

Multi-Mode Digital U-Type Module



Innovative Photonic Solution'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" within a wide case temperature range. Devices can be spectrally tailored to suit application needs and offer side mode suppression ratios (SMSR) better than 40dB, providing extremely high signal to noise ratio and making these sources ideal for Raman spectroscopy.

Standard Wavelengths

Applications

This laser package is designed for OEM Integration and is ideal for:

- High Resolution Raman Spectroscopy
 - Portable Raman
 - Process Raman
- Direct-diode Frequency Doubling
- Fiber Laser Seeding
- Remote Sensing
- Fiber Laser Pumping

Key Features

- High Power Fiber Coupled Output (Up to 1.2W)
- Digital and Analog IO Options: USB/I2C standard, RS232 available
- Ultra-Narrow Spectral Bandwidth (<0.1 nm FWHM)
- "Ultra-track" Linear Tracking Photodiode
- 40dB SMSR Typical
- Compact by design: 3" x 2.5" x 0.69"
Package Weight < 4 oz.
- Comes standard with 105 um core fiber; 50 and 62.5 um core fiber upon request

638nm	785nm	860nm
660nm	808nm	976nm
680nm	830nm	1064nm

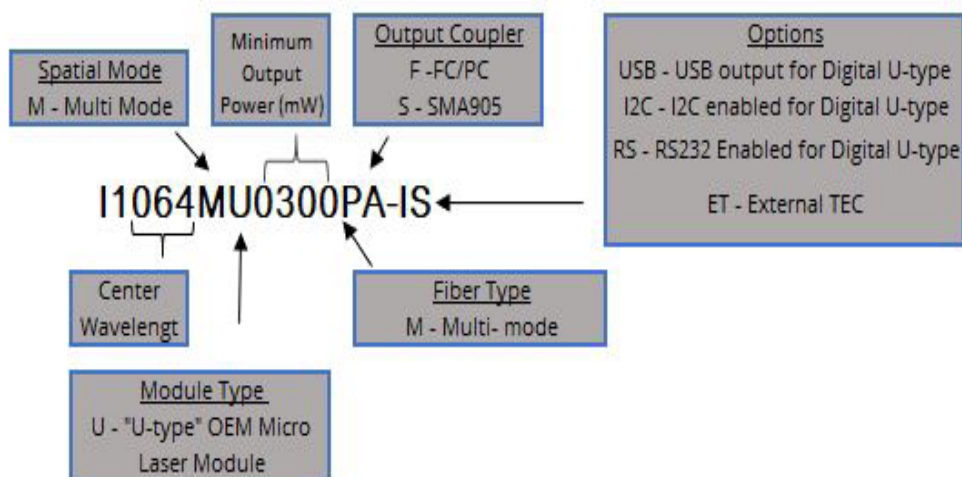
Specifications



Wavelegnth Tolerance	+/- 0.5nm
Narrowed Linewidth Spectral Linewidth	<0.1nm (0.08nm typical)
Wavelength Stability Range	15 - 45 °C
Output Power Stability	<1% at constant Tcase (sample rate of 1 per 1 second.)
Modulation Rate	Digital Modukation: 25KHz External Modulation: CW to 10KHz at 50% duty cycle or CW to 1kHz at 10% - 100% duty cycle.
Warm-Up Time	10 seconds from cold start
	1.5 seconds from warm start

λ (nm)	Output Power (mW)	Base Part Number
638	350	I0638MU0350MF-USB
660	250	I0660MU0250MF-USB
680	300	I0680MU0300MF-USB
785	350	I0785MU0350MF-USB
	600	I0785MU0600MF-USB
	800	I0785MU0800MF-USB
808	350	I0808MU0350MF-USB
	600	I0808MU0600MF-USB
	800	I0808MU0800MF-USB
830	350	I0830MU0350MF-USB
	600	I0830MU0600MF-USB
	800	I0830MU0800MF-USB
860	350	I0860MU0350MF-USB
	600	I0860MU0600MF-USB
976	800	I0976MU0800MF-USB
1064	350	I1064MU0350MF-USB
	600	I1064MU0600MF-USB

Part Schema

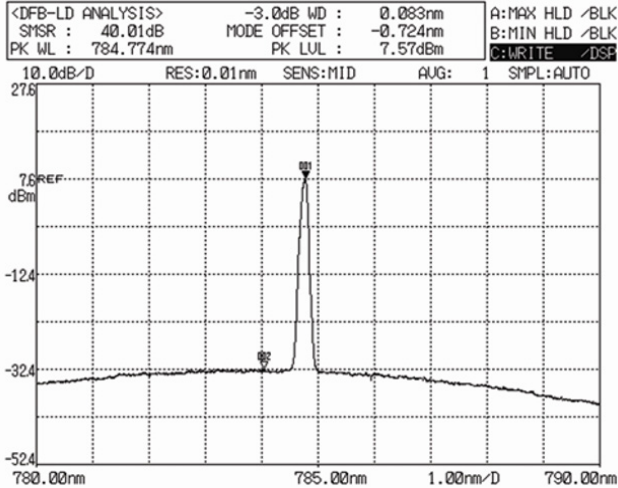


Selected Data



Supply Voltage	5V min - 14V max
Power Consumption	3W - 5W Typical
	15W Maximum

Optical Fiber	105/125 micron multimode fiber, 0.22NA
Connector	FC/PC or SMA905
Electrical Connector	10-pin, Molex #53014-1010 (mating connector: 51004-1000) USB mini B
Module Dimensions	3.0 x 2.5 x 0.69 inches
Module Weight	100 grams (3.5 ounces)
Case Material	Anodized Aluminum
Operating Temperature	-10 to 45 °C
Cooling air flow (internal)	100 LFM with attached heatsink
Environment	0-80% Humidity, non-condensing
Storage Temperature	-50 to 90 °C



Electrical Specs

Custom Capability

- Custom wavelengths available upon request
- FC/PC or SMA output coupler
- Various diameter output fibers available
- External TEC (e.g. No TEC inside of package optional)

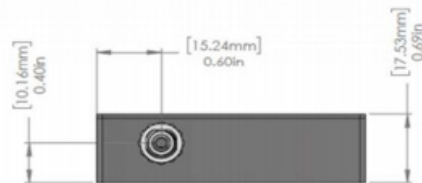
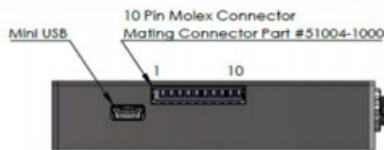
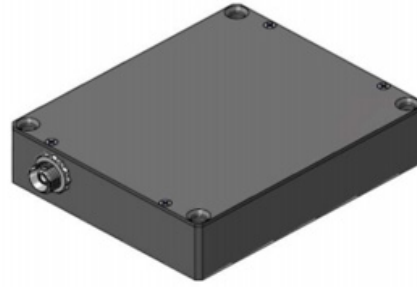
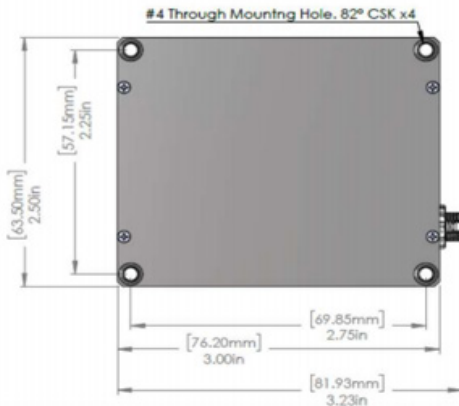
Pin	Pin Label	Function
1*	V+	Power Supply: 5V-12V. For lasers operating <600mW, a 5V minimum is required. For lasers operating >600mW, a minimum of 9V is required, 12V recommended
2^	VBIAS ENABLE (Set Enable)	For analog control: Enable external laser power control through pin 8 (LD VBIAS): High (>3.6V up to V+ supply voltage) = Enable Low (GND) = Disable The same Functionality is emulated via software as a replacement for this analog control.
3	SCL/TX	I2C: SCL standard (RS232: TX; board by request)
4	SDA/RX	I2C: SDA standard (RS232: RX; board by request)
5**	GND	Ground
6*	V+	See Pin 1
7	Enable	Laser Enable: TTL High (>3.6V up to V+ supply voltage) = Enable TTL Low (GND) = Disable Pin may also be used for PW modulation at a rate of 1kHz.
8^	LD VBIAS (LD Set)	Laser power setpoint - Enables analog external control of laser drive current. Drive VBIAS Enable (pin2) high to enable this option. Drive voltage between 0V and 1V. The voltage bias will be a 1:1 ratio to the laser drive current. See Operational Note #6. ..
9^	PD+	For analog readout. Connect voltmeter to PD+ (pin 9) and GND for photo diode V output (0V-3.3V). The same functionality is emulated via software as a replacement for this analog control.
10**	GND	Ground

Pins 1, 2, 6, 7 and 10 are required for laser operation

Notes: *Power must be supplied to both V+ pins (pin 1 and pin 6), **GND must be supplied to both GND pins

(pin 5 and pin 10). ^ Pins 2, 8, and 9 are optional for analog control/readout

Mechanical Drawings



- Connector Options:
1. FC/PC (M8 Thread)
 2. SMA 905 (1/4"-36 Thread)

Operational Notes

1. Heat sink and 5V power supply are not included with module. Please ask about our turn-key package that is available as an add-on.
2. Module must be attached to a suitable heatsink for proper operation.
3. User must supply DC power and TTL or serial communication to operate.
4. Please see IPS Digital U-Type user guide and quick start guide for additional information.

Innovative Photonic Solutions, Inc.
313 Enterprise Drive
Plainsboro, NJ 08536

Phone: (732) 230-1601

sales@ipslasers.com
www.ipslasers.com

