

XTL-1600 Tunable Laser Source

High-precision tunable laser source from 1500 nm to 1600 nm

At a Glance

The XTL-1600 provides a continuously tunable optical source across 1500 nm to 1600 nm for photonics, fiber-optic, and optoelectronic measurement.

A 0.1 pm wavelength setting resolution, ± 3 pm absolute wavelength accuracy, and 0.1 to 240 nm/s scan speed support precise swept-wavelength testing.



Precision Swept-Wavelength Source for Optical Test

The XTL-1600 combines a high-accuracy motion system with a precision optical resonator to deliver high-power, narrow-linewidth, mode-hopping-free continuous wavelength sweeping across the standard 1500-1600 nm range.

High wavelength and power repeatability, together with synchronous trigger-level output during wavelength scanning, supports optical-component characterization, OFDR, spectroscopy, and calibration workflows.

Measurement Highlights

- **1500-1600 nm Coverage**
Standard tuning range for telecom and photonic component measurements.
- **0.1 pm Setting Resolution**
Fine wavelength control supports precise step tuning and repeatable sweeps.
- **±3 pm Absolute Accuracy**
Specified at 25±1°C for demanding wavelength-sensitive measurements.
- **0.1-240 nm/s Scan Speed**
A wide continuous scanning-speed range supports both fine and fast sweeps.
- **≥13 dBm**
Peak Output
- **±0.01 dB Power Stability**
Stable source power supports consistent measurements during scanning.
- **<100 kHz Typical Linewidth**
Narrow linewidth supports high-resolution interferometric and spectral work.
- **Mode-Hopping-Free Sweep**
Full-range mode-hopping-free operation supports continuous swept-wavelength tests.

Application Areas

Characterization of Optical Components and Modules

Measure wavelength-related characteristics of silicon photonic chips, filters, wavelength-selective switches, and other optoelectronic devices.

Quantum Photonics

Provide a stable tunable optical source for research and measurement in quantum-photonics systems.

Spectroscopy

Use narrow-linewidth tunable output for wavelength-dependent spectroscopic measurements.

Fiber Optic Transmission Testing

Support tunable-source requirements for fiber-optic transmission and component verification.

Optical Frequency Domain Reflection Analysis

Mode-hopping-free wavelength sweeping and narrow linewidth support high spatial resolution and positioning accuracy in OFDR.

Measurement Calibration and Metrology

Laboratories, enterprise research and development centers, and measurement and testing institutions

Wavelength Control and Scanning

Performance values apply only under the listed conditions and over the stated wavelength range.

Specification	Value
Wavelength tuning range	1500 nm to 1600 nm
Wavelength setting resolution	0.1 pm
Wavelength stability [1]	± 2 pm (typical ± 1 pm)
Absolute wavelength accuracy [2]	± 3 pm
Absolute accuracy under working temperature	± 5 pm
Repeatability	± 2 pm (typical ± 1 pm)
Scanning speed	0.1 to 240 nm/s
Fine tuning range	≥ 10 GHz

Optical Output Performance

Specification	Value
Power stability [1][3]	± 0.01 dB
Power repeatability [3]	± 0.01 dB
Relative intensity noise (typical) [4]	-145 dB/Hz (1 MHz to 3 GHz)

Spectral Characteristics

Specification	Value
Linewidth (Typical) — Self Time Delay [5] (kHz)	< 100
Linewidth (Typical) — Intrinsic Linewidth (kHz)	< 10
Side-mode suppression ratio (typical)	≥ 45 dB
Spontaneous radiation ratio [6]	≥ 65 dB

Connection and General

Specification	Value
Optical port type	FC/APC
Dimensions (W × H × D)	213 × 133 × 451 mm
Weight	7 kg
Power supply	100-240 VAC, 50/60 Hz ±5%
Rated power consumption	30 VA
Working conditions	15°C to 35°C; relative humidity ≤80%

* All specifications are based on at least 1 hour warmup. The specifications are applicable to wavelengths outside the range of water absorption wavelengths.

[1] 1 hour duration, with $\pm 0.5^{\circ}\text{C}$ temperature change; [2] Environmental temperature: $25 \pm 1^{\circ}\text{C}$; [3] Under “Auto” power mode, and output power is greater than 0dBm; [4] Maximum output power; [5] The length of the reference time delay fiber should be less than 2km; [6] The optical spectrum analyzer should be set to 0.02nm resolution and 6nm span. [7] From start wavelength to 1650nm.

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