	Average power(mW)	6	20	30
	Output energy(uJ)	30	20	15
	Pulse width (ps)	800	800	800
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	3	3	4
	Vertical @1/e <sup>2</sup>	3	3	4
	Polarization characteristics	>100:1	>100:1	>100:1
System parameters	System power consumption (W)	≤15	≤15	≤25
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60

- 1.The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 355nm Nd:YAG q-switched nanosecond laser MA Microchip laser system



## DESCRIPTION

Our 355nm laser is based on the technology of diode pump laser module and q-switch. Nd:YAG crystal is used to manufacture 355nm laser. ULaser can provide 1.5ns, 1ns, 500ps, 550ps and 300ps 355nm microchip laser.

Our 355nm microchip laser has narrow laser pulse width. At the same time, it has high pulse repetition frequency. As a microchip laser, its size is small and its weight is light certainly. Our laser’s beam quality is excellent.

As a uv laser, 355nm microchip laser plays an important role in many fields. It can be used in environment monitoring systems, 3d dental scan, laser ultrasound, laser ionization mass spectrometry and so on.

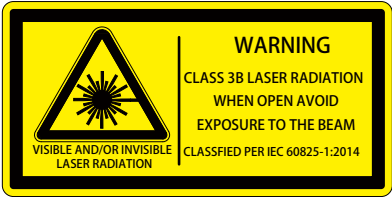
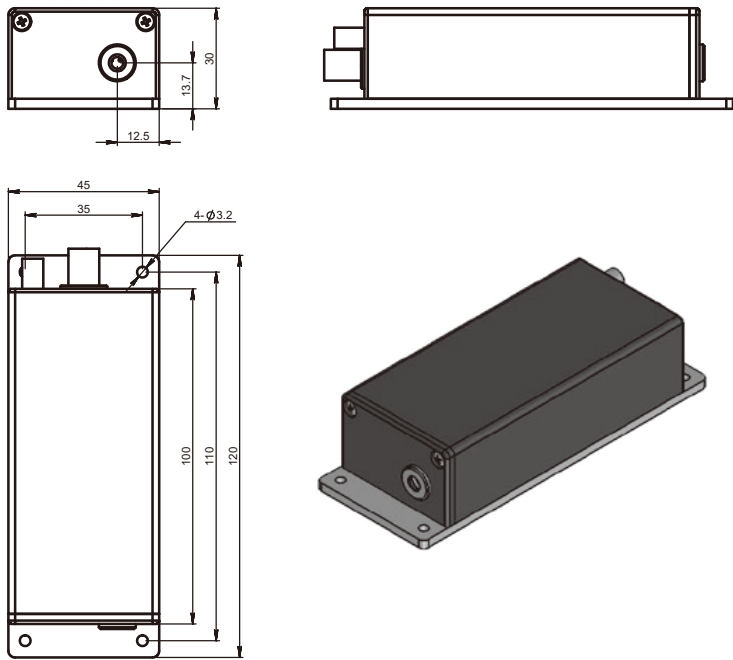
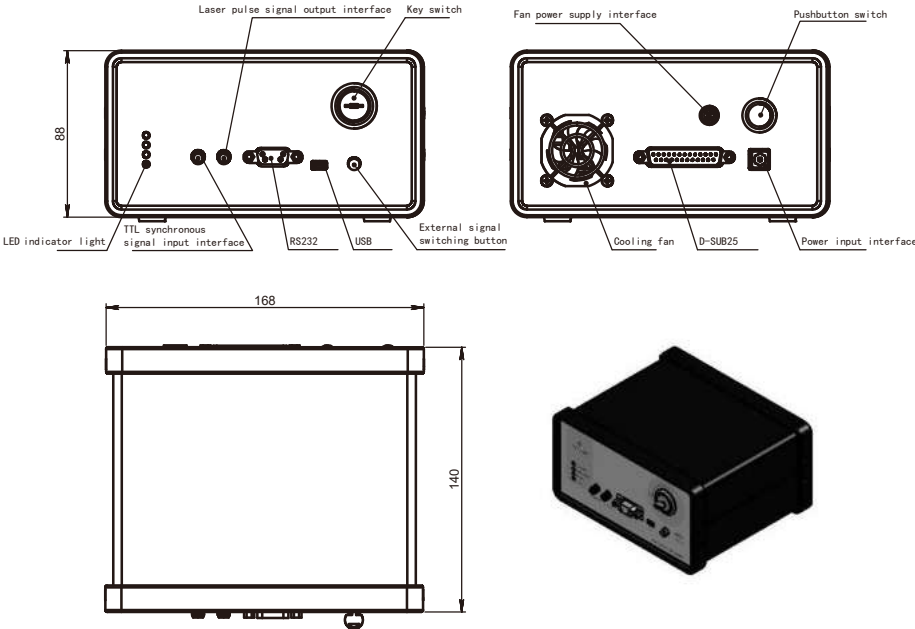
## FEATURES

- Pulse width up to 1ns
- Pulse energy up to 200μJ
- Repetition frequency up to 20kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

## APPLICATIONS

- Lidar
- Laser ranging
- Atmospheric monitoring
- Laser ultrasonic inspection
- Optical metrology
- Laser-induced fluorescence

## OUTLINE SIZE(mm)



PARAMETERS

Model		UL355-1KHz-30μJ-MA005	UL355-5KHz-10μJ-MA006	UL355-10KHz-5μJ-MA007	UL355-20KHz-3μJ-MA008
Optical parameter	Wavelength(nm)	355	355	355	355
	Repetition frequency (KHz)	1*	5*	10*	20*
	Average power(mW)	30	50	50	60
	Output energy(μJ)	30	10	5	3
	Pulse width (ps)	1500	1200	1200	1200
	Power stability (8h)	±3%	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	5	5	5	5
	Vertical @1/e <sup>2</sup>	5	5	5	5
	Polarization characteristics	> 100:1	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤35	≤35	≤35	≤35
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 355nm Nd:YAG q-switched picosecond laser

## MB Microchip laser system



### DESCRIPTION

Our 355nm laser is based on the technology of diode pump laser module and q-switch. Nd:YAG crystal is used to manufacture 355nm laser. ULaser can provide 1.5ns, 1ns, 500ps, 550ps and 300ps 355nm microchip laser.

Our 355nm microchip laser has narrow laser pulse width. At the same time, it has high pulse repetition frequency. As a microchip laser, its size is small and its weight is light certainly. Our laser’s beam quality is excellent.

As a uv laser, 355nm microchip laser plays an important role in many fields. It can be used in environment monitoring systems, 3d dental scan, laser ultrasound, laser ionization mass spectrometry and so on.

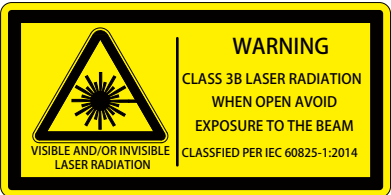
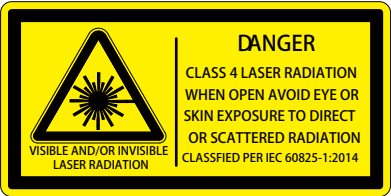
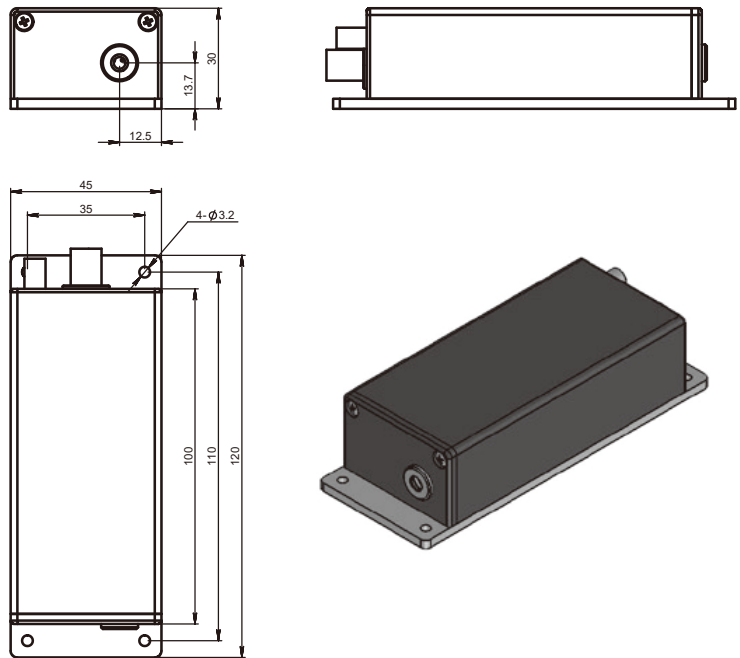
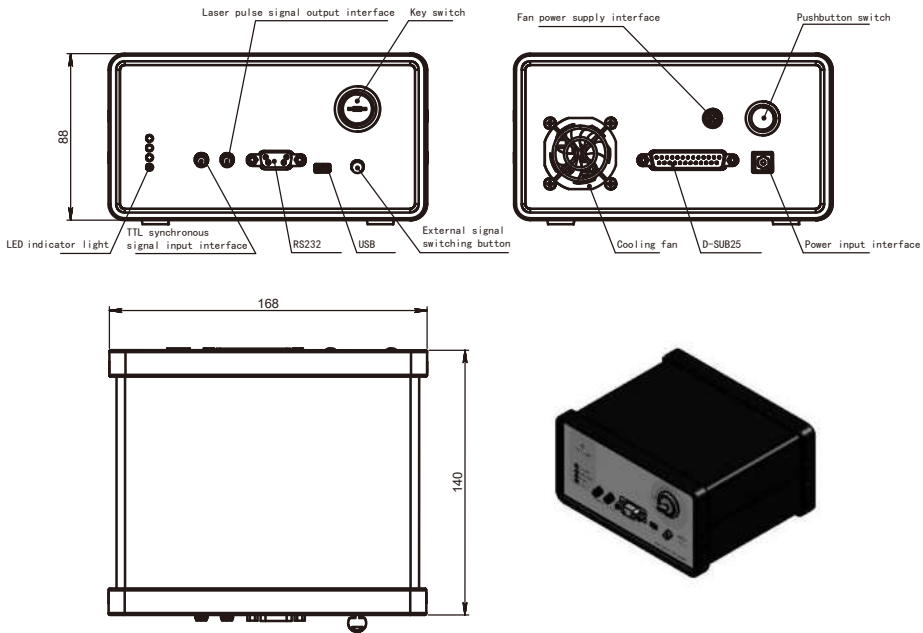
### FEATURES

- Pulse energy up to 180μJ
- High polarization direction stability
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Laser-induced fluorescence

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL355- 1KHz- 30μJ- MB003
Optical parameter	Wavelength(nm)	355
	Repetition frequency (KHz)	1*
	Average power(mW)	30
	Output energy(μJ)	30
	Pulse width (ps)	500
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	5
	Vertical @1/e <sup>2</sup>	5
	Polarization characteristics	> 100:1
System parameters	System power consumption (W)	≤25
	Power input	100- 240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15- 35
Storage temperature (°C)		0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)
- 355nm MB Microchip laser system PDF





# 355nm Nd:YAG q-switched picosecond laser

## MC Microchip laser system



### DESCRIPTION

Our 355nm laser is based on the technology of diode pump laser module and q-switch. Nd:YAG crystal is used to manufacture 355nm laser. ULaser can provide 1.5ns, 1ns, 500ps, 550ps and 300ps 355nm microchip laser.

Our 355nm microchip laser has narrow laser pulse width. At the same time, it has high pulse repetition frequency. As a microchip laser, its size is small and its weight is light certainly. Our laser’s beam quality is excellent.

As a uv laser, 355nm microchip laser plays an important role in many fields. It can be used in environment monitoring systems, 3d dental scan, laser ultrasound, laser ionization mass spectrometry and so on.

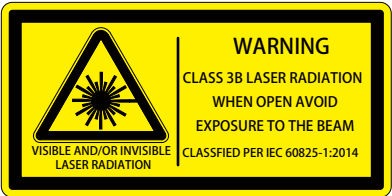
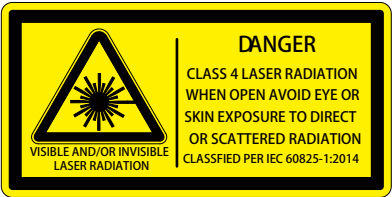
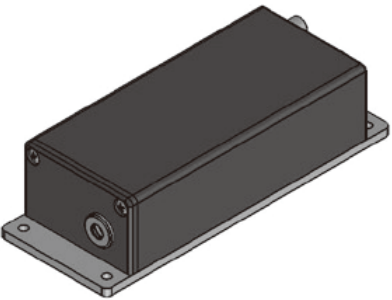
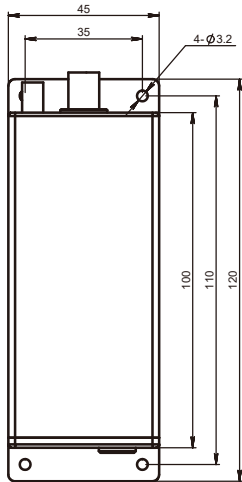
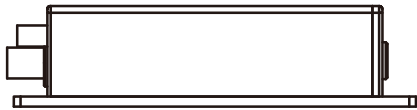
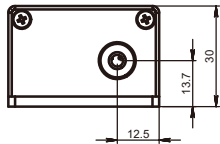
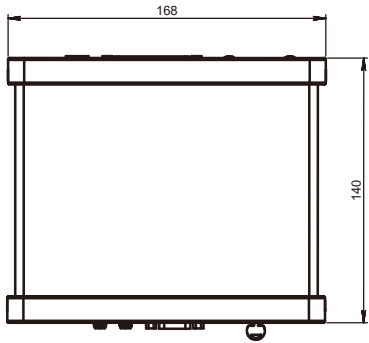
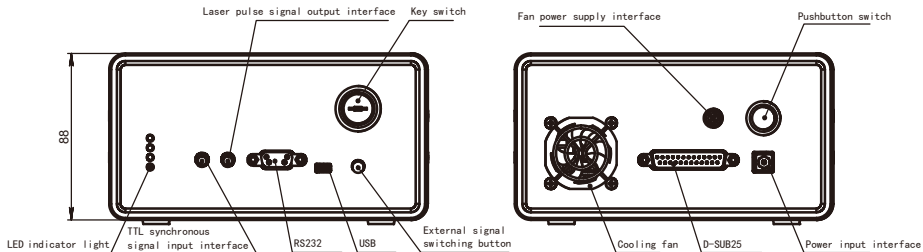
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Optical parametric oscillating pump source

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL355- 1KHz- 20μJ- MC004	UL355- 5KHz- 10μJ- MC005	UL355- 10KHz- 5μJ- MC006
Optical parameter	Wavelength(nm)	355	355	355
	Repetition frequency (KHz)	1*	5*	10*
	Average power(mW)	20	50	50
	Output energy(μJ)	20	10	5
	Pulse width (ps)	650	650	650
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	5	8	8
	Vertical @1/e <sup>2</sup>	5	8	8
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤25	≤25	≤30
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、 USB	RS232、 USB	RS232、 USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35	15- 35
Storage temperature (°C)		0- 60	0- 60	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 355nm Nd:YAG q-switched picosecond laser

## MD Microchip laser system



### DESCRIPTION

Our 355nm laser is based on the technology of diode pump laser module and q-switch. Nd:YAG crystal is used to manufacture 355nm laser. ULaser can provide 1.5ns, 1ns, 500ps, 550ps and 300ps 355nm microchip laser.

Our 355nm microchip laser has narrow laser pulse width. At the same time, it has high pulse repetition frequency. As a microchip laser, its size is small and its weight is light certainly. Our laser’s beam quality is excellent.

As a uv laser, 355nm microchip laser plays an important role in many fields. It can be used in environment monitoring systems, 3d dental scan, laser ultrasound, laser ionization mass spectrometry and so on.

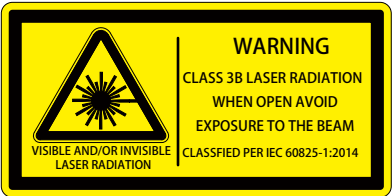
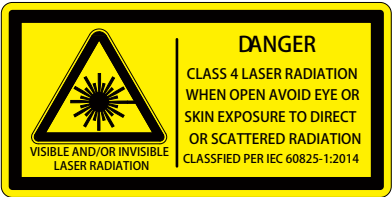
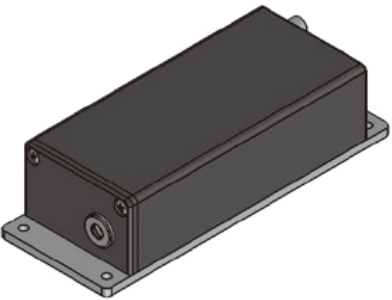
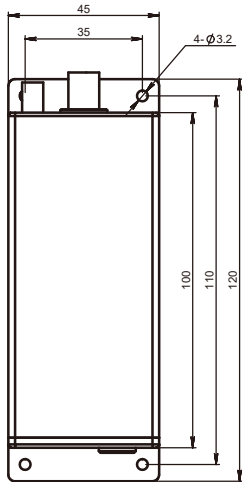
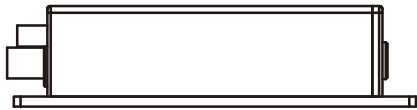
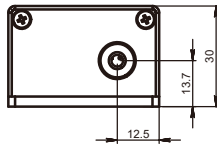
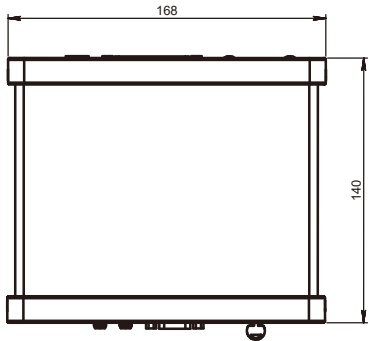
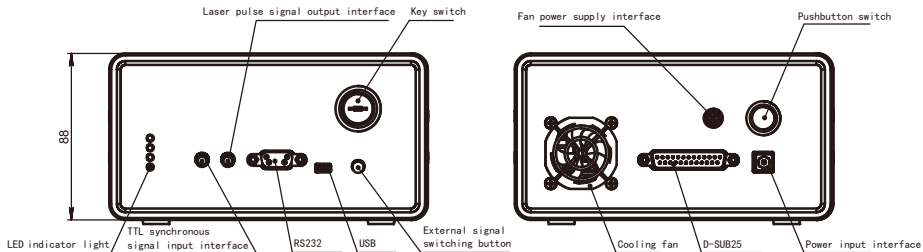
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Fluorescence lifetime measurement
- Laser-induced fluorescence
- Laser ionization mass spectrometry
- Non-linear optical measurement

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL355-1kHz-10μJ-MD002
Optical parameter	Wavelength(nm)	355
	Repetition frequency (KHz)	1*
	Average power(mW)	10
	Output energy(uJ)	10
	Pulse width (ps)	300
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	8
	Vertical @1/e <sup>2</sup>	8
	Polarization characteristics	> 100:1
System parameters	System power consumption (W)	≤25
	Power input	100-240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15- 35
	Storage temperature (°C)	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 355nm Nd:YAG q-switched picosecond laser MO Microchip laser system



## DESCRIPTION

Our 355nm laser is based on the technology of diode pump laser module and q-switch. Nd:YAG crystal is used to manufacture 355nm laser. ULaser can provide 1.5ns, 1ns, 500ps, 550ps and 300ps 355nm microchip laser.

Our 355nm microchip laser has narrow laser pulse width. At the same time, it has high pulse repetition frequency. As a microchip laser, its size is small and its weight is light certainly. Our laser's beam quality is excellent.

As a uv laser, 355nm microchip laser plays an important role in many fields. It can be used in environment monitoring systems, 3d dental scan, laser ultrasound, laser ionization mass spectrometry and so on.

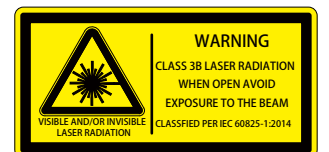
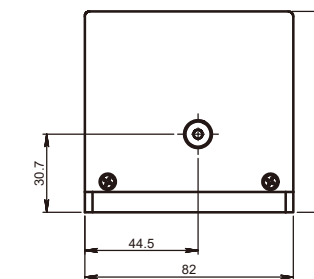
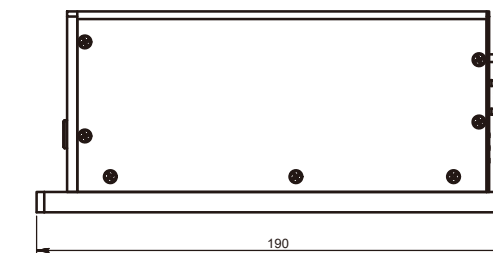
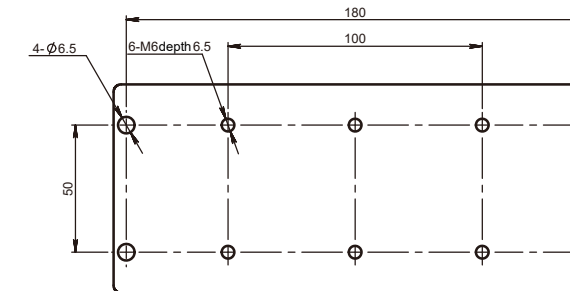
## FEATURES

- Maximum repetition rate up to 100kHz
- Pulse width up to 500ps
- Pulse energy up to 5μJ
- Single longitudinal mode
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability

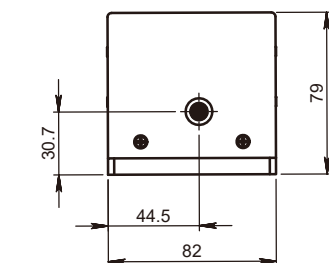
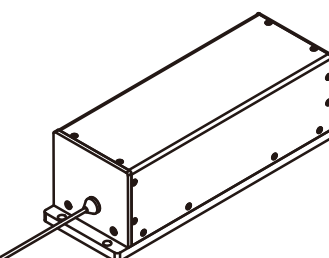
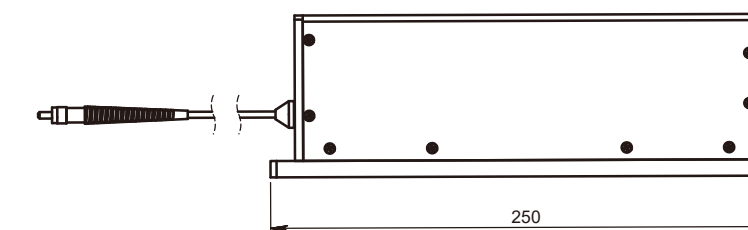
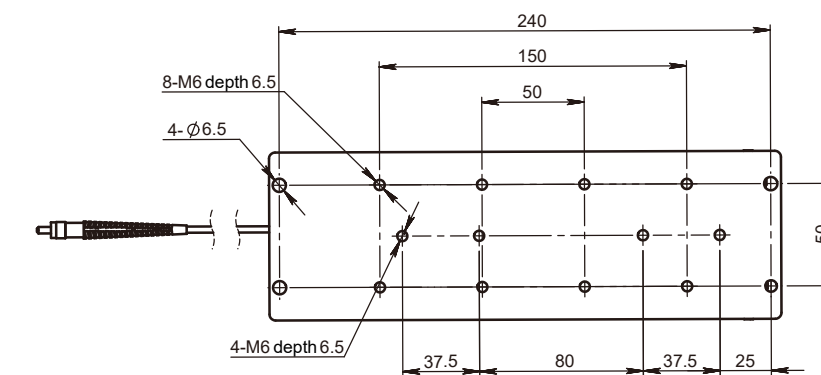
## APPLICATIONS

- Laser processing
- Seed source
- Analysis instrument
- Bioluminescent molecule

OUTLINE SIZE(mm)



### Space output size diagram



### Optical fiber output size diagram

PARAMETERS

Model		UL355-200Hz-25/20μJ-MO002
Optical parameter	Wavelength(nm)	266
	Repetition frequency (Hz)	1-200
	Maximum output energy of space beam (μJ)	25
	Fiber Coupling Maximum Output Energy (μJ)	20
	Pulse width (ns)	≤1
	Energy Stability(rms)	≤3%
	Energy Regulation Step Accuracy	≤2%
	Beam mode (spatial beam output)	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	≤2
	Vertical @1/e <sup>2</sup>	≤2
	Polarization characteristics	≥100:1
System parameters	Fiber parameters (fiber coupled output optional)	200μm/0.22NA
	Power input	24V DC
	Modulation input	TTL0-5V,SMB connector
	Control interface	RS232
	System Peak Power Consumption (W)	< 20
	System Average Power Consumption (W)	< 10
	Laser size (W × H × L, mm)	82×79×190(space)/ 82x79x250(optical fiber)
	Working temperature (°C)	10-40
	Storage temperature (°C)	0-60

- 1. The supported operating frequency is 16~200Hz in continuous mode and burst mode.
- 2. Fiber core diameter: 200μm.
- 3. The power supply adapter is shipped with matching power supply, which can support 90~260VAC power supply input.



# 473nm Nd:YAG q-switched nanosecond laser

## MI Microchip laser system



### DESCRIPTION

473nm laser is one of the series of solid state laser provided by ULaser. Based on Nd:YAG crystal and appropriate nonlinear crystal, we can get 473nm laser by stimulated radiation transition at 946nm. ULaser can provide 2ns laser with different output power.

Our 473nm laser has stable and high single pulse energy. With high pulse repetition frequency (5kHz), it can gain 20mW. Our 473nm laser implements miniaturization and low noise design, thus, it is easy to put into most systems.

Our 473nm laser is very suitable for laser induced fluorescence, laser ultrasound, Raman spectrometer and radar ranging.

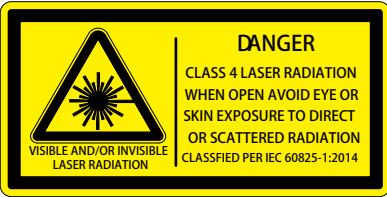
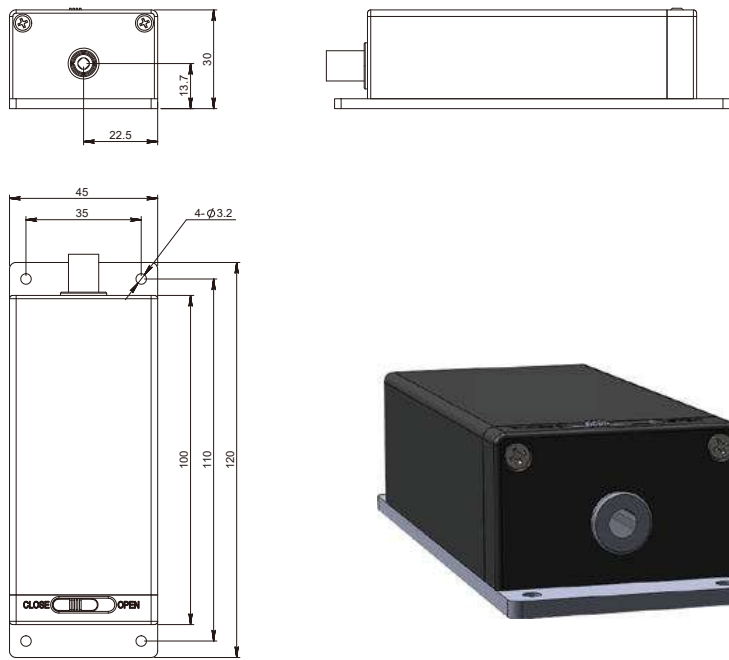
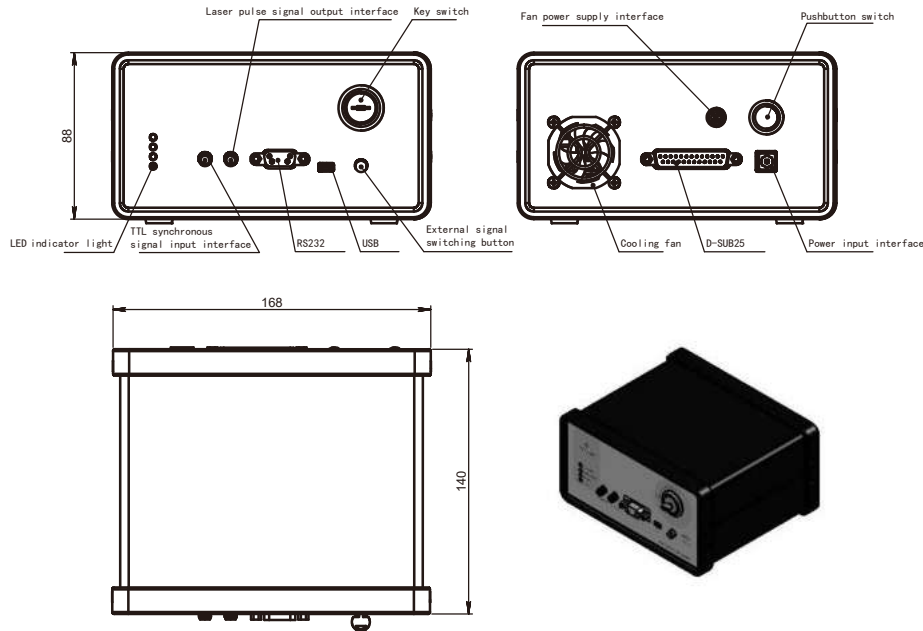
### FEATURES

- Compact structure and high stability
- High polarization direction stability
- Repetition rate up to 5kHz
- Beam mode is TEM<sub>00</sub>

### APPLICATIONS

- Laser induced fluorescence
- Ultrasonic testing
- Radar ranging
- Raman spectroscopic detection

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL473- 1KHz- 5μJ- MI002	UL473- 5KHz- 4μJ- MI003
Optical parameter	Wavelength(nm)	473	473
	Repetition frequency (KHz)	1	5
	Average power(mW)	5	20
	Output energy(uJ)	5	4
	Pulse width (ps)	2000	2000
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	7	8
	Vertical @1/e <sup>2</sup>	7	8
	Polarization characteristics	> 100:1	> 100:1
System parameters	System power consumption (W)	≤15	≤30
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35
	Storage temperature (°C)	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 515nm Yb:YAG q-switched nanosecond laser

## MJ Microchip laser system



### DESCRIPTION

ULaser's 515nm laser can emit good yellow light. It's a diode pump laser module, and a nanosecond pulsed laser. Our 515nm laser is based on Yb:YAG crystal. With the q-switched crystal, it can achieve nanosecond output.

Our 515nm laser has pure pulse which leads to higher quality. And our 515nm laser has more stable pulsed laser energy. ULaser adopts the integrated design of diode pump and laser crystal. And ULaser adopts a compact laser head. These designs make our 515nm laser developing to a microchip laser which is superior in small size.

Our 515nm laser is widely used as spectrum laser, laser pump, light source of micromachining or yag laser surgery and other applications.

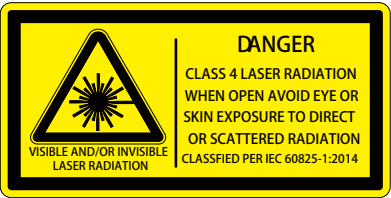
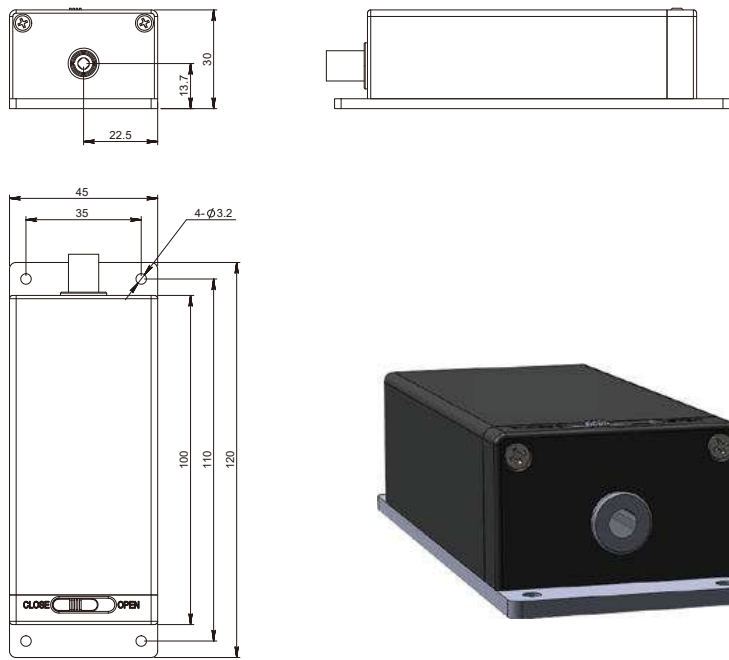
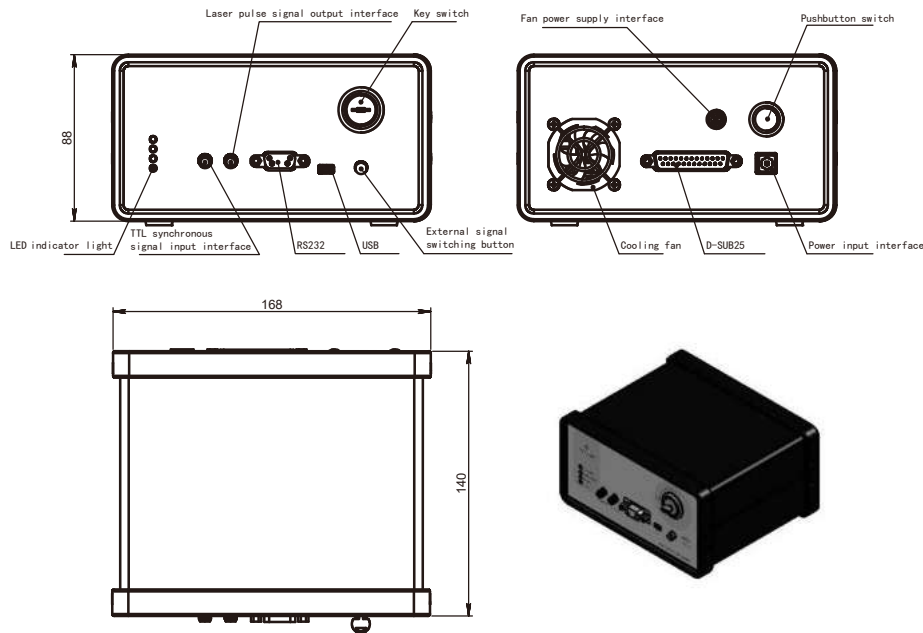
### FEATURES

- Pulse width up to 800ps
- Pulse energy up to 100μJ
- Maximum repetition rate up to 2KHz
- Beam mode is TEM<sub>00</sub>

### APPLICATIONS

- Material micromachining
- Spectral detection
- Lidar
- Pump source
- Biomedical science

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL515- 1KHz- 40μJ- MJ006	UL515- 2KHz- 30μJ- MJ007
Optical parameter	Wavelength(nm)	515	515
	Repetition frequency (KHz)	1	2
	Average power(mW)	40	60
	Output energy(uJ)	40	30
	Pulse width (ps)	900	900
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	4	5
	Vertical @1/e <sup>2</sup>	4	5
	Polarization characteristics	> 100:1	> 100:1
System parameters	System power consumption (W)	≤15	≤25
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35
	Storage temperature (°C)	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)

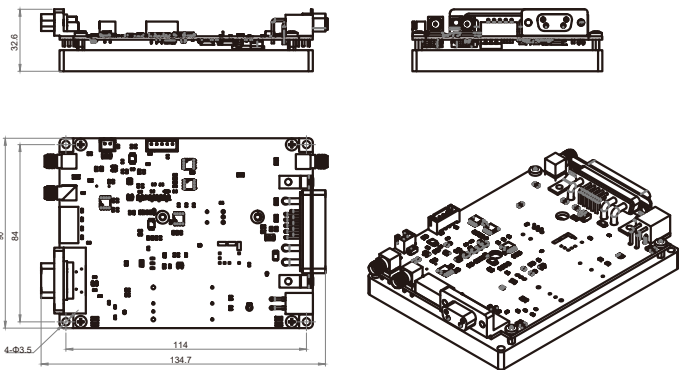
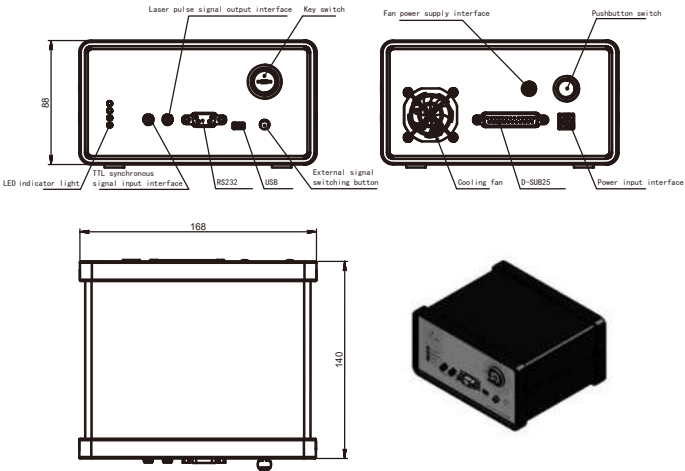


# 532nm Nd:YAG q-switched nanosecond laser

## MA Microchip laser system



OUTLINE SIZE(mm)



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

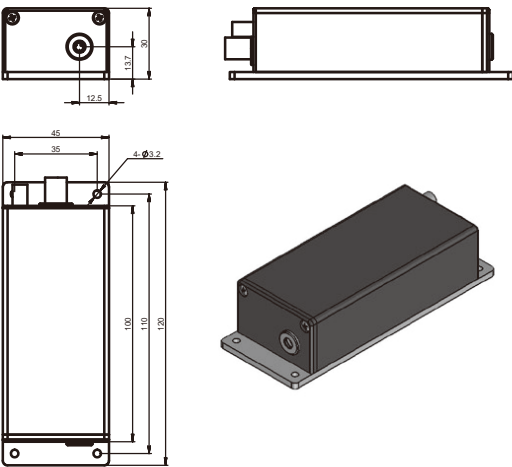
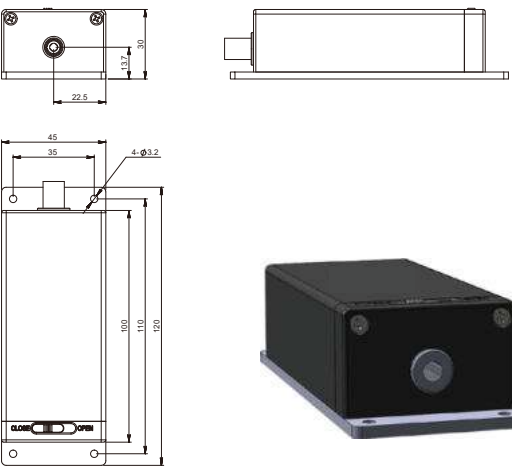
532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

### FEATURES

- Pulse width up to 1ns
- Pulse energy up to 200μJ
- Repetition frequency up to 20kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Lidar
- Laser ranging
- Atmospheric monitoring
- Laser ultrasonic inspection
- Optical metrology
- Laser-induced fluorescence





PARAMETERS

Model		UL532-1KHz-60μJ-MA009	UL532-2.5KHz-60μJ-MA010	UL532-1KHz-100μJ-MA011	UL532-2.5KHz-100μJ-MA012	UL532-5KHz-30μJ-MA013	UL532-10KHz-15μJ-MA014	UL532-20KHz-10μJ-MA015
Optical parameter	Wavelength(nm)	532	532	532	532	532	532	532
	Repetition frequency (KHz)	1	2.5	1*	2.5*	5	10	20
	Average power(mW)	60	150	100	250	150	150	200
	Output energy(μJ)	60	60	100	100	30	15	10
	Pulse width (ps)	1500	1500	1500	1500	1200	1200	1200
	Power stability (8h)	±3%	±3%	±3%	±3%	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	6	≤2.5	≤2.5	≤2.5	6	6	6
	Vertical @1/e <sup>2</sup>	6	≤2.5	≤2.5	≤2.5	6	6	6
	Polarization characteristics	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤35	≤25	≤20	≤25	≤35	≤35	≤35
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	90×32.6×120	90×32.6×120	90×32.6×120	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35	15-35	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60	0-60	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)
- 3.MA010, MA011, and MA012 are specially designed for miniaturized weather radar applications. They are small in size, low in power consumption, and can be used in high altitudes, large temperature differences, and other subserve environments. This series accepts dual wavelength laser customization, such as 1064nm8532nm, 1064nm&355nm, or others.





# 532nm Nd:YAG q-switched picosecond laser

## MB Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

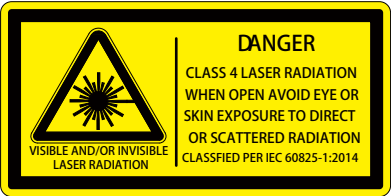
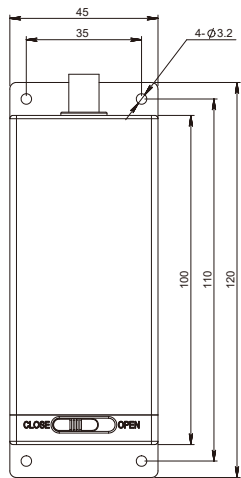
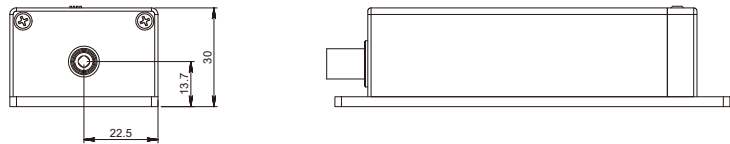
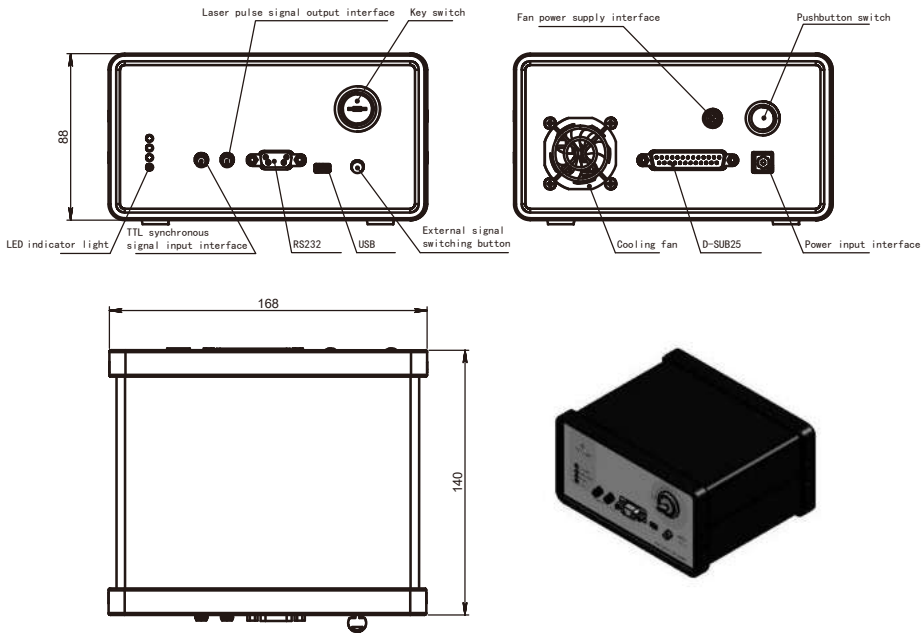
### FEATURES

- Pulse energy up to 180μJ
- High polarization direction stability
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Laser-induced fluorescence

### OUTLINE SIZE(mm)



PARAMETERS

Model	UL532-1KHz-75μJ-MB004	
Optical parameter	Wavelength(nm)	532
	Repetition frequency (KHz)	1
	Average power(mW)	75
	Output energy(uJ)	75
	Pulse width (ps)	550
	Power stability (8h)	±3%
	Beam mode	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	6
	Vertical @1/e <sup>2</sup>	6
System parameters	Polarization characteristics	> 100:1
	System power consumption (W)	≤25
	Power input	100-240 VAC,50/60Hz
	Control interface	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140
	Laser head size (W×H×L, mm)	45×30×120
	Working temperature (°C)	15-35
	Storage temperature (°C)	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 532nm Nd:YAG q-switched picosecond laser

## MC Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

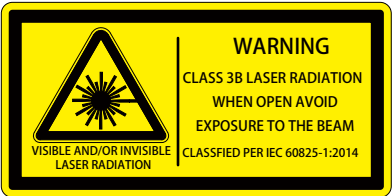
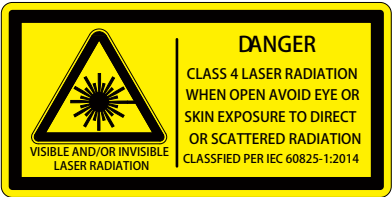
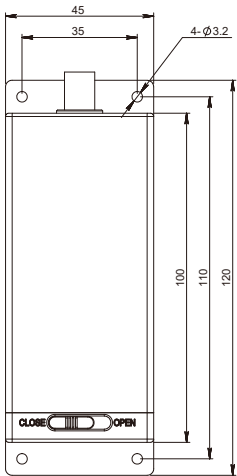
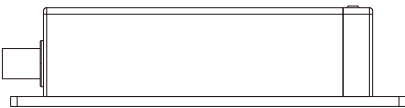
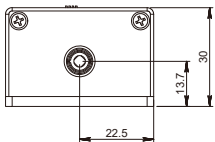
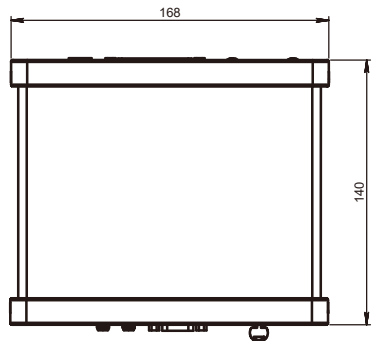
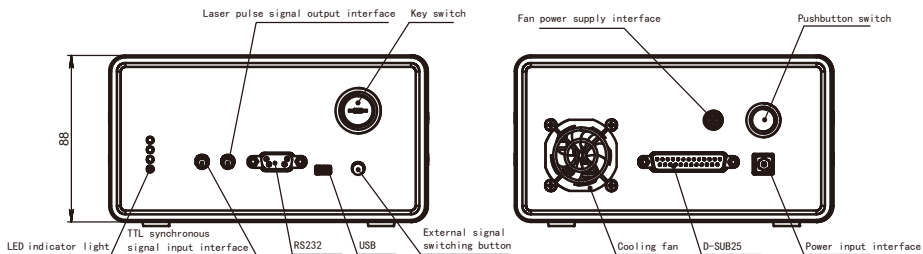
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Optical parametric oscillating pump source

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL532- 1KHz- 50μJ- MC007	UL532- 5KHz- 30μJ- MC008	UL532- 10KHz- 15μJ- MC009
Optical parameter	Wavelength(nm)	532	532	532
	Repetition frequency (KHz)	1	5	10
	Average power(mW)	50	150	150
	Output energy(μJ)	50	30	15
	Pulse width (ps)	700	700	700
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	7	10	10
	Vertical @1/e <sup>2</sup>	7	10	10
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤25	≤30	≤35
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 532nm Nd:YAG q-switched picosecond laser

## MD Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

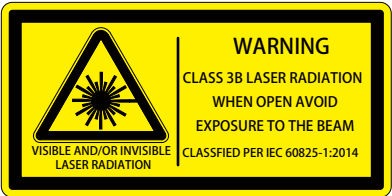
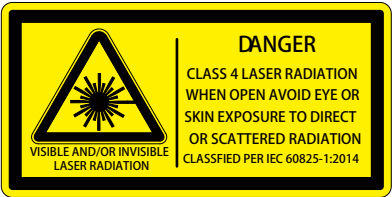
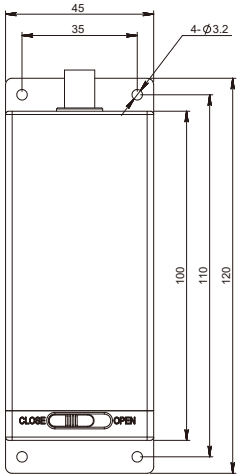
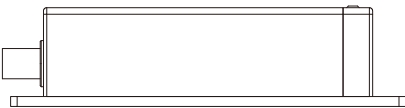
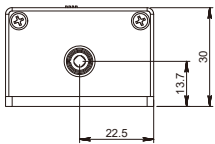
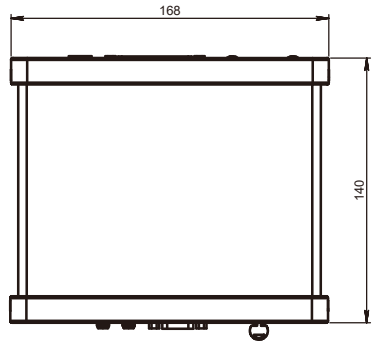
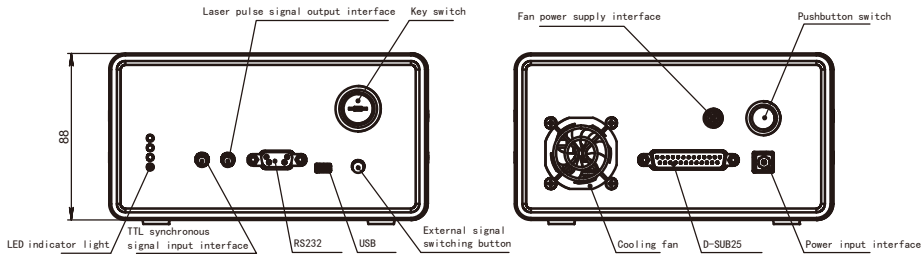
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Fluorescence lifetime measurement
- Laser-induced fluorescence
- Laser ionization mass spectrometry
- Non-linear optical measurement

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL532- 1kHz- 25μJ- MD003	UL532- 5kHz- 5μJ- MD004	UL532- 10kHz- 3μJ- MD005
Optical parameter	Wavelength(nm)	532	532	532
	Repetition frequency (KHz)	1	5	10
	Average power(mW)	25	25	30
	Output energy(μJ)	25	5	3
	Pulse width (ps)	300	300	300
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	10	10	10
	Vertical @1/e <sup>2</sup>	10	10	10
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤25	≤25	≤25
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 532nm Nd:YAG q-switched picosecond laser

## MG Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

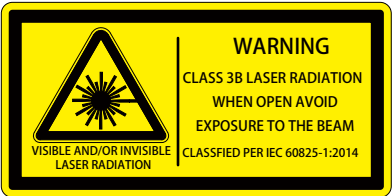
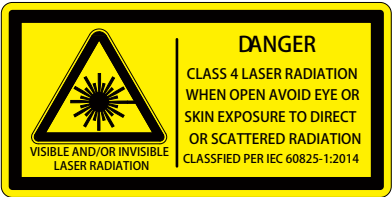
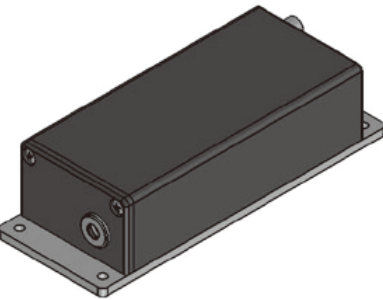
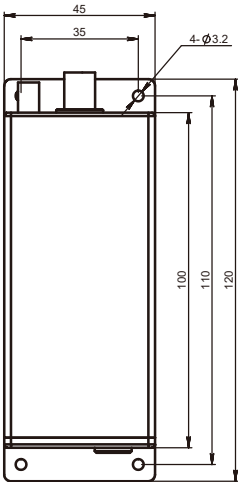
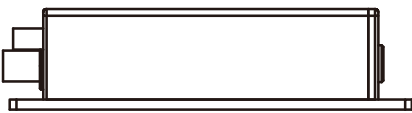
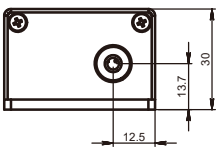
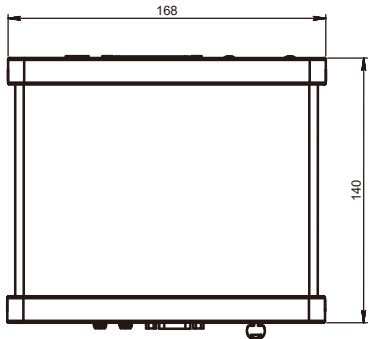
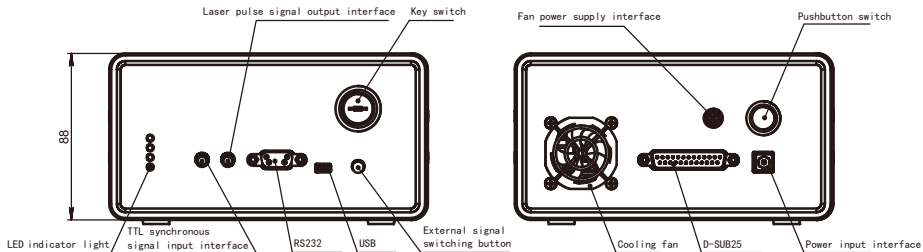
### FEATURES

- Maximum repetition rate up to 100kHz
- Pulse width up to 500ps
- Pulse energy up to 5μJ
- Single longitudinal mode
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability

### APPLICATIONS

- Laser processing
- Seed source
- Analysis instrument
- Bioluminescent molecule

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL532- 50KHz- 0.8μJ- MG001	UL532- 100KHz- 0.3μJ- MG002
Optical parameter	Wavelength(nm)	532	532
	Repetition frequency (KHz)	50**	100**
	Average power(mW)	40	30
	Output energy(uJ)	0.8	0.3
	Pulse width (ps)	450	450
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	24	32
	Vertical @1/e <sup>2</sup>	24	32
	Polarization characteristics	> 100:1	> 100:1
System parameters	System power consumption (W)	≤35	≤45
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×33×120**	45×33×120**
	Working temperature (°C)	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60

1. \* the light outlet of the laser head is side outlet. Please refer to the mechanical dimension drawing for details.
2. \* \* high PRF side light output structure, gated trigger, TTL 5V, SMA interface. Other structures are rising edges





# 532nm Nd:YAG q-switched picosecond laser

## MH Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

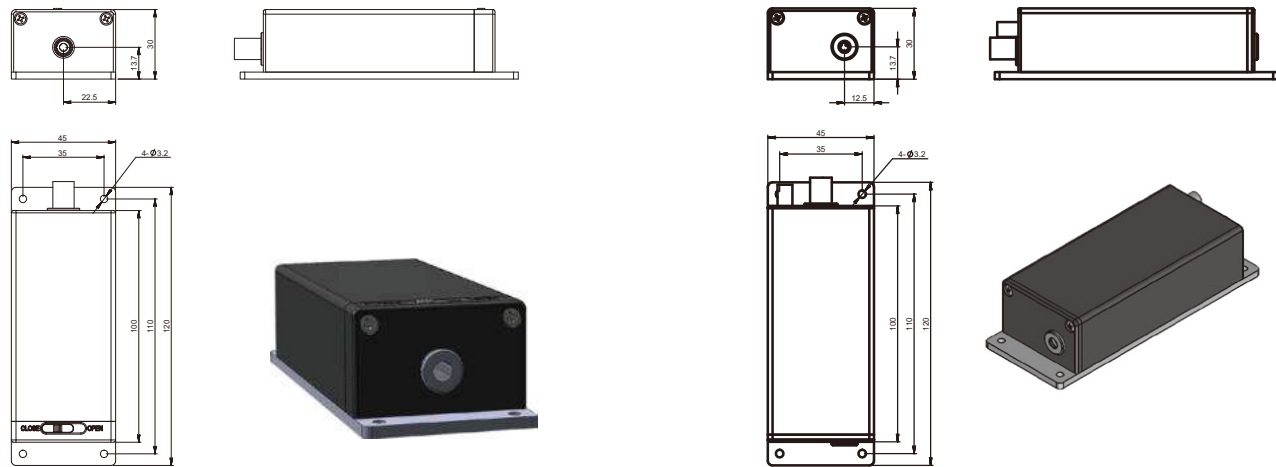
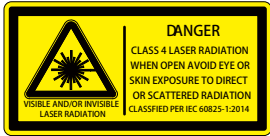
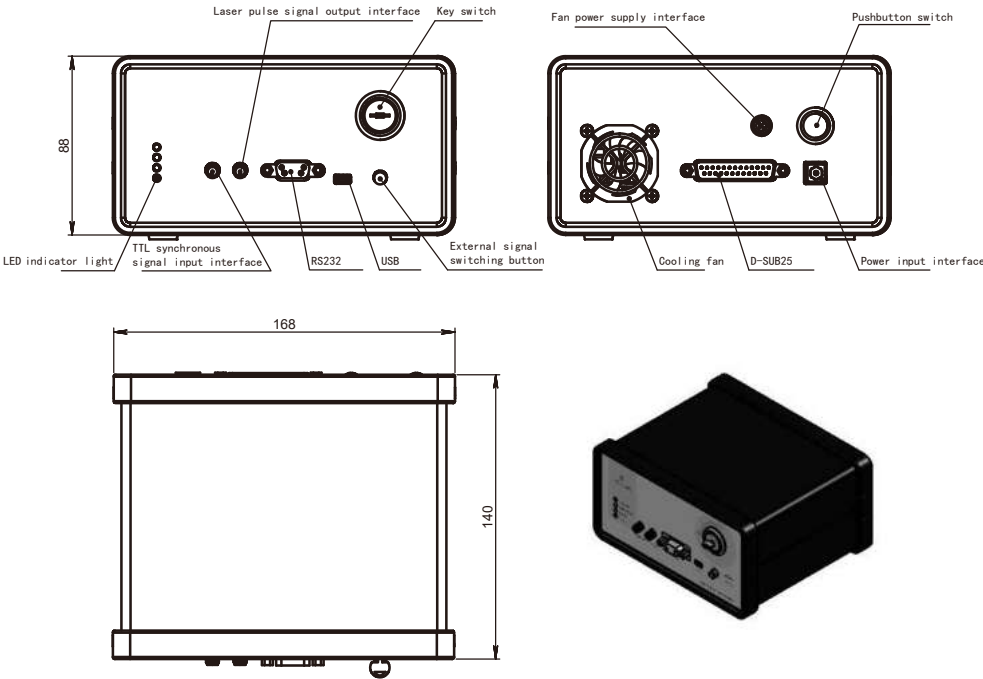
### FEATURES

- Pulse width up to 300ps
- Pulse energy up to 10μJ
- Maximum repetition rate up to 50KHz
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability

### APPLICATIONS

- Laser micromachining
- Seed source
- Ultrasound imaging
- Analytical chemistry
- Time-resolved Raman spectroscopy
- Biophotonics

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL532- 20KHz- 1.5μJ- MH001	UL532- 50KHz- 1μJ- MH002	UL532- 100KHz- 0.3μJ- MH003
Optical parameter	Wavelength(nm)	532	532	532
	Repetition frequency (KHz)	20	50	100
	Average power(mW)	30	50	30
	Output energy(μJ)	1.5	1	0.3
	Pulse width (ps)	300	300	450
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	16	16	25
	Vertical @1/e <sup>2</sup>	16	16	25
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤35	≤40	≤40
	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W×H×L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W×H×L, mm)	45×33×120	45×33×120	45×33×120
	Working temperature (°C)	15- 35	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60	0- 60

1. \* the light outlet of the laser head is side outlet. Please refer to the mechanical dimension drawing for details.
2. \* \* high PRF side light output structure, gated trigger, TTL 5V, SMA interface. Other structures are rising edges



# 532nm Nd:YAG q-switched picosecond laser

## MO Microchip laser system



### DESCRIPTION

532nm laser is one of the most common lasers used in most fields. It can emit excellent green light. It is based on Nd:YAG crystal. Frequency doubling technology is used in ULaser’s 532nm laser. As a perfect picosecond laser, our 532nm laser has version of 300ps.

Like our all lasers, 532nm laser has very pure pulsed output. Thus, stability and high quality have become synonymous with our 532nm laser. Good penetrability and strong anti-interference of stray light makes our 532nm laser can adapt most situations.

532nm laser is commonly used in industrial field, like laser engraving and etching to print circuit boards, micro-machining, and so on. Medical field is another common field for 532nm laser. Our 532nm laser is suitable for yag laser eye surgery. Laser ultrasound, laser induced fluorescence, solid state lidar, and et al, are also its competent field.

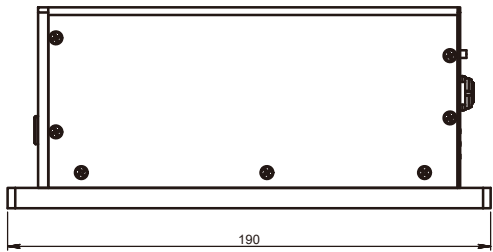
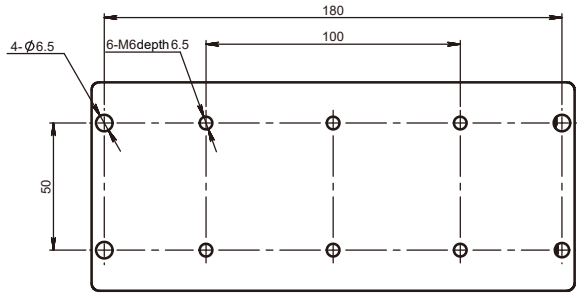
### FEATURES

- Pulse width < 1ns
- The repetition frequency is adjustable from 1 to 200Hz
- The laser energy is adjustable on the machine
- Optical trigger output signal jitter < 100ps
- Fully sealed design, high reliability
- Plug and play, including upper computer software

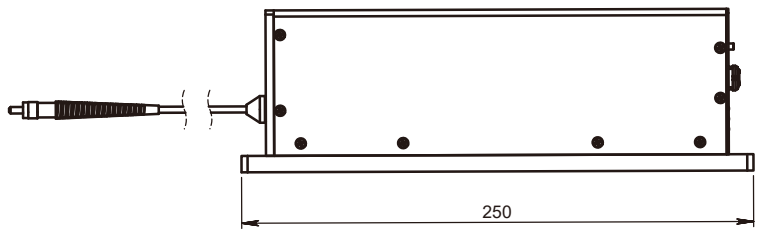
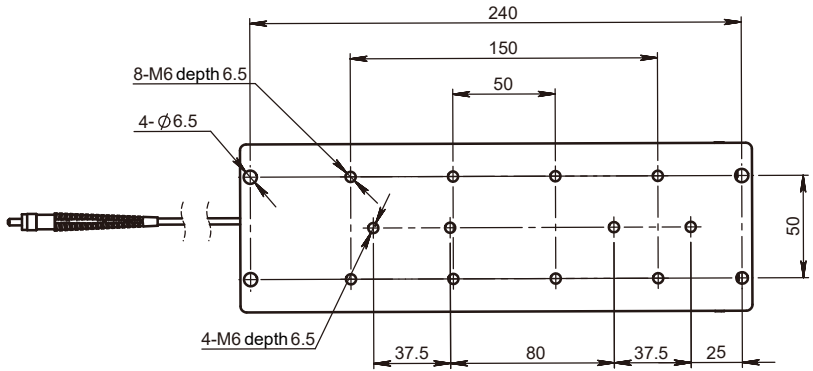
### APPLICATIONS

- Laser engraving
- Laser photoluminescence
- Laser capture micro-cutting
- Raman spectroscopy detection
- Laser induced breakdown spectrum
- Laser remote sensing

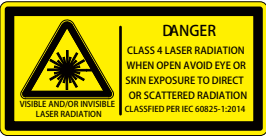
OUTLINE SIZE(mm)



Space output size diagram



Optical fiber output size diagram





PARAMETERS

Model		UL532-200Hz-30/25μJ-MO003
Optical parameter	Wavelength(nm)	532
	Repetition frequency (Hz)	1-200
	Maximum output energy of space beam (μJ)	30
	Fiber Coupling Maximum Output Energy (μJ)	25
	Pulse width (ns)	≤1
	Energy Stability(rms)	≤3%
	Energy Regulation Step Accuracy	≤2%
	Beam mode (spatial beam output)	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	≤2
	Vertical @1/e <sup>2</sup>	≤2
	Polarization characteristics	≥100:1
System parameters	Fiber parameters (fiber coupled output optional)	200μm/0.22NA
	Power input	24V DC
	Modulation input	TTL0-5V,SMB connector
	Control interface	RS232
	System Peak Power Consumption (W)	< 20
	System Average Power Consumption (W)	< 10
	Laser size (W × H × L, mm)	82×79×190(space)/ 82x79x250(optical fiber)
	Working temperature (°C)	10-40
	Storage temperature (°C)	0-60

- 1. The supported operating frequency is 16~200Hz in continuous mode and burst mode.
- 2. Fiber core diameter: 200μm.
- 3. The power supply adapter is shipped with matching power supply, which can support 90~260VAC power supply input.





# 660nm Nd:YAG q-switched nanosecond laser ML Microchip laser system



## DESCRIPTION

660nm laser is one of the series of solid state laser provided by ULaser. Its light mode is TEM<sub>00</sub>. ULaser use Nd:YAG crystal as its active medium. Combined with phase matching principle, it emit 660nm red light. Bonding crystal of laser crystal and passively q-switched crystal leads to 2.5ns microchip laser design.

Our 660nm laser has pure output with little stray light. And it has high polarization direction stability. Integrated design makes the our 1319nm laser become more compact to adapt more diversified applications.

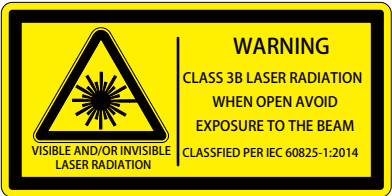
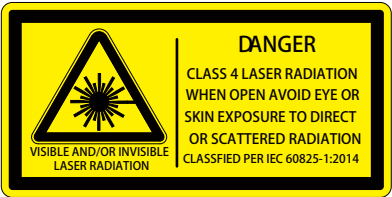
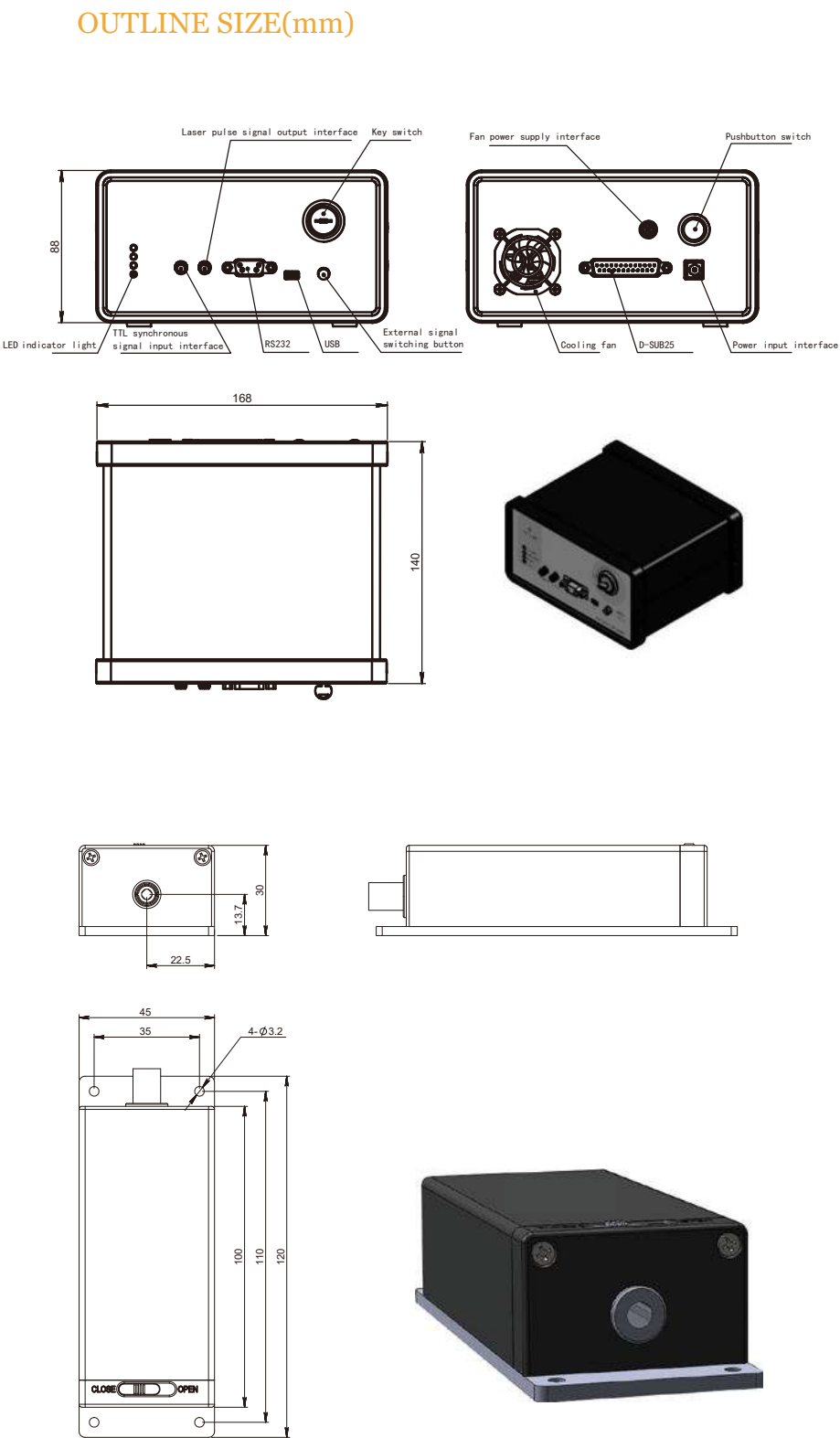
Our 660nm laser has wide applications in many fields. It can be used in photodynamic medicine, environment monitoring systems, laser lighting display, etc.

## FEATURES

- The pulse width can reach 2.5ns
- Pulse energy up to 50μJ
- Maximum repetition rate up to 2kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability
- High polarization direction stability

## APPLICATIONS

- Photodynamic medicine
- Environmental monitoring
- Laser remote sensing
- Lidar
- Spectroscopy
- Laser display



PARAMETERS

Model		UL660-0.1KHz-10μJ-ML001	UL660-1KHz-6μJ-ML002
Optical parameter	Wavelength(nm)	660	660
	Repetition frequency (KHz)	0.1*	1*
	Average power(mW)	1	6
	Output energy(uJ)	10	6
	Pulse width (ps)	2000	2000
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	6	6
	Full-angle divergence angle Typ. (Mrad) Vertical @1/e <sup>2</sup>	6	6
	Polarization characteristics	> 100:1	> 100:1
System parameters	power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	System power consumption (W)	≤20	≤45
	Power supply size (W × H × L, mm)	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35
	Storage temperature (°C)	0-60	0-60

- 1. \* Side light emitting structure (non-marked products are central light emitting structure).
- 2. The built-in beam expansion function can be customized to meet the requirements of small divergence Angle (less than 2mrad).



# 946nm Nd:YAG q-switched nanosecond laser

## MI Microchip laser system



### DESCRIPTION

946nm laser is a solid state laser based on q-switch and diode pump. ULaser provide the one with 2.5 nanosec-onds. At present, 946nm laser’s best gain medium is Nd:YAG crystal. With frequency doubling, it can realize the output of 946nm.

Our 946nm laser has high quality output light beam, which confined to its stability and high energy. Pulse repeti-tion frequency with 5kHz leads to average power with 75mW. At the same time, our 946nm laser can maintain a low power loss.

Our 946nm laser fits many scenarios. The most common applications are as the light sources of laser induced fluorescence, laser ultrasound, radar ranging and Raman spectrometer.

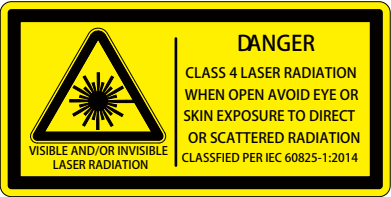
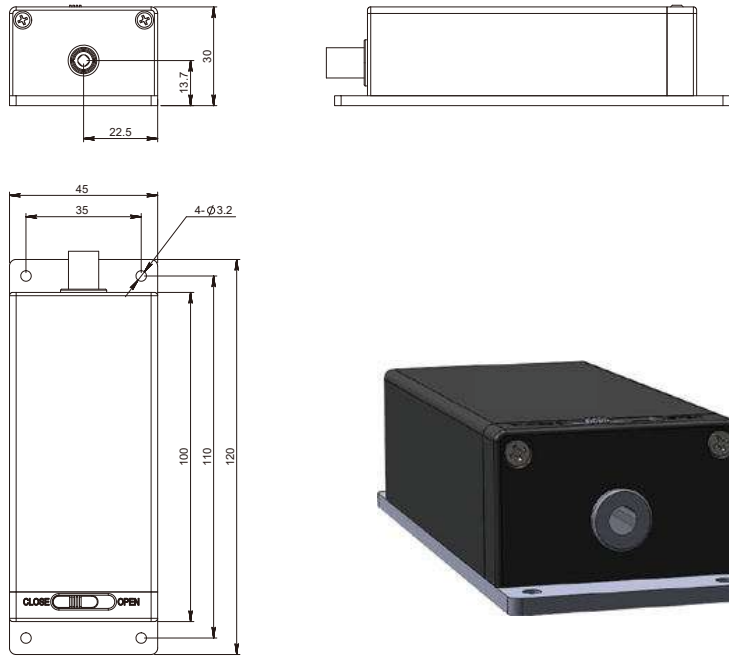
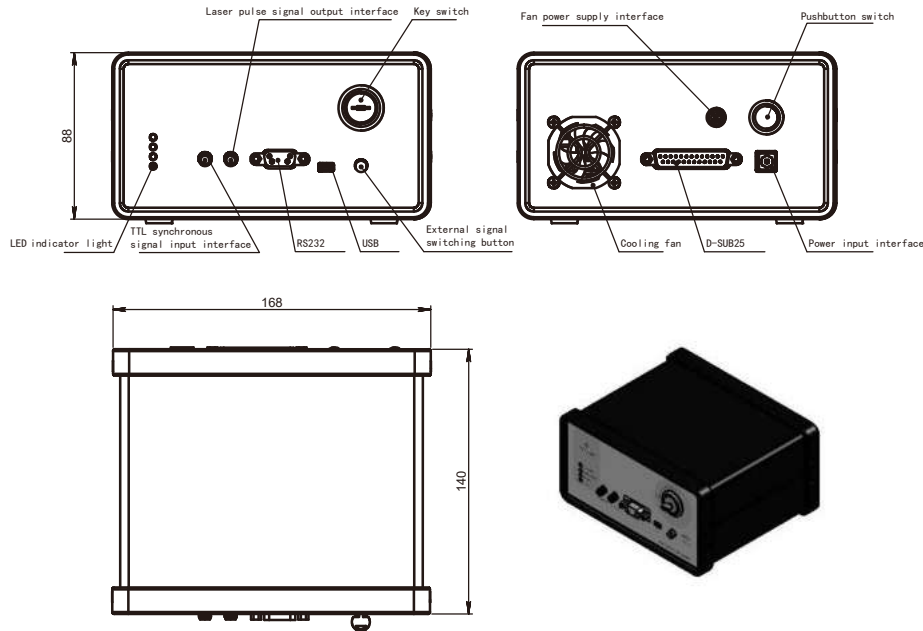
### FEATURES

- Compact structure and high stability
- High polarization direction stability
- Repetition rate up to 5kHz
- Beam mode is TEM<sub>00</sub>

### APPLICATIONS

- Laser induced fluorescence
- Ultrasonic testing
- Radar ranging
- Raman spectroscopic detection

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL946- 1KHz- 20μJ- MI004	UL946- 5KHz- 15μJ- MI005
Optical parameter	Wavelength(nm)	946	946
	Repetition frequency (KHz)	1	5
	Average power(mW)	20	75
	Output energy(uJ)	20	15
	Pulse width (ps)	2500	2500
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	9	10
	Full-angle divergence angle Typ. (Mrad) Vertical @1/e <sup>2</sup>	9	10
	Polarization characteristics	> 100:1	> 100:1
System parameters	power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	System power consumption (W)	≤15	≤30
	Power supply size (W × H × L, mm)	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60

- 1. \* Side light emitting structure (non-marked products are central light emitting structure).
- 2. The built-in beam expansion function can be customized to meet the requirements of small divergence Angle (less than 2mrad).





# 1030nm Yb:YAG q-switched picosecond laser

## MJ Microchip laser system



### DESCRIPTION

1030nm laser is the common industrial laser. ULaser uses microchip technology to make 1030nm laser smaller to suit more situations. Yb:YAG crystal is the base of 1030nm laser. With nonlinear crystal, 1030nm output light can be got by frequency doubling.

1030nm laser’s most important advantage is its pulsed laser energy. Its output energy is up to 100μJ, and its average power is up to 160mW. Based on Yb:YAG crystal, our 1030nm laser has lower quantum loss, thermal load, and thermal conductivity.

These features make our 1030nm laser become a better choice in industry. It shows a good performance in micromachining, laser pump, photochemical machining and so on.

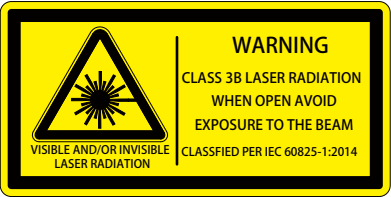
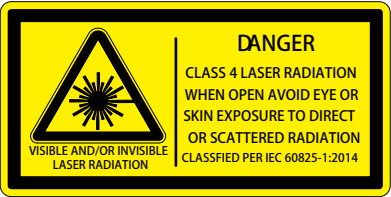
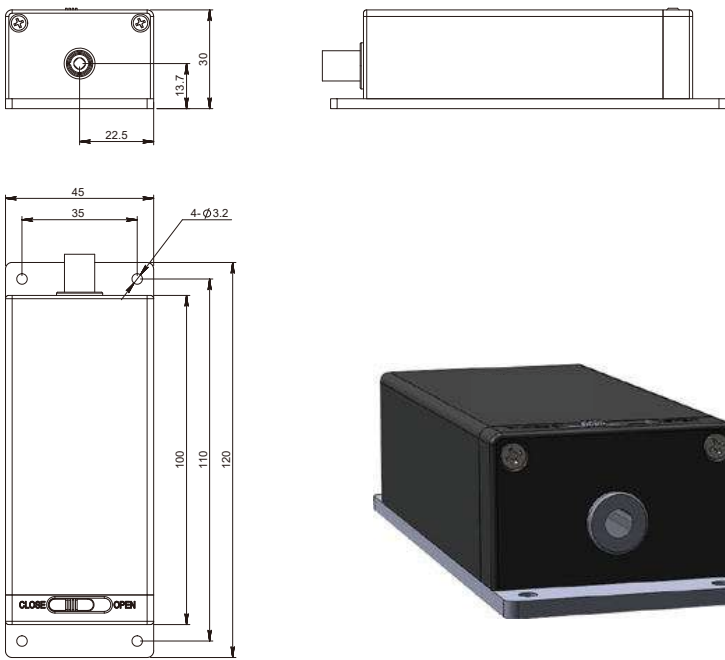
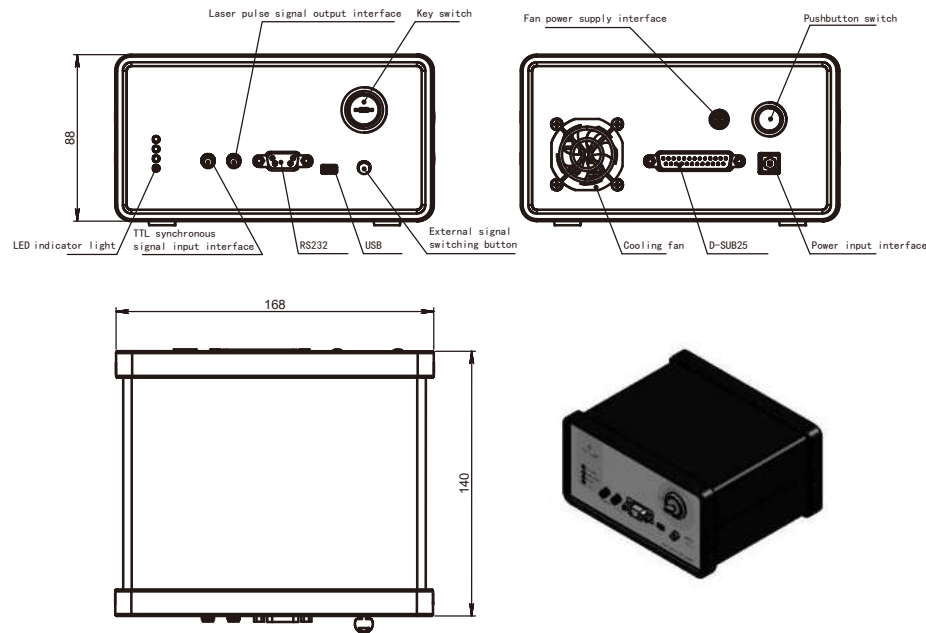
### FEATURES

- Pulse width up to 800ps
- Pulse energy up to 100μJ
- Maximum repetition rate up to 2KHz
- Beam mode is TEM<sub>00</sub>

### APPLICATIONS

- Material micromachining
- Spectral detection
- Lidar
- Pump source
- Biomedical science

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1030- 1KHz- 100μJ- MJ008	UL1030- 2KHz- 80μJ- MJ009
Optical parameter	Wavelength(nm)	1030	1030
	Repetition frequency (KHz)	1	2
	Average power(mW)	100	160
	Output energy(μJ)	100	80
	Pulse width (ps)	1000	1000
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	6	8
	Full-angle divergence angle Typ. (Mrad) Vertical @1/e <sup>2</sup>	6	8
	Polarization characteristics	> 100:1	> 100:1
System parameters	power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	System power consumption (W)	≤15	≤25
	Power supply size (W × H × L, mm)	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35
	Storage temperature (°C)	0-60	0-60

- 1. \* Side light emitting structure (non-marked products are central light emitting structure).
- 2. The built-in beam expansion function can be customized to meet the requirements of small divergence Angle (less than 2mrad).



# 1064nm Nd:YAG q-switched nanosecond laser

## MA Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit pico-second output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

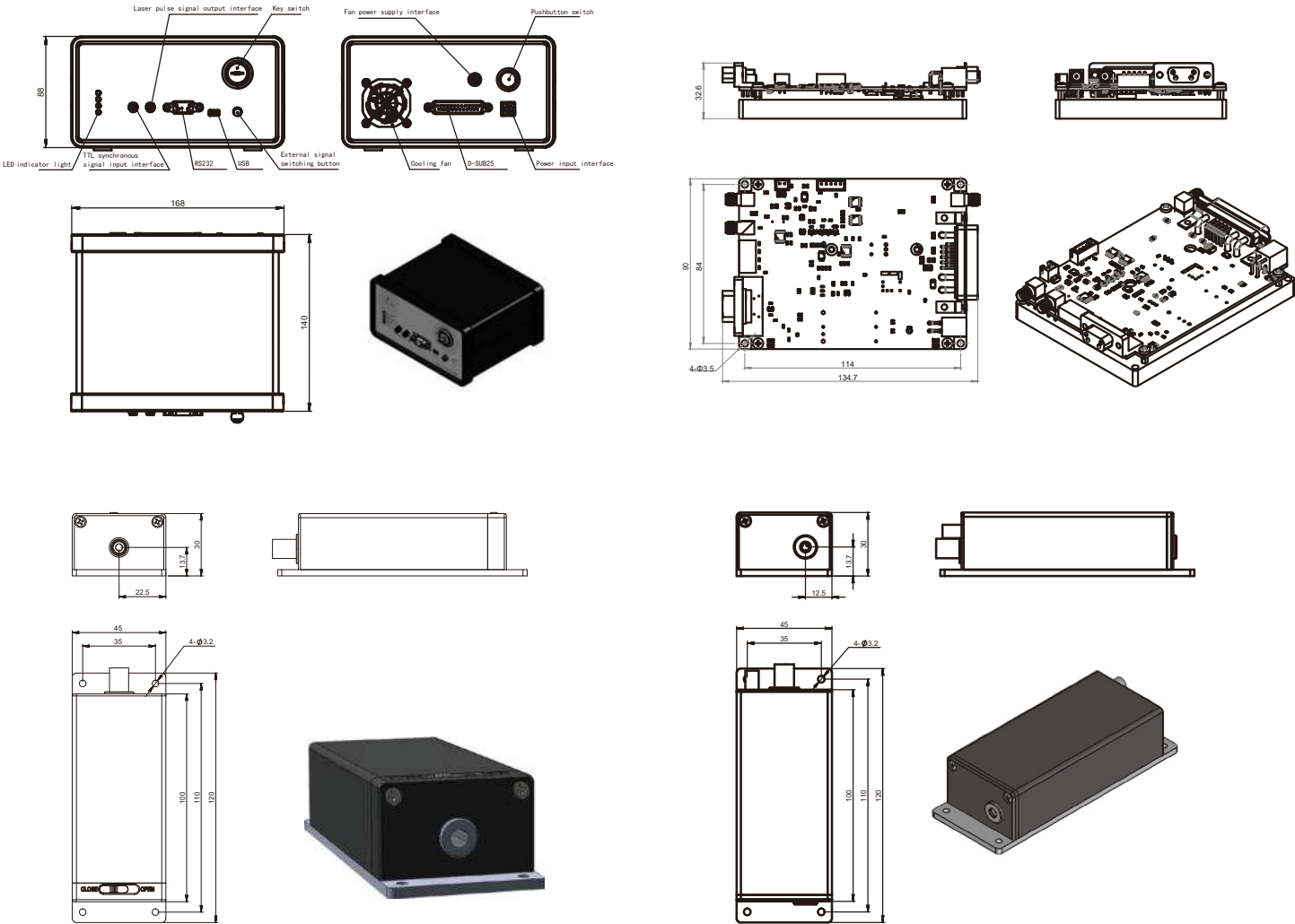
### FEATURES

- Pulse width up to 1ns
- Pulse energy up to 200μJ
- Repetition frequency up to 20kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Lidar
- Laser ranging
- Atmospheric monitoring
- Laser ultrasonic inspection
- Optical metrology
- Laser-induced fluorescence

### OUTLINE SIZE(mm)





PARAMETERS

Model	UL1064- 1KHz- 120μJ- MA016	UL1064- 2.5KHz- 120μJ- MA017	UL1064- 1KHz- 200μJ- MA018	UL1064- 2.5KHz- 200μJ- MA019	UL1064- 5KHz- 60μJ- MA020	UL1064- 10KHz- 40μJ- MA021	UL1064- 20KHz- 20μJ- MA022
Wavelength(nm)	1064	1064	1064	1064	1064	1064	1064
Repetition frequency (KHz)	1	2.5	1*	2.5*	5	10	20
Average power(mW)	120	300	200	500	300	400	400
Output energy(μJ)	120	120	200	200	60	40	20
Pulse width (ps)	2000	2000	2000	2000	1500	1500	1500
Power stability (8h)	±3%	±3%	±3%	±3%	±3%	±3%	±3%
Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
Full-angle divergence angle Typ. (Mrad) level@1/e <sup>2</sup>	8	≤3	≤3	≤3	8	8	8
Full-angle divergence angle Typ. (Mrad)Vertical@1/e <sup>2</sup>	8	≤3	≤3	≤3	8	8	8
Polarization characteristics	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1	> 100:1
Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
Control interface	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB	RS232、USB
System power consumption (W)	≤35	≤20	≤20	≤25	≤35	≤35	≤35
Power supply size (W × H × L, mm)	168×88×140	90×32.6×120	90×32.6×120	90×32.6×120	168×88×140	168×88×140	168×88×140
Laser head size (W × H × L, mm)	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120	45×30×120
Working temperature (°C)	15-35	15-35	15-35	15-35	15-35	15-35	15-35
Storage temperature (°C)	0-60	0-60	0-60	0-60	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)
3. MA017, MA018, and MA019 are specially designed for miniaturized weather radar applications. They are small in size, low in power consumption, and can be used in high altitudes, large temperature differences, and other subserve environments. This series accepts dual wavelength laser customization, such as 1064nm&532nm, 1064nm&355nm, or others.





# 1064nm Nd:YAG q-switched picosecond laser

## MB Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit picosecond output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

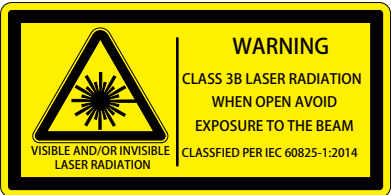
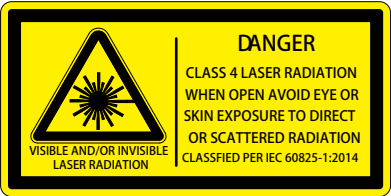
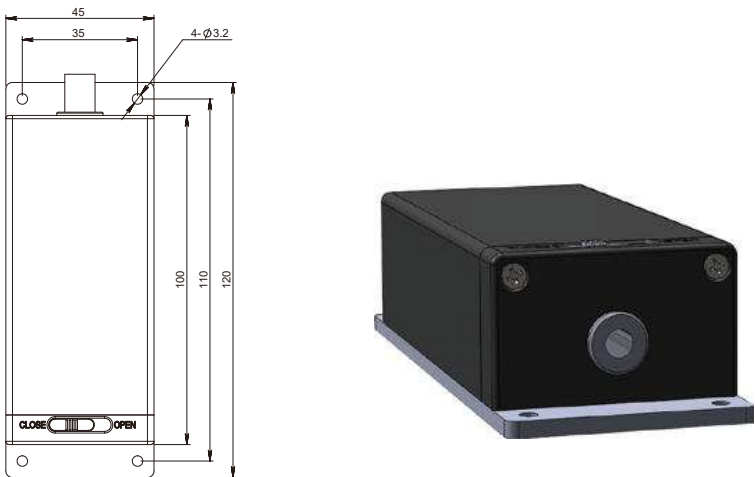
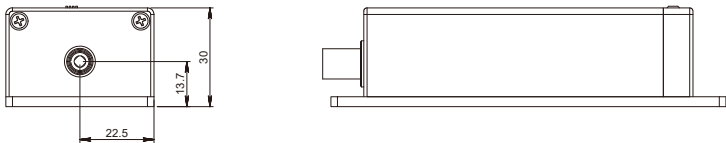
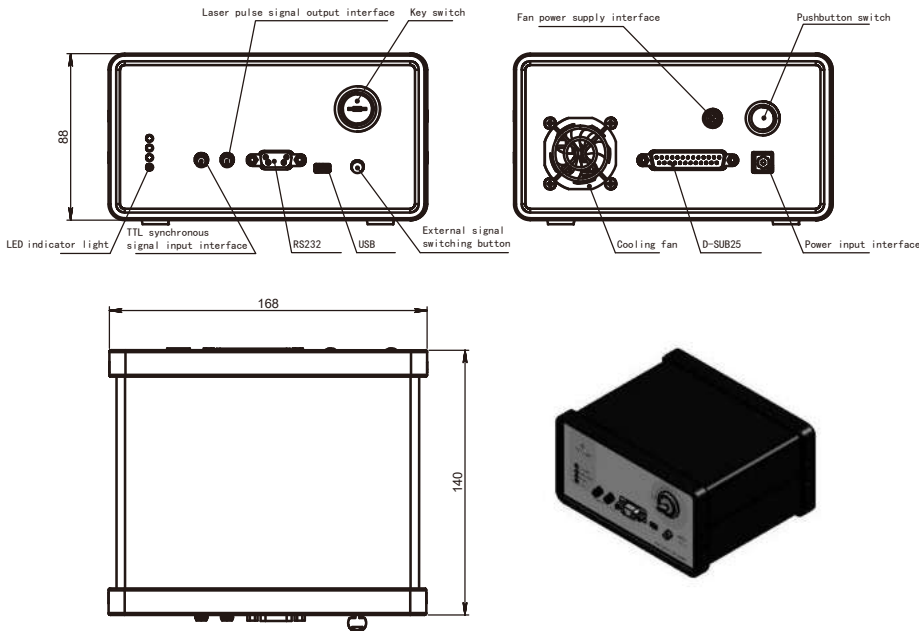
### FEATURES

- Pulse energy up to 180μJ
- High polarization direction stability
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Laser-induced fluorescence

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1064-10Hz-180μJ-MB005	UL1064-10Hz-400μJ-MB006	UL1064-1KHz-150μJ-MB007
Optical parameter	Wavelength(nm)	1064	1064	1064
	Repetition frequency (KHz)	0.01	0.01	1
	Average power(mW)	1.8	4	150
	Output energy(μJ)	180	400	150
	Pulse width (ps)	500	500	650
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level@1/e <sup>2</sup>	9	7	7
	Full-angle divergence angle Typ. (Mrad)Vertical@1/e <sup>2</sup>	9	7	7
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	System power consumption (W)	≤15	≤30	≤25
	Power supply size (W × H × L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 1064nm Nd:YAG q-switched picosecond laser

## MC Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit pico-second output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

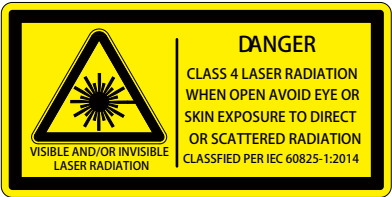
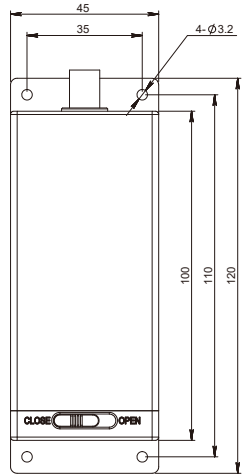
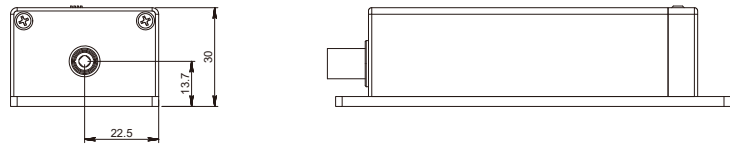
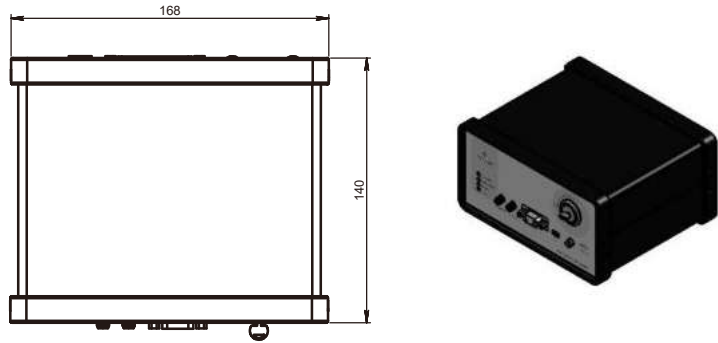
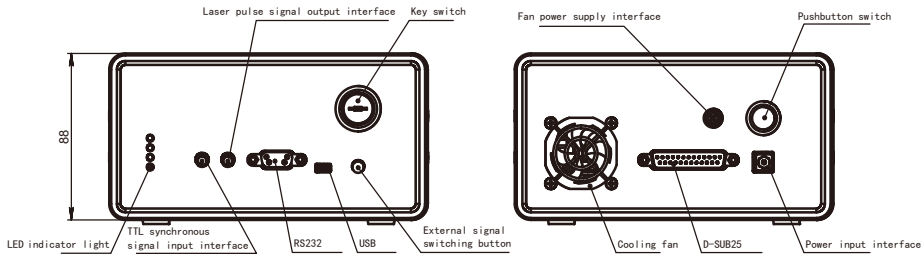
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Biomedical science
- Laser ultrasonic inspection
- Laser ionization mass spectrometry
- Optical parametric oscillating pump source

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1064- 1kHz- 100μJ- MC010	UL1064- 5KHz- 60μJ- MC011	UL1064- 10KHz- 30μJ- MC012
Optical parameter	Wavelength(nm)	1064	1064	1064
	Repetition frequency (KHz)	1	5	10
	Average power(mW)	100	300	300
	Output energy(μJ)	100	60	30
	Pulse width (ps)	750	750	750
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level@1/e <sup>2</sup>	8	12	12
	Full-angle divergence angle Typ. (Mrad) Vertical@1/e <sup>2</sup>	8	12	12
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	Power input	100- 240 VAC, 50/60Hz	100- 240 VAC, 50/60Hz	100- 240 VAC, 50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	System power consumption (W)	≤25	≤20	≤30
	Power supply size (W × H × L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15- 35	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60	0- 60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)





# 1064nm Nd:YAG q-switched picosecond laser

## MD Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit picosecond output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

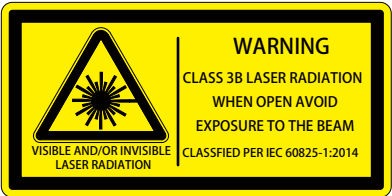
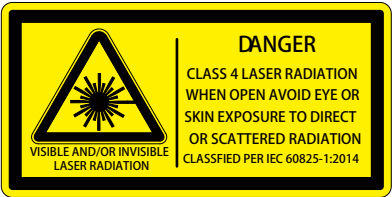
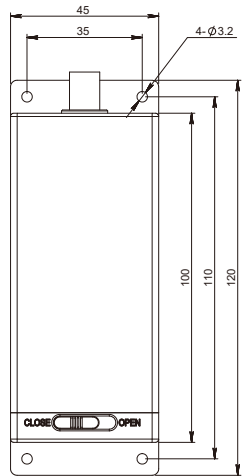
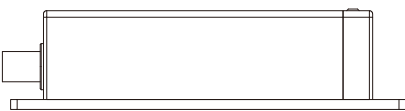
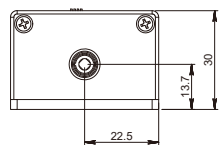
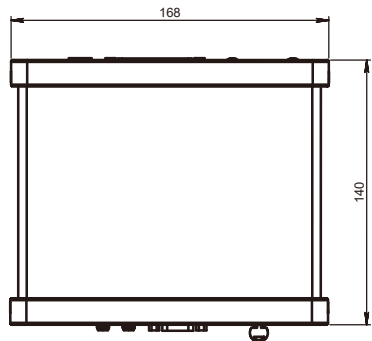
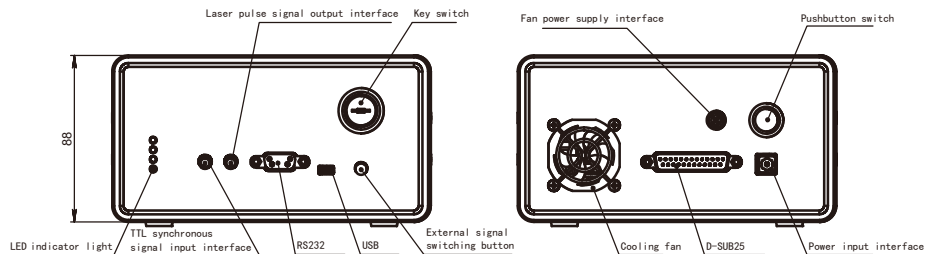
### FEATURES

- Pulse width up to 550ps
- Pulse energy up to 120μJ
- High polarization direction stability
- Maximum repetition rate up to 10kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability

### APPLICATIONS

- Seed source
- Micromachining
- Fluorescence lifetime measurement
- Laser-induced fluorescence
- Laser ionization mass spectrometry
- Non-linear optical measurement

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1064- 10Hz- 150μJ- MD006	UL1064- 1kHz- 40μJ- MD007	UL1064- 5Hz- 10μJ- MD008	UL1064- 10kHz- 8μJ- MD009
Optical parameter	Wavelength(nm)	1064	1064	1064	1064
	Repetition frequency (KHz)	0.01	1	5	10
	Average power(mW)	1.5	50	50	80
	Output energy(μJ)	150	40	10	8
	Pulse width (ps)	350	350	350	350
	Power stability (8h)	±3%	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level@1/e <sup>2</sup>	12	12	12	12
	Full-angle divergence angle Typ. (Mrad)Vertical@1/e <sup>2</sup>	12	12	12	12
	Polarization characteristics	> 100:1	> 100:1	> 100:1	> 100:1
System parameters	System power consumption (W)	≤15	≤20	≤20	≤20
	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB	RS232、USB
	Power supply size (W × H × L, mm)	168×88×140	168×88×140	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35	15-35	15-35
	Storage temperature (°C)	0-60	0-60	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 1064nm Nd:YAG q-switched picosecond laser

## MG Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit picosecond output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

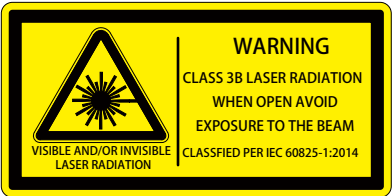
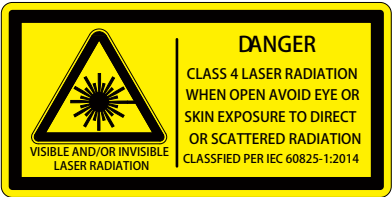
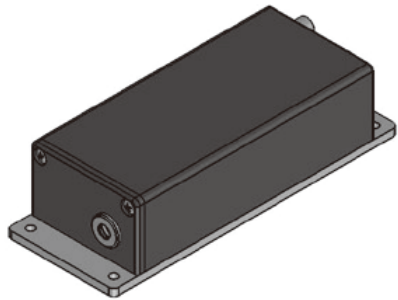
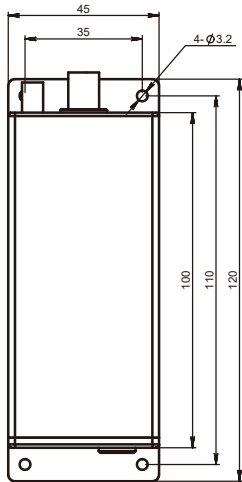
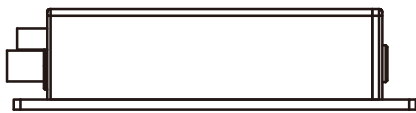
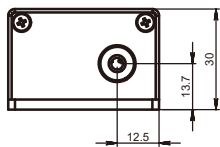
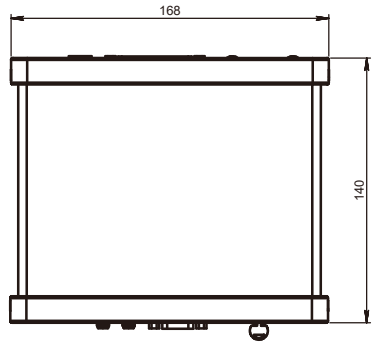
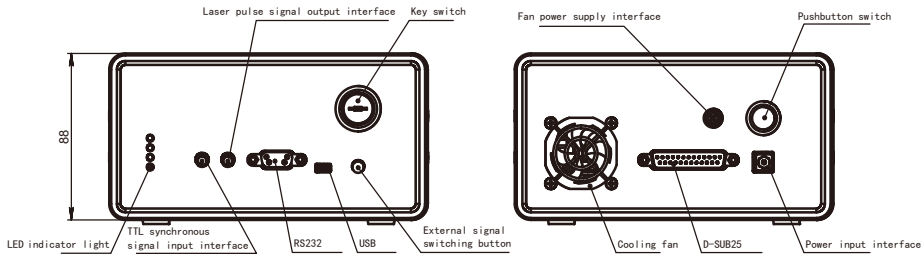
### FEATURES

- Maximum repetition rate up to 100kHz
- Pulse width up to 500ps
- Pulse energy up to 5μJ
- Single longitudinal mode
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability

### APPLICATIONS

- Laser processing
- Seed source
- Analysis instrument
- Bioluminescent molecule

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1064- 50KHz- 2μJ- MG003	UL1064- 100KHz- 1μJ- MG004
Optical parameter	Wavelength(nm)	1064	1064
	Repetition frequency (KHz)	50**	100**
	Average power(mW)	100	100
	Output energy(μJ)	2	1
	Pulse width (ps)	500	500
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @ 1/e <sup>2</sup>	16	20
	Full-angle divergence angle Typ. (Mrad)Vertical @1/e <sup>2</sup>	16	20
	Polarization characteristics	> 100:1	> 100:1
System parameters	Power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	System power consumption (W)	≤35	≤40
	Power supply size (W × H × L, mm)	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×33×120**	45×33×120**
	Working temperature (°C)	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60

1. \* the light outlet of the laser head is side outlet. Please refer to the mechanical dimension drawing for details.
2. \* \* high PRF side light output structure, gated trigger, TTL 5V, SMA interface. Other structures are rising edges





# 1064nm Nd:YAG q-switched picosecond laser

## MH Microchip laser system



### DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit pico-second output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

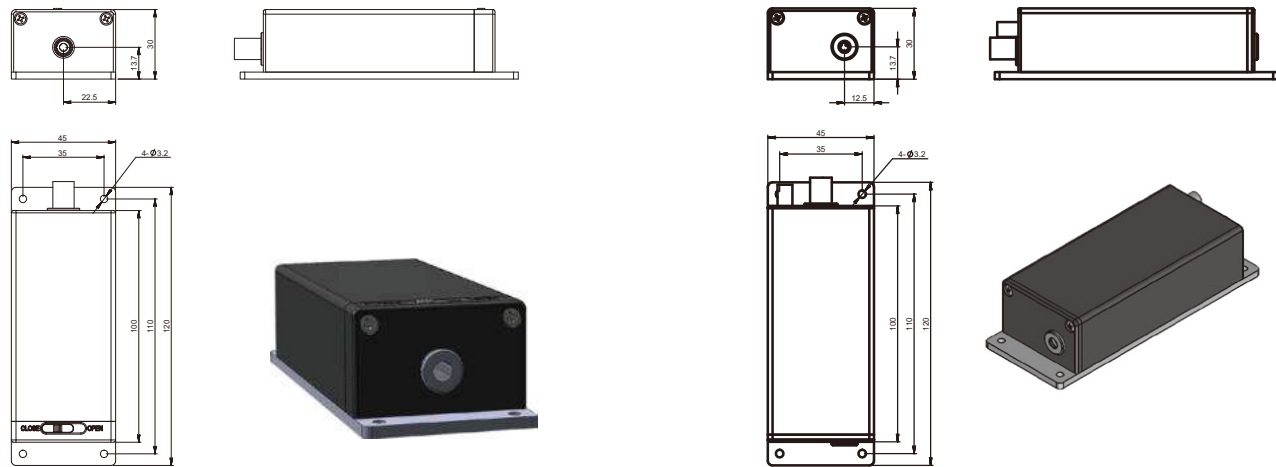
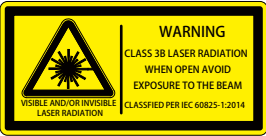
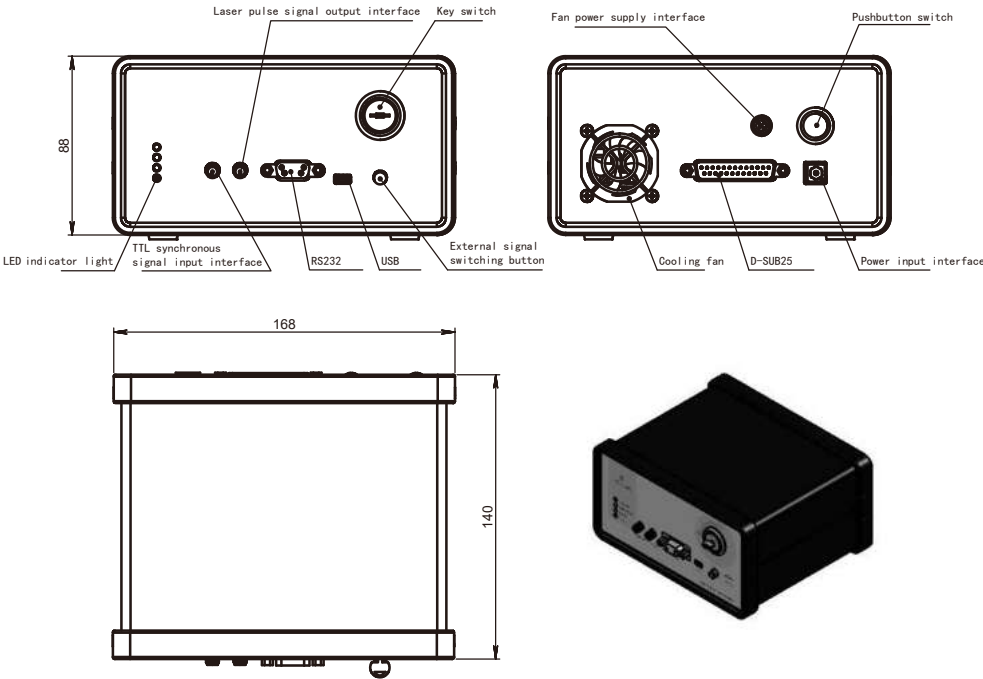
### FEATURES

- Pulse width up to 300ps
- Pulse energy up to 10μJ
- Maximum repetition rate up to 50KHz
- Beam mode is TEM<sub>00</sub>
- High polarization direction stability

### APPLICATIONS

- Laser micromachining
- Seed source
- Ultrasound imaging
- Analytical chemistry
- Time-resolved Raman spectroscopy
- Biophotonics

### OUTLINE SIZE(mm)



PARAMETERS

Model		UL1064- 20KHz- 3μJ- MH004	UL1064- 50KHz- 2μJ- MH005	UL1064- 100KHz- 1μJ- MH006
Optical parameter	Wavelength(nm)	1064	1064	1064
	Repetition frequency (KHz)	20	50	100
	Average power(mW)	60	100	100
	Output energy(μJ)	3	2	1
	Pulse width (ps)	350	350	500
	Power stability (8h)	±3%	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level@1/e <sup>2</sup>	20	20	30
	Full-angle divergence angle Typ. (Mrad)Vertical@1/e <sup>2</sup>	20	20	30
	Polarization characteristics	> 100:1	> 100:1	> 100:1
System parameters	power input	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz	100- 240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB	RS232、USB
	System power consumption (W)	≤35	≤40	≤40
	Power supply size (W × H × L, mm)	168×88×140	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×33×120	45×33×120	45×33×120
	Working temperature (°C)	15- 35	15- 35	15- 35
	Storage temperature (°C)	0- 60	0- 60	0- 60

- 1. This series of lasers with wavelength of 355nm and 266nm can be customized
- 2. Other frequencies can be customized



# 1064nm Nd:YAG q-switched picosecond laser MO Microchip laser system



## DESCRIPTION

1064nm laser is one of the most common laser among ULaser’s products of solid state laser. Unlike other lasers, 1064nm laser beam is directly emitted from the Nd:YAG crystal. Q-switched crystal helps our laser to emit pico-second output light beam. Either the one with single longitudinal mode or the one with fundamental mode can be chosen in ULaser.

ULaser provides absolute high quality 1064 nm laser. Our 1064nm laser contains high average power, up to 100mW. And it has high pulse repetition frequency, up to 50kHz. At the same time, our 1064nm laser has smaller size and lower power consumption by microchip laser technology.

Our 1064nm laser can be used in most military, civil and scientific research fields. In industry, it can be used in micromachining. In cosmetology, it can be used in picosecond laser tattoo removal machine. Besides, it can also be used in laser ultrasound, laser induced breakdown spectroscopy, etc.

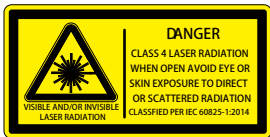
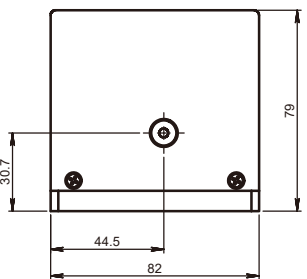
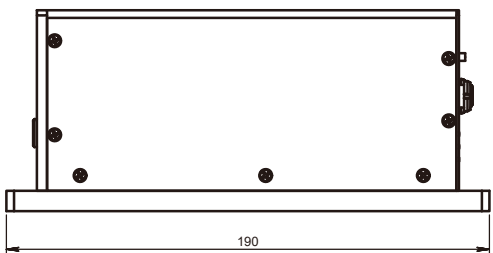
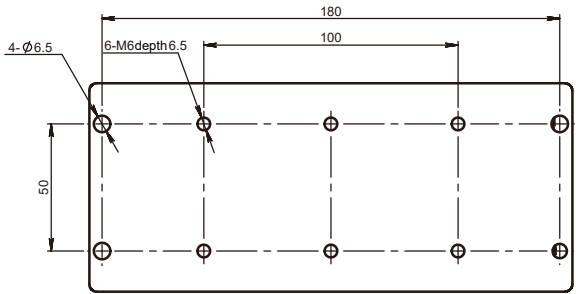
## FEATURES

- Pulse width < 1ns
- The repetition frequency is adjustable from 1 to 200Hz
- The laser energy is adjustable on the machine
- Optical trigger output signal jitter < 100ps
- Fully sealed design, high reliability
- Plug and play, including upper computer software

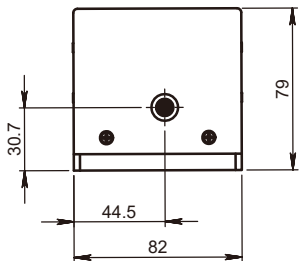
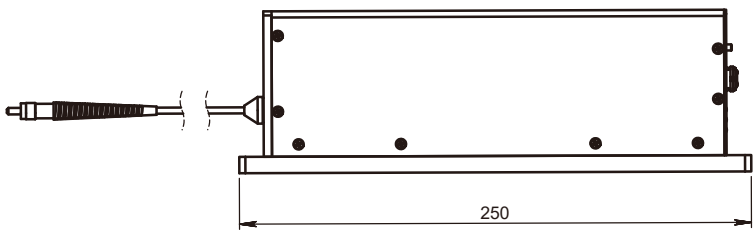
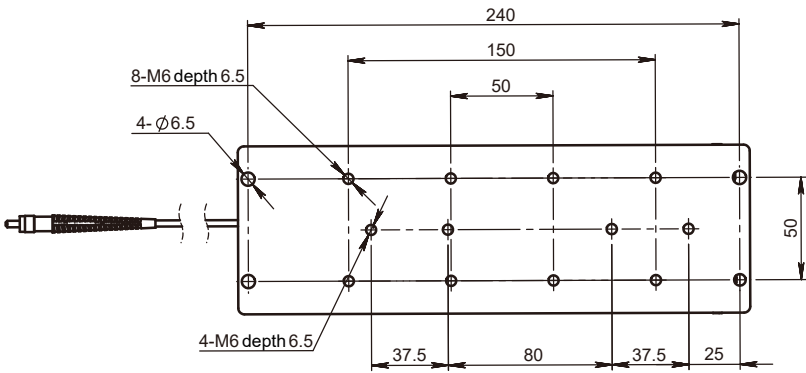
## APPLICATIONS

- Laser engraving
- Laser photoluminescence
- Laser capture micro-cutting
- Raman spectroscopy detection
- Laser induced breakdown spectrum
- Laser remote sensing

OUTLINE SIZE(mm)



Space output size diagram



Optical fiber output size diagram



PARAMETERS

Model	UL1064-200Hz-60/50μJ-MO004	
Optical parameter	Wavelength(nm)	1064
	Repetition frequency (Hz)	1-200
	Maximum output energy of space beam (μJ)	60
	Fiber Coupling Maximum Output Energy (μJ)	50
	Pulse width (ns)	≤1
	Energy Stability(rms)	≤3%
	Energy Regulation Step Accuracy	≤2%
	Beam mode (spatial beam output)	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	≤2
	Full-angle divergence angle Typ. (Mrad)Vertical @1/e <sup>2</sup>	≤2
System parameters	Polarization characteristics	≥100:1
	Fiber parameters (fiber coupled output optional)	200μm/0.22NA
	Power input	24V DC
	Modulation input	TTL0-5V,SMB connector
	Control interface	RS232
	System Peak Power Consumption (W)	< 20
	System Average Power Consumption (W)	< 10
	Laser head size (W × H × L, mm)	82×79×190(space)/ 82x79x250(optical fiber)
	Working temperature (°C)	10-40
	Storage temperature (°C)	0-60

- 1. The supported operating frequency is 16~200Hz in continuous mode and burst mode.
- 2. Fiber core diameter: 200μm.
- 3. The power supply adapter is shipped with matching power supply, which can support 90~260VAC power supply input.





# 1319nm Nd:YAG q-switched nanosecond laser ML Microchip laser system



## DESCRIPTION

1319nm laser adapting the design of microchip, is one of the series of solid state laser provided by ULaser. Our 1319nm laser is based on Nd:YAG crystal.

Our 1319nm laser adapt fully sealed design, which has very high reliability. So that, our 1319nm laser can realize a small and single structure. Light weight is its another advantage. Unlike its small size, single pulse energy of our 1319nm laser can get 50μj and 80μj.

1319nm is in the low loss and zero dispersion range of quartz fiber. And the blood has less loss to the laser of 1319nm. Thus, our 1319nm laser can be used in yag laser treatment, laser remote sensing, radar ranging, etc.

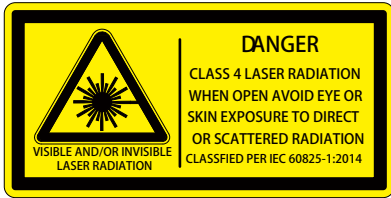
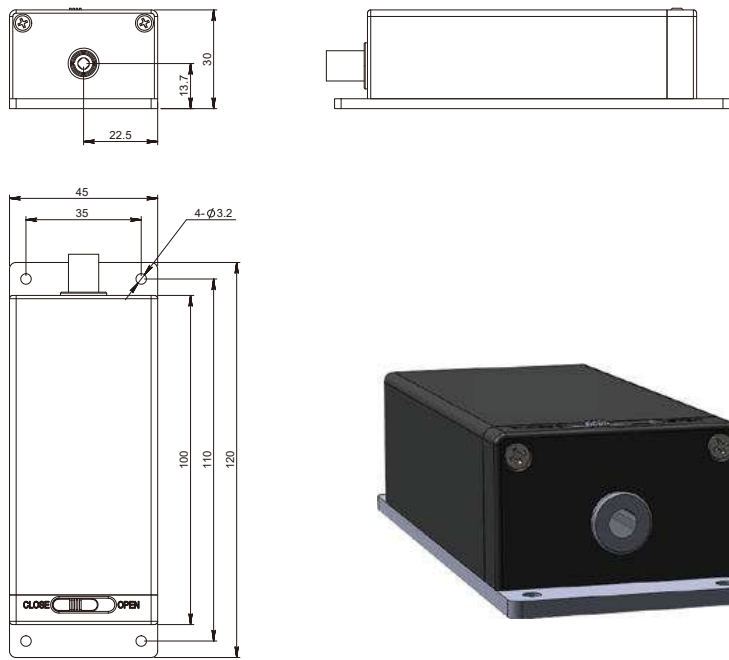
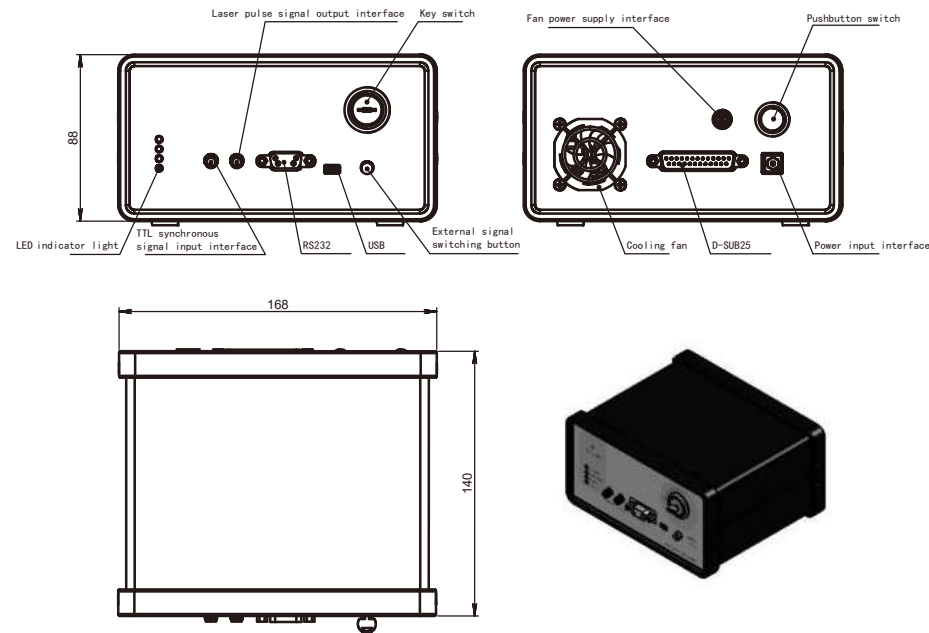
## FEATURES

- The pulse width can reach 2.5ns
- Pulse energy up to 50μJ
- Maximum repetition rate up to 2kHz
- Beam mode is TEM<sub>00</sub>
- Fully sealed design, high reliability
- High polarization direction stability

## APPLICATIONS

- Photodynamic medicine
- Environmental monitoring
- Laser remote sensing
- Lidar
- Spectroscopy
- Laser display

## OUTLINE SIZE(mm)



PARAMETERS

Model		UL1319-0.1KHz-80μJ-ML003	UL532-1KHz-50μJ-ML004
Optical parameter	Wavelength(nm)	1319	1319
	Repetition frequency (KHz)	0.1*	1*
	Average power(mW)	8	50
	Output energy(μJ)	80	50
	Pulse width (ps)	2500	2500
	Power stability (8h)	±3%	±3%
	Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>
	Full-angle divergence angle Typ. (Mrad) level @1/e <sup>2</sup>	10	10
	Full-angle divergence angle Typ. (Mrad) Vertical @1/e <sup>2</sup>	10	10
	Polarization characteristics	> 100:1	> 100:1
System parameters	Power input	100-240 VAC,50/60Hz	100-240 VAC,50/60Hz
	Control interface	RS232、USB	RS232、USB
	System power consumption (W)	≤25	≤45
	Power supply size (W × H × L, mm)	168×88×140	168×88×140
	Laser head size (W × H × L, mm)	45×30×120	45×30×120
	Working temperature (°C)	15-35	15-35
	Storage temperature (°C)	0-60	0-60

- 1.\*The light outlet of the laser head is side outlet. See the mechanical dimension drawing for details
- 2.Customized internal beam expansion function to meet the requirements of small divergence angle (less than 2mrad)



# 1535nm Eye Safe Laser Transmitting Antenna



## DESCRIPTION

UL-1535-25X series eye safe laser transmitting antenna is an integrated laser module composed of erbium glass microplate laser, beam expanding lens and photodetector (PIN) developed by ULaser. It is specialized in laser ranging, laser remote sensing, laser radar and other fields. The series of products can provide 1535nm laser output of 100-300μJ, divergence Angle of about 0.5mrad, and provide laser zero signal, with small size, high reliability, wide temperature operation and so on.

## FEATURES

- Eye safe wavelength
- Built-in detector
- Divergence Angle 0.5 mrad
- Compact structure
- High reliability

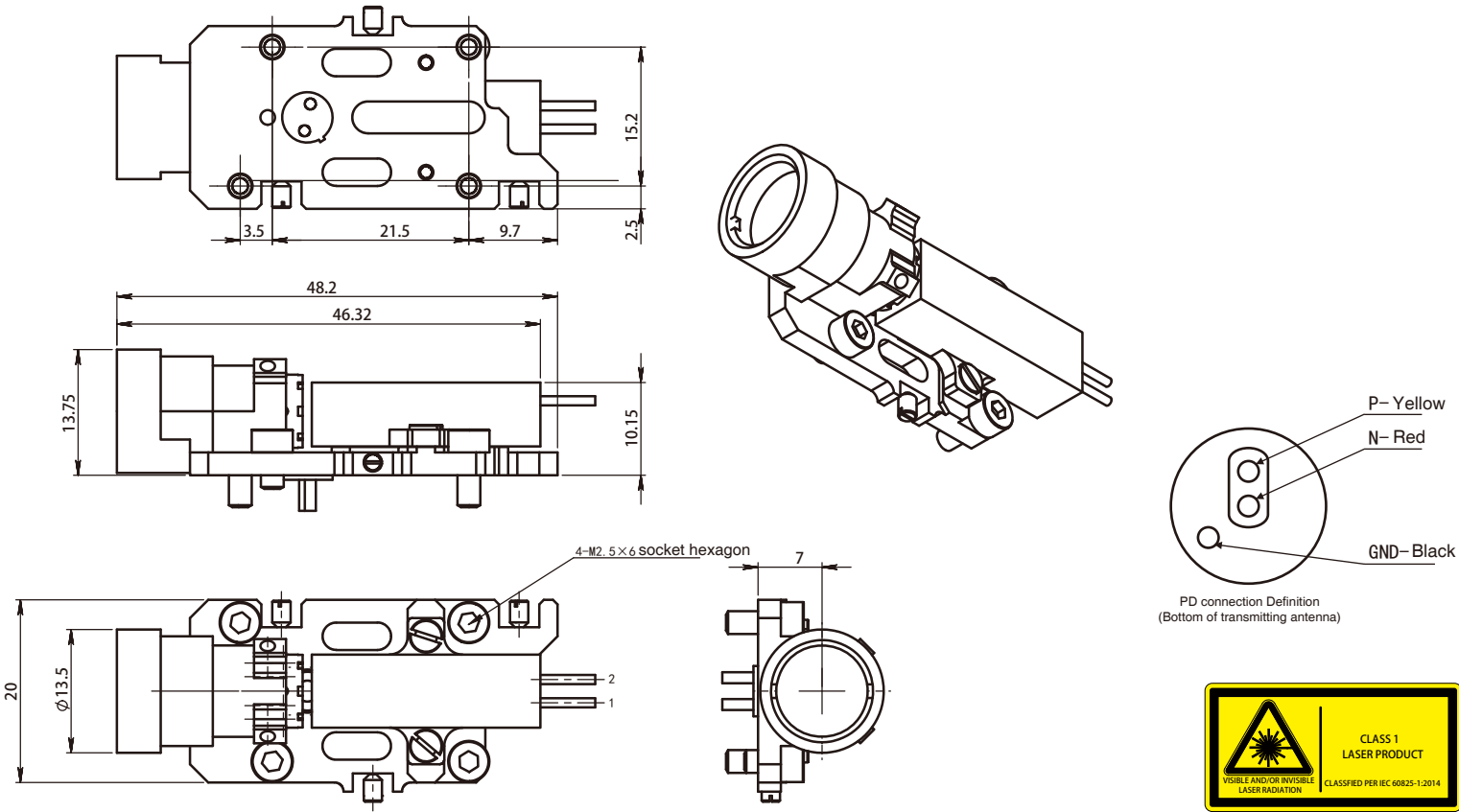
## APPLICATIONS

- Laser ranging
- Laser remote sensing
- Laser radar

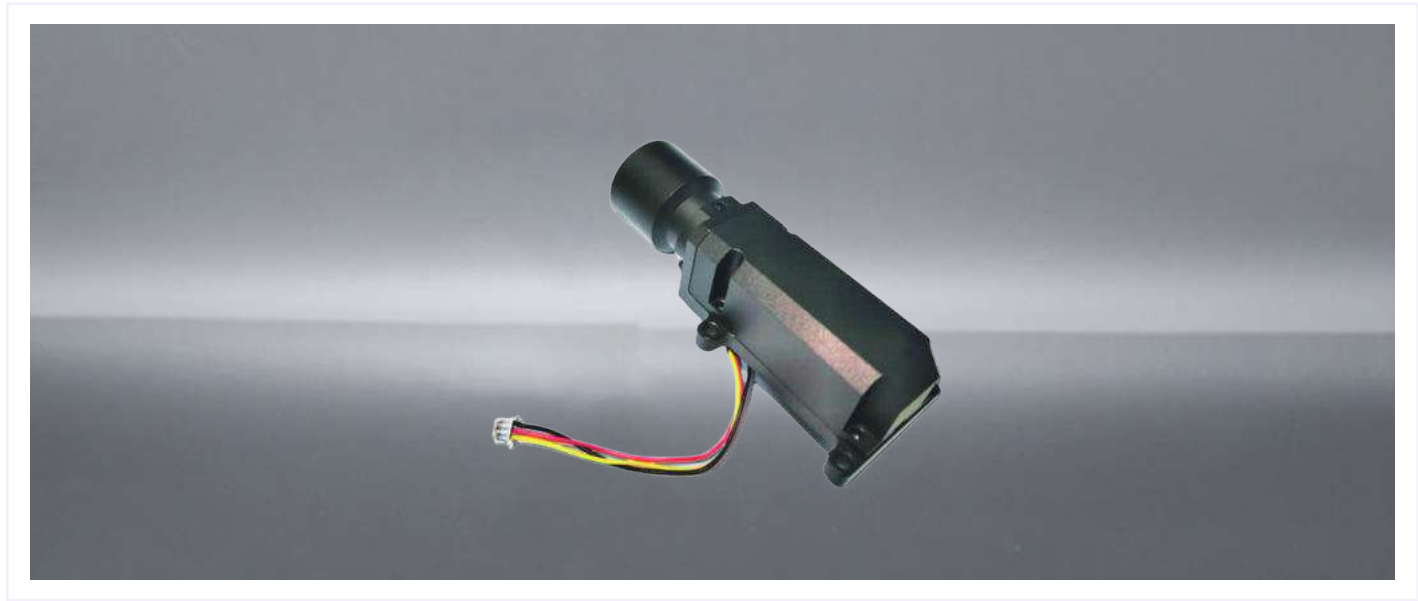
## LOW ENERGY 1535 LASER TRANSMITTING ANTENNA PRODUCT MODEL

Model	UL-LF-100-25X	UL-LF-200-25X	UL-LF-300-25X
Optical Parameters			
Wavelength (nm)		1535	
Repetition frequency (Hz)		10	
Output energy (μJ)	100	200	300
Pluse width (ns)		5	
Pump width (ms)	≤2	≤2	≤2.5
Light spot diameter (mm)	7.5	8	8.5
Divergence angle Typ. (mrad)	0.55	0.5	0.45
Lens magnification		25X	
System Parameters			
Working current (A)	8	10	12
Working voltage (V)		1.8	
Vibration		5Hz, 2.5g	
Shock		Axial direction 100g, 1ms	
Working temperature (°C)		-40~65	
Storage temperature (°C)		-55~80	
Storage Humidity		≤85%	
Working life (H)		≥5000	

## OUTLINE SIZE (mm)



# High Power 1535nm Eye Safe Laser Transmitting Antenna



## DESCRIPTION

UL-1535-30X series eye safe laser transmitting antenna is an integrated laser module composed of erbium glass microplate laser, beam expanding lens and photodetector (PIN) developed by ULaser. It is specialized in laser ranging, laser remote sensing, laser radar and other fields. The series of products can provide 1535nm peak power laser output of 500μJ-1mJ, divergence Angle less than 0.3mrad, and provide laser zero signal, with small size, high reliability, wide temperature operation, etc.

## FEATURES

- Eye safe wavelength
- Peak value power
- Divergence Angle < 0.3 mrad
- Built-in detector
- Compact structure
- High reliability

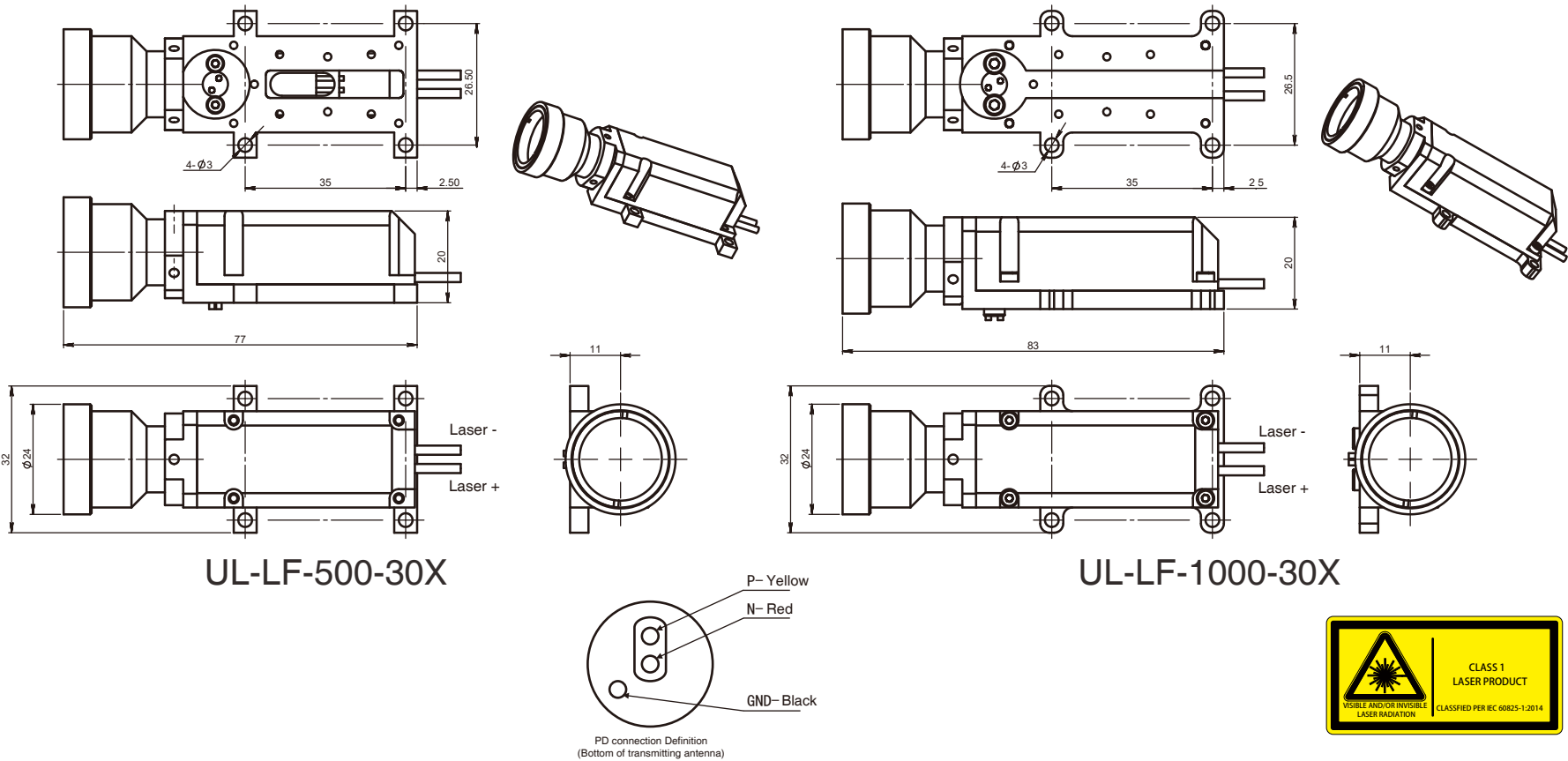
## APPLICATIONS

- Laser ranging
- Laser remote sensing
- Laser radar

## HIGH ENERGY 1535 LASER TRANSMITTING ANTENNA PRODUCT MODEL

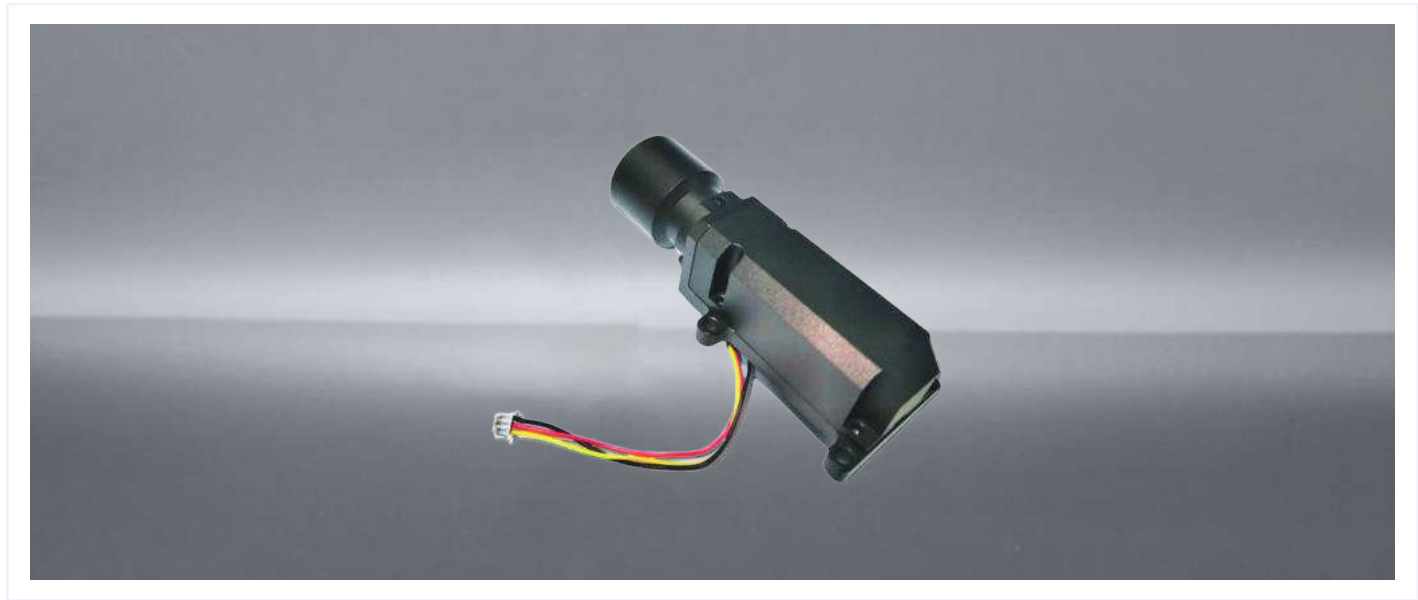
Model	UL-LF-500-30X	UL-LF-1000-30X
Optical Parameters		
Wavelength (nm)	1535	
Repetition frequency (Hz)	10	5
Output energy (μJ)	500	1000
Pluse width (ns)	6	7
Pump width (ms)	≤2.5	
Light spot diameter (mm)	14	16
Divergence angle Typ. (mrad)	0.28	0.25
Lens magnification	30X	
System Parameters		
Working current (A)	20	30
Working voltage (V)	1.8	
Vibration	5Hz, 2.5g	
Shock	Axial direction 100g, 1ms	
Working temperature (°C)	-40~65	
Storage temperature (°C)	-55~80	
Storage Humidity	≤85%	
Working life (H)	≥5000	

## OUTLINE SIZE (mm)





# High Repetition Frequency 1535nm Eye Safe Laser Transmitting Antenna



## DESCRIPTION

UL-1535-40X series eye safe laser transmitting antenna is an integrated laser module composed of erbium glass microplate laser, beam expanding lens and photodetector (PIN) developed by ULaser. It is specialized in laser ranging, laser remote sensing, laser radar and other fields. This series of products can provide 1535nm laser output with a small divergence Angle of 1-10kHz, 5-40μJ, and provide laser zero signal, with small volume, high reliability, wide temperature operation and other characteristics.

## FEATURES

- Eye safe wavelength
- High repetition rate
- Divergence Angle 0.5 mrad
- Built-in detector
- Compact structure
- High reliability

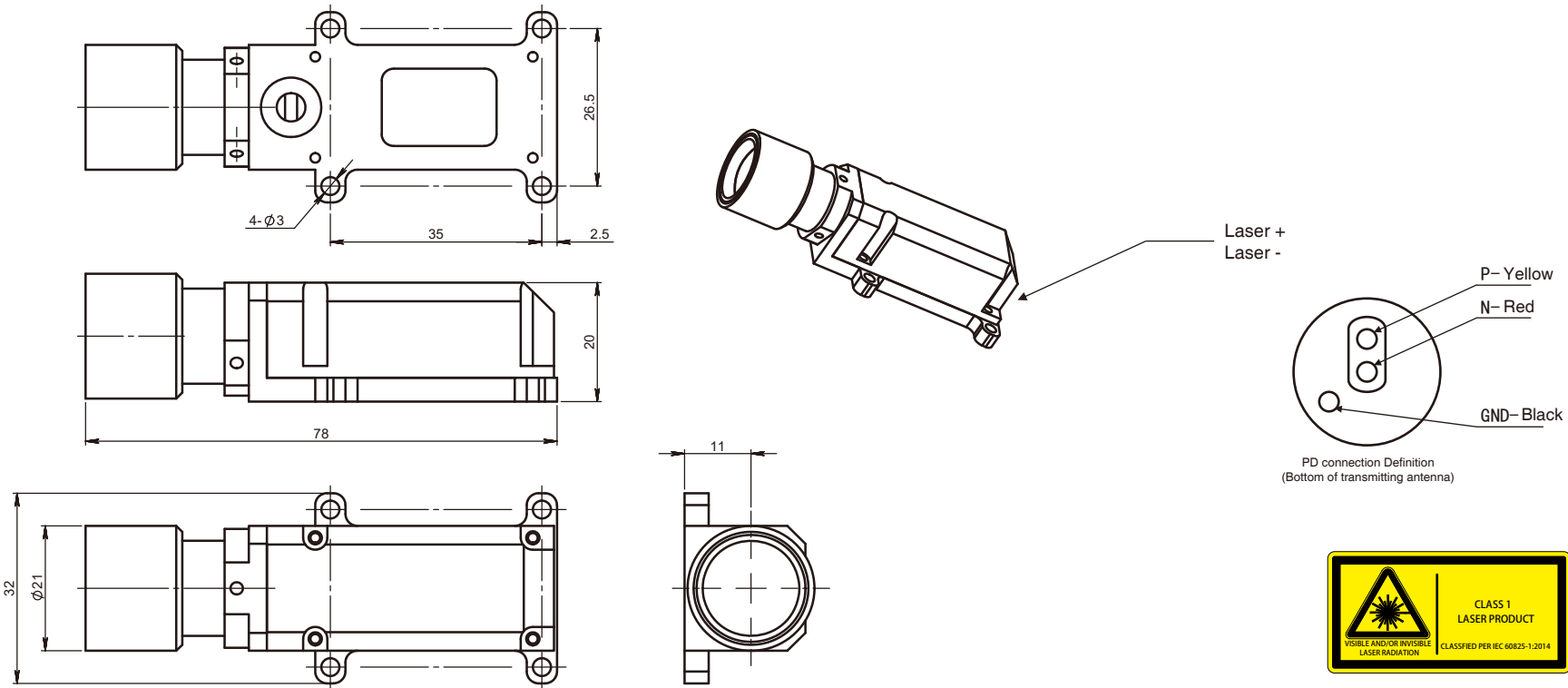
## APPLICATIONS

- Laser ranging
- Laser remote sensing
- Laser radar

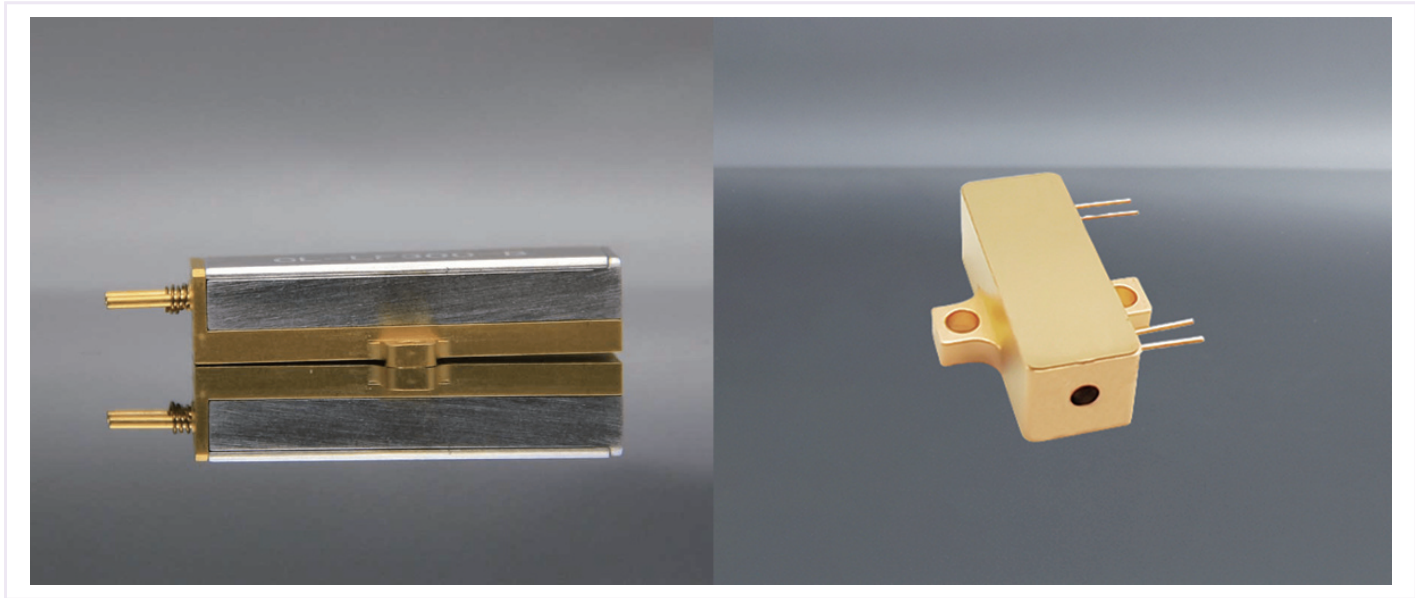
## HIGH REPETITION FREQUENCY 1535 LASER TRANSMITTING ANTENNA PRODUCT MODEL

Model	UL-HF-40-40X	UL-HF-20-40X	UL-HF-10-40X	UL-HF-5-40X
Optical Parameters				
Wavelength (nm)	1535			
Repetition frequency (kHz)	1	2.5	5	10
Output energy (μJ)	40	20	10	5
Pluse width (ns)	5	6	8	10
Light spot diameter (mm)	12			
Divergence angle Typ. (mrad)	0.4	0.4	0.45	0.45
Lens magnification	40X			
System Parameters				
Working current (A)	6			
Working voltage (V)	1.8			
Vibration	5Hz, 2.5g			
Shock	Axial direction 100g, 1ms			
Working temperature (°C)	-40~65			
Storage temperature (°C)	-55~80			
Storage Humidity	≤85%			
Working life (H)	≥5000			

## OUTLINE SIZE (mm)



1535nm Eye Safe Laser



DESCRIPTION

1535 nm laser is one of the series of solid state laser provided by Ulasers. It is based on the bonding crystal of Er: glass and Co: Spinel. It’s a good erbium laser. Due to our mature bonding and packaging technology, our 1535 nm laser also can be called as 1535 nm microchip laser.

The most important advantage of our 1535 nm laser is its safety to users’ eyes. Because there is higher access of human eyes to 1535 nm laser than other lasers (like 1064 nm Nd:YAG laser). Besides, our 1535 nm laser can provide large pulsed laser energy up to 400 uJ. And lighter weight and smaller size are its other brightened spots.

Our 1535 nm laser has wide applications in infra red scope. It can be used as light source in lightweight lidar sensor, as well as in laser range finder.

FEATURES

- The laser pulse width can reach 5ns
- Maximum PRF to 1kHz
- Pulse energy up to 400μJ

APPLICATIONS

- Laser Ranging
- Lidar

LOW / HIGH ENERGY 1535 LASER MODULE PRODUCT MODEL

Model	UL-LF100-B	UL-LF200-B	UL-LF300-B	UL-LF400-B	UL-LF100-B-PIN*	UL-LF200-B-PIN*	UL-LF300-B-PIN*	UL-LF500-B	UL-LF750-B	UL-LF1000-B
Wavelength	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm
Output Energy	100μJ	200μJ	300μJ	400μJ	100μJ	200μJ	300μJ	500μJ	750μJ	1000μJ
Pluse Width	5ns	5ns	5ns	6ns	5ns	5ns	5ns	6ns	8ns	8ns
Repetition Rate	10Hz	10Hz	10Hz	10Hz	10Hz	10Hz	10Hz	10Hz	10Hz	5Hz
Divergence Angle	10mrad	10mrad	10mrad	8mrad	10mrad	10mrad	8mrad	8mrad	7mrad	7mrad
Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
Working Current	8A	10A	12A	15A	8A	10A	12A	20A	30A	30A
Weigth	10g	10g	10g	8g	8g	8g	10g	13g	20g	20g
Size	21x8x7mm <sup>3</sup>	21x8x7m <sup>3</sup>	25x8x7mm <sup>3</sup>	28x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	25x8x7mm <sup>3</sup>	32x8x7mm <sup>3</sup>	40x9x7.7m <sup>3</sup>	40x9x7.7mm <sup>3</sup>
Working Temperature Range	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃
Storage Temperature Range	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃

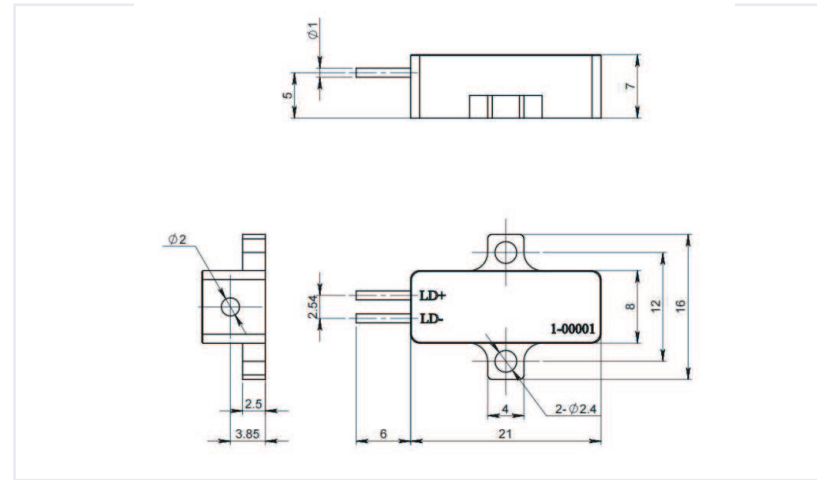
Note: \*This model has a built-in PIN, and the PIN amplitude is 2-3V@50Ω impedance

HIGH REPETITION 1535 LASER MODULE PRODUCT MODEL

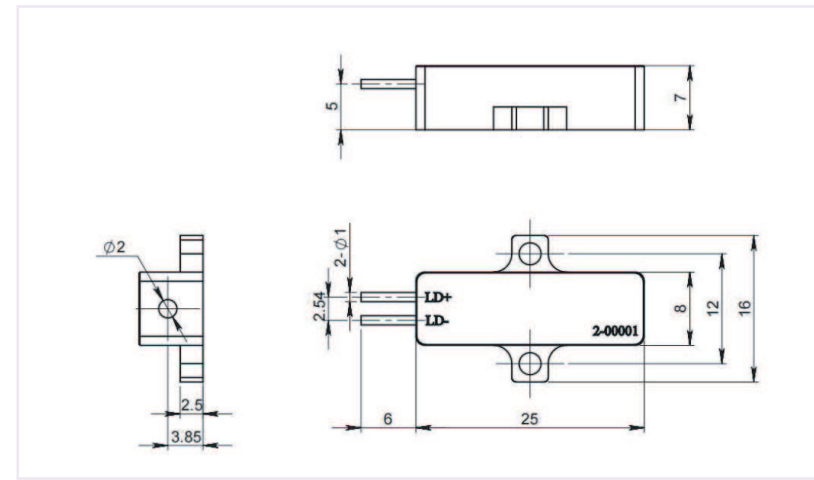
Model	UL-HF60-B	UL-HF20-B	UL-HF10-B	UL-HF5-B	UL-HF60-B-PIN*	UL-HF20-B-PIN*	UL-HF10-B-PIN*	UL-HF5-B-PIN*
Wavelength	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm	1535nm
Output Energy	60μJ	20μJ	10μJ	5μJ	60μJ	20μJ	10μJ	5μJ
Pluse Width	5ns	6ns	8ns	10ns	5ns	6ns	8ns	10ns
Repetition Rate	1KHz	2.5KHz	5KHz	10KHz	1KHz	2.5KHz	5KHz	10KHz
Divergence Angle	16mrad	17mrad	18mrad	20mrad	16mrad	17mrad	18mrad	20mrad
Working voltage	2V	2V	2V	2V	-	-	-	-
Spot diamteter	0.3mm	0.3mm	0.3mm	0.3mm	-	-	-	-
Directivity	<0.2°	<0.2°	<0.2°	<0.2°	-	-	-	-
Beam mode	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>	TEM <sub>00</sub>
Working Current	6A	6A	6A	6A	6A	6A	6A	6A
Weigth	8g	8g	8g	8g	8g	8g	8g	8g
Size	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>	21x8x7mm <sup>3</sup>
Working Temperature Range	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃	-40℃~+65℃
Storage Temperature Range	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃	-55℃~+80℃

Note: \*This model has a built-in PIN, and the PIN amplitude is 2V@50Ω impedance

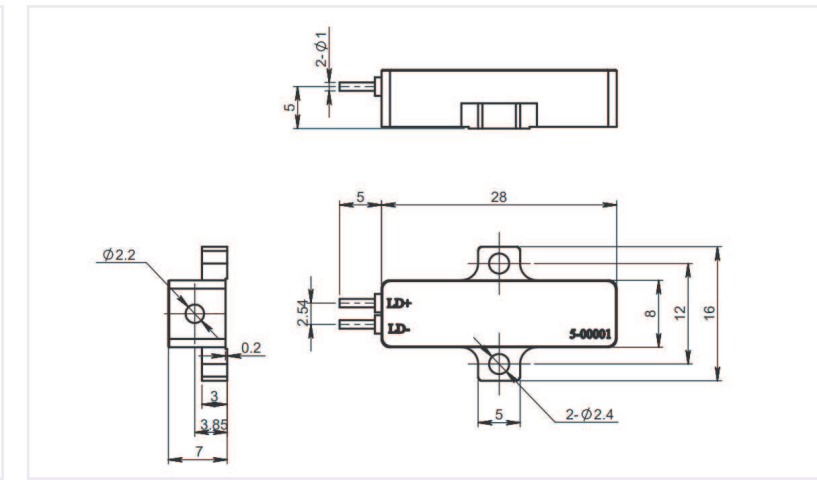
## OUTLINE SIZE (mm)



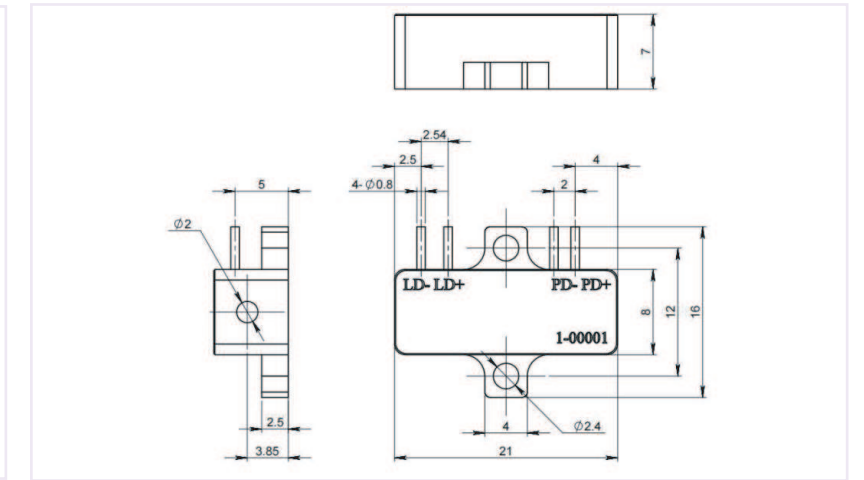
UL-LF100-B, UL-LF200-B



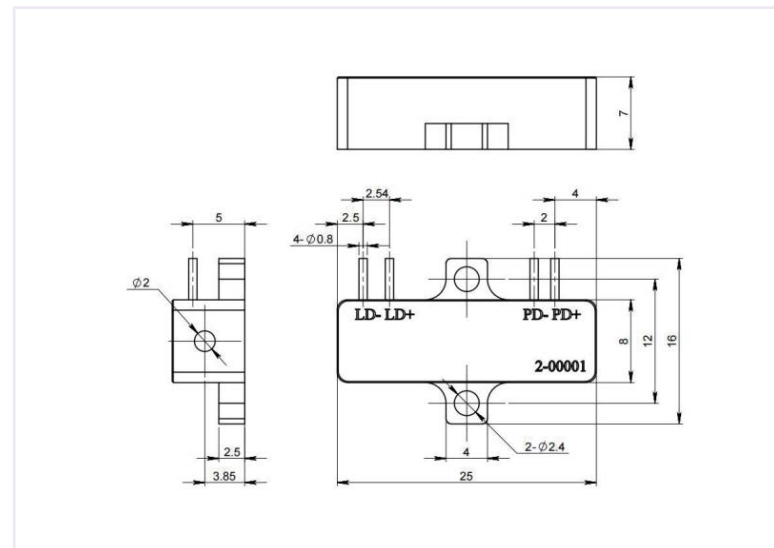
UL-LF300-B



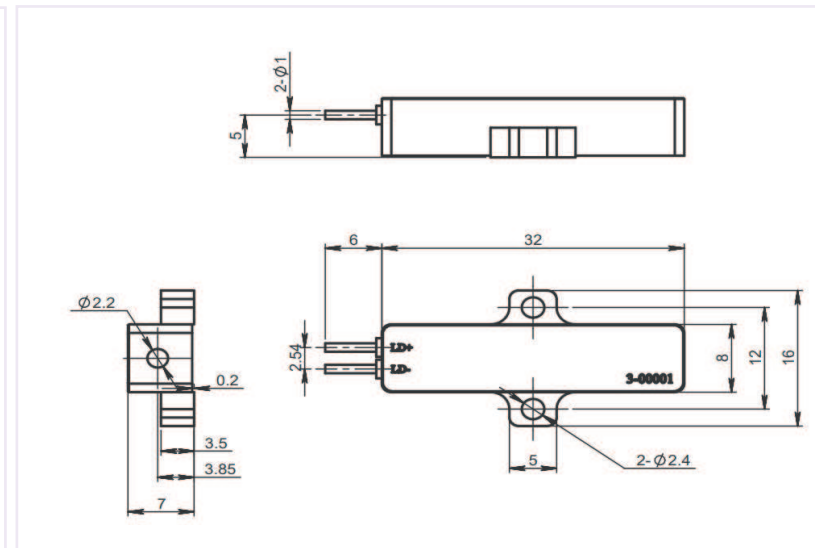
UL-LF400-B



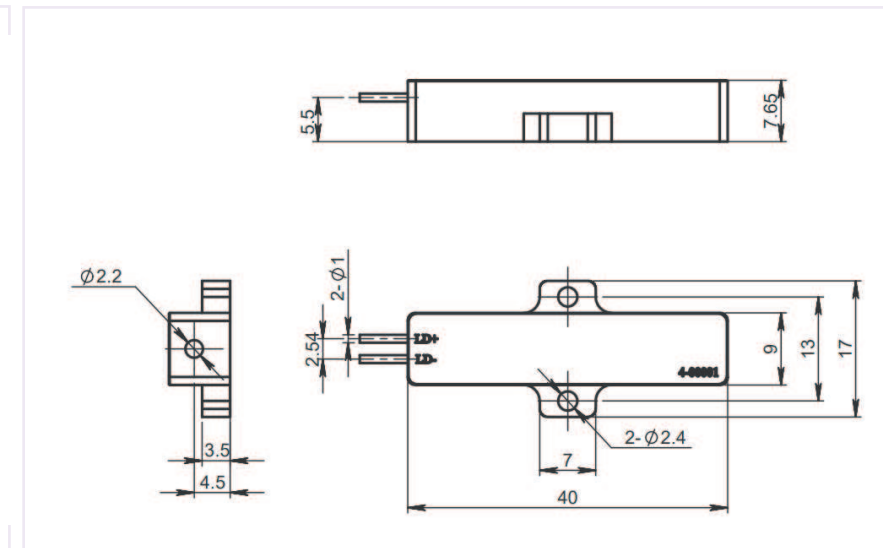
UL-LF100-B-PIN, UL-LF200-B-PIN



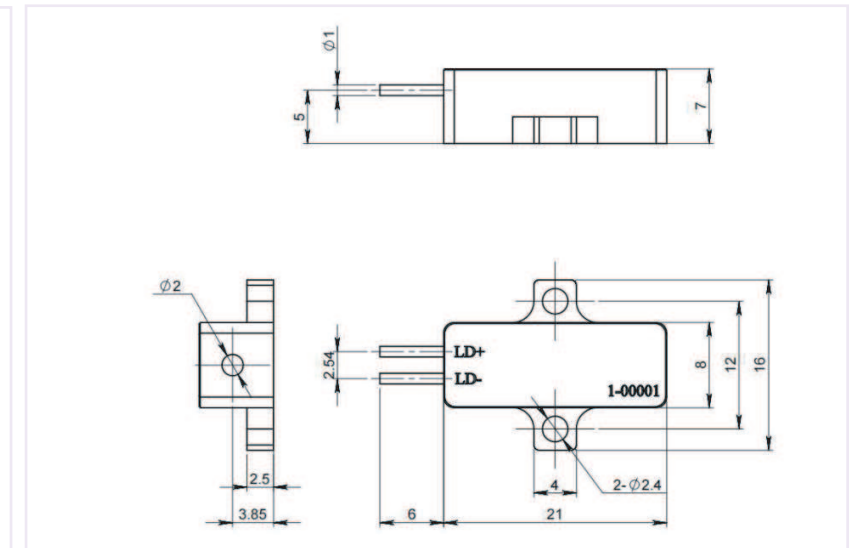
UL-LF300-B-PIN



UL-LF500-B

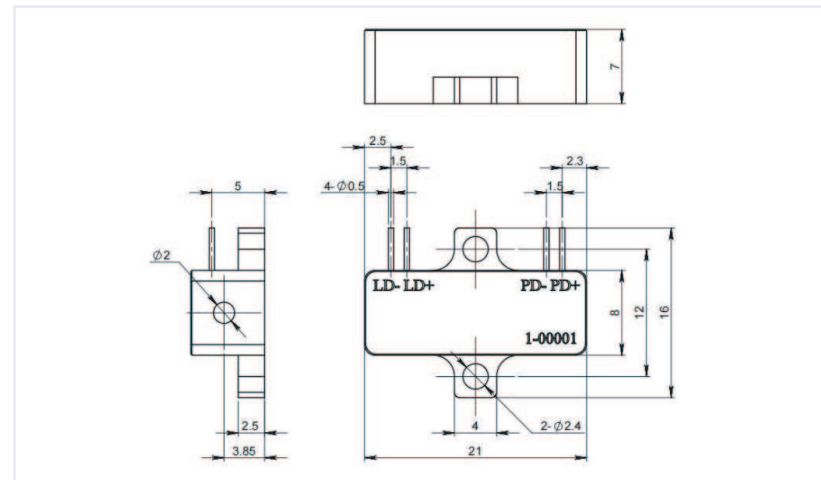


UL-LF7500-B, UL-LF1000-B

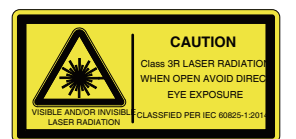
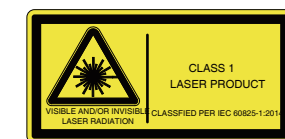


UL-HF60-B, UL-HF20-B,  
UL-HF10-B, UL-HF5-B

# OUTLINE SIZE (mm)



UL-HF60-B-PIN, UL-HF20-B-PIN,  
UL-HF10-B-PIN, UL-HF5-B-PIN





# 532nm Dazzle laser series



## DESCRIPTION

The 532nm Dazzle laser series adopts 532nm green laser, which is the most sensitive to human eyes, and can cause temporary blindness and dizziness when irradiating eyes, so as to quickly defeat enemies without harming human life. Invalidate an opponent's instant attack or resistance. This product is a complete set of customer's remote laser rejection system, used for warning and driving away birds, crowds, vehicles, ships and other potential threats.

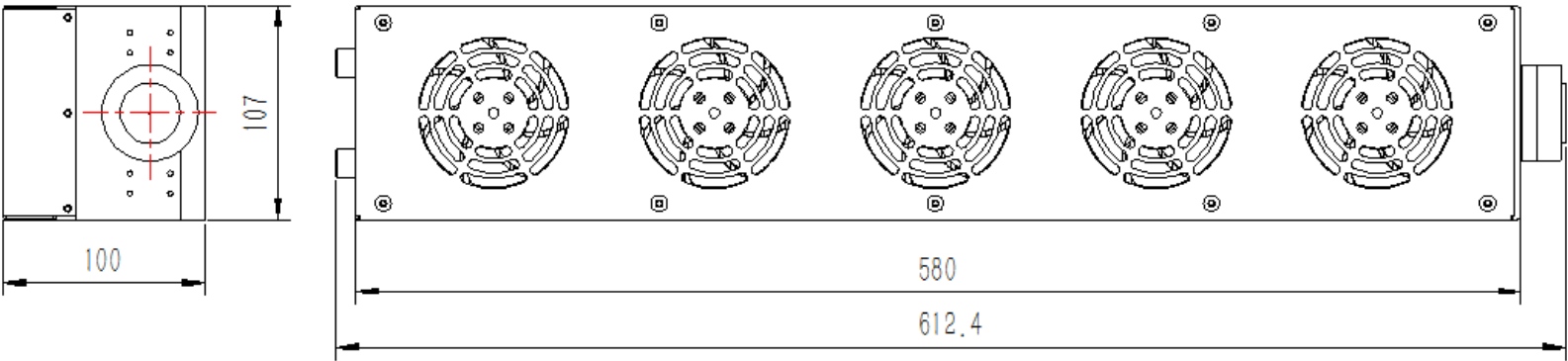
## FEATURES

- Compatible with the overall structure of customers, compact and reasonable design
- Automatic focusing function, adapt to different distance stop
- Strong adaptability to environment
- Simple and reliable operation

## PARAMETERS

Parameter	Data	
Model	UL532-10W-DAL001	UL532-20W-DAL002
Wavelength	532nm	532nm
Peak power	>10W	>10W
Power stability (RMS)	<3%	<3%
Power adjustable range	10%-100%	10%-100%
Output spot size	Specify when ordering	Specify when ordering
Operating mode	Persistence/flicker	Persistence/flicker
Flicker frequency	Adjustable 7-10Hz	Adjustable 7-10Hz
Control interface	DB9, RS422	DB9, RS422
Cooling mode	Air cool	Air cool
Power supply	220VAC/28VDC	220VAC/28VDC
Output power	<300W	<500W
Working temperature	-15 ~ 50℃	-15 ~ 50℃
Storage temperature	-25 ~ 60℃	-25 ~ 60℃
Humidity	0-80%	0-80%
Laser head weight	10kg	20kg
Laser head size	613*107*100mm	Customized

## OUTLINE SIZE(mm)



# AMRL-001 Series Solid state laser for atmospheric particulate matter lidar



### DESCRIPTION

AMRL-001 series is a high frequency nanosecond all solid state laser. These lasers have high peak power, repetition rate over KHz, and pulse width of about 10ns.

Optical design with end pump + acoustooptic Q-switch. Full air cooling design can meet the complex working conditions at wide temperature. Structural stability and reliability, after a long period of customer validation, can achieve 7 × 24 hours of trouble-free operation.

Typical applications are the matching light sources for atmospheric particulate matter lidar. Used for real-time monitoring of atmospheric environment changes. Backscattered light is produced by the interaction of a pulsed laser with particulate matter in the atmosphere. The scattered signal is received by the telescope system and passed through the photoelectric detection system and the signal acquisition system. The spatial distribution of extinction coefficient and depolarization coefficient of atmospheric particulates is then inverted by computer. This enables the detection of atmospheric quality.

### FEATURES

- Compact structure and high compatibility
- Wide temperature, working temperature -10~60 °C
- Good beam quality and directional stability
- Adaptive parameter control
- High level of protection, anti-vibration design
- Industrial grade 7\*24 hour design

### APPLICATIONS

- Atmospheric Particle Detection
- Laser ranging
- 3-D Imaging, Remote Sensing

### PARAMETERS

Energy@532nm <sup>a</sup>	≥500μJ@25°C	
Average output power	2.5 W @ 5 KHz	
Power stability	≤ 2 % @ 25°C @ 8h	
Pulse width	<15ns, Type.13ns	
Beam quality M <sup>2</sup>	<1.3	
Repetition frequency	3-7KHz Adjustable Default 5KHz	
Full angle of beam divergence	<3mrad	<150μrad @ Full angle @ Beam expansion ×15
Spot diameter	<600μm	
Polarization ratio	>100:1	
Beam directivity	≤50μrad @ 25°C	
Synchronous output signal	3.3V~5V @ 50Ω TTL signal, Width≥1μs, Rising edge≤50ns, Jitter<2ns	
Communication interface	4PM terminal , RS232 communication protocol	
Cooling mode	TEC refrigeration, radiator and fan	
Power supply	24V DC	
Laser Head Size <sup>b</sup>	250mm×240mm×105mm	
Power waste <sup>c</sup>	Normal temperature: 90W; High temperature: 200W	
Total weight	7Kg	
Laser lifetime	> 8500h	
Working temperature <sup>d</sup>	-10~+60°C	
Storage temperature	-20~+70°C	
Relative humidity	0~80%	

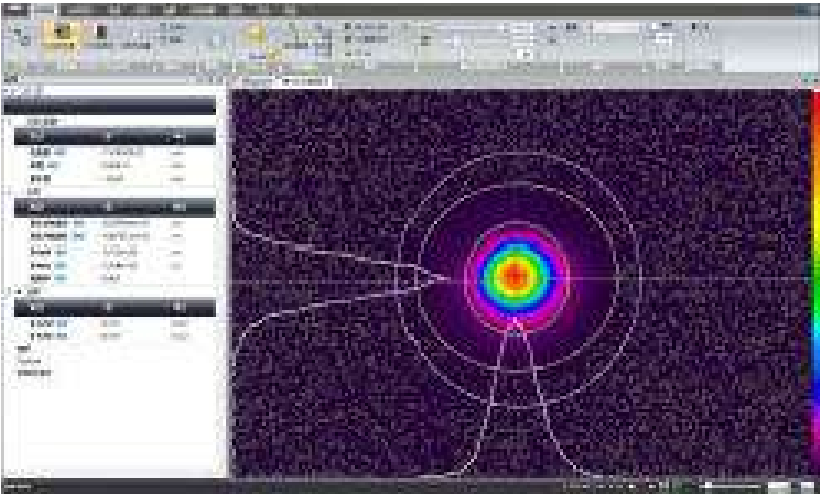
a. The output index and shape of 1064nm and 532nm lasers are the same, and they are two lasers of the same model.

b. This laser is convenient for customers. Except for the four laser modules (laser head module, LD pump source module, Q-switch module and circuit control module), it cannot be changed. The layout of other parts of the laser can be adjusted according to customer requirements.

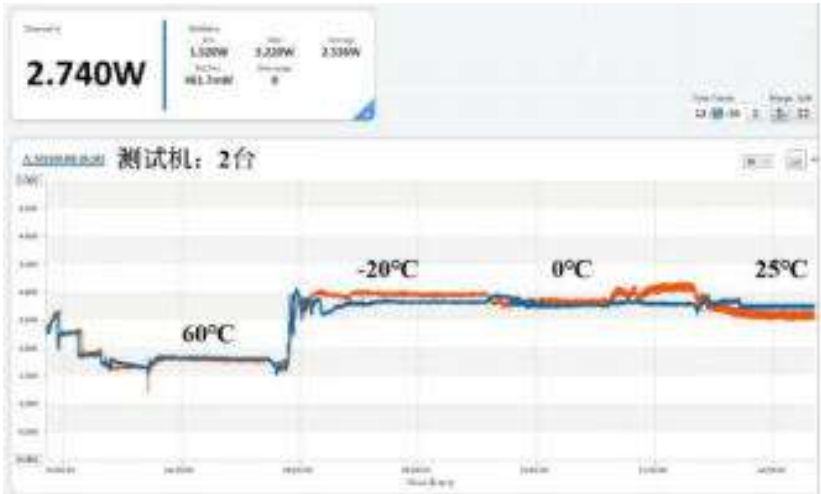
c. The laser cooling fan is adaptive. The power consumption of low-speed operation at room temperature is about 90W, and that of high-speed operation at high temperature is about 200W.

d. Under high temperature, the laser can work normally, but the output energy will be reduced.

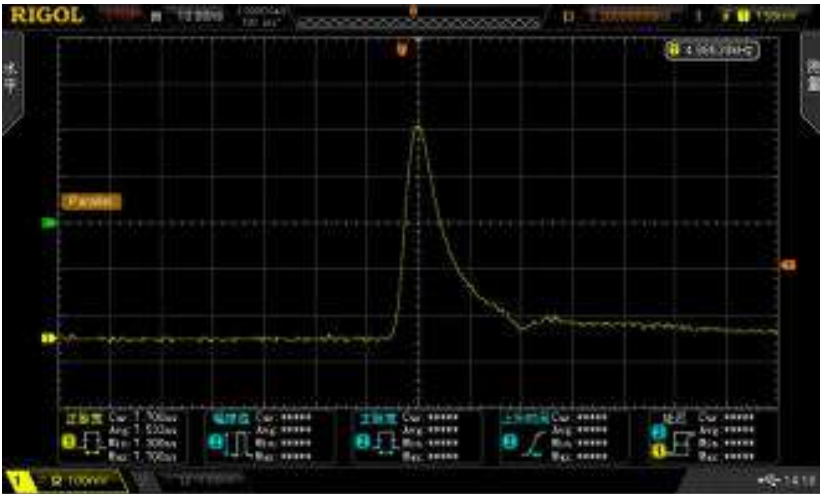
OPTICAL PARAMETERS



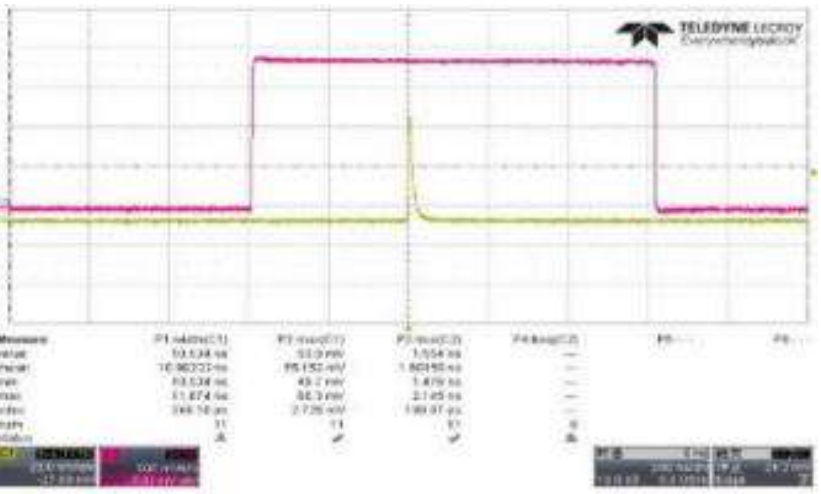
Divergence angle X:0.151mrad Y:0.131mrad



High and low temperature energy test

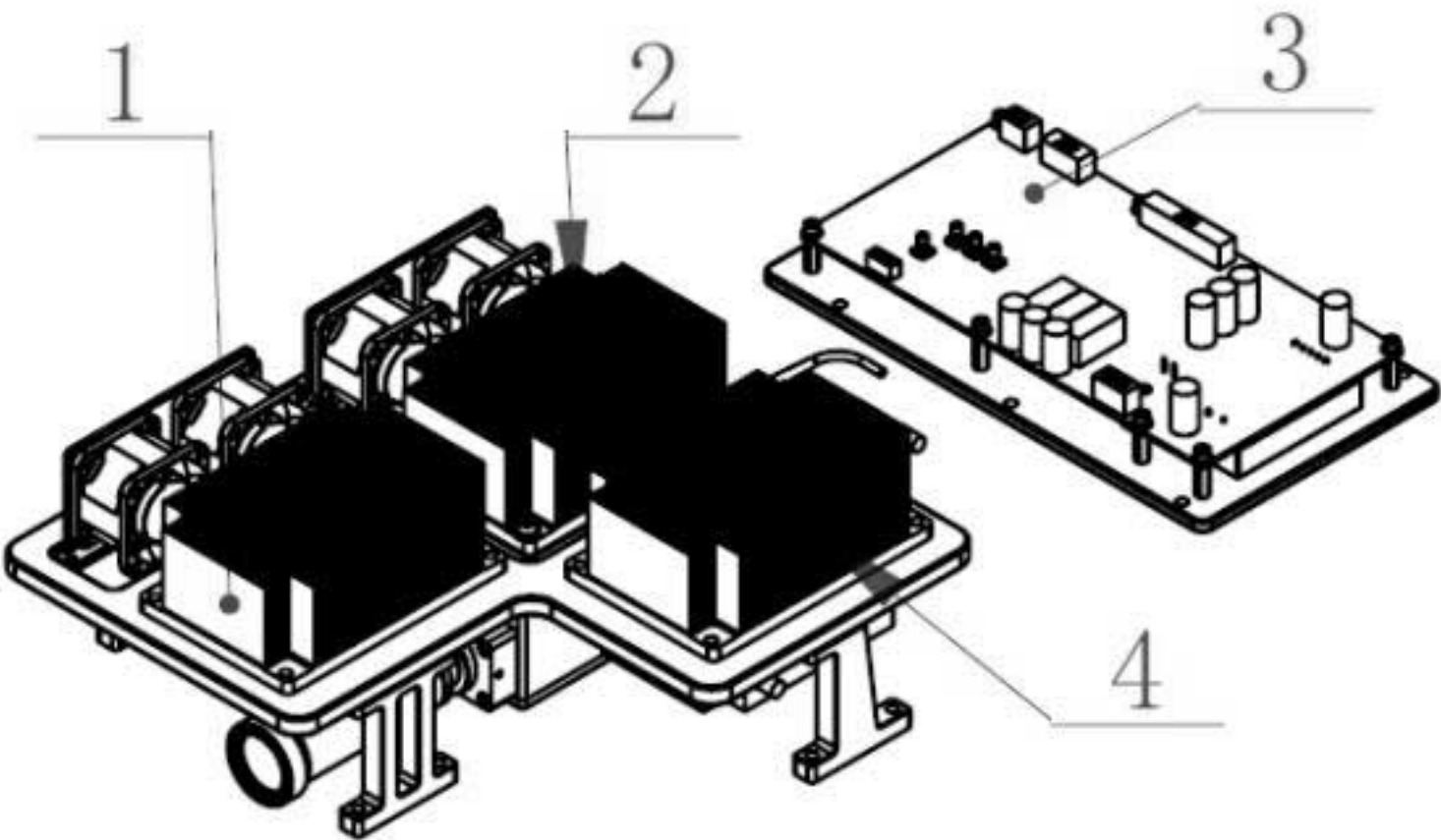


Pulse width: 7.53ns



Q signal synchronous output

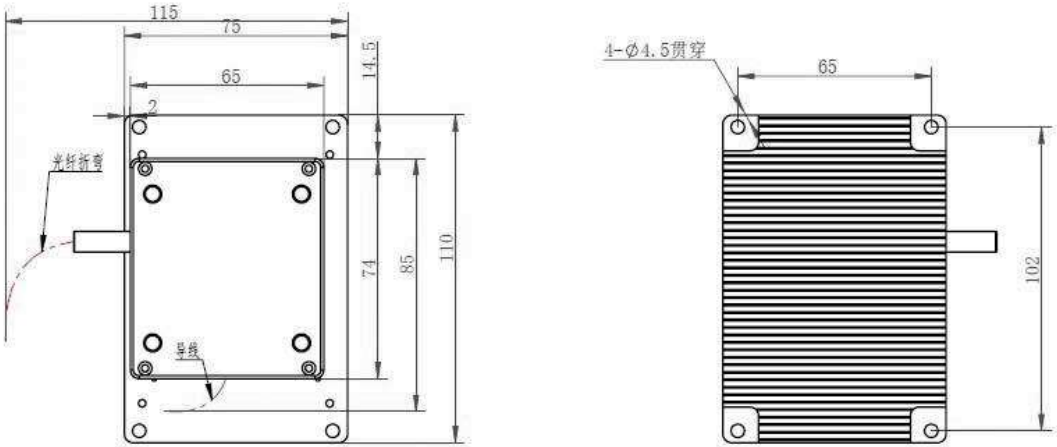
OUTLINE SIZE(mm)



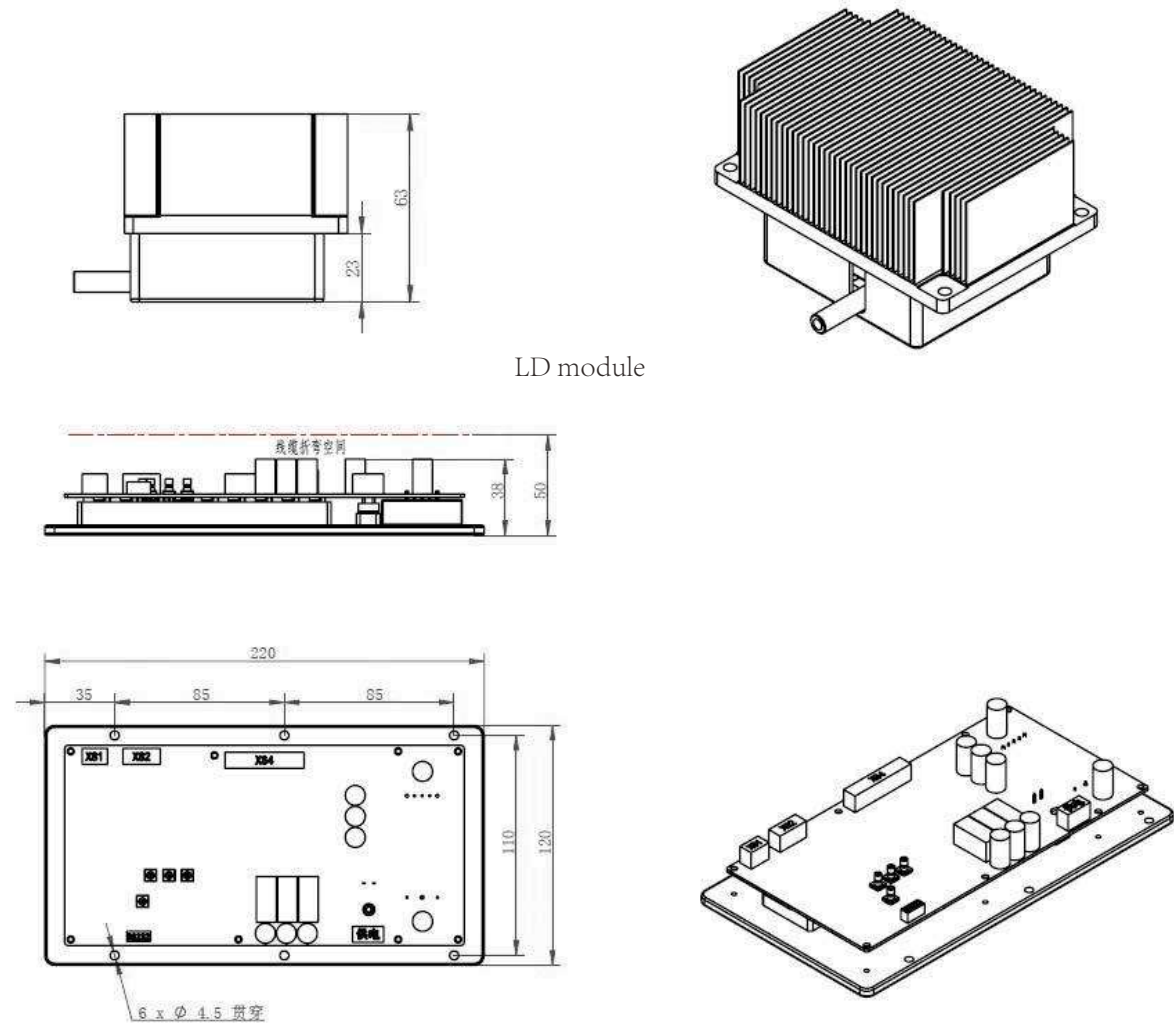
- 1. LD module
- 2. Laser head
- 3. Power control module
- 4. Acoustooptic drive module



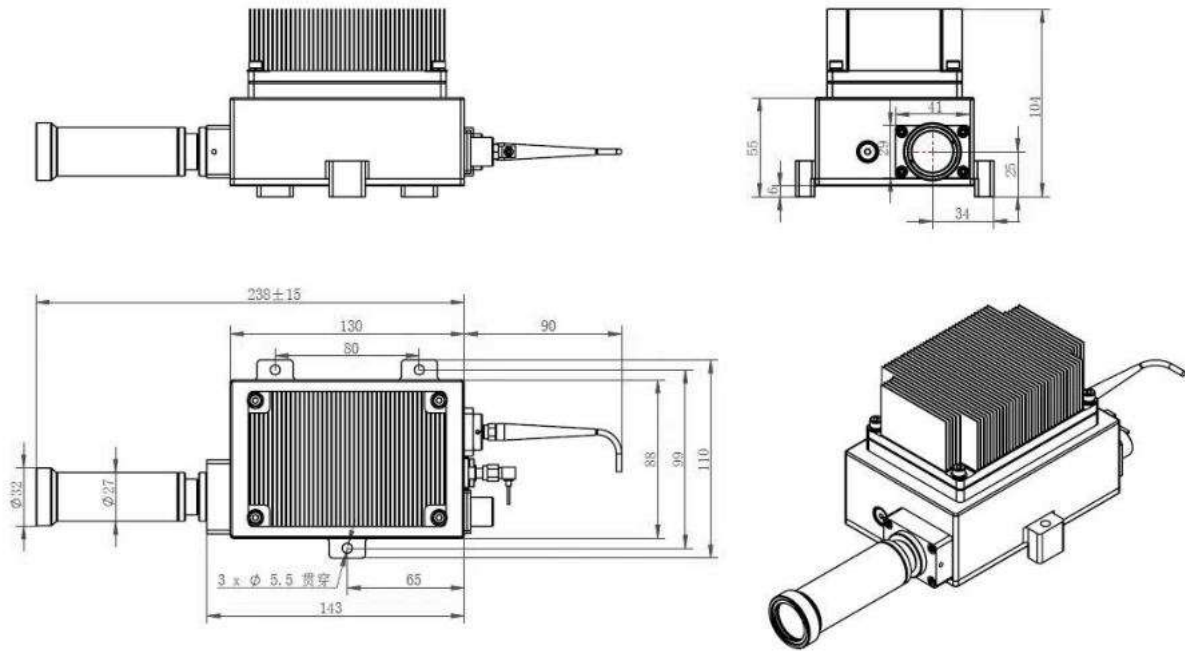
OUTLINE SIZE(mm)



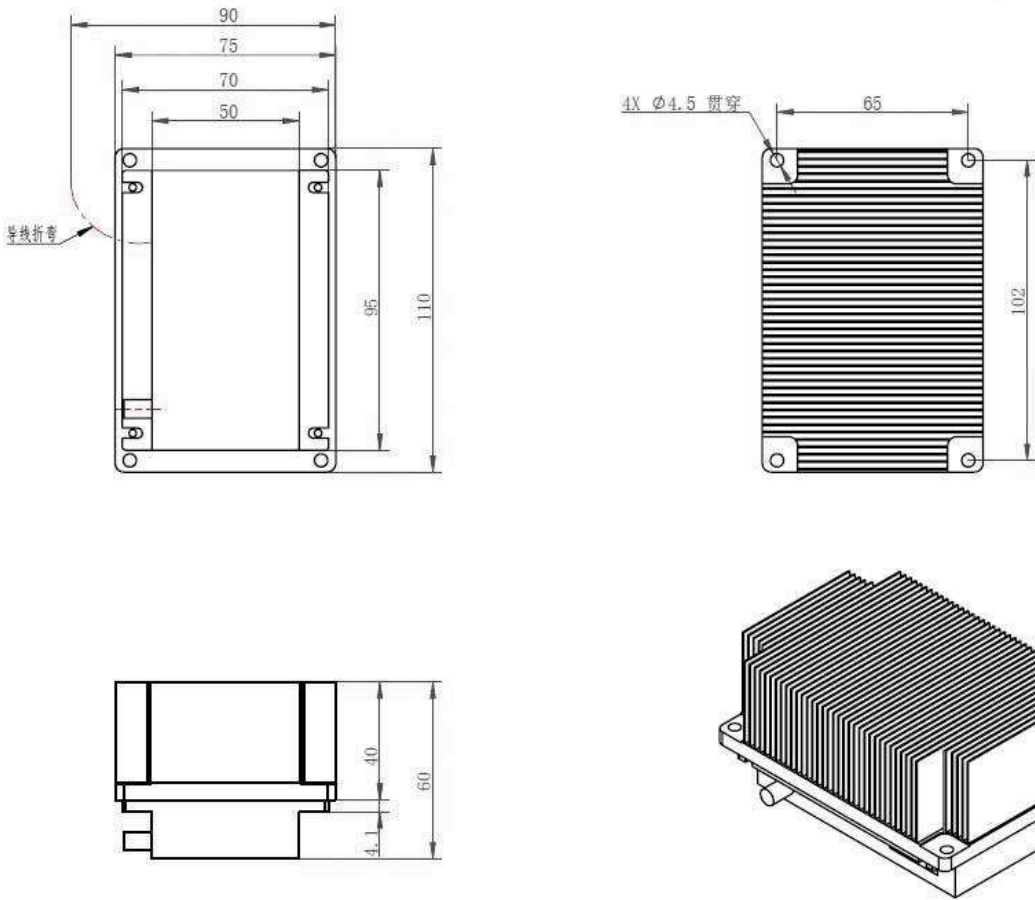
LD module



Power control module



Laser head module



Acoustooptic drive module



# AMRL-002 series Active Q-switched sub nanosecond lasers for atmospheric detection radar



## DESCRIPTION

AMRL-002 active Q-switched sub-nanosecond laser is a dual-wavelength sub-nanosecond laser with high repetition frequency, narrow linewidth and high peak power.

The laser can output both 1064nm and 532nm wavelength lasers. High efficiency solid-state amplification is achieved based on optical coupled semiconductor end-pumping and semiconductor array side-pumping modules. It has outstanding advantages in heat depolarization, beam quality control and anti-damage. The laser can operate at a temperature range of 0-40℃. Adaptable to dynamic platforms such as vehicle, airborne and ship. With modular design and universal components, the laser bottom components are reliable and easy to maintain. It is widely used in point cloud imaging lidar, laser ranging, atmospheric detection, etc.

## FEATURES

- LD pump, long life
- Subnanosecond narrow pulse width
- Good beam quality and directional stability
- Complex working conditions
- High level of protection, anti-vibration design

## APPLICATIONS

- Laser ranging
- Point cloud imaging
- Two-photon imaging, gated imaging
- Multi-channel atmospheric sounding

## PARAMETERS

Parameter	Data
Model	UL- 1.2mJ- 10KHz- AMRL002
Wavelength	1064nm, 532nm coaxial output
Energy	> 1.2mJ@1064nm; > 0.6mJ@532nm;
Fundamental frequency light width	< 0.12nm
Laser energy stability ( RMS@2h )	≤ 2.5 % @ 25℃ @ 532nm
Pulse width	≤1.5ns@10kHz
Beam quality M <sup>2</sup>	<1.8
Repetition frequency	10KHz
Full angle of beam divergence	5~6 mrad
Polarization ratio	>100:1
Beam directivity	≤±30μrad

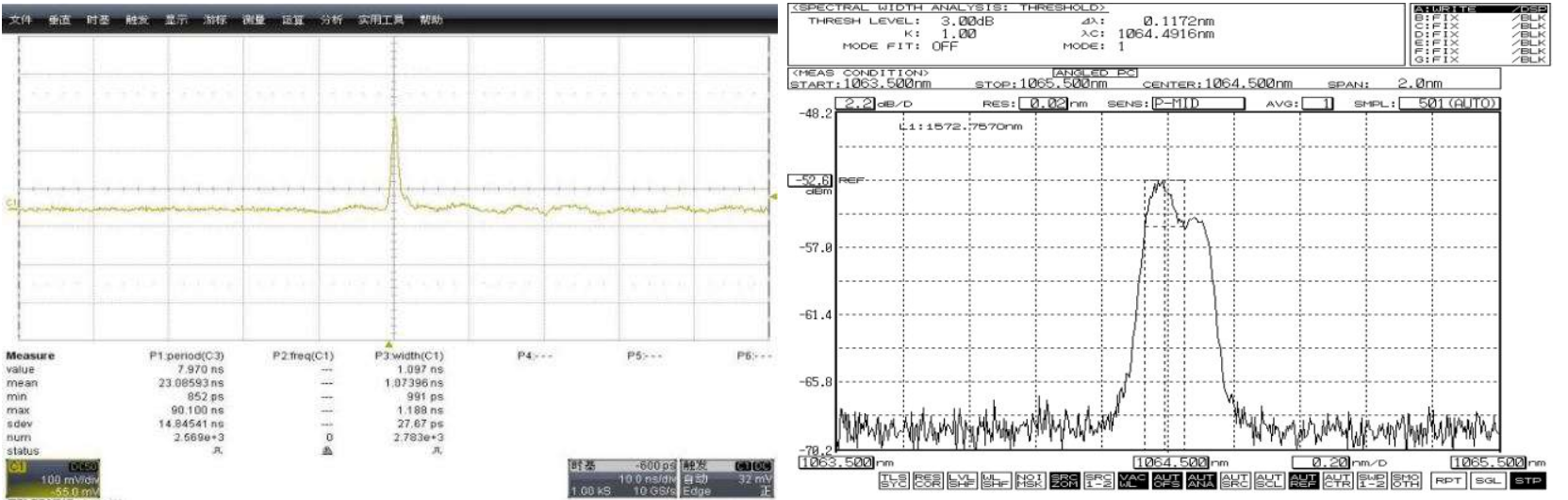
Q-switch triggered synchronous output	Positive Pulse 3~ 5V@50 ΩTTL Rise Edge Time < 25ns Pulse Width Range 200ns~10 μs Synchronization trigger signal and output laser jitter <3.0ns
---------------------------------------	--

Control mode	Upper computer and communication command control
Communication interface	RS232 communication protocol
Cooling mode	Water-cooling
Power supply	28±5VDC

The output energy is adjustable in grades	It is divided into two files and can be set online by software. High grade works at full power. Low grade for light path debugging. Low energy is about 1% of high energy. High and low laser beam offset angle is less than 0.05 mrad.
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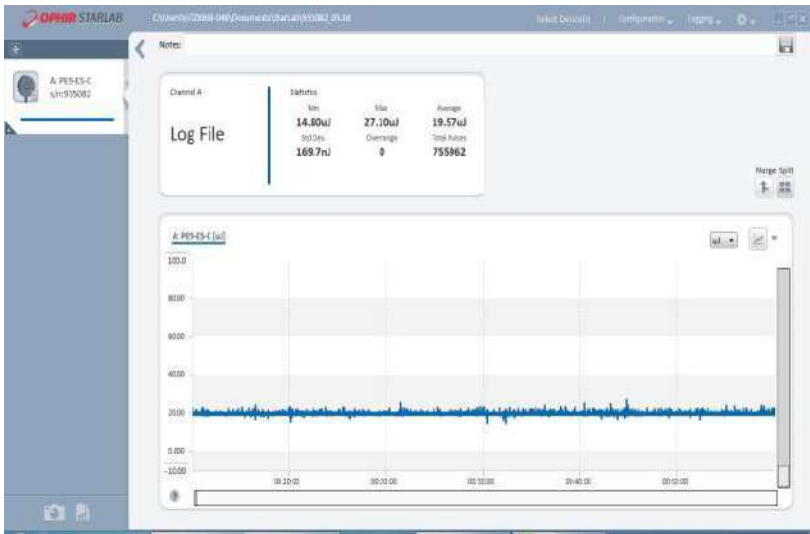
Laser system components	Laser Head+Power Supply+Water Cooler
Laser lifetime	> 8500h
Working temperature	0~+40℃
Storage temperature	-10~+50℃, Low temperature storage requires cooling water removal
Relative humidity	0~80%
Vibration requirements	Vibration of highway transportation

OPTICAL PARAMETERS



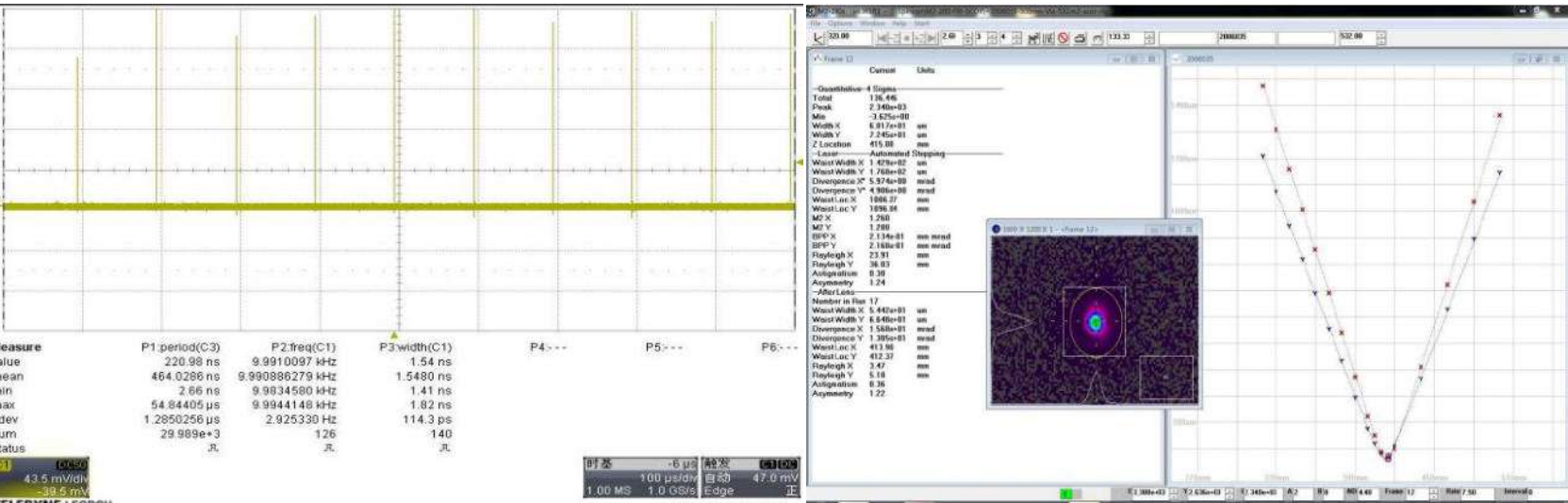
Pulse width: 1.07ns

Wavelength: 1064.49nm; Line width: 0.1172nm



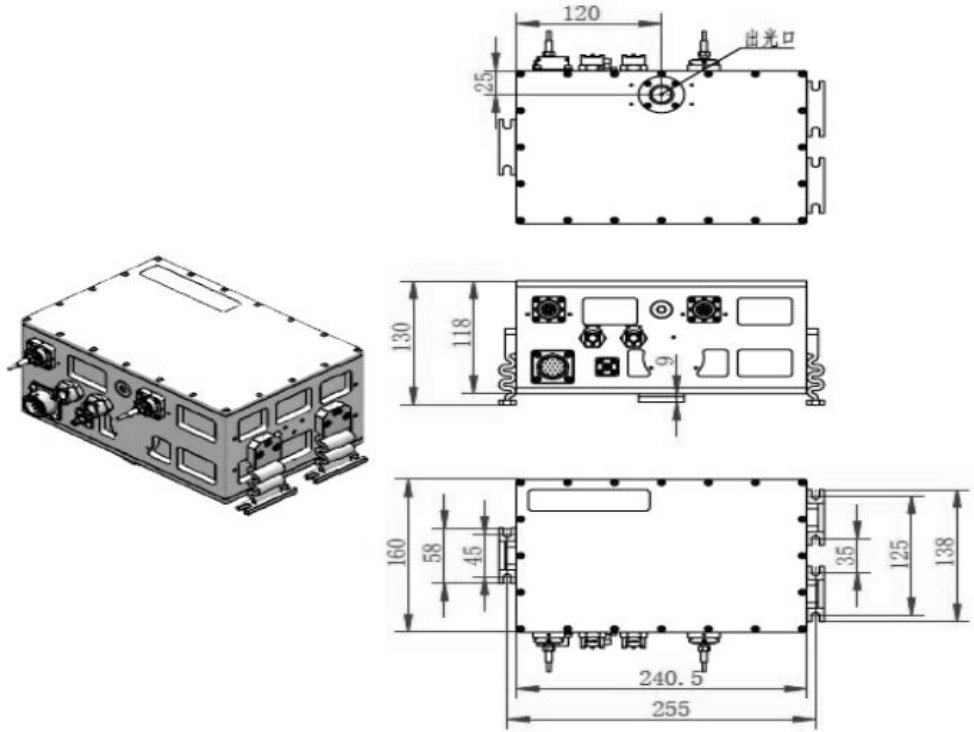
Output power 1 2mJ@10kHz (energy stability 0.87%)

OUTLINE SIZE(mm)



Repetition frequency: 10kHz

Beam quality factor M2 ≈ 1.28 Divergence angle ≈ 5.44mrad



Laser head module

# AMRL003 series UV multiwavelength Raman all-solid-state laser for atmospheric ozone monitoring lidar



## DESCRIPTION

AMRL003 series UV multiwavelength Raman all-solid-state laser is a laser source for atmospheric ozone monitoring lidar applications. It can output 532 nm, 590 nm (optional), 580 nm (optional), 295 nm, 280 nm laser at the same time. It is an ideal light source for lidar for atmospheric ozone and aerosol monitoring.

Compared with conventional gas Raman lasers, ultraviolet multiwavelength Raman all-solid-state lasers eliminate gas Raman tubes, which are bulky and require constant maintenance. The Raman conversion part is in the form of Raman crystal. It is characterized by compact structure, high Raman efficiency, maintenance-free and long life. The repetition rate can reach 100 Hz. Lidar navigation observation can be achieved. At the same time, 532 nm laser output is maintained, which can take into account the monitoring of atmospheric aerosols.

This product uses modular design ideas. It is mainly composed of laser head, water cooler and control box. For customer scenarios, this product is designed with low cost and high quality. After rigorous quality testing, can meet the long-term use of customers.

## FEATURES

- LD pump, long life
- Solid Raman, Maintenance Free
- Raman efficiency
- Industrial grade 7\*24 hour design
- High level of protection, anti-vibration design

## APPLICATIONS

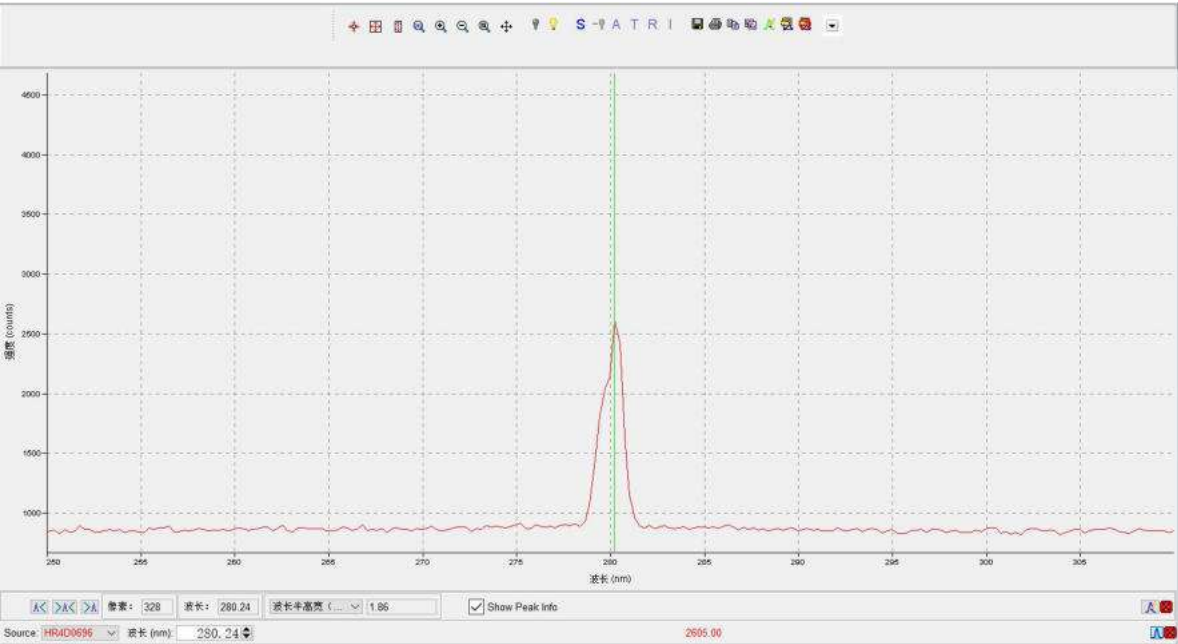
- Lidar for Ozone Monitoring
- Atmospheric Particle Monitoring Lidar

## PARAMETERS

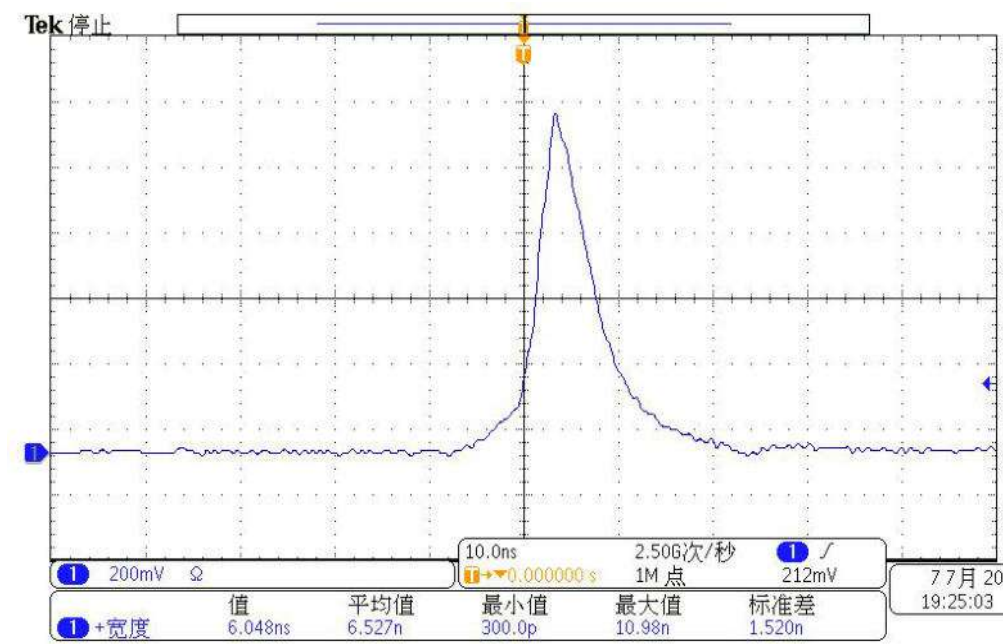
Parameter	Data		
Model	UL- 3mJ- 100Hz- AMRL003		
Wavelength	280nm	295nm	532nm
Energy	>500μJ	>500μJ	>3mJ
Pulse width	6- 10ns		
Repetition frequency	100Hz		
Full angle of beam divergence	<0.3 mrad		
Spot diameter	~20mm		
Polarization ratio	Horizontal polarization, polarization ratio>100:1		
Beam directivity	≤±30μrad		
Q-switch triggered synchronous output	3~ 5V@50 ΩTTLPulse Width 1.8μsJitter <2ns		
Communication interface	RS232 communication protocol		
Cooling mode	Water-cooling		
Power supply	220V AC or 380V AC		
Power waste	≤2500W (water cooler and laser power)		
Working temperature	15~+30℃		
Storage temperature	0~+50℃, Low temperature storage requires cooling water removal		
Relative humidity	0~80%		
Vibration requirements	Vibration of highway transportation		



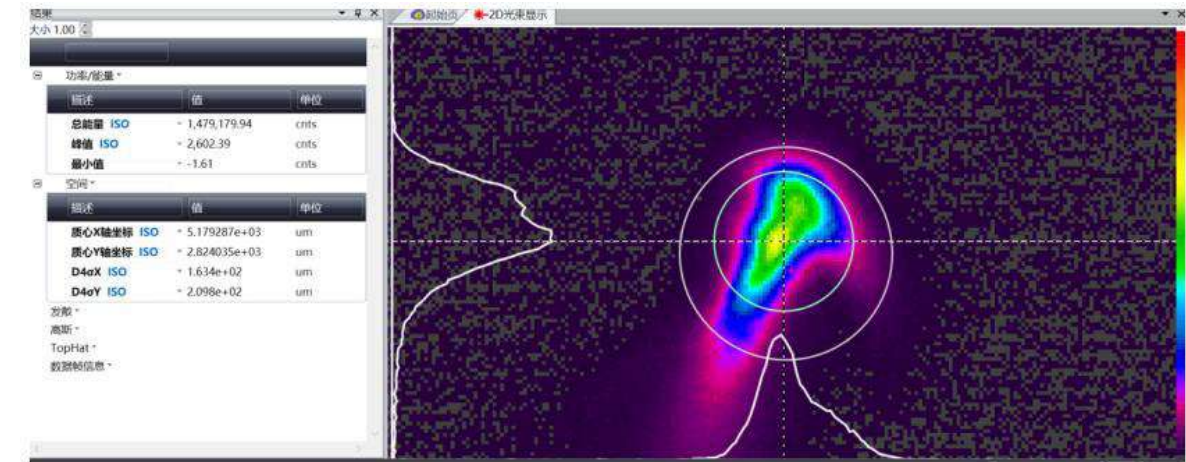
OPTICAL PARAMETERS



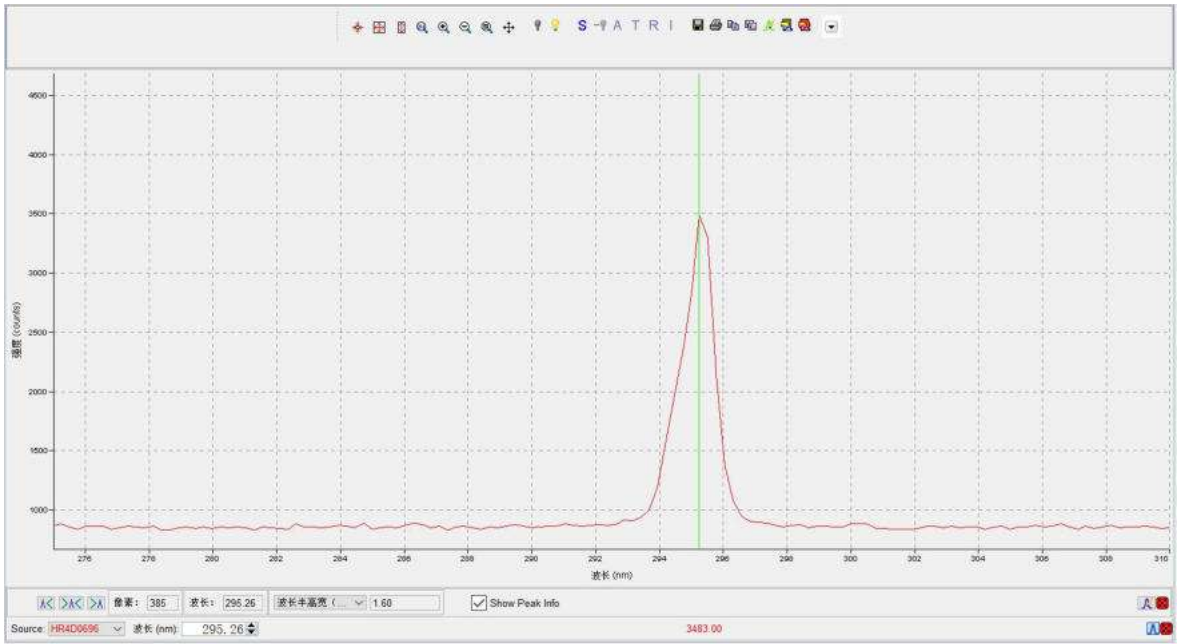
Output wavelength 1: 280.24nm



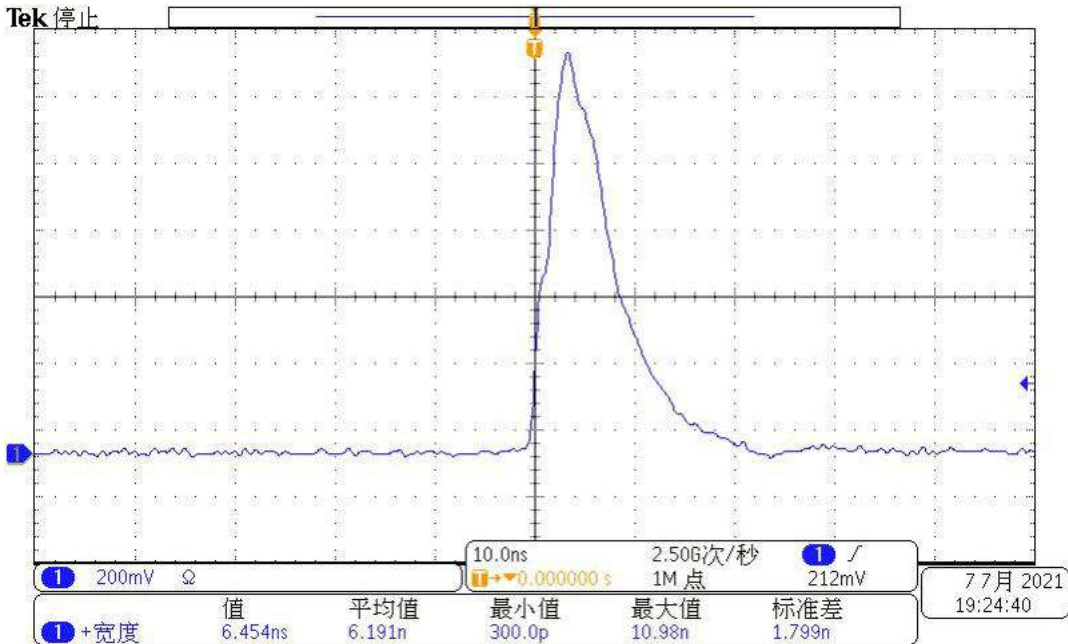
Pulse width < 10ns



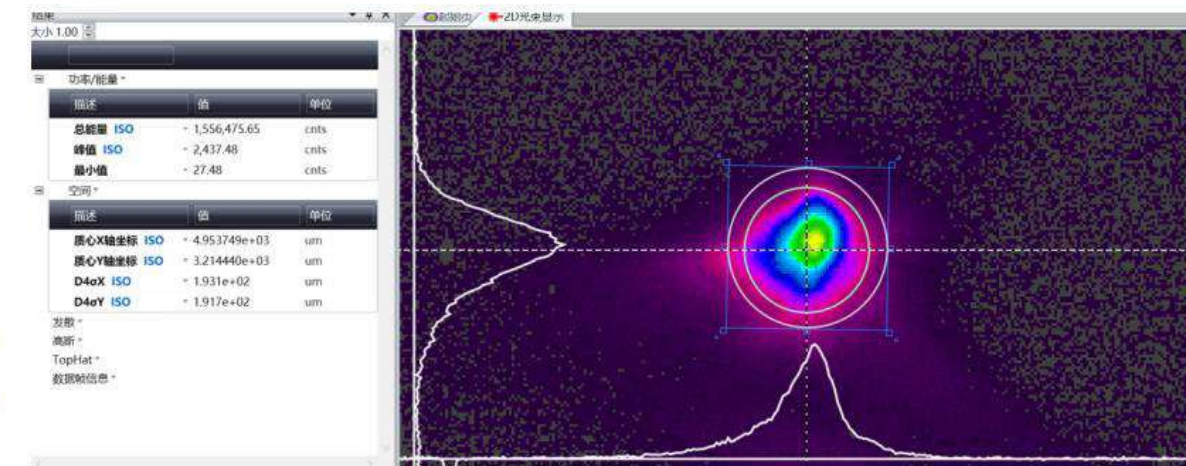
Divergence Angle: X=160μrad, Y=200μrad (full Angle) @ 280nm



Output wavelength 1: 295.26nm



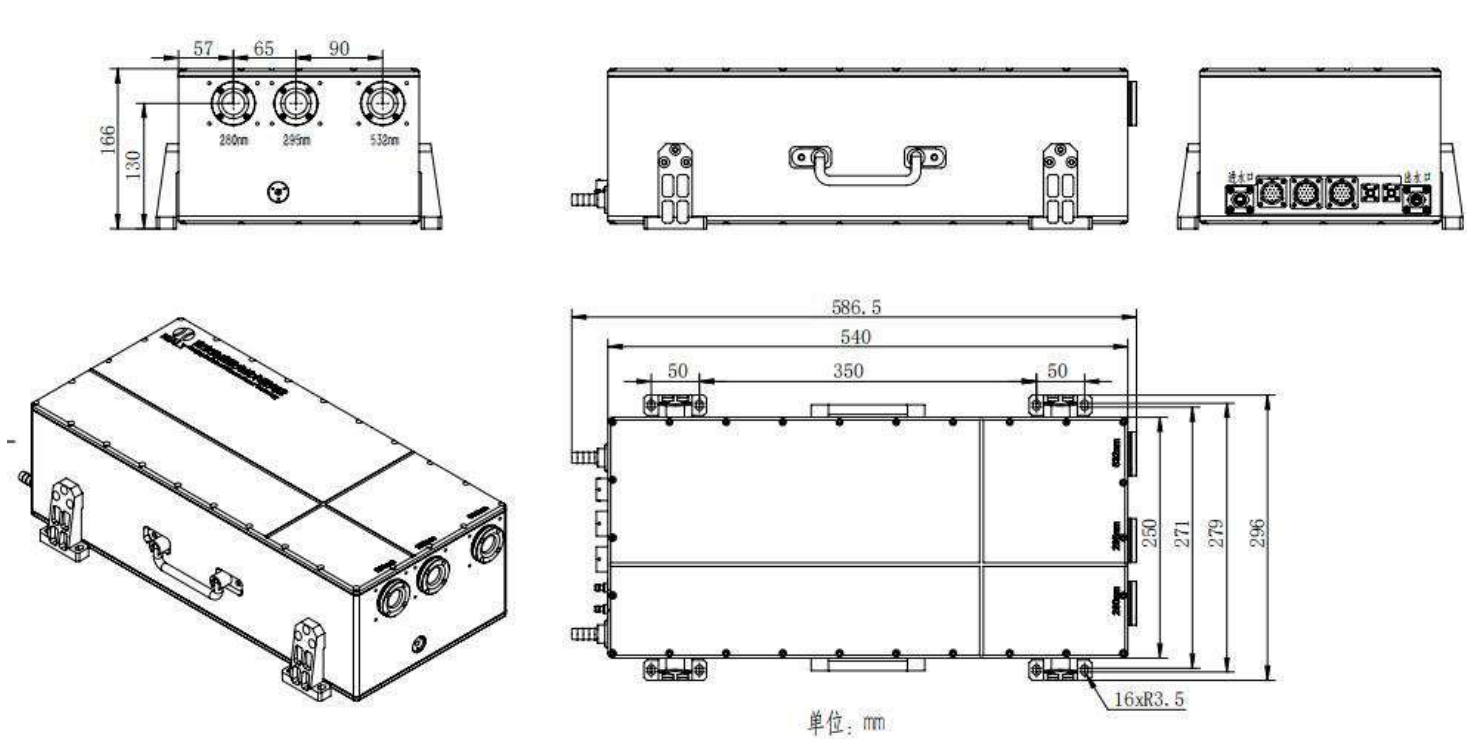
Pulse width < 10ns



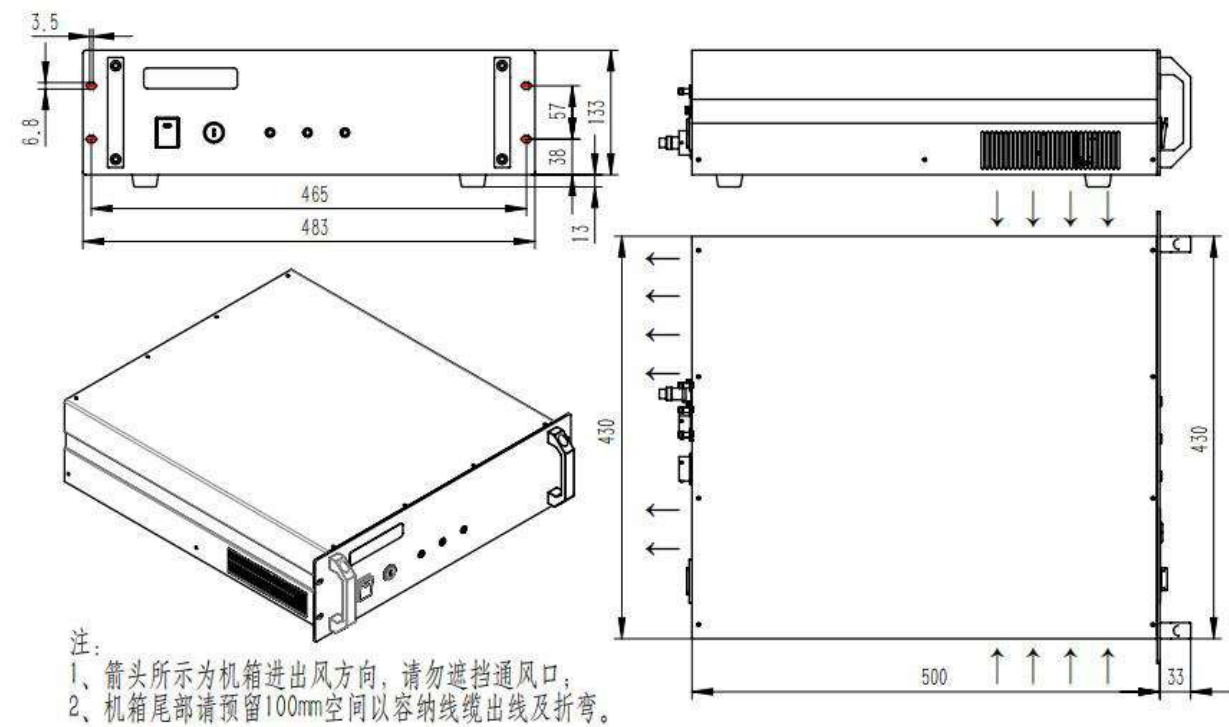
Divergence Angle: X=193μrad, Y=191μrad (full Angle) @ 295nm



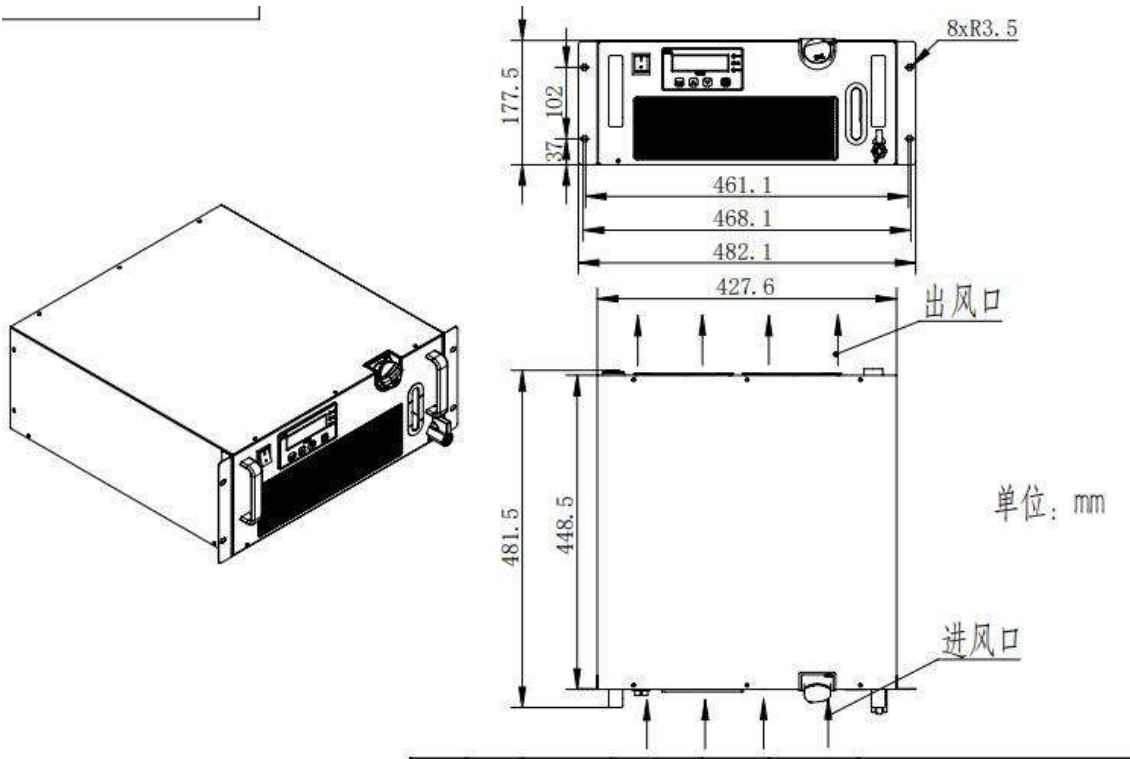
OUTLINE SIZE(mm)



Laser head



Electric cabinet



Water cooled chiller

# AMRL004 series frequency stabilized phase locked laser for wind lidar



## DESCRIPTION

AMRL-004 series frequency-stable phase-locked light source is widely used in the fields of lidar, precision spectrum, sensor and measurement. It consists of two important modules: frequency stabilization control and phase locking control.

Laser frequency stabilization module is designed with modular miniaturization. A narrow linewidth laser, a gas absorption optical circuit and an electronic feedback module are integrated. Supports absorption edge midpoint frequency stabilization and PDH frequency stabilization. Seed laser output with 100 mW frequency stability is achieved.

The phase-locked control electronics module supports maximum 10GHz frequency shift range and 2MHz phase-locked accuracy. The module includes: high-precision seed-driven temperature control circuit, digital frequency and phase discriminator and loop filter, PID feedback control circuit of LD current, PID feedback control circuit of LD temperature control, multi-channel AD acquisition and DA output.

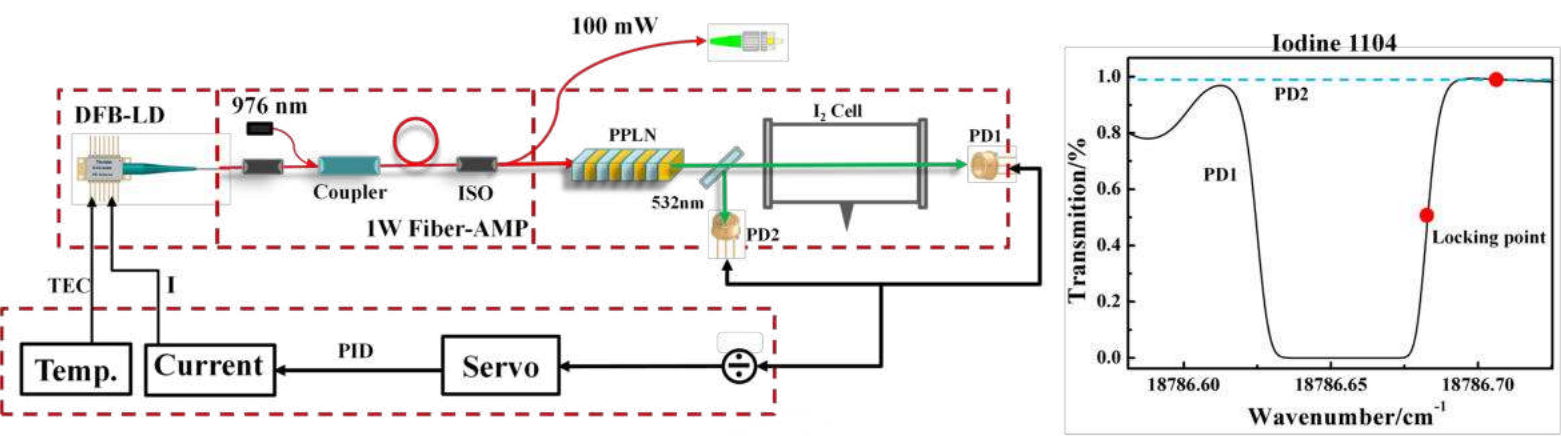
Multi-level environmental control system and power feedback technology improve the long-term frequency stability and environmental adaptability of the module. The peak of laser frequency change is 6MHz at 17℃. Under ambient temperature (temperature difference < 3℃), the peak of output laser frequency is <2MHz, RMS value is <0.3MHz, and the best value of Allen variance value is  $9.8 \times 10^{-11}$ @10 S, for long hours at  $10^{-9}$ @8000s.

## PARAMETERS

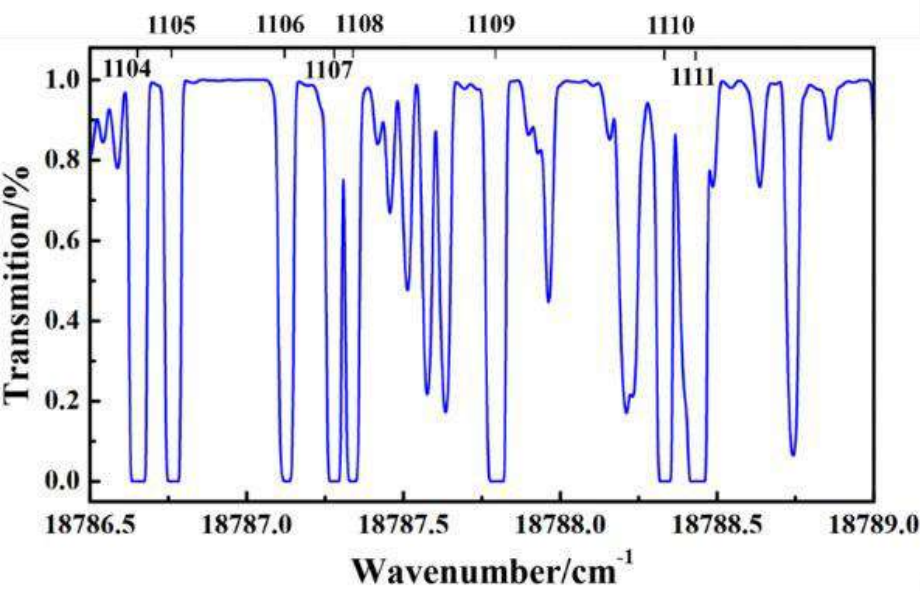
Parameter	Data
Model	UL- 50mW- 1064nm- AMRL004
Wavelength	1064.4nm
Output light power	> 50mW
Working mode	CW
Line width	< 2MHz
Frequency stability (RMS)	< 1MHz @ 24 h @ 3℃ Temperature difference
Power stability (RMS)	≤1%@ 25℃
Repeated locking error	< 100MHz
Relative intensity noise	< -140@10MHz
Frequency stabilization range	Iodine molecule 1104-1110 absorption line
Lock position	Midpoint of absorption line
Frequency shift range (optional)	±5GHz
Lock-in accuracy (optional)	2MHz
Output mode	Optical fiber output, FC/APC
Communication interface	RS422 communication protocol
Power supply	220V AC
Size	3.5u chassis
Wrking temperature	15 ~ 30℃
Storage temperature	0 ~ 50℃
Relative humidity	0 ~ 60%



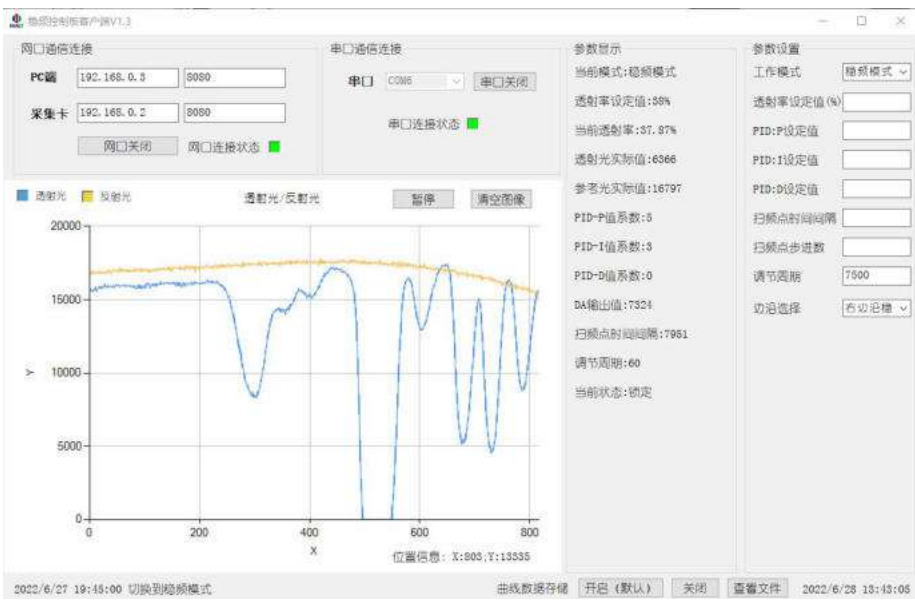
STEADY FREQUENCY CHARACTERISTICS



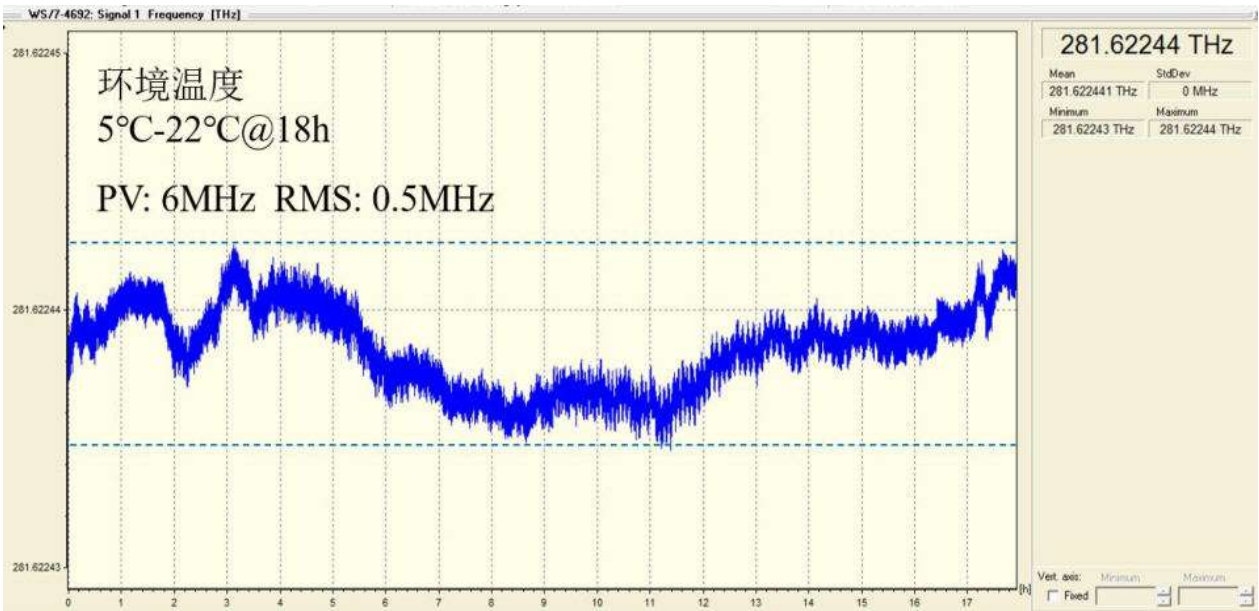
Sideline frequency stabilization principle



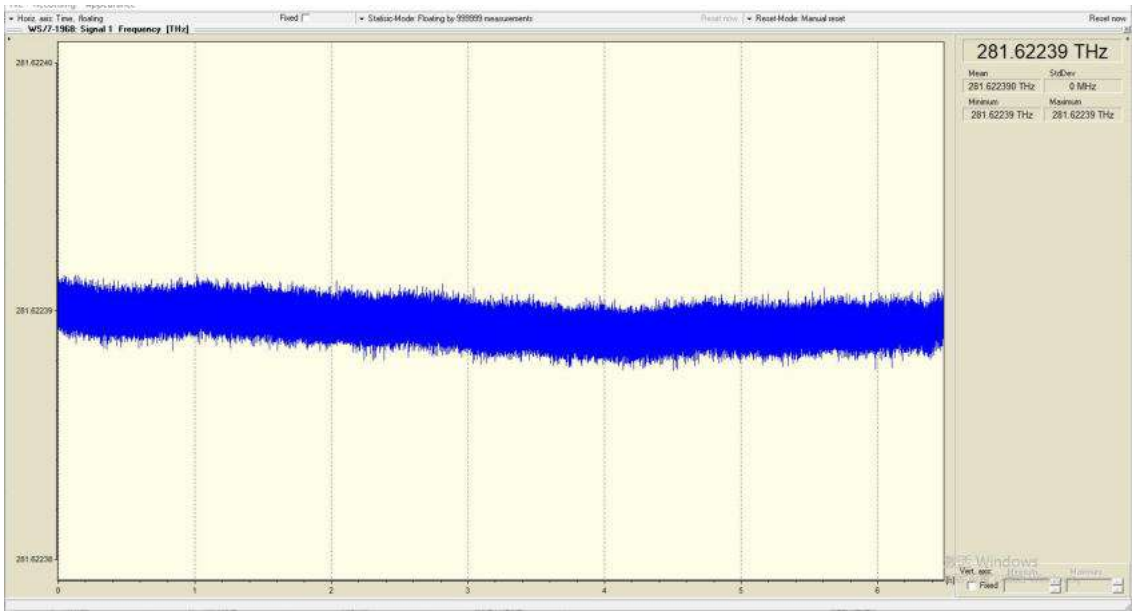
Iodine molecules often use absorption lines



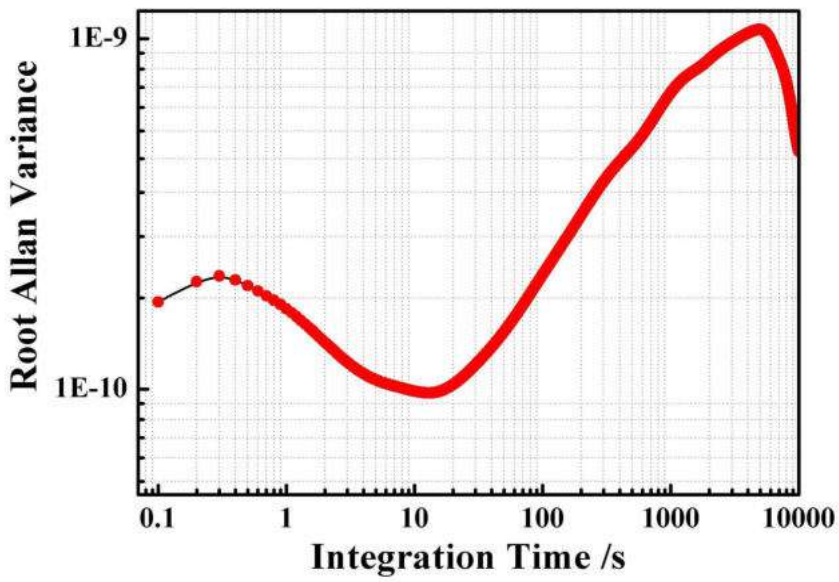
Frequency stabilization control software



Frequency stability under temperature difference of 17 °C

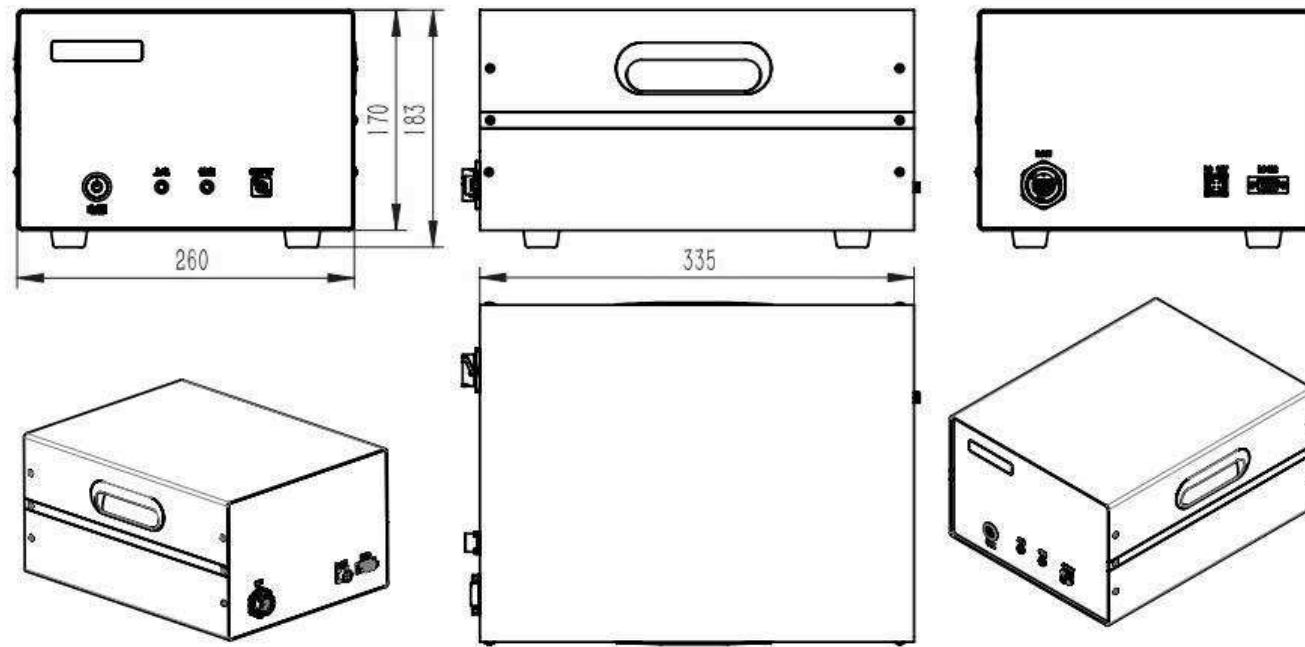


6 hours of frequency stabilization test for frequency stabilization module at room temperature

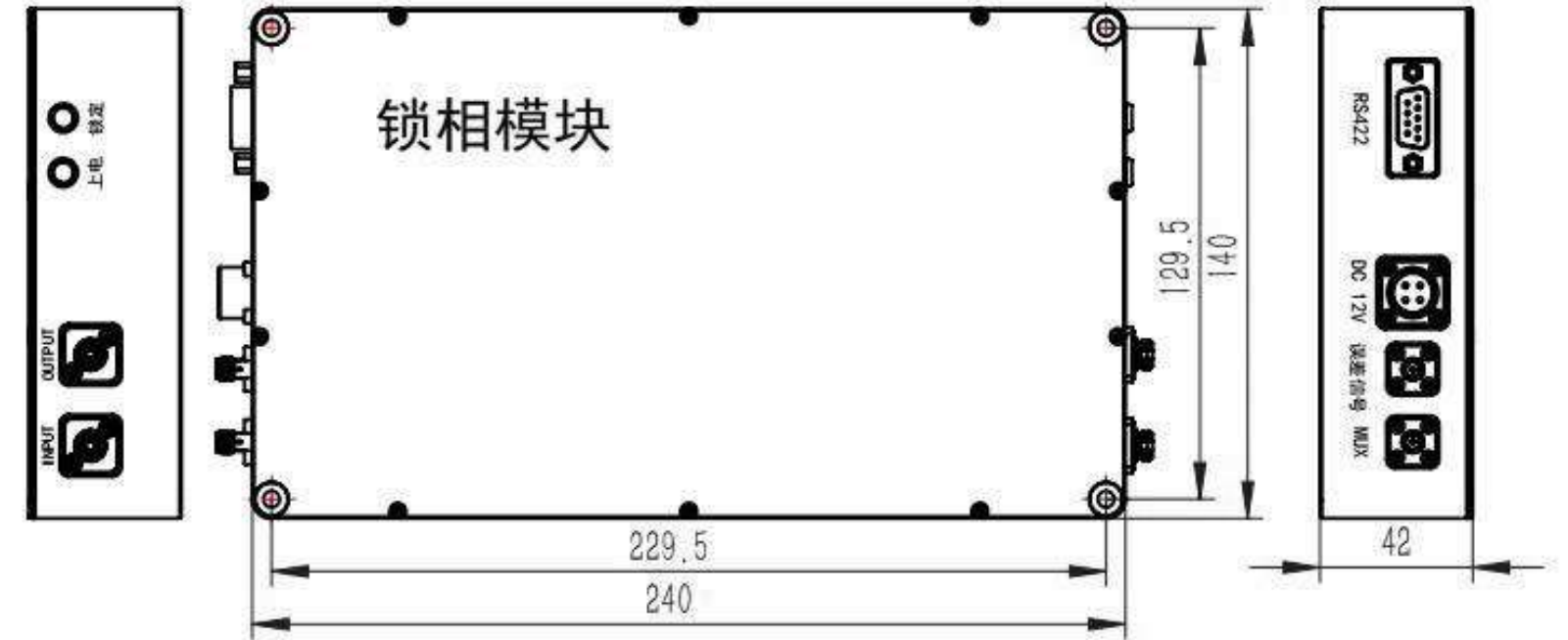


Frequency stability of Allen variance at different integration times at room temperature

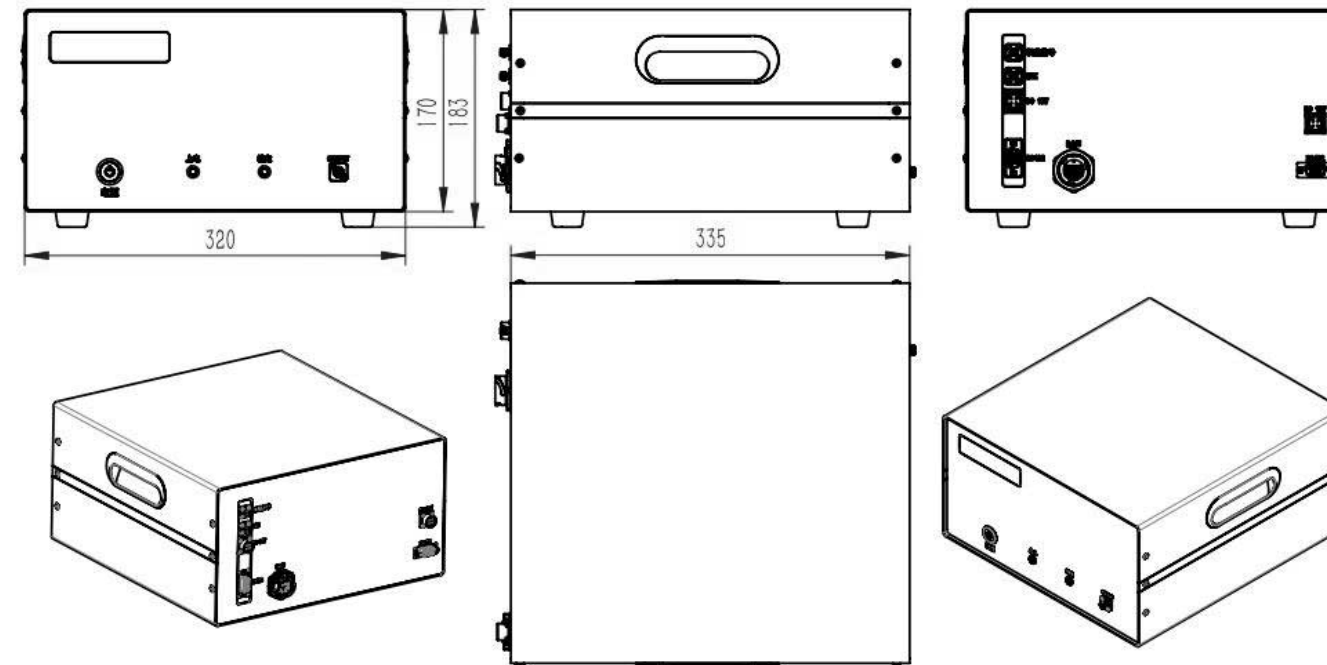
OUTLINE SIZE(mm)



Stabilized module



Phase locking module



Frequency stabilization phase locking module