



TWL-C-M



DEVICE

Wavelength Tunable Laser Module, C- Band, PM Output

OVERVIEW

The TWL-C-M is a wavelength tunable laser module in C-band. The TWL-C-M alleviates inventory and costs in high-channel-count DWDM systems by allowing a single device to replace each of the single-channel devices. Full-band tunable assemblies also enable system functionality such as hot back-up and dynamic provisioning in addition to applications of optical regeneration and wavelength conversion. The TWL-C-M has a low Relative Intensity Noise (RIN), a high Side-Mode Suppression Ratio (SMSR), an ultra narrow linewidth, and excellent wavelength accuracy. This module comes with an intuitive GUI software for control of the wavelength and optical power. The TWL-C-M can be used for Dense Wavelength Division Multiplexing (DWDM) optical Transceivers and DWDM discrete line card design. The TWL-C-M requires a single +12 Volt DC power supply for operation. Contact Optilab for more information.

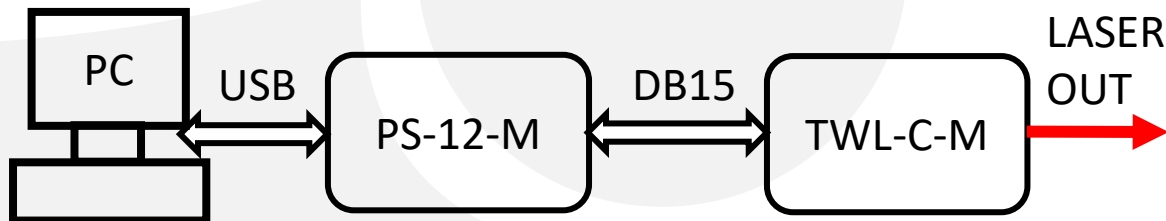
FEATURES

- Wavelength tuning range: 1527.6 – 1565.5 nm
- 0.8 pm Wavelength Tuning Resolution
- 1 MHz In-Operation Laser Frequency Fine Tuning
- Up to 40 mW output power
- 100 kHz narrow laser linewidth
- Single +12V DC Power Supply

USE IN

- Tunable DWDM transponders and transceivers
- Optical add/drop multiplexers
- DWDM transmission systems
- Optical packet or burst-mode switching
- Test & measurement equipment
- Fiber sensing & interrogation
- Optical spectrum characterization

APPLICATION DIAGRAM





TWL-C-M

ABSOLUTE MAXIMUM RATING ($T_c = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Max	Unit
Operation Case Temperature	T_c		-5	45	$^\circ\text{C}$
Storage Temperature	T_{st}		-40	85	$^\circ\text{C}$

GENERAL SPECIFICATIONS ($T_{case} = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Laser Output Wavelength	λ	Software Adjustable	1527.6		1565.5	nm
Laser Output Frequency	ν	Software Adjustable	191.5		196.25	THz
Wavelength Tuning Resolution		In Operation Fine Tune		1		MHz
Wavelength Accuracy			-1.5		1.5	GHz
Wavelength Stability		30 min	-50		50	MHz
Laser Output Power	P_{op}	Software Adjustable	5		40	mW
Output Power Tuning Resolution	Δp_{op}			0.01		dB
Laser Output Power Stability		Over 8 hours		± 0.02		dB
Side Mode Suppression Ratio	SMSR	P_{op}	45	55		dB
Laser Linewidth	$\Delta \nu$	Low Noise Mode		100		kHz
Optical Isolation	ISO		30			dB
Relative Intensity Noise	RIN	50~ 1000 MHz		-157		dB/Hz
Polarization Extinction Ratio	PER	Polarized along slow axis	17	20		dB
DC Power Supply	V		11.5	12	12.5	Volt
Power Consumption	W	Max Output Power		2.5	12	W

FIBER SPECIFICATIONS

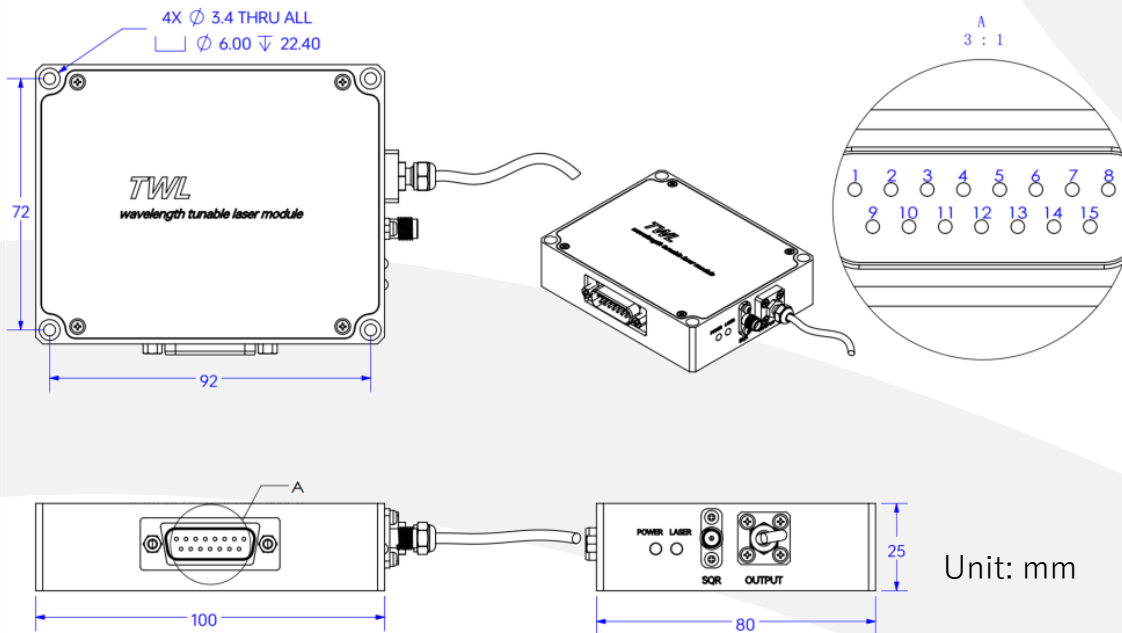
Parameter	Note	Min	Typ.	Max	Unit
Optical Connector	Slow axis aligned to Key		FC/APC		
Optical Fiber Type			Panda PM15		
Mode Field Diameter		10	10.5	11	μm
Cladding Diameter		122	125	128	μm
Buffer Diameter		235	245	255	μm
Armored Fiber Diameter			3		mm
Fiber Length		0.8	1.0	1.5	m





TWL-C-M

MECHANICAL DRAWING



Pin#	Description
1	+12V
2	+12V
3	+12V
4	+12V
5	GND
6	GND
7	GND
8	GND
9	+12V
10	+12V
11	Enable
12	GND
13	GND
14	RS232 RX
15	RS232 TX

DB15 ELECTRIC INTERFACE

Pin 1~5, 9, 10: +12V DC Power, 1A max

Pin 5~8, 12, 13: Ground

Pin 11: Pull to GND to enable laser output per software control logic; Float or High (+3.3V) to disable laser output regardless of the software control logic.

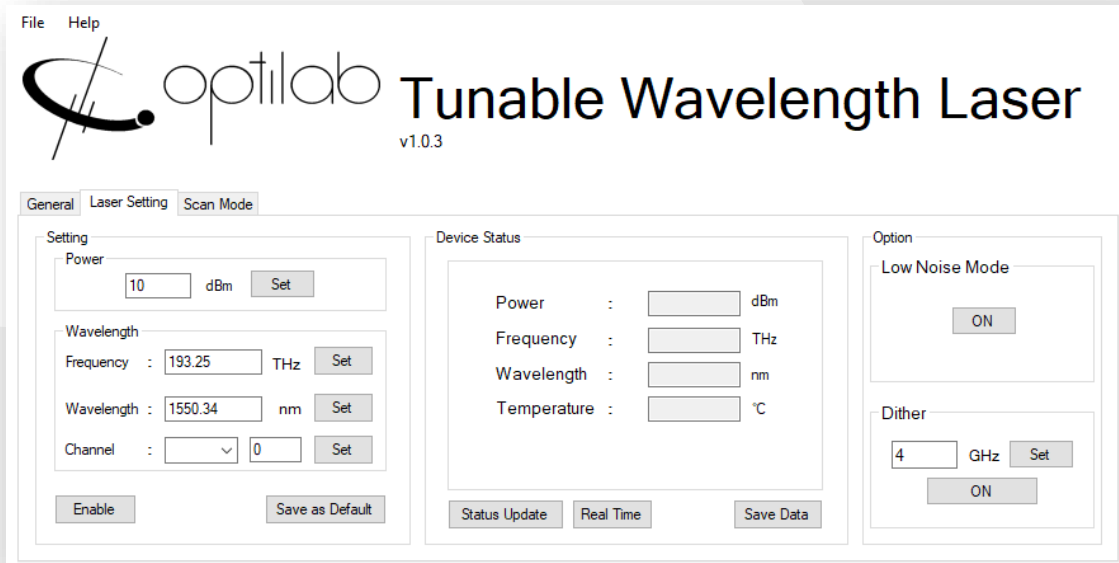
Pin 14 & 15: RS232 RX and TX





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CONTROL GUI



MATCHING Power Supply

- **PS-12-M**



The Optilab PS-12-M is a matching power supply and control unit to the TWL module. Its DB-15 connector can be connected directly the TWL module to supply +12V DC power and establish control function. A red laser enable button on the power supply provides the key on function. Control can be selected through either RS232 or USB port.

LASER SAFETY INFORMATION

All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2014/EN 60825-1:2014 Single-mode fiber pigtail with FC/APC connectors (standard).

Wavelength = 1.5 μm. Maximum power = 50 mW.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

