

T200M

HIGH-POWER CONTINUOUSLY TUNABLE LASER

- High-performance tunable laser optimized for high-volume spectral characterization with EXFO's CTP10 platform.



KEY FEATURES

- Optimized for high-volume manufacturing with CTP10
- Up to 200 nm/s scanning speed
- Wavelength coverage: 1240 nm - 1360 nm or 1500 nm - 1640 nm
- Nominal 10 dBm (10 mW) over full tunable spectral range
- Ultra-low spontaneous emission and narrow linewidth
- Wavelength tuning and continuous sweep modes
- Active mode-hop-free operation

APPLICATIONS

- Automated passive optical component testing
- Photonic integrated circuits (PIC) manufacturing
- High-volume production

RELATED PRODUCTS



Component tester
CTP10



Tunable laser
T200S



Tunable laser
T500S

ESSENTIAL FOR OPTICAL SPECTRAL CHARACTERIZATION

A continuously tunable laser is an essential instrument for optical spectral characterization in both engineering and manufacturing environments. From passive optical components to photonic integrated circuits (PICs), accurate wavelength control and repeatable measurements are critical for validating device performance and maintaining production quality.

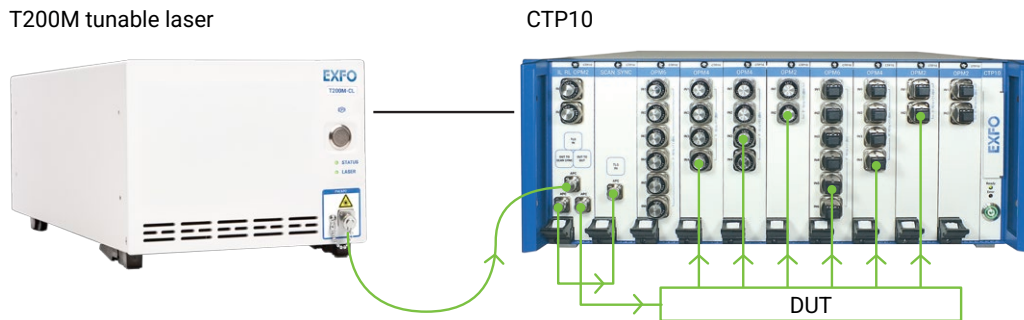
The T200M is designed to support high-volume spectral characterization workflows, combining measurement precision, automated system integration and cost-effective scalability for production test environments.

Testing high-speed PICs and optical components

Integrated photonics can include complex optical components with high-contrast spectrum. For instance, ring resonators may exhibit very narrow spectral features, making insertion loss characterization challenging. In addition to insertion loss, some devices require accurate measurements of return loss, polarization dependent loss and other wavelength-dependent parameters. As production volumes grow, manufacturers also require efficient characterization of multiple devices and outputs to accelerate testing workflows.

When integrated with EXFO's CTP10 component testing platform, the T200M supports automated spectral characterization workflows for photonic integrated circuits, passive optical components and other wavelength-sensitive devices. With high-resolution and high-accuracy spectral measurement, the CTP10 is an integrated solution that leverages the full potential of the T200M for operations at 200 nm/s sweep speed.

For more details, please refer to the [CTP10 specification sheet](#).



Optical component testing

The T200M leverages EXFO's proven tunable laser technology, combining ultra-low signal-to-source spontaneous emission ratio (SSSER), a high-power optical cavity and mode-hop-free operation to deliver accurate and repeatable optical spectral measurements. These capabilities are essential for characterizing optical components and photonic devices at fixed wavelengths or through continuous wavelength sweeps.

Optimized for deployment with EXFO's CTP10 platform, the T200M supports automated manufacturing workflows through USB connectivity and SCPI-based control. The platform simplifies integration and enables efficient scaling across multiple production test stations.

Engineering validation and R&D

While optimized for manufacturing environments, the T200M also supports engineering validation and research activities requiring precise wavelength control and repeatable measurements. Through its standalone operation and modern PC-based user interface, the T200M provides a flexible platform for device characterization, process development and application research.

By combining manufacturing-ready automation with standalone operation, the T200M enables teams to leverage the same instrument throughout the product lifecycle—from engineering evaluation and process optimization to high-volume production deployment.

INDUSTRY-LEADING FEATURES

10 dBm output power with high spectral purity

The T200M exhibits crystal-clear optical spectrum at a nominal optical output power of 10 dBm over the entire tuning range. Indeed, the optical cavity eliminates broadband source spontaneous emission (SSE) without any compromise on optical power and can be set to an optimized linewidth (< 25 kHz).

High spectral purity is maintained throughout the laser sweep thanks to the active mode-hop control, ensuring reliable wavelength sweeps are achieved over and over again.

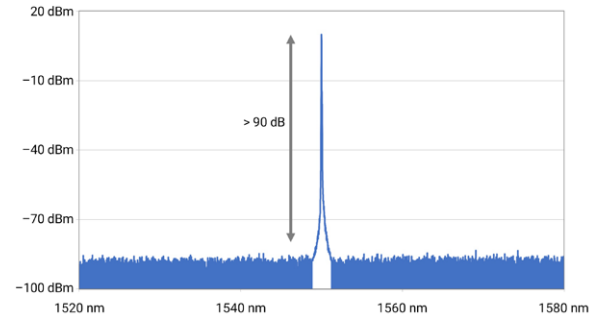


Figure 1. High power and high dynamic range.

High-speed tunability

The T200M can be configured with a scanning speed of 200 nm/s as an option. Where speed is critical, the T200M provides fast and repeatable measurements while supporting efficient production test workflows. Otherwise, the laser can be set to slower scanning speeds all the way down to 0.5 nm/s (e.g., for legacy detection systems).

Wavelength tuning or continuously swept wavelength scans

The T200M has two user modes: TUNE or SWEEP. Each is optimized for specific usage. TUNE mode optimizes the laser control to ensure narrow linewidth at any wavelength or provide rapid and accurate “go-to” wavelength tuning. SWEEP mode performs high-speed mode-hop-free scans over the selected wavelength range of the laser. During that sweep, the laser provides precision wavelength-triggering capabilities with resolutions down to 0.5 pm, enabling synchronized data acquisition and accurate correlation between wavelength and measurement data.

Automation for manufacturing-scale spectral measurements

The T200M is a key part of a spectral characterization system using EXFO’s component testing equipment CTP10, resulting in a spectral measurement benefiting from a wavelength uncertainty of ± 5 pm and excellent wavelength repeatability. Designed for manufacturing-scale deployment, the T200M features a new USB interface for simplified integration with the CTP10 platform and supports SCPI-based automation for seamless incorporation into production test systems. As a standalone instrument, the T200M can also operate through an external PC using a modern user interface for engineering validation and production support activities.

Compact and easy to use

The half-rack configuration and limited footprint make the T200M well suited for both manufacturing and engineering environments. When operated as a standalone instrument, the T200M provides a modern PC-based user interface for intuitive laser control and test configuration.

A rackmount accessory is available to mount one or two lasers inside a 19-in rack bench. An air filter is also available for dusty environments.

Part of the leading series of continuously tunable lasers

The T200M is part of EXFO’s series of continuously tunable lasers that also include the T500S offering adjustable high power, bidirectional sweep functionality and spectral coverage from O-band to U-band.

For more details, please refer to the [T500S specification sheet](#).

SPECIFICATIONS

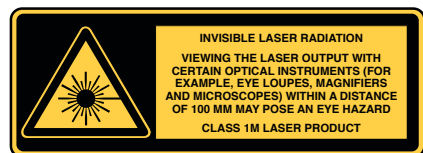
All specifications given at constant temperature $\pm 1^\circ\text{C}$, after wavelength full reference, between 18°C and 28°C (unless otherwise stated), after a 60-minute warm-up and for wavelength not equal to water peak.

OPTICAL CHARACTERISTICS		STANDALONE		WITH CTP10	
		T200M-O	T200M-CL	T200M-O	T200M-CL
Wavelength	Wavelength range (nm)	1240 - 1360	1500 - 1640	1240 - 1360	1500 - 1640
	Wavelength uncertainty (pm) ^a	± 30 (typical) ± 50		± 5 (typical)	
	Wavelength repeatability (pm) ^b	± 5 (typical)		± 1 (typical)	
	Wavelength stability (pm) ^c	± 5		± 5	
	Wavelength resolution setting (pm)	1		1/0.02	
Sweep control	Maximum speed (nm/s)	200		200	
	Adjustable speed (nm/s)	0.5, 1, 2, 5, 10, 20, 50, 100, 200		20, 50, 100, 200	
	Mode-hop-free operation	Active mode-hop cancellation		Active mode-hop cancellation	
	Minimum wavelength sweep trigger resolution (pm) ^j	0.5		0.5	
Optical power	Nominal output power over full wavelength range (dBm)	10		10	
	Power stability (dB) ^c	± 0.01 (typical)		± 0.01 (typical)	
Spectral characteristics	Linewidth (10 μs integration time) (kHz) ^d	< 25 (typical)		< 25	
	Linewidth (100 μs integration time) (kHz) ^d	< 250 (typical)		< 250 (typical)	
	Side mode suppression ratio (SMSR) (dB) ^e	> 50 (typical)		> 50 (typical)	
	Signal-to-source spontaneous emission ratio (SSSER) (dB) ^f	90 (typical)		90 (typical)	
	Signal-to-total-source spontaneous emission ratio (STSSER) (dB) ^g	75 (typical)		75 (typical)	
	Relative intensity noise (RIN) (dB/Hz) ^h	-150 (typical)		-150 (typical)	
Optical output	Optical fiber type ⁱ	PM optical fiber, FC/APC connector		PM optical fiber, FC/APC connector	
	PER (dB)	17 (typical)		17 (typical)	

HARDWARE

Environmental conditions	Operating temperature	15 °C to 35 °C (59 °F to 95 °F)
	Operating humidity	< 80% (non-condensing)
	Warm-up time (hour)	1
Physical footprint	Size (L × H × D)	217 mm × 173 mm × 441 mm (8 9/16 in × 6 13/16 in × 17 3/8 in)
	Weight	8.8 kg (19.4 lb)
Connectivity	Electrical BNC ports	1x trigger IN, 1x trigger OUT, power monitoring and wavelength monitoring
	USB port	USB-B 2.0
Security	Laser safety	Class 1M
	Power supply	100 - 240 V AC; 50/60 Hz; 0.65 - 0.3 A
Accessories (sold separately)	Rackmount	4U tablet accommodating 2 units

LASER SAFETY



- TUNE mode, Standard setting.
- TUNE mode, standard setting and for wavelength tuning from low to high wavelengths.
- Over one hour and at a temperature of $21^\circ\text{C} \pm 1^\circ\text{C}$. Measured at 10 dBm. Stability expressed as $\pm$ half difference between max and min values measured within 60-minute window.
- In TUNE mode, optimized linewidth setting, at 10 dBm and at a temperature of $21^\circ\text{C} \pm 1^\circ\text{C}$.
- At 10 dBm, at $21^\circ\text{C} \pm 1^\circ\text{C}$. For T200M-O: 1270 nm to 1360 nm. For T200M-CL: 1500 nm to 1630 nm.
- Measured over a bandwidth of 0.1 nm, at 10 dBm, for the center wavelength.
- Measured over a span of 100 nm with an exclusion zone of ± 0.6 nm around the signal. Laser at center wavelength.
- RIN within 100 MHz - 3 GHz range with RBW = 30 kHz. For T200M-O: 1270 nm to 1360 nm. For T200M-CL: 1500 nm to 1630 nm.
- Fiber's slow axis and polarization aligned with key connector.
- With output trigger PULSE activated, available for all scanning speeds. Triggers generated at regular wavelength intervals during the sweep; some restrictions apply to wavelength scanning span of the laser according to speed and resolution; not compatible with bidirectional scanning.

ORDERING INFORMATION

T200M-XX-M-XX-58

Wavelength range

O = 1240 nm - 1360 nm

CL = 1500 nm - 1640 nm

Output fiber type

M = Polarization maintaining fiber

Connector

58 = FC/APC

Scanning speed

100 = 100 nm/s max sweep speed

200 = 200 nm/s max sweep speed

Example: T200M-CL-M-200-58

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