

LOW POWER CO₂ LASER

Model LASY-3 and Hand-held Option

Options available

- Invar Stabilized
- Beam expander
- Red laser diode pointer



Specifications

Power	100 mw-400mw
Wavelength range	10.3 μm to 10.63 μm
Power stability	better than ±20%
Laser mode	Low order, $M^2 < 1.1$, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	7.5" x 2.5" x 1.5" plus the power handle
Cooling requirement	free air or forced air
Power source	RF driver powered by 14.4 volt rechargeable battery. Both RF driver and the batteries are in the power handle. Battery charger and external AC/DC power supply included.
One Charge Battery Lifetime	depending on power, from 30 min to 90 min.
Weight	3.5 lbs standard, 5lbs with invar structure.
Factory warranty	parts and labor due to manufacturing quality within one year.



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LOW POWER CO₂ LASER

Model LASY-2

Options available

- Portable, battery operated version
- Single wavelength (factory preset)
- Wavelength tunable
- Power stabilization: ±3%
- Real time power monitor
- External high speed modulator (up to 200 kHz)



Specifications

Power	100 mw
Wavelength range	10.3 μm to 10.8 μm
Power stability	better than ±20%
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam size 2.4mm, full divergence 5.5 mrad
Size	7.5" x 2.5" x 1.5"
Cooling requirement	forced air or free air
Power source	RF driver powered 13.8 V DC, 1 amp. Both RF driver and DC adapter are included as part of the laser purchase.
Factory warranty	parts and labor due to manufacturing quality within the first year.



LOW POWER CO₂ LASER

Model LASY-3

Options available

- Portable, battery operated version
- Single wavelength (factory preset)
- Wavelength tunable
- Power stabilization, ±3%
- Real time power sampling
- External high speed modulator (up to 200 kHz)

Specifications

Power	400 mw
Wavelength range	10.3 μm to 10.8 μm
Power stability	±20%
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	7.5" x 2.5" x 2"
Cooling requirement	free air or forced air
Power source	RF driver powered by 12V DC. Both RF driver and DC power supply are included as part of the laser purchase.
Factory warranty	One year parts and labor due to manufacturing quality



LOW POWER CO₂ LASER

Model LASY-2 and Closed-loop Power Stabilization OP-CL1

Options available

- Single wavelength (factory preset)
- Wavelength tunable
- Real time power monitor
- External high speed modulator (up to 200 kHz)



Specifications

Power	100 mw
Wavelength range	10.3 μm to 10.8 μm
Power stability	± 3% (ambient temperature kept within 2 °C)
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full diverging angle 5.5 mrad.
Size	7.5" x 2.5" x 4"
Cooling requirement	forced air or free air
Laser Frame	Low expansion alloy, Invar.
Power source	RF driver powered 13.8 V DC, 1 amp. Both RF driver and DC adapter are included as part of the laser purchase.
Factory warranty	parts and labor due to manufacturing quality within the first year.



LOW POWER CO₂ LASER

Model LASY-4

Options available

- Single wavelength (factory preset)
- Wavelength tunable
- Power stabilization and gratingless tunable, ±3%
- Real time power sampling
- External high speed modulator (up to 200 kHz)

Specifications

Power	1 watt
Wavelength range	10.3 μm to 10.8 μm
Power stability	±15%
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad.
Size	12.5" x 2.5" x 3"
Cooling requirement	forced air
Power source	RF driver powered by 12-16 VDC at 3-4 amps. Both RF driver and DC power supply are included as part of the laser purchase.
Factory warranty	One year parts and labor due to manufacturing quality



LOW POWER CO₂ LASER

Closed-loop Stabilized, Tunable CO₂ Laser----LASY-2S

Options available

- Real time power sampler
- External high speed modulator (up to 200 kHz)
- Piezo actuated fast tuning
- Linear polarization



Specifications

Power	100 mw
Wavelength range	At least 10 lines between 10.3 μm and 10.8 μm tuned without a grating.
Power stability	± 2% (ambient temperature kept within 2 °C)
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	7.5" x2.5" x 4"
Power source	RF driver powered by 12VDC.
Factory warranty	parts and labor due to manufacturing quality within the first year.
Included	Closed-loop temperature controller, RF driver and AC/DC adapter.
Resonator Support	Low expansion alloy Invar.
Cooling requirement	forced air included



LOW POWER CO₂ LASER

Closed-loop Stabilized, Tunable CO₂ Laser----LASY-3S

Options available

- Real time power sampler
- External high speed modulator (up to 200 kHz)
- Piezo actuated fast tuning
- Linear polarization



Specifications

Power	400 mw
Wavelength range	At least 12 lines between 10.3 μm and 10.8 μm tuned without a grating.
Power stability	± 2% (ambient temperature kept within 2 °C)
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	7.5" x2.5" x 4"
Power source	RF driver powered by 12VDC.
Factory warranty	parts and labor due to manufacturing quality within the first year.
Included	Closed-loop temperature controller, RF driver and AC/DC adapter.
Resonator Support	Low expansion alloy Invar.
Cooling requirement	forced air included

- Specifications subject to change without notice.
- We strive to satisfy custom requirements. Please contact us if you have special needs.

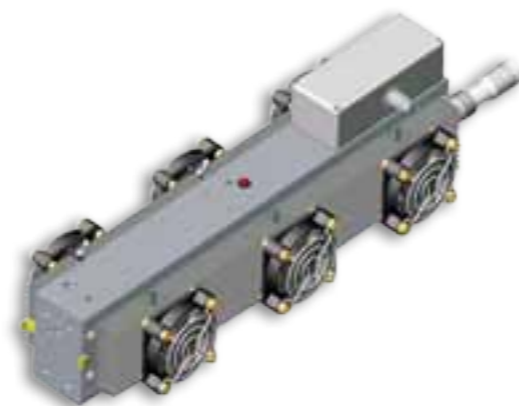


LOW POWER CO₂ LASER

Model LASY-4G

Options available

- External high speed modulator (up to 200 kHz)
- Isotope CO₂ gas fills for wavelengths up to 11.2 μm
- Power stabilization to within ±3%
- Water cooling(customer to supply cooling water)



Specifications

Power	Minimum 200 mw for the strongest line
Wavelength range	9.3 μm to 10.8 μm, at least 30 lines
Power stability	better than ±10% for the strong lines
Mode	Low order, M ² < 1.2, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	12.5" x 2.5" x 3"
Cooling requirement	forced air
Power source	RF driver powered 12 VDC, 4 amps. Both RF driver and DC adapter are included as part of the laser purchase.
Factory warranty	parts and labor due to manufacturing quality within one year.

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- Specifications subject to change without notice.

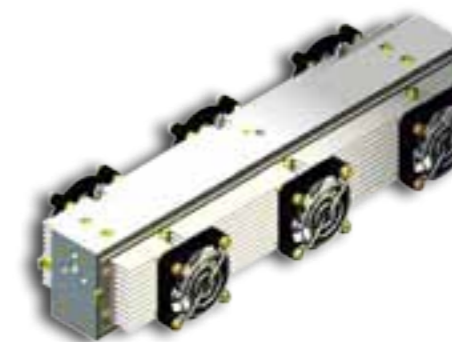


LOW POWER CO₂ LASER

Closed-loop Stabilized, Temperature Tunable CO₂ Laser----LASY-4S

Other Options available

- Real time power sampler
- External high speed modulator (up to 200 kHz)



Specifications

Power	1 watt
Features	Complete Invar structure for laser cavity, closed-loop control on cavity length, highly stable in both wavelength and power.
Wavelength range	At least 8 lines between 10.3 μm and 10.8 μm tuned by temperature controller.
Power stability	± 2% (ambient temperature kept within 2 °C)
Size	7.5" x2.5" x 4"
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Dimensions	Length x Height x Width: 12.5" x2.5" x 4.5", width including heat sink and fans.
Laser Frame	Low expansion alloy, Invar.
Cooling requirement	forced air included
Power source	RF driver powered by 12VDC, both included.
Factory warranty	parts and labor due to manufacturing quality within the first year.
Included	Closed-loop temperature controller, RF driver and DC adapter.

- We strive to satisfy custom requirements. Please contact us if you have special needs.

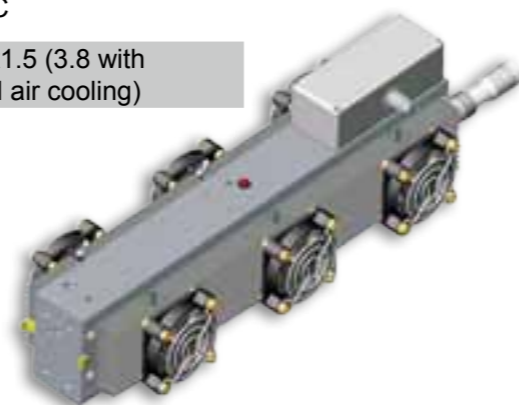


LOW POWER CO₂ LASER

Model LASY - 5 / P / D

Specifications

Model	LASY-5	LASY-5P	LASY-5D
CW power	5	4 (average)	Lasy-5D has features of both Lasy-5 and Lasy-5P when the appropriate DC power supplies are used.
Peak power	5	20	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	±10%	±10%	
Wavelength (µm)	Around 10.6	Around 10.6	
Rise time (µs)	200	100	
Fall time (µs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-25%, pulse length to 0.8 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	7 Amp	4 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	12x3x1.5 (3.8 with forced air cooling)	12x3x1.5 (3.8 with forced air cooling)	



Options available

- Single wavelength (factory preset)
- Wavelength tunable
- Power and line stabilization, ±3%
- Water cooling
- Real time power sampling
- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.

GRATING TUNABLE CO₂ LASER

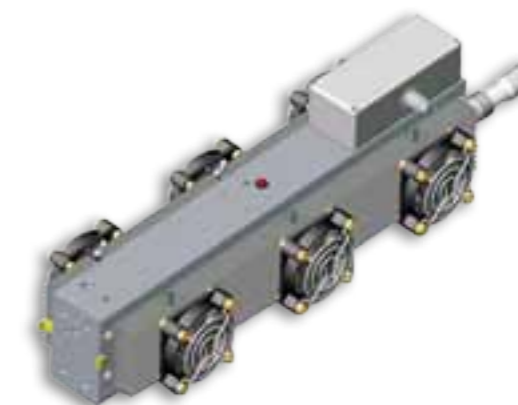
Models LASY-5G and LASY-5GP

Specifications

	Standard (LASY-5G)	SUPER PULSED (LASY-5GP)
Laser power	1 watt CW at the strongest line	4 watt peak at the strongest line (1kHz and 200 µs pulse length)
Number of lines	At least 40	At least 50
Power requirement	28 VDC, 5 amps	48 VDC, 4 amps
Wavelength range	9.3 µm to 10.8 µm	
Power stability	±10% typical for the strong lines	
Laser mode	Near TEM ₀₀ , M ² < 1.2; beam diameter 2.4 mm, full divergence angle 5.5 mrad	
Dimensions	12.5" x 2.5" x 3"	
Cooling requirement	forced air provided	
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad	

Options available

- Single fixed wavelength (factory preset)
- Power stabilization with closed loop control, ±3%
- Real time power sampler
- Water cooling
- Cold plate cooling
- Isotope gas fill for different wavelength range
- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.

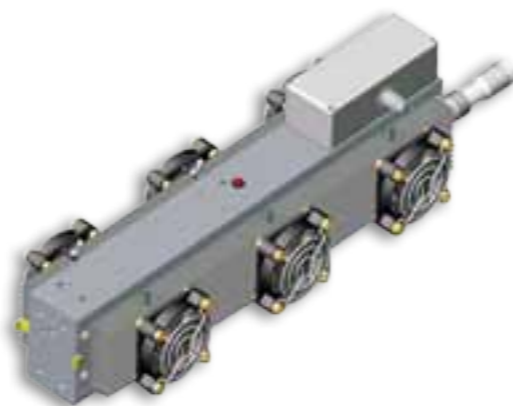


STABILIZED CO₂ LASER

Model LASY-5SA

Options available

- Wavelength tunable with grating
- Super pulse option (20 watt peak power at up to 10% duty cycle)
- Real time power sampling
- Piezo actuator mounted for adjustment of the length of resonator, thereby wavelength (will increase the height by 1.2")
- Line and power stabilization with feedback control, ±1% power stability.



Specifications

Average Power	Up to 2 watt (50% PWM limit)
Wavelength range	10.3 μm to 10.8 μm
Power stability	±2%
Laser mode	Near TEM ₀₀ , M ² < 1.2, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	12.5" x 2.5" x 2.3"
Cooling requirement	Forced air cooled. Cooling fans and temperature controller included
Power source	RF driver powered by 28 VDC at 5 amps. RF driver included.
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



STABILIZED AND GRATINGLESS TUNABLE CO₂ LASER

Model LASY-5SW

Other Options available

- Wavelength tunable with grating
- Super pulse option (20 watt peak power at up to 30% duty cycle)
- Real time power sampling
- Piezo actuator mounted for adjustment of the length of resonator, thereby wavelength (will increase the height by 1.2")
- Line and power stabilization with feedback control, ±1% power stability.



Specifications

Power	5 watt
Wavelength range	10.3 μm to 10.8 μm tunable by temperature, at least 8 lines.
Power stability	±2%
Laser mode	Near TEM ₀₀ , M ² < 1.2, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Size	12.5" x 2.5" x 2.3"
Cooling requirement	water cooling, ±0.1 C, 0.5 Gallons per minute.
Dimensions	Length x Height x Width: 12.5" x 2.5" x 4.5", width including heat sink and fans.
Laser Frame	Low expansion alloy, Invar.
Cooling requirement	water cooling, ±0.1 C, 0.5 Gallons per minute.
Power source	RF driver powered by 28 VDC at 5 amps. RF driver included.
Factory warranty	One year for parts and labor due to manufacturing quality

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- Specifications subject to change without notice.



MEDIUM POWER CO₂ LASER

Model LASY-12

Options available

- Water cooling
- Real time power sampling
- Power stabilization



Specifications

Model	LASY-12	LASY-12P	LASY-12D
CW power	12	7 (average)	Lasy-12D has features of both Lasy-12 and Lasy-12P when the appropriate DC power supplies are used.
Peak power¹	12	30	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability¹	±10%	±10%	
Wavelength (μm)¹	Around 10.6	Around 10.6	
Rise time (μs)¹	200	50	
Fall time (μs)¹	200	80	
Electronic PWM parameters¹	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.5 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current¹	7 Amp	5 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp¹	5-40 C	5-40 C	
Dimensions(inch)	20x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	



Factory warranty : One year for parts and labor due to manufacturing quality

MEDIUM POWER CO₂ LASER AT 9.3 μm

Options available

- Water cooling
- Real time power sampling
- Power stabilization



Specifications

Model	LASY-12-93	LASY-12P-93	LASY-12D-93
CW power	10	6 (average)	Lasy-12D-93 has features of both Lasy-12-93 and Lasy-12P-93 when the appropriate DC power supplies are used.
Peak power	10	25	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	±10%	±10%	
Wavelength (μm)	9.2-9.3	9.2-9.3	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 300 kHz, duty cycle 0-100%	Any frequency up to 300 kHz, duty cycle 0-25%, pulse length to 0.8 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	7 Amp	4 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	20x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	



Factory warranty : One year for parts and labor due to manufacturing quality

MEDIUM POWER CO₂ LASER

Model LASY-16

Options available

- Water cooling
- Real time power sampling
- Power stabilization



Specifications (tentative)

Model	LASY-12	LASY-12P	LASY-12D
CW power	16	7 (average)	Lasy-12D has features of both Lasy-12 and Lasy-12P when the appropriate DC power supplies are used.
Peak power	16	30	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	±10%	±10%	
Wavelength (μm)	Around 10.6	Around 10.6	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-25%, pulse length to 0.5 ms	
Supply Voltage	36 VDC	48 VDC	
Supply Current	7 Amp	5 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	20x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	

Factory warranty : One year for parts and labor due to manufacturing quality



MEDIUM POWER CO₂ LASER

Model LASY-20

Options available

- Water cooling
- Real time power sampling
- Power stabilization



Specifications

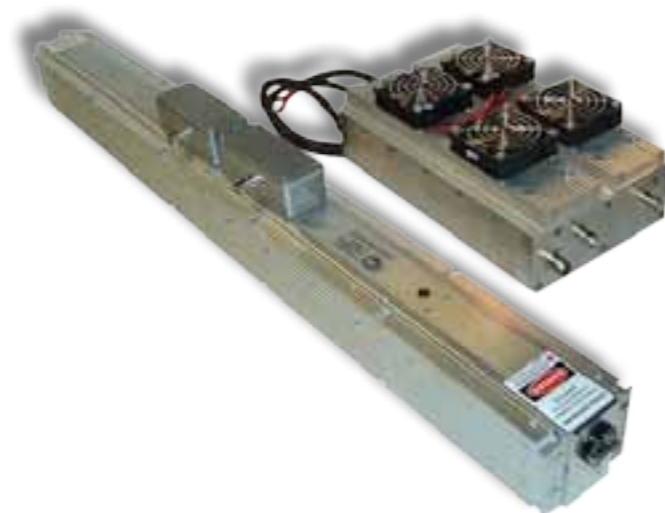
Model	LASY-20	LASY-20P	LASY-20D
CW power	20	14 (average)	Lasy-20D has features of both Lasy-20 and Lasy-20P when the appropriate DC power supplies are used.
Peak power	20	60	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	± 5%	± 5%	
Wavelength (μm)	Around 10.6	Around 10.6	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.5 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	13 Amp	9 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	28x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	

Factory warranty : One year for parts and labor due to manufacturing quality



MEDIUM POWER CO₂ LASER AT 9.3 μm

Model LASY-20



Options available

- Water cooling
- Real time power sampling
- Power stabilization

Specifications

Model	LASY-20-93	LASY-20P-93	LASY-20D-93
CW power	20	12 (average)	Lasy-20D-93 has features of both Lasy-20-93 and Lasy-20P-93 when the appropriate DC power supplies are used.
Peak power	20	50	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	± 10%	± 10%	
Wavelength (μm)	9.2-9.3	9.2-9.3	
Rise time (μs)	200	70	
Fall time (μs)	200	80	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-25%, pulse length to 0.4 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	13 Amp	9 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	28x3.8x2.8 (4.0 with fans mounted)	28x3.8x2.8 (4.0 with fans mounted)	



Factory warranty : One year for parts and labor due to manufacturing quality

TUNABLE CARBON MONOXIDE LASER

Model LASY-20



Options available

- Grating tuning to achieve single wavelength.

Specifications

Model	LASY-20CO
CW power	3 watt
Peak power	3 watt
M²	< 1.4
Beam waist diameter	2.2 mm
Waist location	Output coupler
Full Div. Angle	5.5 mrad
Power stability	± 5%
Wavelength (μm)	5.2- 5.6 μm, multi-line
Rise time (μs)	500
Fall time (μs)	500
Electronic PWM parameters	Any frequency up to 10 kHz, duty cycle 0-100%
Supply Voltage	28 VDC
Supply Current	14 Amp
Cooling Requirement	Water, temperature 10-20 °C, stability ±0.1 °C, flow rate 1 GPM
Working Temp	5-40 °C
Dimensions(inch)	32x3.8x4.0

Factory warranty : One year for parts and labor due to manufacturing quality



MEDIUM POWER CO₂ LASER

Model LASY - 20 / PP / DPP

Options available

- Water cooling
- Real time power sampling
- Power stabilization

Specifications

Model	LASY-20	LASY-20PP	LASY-20DPP
CW power	25	14 (average)	Lasy-20DPP has features of both Lasy-20 and Lasy-20PP when the appropriate DC power supplies are used.
Peak power	25	100	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	± 5%	± 5%	
Wavelength (μm)	Around 10.6	Around 10.6	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-10%, pulse length to 200 μs	
Supply Voltage	28 VDC	48 VDC	
Supply Current	13 Amp	10 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	28x3.8x2.8 (4.0 with fans mounted)	28x3.8x2.8 (4.0 with fans mounted)	



Factory warranty : One year for parts and labor due to manufacturing quality

MEDIUM POWER CO₂ LASER

Model LASY - 20G

Options available

- Automated tuning
- External AOM modulator
- Isotopic gas fill
- Power stabilization

Specifications

Model	LASY-20G	LASY-20GP	LASY-20GD
CW power	8	5(average)	Lasy-20GD has features of both Lasy-20G and Lasy-20GP when the appropriate DC power supplies are used.
Peak power	8	24	
M²	< 1.2	< 1.2	
Beam waist diameter (10.6 μm)	2.4 mm	2.4 mm	
Full Div. Angle (10.6 μm)	5.5 mrad	5.5 mrad	
Power stability	± 5%	± 5%	
Wavelength (μm)	9.2-10.7	9.2-10.7	
Min. No. of Lines	50	55	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.5 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	14 Amp	9 Amp	
Cooling Requirement	H ₂ O, 0.5 GPM, ±0.1C	H ₂ O, 0.5 GPM, ±0.1C	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	32x3.8x2.8 (4.0 with fans mounted)	32x3.8x2.8 (4.0 with fans mounted)	



Factory warranty : One year for parts and labor due to manufacturing quality

TUNABLE CARBON MONOXIDE LASER

Options available

- Power stabilization with closed loop temperature control.
- Fixed wavelength within the range of 5.3- 5.7 μm

Specifications

Model	LASY-20GCO
CW power	500 mw minimum for strongest lines
Peak power	500 mw
M ²	< 1.2
Beam waist diameter	2.2 mm
Waist location	Output coupler
Full Div. Angle	5.5 mrad
Power stability	± 5%
Wavelength (μm)	5.3- 5.7 μm
Rise time (μs)	500
Fall time (μs)	500
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%
Supply Voltage	28 VDC
Supply Current	14 Amp
Cooling Requirement	Water, temperature 10-20 °C, stability ± 0.1 °C, flow rate 1 GPM
Working Temp	5-40 °C
Dimensions(inch)	32x3.8x4.0

Factory warranty : One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



PULSED CO₂ LASER

MODEL LASY-20PP

Options available

- Water cooling
- Real time power sampling
- 9.3 μm
- Power stabilization
- Grating tuned

Specifications

Max Average Power	14 watt (average)
Peak power	100 mw
Pulse energy	24 mj
Pulse duration	<200 μs
Wavelength	10.6 μm
M ²	< 1.1
Beam waist diameter	2.4 mm
Waist location	Output coupler
Full Div. Angle	5.5 mrad
Power stability	± 5%
Wavelength (μm)	Around 10.6
Rise time (μs)	<70
Fall time (μs)	<80
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-10%, pulse length to 0.2ms
Supply Voltage	48 VDC
Supply Current	9 Amp
Cooling Requirement	Forced air
Working Temp	5-40 °C
Dimensions(inch)	28x3.8x2.8 (4.0 with fans mounted)

Factory warranty : One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications are preliminary. Therefore they are subject to change. But we will notify the customer with any deviations from the above specifications.



STABILIZED, GRATINGLESS TUNABLE MEDIUM POWER CO₂ LASER

Model LASY-20S

Options available

- Tuning with piezo actuator
- Tuning with micrometer
- Forced Air Cooling
- Real time power sampling
- Polarization controlled

Specifications

Model	LASY-20S	LASY-20PS	LASY-20DS
CW power	20	12 (average)	L a s y - 2 0 D S h a s features of both Lasy-20S and Lasy-20PS when the appropriate DC power supplies are used.
Peak power	25	50	
M²	< 1.1	< 1.1	
Beam waist diameter	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle	5.5 mrad	5.5 mrad	
Power stability	± 2%	± 2%	
Wavelength (μm)	10.55-10.63 tunable	10.55-10.63 tunable	
Rise time (μs)	200	100	
Fall time (μs)	200	100	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-25%, pulse length to 0.8 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	13 Amp	9 Amp	
Cooling Requirement	Water, ±0.1C	Water, ±0.1C	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	LxHxW 30x3.8x3		



Factory warranty: One year for parts and labor due to manufacturing quality

Default Wavelength tuning: With temperature.

STABILIZED, GRATINGLESS TUNABLE MEDIUM POWER CO₂ LASER

Model LASY-20S

Options available

- Water cooling
- Real time power monitoring
- Power and wavelength stabilization

Specifications

Model	LASY-50	LASY-50P	LASY-50D
CW power (watts at strongest lines)	50	25 (average)	L a s y - 5 0 D h a s features of both Lasy-50 and Lasy-50P when the appropriate DC power supply is used.
Peak power (watts at strongest lines)	50	100	
M²	< 1.2	< 1.2	
Beam waist diameter (at 10.6 μm)	2.4 mm	2.4 mm	
Waist location	Output coupler	Output coupler	
Full Div. Angle (at 10.6 μm)	5.5 mrad	5.5 mrad	
Power stability	± 5%	± 5%	
Wavelength (μm)	10.5-10.7	10.5-10.7	
Rise time (μs)	200	70	
Fall time (μs)	200	90	
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%	Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.4 ms	
Supply Voltage	28 VDC	48 VDC	
Supply Current	28 Amp	18 Amp	
Cooling	Forced air	Forced air	
Working Temp	5-40 C	5-40 C	
Dimensions(inch)	32x3.8x8	32x3.8x8	



Factory warranty: One year for parts and labor due to manufacturing quality

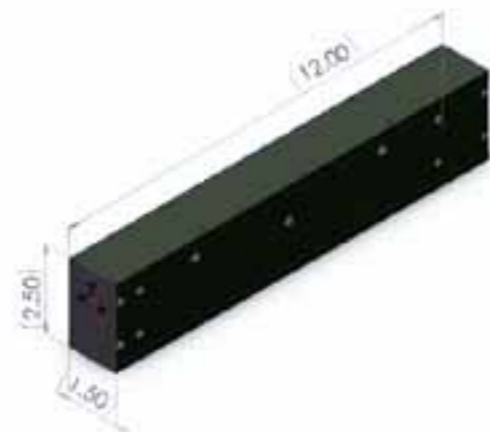


MEDIUM POWER CO₂ LASER

Model LASY - 5 / 9.3

Options available

- Heat sinks and fans mounted
- Water cooling
- Real time power sampling
- Super-pulse operation with 30 watt peak power
- External high speed modulator (up to 400 kHz)



Tentative specifications

Power	3 watts
Wavelength range	9.2 μm to 9.33 μm
Power stability	±15%
Mode	Near TEM ₀₀ , M ² < 1.1, diameter 2.3 mm, full divergence angle 5.2 mrad
Size	12.5" x 2.5" x 1.5" without heat sink
Cooling requirement	forced air
Power source	RF driver powered by 28 VDC at 5 amps. RF driver is included.
Factory warranty	One year for parts and labor due to manufacturing quality

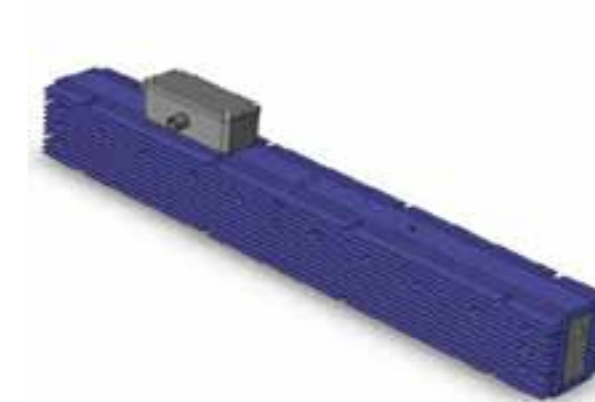


MEDIUM POWER CO₂ LASER

Model LASY - 12 / 9.3

Options available

- Water cooling
- Real time power sampling
- Super-pulse operation with 30 watt peak power
- External high speed modulator (up to 200 kHz)



Tentative specifications

Power	8 watts
Wavelength range	9.2 μm to 9.33 μm
Power stability	±15%
Mode	Near TEM ₀₀ , M ² < 1.2, diameter 2.3 mm, full divergence angle 5.2 mrad
Size	20" x 3.8" x 3"
Cooling requirement	forced air
Power source	RF driver powered by 28 VDC at 5 amps. RF driver is included.
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



MEDIUM POWER CO₂ LASER

Model LASY - 20 / 9.3



Options available

- Water cooling
- Real time power sampling
- Super-pulse operation with 55 watt peak power
- External high speed modulator (up to 200 kHz)

Tentative specifications

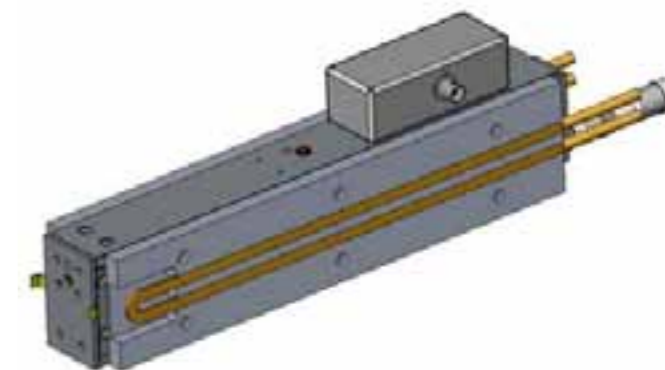
Power	15 watts
Wavelength range	9.2 μm to 9.33 μm
Power stability	±10%
Mode	Near TEM ₀₀ , M ² < 1.2, diameter 2.3 mm, full divergence angle 5.2 mrad
Size	28" x 3.8" x 3"
Weight	12lb
Cooling requirement	forced air
Power source	RF driver powered by 28 VDC at 13 amps. RF driver is included.
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



GRATING TUNABLE CO₂ LASER

Models LASY - 5G and LASY - 5GP



Options available

- Power stabilization with closed loop control with proper chiller, ±2%
- Power stabilization with Line Tracker, ±1%
- Real time power sampler
- Isotope gas fill for different wavelength range

Tentative specifications

	Standard (LASY-5G)	SUPER PULSED (LASY-5GP)
Laser Power	1 watt CW at the strongest line	4 watt peak at the strongest line (1kHz and 200 μs pulse length)
Number of lines	At least 40	At least 50
Power requirement	28 VDC, 6 amps	48 VDC, 4 amps

Wavelength range	9.2 μm to 10.8 μm Power stability ±5% typical for the strong lines
Laser mode	Near TEM ₀₀ , M ² < 1.2; beam diameter 2.4 mm, full divergence angle 5.5 mrad
Dimensions	13" x 2.5" x 3" (without micrometer and cooling pipes)
Cooling requirement	water cooling 0.3 GPM with temperature stability at ±0.1 C°.
Factory warranty	parts and labor due to manufacturing quality within one year.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.

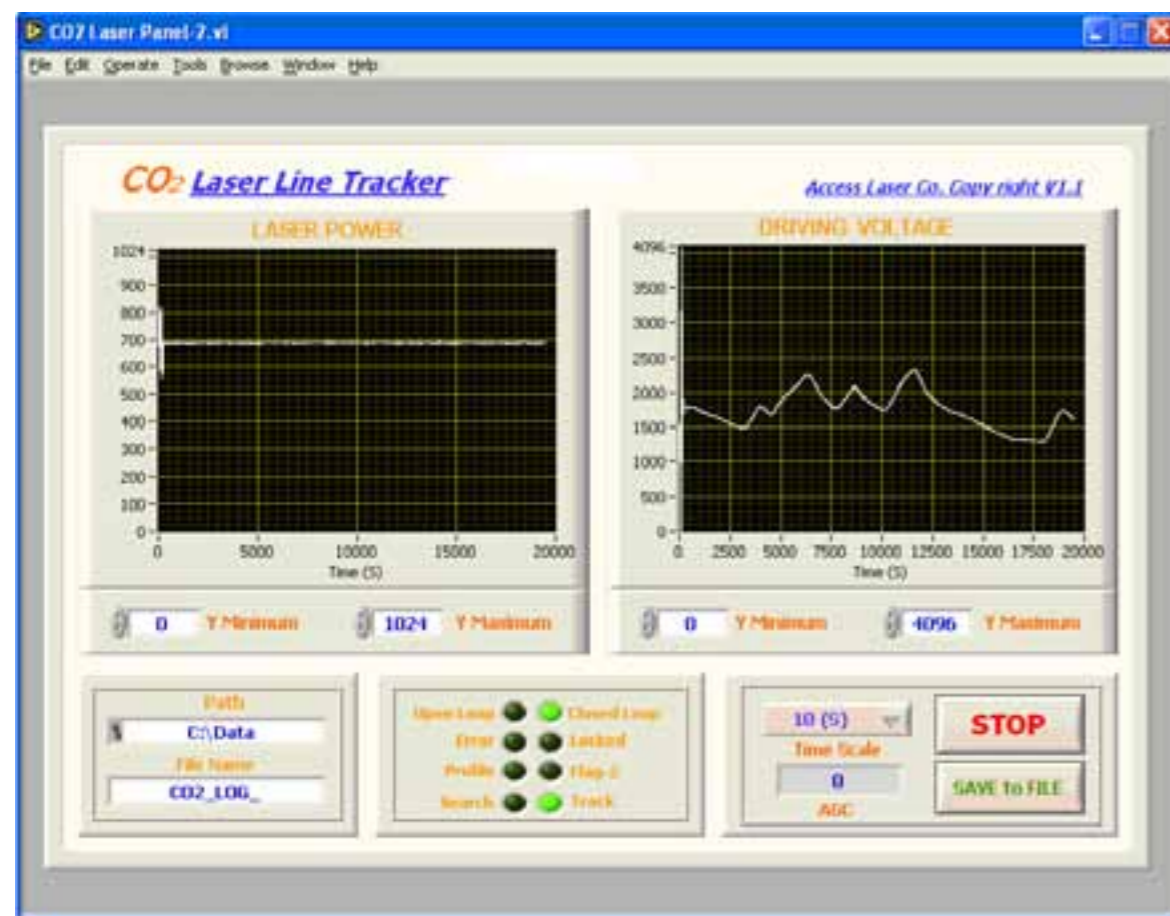


Line Tracker

Closed - loop Spectrum / Power Stabilizer

Line tracker is an accessory that keeps a CO₂ laser in a fixed wavelength at very high degree of power stability and frequency stability. It consists of a beam sampling assembly, Piezo actuator mounted on the laser and a controller. The Line Tracker can be connected to a computer through an RS-232 interface for information and data logging.

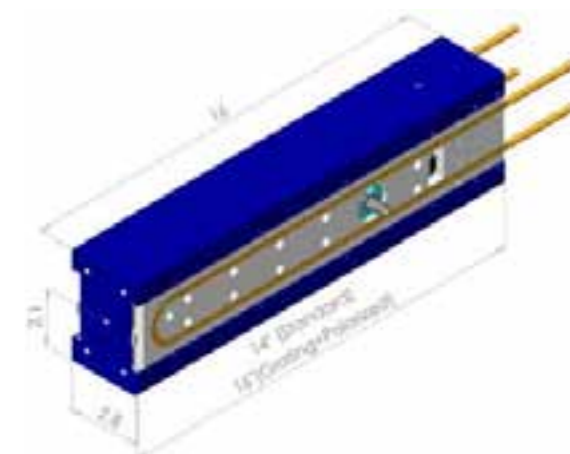
Any of the Access Laser stabilized laser products, such as Lasy-3S, Lasy- 4S, Merit-S, etc., can be equipped with Line Tracker to achieve more robust, longer term operation of +2% power stability, even in out-door applications where the ambient environment fluctuates.



Above is a screen of its computer interface. The plot on the left is laser power over five hours of continues operation with a stability of better than ±1%. The plot on the right shows the closed-loop control signal. This plot is obtained with a Access Lasy-4S laser

RF EXCITED CO LASER

Model MERIT-CO



Specifications

Power	1 watt
Wavelength range	5.2-5.8 μm, multiple lines.
Power stability	±5% after warming up, water cooling.
Laser mode	Near TEM ₀₀ , M ² < 1.2; beam diameter at exit: 2.4 mm; beam divergence angle: 4.5 mrad
Dimensions	14" x 4" x 3"
Cooling requirement	water or force air (with TE cooler)
Power source	28 VDC at 6 amps.
Factory warranty	Six months for parts and labor due to manufacturing quality
Option	Closed loop stabilization for water cooling, requires chiller with external sensing capability. Call factory for details. Closed loop stabilization for forced air cooling, requires TE cooler assembly.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



GRATING TUNABLE CO₂ LASER

Options available

- Single fixed wavelength (factory preset)
- Power stabilization with closed loop control, ±3%
- Water cooling
- Cold plate cooling
- Isotope gas fill for different wavelength range



Tentative specifications

Model	Merit-G (standard)	Merit-GP (Super pulsed)
Output Power	2 watt CW at the strongest line	6 watt peak at the strongest line (200 μs pulse at 1 kHz)
Number of lines	At least 50	At least 55
Power requirement	28 VDC, 7 amps	48 VDC, 4 amps

Range of wavelength	9.2 μm to 10.8 μm.
Power stability	±5% Typical for the strong lines
Laser mode	TEM ₀₀ , M ² < 1.2; beam diameter atexit: 2.4 mm; beam divergence angle: 5.5 mrad
Dimensions	16" x 4.1" x 2.8"
Cooling requirement	forced air
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.

- Specifications subject to change without notice.

- Other tunable laser available at lower or higher power levels and different tuning ranges.



Electro-Optical Modulator

Model EOM-3



Specifications

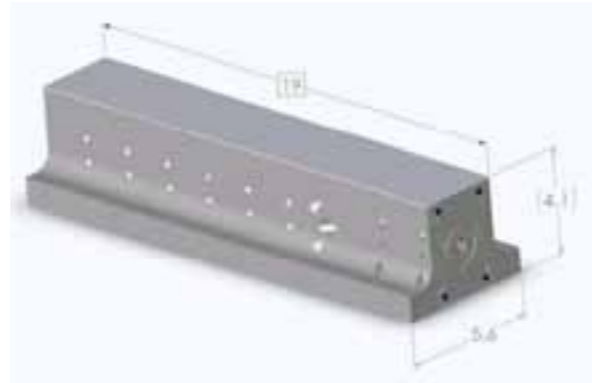
Maximum throughput power	20 watt average
Wavelength	10.6 μm
Depth of modulation	more than 25%
Power Throughput	more than 95%
Clear aperture	1.8 x 1.8 mm
Optical rise and fall times	0.5 ns.
System rise and fall times	15 ns**
Pulse length	40 ns to 1 ms.
Modulation frequency	Single pulse to 20 kHz continuous, up to 5 MHz burst**
Modulation input	TTL 50 ohms
Power source	DC 28 V 1 amp, regulated.
Factory warranty	One year parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.
- Performance limited by high voltage pulse generator, not by EOM crystal.



High Speed Modulated CO₂ LASER

Model MERIT - M



Specifications

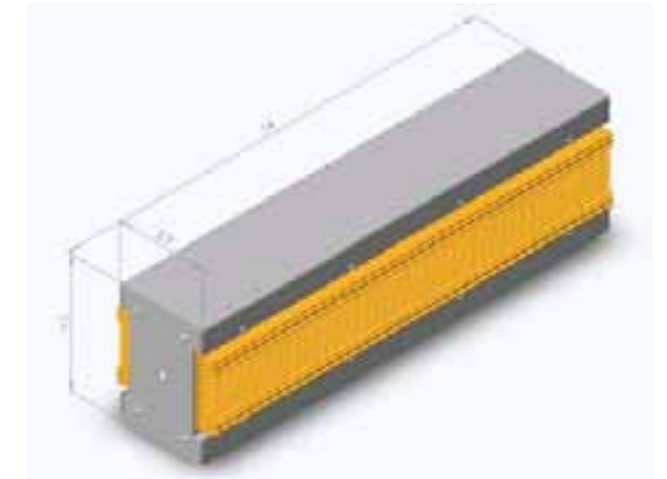
Pulse Repetition frequency	1MHz to 100 MHz
Pulse length	< 4 ns
Peak Laser Power	1 watt
Wavelength range	10.6 μm nominal
Power stability	±10% typical
Factory warranty	One year for parts and labor due to manufacturing quality
Laser beam parameters	Near TEM ₀₀ , M ² < 1.2; beam diameter at exit: 1 mm; beam divergence angle: 14 mrad
Dimensions	19" x 4.1" x 5.6"
Cooling requirement	cold plate
Power source	28 VDC at 6 amps, 15 VDC at 500mA
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



SUPER - PULSED CO₂ LASER

Model MERIT - P



Options

- Wavelength tunable
- Water cooling
- Real time power sampler
- 9.3 μm wavelength

Specifications

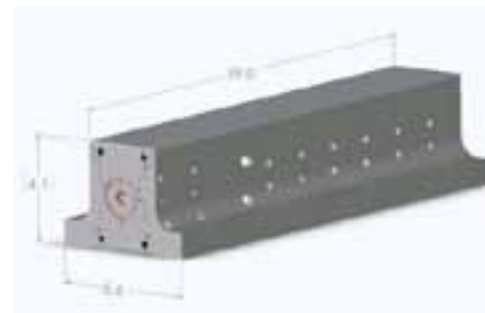
Pulse energy	5 mJ pulse energy from 200 μsec pulses (25 watt peak power)
Wavelength range	10.3 μm to 10.8 μm
Power stability	± 2%
Laser mode	Near TEM ₀₀ , M ² < 1.1, beam diameter 2.4 mm, full divergence angle 5.5 mrad
Pulse rise and fall times	less than 100 μsec, configurable.
Size	14" x 4" x 3" (please consult the factory for water cool and forced air cooled options)
Cooling requirement	forced air or water
Power source	48 VDC at 5 amps.
Factory warranty	One year for parts and labor.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



Q - Switched CO₂ LASER

Model MERIT - Q



Specifications

Pulse energy	40 μj
Peak power	500 watt
Pulse length	<150 ns
Pulse Repetition frequency	up to 20 kHz
Wavelength	10.6 μm nominal
Power stability	±5% typical
Laser beam parameters	Near TEM ₀₀ , M ² < 1.4; beam diameter at exit: 0.7 mm; beam divergence angle: 20 mrad
Dimensions	19" x 4.1" x 5.6"
Cooling requirement	cold plate
Options	Consult the factory for desired options.
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.

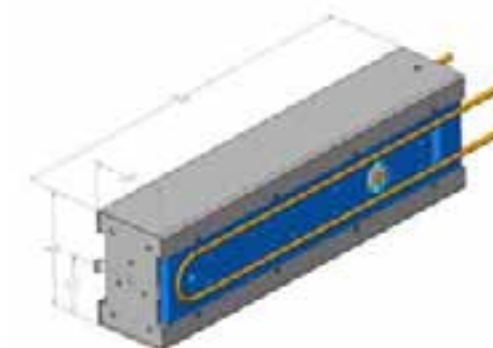


STABILIZED CO₂ LASER

Model MERIT - S

Options

- Single wavelength (factory preset)
- Wavelength tunable
- Water cooling
- Forced air cooling
- Real time power monitor
- Super pulse: 25 watt peak power, 6 watt average.



Specifications

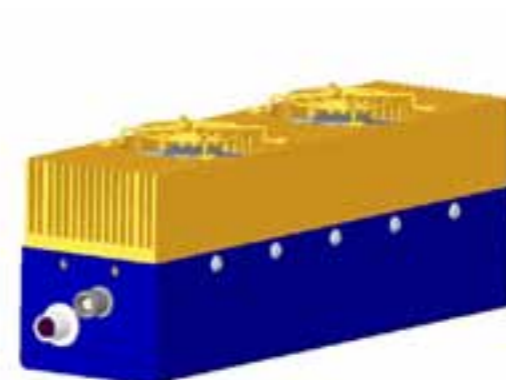
Power	8 watts
Wavelength range	10.5 μm to 10.7 μm, tuned by temperature.
Power stability	± 2%
Laser mode	Near TEM ₀₀ , M ² < 1.2; beam diameter at exit: 2.4 mm; beam divergence angle: 5.5 mrad
Pulse rise and fall times	less than 100 μsec, configurable.
Size	14" x 4" x 3" (please consult the factory for water cool and forced air cooled options)
Cooling requirement	forced air (picture shows an optional water cooled version)
Power source	28 VDC at 7 amps.
Factory warranty	One year for parts and labor due to manufacturing quality

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



RF Driver for Acousto - Optical Modulators

Model RF06



Specifications

Features	External TTL Control Input up to 100 KHz Forced Air Cooling, no water necessary
Frequency	40.68 MHz
DC Requirement	28 VDC, 5 A
Laser mode	Near TEM ₀₀ , M ² < 1.2; beam diameter at exit: 2.4 mm; beam divergence angle: 5.5 mrad
Output power	60 watt CW
Dimensions	9.6 inch X 3.4 inch X 2.7 inch
Caution	<ol style="list-style-type: none"> 1. Never operate the RF driver without its output properly connected to the load. 2. Do not block the air flow to and from the heat sink. 3. Do not gate the RF driver at frequencies above 100 kHz.

- Specifications subject to change without notice



CARBON MONOXIDE LASER

Model CO - 20

Options

- Power controller: Synrad model UC-2000
- Line tunable with a grating cavity.

Specifications

General description: CO laser, modified from Synrad model 48-2 CO₂ laser.

wavelength: multiple line output from 5.2 to 5.7 μm simultaneously

power: 3 watts

power stability: +-10% with water cooling after 30 minutes warm up

mode: near TEM₀₀, M² < 1.8

Requirements

power: 30VDC at 16 amps

water cooling: 15 to 25 degrees Celsius, above dew point, ±0.1 °C stability

Factory warranty: parts and labor due to manufacturing quality within the first year.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



CARBON MONOXIDE LASER

Model CO - 30

Options

- Power controller: Synrad model UC-2000
- Line tunable with a grating cavity.

Specifications

General description: Carbon Monoxide laser, modified from Synrad model Evolution 100 CO₂ laser

wavelength: 5.3-5.8 μm, multi-line operation

power: 18 watts

power stability: +-10% with water cooling after 30 minutes warm up

mode: near TEM₀₀, M² < 1.8

Requirements

power: 30VDC at 80 amps

water cooling: 15 to 20 degrees Celsius, above dew point, ±0.1 °C stability

Factory warranty: parts and labor due to manufacturing quality within the first year.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



GRATING TUNED CO₂ LASER

Model G30

Options

- Power controller: Synrad model UC-2000
- High speed external cavity modulator, up to 200 kHz, model AO-OP1
- Isotope CO₂ gas fills for wavelengths up to 11.2 μm

Specifications

General description:

Grating tuned CO₂ laser, modified from Synrad model Evo-100 with manual tuning.

wavelength: Selectable from 9.2 to 10.8 μm with a minimum of 70 lines

power: at least 60 watts at the most powerful line

power stability: +-5% with water cooling after 30 minutes warm up

mode: near TEM₀₀, M² < 1.6

Requirements

power: 30VDC at 80 amps

water cooling: 15 to 25 degrees Celsius, above dew point, ±0.1 °C stability, 2GPM.

Factory warranty: parts and labor due to manufacturing quality within the first year.

- We strive to satisfy custom requirements. Please contact us if you have other special needs.
- Specifications subject to change without notice.



GRATING TUNED CO LASER

Model G30 - CO

Options

- Power controller: Synrad model UC-2000

Specifications

General description:

Grating tuned Carbon Monoxide laser, modified from Synrad model Evolution 100 with manual tuning.

wavelength: Selectable from 5.3 to 6.2 μm with a minimum of 40 lines

power: at least 2 watts at the most powerful line

power stability: $\pm 10\%$ with water cooling after 30 minutes warm up

mode: near TEM_{00} , $M^2 < 1.8$

Requirements

power: 30VDC at 80 amps

water cooling: 15 to 20 degrees Celsius, above dew point, ± 0.1 °C stability, 2 GPM

Factory warranty: parts and labor due to manufacturing quality within the first year.

- We strive to satisfy custom requirements.
Please contact us if you have other special needs.
- Specifications subject to change without notice.

