



TLS-1000

Tunable Laser Source OLTS

The VeEX TLS-1000 Family of Tunable Laser Sources is designed to provide a new level of high performance testing and increased test efficiency by incorporating fastest swept-wavelength test ≥ 200 nm/s while reducing cost of ownership.

Key Features

- Fast Wavelength Tuning, high power output, and high power stability
- Output Power Stability ± 0.004 dB
- Single or optional dual port operation - Single Port +20 mW, dual port 10 mW/port
- Internal wavelength reference
- Variable linewidth
- Laser Safety Class 1M
- Fixed or Interchangeable optical adapters
- System control and communication provided via RS232C and USB interfaces
- Operating Modes:
 - Stepped Mode**
The tunable laser operates at a target operating wavelength. User can tune the target operating wavelength from one to another within the operating wavelength range.
 - Sweep Mode**
The tunable laser continuously sweeps its operating wavelength from the Start wavelength to Stop wavelength.
- Maximum Sweep Speed 200 nm/s
- Superior Noise Level (ASE) ≥ 70 dB
- 2U chassis
- Trigger in/out

Key Applications

- Optical coating monitoring
- Spectral Measurements for passive components
- Fiber optic transmission testing
- Optical Transceiver testing
- Optical Amplifier testing
- Optical Alignment testing
- Fiber optic Sensors
- Spectroscopy
- Interferometry
- Photonic material characterization

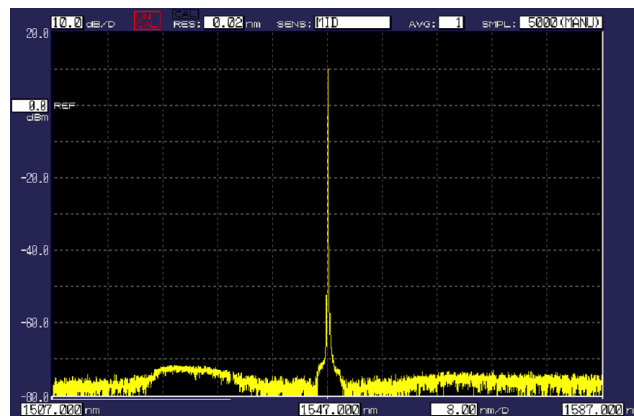
Product Overview

The TLS-1000 is available in a variety of wavelength range configurations designed to meet specific test needs. The TLS-1000 is an absolute must have tool when testing next generation components ranging from filters, multiplexers or measuring other DWDM components that will be utilized in FlexGrid Super-Channel networks. Whether your need is for calibration of instrumentation/modules or measurement of wavelength dependent gain, noise contribution or saturation properties of EDFA, the TLS-1000 is the right choice.

Superior ASE Suppression Ratio

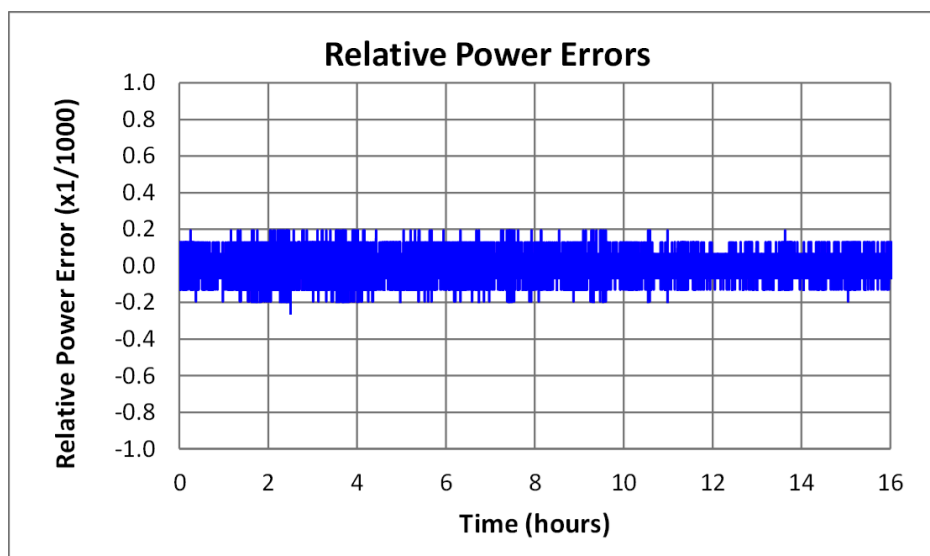
A laser signal with low source spontaneous emission that only produces light at a desired wavelength is required for accurate crosstalk measurement of DWDM wavelength filtering components. The TLS-1000 can produce a single optical output in excess of 20mW. Coupled that with superior an ASE Suppression Ratio in excess of 60 dB or optional ASE Suppression of >70 dB makes this a powerful tool for characterizing performance. The TLS-1000 can be used to test components for both coherent and non-coherent applications.

- Linewidth (FWHM): 0.01 to 0.04 nm for coherent
- Linewidth (FWHM): 0.2 to 0.4 nm for non-coherent



High Power Stability

Repeatability in output power when locked into a single wavelength is a must for measurement components when consistency in test results is required time after time. With a $\pm 0.1\%$ (0.004 dB) power stability, the TLS-1000 is one of the most stable lasers currently available in the market.

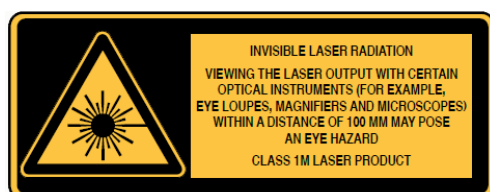


Optical Specifications

	Fullband	Extended Fullband	O-Band	E-Band	S-Band	C-Band	Extended C-Band	C+L Band	SCL-Band
Wavelength Range (nm)	1260 to 1650	1250 to 1660	1250 to 1360	1360 to 1460	1460 to 1530	1527 to 1567	1520 to 1605	1525 to 1625	1450 to 1650
Wavelength Tuning Resolution (pm)	≤ 20	≤ 20	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5 ¹	≤ 5	≤ 10
Continuous Sweep Range	Full operating wavelength range								
Max. Sweep Speed (nm/s)	200	200	200	200	200	200	200	200	200
Wavelength Stability ² (pm)	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Linewidth FWHM (nm)	≤ 0.2	≤ 0.2	≤ 0.04	≤ 0.04	≤ 0.04	≤ 0.04	≤ 0.04	≤ 0.04	≤ 0.1
Power Output ¹ (mW) -One Port Option ⁵	≥ 2	≥ 2	≥ 10	≥ 10	≥ 10	≥ 20	≥ 10	≥ 10	≥ 5
Signal to Total ASE Suppression Ratio ³ (dB)	≥ 35	≥ 35	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 50	≥ 40
Signal to Source ASE (dB/1.0 nm)	≥ 45	≥ 45	≥ 60	≥ 60	≥ 60	≥ 60	≥ 60	≥ 50	≥ 50
Absolute Wavelength Accuracy ²	≤ 100	≤ 100	≤ 10	≤ 10	≤ 10	≤ 10	≤ 20	≤ 20	≤ 50
Relative Wavelength Accuracy ²	± 80	± 80	± 8	± 8	± 8	± 8	± 16	± 16	± 30
Wavelength Repeatability ² (pm) -Stepped mode -Sweep mode	± 50 ± 50	± 50 ± 50	± 5 ± 5	± 5 ± 5	± 5 ± 5	± 5 ± 5	± 10 ± 10	± 10 ± 10	± 20 ± 20
Power Repeatability ^{2,4} (dB) -Stepped mode	± 0.01	± 0.01	± 0.01	± 0.01	± 0.01	± 0.01	± 0.008	± 0.01	± 0.01
Power Stability ^{2,4} (dB) -Stepped mode	± 0.02	± 0.02	± 0.01	± 0.01	± 0.01	± 0.01	± 0.015	± 0.02	± 0.02
Step Tuning Time (ms)	50	50	50	50	50	50	50	50	50

Notes:

- 2.5 mW in extended wavelength range beyond C-band.
- Step Mode only: When measured after warm-up time, measurements over 1 hour at 25 ± 1°C.
- Measured within 30 nm range.
- For output power from 0 to 10 dBm.
- Output power with dual port option is about 4 dB less per port than the one port option.



Ordering Guide

Part Number	Description
Z06-99-103P	O-band Tunable Laser Source (1250 to 1360 nm)
Z06-99-104P	E-band Tunable Laser Source (1360 to 1460 nm)
Z06-99-105P	S-band Tunable Laser Source (1460 to 1530 nm)
Z06-99-106P	C-band Tunable Laser Source (1527 to 1567 nm)
Z06-99-107P	Extended C-band Tunable Laser Source (1520 to 1605 nm)
Z06-99-108P	C+L-band Tunable Laser Source (1525 to 1625 nm)
Z06-99-109P	SCL-band Tunable Laser Source (1450 to 1650 nm)
Z06-99-110P	Full band Tunable Laser Source (1260 to 1650 nm)
Z06-99-111P	Extended Full band Tunable Laser Source (1250 to 1660 nm)

Options and Accessories*

Dual Laser Output port option

Extended ASE Suppression Ratio > 70 dB - available for C-Band, C+L Band and O-Band

Fixed or Universal optical interface

* More options and accessories available. Check with the factory for details.

General Specifications

Size	431.8 x 88.9 x 406.4 mm (W x H x D) 17 x 3.5 x 16 in
Weight	< 7 kg (< 2 lbs)
Power Supply	110/220 VAC, 50/60 Hz
Interface	Connector: SC/APC Optical Fiber: Singlemode Communication: RS232C and USB
Trigger in/out	BNC, 50 ohm
Operating Temperature	15°C to 35°C (59°F to 95°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 85% non-condensing
Safety	Class 1M Laser as defined by IEC 60825-1



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