

TLB-6600 Venturi™ Swept-Wavelength Tunable Lasers

- Ultrafast 2,000-nm/s tuning enables true real-time measurements
- Ultrawide 110-nm mode-hop-free tuning
- >70-dB ASE low-noise version for high-dynamic-range test and measurement
- Multiple integrated options available



**Product Tutorial:
Building a Swept-
Wavelength System.**

See page 49.

The TLB-6600 lasers deliver it all. They combine the best in tunability—ultrafast, ultrawide, and mode hop-free—with low noise, high accuracy and repeatability. Because the lasers are based on our award-winning* design, they are extremely dependable with OEM-proven 24/7 reliability (over 100-million cycles tested without failure). Ideal for fiber sensing, spectroscopy, laser seeding, metrology and fiber-optics testing, these lasers are available with a variety of options so you can build the system you need.

So that you get true real-time measurement capabilities, the lasers offer 2,000-nm/s mode-hop-free tuning over 110 nm. For measurements requiring high dynamic range, such as the characterization of fiber-Bragg gratings, choose the low-noise version. It offers greater than 70-dB ASE suppression and an integrated dynamic range of greater than 55 dB. For applications requiring more power, choose the high-power version. With greater than 8 dBm or 6 mW of output power over the entire tuning range, use these lasers to test multiple devices, or multiple outputs of a single device simultaneously.

Available with a variety of integrated options, the TLB-6600 is a flexible system configured for your specific needs. For exceptional absolute wavelength accuracy, a precision wavelength reference option is available (<1 pm). Choose the polarization controller for setting up to six states-of-polarization. A variable optical attenuator option is also available for up to 20-dB adjustment in optical output power. These options are available for the SM version only.

To simplify operation, we've designed the TLB-6600 with an easy-to-use color touchscreen, or you can use all-button operation if you prefer. With the latest in remote interfaces including Ethernet, USB and GPIB (IEEE 488), you can easily interface to your computer to set and monitor parameters.

For more information on how our TLB-6600 tunable laser can address your application, please contact our sales department at sales@newfocus.com.

*2004 Photonics Spectra Circle of Excellence



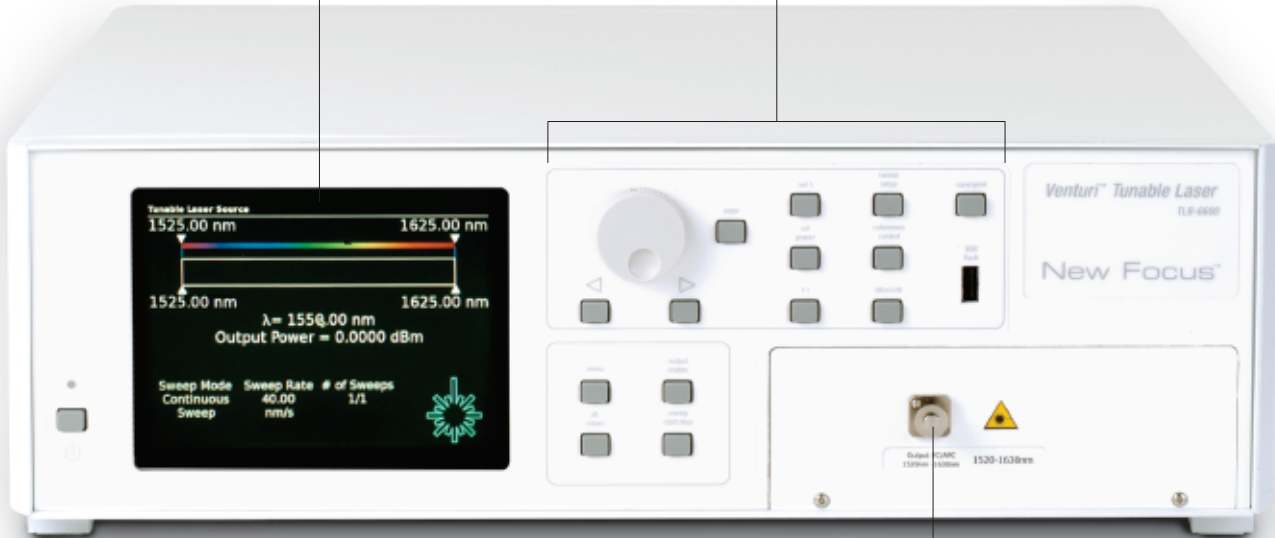
Applications

- Fiber-Bragg sensing
- Spectroscopy
- Telecom test and measurement
- Metrology

U.S. Patents #5,319,668
and #6,608,847
and patents pending

Touchscreen: Intuitively set and monitor laser parameters including tuning range, sweep speed, sweep mode, output power and others.

Control Buttons: Use all-button operation to set laser parameters and options as alternative to touchscreen.



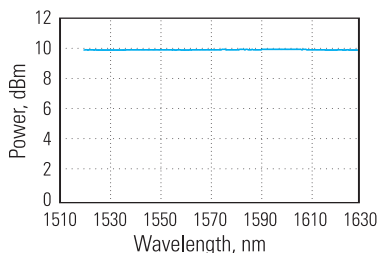
Fiber Output: FC/APC connectorized fiber output.



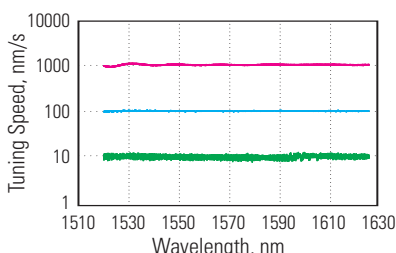
Remote Interfaces: Let you use either Ethernet or GPIB (IEEE-488) computer interface.



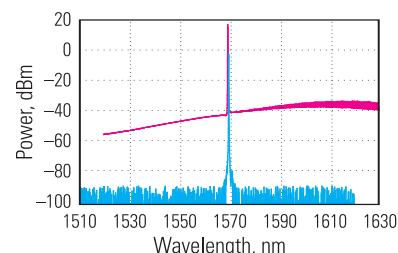
TLB-6600 Venturi™ Swept-Wavelength Tunable Lasers (cont.)



Power stability for the Model TLB-6600-H-CL over the entire C+L tuning range.



Tuning linearity for the Model TLB-6600-H-CL. This data was taken at 1,000 nm/s, 100 nm/s, and 10 nm/s.



Carrier and ASE for Models TLB-6600-H-CL and TLB-6600-L-CL.



Custom wavelengths are available. Please contact our sales department at 1-866-NUFOCUS for more information.

Version	C+L Band (1550 nm)		E+S Band (1480 nm)		O Band (1300 nm)		840 nm
	High Power	Low Noise	High Power	Low Noise	High Power	Low Noise	High Power
Tuning Range (mode-hop free)	1520–1630 nm	1510–1620 nm	1410–1510 nm	1410–1510 nm	1260–1340 nm	1260–1340 nm	835–850 nm
Tuning Speed	2–2,000 nm/s	2–2,000 nm/s	2–2,000 nm/s	2–2,000 nm/s	2–2,000 nm/s	2–2,000 nm/s	5–1,000 nm/s
Wavelength Repeatability	±15 pm	±15 pm	±15 pm	±15 pm	±15 pm	±15 pm	±15 pm
Wavelength Accuracy (absolute) ⁽¹⁾	±30 pm	±30 pm	±30 pm	±30 pm	±30 pm	±30 pm	±30 pm
Output Power (fiber-coupled) ⁽²⁾	>+8 dBm (>6 mW)	>0 dBm (>1 mW)	>+6 dBm (>4 mW)	>0 dBm (>1 mW)	>+6 dBm (>4 mW)	>0 dBm (>1 mW)	4 dBm (>3 mW)
Output Power Flatness (swept) ^{(2),(3)}	±0.25 dB	±0.25 dB	±0.25 dB	±0.25 dB	±0.25 dB	±0.25 dB	-NA-
Side-Mode Suppression Ratio (SMSR) (typical) ⁽²⁾	>50 dBc	>50 dBc	>50 dBc	>50 dBc	>50 dBc	>50 dBc	>50 dBc
Amplified Spontaneous Emission (ASE) ⁽⁴⁾	>40 dB	>70 dB	>40 dB	>70 dB	>40 dB	>70 dB	>40 dB
Integrated Dynamic Range (minimum)	>15 dB	>55 dB	>15 dB	>55 dB	>15 dB	>55 dB	-NA-
Fiber Connector	FC/APC	FC/APC	FC/APC	FC/APC	FC/APC	FC/APC	FC/APC
Fiber Type	SM or PM	SM or PM	SM	SM	SM	SM	SM
Integrated Options Available ⁽⁵⁾	WR, PWR, VOA, PC	WR, PWR, VOA, PC	-NA-	-NA-	-NA-	-NA-	-NA-
Model #	TLB-6600-H-CL	TLB-6600-L-CL	TLB-6600-H-ES	TLB-6600-L-ES	TLB-6600-H-O	TLB-6600-L-O	TLB-6600-H-16
Price*	\$30,350	\$32,350	\$35,350	\$37,350	\$32,350	\$34,350	Contact Factory
Price, Polarization Maintaining Fiber ^{(6)*}	\$2,500	\$2,500	-NA-	-NA-	-NA-	-NA-	-NA-

(1) Without integrated reference module.
 (2) Without integrated options.
 (3) Measurement taken at maximum power.
 (4) Signal (or carrier) to ASE ratio measured with 0.1-nm bandwidth, signal to max ASE, 1–3 nm from carrier.
 (5) WR = Wavelength Reference, PWR = Precision Wavelength Reference, VOA = Variable Attenuator, PC = Polarization Controller.
 (6) Add -PM to model number when ordering.



CAUTION: 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.

Related Products: High-Dynamic-Range Power Sensors (page 138) ■ 10-MHz Photoreceivers (page 114)

Definitions of Characteristics (page 57)

*For international prices add 10%.

Available Integrated Options

Wavelength Reference Option[†]

Description	Integrated Precision Wavelength Reference Module
Accuracy	<1 pm
Repeatability	<1 pm
Insertion Loss	1.0 dB (max)
Polarization Dependent Loss	0.1 dB (max)
Valid Sweep Rates	10–200 nm/s
Wavelength Range Excluded	None
Fiber Type (input/output)	SM/SM
Model #	TLB-6600-PWR
Integrated Option Price*	\$12,950

Polarization Controller Option[†]

Description	Integrated Polarization Controller, 6-State
SOP Generated	6 SOP: -45°, 0°, 45°, 90°, RHC, LHC
SOP Repeatability	±0.1 degree on Poincaré sphere
SOP Switching Speed	250 ms
Rotation Angle Wavelength Dependence	0.068 degrees/nm
Insertion Loss	1 dB (typical)
Insertion Loss Variation with SOP	0.1 dB (max)
Insertion Loss Variation with Wavelength	0.2 dB (max)
Fiber Type (input/output)	PM/SM
Model #	TLB-6600-PC
Integrated Option Price*	\$7,400

NOTE: When ordering the integrated Polarization Controller (-PC) option, you must also order a Polarization Maintaining fiber output (-PM) to couple the light to the -PC. The final output will be from a single-mode (SM) fiber.



VOA Option[†]

Description	Integrated Variable Optical Attenuator
Attenuation Range	>20 dB
Accuracy	0.1 dB (typical across range)
Excess Loss	<0.7 dB (max)
Polarization Dependent Loss	0.2 dB (max)
Fiber Type (input/output)	SM/SM
Model #	TLB-6600-VOA
Integrated Option Price*	\$1,400

[†] Available on CL version only.

*For international prices add 10%.

Rack Mount Option

Description	Rack Mount Kit
Contents	Rack Mount Ears and Slides
Model #	TLB-6600-RM
Integrated Option Price*	\$350

