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Multi-Mode Fiber Coupled Digital U-Type Module

Product Features

- High Power Fiber Coupled Output (Up to 1.4W)
- Digital and Analog I/O Options: USB/I2C standard, RS232 available
- Ultra-Narrow Spectral Bandwidth (<0.1nm FWHM)
- "Ultra-Track" Linear Tracking Photodiode
- 40dB SMSR Typical
- Compact by design: 3" x 2.5" x 0.69" Package Weighing <4oz
- Comes standard with 105 micron core fiber; 62.5 micron core fiber upon request

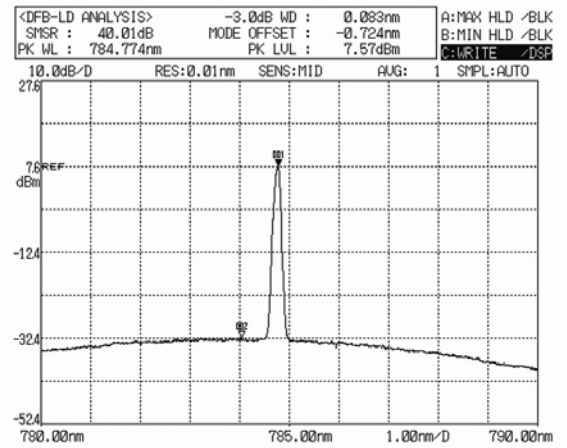
Standard Wavelengths

- 638 nm
- 647 nm
- 680 nm
- 785 nm
- 808 nm
- 830 nm
- 1064 nm

* Additional wavelengths may be available, contact IPS at ipslasers.com

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.



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

General Optical Specifications

Wavelength Tolerance	+/- 0.5nm
Narrowed Linewidth Spectral Linewidth	< 0.1 nm (0.08nm typical)
SMSR	35dB - 45dB
Wavelength Stability Temperature Range	15ºC - 45ºC
Output Power Stability	<1% at constant Tcase (sample rate of 1 per 1 second)
Modulation Rate	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

Physical Specifications

Optical Fiber	105/125 micron multimode fiber, 0.22 NA
Connector	FC/APC or SMA905
Electrical Connector	10-pin Molex #53014-1010 (mating connector 51004-1000) USB mini B
Module Dimensions	3.0in. (76.2mm) x 2.5in. (63.5mm) x 0.69in. (17.53mm)
Module weight	3.5oz. (100g)
Case Material	Anodized Aluminmum
Tcase	-10ºC to 45ºC
Cooling air flow (internal)	100 LFM with attached heatsink
Environment	0-80% humidity, non-condensing
Storage Temperature	-50ºC to 90ºC
Regulatory	RoHS 2.0 Certified Exempt from CFR Title 21 1040.10 and 1040.11 (component/replacement part)

Electrical Requirements

Supply Voltage	5Vmin - 14Vmax (see specific product information)
Power Consumption	3W - 5W typical
	15W maximum

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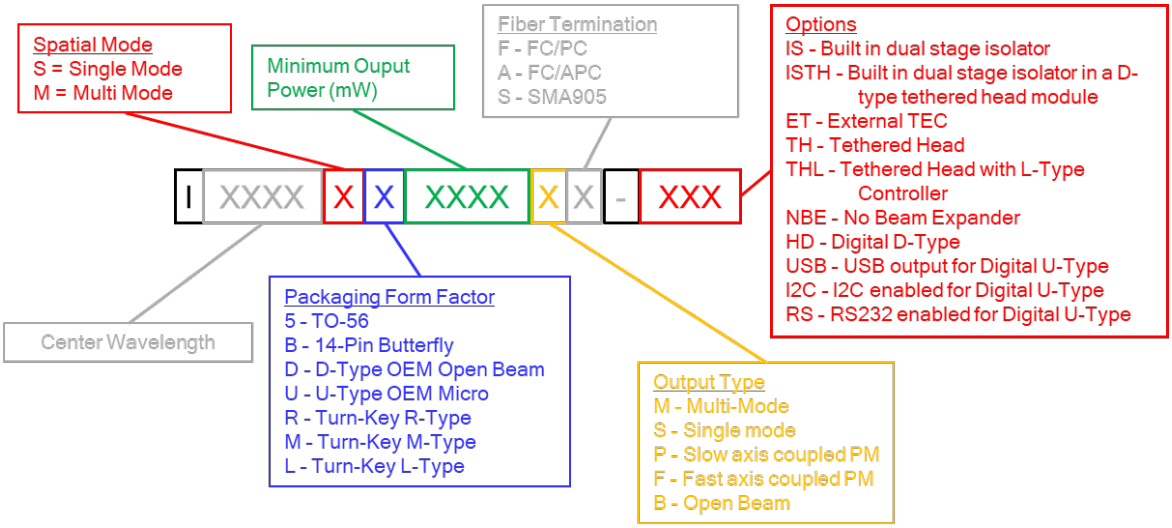
Available Part Numbers[1,2]

Wavelength (nm)	Power (mW)	Part Number	Connector
638	300	I0638MU0300MF-USB	FC/PC
		I0638MU0300MS-USB	SMA
647	150	I0647MU0150MF-USB	FC/PC
		I0647MU0150MS-USB	SMA
680	300	I0680MU0300MF-USB	FC/PC
		I0680MU0300MS-USB	SMA
785	350	I0785MU0350MF-USB	FC/PC
		I0785MU0350MS-USB	SMA
	500	I0785MU0500MF-USB	FC/PC
		I0785MU0500MS-USB	SMA
	1200	I0785MU1200MF-USB	FC/PC
		I0785MU1200MS-USB	SMA
808	350	I0808MU0350MF-USB	FC/PC
		I0808MU0350MS-USB	SMA
	500	I0808MU0500MF-USB	FC/PC
		I0808MU0500MS-USB	SMA
	1200	I0808MU1200MF-USB	FC/PC
		I0808MU1200MS-USB	SMA
830	350	I0830MU0350MF-USB	FC/PC
		I0830MU0350MS-USB	SMA
	500	I0830MU0500MF-USB	FC/PC
		I0830MU0500MS-USB	SMA
	1400	I0830MU1400MF-USB	FC/PC
		I0830MU1400MS-USB	SMA
1064	500	I1064MU0500MF-USB	FC/PC
		I1064MU0500MS-USB	SMA

[1] Heat sink and power supply are not included with module.
[2] User must supply DC power and TTL signal to operate. Please see product Quick Start Guide for details.
[3] For I2C enabled board, input "-I2C" in place of "-USB". For RS232 enabled board, input "-RS" in place of "-USB". Please note RS232 board will disable USB port

Part Numbering Schema



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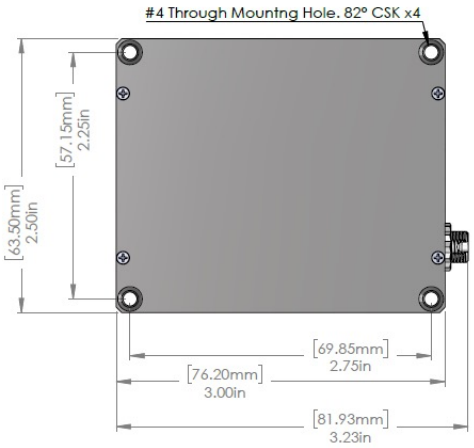
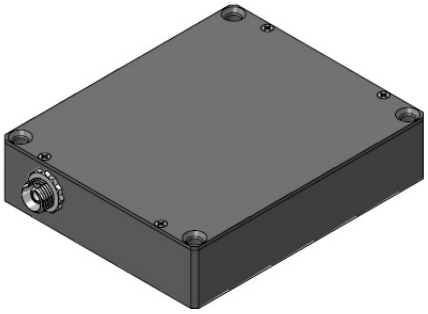
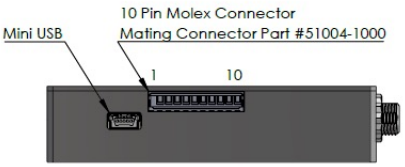
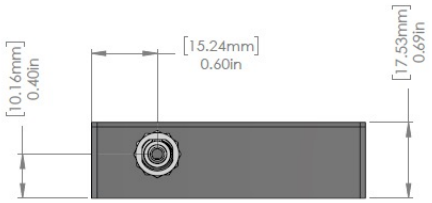
Mechanical Specifications









Connector Options:

1. FC/PC (M8 Thread)
2. FC/APC (M8 Thread)
3. SMA 905 (1/4"-36 Thread)

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Digital U-Type Molex 53014-1010 Connector Pinout (Mating connector part number: Molex 51004-1000)

Pin Number	Pin Label	Function
1*	**V+**	**Power Supply: 5V - 12 V. 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+**	**Power Supply: 5V - 12 V. For lasers operating <600mW, a 5V minimum is required. For lasers operating ≥600mW, a minimum of 9V is required, 12V recommended.**
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 (pin 2) high to enable this option. Drive a voltage between 0V and 1V. The voltage bias will be a 1:1 ratio to the laser drive current. Be aware that this approach may cause laser mode hopping behavior in single-mode lasers. Do not exceed maximum recommended drive current for given laser model. The same functionality is emulated via software as a replacement for this analog control.
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, 5, 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

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