Semight INSTRUMENTS

Fast Wavelength Meter

FWM8612

Datasheet V2.6

Contents

1 Product Description

With the growing demand for communication data, it is necessary to have a larger capacity optical communication transmission system, which drives optical component/network equipment manufacturers to use coherent communication modules based on wavelength tunable lasers in their transmission backbone networks. At present, the wavelength tunable lasers and coherent modules will be used in MAN, or even access networks. Accurate measurement and wavelength calibration are crucial for tunable lasers. With the continuous increase of communication channels from the initial 40 waves to maximum 800 waves currently, efficient and accurate wavelength testing is becoming more critical than ever.

Semight Instruments FWM8612 fast wavelength meter is designed and developed to meet this new test requirement. Based on Fizeau interferometer technology, the FWM8612 is combined with temperature-stable controllers, multi-stage composite interferometers, and linear array CCD detectors. Different with conventional Michelson interferometer wavelength meters, the all-solid-state structure of FWM8612 has the optical design with no mechanical moving parts, allowing it to achieve accurate measurement of 1 pm at sampling rates up to 1 kHz. Based on external triggering and fast power detection, the FWM8612 will be the best choice for accurate observation of wavelength and power synchronous transients.

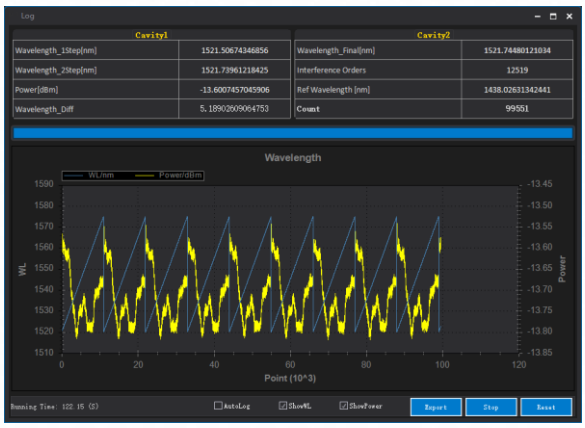
2 Product Features and Advantages

Key features

- High wavelength measurement accuracy： ±0.33ppm(±0.5pm Typical), capable for wavelength calibration.
- Solid structure, Non-moving optical parts, fast test speed: 1kHz refresh rate, suitable for transient wavelength and power measurement, test time saving for iTLA, DBR and coherent communication modules.
- Support external trigger, could be used with SMU precision source meter for synchronous test.
- Be applicable to iTLA and tunable laser for fast wavelength test.
- Support broadband mode, be able to test 25 Gbps modulated optical signal
- Drift test and max & min value display.
- 0.1pm/12.5MHz wavelength resolution.

Software functions

- Intuitive GUI make it easy to configure and display all the information, such as wavelength and power.



3 Specifications

Instrument Specifications

Wavelength measurement	
Wavelength range	1250~1650 nm (182~240THz)
Wavelength accuracy	±0.33 ppm(±0.5pm@1550 nm)
Wavelength repeatability	±0.07 ppm(±0.1pm@1550 nm)
Wavelength stability	<±0.3pm@24 小时
Wavelength resolution	0.1pm
unit	nm, cm^{-1}, THz
Power measurement	
Calibration accuracy	±0.5 dB(±30nm from 1310 and 1550 nm)
Linearity	±0.5 dB(1250–1650 nm)
Polarization Dependence	±0.5 dB(1250–1650 nm)
Display resolution	0.01 dB
Unit	dBm, mW

Sampling rate	
Single sampling	Single sample ~ 200 Hz
External trigger	Up to 1000 Hz
Internal trigger	1~1000 Hz configurable
Triger	
Triger level	TTL
External trigger	Wavelength and power synchronized Trigger (1~1000 Hz)
Internal trigger	Internal trigger frequency configurable (1~1000 Hz)
Input Optical Signal	
Input optical power	-30 dBm~+10 dBm (8 μW~10 mW)
Optical connector	9/125μm Single mode fiber (FC/PC) Optional：Single mode fiber（FC/APC）
Optical connector return loss	>35 dB
Multi-peak Detection	
Minimum frequency separation between main and secondary peaks	2300 MHz
Minimum power separation between main and secondary peaks	17 dB

Environmental specifications

General specification	
Built-in temperature control	Optical unit controls temperature with precise TEC
Remote control	API supports remote control and high-speed sampling mode
Operating Environment	Indoor 17°C~+28°C, 30%~80% Relative Humidity with no condensation
Storge	-10°C~+50°C,10%~90% Relative Humidity with no condensation
Operating atmospheric pressure	500-900 mm Hg
Power supply	Voltage：100-240 VAC, Frequency：50/60 Hz, Maximum power consumption：250 W, Fuse: T3.15AL 250 VAC
Dimensions（mm）	408*441*157 (With foot pads)
Weight	Net weight 12.0 kg
Interfaces	Communication interfaces：LAN, USB, RS232 External trigger：BNC (Internal/external trigger, high-speed acquisition mode) SCPI

4 Ordering information

FWM8612	Fast Wavelength Meter
Supplied accessories	Power cord, USB cable, Ethernet cable, USB flash drive（Including Measurement Software，Drivers and Related Manuals）

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