



Compact picosecond lasers for OEM and series production



About QS Lasers

Founded in 2018, QS Lasers is a trusted manufacturer of compact, precision-engineered DPSS lasers — including passively, actively Q-switched, and gain-switched picosecond models. Built for seamless OEM integration and high-volume production, our lasers deliver reliable, high-performance solutions for the most demanding industrial, scientific, and research applications.

Profile



Manufacturer of compact, DPSS lasers for scientific and industrial applications



Over 35 years experience in laser development, production and service



Advanced short pulse generation technology



Designing and adopting lasers **to OEM integration**



Series production

Field of expertise



Diode pumped Nd:YAG, Nd:YLF, Nd:YVO, Nd:YAP lasers + harmonic generators



Short pulse generation
(sub 100 ps , 250-800 ps)



Pulse energy (1μJ to >3 mJ)



Repetition rate
(single shot to 10 kHz)



Custom laser systems
for specific applications

Diode-pumped Gain Switched Picosecond Lasers

QS Lasers is actively developing a new series of gain-switched lasers designed to deliver short (sub-100 ps), intense pulses. The lasers feature a simple, compact architecture that is both cost-effective and reliable, making them well-suited for applications requiring ultrashort temporal resolution and high pulse energy. Their easy modulation and consistent performance provide a practical solution for scientific, industrial, and medical environments demanding fast and accurate pulsed laser output.

Features

- Sub-100 ps pulse duration (30 ps upcoming)
- Repetition rate up to 100 Hz (1 kHz upcoming)
- Compact and robust design
- Low jitter <2 μs
- Simultaneous or discrete 532 nm, 355 nm output options

Applications

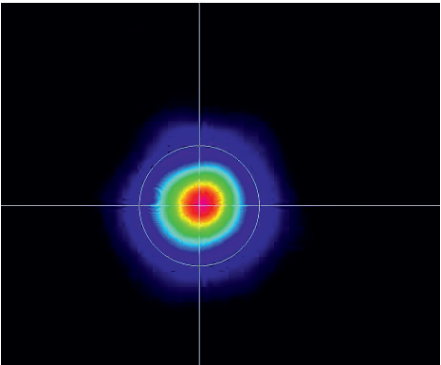
- Time resolved spectroscopy
- Nonlinear optics
- Bio-imaging
- LiDAR systems
- Laser-Induced Breakdown Spectroscopy (LIBS)
- Photoacoustic spectroscopy
- Flash photolysis

Specifications ¹

		GSL120	GSL121
Output characteristics			
Pulse energy (mj)	1064 nm	0.5	
	532 nm	0.25	
	355 nm	0.1	
Pulse duration ² (ps)		<100	
Pulse repetition ³ (Hz)		1 - 50	1 - 100
Pulse-to-pulse energy stability ⁴ (% RMS)	1064 nm	<1.5	
	532 nm	<2.0	
	355 nm	<2.0	
Power drift ⁵ (% RMS)		±3	
Optical pulse jitter ⁶ (ns RMS)		0.2	
Beam divergence ⁷ (mrad)		<9	
Beam diameter ⁸ (mm)		1.2	1.5
Pointing stability, full angle (μrad)		<50	
Polarization		linear, horizontal at 1064 & 532 nm, vertical at 355 nm	
Triggering modes		internal / external	
Beam spatial profile		close-to-Gaussian in near and far fields	
Dimensions W x L x H (mm)			
Laser head		TBD	
Laser controller		260 x 333 x 150	
Operating requirements			
Electrical requirements		100-240 V AC, single phase 50-60 Hz	
Power consumption		<50 W	
Cooling system		TEC	
Ambient temperature		20-30 °C	
Relative humidity		10-80% (non-condensing)	

* Customized models available on request

GSL120 Typical beam profile



¹ Due to continuous improvements all specific-ations are subject to change. Unless stated otherwise all specifications are measured at 1064 nm and 100 Hz.

² FWHM level at 1064 nm.

³ Factory-set pulse repetition rate is set at 100 Hz.

⁴ Averaged from 30 second time in-terval in 5 series.

⁵ Over 8 hours when temperature variation is ±2 °C.

⁶ In respect to q-switch sync. signal in internal trigger mode, rising edge of TTL-sync. out signal. Internal trigger mode delivers TTL-sync. out signal.

⁷ Full angle measured at 1/e² level; can be adjusted to customer requirements, please inquiry for more details.

⁸ Beam diameter is measured 20cm from laser output at 1/e² level.

Diode-pumped Picosecond Actively Q-Switched Lasers



Actively Q-switched DPSS picosecond laser series by QS Lasers is reliable and precision-driven solution for demanding applications across industrial, scientific, and research fields. Its innovative laser cavity design ensures exceptionally stable output parameters, all within the compact size of the device. The air-cooled design further contributes to its energy-efficient operation and smooth integration to OEM systems.

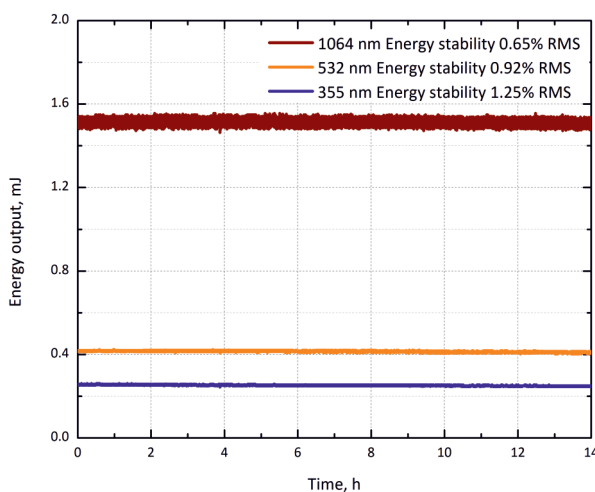
Features

- Up to 2 mJ pulse energy at 1064 nm
- 500-700 ps pulse duration
- 1 Hz to 1 kHz repetition rate
- Compact, hermetically sealed design
- Ultra-low jitter <0.2 ns
- Guaranteed >3 Gshot lifetime
- Simultaneous or discrete 532 nm, 355 nm output options

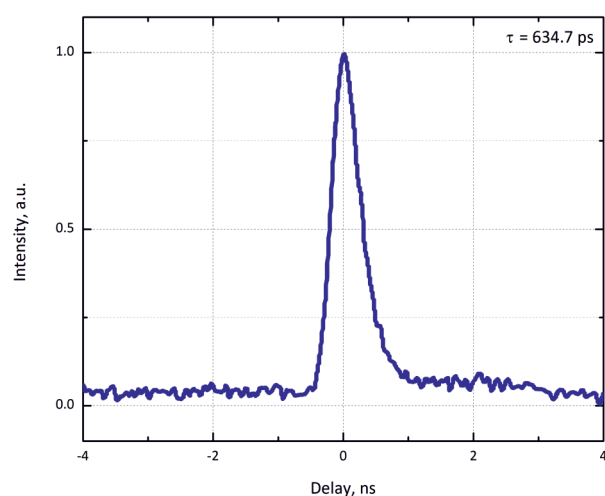
Applications

- Seeder for amplifier
- Laser-induced breakdown spectroscopy (LIBS) and imaging
- Laser flash photolysis
- Time resolved fluorescence measurements
- Time of flight measurements
- Pollution monitoring
- Light detection and ranging (LiDAR)
- Supercontinuum generation
- Raman spectroscopy

APL331-F2H/3H Typical simultaneous output



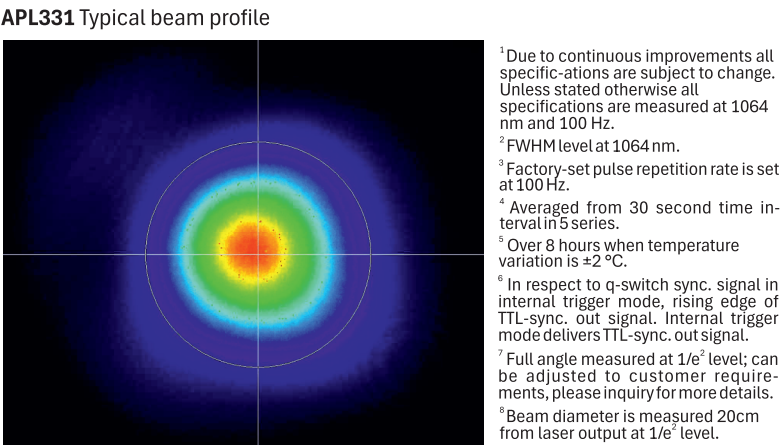
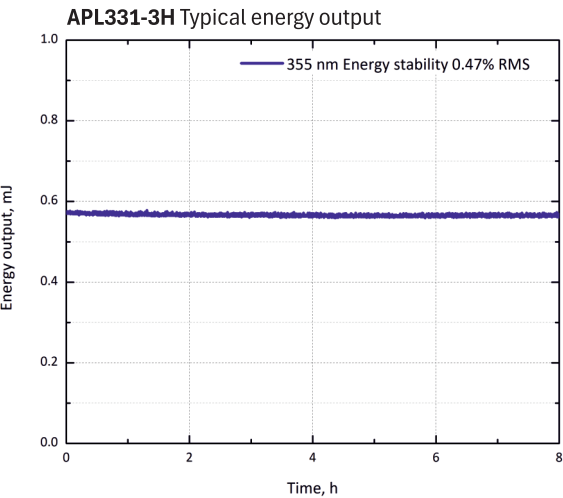
APL220 Typical pulse duration



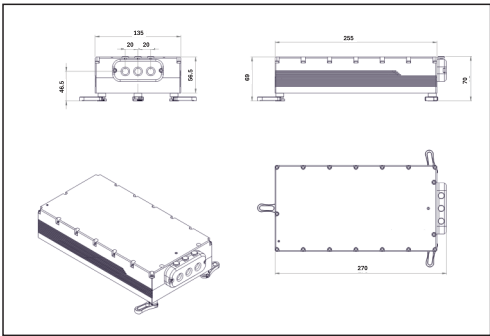
Specifications¹

		APL120	APL220	APL320	APL131	APL231	APL331
Output characteristics							
Pulse energy at 1064 nm (mJ)		0.5	1	2	0.5	1	1.5
Pulse duration ² (ps)		500-700			700		
Pulse repetition ³ (Hz)		1-100			1000		
Pulse-to-pulse energy stability ⁴ (% RMS)	1064 nm	<1					
	532 nm	<1.5					
	355 nm	<2					
Power drift ⁵ (% RMS)		±3					
Optical pulse jitter ⁶ (ns RMS)		0.2					
Beam divergence ⁷ (mrad)		<5					
Beam diameter ⁸ (mm)		1.2					
Pointing stability, full angle (μrad)		<50					
Polarization		linear, horizontal at 1064 & 532 nm, vertical at 355 nm					
Triggering modes		internal / external					
Beam spatial profile		close-to-Gaussian in near and far fields					
Dimensions W x L x H (mm)							
Laser head		135 x 270 x 70			135 x 270 x 117		
Laser controller		260 x 333 x 150					
Operating requirements							
Electrical requirements		100-240 V AC, single phase 50-60 Hz					
Power consumption		<50 W			<200 W		
Cooling system		TEC					
Ambient temperature		20-30 °C					
Relative humidity		10-80% (non-condensing)					

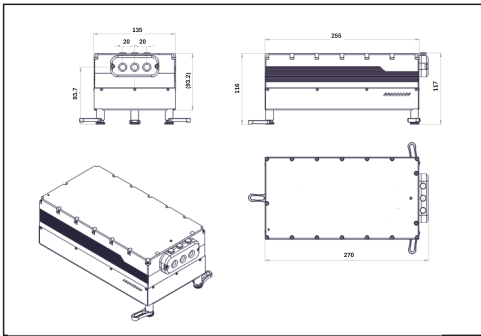
* Customized models available on request



100 Hz version



1 kHz version with a heatsink



DANGER

VISIBLE AND/OR INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT
REFLECTED OR SCATTERED RADIATION

Nd:YAG 1064 nm, 532 nm, 355 nm, 266 nm
Max 2 mJ/pulse + 500 ps
LD 800 nm, max 60 W
CLASS IV LASER PRODUCT

Diode-pumped Picosecond Passively Q-Switched Lasers



QS Lasers offers a series of compact DPSS passively Q-switched picosecond lasers, meticulously engineered for seamless OEM integration and high-volume production. Despite their small footprint, these lasers deliver outstanding pulse-to-pulse stability and superior performance for demanding applications across a variety of industries.

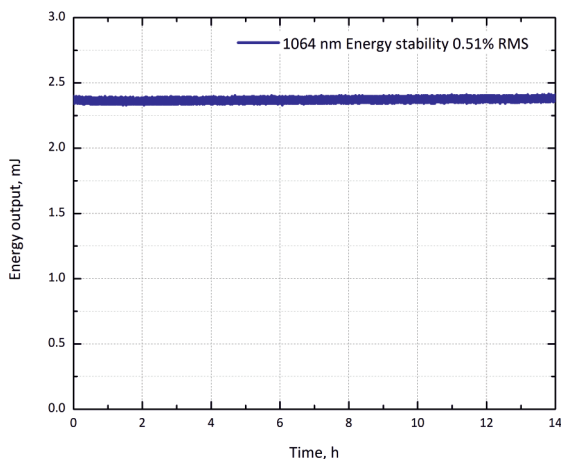
Features

- Up to 3 mJ pulse energy at 1064 nm
- 250-800 ps pulse duration
- 1-100 Hz repetition rate
- Compact, hermetically sealed design
- Low jitter <2 μ s
- Guaranteed >3 Gshot lifetime
- Simultaneous or discrete 532 nm, 355 nm output options

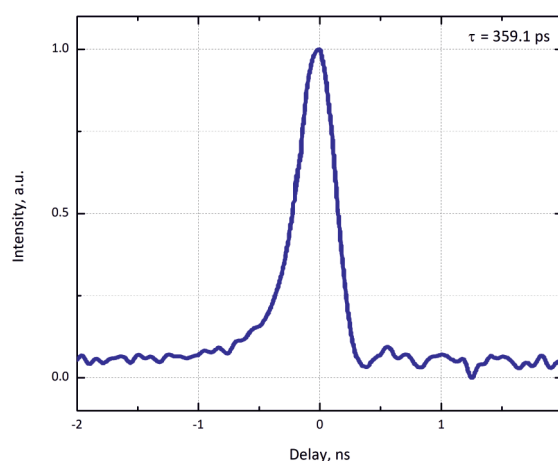
Applications

- Seeder for amplifier
- Laser-induced breakdown spectroscopy (LIBS) and imaging
- Laser flash photolysis
- Time resolved fluorescence measurements
- DNA analysis
- Pollution monitoring
- Supercontinuum generation
- Time gated Raman spectroscopy
- Ultrasonic wave generation

MPL231 Typical energy output



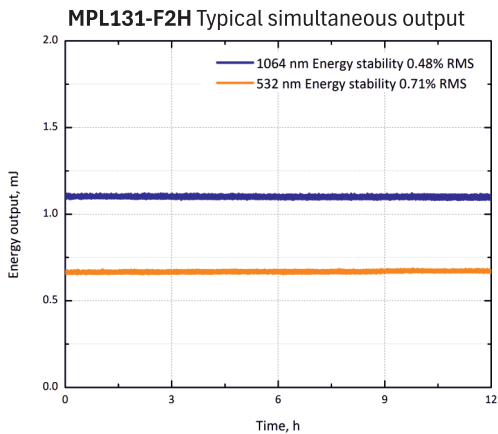
MPL231 Typical pulse duration



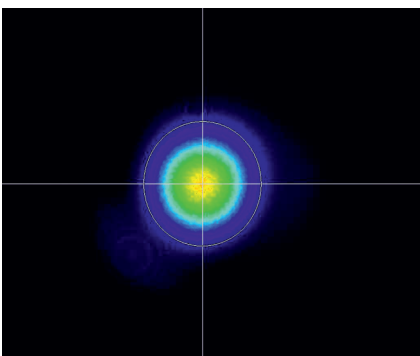
Specifications¹

		MPL111	MPL121	MPL131	MPL211	MPL221	MPL231	MPL310	MPL320	MPL330
Output characteristics										
Pulse energy (mJ)	1064 nm	1			2			3		
	532 nm	0.5			1			1.5		
	355 nm	0.25			0.5			0.6		
Pulse duration ² (ps)		250	350	500	250	350	500	250	350	500
Pulse repetition ³ (Hz)		1-100						1-10		
Pulse-to-pulse energy stability ⁴ (% RMS)	1064 nm	<1								
	532 nm	<2								
	355 nm	<3								
Power drift ⁵ (% RMS)		±3								
Optical pulse jitter ⁶ (µs RMS)		~2								
Beam divergence ⁷ (mrad)		<6								
Beam diameter ⁸ (mm)	1064 nm	1.5								
	532 nm	1								
	355 nm	1								
Pointing stability, full angle (µrad)		<50								
Polarization		linear, horizontal at 1064 & 532 nm, vertical at 355 nm								
Triggering modes		internal / external								
Beam spatial profile		close-to-Gaussian in near and far fields								
Dimensions W x L x H (mm) Standalone version										
Laser head		138 x 200 x 89								
with 2 nd harmonic output		138 x 200 x 89								
with 3 rd , 2 nd /3 rd harmonic output		138 x 295 x 89								
Laser controller		260 x 333 x 150								
Dimensions W x L x H (mm) OEM version										
Laser head		99 x 175 x 45.5								
Laser controller		136 x 261 x 127								
Operating requirements										
Electrical requirements		100-240 V AC, single phase 50-60 Hz								
Power consumption		<50 W								
Cooling system		TEC								
Ambient temperature		20-30 °C								
Relative humidity		10-80% (non-condensing)								

* Customized models available on request



MPL131 Typical beam profile



¹ Due to continuous improvements all specifications are subject to change. Unless stated otherwise all specifications are measured at 1064 nm and 100 Hz.

² FWHM level at 1064 nm.³ Factory-set pulse repetition rate is set at 100 Hz.

⁴ Averaged from 30 second time interval in 5 series.

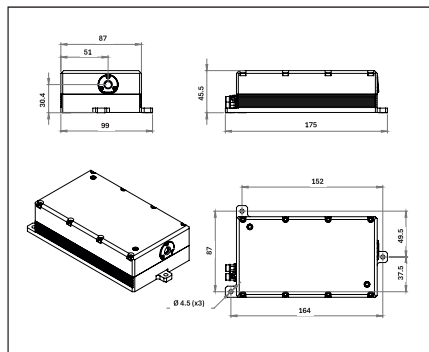
⁵ Over 8 hours when temperature

variation is $\pm 2^{\circ}\text{C}$.

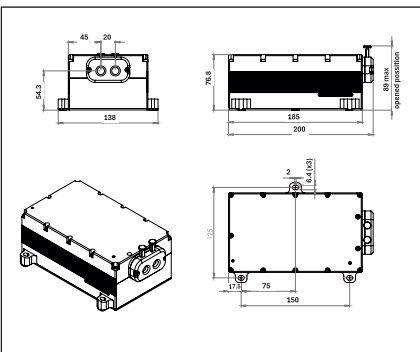
⁶ In respect to q-switch sync. signal in internal trigger mode, rising edge of TTL-sync. out signal. Internal trigger mode delivers TTL-sync. out signal.

⁷ Full angle measured at 1/e² level; can be adjusted to customer requirements, please inquiry for more details.

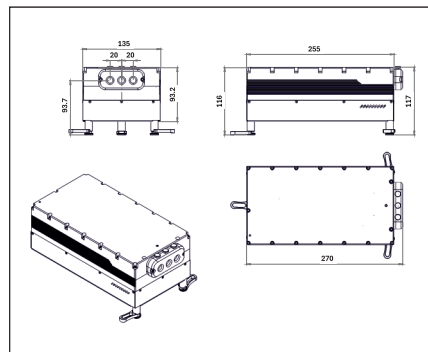
⁸ Beam diameter is measured 20 cm from laser output at $1/e^2$ level.



Standalone version



Standalone version



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