RPMC Lasers, Inc.
203 Joseph St. ● O'Fallon, MO 63366 ● PH: 636-272-7227
www.rpmclasers.com ● info@rpmclasers.com

Multi-Watt Stabilized Matched Pair U-type

Features

- High Power Multi-Mode Fiber Coupled Output
- 1.1W, 1.5W, 3W standard, with higher power available upon request
- Wavelength Stabilized
- > 40 dB SMSR Typical
- Spectral Linewidth < 0.2 nm standard
- Narrowed Spectral Bandwidth available upon request (< 0.1 nm FWHM). Add" – NL" to part number

Standard Wavelengths

- 785 nm
- 808 nm
- 830 nm

Additional wavelengths available upon request

RPMC Lasers Inc.'s proprietary multi-mode wavelength stabilized laser features high output power with ultra-narrow spectral bandwidth. Designed to replace expensive DFB, DBR, fiber, and external cavity lasers, the multi-mode Spectrum Stabilized Laser offers superior wavelength stability over time, temperature, and vibration, and is manufactured to meet the most demanding wavelength requirements.

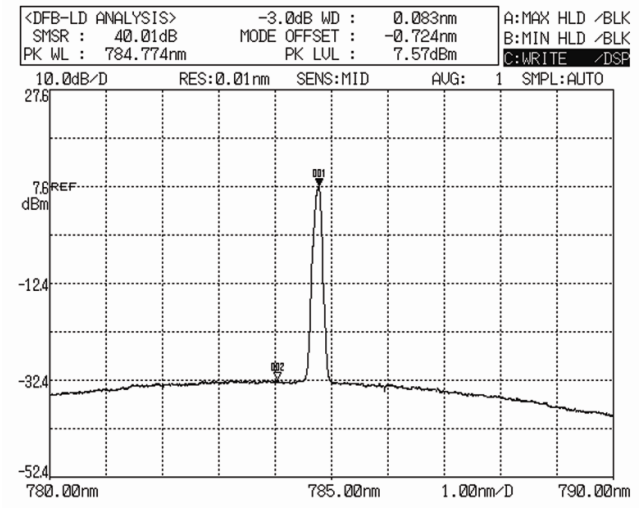
The laser's stabilized peak wavelength remains "locked" regardless of case temperature (15 to 45 deg. C). Devices can be spectrally tailored to suit application needs and offer side mode suppression ratios (SMSRs) better than 40 dB, thereby providing extremely high signal to noise ratio and making these sources ideal for Raman spectroscopy.

RPMC's high power Matched Pair U-types can be added together to achieve greater than 100 Watts of wavelength stabilized narrow linewidth multi-mode output power. Our three standard power levels are detailed in this product sheet. Please ask about custom power levels.

These U-types are configured as OEM components, but can be plugged into our M-type controller to give a UL/CE and IEC certified setup with "turn-key" operation. See p. 6 for information on this setup.

RoHS COMPLIANT

Typical Spectral Plot



Typical 785 nm SS Laser Spectrum (SMSR > 40 dB)

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1.1 Watt Stabilized Matched Pair U-type

1.1W Matched Pair U-type Optical Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth (Δλ)	< 0.2 nm
Narrowed (-NL) Spectral Linewidth	< 0.1 nm
SMSR	> 35 dB
Output Power Stability	1% typical

1.1W Matched Pair U-type Physical Specifications

Optical Fiber	200 micron core multimode fiber, 0.22 NA
Connector	SMA905
Electrical Connector	15-pin DSUB
Module Dimensions	10 x 8 x 2 inches
Module weight	910 grams (32 ounces)
Case Material	Anodized Aluminmum
Operating Temperature	15 to 35 degrees C
Environment	0-80% Humidity, non condensing
Storage Temperature	-10 to + 55 degress C

1.1 W Matched Pair U-type Electrical Requirements

Supply Voltage	4.9 V min to 5.1 V max
Power Consumption	4 W typical, 15 W maximum
Current	3 A minimum
Modulation Rate[1]	CW to 1KHz for 10% to 100% power, 10kHz at 50% duty cycle
Warm-up time	10 seconds from cold start
	1.5 seconds from warm start

Wavelength (nm)	Min. Power	Part Number
Standard Linewidth		
785	1.1 W	I0785MU1100M2S
808		I0808MU1100M2S
830		I0830MU1100M2S
Narrowed Linewidth		
785	1.1 W	I0785MU1100M2S-NL
808		I0808MU1100M2S-NL
830		I0830MU1100M2S-NL

Matched Pair U-type Module Pinout

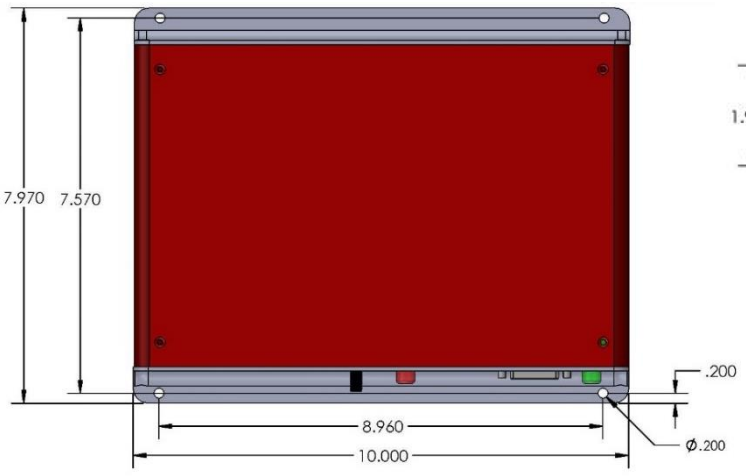
Pin #	Symbol	Description
1-4	GND	Ground
5	+5V	4.9 to 5.1 Volt
6	+5V	4.9 to 5.1 Volt
7	+5V	4.9 to 5.1 Volt
8	LD Enable	Tie to GND to DISABLE Laser output. Leave not connected or apply 3-5 Volt to enable Laser output
9-12	GND	Ground
13	+5V	4.9 to 5.1 Volt
14	+5V	4.9 to 5.1 Volt
15	LD SET	Apply 0 to 1.45 Volt to control optical output power

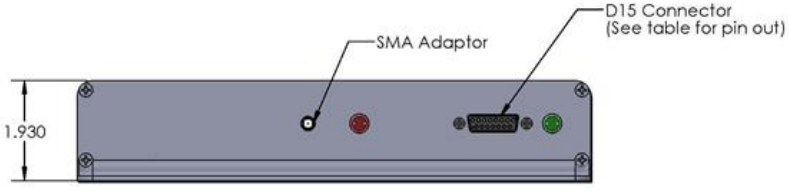
Note #1:

Analog modulation / analog output power adjustment: Use "Laser Set" on Pin 15

Digital modulation: Use 5-Volt TTL signal on Pin 8 (Laser Enable): CW to 10 kHz at 50% duty cycle or CW to 1 kHz at 10-100% duty cycle

1.1 W Matched Pair U-type Mechanical Specifications





OEM Laser Product

This laser module is designed for use as a component (or replacement) part and is thereby exempt from 21 CFR1040.10 and 1040.11 provisions.

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1.5 Watt Stabilized Matched Pair U-type

1.5W Matched Pair U-type Optical Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth (Δλ)	< 0.2 nm
Narrowed (-NL) Spectral Linewidth	< 0.1 nm
SMSR	> 35 dB
Output Power Stability	1% typical

Wavelength (nm)	Min. Power	Part Number
Standard Linewidth		
785	1.5 W	I0785MU1500M4S
808		I0808MU1500M4S
830		I0830MU1500M4S
Narrowed Linewidth		
785	1.5 W	I0785MU1500M4S-NL
808		I0808MU1500M4S-NL
830		I0830MU1500M4S-NL

1.5W Matched Pair U-type Physical Specifications

Optical Fiber	400 micron multimode fiber, 0.22 NA
Fiber Connector	SMA905
Electrical Connector	15-pin DSUB
Module Dimensions	11 x 10 x 2 inches
Module weight	910 grams (32 ounces)
Case Material	Anodized Aluminmum
Operating Temperature	15 to 35 degrees C
Cooling air flow (internal)	Integral Fans and Heatsink - Do not obstruct
Environment	0-80% Humidity, non condensing
Storage Temperature	-10 to + 55 degress C

Matched Pair U-type Module Pinout

Pin #	Symbol	Description
1-4	GND	Ground
5	+5V	4.9 to 5.1 Volt
6	+5V	4.9 to 5.1 Volt
7	+5V	4.9 to 5.1 Volt
8	LD Enable	Tie to GND to DISABLE Laser output. Leave not connected or apply 3-5 Volt to enable Laser output
9-12	GND	Ground
13	+5V	4.9 to 5.1 Volt
14	+5V	4.9 to 5.1 Volt
15	LD SET	Apply 0 to 1.45 Volt to control optical output power

1.5 W Matched Pair U-type Electrical Requirements

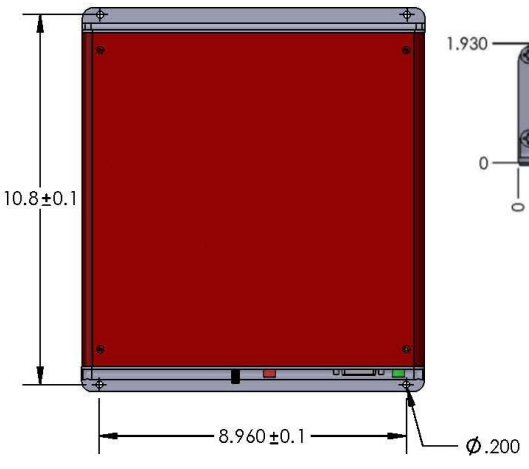
Supply Voltage	4.9 V min to 5.1 V max
Power Consumption	6 W typical, 20 W maximum
Current	3 A minimum
Modulation Rate[1]	CW to 1KHz for 10% to 100% power, 10kHz at 50% duty cycle
Warm-up time	10 seconds from cold start
	1.5 seconds from warm start

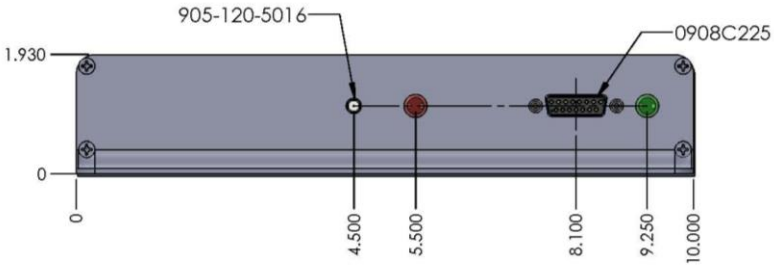
Note #1:

Analog modulation / analog output power adjustment: Use "Laser Set" on Pin 15

Digital modulation: Use 5-Volt TTL signal on Pin 8 (Laser Enable): CW to 10 kHz at 50% duty cycle or CW to 1 kHz at 10-100% duty cycle

1.5 W Matched Pair U-type Mechanical Specifications





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3 Watt Stabilized Matched Pair U-type

3W Matched Pair U-type Optical Specifications

Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth (Δλ)	< 0.2 nm
Narrowed (-NL) Spectral Linewidth	< 0.1 nm
SMSR	> 35 dB
Output Power Stability	1% typical
Wavelength Stability	better than 0.02 nm

3W Matched Pair U-type Physical Specifications

Optical Fiber	400 micron multimode fiber, 0.22 NA
Connector	SMA905
Electrical Connector	15-pin DSUB
Module Dimensions	14.3 x 10.0 x 2 inches
Module weight	1451.5 grams (51.2 ounces)
Case Material	Anodized Aluminmum
Operating Temperature	15 to 35 degrees C
Cooling air flow (internal)	Integral fans and heatsink. Do not obstruct
Environment	0-80% Humidity, non condensing
Storage Temperature	-10 to + 55 degress C

3 W Matched Pair U-type Electrical Requirements

Supply Voltage	4.9 V min to 5.1 V max
Power Consumption	20 W typical, 40 W maximum
Current	7.5 A minimum
Modulation Rate[1]	CW to 1KHz for 10% to 100% power, 10kHz at 50% duty cycle
Warm-up time	10 seconds from cold start
	1.5 seconds from warm start

Wavelength (nm)	Min. Power	Part Number
Standard Linewidth		
785	3 W	I0785MU3000M4S
808		I0808MU3000M4S
830		I0830MU3000M4S
Narrowed Linewidth		
785	3 W	I0785MU3000M4S-NL
808		I0808MU3000M4S-NL
830		I0830MU3000M4S-NL

Matched Pair U-type Module Pinout

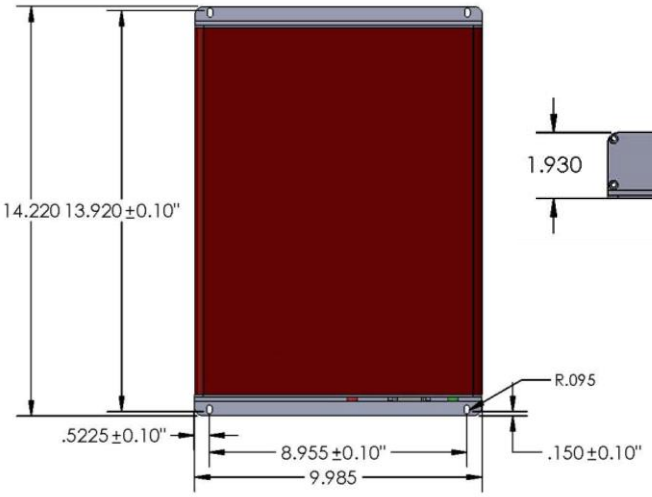
Pin #	Symbol	Description
1-4	GND	Ground
5	+5V	4.9 to 5.1 Volt
6	+5V	4.9 to 5.1 Volt
7	+5V	4.9 to 5.1 Volt
8	LD Enable	Tie to GND to DISABLE Laser output. Leave not connected or apply 3-5 Volt to enable Laser output
9-12	GND	Ground
13	+5V	4.9 to 5.1 Volt
14	+5V	4.9 to 5.1 Volt
15	LD SET	Apply 0 to 1.45 Volt to control optical output power

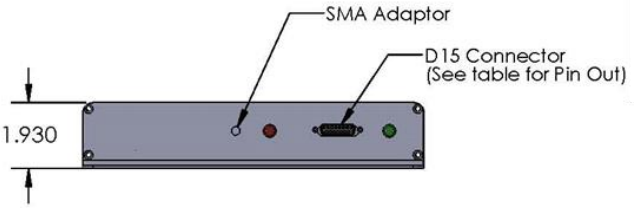
Note #1:

Analog modulation / analog output power adjustment: Use "Laser Set" on Pin 15

Digital modulation: Use 5-Volt TTL signal on Pin 8 (Laser Enable): CW to 10 kHz at 50% duty cycle or CW to 1 kHz at 10-100% duty cycle

3 W Matched Pair U-type Mechanical Specifications





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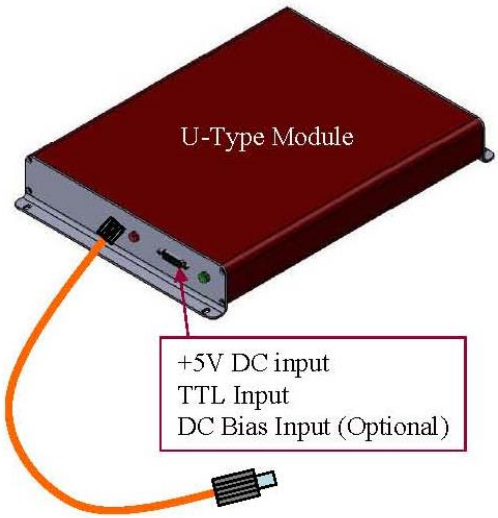
Matched Pair U-type in OEM Configuration

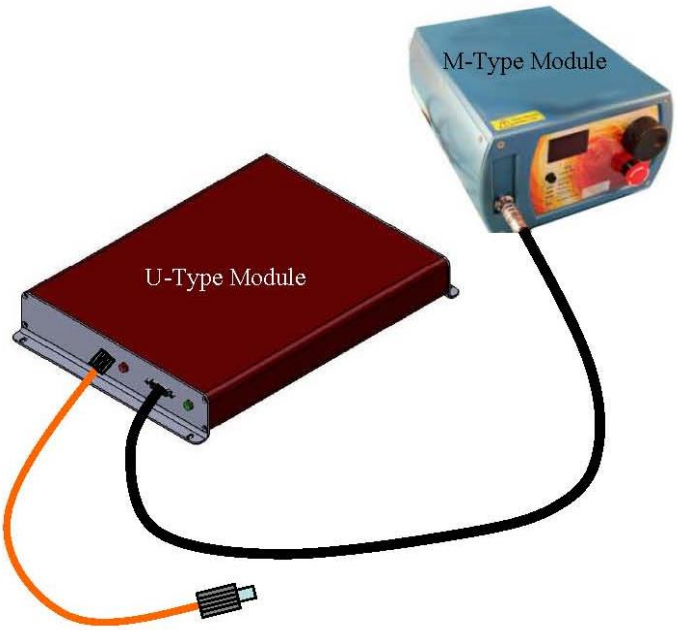
OEM Configuration



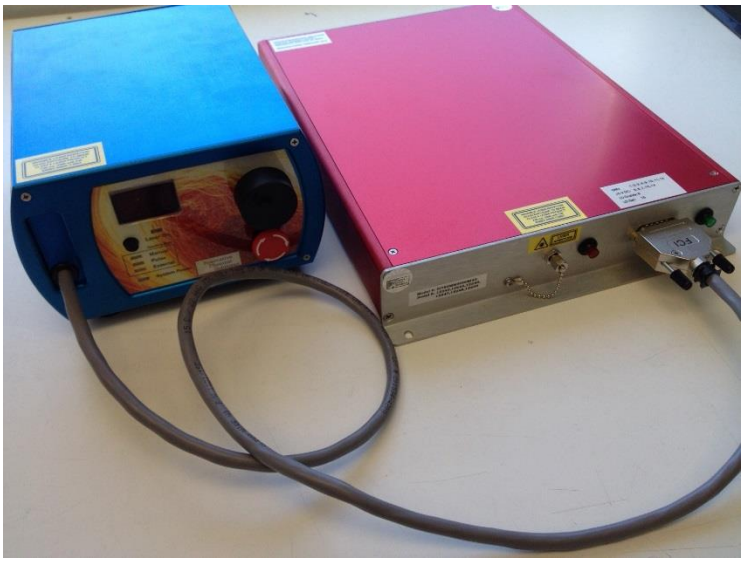
- Requires 5 V DC input, TTL input for laser enable
- Optional DC Bias for output power control

Matched Pair U-type in Turn-Key Configuration

"Turn-Key" UL/CE and IEC
Certified Lab Bench Configuration



- Requires 100 – 240 VAC 50/60 Hz Power



Operational Notes

1. RPMC offers a Laser Control Unit (LCU-U) for USB control. Please ask about this option.
2. User must supply 5V power and TTL signal to operate in OEM configuration.
3. M-type controller converts the OEM module to be fully "turn-key" UL/CE and IEC compliant and is not included with the Matched Pair OEM Module. This may be purchased separately.