Single-Frequency Fiber-Coupled Turnkey L-Type

Innovative Photonic Solution's proprietary Wavelength Stabilized Laser features high output power with narrow spectral bandwidth. The laser's stabilized peak wavelength remains "locked" regardless of case temperature (10 to 35 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 and pump laser applications.

The laser is integrated with high performance laser drive and temperature control electronics and integrated into a fully turn-key UL/CE and IEC certified system with all safety features.

In addition to benchtop functionality, the side panel can be opened and the "guts" of the laser (the U-type engine inside) can be removed so that a different wavelength can "drop in," or the U-type can be integrated as an OEM component into a user system once testing is done.

Features

- Wavelength Stabilized Spectrum
- Narrow Spectral Linewidth (< 100 MHz FWHM)
- High Power Single-mode Fiber Coupled Output
- TEM00, Single-spatial and single-longitudinal mode (SLM)
- Temperature Stabilized Spectrum (< 0.007 nm/^{0}C)
- 40 dB SMSR Typical
- UL/CE and IEC Certified and Fully "turn-key"

Standard Wavelengths

• 780 nm	• 808 nm	• 976 nm	• 1053 nm
• 785 nm	• 830 nm	• 1030 nm	• 1064 nm

Additional wavelengths available upon request

General Optical Specifications

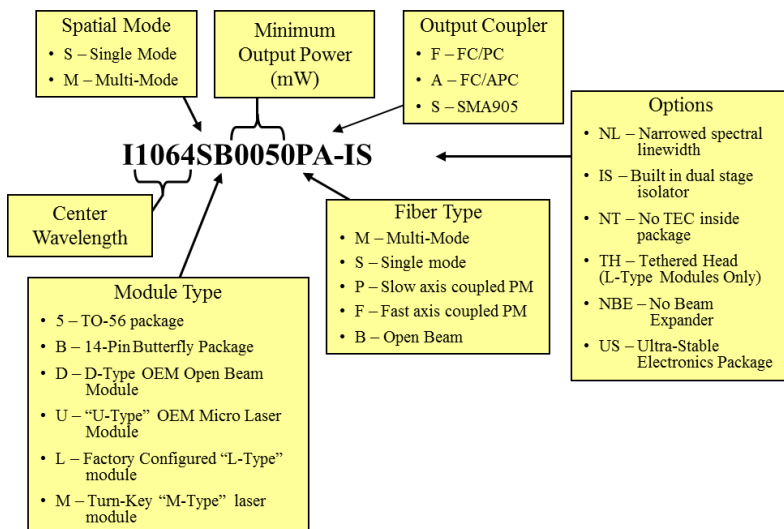|	
Wavelength Tolerance	+/- 0.5 nm
Spectral Linewidth ($\Delta\lambda$)	< 100 MHz
Wavelength Stability Range	10 C - 35 C
SMSR	35 -45 dB
Polarization Orientation	IPS standard is PM slow. The "P" in part number signifies PM slow. Substitute "F" for PM fast
Polarization Extinction Ratio (PER)	>17 dB
Output Power Stability	< 1% typical
Modulation Rate	CW to 1 KHz (for 10% power to CW) up to 10 kHz for 50% power
Warm-Up Time	10 seconds from cold start
	1.5 seconds from warm start

Physical Specifications

Optical Fiber	Polarization Maintaining, Panda Type
Connector	FC/APC
Module Dimensions	9.48 x 6.94 x 4.14 inches
Module weight	48 ounces
Case Material	Anodized Aluminmum
Operating Temperature	10 to 35 degrees C
Environment	0-80% Humidity, non condensing
Storage Temperature	-10 to + 55 degress C

<DFB-LD ANALYSIS>	-3.0dB WD :	0.083nm	A:MAX HLD /BLK	
SMSR : 40.01dB	MODE OFFSET :	-0.724nm	B:MIN HLD /BLK	
PK WL : 784.774nm	PK LVL :	7.57dBm	C:WRITE /DSP	
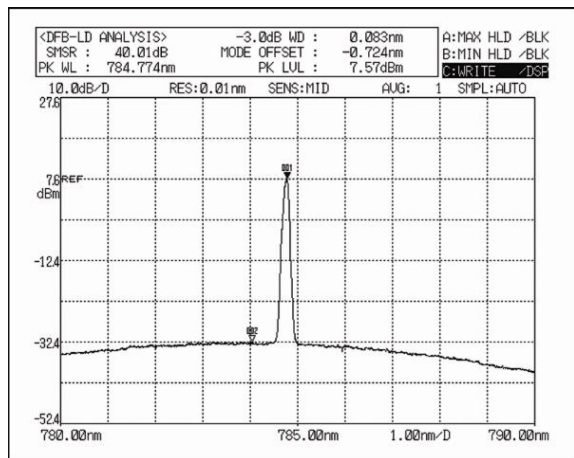
Typical 785 nm Stabilized Laser Spectrum

All data and statements contained herein are subject to change in accordance with Innovative Photonic Solution's policy of continual product improvement. No information contained herein is intended for use in connection with any contract except as may be first confirmed in writing by Innovative Photonic Solutions. The publication of information in this document does not imply freedom from patent or other rights of Innovative Photonic Solutions or others.

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Part Numbering Schema

Spatial Mode
- S – Single Mode
- M – Multi-Mode

Minimum Output Power (mW)

Output Coupler
- F – FC/PC
- A – FC/APC
- S – SMA905

Options
- NL – Narrowed spectral linewidth
- IS – Built in dual stage isolator
- NT – No TEC inside package
- TH – Tethered Head (L-Type Modules Only)
- NBE – No Beam Expander
- US – Ultra-Stable Electronics Package

I1064SB0050PA-IS

Center Wavelength

Fiber Type
- M – Multi-Mode
- S – Single mode
- P – Slow axis coupled PM
- F – Fast axis coupled PM
- B – Open Beam

Module Type
- 5 – TO-56 package
- B – 14-Pin Butterfly Package
- D – D-Type OEM Open Beam Module
- U – "U-Type" OEM Micro Laser Module
- L – Factory Configured "L-Type" module
- M – Turn-Key "M-Type" laser module

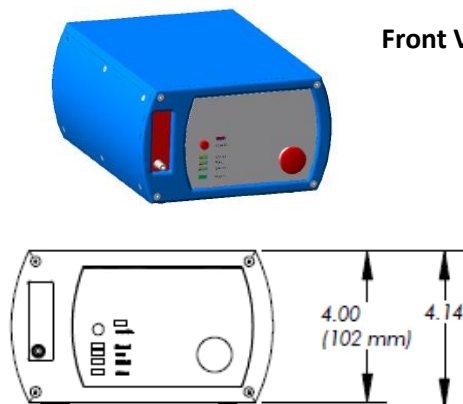| Wavelength (nm)	Min. Power (mW)	Part number
780	50	I0780SL0050PA
785	50	I0785SL0050PA
808	50	I0808SL0050PA
830	50	I0830SL0050PA
976	220	I0976SL0220PA
1030	100	I1030SL0090PA
1030	250	I1030SL0250PA
1053	120	I1053SL0120PA
1053	300	I1053SL0300PA
1064	50 (integral dual-stage isolator)	I1064SL0050PA-IS
1064	120	I1064SL0120PA
1064	300	I1064SL0300PA

Operational Notes

1. Do not retro-reflect beam! This can cause Catastrophic Optical Damage (COD) and is not covered under warranty.
2. To adjust power output, IPS recommends using Pulse Width Modulation (PWM) to adjust average power or using an external Neutral Density Filter. See Note 3.
3. By using PWM, user can adjust average power from 10% to 100% in digital increments by setting pulse width and duty cycle. For example, if a 50% duty cycle is selected, the laser will be on 50% of the time, and off 50% of the time, making the average power equal to 50% of the CW output power. The sample will experience a lower average power. Rise/fall time is approximately 20 microseconds.
4. IPS can supply our Laser Control Unit (LCU-M) that will enable USB control and comes standard with PWM software.
5. See Operation Manual for full operating and safety instructions. This document is meant to offer a product overview.
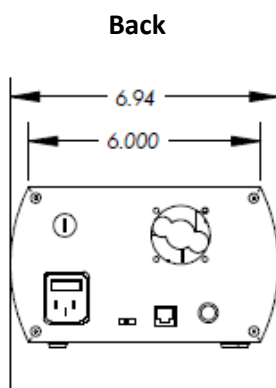
Electrical Requirements

Input Power	100 – 240 VAC, 50 – 60 Hz, 0.4 A
Fuse Rating	250 V, 1 A, Fast Blow, 5 mm x 20 mm, 2 each

UL   CE   IEC   RoHS COMPLIANT

INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION CLASS 4 LASER PRODUCT 976 nm, 800 mW CW EN/IEC 60825-1:2007

INVISIBLE LASER RADIATION AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT 780 nm, 785 nm, 808 nm, 830 nm, 1053 nm, 200 mW CW EN/IEC 60825-1:2007

INVISIBLE LASER RADIATION AVOID EXPOSURE TO BEAM CLASS 3B LASER PRODUCT 976 nm, 1030 nm, 1064 nm, 400 mW CW EN/IEC 60825-1:2007

Mechanical Specifications

Front View

Back
6.94
6.000

Bottom View
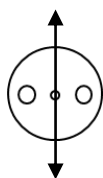8.24" (210 mm)   9.45
6.94" (175 mm)

4.00 (102 mm)   4.14
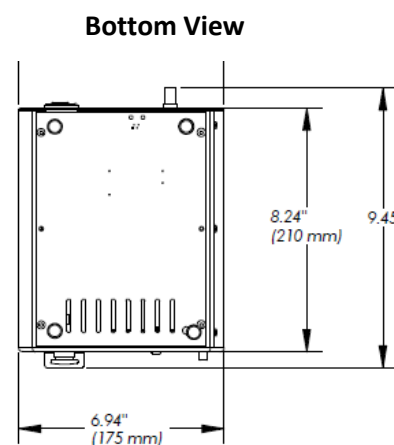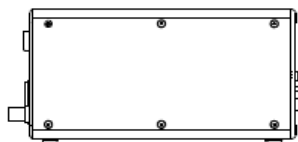
Side View

PM Fast – If PM Fast is desired, this must be specified by replacing the "P" in the part number with "F"

PM Slow – IPS Standard Polarization Orientation is in the PM Slow axis shown to the right

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