

# T100S-HP

HIGH POWER TUNABLE LASER



The tunable laser design used in the T100S-HP lasers provides long-term reliability with uncompromised specifications. This latest version provides high output power across its full tuning range with ultra-low SSE noise. This is an easy to use and affordable instrument for all optics laboratories and will ensure your measurements are no longer limited by laser performance.

SPEC SHEET

## KEY FEATURES

13 dBm Output Power

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Ultra-low Optical Noise

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Built-in Wavelength Reference

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Step-by-Step or Fast Wavelength Scans

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Wide Tuning Range

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Active Mode-Hop-Free Scan

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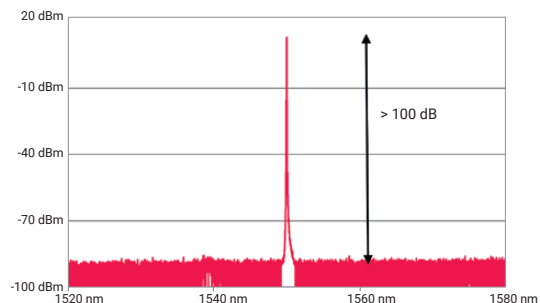
## KEY FEATURES

### 13 dBm Output Power

The T100S-HP provides the highest fiber-coupled output power of any comparable tunable laser on the market today. Essential models emit over 10 mW (+10 dBm) over their entire tuning range. Peak power is 20 mW (+13 dBm) for all models.

### Ultra-low Optical Noise

The unique T100 cavity eliminates the broadband spontaneous emission (SSE) that is normally present in an external cavity laser's output. This gives a dramatic improvement in a measurement's dynamic range and enables component characterization without compromise.



High Power and High Dynamic Range

### Built-in Wavelength Reference

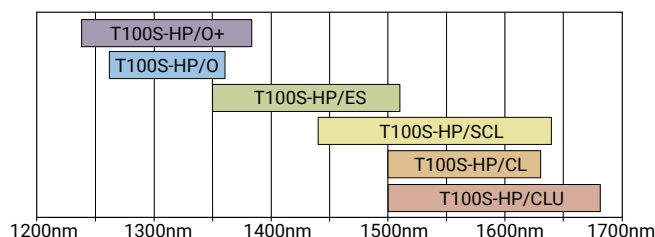
An internal wavelength reference ensures the high wavelength accuracy, better than  $\pm 20$  pm, is maintained in the long-term.

### Step-by-Step or Fast Wavelength Scans

The laser can be tuned accurately to any wavelength or alternatively can be swept, at any speed from 1 to 100 nm/s over a range of wavelengths.

### Wide Tuning Range

Six models are available. Essential models cover the standard telecom O and C & L wavelength bands. Extended Range models have very large wavelength ranges, up to 200 nm, extending from 1240 to 1680 nm.



Overview of Available Models

### Active Mode-Hop-Free Scan

EXFO patented active mode-hop control ensures every scan is completely mode-hop-free. Reliable wavelength sweeps are attained with long-term reliability.

## APPLICATIONS

### Telecom System & Component Testing

The ultra-low SSE is a big advantage and enables repeatable high dynamic range measurements. Production environments benefit from the proven reliability and fast mode-hop-free scan.

### Interferometry & Metrology

For both stable and scanning interferometric systems.

### Sensors & Spectroscopy

0.1 pm fine scanning and wavelength modulation are additional features available for these applications.

### Scientific Research & Development

Extensive input and output ports provide added flexibility and satisfy a wide range of test requirements.

## SPECIFICATIONS

		Essential Models		Extended Ranger Models			
		T100S-HP-O	T100S-HP-CL	T100S-HP-O+	T100S-HP-ES	T100S-HP-SCL	T100S-HP-CLU
Wavelength Range		1260-1360	1500-1630	1240-1380	1350-1510	1440-1640	1500-1680
Output Power	Over Full Wavelength Range	≥ 10 dBm		≥ 8 dBm			
	Peak	≥ +13 dBm					
Signal to Source Spontaneous Emission Ratio <sup>a</sup>		≥ 90 dB (100 dB typical)					
Side Mode Suppression Ratio <sup>b</sup>		≥ 45 dB					
Stability <sup>c</sup>	Wavelength	±5 pm/h (±3 pm/h ; ±5 pm/24h typical)					
	Output Power	±0.01 dB/h (±0.025 dB/24h typical)					
Relative Intensity Noise <sup>d</sup>		< -140 dB/Hz					
Spectral Width (FWHM)		> 100 MHz (coherence control on)					
		400 kHz typical (coherence control off)					
Absolute Wavelength Accuracy <sup>e</sup>		±20 pm					
Wavelength Setting Repeatability		5 pm typical					
Wavelength Setting Resolution		1 pm (0.1 pm in fine tuning mode)					
Fine Tuning Mode Range		±25 pm (±2 GHz)					
Tuning Speed in Step Mode		Approximately 1 s for 100 nm step					
Mode-Hop-Free Range <sup>f</sup>		Full wavelength range					
Continuous Sweep Speed		Adjustable from 1 to 100 nm/s					
Power Flatness During Sweep		±0.25 dB typical					
Power Repeatability Sweep to Sweep <sup>g</sup>		±0.05 dB typical					
Low Frequency Modulation		DC to 8 MHz (sinusoidal), DC to 1 MHz (TTL)					
High Frequency Modulation		30 kHz to 200 MHz					
Output Fiber Type		SMF or PMF (option)					
Output Connector		FC / APC					
Communication Interfaces <sup>h</sup>		RS-232C and GPIB (IEEE-488.1)					
Temperature/Humidity Range		15 °C to 30 °C (60 °F to 85 °F) / <80% (non-condensing)					
Power Supply		100 to 240 V a.c. / 50 to 60 Hz / 60 W					
Laser Safety Classification		Class 1M					
Dimensions (W x D x H)		448 x 370 x 133 mm					
Weight		12.5 kg					

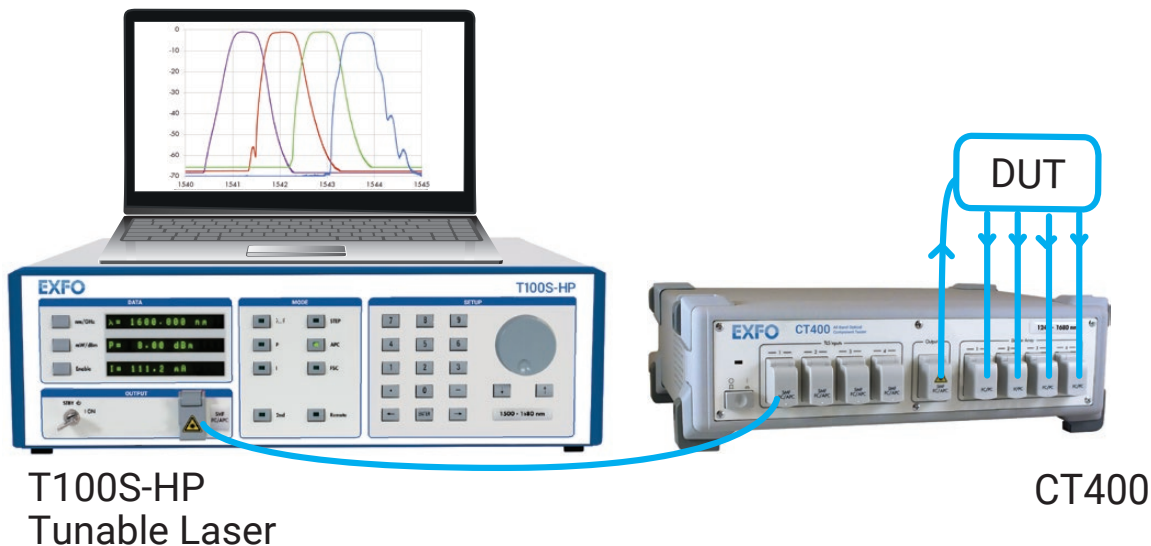
All specifications are given after 60 minutes warm-up and apply for wavelengths not equal to any water absorption.

## Notes

- Measured over a 0.1 nm bandwidth ±1 nm from the signal.
- For output power ≥ 0 dBm.
- Over one hour at constant temperature.
- RIN within the range 100 MHz-3 GHz measured at +8 dBm output power with RBW = 30 kHz.
- O and CL at 10 dBm / Others at 8 dBm, ±40 pm all at 0 dBm.
- Validated at 0 and +10 dBm for essential and 0 and +8 dBm for extended range models.
- Over 100 wavelength scans at constant temperature.
- GPIB tested & validated with National Instruments GPIB Board.

## COMPLETE TEST SOLUTION

T100S-HP lasers are designed to integrate with the CT400 Component Tester to provide a complete swept-wavelength test solution. The CT400 can combine up to four lasers to cover any wavelength range from 1240 to 1680 nm. 5 pm wavelength accuracy is achieved with 100 nm/s scans and 65 dB dynamic range.



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