

STS-32 Series: 5W Laser

The STS-32 Series features the only RF-integrated 5 Watt CO2 laser available, the STS-32-1. A 5 Watt CO2 laser is a unique piece of equipment, and the new STS-32-1 is the perfect solution for PCB marking applications where end-users demand smaller machines for compact factory settings. The STS-32-1 is also the industry's smallest CO2 laser, setting a new benchmark for low power, industrial grade CO2 lasers. Many sensitive marking applications currently use higher power lasers and bleed off the excess laser power to avoid burn-through and excessive melting. Engineered specifically for marking and coding on sensitive materials, the STS-32-1 uses less energy than higher power lasers, reducing operating costs.



Technical specifications:

Model	STS-32-1
Output Power	5 W
Mode Quality	< 1.2
Rise/Fall Time	< 150/150 μ sec
Beam Diameter	2.3 + 0.5 mm
Wavelength	10.6 + 0.03 μ m
Power Stability from cold start (guaranteed)	+ 15% (~10% typ)
Cooling	Air
Heat Load (max)	150 W
Input Voltage/Current	30 VDC + 2.0/4 A
Dimensions (mm)	284 x 71 x 106
Weight	7 lbs. (3.18 kg)

STS-48 Series: 8W - 50W Lasers

Our original “all-metal” tube technology opened the door for sealed CO2 lasers in industrial applications. After more than 25 years, our 48 Series remains the industry standard for performance, reliability, long life, and low cost. The 48 Series is the most compact laser from us and is the workhorse for integrating onto marking, engraving, and small cutting systems where performance and reliability in industrial environments are essential.



Technical specifications:

Model	STS-48-1	STS-48-1W	STS-48-2	STS-48-2W	STS-48-5W
Output Power	8W @ 9.3µm; 10W @ 10.6µm	8W @ 9.3 µm; 10W @ 10.6µm	18W @ 9.3µm; 25W @ 10.6µm	18W @ 9.3 µm; 25W @ 10.6µm	50W
Mode Quality	M ² < 1.2	M ² < 1.2	M ² < 1.2	M ² < 1.2	M ² < 1.2
Rise Time	< 150 µsec	< 150 µsec	< 150 µsec	< 150 µsec	< 150 µsec
Beam Diameter	3.5 mm	3.5 mm	3.5 mm	3.5mm	3.5mm
Wavelength	9.3 µm/10.6 µm	9.3 µm/10.6 µm	9.3 µm/10.6 µm	9.3 µm/10.6 µm	10.6 µm
Power Stability from cold start (guaranteed)	10%	10%	+ 5%	+ 5%	+ 5%
Cooling	Air	Water	Air	Water	Water
Heat Load (max)	300W	300W	500W	500W	800W
Input Voltage/Current	30 VDC/7A	30 VDC/7A	30VDC/14A	30VDC/14A	30VDC/28A
Dimensions Inches (mm)	429 x 71 x 107	429 x 71 x 107	810 x 71 x 107	810 x 71 x 107	886 x 135 x 114
Weight	9 lbs./4.1 kg	9 lbs./4.1 kg	18 lbs./8.2 kg	18 lbs./8.2 kg	44 lbs./20 kg

STS-V Series: 30W & 40W Lasers

STS-V Series lasers are the ideal source for high-performance laser engravers and high speed marking systems. Designed for easy integration with a unique 3-point mounting system for a variety of mounting options. The STS-V Series shares a common beam exit point with both STS-TI and STS-VI Series lasers for easy drop-in replaceability. To make integration as simple as possible the STS-V Series lasers include an onboard tickle generator, industry standard 5-24 VDC I/O ports and remote control status via a 15-pin D connector.



Technical specifications:

Model	STS-V30	STS-V30W
Output Power	20W @ 9.3 μm	20W @ 9.3 μm
	25W @ 10.2 μm	25W @ 10.2 μm
	30W @ 10.6 μm	30W @ 10.6 μm
Mode Quality	M2 < 1.2	M2 < 1.2
Rise Time	< 100 μsec	< 100 μsec
Beam Diameter	2.5 mm	2.5 mm
Beam Divergence (full angle)	< 7.0mR	< 7.0mR
Wavelength	9.3 μm /10.2 μm /10.6 μm	9.3 μm /10.2 μm /10.6 μm
Power Stability from cold start (guaranteed)/after 2 min. (typical)	5%/3%	5%/3%
Cooling	Air	Water
Heat Load (max)	450 W	450 W
Input Voltage/Current	30 VDC/15A	30 VDC/16A
Dimensions (mm)	428 x 117 x 146	428 x 117 x 146
Weight	18 lbs./8.2 kg	19 lbs./8.7 kg

STS-VI Series: 30W & 40W Lasers

Ultra compact, next gen lasers for demanding industrial coding, marking and engraving applications. Engineered for original equipment manufacturers (OEMs) with a small footprint, and drop-in compatibility, sharing the same beam exit point with both STS-V and STS-TI Series lasers. The new STS-VI40 includes a new Temperature Broadcast feature for real-time condition monitoring, and the Gen2 tube design efficiently manages thermal resistance and power to deliver a stable accurate beam. The STS-VI Series are some of the most compact and lightest 30 W and 40 W CO₂ lasers available, perfect for small spaces and weight sensitive systems.



Technical specifications:

Model	STS-VI30	STS-VI40
Output Power	20W @ 9.3 μm; 25W @ 10.2 μm; 30W @ 10.6 μm	40W
Mode Quality	M2<1.2	M2<1.2
Rise Time	< 100 μsec	< 100 μsec
Beam Diameter	2.5 mm + 0.5 mm	2.5 mm + 0.5 mm
Beam Divergence (full angle)	< 7.0mR	< 7.0mR
Wavelength	9.3 μm/10.2 μm/10.6 μm	10.6 μm
Power Stability from cold start (guaranteed)/after 2 min. (typical)	5%/3%	5%/3%
Cooling	Air/Water	Air
Heat Load (max)	500W	680W
Input Voltage/Current	48 VDC/10A	48 VDC/15A
Dimensions (mm)	427 x 89 x 138	427 x 89 x 138
Weight	13 lbs/5.9 kg	13 lbs./5.9 kg

STS-TI Series: 60W – 100W Lasers

Maximum power and performance from an air-cooled CO₂ laser is the drive behind our STS-TI Series technology. Our STS-TI Series lasers use a patented hybrid-unstable resonator design to create a compact laser with excellent beam quality focused to the smallest achievable spot size, delivering the maximum power density on a work surface. The high performance RF circuitry designed specifically to match its compact resonator delivers fast rise times with outstanding square-wave performance. High power, fast pulsing capabilities, and exceptional optical quality are ideally suited for applications where rapid scanning or pulsing of the laser beam is required. The result is faster processing speeds, higher resolution and optimized quality for cutting, marking and engraving applications. High Stability Models – for applications that demand high-speed precision, we offer water-cooled versions of the STS-TI Series with average output powers ranging from 60W to 100W. While maintaining all other performance attributes the high stability (HS) models guarantees warm power stability of < + 2%. The HS models are especially effective in applications sensitive to power density fluctuations, such as electronic film processing, 3D printing, and fabric marking.



Technical specifications:

Model	STS-TI60	STS-TI60W	STS-TI60HS	STS-TI80	STS-TI80W	STS-TI80HS
Output Power	60W	60W	60W	80W	80W	80W
Mode Quality	M2< 1.2	M2< 1.2	M2< 1.2	M2< 1.2	M2< 1.2	M2< 1.2
Rise Time	< 75 μsec	< 75 μsec	< 75 μsec	< 75 μsec	< 75 μsec	< 75 μsec
Beam Diameter	2.2 mm + 0.3 mm	2.2 mm + 0.3 mm	2.2 mm + 0.3 mm	2.2 mm + 0.3 mm	2.2 mm + 0.3 mm	2.2 mm + 0.3 mm
Beam Divergence (full angle)	< 7.0mR	< 7.0mR	< 7.0mR	< 7.0mR	< 7.0mR	< 7.0mR
Wavelength	9.3 μm/10.2 μm/10.6μm	9.3 μm/10.2 μm/10.6μm	10.6μm	9.3 μm/10.2 μm/10.6μm	9.3 μm/10.2 μm/10.6μm	10.6μm
Power Stability from cold start (guaranteed)/ after 2 min. (typical)	7%/6%	7%/6%	4%/2%	7%/6%	7%/6%	4%/2%
Cooling	Air/Fan	Water	Water	Air/Fan	Water	Water
Heat Load (max)	900W	900W	900W	1200W	1200W	1200W
Input Voltage/Current	48 VDC/18A	48 VDC/18A	48 VDC/18A	48 VDC/22A	48 VDC/22A	48 VDC/22A

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Dimensions (mm)	571 x 158 x 148 (Fan 571 x 196 x 150)	544 x 104 x 150	544 x 104 x 150	571 x 158 x 148 (Fan 571 x 196 x 150)	544 x 104 x 150	544 x 104 x 150
Weight	25.5 lbs./11.6 kg (Fan 28.9 lbs./13.1 kg)	26.2 lbs./11.9 kg	42 lbs./19 kg	25.5 lbs./11.6 kg (Fan 28.9 lbs./13.1 kg)	26.2 lbs./11.9 kg	42 lbs./19 kg

Model	STS-TI100	STS-TI100W	STS-TI100HS	STS-TI100P
Output Power	100W	100W	100W	100W
Peak Power	n/a	n/a	n/a	300W
Mode Quality	M2< 1.2	M2< 1.2	M2< 1.2	M2< 1.2
Rise Time	< 75 μ sec	< 75 μ sec	< 75 μ sec	< 60 μ sec
Beam Diameter	2.0 mm + 0.3 mm	2.0 mm + 0.3 mm	2.0 mm + 0.3 mm	2.0 mm + 0.3 mm
Beam Divergence (full angle)	< 7.0mR	< 7.0mR	< 7.0mR	< 7.0mR
Wavelength	9.3 μ m/10.2 μ m/10.6 μ m	9.3 μ m/10.2 μ m/10.6 μ m	9.3 μ m/10.2 μ m/10.6 μ m	9.3 μ m/10.2 μ m/10.6 μ m
Power Stability from cold start (guaranteed)/after 2 min. (typical)	7%/6%	7%/6%	4%/2%	7%/6%
Cooling	Air/Fan	Water	Water	Water
Heat Load (max)	1700W	1700W	1700W	1700W
Input Voltage/Current	48 VDC/35A	48 VDC/35A	48 VDC/35A	48 VDC/35A
Dimensions (mm)	544 x 104 x 150	544 x 104 x 150	544 x 104 x 150	633 x 142 x 150
Weight	32.1 lbs./14.6 kg	26.2 lbs./11.9 kg	42 lbs./19 kg	26.7 lbs./12.1 kg

STS-F Series: 200W Lasers

Engineered for cost-effective 200W output for cutting, perforating, and drilling applications. The fully integrated laser/RF design minimizes size and weight; perfect for mounting on robotic arms and high-speed marking systems, or full integration into flatbed cutting systems. With fully integrated RF supplies and clean, simple interfaces to water-cooling and control signals, STS-F Series lasers minimize integration time while providing maximum flexibility for system designers, OEM manufacturers, and full turnkey system providers.



Technical specifications:

Model	STS-F201
Output Power	>180W @ 10.2 μm ; >200W @10.6 μm
Mode Quality	M2< 1.2
Rise Time	< 150 μsec
Beam Diameter	4.5 mm + 0.1 mm
Beam Divergence (full angle)	4.0mR + 0.2mR
Wavelength	10.2 μm /10.6 μm
Power Stability from cold start (guaranteed)/after 2 min. (typical)	7%/5%
Cooling	Water
Heat Load (max)	4000W
Input Voltage/Current	96 VDC/36A
Dimensions (mm)	1166 x 218 x 165
Weight	96 lbs./43.5 kg

STS-I Series: 400W Lasers

The smallest and most energy efficient 400W CO₂ laser available. STS-I Series delivers 400W of near-perfect beam quality with 45° linear polarization for high-precision applications. Built around a hybrid waveguide/unstable resonator i Series feature fast rise/fall times while being driven by four replaceable integrated 48V RF modules. i Series delivers immediate energy cost savings with best-in-class energy efficiency, up to 23% better than other 400 W lasers. With its single tube design, STS-I Series weighs 24% less than competitive lasers – an important factor when mounting on moving gantry systems or robotic motion systems. The STS-I Series includes a TCP/IP web-based Internet interface that allows access to information about LED and RF module status – including voltage, current, and temperature measurements using a standard web browser to manage laser operation and ensure optimal performance. Built-in gas purge port for easy connection to nitrogen or CDA purge systems and an internal electromechanical shutter for operator safety make i Series the ultimate OEM laser.



Technical specifications:

Model	STS-I401
Output Power	400W
Mode Quality	M2<1.2
Rise Time	< 100 μsec
Beam Diameter	6.0 mm + 0.6 mm
Beam Divergence (full angle)	2.5mR + 0.3mR
Wavelength	10.2 μm/10.6 μm
Power Stability from cold start (guaranteed)/after 2 min. (typical)	7%/5%
Cooling	Water
Heat Load	6000W
Input Voltage/Current	48 VDC/125A
Dimensions (mm)	1227 x 208 x 300
Weight	130 lbs./59 kg

STS-P Series: 100W to 400W Lasers

Cut faster, drill flawlessly and micro-process with precision with the p Series high performance pulse CO₂ lasers from us. Harnessing pulse technology to deliver peak pulse power levels many times greater than standard continuous-wave laser power levels, the STS-P Series expands cutting, drilling and perforating applications to a wider range of materials, including films, high performance textiles, certain metals, and high-tech composites. STS-S Series CO₂ industrial lasers offer near-perfect beam quality, thanks in part to internal beam conditioning before the aperture, focusing the beam down to a narrow spot for increased laser processing detail. Built for industrial environments, all models feature built-in gas purge ports for convenient in-field servicing and protective optical windows. The STS-P Series sets the standard for pulsed CO₂ laser performance in industries including Converting, Electronics and Packaging.



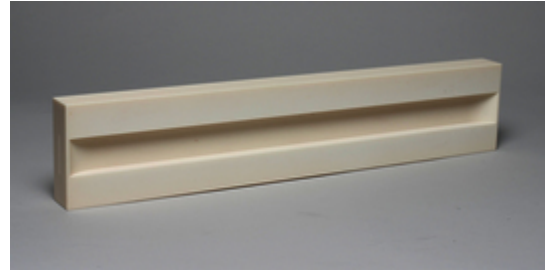
Technical specifications:

Model	STS-P100	STS-P150	STS-P250	STS-P400
Output Power	100W	150W	250W	400W
Peak Pulse Power	400W	600W	800W	>1.0kW
Mode Quality	M2<1.2	M2<1.2	M2<1.2	M2<1.2
Rise/Fall Time	<40/<100 µsec	<50/<100 µsec	<60/<100 µsec	<50/<100 µsec
Beam Waist Diameter	7.5 mm + 1.1 mm	8.0 mm + 1.1 mm	8.0 mm + 1.1 mm	1) 6.0 mm + 1.0 mm; 2) 8.0 mm + 1.0 mm
Beam Divergence (full angle)	1.8mR + 0.4mR; 2.0mR + 0.4mR	1.9mR + 0.4mR	1.9mR + 0.4mR	1) 6 mm = 2.5.mR + 0.6mR; 2) 8 mm = 1.8mR + 0.4mR
Wavelength	10.2 µm/10.6 µm	9.3 µm/10.2 µm/10.6 µm	10.6 µm	10.6 µm
Power Stability from cold start (guaranteed)/after 2 min. (typical)	1.4	2	1	1.4
Cooling	Water	Water	Water	Water
Heat Load	2000W	3200W	4300W	8.5kW
Input Voltage/Current	48 VDC/40A	48 VDC/65A	48 VDC/90A	48 VDC/175A
Dimensions (mm)	63 x 132 x 155	798 x 132 x 155	1252 x 315 x 198	1262 x 208 x 318
Weight	30.0 lbs./13.6 kg	40.0 lbs./18.1 kg	107 lbs./48.5 kg	130 lbs./59.0 kg

Ceramic CO₂ Lasers

Most CO₂ lasers offered today are based on the original R&D approach developed at several different aerospace companies in the 1970s. This traditional approach involves extruding or machining aluminum bodies to contain the optical and electrical components inside the laser gas envelope - the laser tube. These designs are convenient for R&D work, but not ideal for building lasers that are reliable, and have long lifetimes. The ceramic CO₂ laser tube has a significant advantage.

The leading reliability issue with metal-tube lasers is that the metal is highly reactive with the gas mixture. Over time, as internal components wear, "scrub" each other's surfaces, fresh aluminum is exposed. Free oxygen in the laser's gas reacts with this raw metal (oxidation) changing the composition of the original gas mixture. In addition, many of these designs use O-ring seals that can allow air and moisture to enter the laser tube and further compromise the all-important gas mixture. These issues are eliminated with Ceramic CO₂ laser tubes.



Ceramic CO₂ laser tube technology solves these problems by moving all the reactive components to the outside of the laser tube leaving only pure clean Alumina (Al₂O₃) ceramic in contact with reactive gasses. Due to its chemical makeup, Alumina does not react with the gas. Alumina can also be fired at very high temperatures as part of the cleaning process. This further assures there are no organic contaminants from laser tube manufacturing, that remains inside the laser tube to react with the gas.

The ceramic CO₂ laser tube is also the optical backbone that holds the resonator optics. The CTE (coefficient of thermal expansion) of alumina is 1/3 the CTE of aluminum. Since laser tube thermal variations have a direct impact on laser stability, Our Ceramic CO₂ laser tube has significantly better stability performance when compared with metal-based CO₂ lasers. Ceramic CO₂ laser tubes also enables gas mixtures of comparatively high pressure to be used. Ceramic CO₂ laser tubes allow for high pressure gas mixes and provide for faster rise and fall speed as well as much better power stability.

Infinity Series

RF excited 40 – 120 Watt Ceramic Core CO₂ lasers



The Infinity Series includes RF excited, 40, 60, 80, 100, and 120 Watt CO₂ lasers. For customer convenience, all models have identical form and fit with internal RF-drive electronics. If a different power laser is required, only the DC power supply will require changing.

40, 60, 80, 80, 100, and 120 Watt CO₂ lasers are offered in three different cooling configurations. The Air-Cooled configuration allows for the customer to supply the necessary cooling air for the laser. The Fan-Cooled configuration comes fitted with cooling fans. The water cooled version is supplied with an input and output port to connect a chilled water source.

All configurations of 40, 60, 80, 100, and 120 Watt lasers are built around our patented ceramic core technology that provides superior lifetime, reliability, and stability.

Model	Infinity 40	Infinity 60	Infinity 80	Infinity 100	Infinity 120
Rated Optical Power	40	60	80	100	120
Mode Quality (M ²)	1.2	1.2	1.2	1.2	1.2
Beam Ellipticity	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1
Beam Diameter (mm) 1/e ²	2.5	2.5	2.5	2.5	2.5
Beam Divergence (mR, full angle)	5.2	5.2	5.2	5.2	5.2
Wavelength (μm)	10.57-10.63	10.57-10.63	10.57-10.63	10.57-10.63	10.57-10.63
Rise Time (μS)	< 75	< 75	< 75	< 75	< 75
Power Stability from cold (%)	±6%	±6%	±6%	±6%	±6%
Polarization	Random	Random	Random	Random	Random
Cooling	Air or Water	Air or Water	Air or Water	Air or Water	Air or Water
Input power (Watts)	640	960	1200	1400	1400
Input Voltage / Current	32V / 20A	40V / 24A	45V / 24A	50V / 28A	50V / 28A
Weight (Kg / Lbs.)	14.7 / 32.4	14.7 / 32.4	14.7 / 32.4	14.7 / 32.4	14.7 / 32.4

Model Z30/Z40

The smallest RF driven 30 and 40 Watt laser

Our model Z30/Z40 is a 30/40 Watt CO₂ laser tube and is based on Our proven Ceramic Core Technology. One of the primary differences and technological advancements that is incorporated in this design is the resonator.

The Z30's/Z40's resonator is a Z-folded (2-fold) unstable resonator. This allows for a smaller package design when compared with other 30/40 Watt laser tubes and is the shortest (folded) resonator in the 30 – 50 watt CO₂ laser class, but has a remarkably long (unfolded) resonator length.

This provides superior power and beam diameter stability. Early test have shown the from-cold power stability in the ±2% range.



Model	Model 163	Model 164
Rated Optical Power	≤30	40
Mode Quality (M ²)	1.2	≤1.2
Beam Ellipticity	< 1.2:1	< 1.2:1
Beam Diameter (mm) 1/e ²	2.3	2.3
Beam Divergence (mR, full angle)	7	7
Wavelength (μm)	10.57-10.63	10.57-10.63
Rise Time (μS)	< 75	< 75
Power Stability from cold (%)	±5% from cold, guaranteed ±3% after 2 mins typical	±5% from cold, guaranteed ±3% after 2 mins typical
Polarization	Random	Random
Cooling	Air	Air
Flow Rate (air)	140CFM x 2	140CFM x 2
Input power (Watts)	480	600
Input Voltage / Current	48V / 10A	40V / 15A
Weight (Kg / Lbs.)	9.5 / 21	9.5 / 21

Model 1625
The lightest, most compact 250 Watt CO₂ laser source


Our model 1625 is a 250 Watt CO₂ laser tube and is based on our proven Ceramic Core Technology. Model 1625 is the smallest RF-driven, sealed CO₂ laser in the world.

RF Driven CO₂ lasers are typically designed to operate in a pulsed mode, at a specified Peak-Power. The pulses can vary in duration from near zero to continuous-wave (CW) - the laser is on continuously. Further, at the time of shipping, a laser could produce a significantly more peak-power than specified.

This additional, or reserve power is common in CO₂ lasers, and is intended to further the specified lifetime of a laser that is known to have power degradation over time; the laser will stay within specification longer.

Model	Infinity 1625
Rated Optical Power	250
Mode Quality (M ²)	1.2
Beam Ellipticity	< 1.2:1
Beam Diameter (mm) 1/e ²	2.5
Beam Divergence (mR, full angle)	5.2
Wavelength (μm)	10.57-10.63
Rise Time (μS)	< 75
Power Stability from cold (%)	±4%
Polarization	Vertical to mounting plane
Cooling	Water
Flow Rate (l/m, g/m)	>9.8, 2.6
Input power (Watts)	2800
Input Voltage / Current	50V / 56A
Weight (Kg / Lbs.)	23 / 50

ULR Series RF-excited CO₂ Lasers



10 W to 500 W Lasers

The ULR series of CO₂ lasers for OEM use are based on a sealed, RF pumped, slab design that produces a high-quality beam. These lasers can be operated in CW mode or modulated to control average power. Modulation is accomplished by varying the pulse width of the input signal.

In the 10 W to 500 W lasers, RF electrodes are spaced apart to allow the laser beam to form without influence of the electrodes, delivery excellent near- and far-field quality with minimal wave-guide effects. The folded resonator design allows generation of power in a compact package. Our lasers require no consumables and deliver a very long lifetime.

Advantages

When you purchase an OEM laser you are not only buying a laser source, but a partnership. That partnership means you receive direct access to world-wide technical support and the shortest service turnaround times, access to the most advanced Applications Laboratory and the most robust and reliable lasers on the market for as long as you own and use the product.

- **Space Saving and Easily Integrated:** The patented multi-pass, slab resonator design is the foundation of our robust and highly reliable laser sources. Our integrated air-cooled and internally RF-stimulated lasers eliminate the need for additional space and cost for chillers, and external power sources. Integrating the laser sources into your production or research process is as easy plugging it in.
- **Broad Product Line of Air-cooled Options:** We manufacture single resonator air-cooled lasers in power ranging from 10-75 and 250 watts and dual resonator lasers at the 100, 120, 150, and 500 watt range.
- **Unbeatable New Order Delivery Lead Time:** 10 Business days for a new OEM single resonator ULR 10W to 75 W lasers. 13 Business days for a new OEM ULR dual resonator, and laser sources over 100 W.
- **Reliability:** Average field life between reconditioning in excess of 6.5 years.
- **Shortest Service Turn Around Time on the Market:** As the laser manufacturer, we deliver the shortest service time on the market. We recondition and return your laser in 16 Business days.
- **State-of-the-Art Materials Application Laboratory:** Our material scientists and applications engineers work with our customers to understand their unique materials processing requirements. Years of industry experience is put to work in developing a customized laser processing solution.

Processed materials samples and a report describing laser configuration and processing recommendations are provided.

- **90-Day Risk Free Laser Evaluation Program:** To assure your complete satisfaction, we offer a risk free laser evaluation program. Examine our innovative, space-saving, air-cooled CO2 Lasers in your application with no risk for 90-days.

Cooling

Two cooling options are available:

- **Integrated Air:** ULR lasers configured for integrated air cooling contain fans and heat sinks designed to allow the laser to operate efficiently with no external cooling.
- **Basic Air:** ULR lasers configured for basic air cooling do not include fans. The integrator is responsible for ensuring adequate cooling, per ULS specifications.

Features:

- 10.6 μ and 9.3 μ configurations available
- TTL-compatible Over-temperature warning and laser status features
- Thermal cutoff protection
- Low-profile mounting plate
- RoHS compliant
- RS485 communication
- 48V DC Input Voltage

Laser power	Basic air	Integrated air	9.3um
10W	Y	Y	Y
25W	Y	Y	Y
30W	Y	Y	Y
40W	Y	Y	Y
50W	Y	Y	Y
60W		Y	Y
75W		Y	Y
100W		Y	Y
120W		Y	Y
150W		Y	Y
250W		Y	
500W		Y	

Model	ULR10	ULR25 ULR30	ULR40	ULR50 ULR60	ULR75
Rated power**	10W	25W or 30W	40W	50W or 60W	75W
Wavelength	10.6um	10.6um/9.3um	10.6um/9.3um	10.6um/9.3um	10.6um
Power stability	$\pm 10\%$	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$	$\pm 10\%$
M ²	$<1.3\pm 0.2$	$<1.3\pm 0.2$	$<1.3\pm 0.2$	$<1.3\pm 0.2$	$<1.3\pm 0.2$
Beam size(near field)	4 ± 1 mm	4 ± 1 mm	4 ± 1 mm	4 ± 1 mm	4 ± 1 mm
Beam divergence(full angle)	5 ± 1 mrad	5 ± 1 mrad	5 ± 1 mrad	5 ± 1 mrad	5 ± 1 mrad
Polarization	Linear	Linear	Linear	Linear	Linear
Pointing stability	200 μ rad	200 μ rad	200 μ rad	200 μ rad	200 μ rad
Rise time	120 $\pm 40\mu$ S	120 $\pm 40\mu$ S	120 $\pm 40\mu$ S	120 $\pm 40\mu$ S	120 $\pm 40\mu$ S
Duty cycle	0-100%	0-100%	0-100%	0-100%	0-100%
Modulation signal type	TT	TTL	TTL	TTL	TTL
Cooling	Air	Air	Air	Air	Air
Weight (Basic AC)	3.3kg	8.1kg	9.5kg	10.9kg	
Weight (Basic WC)	3.3kg	9.0kg	10.4kg	11.8kg	
Weight (Integrated AC)	3.9kg	9.0kg	10.4kg	11.8kg	14kg
Weight (integrated WC)	3.9kg	9.0kg	10.4kg	11.8kg	14kg
Ambient temperature***	10-35 $^{\circ}$ C	10-35 $^{\circ}$ C	10-35 $^{\circ}$ C	10-35 $^{\circ}$ C	10-35 $^{\circ}$ C
Relative humidity	<90%	<90%	<90%	<90%	<90%
DC input voltage	48VDC	48VDC	48VDC	48VDC	48VDC

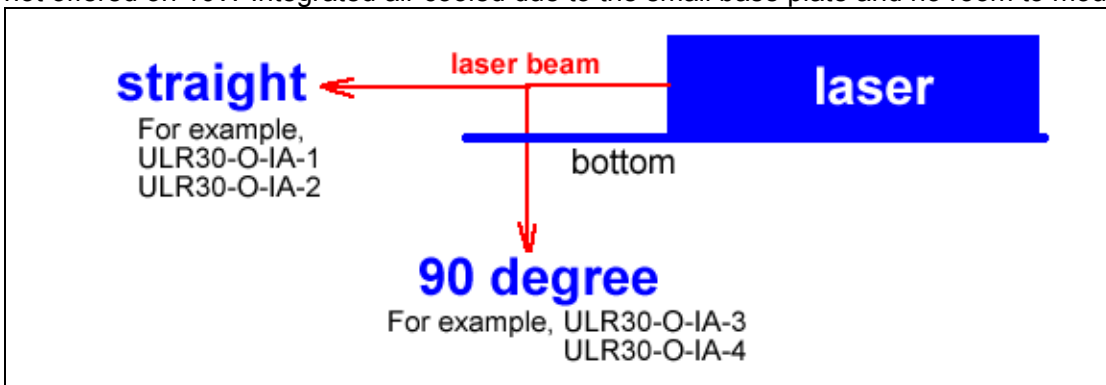
RMS current (CW)	4A	10A	14A	18A	20A
Model	ULR100	ULR120	ULR150	ULR250	ULR500
Rated power**	100W	120W	150W	250W	500W
Wavelength	10.6um	10.6um	10.6um	10.6um/9.3um	10.6um
Power stability	±5%	±5%	±5%	±5%	±5%
M ²	<1.3±0.2	<1.3±0.2	<1.3±0.2	<1.2±0.2	<1.2±0.2
Beam size(near field)	8±1mm	4±1mm	4±1mm	8±1mm	8±1mm
Beam divergence(full angle)	5±1mrad	5±1mrad	5±1mrad	4±1mrad	4±1mrad
Polarization	Cross polarized	Cross polarized	Cross polarized	Linear	Cross polarized
Pointing stability	200μrad	200μrad	200μrad	200μrad	200μrad
Rise time	120±40μS	120±40μS	120±40μS	120±40μS	140±40μS
Duty cycle	0-100%	0-100%	0-100%	0-100%	0-100%
Modulation signal type	TTL	TTL	TTL	5V logic	5V logic
Cooling	Air	Air	Air	Air	Air
Weight (Integrated AC)	36.7kg	36.7kg	43.0kg	45kg	90.7kg
Weight (integrated WC)	36.7kg	36.7kg	43.0kg		
Ambient temperature***	10-35°C	10-35°C	10-35°C	10-35°C	10-35°C
Relative humidity	<90%	<90%	<90%	<90%	<90%
DC input voltage	48VDC	48VDC	48VDC	48VDC	48VDC
RMS current (CW)	36A	36A	40A	80A	160A

Main Difference between UL Series and ULR Series Lasers

The bottom and connector are swallow-tailed and 12PIN respectively but the bottom and connector are flat and 15PIN respectively. There is no difference on performance.

Beam Output Configuration:

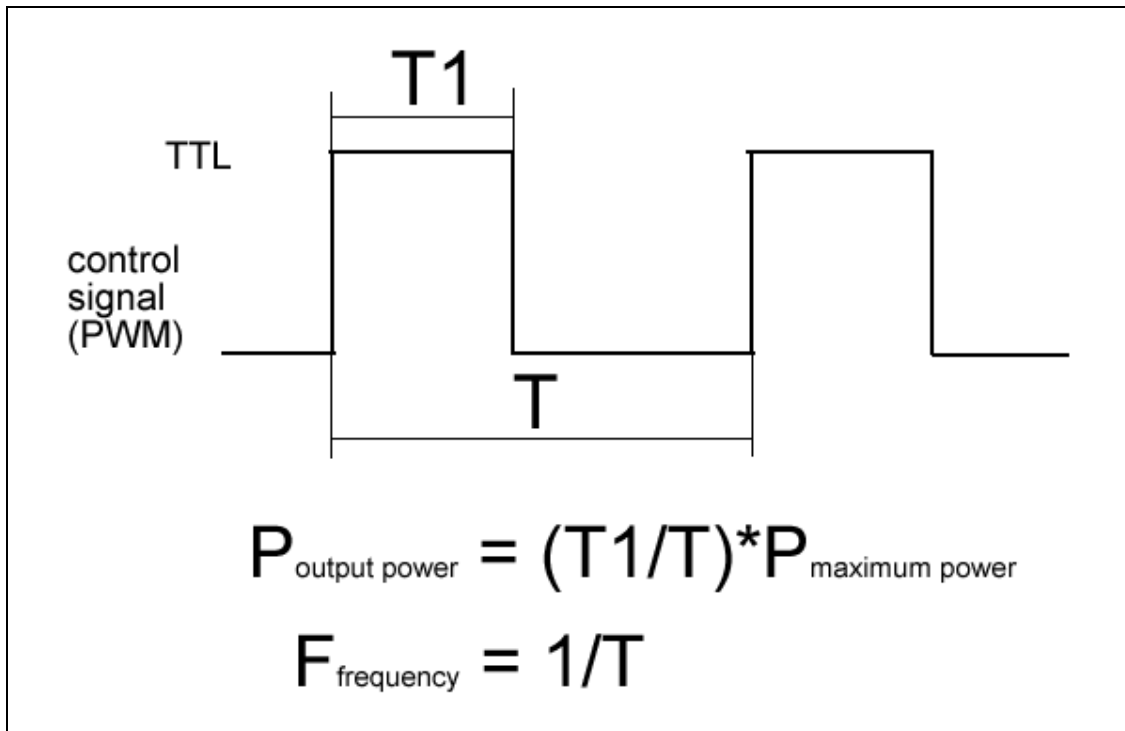
With the 90 degree output the beam goes through the base plate. We cut a hole in the bottom and mount it to the face of the laser, turn it 90 degree down through the hole. We can not offer it in any other direction but through the bottom of the base plate. To offer this option on OEM lasers the beam output number is (#3) for 90 degree without pointer, (#4) for the 90 degree with pointer. This option is not offered on 10W Integrated air cooled due to the small base plate and no room to mount the out put.



CO2 Laser Controller

1. Principle of adjusting laser power

A TTL compatible signal must be provided to the laser of the power and signal connector to drive the laser. Output power can be controlled from 0 to 100% (CW Mode) by pulse width modulation of the input signal. The output laser power is proportional to the duty of the PWM signal.



In our controllers, the frequency is fixed at 5kHz (0.2ms). Adjusting the output laser power means adjusting pulse width T1.

2. STCB series integrated laser controller

CO2 laser controller provides DC power supply of CO2 laser, control I/Os and laser power adjustment. It is integrated with a 19" control panel. Its main specifications are

- Model: STCB28-xxxx (xxxx: CO2 laser model such as ULR10, ULR50 etc)
- Provide DC power supply according to the lasers (ULR10, ULR30, ...) (optional)
- Laser power adjustable from 0 to 99% of the maximum laser power
- Two control methods available: manual and auto
- Under the manual method, a potentiometer on the panel is used to adjust the laser power and a button is used to switch on/off laser
- Under the auto method, external signal TTL is used to adjust laser power, laser pulse repetition rate and laser beam on/off
- Dimension (LxWxH): 500x302x100mm



3. STCBV series compact laser controller

This compact laser power controller is used to digitally modulate the RF amplifiers that excite the plasma within the resonating chamber of the laser. This is accomplished by using a clock frequency square wave of 5kHz and varying the duty cycle of that square wave from 0 to 99%.



The main specifications are:

- Power input: +5VDC
- Signal output: 0-99% duty cycle PWM 5kHz
- Gate input (default logic low): TTL logic (High +5VDC, Low 0VDC)
- Clock frequency: 5kHz +/-5% accuracy
- Enable input (default logic low): TTL logic (High +5VDC, Low 0VDC)
- Two control methods available: manual and auto
- Dimension (LxWxH): 6.26x4.125x1.5inch (159x105x38mm)
- Weight: 12.3 ounces (0.349kg)

4. Universal Control Module

The Universal Control Module is an interface module designed to control laser output. Ideal for use in a laboratory, on the production floor, or by a service technician, the Universal Control Module allows for complete control over the duty cycle and repetition rate of the laser. External gating makes it easy to integrate into automation applications.



Features:

- Selectable repetition rate: 5 kHz, 10 kHz, and 20 kHz
- Selectable duty cycle: 0.5%–99%
- TTL-compatible external gating