Fiber Coupled Tunable Laser Source Narrowline C-Band

(1528-1563 nm tunable range, 15kHz linewidth, SM, PM)

DATASHEET

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The NECL Series tunable laser source is an InP-based, ultra-narrow linewidth External Cavity Laser (ECL) designed for high-performance optical applications. It integrates a semiconductor optical amplifier (SOA) for optical power amplification, shutter functionality, and power control. This architecture enables fast and precise wavelength tuning, making it ideal for coherent Dense Wavelength Division Multiplexing (DWDM) systems. The laser chip is maintained at a fixed temperature, eliminating thermal drift during tuning. Wavelength stability is ensured by an internal wavelength locker, which aligns output precisely to the 50 GHz or 100 GHz ITU grid and also provides real-time monitoring of front-facet power for feedback control to the SOA. The device comes with polarization-maintaining fiber to support integration with external modulators. The NECL laser is mounted on a driver board featuring variable power control, shuttered tuning, trace tone generation, and stimulated Brillouin scattering (SBS) dither circuitry, all accessible through an RS-232 interface. A turn-key benchtop version is available, offering high optical output power up to 200 mW.

Features

- Wide Tunning Range
- SM and PM
- Narrow Linewidth
- Outstanding Power Stability
- 0.5W Power Output

Applications

- FBG based Sensing System
- Telecommunication
- Optical Device Characterization
- Metrology
- Sensor

Specifications

Parameter		Min	Typical	Max	Unit
Laser					
Optical Output Power		0	12	50	mW
Frequency Range	C-band	191.5		196.25	THz
	L-band	186.35		190.95	
Wavelength Range	C-band	1527.6		1565.5	nm
	L-band	1570.0		1608.8	
Frequency Accuracy		-1.5		1.5	GHz
Tuning Resolution			50		GHz
Tuning Speed (Between Wavelengths)			10		ms
Fine Tuning Resolution			1		MHz
Fine Tuning Speed			1		GHz/s
Fine Tuning Range		-30		30	GHz
Side Mode Suppression Ratio (SMSR)		40	55		dB
Optical Signal Noise Ratio (OSNR)		40	60		dB
Intrinsic Linewidth		20		100	kHz
Relative Intensity Noise (RIN)				-145	dB/Hz
Back Reflection				-14	dB
Polarization Extinction Ratio		18			dB
System					
Power Monitors Accuracy			±0.5		dBm
Power Monitors Resolution			0.01		dBm
VOA Response Time			1		s
Power Requirement			85–265 VAC (47–63 Hz)		
Power Consumption			4		W
Operating Temperature		10		40	°C
User Interface			USB		
Fiber Optic Connector			FC/APC		
Fiber Type			SM or PM		

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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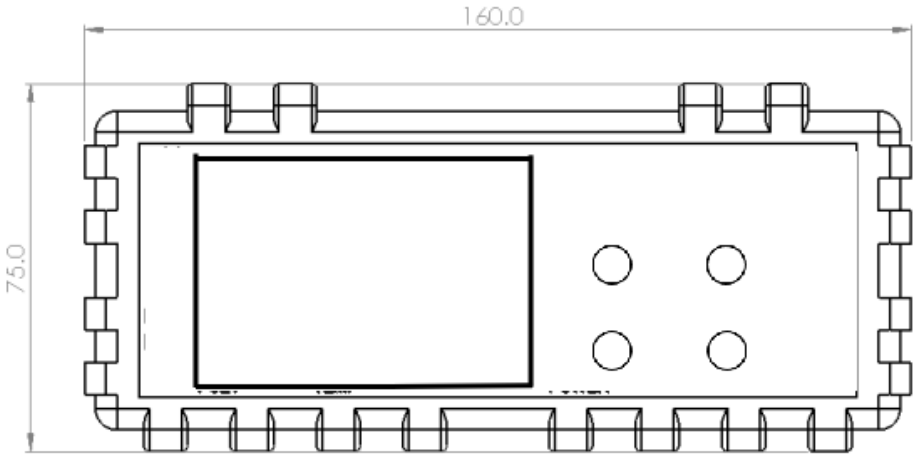
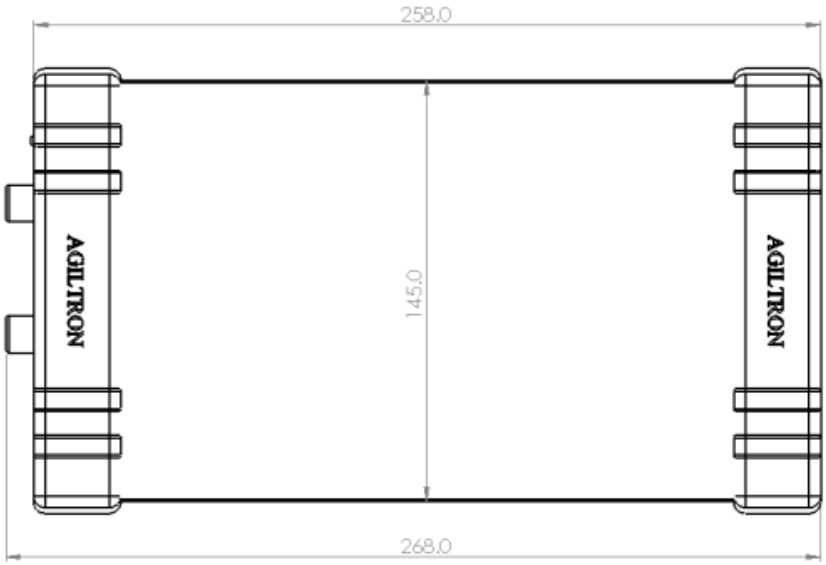
Mechanical Dimensions (mm)





*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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Typical Spectrum

Ordering Information

	☐	☐	☐	☐	☐	☐	☐☐	☐
Prefix	**Config**	**Wavelength**	**Linewidth**	**Tuning Speed**	**Power ***	**Package**	**Output**	**Connector**
NECL-	Standard = 1 Special = 0	C-band = C L-band = L	15kHz = 1 Special = 0	10ms = 1	10mW = 1 50mW = 2 150mW = 3 500mW = 4 1W = 5	Modul = 1 Benchtop = 2 Special = 0	PM1550 = 11 SM28 = 22	FC/APC = 1 Special = 0

* > 10mW only available in benchtop package

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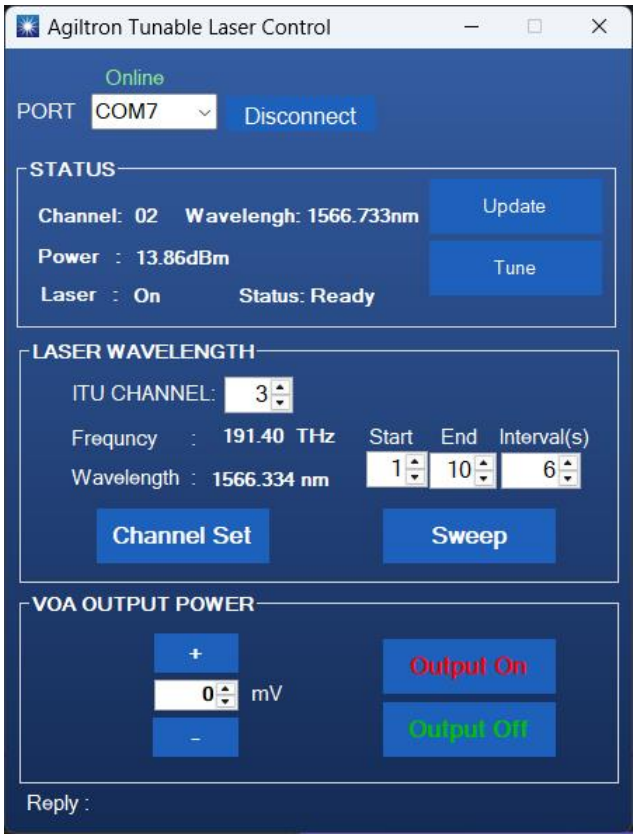
Operating On The Front Panel

There are 3 knobs on the front panel to operate laser source and control output power

- Wavelength knob: switch ITU channel.
- The channel number is unique to this instrument, actual frequencies specified by the ITU standard are displayed on screen. There are 96 channels.
  For C-band, Wavelength Range: 1528 - 1566 nm or Frequency Range: 191.50 - 196.25 THz.
  For L-band, Wavelength Range: 1570 - 1608 nm or Frequency Range: 186.35 - 190.95 THz
- To adjust the ITU channel, use the knob buttons to increment or decrement the channel.
- Power knob: adjusting and stabilizing the optical output power.
- The power range is 0-14.50 dBm or 0-28.18 mW.
- On/Off buttons: turn laser ON or OFF.
- While pressed, the power buttons turn green to indicate the function is ON, and turn off to indicate the function is disabled. Power On/Off status is also Indicated on screen.

GUI Instructions



The Gui has three main sections.

- The top side shows device status: channel number, power, laser on/off.
- The central section controls ITU channel and Sweep function. Scan is user adjustable by setting dwell time and wavelength tuning range.
- The bottom side sets Variable Optical Attenuator (VOA) voltage and turn On/Off laser output. The VOA provides the means for adjusting the optical output power.

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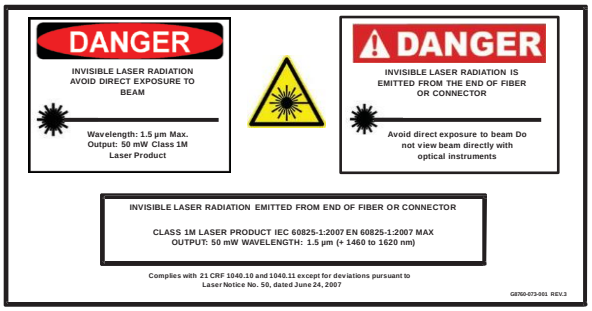
Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



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