

# TUNICS T100S – Tunable Laser Source High Power with Ultra-Low SSE

**YENISTA** presents a general-purpose benchtop “work-horse” tunable laser, combining large wavelength range and high output power with SSE suppression. This laser is a must for all optical labs looking for an affordable every day use laser. With TUNICS T100S, the laser is not anymore the limiting factor of your measurement set-up.



## Key Parameters

### High and SSE-free Output Power: a unique combination ideal for Component Testing

With T100 technology, there is no more trade-off between high output power and SSE suppression. A single laser can be used for all applications from amplifiers/WDM testing to high resolution insertion loss characterization.

### 110 / 150 nm Tuning Range with 1 pm Resolution

In one single instrument, the TUNICS guarantees a tuning range of up to 150 nm at 0 dBm (1 mW).

### Fast Operation from the Start

The TUNICS laser can be used a minute after turn-up. Scanning time between two wavelengths is around 1 second and sweeping speed is adjustable from 1 nm/s to up to 100 nm/s.

### Active Control for Mode-Hop-Free Operation

For ultimate performance, TUNICS T100S features a proprietary active control that ensures perfect mode-hop-free operation and accurate wavelength sweep over its entire tuning range.

### Fine Scanning Mode: down to 0.1 pm resolution and frequency modulation

Fine Scanning Mode allows the user to accurately modify the wavelength over  $\pm 2$  GHz range using the rotary knob on instrument front panel. An external modulation could also be applied to modulate this fine scanning.

### Step-by-Step and Sweeping Mode

The TUNICS T100S combines two operating modes. The sweeping ability delivers a continuous variation of the wavelength at a constant rate to enable a fast and uninterrupted measurement. In step-by-step application, the laser exhibits a high wavelength stability suitable for long-term testing.

### Internal wavelength reference

Every TUNICS T100S has an internal wavelength reference that leads to a  $\pm 30$  pm absolute wavelength accuracy. This eliminates the need for an external wavemeter or optical spectrum analyzer.

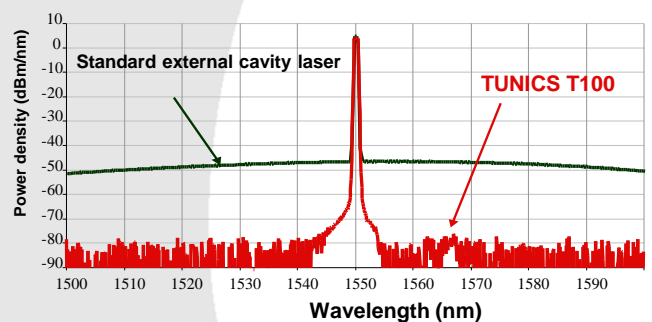


Fig.1 TUNICS T100S SSE-free Optical Spectrum

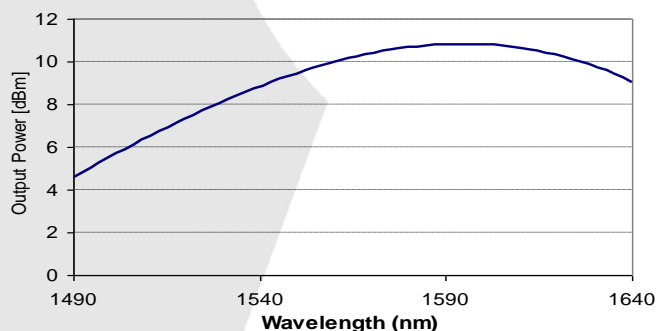


Fig. 2 Typical power vs. wavelength (CL-WB Model)

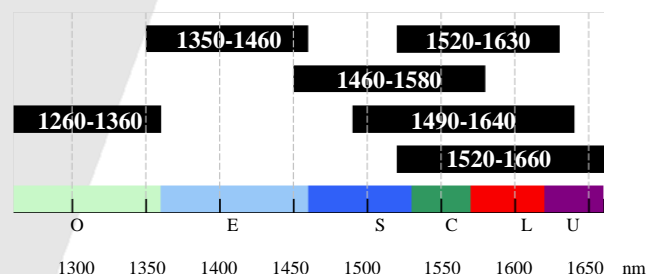


Fig. 3 Available T100S Models

All information and specifications are subject to change without notice

**YENISTA**  
OPTICS

April 2012

## TUNICS T100S Specifications

	T100S-O	T100S-E	T100S-SC	T100S-CL	T100S-CL-WB	T100S-CLU
Wavelength range	1260-1360 nm • P = 0 dBm • P = 6 dBm • P = 8 dBm	1350-1460 nm 1360-1430 nm	1460-1580 nm 1480-1570 nm	1520-1630 nm 1540-1620 nm 1560-1600 nm	1490-1640 nm 1520-1630 nm 1540-1610 nm	1520-1660 nm 1540-1620 nm 1560-1600 nm
<b>TUNING CHARACTERISTICS</b>						
Absolute wavelength accuracy <sup>*1</sup>	±30 pm					
Wavelength stability <sup>*2</sup>	±5 pm / h (±3 pm / h typical and ±5 pm / 24h typical)					
Tuning repeatability (typ.)	5 pm					
Wavelength setting resolution	1 pm					
Optical frequency fine tuning	±2 GHz					
Tuning speed (typ.)	1s (100 nm)					
<b>LASER OUTPUT CHARACTERISTICS</b>						
Power stability <sup>*2</sup>	±0.01 dB / h (±0.025 dB / 24h typical)					
Side mode suppression ratio <sup>*3</sup>	>40 dB			>45 dB		
Signal to source spontaneous-emission ratio <sup>*4</sup>	>80 dB			>90 dB		
Relative intensity noise <sup>*3, *5</sup>	- 145 dB/Hz (typ.)					
Spectral width (FWHM)	400 kHz typical (coherence control OFF) >100 MHz (coherence control ON)					
<b>SWEEPING MODE CHARACTERISTICS</b>						
Mode hop free range	Full specified wavelength and power ranges <sup>*8</sup>					
Scan speed	Adjustable from 1 to 100 nm/s					
Power flatness during scan (typ.)	±0.25 dB					
Power repeatability from scan to scan (typ.) <sup>*6</sup>	±0.05 dB					
<b>INTERFACES</b>						
Optical connector	FC-APC					
Output fiber	SMF-28™ (PMF option available)					
Output isolation	35 dB					
Return loss	60 dB					
Remote control	RS-232 C and IEEE-488.1 <sup>*7</sup>					
Low frequency modulation	10 kHz to 8 MHz					
High frequency modulation	30 kHz to 200 MHz					
<b>ENVIRONMENT</b>						
Operating temperature range	+15° to +30°C +60° to +85°F					
Power supply	100 to 240 V / 50 to 60 Hz					
Dimensions(W x H x D) in mm <sup>3</sup>	448 x 133 x 370					
Weight	12.5 kg					

Unless otherwise specified, specifications are given after 30 minutes warm-up.

\*1: After self calibration, at +20°C. Over operating temperature range wavelength accuracy is ±40pm for O, E, SC, CL and CL-WB models.

\*2: Over one hour at a constant temperature and after 1 hour warm-up.

\*3: Measured with 0 dBm output power.

\*4: Spontaneous emission measured on a 0.1 nm bandwidth at ±1 nm from the signal.

\*5: Measured at an electrical frequency of 100 MHz.

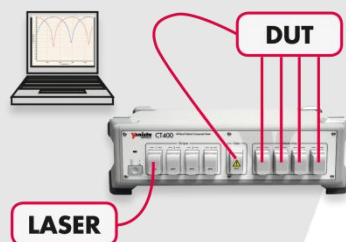
\*6: Over 100 scans at constant temperature.

\*7: Tested and validated with National Instruments GPIB board.

\*8: 1270-1340 nm at 0 dBm for O band model.

## TUNICS T100S and CT400 Component Tester: the perfect match

When used in conjunction with Yenista's CT400 component tester, the TUNICS T100S allows accurate insertion characterization in real time. Refer to CT400 individual data sheet for more details.



All information and specifications are subject to change without notice

YENISTA OPTICS S.A.  
4 rue Louis de Broglie  
22300 Lannion, France  
Phone: +33 296 483 716  
[www.yenista.com](http://www.yenista.com)

YENISTA OPTICS Inc.  
475 Wall Street  
Princeton, NJ 08540, USA  
Phone: +1 609 423 0890

**Yenista**  
OPTICS