

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.



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-400m
Wavelength range	10.3 µm to 10.
Power stability	better than ±20
Laser mode	Low order, M ² angle 5.5 mrac
Size	7.5" x 2.5" x 1.
Cooling requirement	free air or force
Power source	RF driver power driver and the and external A
One Charge Battery Lifetime	depending on
Weight	3.5 lbs standar
Factory warranty	north and labor





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w

.63 µm

0%

< 1.1, beam diameter 2.4 mm, full divergence d

5" plus the power handle

ed air

batteries are in the power handle. Battery charger AC/DC power supply included.

power, from 30 min to 90 min.

rd, 5lbs with invar structure.

r due to manufacturing quality within one year.



8-	Light Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	 Imaging 	ectroscopes
237	Lasers ·	Components ·	Detection .	Tests ·	Solar Cells ·	Semiconductors ·	CCD Cameras	



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
Power stability	±20%
Laser mode	Near TEM ₀₀ , M ² angle 5.5 mrad
Size	7.5" x 2.5" x 2"
Cooling requirement	free air or force
Power source	RF driver power supply are inclu
Factory warranty	One year parts



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<sup>2</sup> < 1.1, beam diameter 2.4 mm, full divergence
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ed air

ered by 12V DC. Both RF driver and DC power uded as part of the laser purchase.

and labor due to manufacturing quality







LOW POWER CO₂ LASER

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

LOW POWER CO₂ LASER

Model LASY-4

Options available

Specifications

Power

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



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

1 watt
10.3 µm to 10.8
±15%
Near TEM ₀₀ , M ² angle 5.5 mrad.
12.5" x 2.5" x 3'
forced air
RF driver power and DC power s
One year parts



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" x2.5" 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.

100 mw







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² < 1.1, beam diameter 2.4 mm, full divergence .

ered by 12-16 VDC at 3-4 amps. Both RF driver supply are included as part of the laser purchase.

and labor due to manufacturing quality





LOW POWER CO₂ LASER

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

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	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



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 line grating.
Power stability	± 2% (ambient
Laser mode	Near TEM ₀₀ , M 5.5 mrad
Size	7.5" x2.5" x 4"
Power source	RF driver powe
Factory warranty	parts and labor
Included	Closed-loop te
Resonator Support	Low expansion
Cooling requirement	forced air inclu

• Specifications subject to change without notice.

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





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es between 10.3 µm and 10.8 µm tuned without a

temperature kept within 2 °C)

 $1^2 < 1.1$, beam diameter 2.4 mm, full divergence angle

ered by 12VDC.

- due to manufacturing quality within the first year.
- mperature controller, RF driver and AC/DC adapter.
- alloy Invar.
- lded



Spectroscopes	С
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Mechanics · Positioning	Components ·
Light Sources	Lasers ·
8 -	243



LOW POWER CO₂ LASER

Model LASY-4G

Options available

- External high speed modulator (up to 200 kHz)
- Isotope CO_2 gas fills for wavelengths up to 11.2 μ m
- Power stabilization to within ±3%
- Water cooling(customer to supply cooling water)



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

1 watt
Complete Invai cavity length, h
At least 8 lines controller.
± 2% (ambient
7.5" x2.5" x 4"
Near TEM ₀₀ , M 5.5 mrad
Length x Heigh and fans.
Low expansion
forced air inclu
RF driver powe
parts and labor
Closed-loop ter

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

Specifications

Power	Minimum 200 mw for the strongest line
Wavelength range	9.3 μm to 10.8 $\mu m,$ 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.

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

· Specifications subject to change without notice.



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r structure for laser cavity, closed-loop control on highly stable in both wavelength and power.

between 10.3 µm and 10.8 µm tuned by temperature

temperature kept within 2 °C)

 l^2 < 1.1, beam diameter 2.4 mm, full divergence angle

nt x Width: 12.5" x2.5" x 4.5", width including heat sink

alloy, Invar.

ded

ered by 12VDC, both included.

due to manufacturing quality within the first year.

mperature controller, RF driver and DC adapter.



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
Peak power	5	20	5P when the appropriate
M ²	< 1.1	< 1.1	DC power supplies are used.
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)	6.10

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.



Models LASY-5G and LASY-5GP

Spe

cifications			ectroscopes
	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)	CD Carr
Number of lines	At least 40	At least 50	ig
Power requirement	28 VDC, 5 amps	48 VDC, 4 amps	Semiconc Communi
Wavelength range	9.3 µm to 10.8 µm		cation
Power stability	±10% typical for the s	trong lines	- 00 U
Laser mode	Near TEM ₀₀ , M ² < 1.2; 5.5 mrad	beam diameter 2.4 mm, full divergence angle	Solar C Lightin
Dimensions	12.5" x 2.5" x 3"		g vells .
Cooling requirement	forced air provided		
Laser mode	Near TEM ₀₀ , M ² < 1.1, 5.5 mrad	beam diameter 2.4 mm, full divergence angle	Tests · Instruments
ions available			
Single fixed waveler	ngth (factory preset)	1 11	etectic
Power stabilization v	with closed loop control, ±3%		on .
Real time power san	npler		
Water cooling		Compc	
Cold plate cooling		5	nics ·
Isotope gas fill for di	fferent wavelength range		Positioning
We strive to satisfy of Please contact us if	custom requirements. you have other special needs.	DANGER	
Specifications subject	ct to change without notice.	MATCHINE LANDR RADANTION-WOOD FVE OF SIGN EXPOSURE TO DREET OF SOATESED RADATON Max parents \$200 Wavelengths 9 - 12 pm CLASS // LASER PRODUCT	ght Sources
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cifications			ectroscopes	
	Standard (LASY-5G)	SUPER PULSED (LASY-5GP)		\bigcirc
Laser power	1 watt CW at the strongest line	4 watt peak at the strongest line (1kHz and 200 µs pulse length)	• Imagir	CD Can
Number of lines	At least 40	At least 50	Di	ieras
Power requirement	28 VDC, 5 amps	48 VDC, 4 amps	Communi	Semicond
Wavelength range	9.3 µm to 10.8 µm		cation	uctors
Power stability	±10% typical for the	strong lines	0	0
Laser mode	Near TEM ₀₀ , M ² < 1. 5.5 mrad	2; beam diameter 2.4 mm, full divergence angle	Lighting	Solar C
Dimensions	12.5" x 2.5" x 3"	12.5" x 2.5" x 3"		ells .
Cooling requirement	forced air provided			
Laser mode	Near TEM ₀₀ , M ² < 1. 5.5 mrad	1, beam diameter 2.4 mm, full divergence angle	Instruments	Tests ·
ions available			0	
Single fixed waveler	ngth (factory preset)	111	ensors	etectic
Power stabilization	with closed loop control, ±3%	8 10		· nc
Real time power sar	npler			
Water cooling			Mecha	Compo
Cold plate cooling		nics ·	onents	
Isotope gas fill for di	fferent wavelength range		Positionin	۰
We strive to satisfy of Please contact us if	custom requirements. you have other special needs.	DANGER		5
 Specifications subje 	ct to change without notice.	MATCHER LACEN RACIA TON-AVOID FIE OF SON EPPOUNE TO DESCT OF SOATERED RAAMTON Max permans DOW Wavelengths 9 - 12 pm CLASS IV LASER PRODUCT	ght Sources	asers ·
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STABILIZED CO₂ LASER

Model LASY-5SA

Options available

Specifications

- 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.



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

· Specifications subject to change without notice.



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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

5 watt
10.3 µm to 10.8 µm
±2%
Near TEM ₀₀ , M ² < 1. full divergence angle
12.5" x 2.5" x 2.3"
water cooling, ±0.1
Length x Height x W width including hea
Low expansion alloy
water cooling, ±0.1
RF driver powered b
One year for parts a

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

Specifications subject to change without notice.

LASER





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tunable by temperature, at least 8 lines.

.2, beam diameter 2.4 mm, le 5.5 mrad

C, 0.5 Gallons per minute.

/idth: 12.5" x2.5" x 4.5", t sink and fans.

v. Invar.

C, 0.5 Gallons per minute.

by 28 VDC at 5 amps. RF driver included.

and labor due to manufacturing quality



	Lighting Instruments Sensors Mechanics ·	Solar Cells · Tests · Detection · Components
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CCD Camer Imaging

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
Peak power ¹	12	30	Lasy-12P when the
M ²	< 1.1	< 1.1	appropriate DC powe supplies are used
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 ¹	±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 parameters ¹	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	1
Supply Voltage	28 VDC	48 VDC	
Supply Current ¹	7 Amp	5 Amp	
Cooling Requirement	Forced air	Forced air	
Working Temp ¹	5-40 C	5-40 C	DANGER
Dimensions(inch)	20x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	DANGER



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MEDIUM POWER CO₂ LASER AT 9.3 µm

Options available

- Water cooling
- Real time power sampling
- Power stabilization

Specifications

10			9
	6 (average)	Lasy-12D-93 has	nting
10	25	features of both Lasy- 12-93 and Lasy- 12P-93 when the appropriate DC power supplies are used.	
< 1.1	< 1.1		
2.4 mm	2.4 mm		Inst
Output coupler	Output coupler		rum
5.5 mrad	5.5 mrad		ents
±10%	±10%		
9.2-9.3	9.2-9.3		Sel
200	100		nsors
200	100		
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		Mechan
28 VDC	48 VDC		ics •
7 Amp	4 Amp		Pos
Forced air	Forced air		itioning
5-40 C	5-40 C	DANGER	
20x3.8x2.8 (4.0 with	20x3.8x2.8 (4.0 with	DANGER	Lig
	10 < 1.1 2.4 mm Output coupler 5.5 mrad ±10% 9.2-9.3 200 200 Any frequency up to 300 kHz, duty cycle 0-100% 28 VDC 7 Amp Forced air 5-40 C 20x3 8x2 8 (4.0 with	10 25 < 1.1	102512-93 and Lasy- 12P-93 when the appropriate DC power supplies are used.2.4 mm2.4 mm0utput coupler0.utput couplerOutput coupler5.5 mrad5.5 mrad±10%±10%9.2-9.39.2-9.3200100200100200100Any frequency up to 300 kHz, duty cycle 0- 25%, pulse length to 0.8 ms28 VDC48 VDC7 Amp4 AmpForced airForced air5-40 C5-40 C20x3 8x2 8 (4 0 with 20x3 8x2 8 (4 0 with

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CCD Came Imaging

MEDIUM POWER CO₂ LASER

Model LASY-16

Options available

Water cooling

Power stabilization

Specifications (tentative)

• Real time power sampling

Model	LASY-12	LASY-12P	LASY-12D
CW power	16	7 (average)	Lasy-12D has features
Peak power	16	30	Lasy-12P when the
M ²	< 1.1	< 1.1	appropriate DC power supplies are used.
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	DANCER
Dimensions(inch)	20x3.8x2.8 (4.0 with fans mounted)	20x3.8x2.8 (4.0 with fans mounted)	DANGER



MEDIUM POWER CO₂ LASER

Model LASY-20



Options available

- Water cooling
- · Real time power sampling
- Power stabilization

Specifications

Model	LASY-20
CW power	20
Peak power	20
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)	200
Fall time (µs)	200
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%
Supply Voltage	28 VDC
Supply Current	13 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





CCD Cameras Imaging

munications

Lighting Solar Cells

Instruments

Sensors Detection

Mechanics Components

Positi

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14 (average)

60

< 1.1

2.4 mm

Output coupler

5.5 mrad

± 5%

Around 10.6

100

100

Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.5 ms

48 VDC

9 Amp

Forced air

5-40 C

20x3.8x2.8 (4.0 with fans mounted)

Lasy-20D has features of both Lasy-20 and Lasy-20P when the appropriate DC power supplies are used.







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
Peak power	20	50	20-93 and Lasy-
M ²	< 1.1	< 1.1	20P-93 when the appropriate DC power
Beam waist diameter	2.4 mm	2.4 mm	supplies are used.
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)	DANGER



TUNABLE CARBON MONOXIDE LASER

Model LASY-20



Options available

· Grating tuning to achieve single wavelength.

Specifications

Model	
CW power	3 watt
Peak power	3 watt
M ²	< 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
Rise time (µs)	500
Fall time (µs)	500
Electronic PWM parameters	Any frequency up
Supply Voltage	28 VDC
Supply Current	14 Amp
Cooling Requirement	Water, temperatu
Working Temp	5-40 °C
Dimensions(inch)	32x3.8x4.0

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



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

CO₂

LASER





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-line

to 10 kHz, duty cycle 0-100%

re 10-20 °C, stability ±0.1 °C, flow rate 1 GPM



Sources	ng Light	Mechanics · Positionii	Sensors	Instruments	Lighting	Communications	 Imaging 	troscopes
7 •	Laser	Components ·	Detection .	Tests .	Solar Cells ·	Semiconductors ·	CCD Cameras	

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
Peak power	25	100	20 and Lasy-20PP
M ²	< 1.1	< 1.1	when the appropriate DC power supplies
Beam waist diameter	2.4 mm	2.4 mm	are used.
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	DANCER
Dimensions(inch)	28x3.8x2.8 (4.0 with fans mounted)	28x3.8x2.8 (4.0 with fans mounted)	DANGER



MEDIUM POWER CO₂ LASER

Model LASY - 20G

Options available

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

Specifications

Model	LASY-20G
CW power	8
Peak power	8
M ²	< 1.2
Beam waist diameter (10.6 μm)	2.4 mm
Full Div. Angle (10.6 µm)	5.5 mrad
Power stability	± 5%
Wavelength (µm)	9.2-10.7
Min. No. of Lines	50
Rise time (µs)	200
Fall time (µs)	200
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%
Supply Voltage	28 VDC
Supply Current	14 Amp
Cooling Requirement	H ₂ O, 0.5 GPM, ±0.1C
Working Temp	5-40 C
Dimensions(inch)	32x3.8x2.8 (4.0 with fans mounted)

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

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

CO₂

LASER



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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 Power stabilization
- · Real time power sampling

• 9.3 µm

· Grating tuned

Specifications

Max Average Power	14 watt (aver
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 pulse length to
Supply Voltage	48 VDC
Supply Current	9 Amp
Cooling Requirement	Forced air
Working Temp	5-40 °C
Dimensions(inch)	28x3.8x2.8 (4.0

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 are preliminary. Therefore they are subject to change. But we will notify the customer with any deviations from the above specifications.



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rage)

up to 100 kHz, duty cycle 0-10%, 0.2ms

with fans mounted)





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)	Lasy-20DS has
Peak power	25	50	20S and Lasy-20PS
M ²	< 1.1	< 1.1	when the appropriate DC power supplies
Beam waist diameter	2.4 mm	2.4 mm	are used.
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	DANGER
Working Temp	5-40 C	5-40 C	BUILDER LICER AND TOTAL OF H OR INFE ERFOLGE TO OPENT OF ICKTERED ADDITION
Dimensions(inch)	LxHx	W 30x3.8x3	Max parent Star Wandhagths 5-12 per

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
CW power (watts at strongest lines)	50
Peak power (watts at strongest lines)	50
M ²	< 1.2
Beam waist diameter (at 10.6 μm)	2.4 mm
Waist location	Output coupler
Full Div. Angle (at 10.6 μm)	5.5 mrad
Power stability	± 5%
Wavelength (µm)	10.5-10.7
Rise time (μs)	200
Fall time (µs)	200
Electronic PWM parameters	Any frequency up to 100 kHz, duty cycle 0-100%
Supply Voltage	28 VDC
Supply Current	28 Amp
Cooling	Forced air
Working Temp	5-40 C
Dimensions(inch)	32x3.8x8

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



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LASY-50P

- 25 (average)
- 100
- < 1.2
- 2.4 mm

Output coupler

- 5.5 mrad
- ± 5%
- 10.5-10.7
- 70
- 90
- Any frequency up to 100 kHz, duty cycle 0-30%, pulse length to 0.4 ms
- 48 VDC
- 18 Amp
- Forced air
- 5-40 C
- 32x3.8x8



LASY-50D

Lasy-50D has features of both Lasy-50 and Lasy-50P when the appropriate DC power supply is used.



Light	Las
Mechanics · Positioning	Components ·
Sensors	Detection ·
Instruments	Tests ·
Lighting	Solar Cells ·
Communications	Semiconductors ·

CCD Came Imaging

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MEDIUM POWER CO₂ LASER

Model LASY - 5 / 9.3

MEDIUM POWER CO₂ LASER

Model LASY - 12 / 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



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
Power stability	±15%
Mode	Near TEM ₀₀ , M mm, full diverg
Size	20" x 3.8" x 3"
Cooling requirement	forced air
Power source	RF driver powe
Factory warranty	One year for pa

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Specifications subject to change without notice.





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μm

*I*² < 1.2, diameter 2.3 gence angle 5.2 mrad

ered by 28 VDC at 5 amps. RF driver is included.

parts and labor due to manufacturing quality



nt Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	· Imaging	Spectroscopes
ers ·	Components · Las	Detection .	Tests ·	Solar Cells ·	Semiconductors ·	CCD Cameras	

MEDIUM POWER CO₂ LASER

Model LASY - 20 / 9.3

GRATING TUNABLE CO₂ LASER

Models LASY - 5G and LASY - 5GP

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

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· Specifications subject to change without notice.





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)
Laser Power	1 watt CW at the stronge
Number of lines	At least 40
Power requirement	28 VDC, 6 amps
Wavelength range	9.2 µm to 10.8 µm Powe
Laser mode	Near TEM ₀₀ , $M^2 < 1.2$; be full divergence angle 5.5
Dimensions	13" x 2.5" x 3" (without n
Cooling requirement	water cooling 0.3 GPM v
Factory warranty	parts and labor due to m

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8 - 264

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SUPER PULSED	(LASY-5GP)
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4 watt peak at the strongest line est line (1kHz and 200 µs pulse length) At least 50

48 VDC, 4 amps

er stability ±5% typical for the strong lines

- eam diameter 2.4 mm, 5 mrad
- nicrometer and cooling pipes)
- with temperature stability at ±0.1 C°.
- nanufacturing quality within one year.



Light Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	· Imaging	Spectroscopes
Lasers ·	Components ·	Detection ·	Tests ·	Solar Cells •	Semiconductors ·	CCD Cameras	

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Line Tracker

Closed - loop Spectrum / Power Stabilizer

RF EXCITED CO LASER

Model MERIT-CO

Line tracker is an accessory that keeps a CO_2 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

Specifications

Power	1 watt
Wavelength range	5.2-5.8 μm,
Power stability	±5% after w
Laser mode	Near TEM ₀₀ divergence
Dimensions	14" x 4" x 3'
Cooling requirement	water or for
Power source	28 VDC at 6
Factory warranty	Six months
Option	Closed loop with externa Closed loop cooler asse

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• Specifications subject to change without notice.



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multiple lines.

varming up, water cooling.

_o, M² < 1.2; beam diameter at exit: 2.4 mm; beam angle: 4.5 mrad

ce air (with TE cooler)

6 amps.

for parts and labor due to manufacturing quality

o stabilization for water cooling, requires chiller al sensing capability. Call factory for details. o stabilization for forced air cooling, requires TE embly.



t Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	· Imaging	rectroscopes
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GRATING TUNABLE CO₂ LASER

Electro-Optical Modulator

Model EOM-3

Specifications

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



Wavelength: 9 - 12 pm

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.

Wavelength	10.6 um
Depth of modulation	more than
Power Throughput	more than
Clear aperture	1.8 x 1.8 m
Optical rise and fall times	0.5 ns.
System rise and fall times	15 ns**
Pulse length	40 ns to 1 i
Modulation frequency	Single puls
Modulation input	TTL 50 ohr
Power source	DC 28 V 1
Factory warranty	One year p

Maximum throughput power

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- · Specifications subject to change without notice.
- · Performance limited by high voltage pulse generator, not by EOM crystal.



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20 watt average

25%

95%

nm

ms.

se to 20 kHz continuous, up to 5 MHz burst**

ms

amp, regulated.

parts and labor due to manufacturing quality



8 -	Light Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	· Imaging	Spectroscopes
269	Lasers ·	Components ·	Detection .	Tests ·	Solar Cells •	Semiconductors ·	CCD Cameras	



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

- CO₂ LASER
- 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



• 9.3 um wavelength

• Real time power sampler

· Wavelength tunable

Water cooling

Specifications

Options

Pulse energy	5 mJ pulse ener
Wavelength range	10.3 µm to 10.8
Power stability	± 2%
Laser mode	Near TEM ₀₀ , M ² full divergence a
Pulse rise and fall times	less than 100 µs
Size	14" x 4" x 3" (please consult options)
Size Cooling requirement	14" x 4" x 3" (please consult options) forced air or wat
Size Cooling requirement Power source	14" x 4" x 3" (please consult options) forced air or wat 48 VDC at 5 am
Size Cooling requirement Power source Factory warranty	14" x 4" x 3" (please consult options) forced air or wat 48 VDC at 5 am One year for par

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





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rgy from 200 µsec pulses (25 watt peak power)

μm

< 1.1, beam diameter 2.4 mm, angle 5.5 mrad sec, configurable.

the factory for water cool and forced air cooled

er

ips.

rts and labor.



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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 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
Power stability	± 2%
Laser mode	Near TEM ₀₀ , M ² beam divergence
Pulse rise and fall times	less than 100 µs
	14" x 4" x 0"
Size	(please consult options)
Size Cooling requirement	(please consult options)
Size Cooling requirement Power source	(please consult options) forced air (pictur 28 VDC at 7 am
Size Cooling requirement Power source Factory warranty	(please consult options) forced air (pictur 28 VDC at 7 amp One year for par

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

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RF Driver for **Acousto - Optical Modulators**

Model RF06

CARBON MONIXIDE LASER

Model CO - 20



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
	 Never operate the RF driver without its output properly connected to the load.
Caution	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



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, $M^2 < 1.8$

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.





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Light Sources	Mechanics · Positioning	Sensors	Instruments	Lighting	Communications	• Imaging	Spectroscopes
Lasers ·	Components ·	Detection ·	Tests ·	Solar Cells ·	Semiconductors ·	CCD Cameras	

CARBON MONIXIDE 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, $M^2 < 1.8$

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, $M^2 < 1.6$

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.

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CCD Cameras Imaging Communications Semiconductors Solar Cells Lighting lests Instruments Sensors Detection Mechanics Compo Positio Light Sources Lasers .



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 μ m with a minimum of 40 lines

power: at least 2 watts at the most powerful line

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

mode: near TEM₀₀, $M^2 < 1.8$

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.



8 - 278

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