Fiber Coupled Tunable Laser Source C-Band DFB



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



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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

The DSBR Series tunable laser source integrates multiple discrete Bragg reflector sections for coarse wavelength tuning, a phase section for fine and continuous tuning, and a semiconductor optical amplifier (SOA) for optical power amplification and control. It also includes an integrated shutter, which enables dark tuning when reverse-biased. This architecture allows for fast, precise wavelength control, making it ideal for dense wavelength division multiplexing (DWDM) and coherent optical communication, thanks to its wide tuning range, narrow linewidth, and rapid switching capability. The laser chip operates at a fixed temperature, eliminating slow thermal drift during tuning. Wavelength stability is maintained via an internal wavelength locker, which ensures accurate alignment to a 50 GHz or 100 GHz ITU grid. The wavelength locker also monitors front-facet output power, enabling feedback control to the SOA for stable operation. The device is supplied with polarization-maintaining fiber for compatibility with external modulators. The DSBR is mounted on a driver circuit board that features variable power control, shuttered tuning, trace tone, and stimulated Brillouin scattering (SBS) dither circuitry, all accessible via an RS-232 interface. Turn-key Benchtop is available with high optical power output up to 200mW.

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		250		1000	MHz						
Relative Intensity Noise (RIN)				-145	dB/Hz						
Back Reflection			-14	dB							
Polarization Extinction Ratio		18			dB						
		System									
Power Monitors Accuracy	Power Monitors Accuracy				dBm						
Power Monitors Resolution		0.01		dBm							
VOA Response Time			1		S						
Power Requirement		85-									
Power Consumption			4		W						
Operating Temperature		10		40	°C						
User Interface			USB								
Fiber Optic Connector	Fiber Optic Connector										
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 <u>link</u>]:

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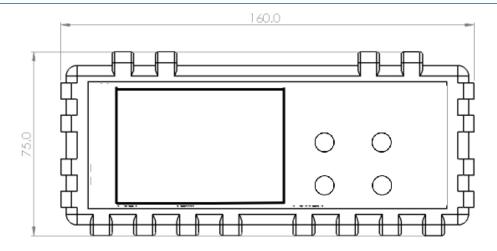
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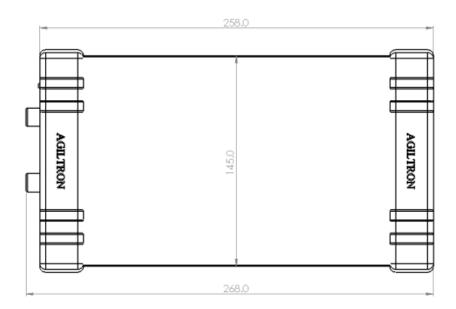


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Mechanical Dimensions (mm)





^{*}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
DSBR-	Standard = 1 Special = 0	C-band = C L-band =L	1000MHz = 1 15kHz = 2 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

^{* &}gt; 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
- 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 = $1.3/1.5 \mu m$.

Maximum power = 30 mW.





