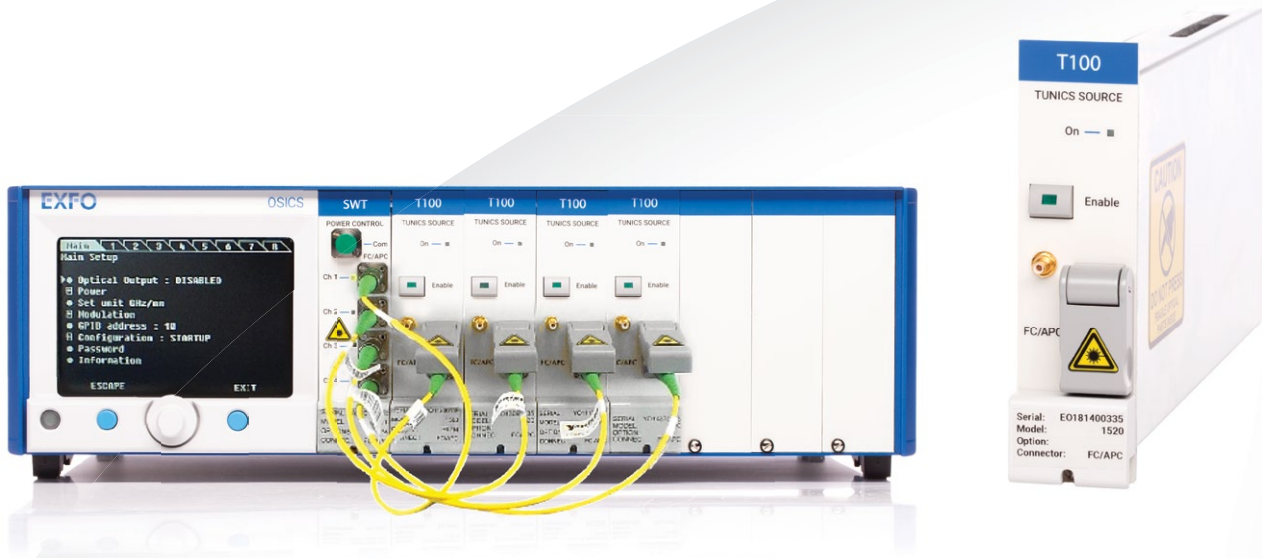


# OSICS T100

## TUNABLE LASER MODULE



EXFO's OSICS T100 is a cost effective, stepped external cavity tunable laser module that integrates the patented T100 cavity. The module combines a narrow linewidth, high output power and ultra-low optical noise, and significantly increases the dynamic range of measurements. Each T100 module can be tuned anywhere across a 100 nm range or can be integrated into the OSICS TKOS-FBL kit to provide full telecom wavelength coverage, from 1260 nm to 1680 nm, in a single unit.

### KEY FEATURES

External cavity design

Spectral coverage from 1260 nm to 1680 nm

>100 nm step-by-step tunability

6 dBm output power

Ultra-low SSE noise: 90 dB/0.1 nm

Narrow linewidth

Digital modulation up to 1 MHz

Easy front panel or remote control

The T100 laser modules are ideal laser sources for stepped optical component testing where high optical power and low optical noise are required to achieve high quality measurements. The OSICS TKOS Full Band Laser can combine four lasers with a SWT switch module in a single OSICS mainframe, providing a unique, cost effective, tunable laser system that covers the full telecom wavelength range with a single fiber output.

## KEY FEATURES

### Complete telecom spectrum coverage

All telecom wavelength bands (O, E, S, C, L and U) are supported through different models of the T100 laser series or the OSICS TKOS kit, which also allow for automated testing from 1260 nm to 1680 nm. Each T100 laser wavelength can be tuned with  $\pm 200$  pm accuracy and a  $\pm 10$  pm step resolution (or 1 pm with the high resolution option R).

### 90 dB/0.1 nm ultra-low optical noise

The unique T100 cavity eliminates broadband spontaneous emission (SSE) normally present in an external cavity laser's output, while maintaining a high output power. The OSICS T100 has one of the lowest figures of merit for SSE of any tunable laser on the market and dramatically improves measurement dynamic range during component testing.

### Modular flexibility

Thanks to its modular design, the OSICS platform can initially be purchased for partial spectral coverage, and later upgraded with modules covering different wavelengths, to stagger capital expenditure.

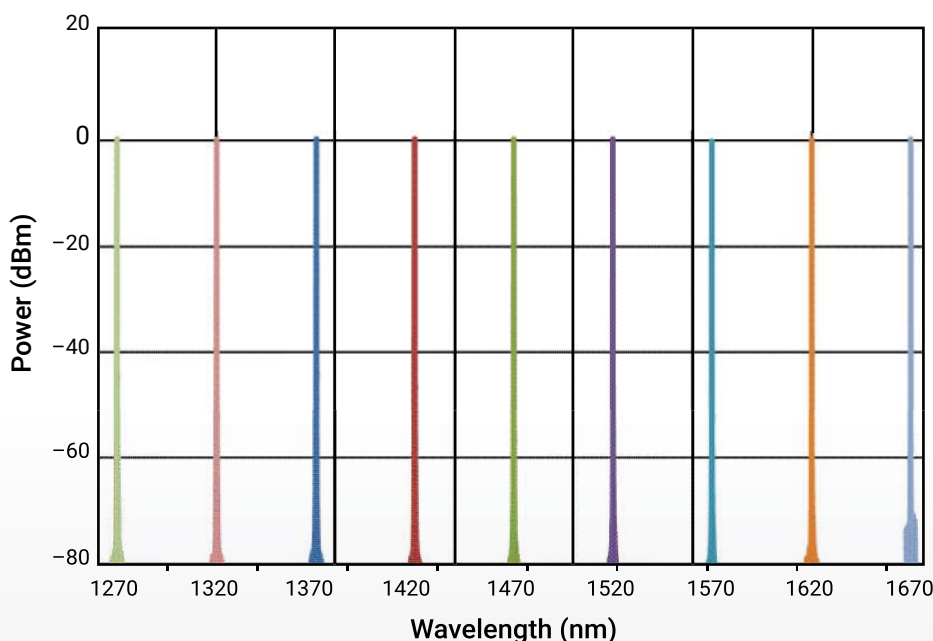


Figure 1. TKOS laser spectra taken at various wavelengths throughout the telecom range

## APPLICATIONS

### Telecom system and component testing

Ultra-low SSE is a big advantage and enables repeatable high dynamic range measurements. Its proven reliability and easy-to-use interface make it ideal for production environments.

### Material characterization

Thanks to its broad spectral coverage, the T100 is ideal for silicon photonics, CWDM, PON and photonic crystal characterization.

### Scientific research and development

Extensive trigger and modulation ports provide added flexibility and satisfy a wide range of test requirements.

## OSICS TKOS FULL BAND LASER KIT

The TKOS kit integrates a full band laser solution in a single unit. The kit is composed of an OSICS mainframe fitted with four lasers (T100 1310, T100 1415, T100 1520 and T100 1620) and a switch module (SWT APC), thus creating a single-fiber output tunable laser solution.



## OVERVIEW OF AVAILABLE MODELS

The laser models cover the main telecom bands and are designed to be included in the OSICS platform, particularly in a **full band laser** setup.

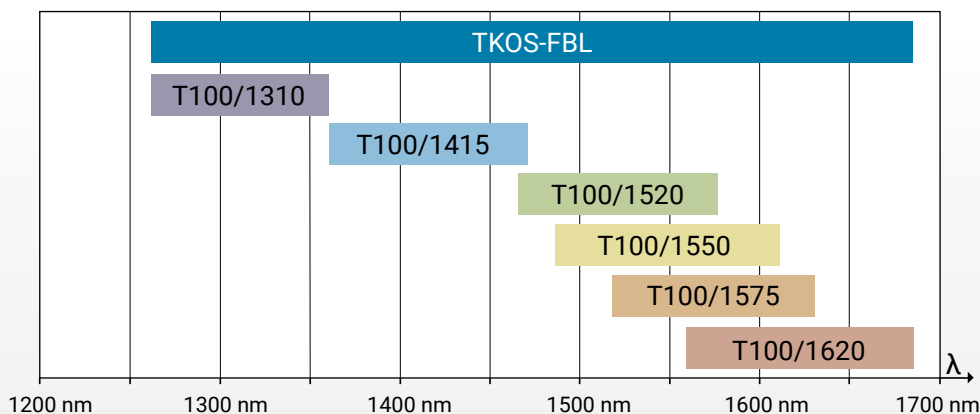


Figure 2. Wavelength range of available T100 modules and TKOS-FBL

Specifications apply after 60-minute warm-up and for wavelengths not equal to any water absorption line.

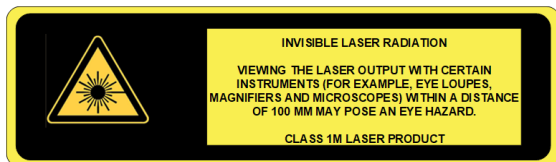
## SPECIFICATIONS

		T100 1310	T100 1415	T100 1520	T100 1550	T100 1575	T100 1620	TKOS FBL	
Wavelength range (nm)	P= 0 dBm								1260-1680
	P= 3 dBm	1260–1360	1360–1470	1465–1575	1490–1610	1520–1630	1560–1680		
	P= 6 dBm	1290–1340	1390–1445	1495–1555	1520–1590	1540–1610	1580–1660		
Signal to source spontaneous emission ratio <sup>a</sup>		≥ 90 dB / 0.1 nm (typical)							
Side mode suppression ratio (dB) <sup>a</sup>		≥ 45							
Stability <sup>b, c</sup>	Wavelength	±0.01 nm/h (±0.01 nm / 24 h typical)							
	Output power	±0.01 dB/h (±0.01 dB / 24 h typical)							
Relative intensity noise <sup>d</sup>		< -140 dB/Hz							
Spectral width (FWHM)		150 kHz typical (coherence control off)							
		> 100 MHz (coherence control on)							
Wavelength setting accuracy (nm) <sup>c</sup>		±0.2							
Wavelength setting repeatability (nm)		±0.01 (typical)							
Wavelength setting resolution (nm)		0.01 (0.001 option R)							0.01
Tuning speed (step-by-step) (nm/s) <sup>e, f</sup>		10 (typical)							
Optical power accuracy (dB) <sup>g</sup>		± 0.2							
Analog modulation		50 Hz to 50 MHz (external)							
Digital modulation		50 Hz to 1 MHz (internal and external)							
Optical isolation (dB)		35							
Output fiber type		SMF or PMF (option M)							SMF
Output connector		FC/APC narrow key							
Laser safety classification		Class 1M							

### Notes

- Measured over a 0.1 nm bandwidth ±1nm from the signal.
- At constant temperature.
- Measured at 0 dBm output power.
- RIN within the range 100 MHz–3 GHz measured at 3 dBm output power with RBW = 30 kHz.
- With the high resolution option (R) the tuning speed is 2.5 nm/s typical.
- The kinematic chain of the laser does not allow for sweep.
- Not calibrated above 1660 nm

## LASER SAFETY



**ORDERING INFORMATION**

**OS-T100-XX-XX-58**

**Wavelength range**

- 1310 = 1260–1360 nm
- 1415 = 1360–1470 nm
- 1520 = 1465–1575 nm
- 1550 = 1490–1610 nm
- 1575 = 1520–1630 nm
- 1620 = 1560–1680 nm

**Connector**

- 58 = FC/APC

**Option**

- 00 = SMF28 singlemode fiber with standard wavelength resolution (10 pm)
- M = Polarization maintaining fiber with standard wavelength resolution (10 pm)
- R = SMF28 singlemode fiber with high wavelength resolution (1 pm)
- MR = Polarization maintaining fiber with high wavelength resolution (1 pm)

Example: OS-T100-1310-00-58

**ORDERING INFORMATION OSICS FULL BAND LASER**

**TKOS-8-XX-FBL**

**Connector**

- FBL = Full band laser

**Rackmount on mainframe**

- 00 = Without rackmount handles
- H = With rackmount handles

Example: TKOS-8-H-FBL

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