DEVISER®

35+ YEARS OF INNOVATION

Tunable Laser Source

www.deviserinstruments.com

About Deviser photoelectric

Deviser photoelectric is one of the leading manufacturers specializing in test and measurement equipment for the optical communication industry. Building on 35 years of innovation, Deviser's test and measurement equipment is renowned for its accuracy, reliability, and ease of use. We offer a wide range of innovative optical test and measurement solutions that accelerate the progress of next-generation intelligent optical networks. Our aim is to shorten time-to-market and reduce cost-of-test for customers in R&D and manufacturing while enabling new technologies such as innovative optical components, network elements and systems, and all-optical fiber networks. Collaborating with leading optical chipset and transceiver developers and manufacturers, we provide competitive test solutions that offer significant advantages.

At Deviser, we are dedicated to exploring the boundless possibilities of photonics, developing cutting-edge test and measurement solutions, and driving advancements in digital transformation, AI, cloud computing, 5G communication, and more.

We are dedicated Optical Communication Measurement specialists with extensive experience and in-depth knowledge.

35+
Years of Innovations

300+
employees and customers in 100 countries

247,000 ft²
R&D and Manufacturing facilities

A comprehensive Photonics Test and Measurement solution powered by DEVISER


Optical Spectrum Analyzer


Tunable/Stable Laser Source


Optical Wavelength Swept Test System


Multifunction Modular Platform

TLS105X/TLS103X Series
Tunable Laser Source

Key Benefits

- Wide tuning range of 160nm in one single laser
- Bidirectional 200 nm/s sweeping speed
- Maximum output power > +13 dBm (TLS105X Series) and > +15dBm(TLS103X Series)
- Low ASE, high dynamic range
- Narrow linewidth < 100 kHz
- Mode-hop-free continuous tuning

Overview

Brought to you by Deviser photoelectric, the TLS10XX series is a full-wavelength-band tunable laser source designed with an advanced laser cavity. It offers market-leading performance in terms of wide tuning range, high wavelength accuracy, narrow linewidth, high optical power, high sweeping stability, and versatile trigger control.

The TLS105X series tunable laser source covers O, S, U, E, C, and L bands. The well-designed laser cavity, combined with ultra-low noise electronics, enables market-leading performance in terms of a wide tuning range, high optical power, low noise level, narrow linewidth, and hop-free sweeping.

The TLS103X series is a new compact tunable laser source. The redesigned laser cavity, combined with ultra-low noise electronics, significantly enhances the performance of the laser. It offers precise speed control up to 200 nm/s, a wide tuning range of 160 nm in a single laser, high output power, high signal-to-noise ratio, and narrow linewidths without mode hopping. It is extensively used for the characterization of optical components, fiber optic transmission, and fiber sensors testing, as well as applications in optical spectroscopy and interferometry. The TLS103X integrates seamlessly with Deviser's polarization controllers, optical power meters, and optical switches to create a benchmark turn-key Optical Wavelength Swept Test System for testing WSS and other passive optical components.

Specifications

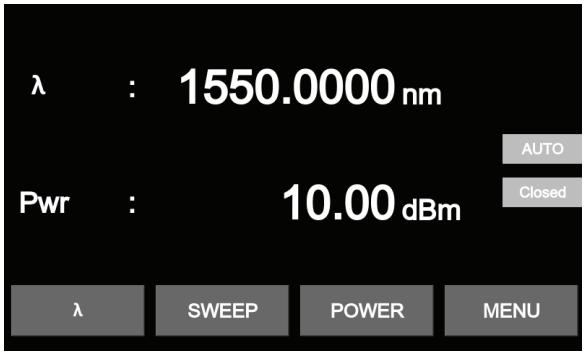
Category	Parameter		TLS1056 (C+L)	TLS1055 (O)	TLS1053 (S)	TLS1058 (U)	TLS1052 (E)	TLS1051 (C+L)
Wavelength Characteristics	Wavelength tuning range		1480 to 1640nm	1240 to 1380nm	1460 to 1530nm	1560 to 1680nm	1355 to 1505nm	1500 to 1630nm
	Wavelength setting resolution		0.1pm					0.2pm
	Wavelength accuracy[1]		±3pm					±8pm
	Wavelength repeatability[1]		±1pm					±3pm
	Wavelength stability[2]		<±1.5pm					<±4pm
	Sweep speed		0.5 to 200nm/s					0.5 to 100nm/s
Optical Power Characteristics	Output power		+13dBm Peak(typ.) ≥ +10dBm (1500 to 1630nm) ≥ +7dBm (full range)	+13dBm Peak(typ.) ≥ +10dBm (1260 to 1360nm) ≥ +7dBm (full range)	+13dBm Peak (typ.) ≥ +7dBm (full range)	13dBm Peak (typ.) ≥ +7dBm (full range)	+13dBm Peak(typ.) ≥ +10dBm (1380 to 1485nm) ≥ +7dBm (full range)	+12dBm Peak(typ.) ≥ +8dBm (1520 to 1620nm) ≥ +5dBm (full range)
	Power repeatability[1]		±0.02dB					±0.04dB
	Power stability[2]		±0.02dB					±0.04dB
	Power flatness vs. wavelength		±0.3dB					±0.4dB
	Relative intensity noise[3]		<-145(dB/Hz)					
Spectrum	Linewidth		<100kHz					<200kHz
	SMSR		≥ 45dB					≥ 50dB
Interface	Optical output connector		FC/APC					
	Optical fiber		PMF					
	Communication interface		GP-IB, USB, LAN					
Environmental Conditions and others	Operating	Temperature	15 °C to 35 °C					
		Humidity	<80% (non-condensing)					
	Power supply		AC 100 - 240 V (±10 %), 50/60 Hz					
	Power consumption		100VA					
	Dimensions (W) x (D) x (H)		440mm x 423mm x 133mm					
	Weight		16.5kg					

Category	Parameter		TLS1036 (C+L)	TLS1035 (O)	TLS1033 (S)	TLS1038 (U)	TLS1032 (E)
Wavelength Characteristics	Wavelength tuning range		1480 to 1640nm	1240 to 1380nm	1460 to 1530nm	1560 to 1680nm	1355 to 1505nm
	Wavelength setting resolution		0.1pm				
	Wavelength accuracy[1]		±2pm				
	Wavelength repeatability[1]		±1pm				
	Wavelength stability[2]		<±1pm				
	Sweep speed		0.5 to 200nm/s				
Optical Power Characteristics	Output power		+15dBm Peak(typ.) ≥ +10dBm (1500 to 1630nm) ≥ +7dBm (full range)	+13dBm Peak(typ.) ≥ +10dBm (1260 to 1360nm) ≥ +7dBm (full range)	+13dBm Peak (typ.) ≥ +7dBm (full range)	+13dBm Peak(typ.) ≥ +7dBm (full range)	+13dBm Peak(typ.) ≥ +10dBm (1380 to 1485nm) ≥ +7dBm (full range)
	Power repeatability[1]		±0.02dB				
	Power stability[2]		±0.02dB				
	Power flatness vs. wavelength		±0.3dB				
	Relative intensity noise[3]		<-145(dB/Hz)				
Spectrum	Linewidth		<100kHz				
	SMSR		≥ 45dB				
Interface	Optical output connector		FC/APC				
	Optical fiber		PMF				
	Communication interface		GP-IB, USB, LAN				
Environmental Conditions and others	Operating	Temperature	15 °C to 35 °C				
		Humidity	<80% (non-condensing)				
	Power supply		AC 100 - 240 V (±10 %), 50/60 Hz				
	Power consumption		100VA				
	Dimensions (W) x (D) x (H)		220mm x 428mm x 133mm				
	Weight		8kg				

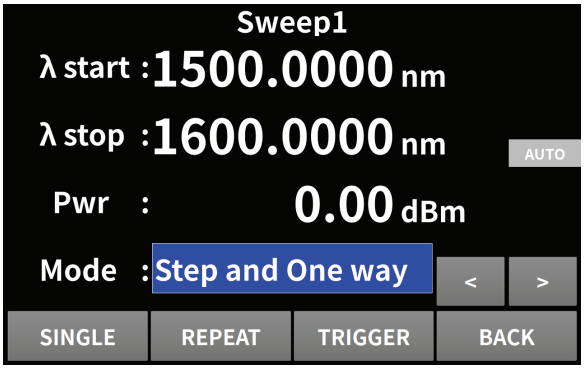
* All specifications are quoted after 1 hour warm-up period. Specifications apply for wavelengths not equal to any water absorption line.
1. At static condition or "Step" sweep mode.
2. Within 1 hour, temperature variation within ± 0.5 °C.
3. At maximum output power.

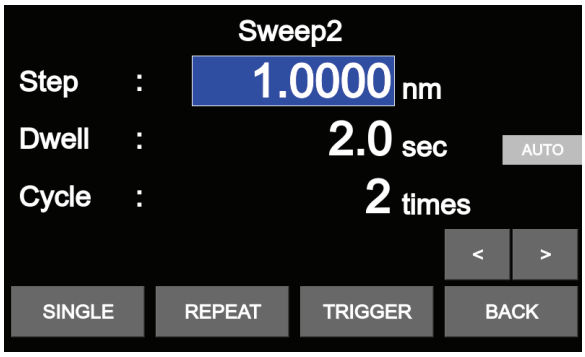
Setup Interface

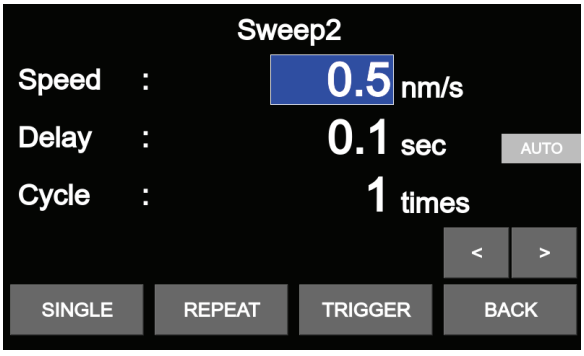
Wavelength and Power setup

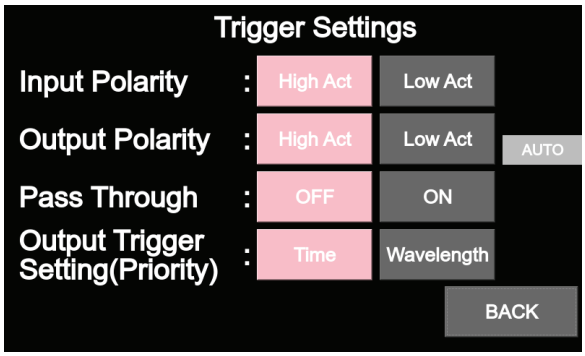


Sweeping Mode setup







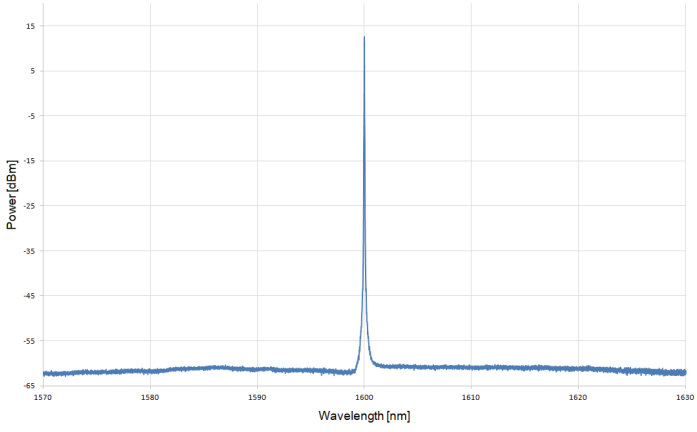


Technical Features

The TLS10XX series tunable laser source is equipped with an external cavity structure, which ensures a strong and reliable driving mechanism for long-term instrument performance. This design guarantees stable wavelength output without mode hopping, while also enabling fast wavelength sweeping and maintaining high precision of wavelength and output stability.

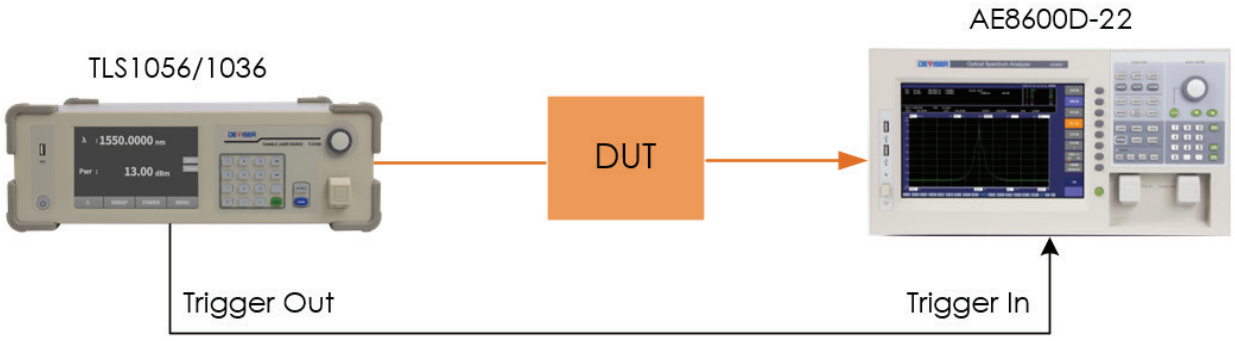
Typical Data

- Optical Spectrum

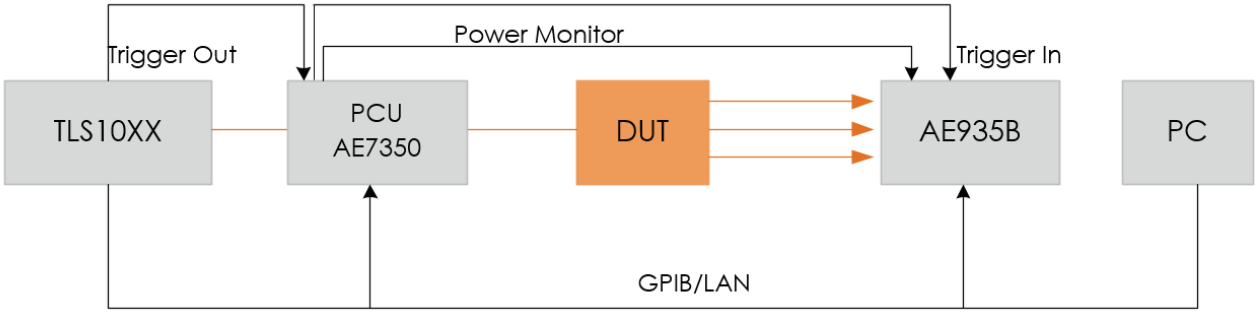


Typical Applications

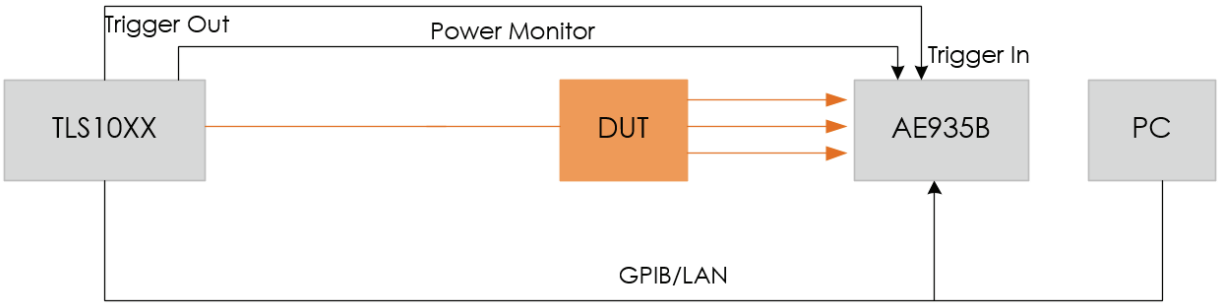
TLS10XX series tunable laser source and AE8600D-22 optical spectrum analyzer form an efficient scanning test system for passive optical device characterization (e.g., WDM), featuring trigger-synchronized operation through dedicated ports to enhance both R&D and production efficiency.



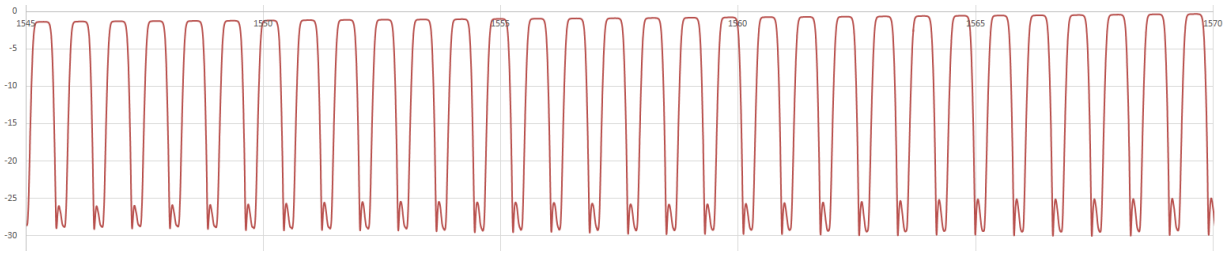
Combining one of Deviser's tunable laser sources with Deviser's optical power meter, and a polarization control unit, the Optical Wavelength Swept Test System is capable of measuring passive optical components such as multiplexers/demultiplexers, interleavers and wavelength selective switches (WSS) used in optical fiber networks. This integrated system achieves optimal measurement performance for evaluating insertion loss (IL) and polarization-dependent loss (PDL), ensuring high dynamic range, stability, and quality while significantly reducing time-to-measurement.



IL / PDL measurement setup with the polarization controller AE7350 and the optical power meter AE935B



IL measurement setup with the optical power meter AE935B



WSS and other passive components sweeping test
Mode-hop free: sweeping speed 50 nm/s

Ordering Information

TLS - 10XX - XXXXXX - X - XX

- XX: Model No.: 56/36; 55/35; 53/33; 58/38; 52/32
- XXXXXX: Wavelength range (e.g. 480640: 1480-1640nm)
- X: Connector type: F:FC; S:SC
- XX: Connector polish: AP: APC

- Example: TLS1056-480640-F-AP

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