DEVISER®

33+ YEARS OF INNOVATION

Optical Spectrum Analyzer

AE8700

www.deviserinstruments.com

Optical Spectrum Analyzer
AE8700

Key Benefits

- Single mode and multi-mode wavelength range from 800nm to 1650nm.
- Wide range of power measurement from +23dBm to -85dBm and wide dynamic range up to 80dB typical
- Outstanding wavelength & power measurement accuracy with λ resolution up to 0.01nm and built-in calibration source(Option)
- WDM, Laser, and EDFA test modes
- 10.1" 1280x800 TFT touchscreen LCD
- Multiple data storage and interface – LAN (RJ-45), USB, RS232, GP-IB(Option) … etc.
- Customizable auto-test scenario

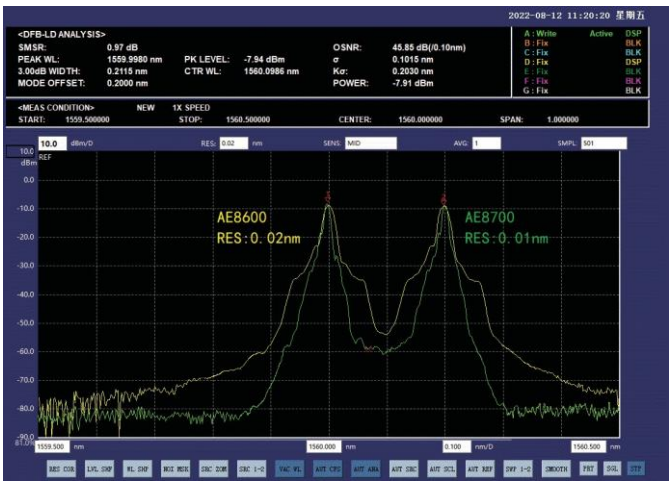
Overview

Brought to you by Deviser Instruments Inc, the AE8700 is a high-precision diffraction-grating, high-resolution optical spectrometer with wavelength range of 800nm to 1650nm. The 10.1" LCD touchscreen and concise graphical user interface of AE8700 offer the easiest way to handle optical spectrum analysis.

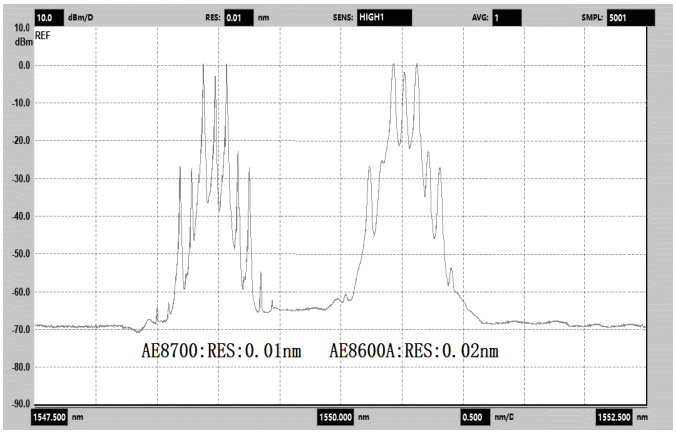
AE8700 provides a wide selection of test methodology, including laser spectrum scans (DPB, FP), WDM system testing, EDFA system testing, transmittance and drift testing, which are essential for in-field and factory applications. The AE8700 offers exceptional stability and reliability, high-speed spectral sweeping, and multiple ways to export and analyze measurement data. It's the ideal instrument for fast and precise optical spectral testing to satisfy long-term investment with the best cost performance value.

key features

Higher resolution facilitates spectral detail measurement



AE8700 supports various modulation formats for spectral measurement



Spectral Comparison Test of 10G Modulation Signal

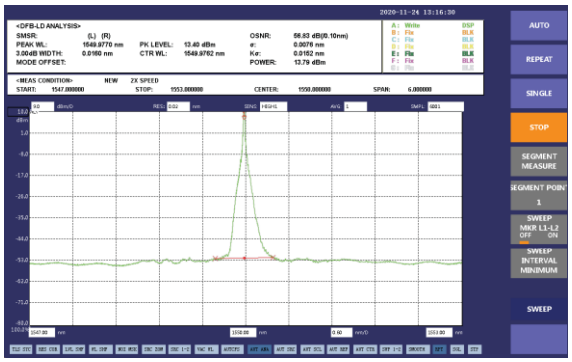
Typical applications

Optical Amplifier (EDFA) Measurement

- PSSE– Source Spontaneous Emission (SSE) spectral density at the signal wavelength
- PASE – Total noise spectral density, including SSE, at the signal wavelength
- Gain
- Noise coefficient

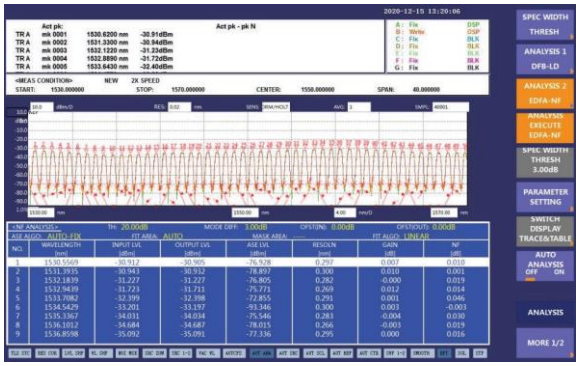
Distributed Feedback Laser Diode (DFB LD) Analysis

- Center wavelength and power
- Total power
- Bandwidth
- Side Mode Suppression Ratio (SMSR)
- Optical Signal-to-Noise Ratio (OSNR)
- Drifting of center wavelength



Wavelength-Division Multiplexing (WDM) Channel Analysis

- Channel wavelength and power
- Channel drifting
- Optical Signal-to-Noise Ratio (OSNR)
- Bandwidth

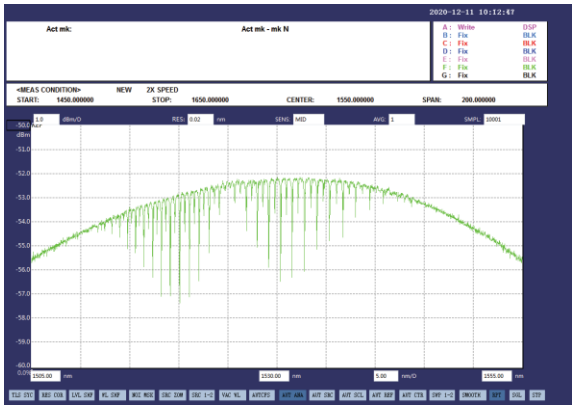


Fabry-Perot Laser Diode (FP LD) Analysis

- Center wavelength and power
- Root-Mean-Square (RMS) and Full Width at Half Maximum (FWHM) of power spectral density over wavelength range
- Bandwidth
- Mode separation

Gas measurement

When used with broadband light sources such as super continuum (SC) or super luminescent diode (SLD), the AE8700 can display the light absorption spectrum of the measured gas mixture.



Notch Width Measurement

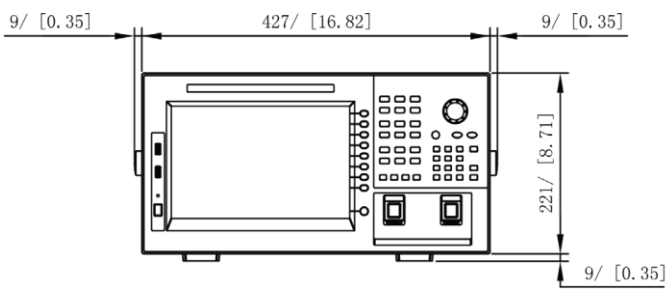
With notch width measurement, it is possible to measure pass band width/notch width from the measure waveform of a filter with V-character type or U-character type wavelength characteristics.

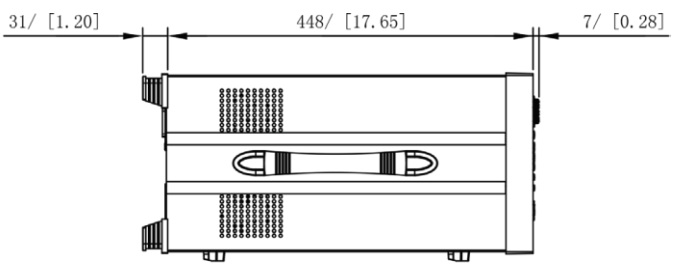
Functions

Item	Function
Measurement	
Sweep mode	Repeat sweep, single sweep, AUTO (automatically sets measuring condition) , sweep between marker, data logging
Condition Setting	Center wavelength, span, wavelength sampling points, wavelength resolution, measurement sensitivity, high dynamic mode, average count(1 to 999), double-speed measurement mode, smoothing, APC level correction
Others	Sweep status output, analog output
Display	
Vertical scale	Level scale (0.1 to 10dB/div., linear) , level subscale (0.1 to 10dB/div., linear) , reference level display, DIV display (8, 10 or 12) , power density (dB/nm), dB/km, %, noise mask
Horizontal scale	wavelength (nm), frequency(THz), zoom
Display mode & items	Single waveform display, split screen display, data table display, label display, template display, measurement condition display
Trace	
Trace functions	Simultaneous display of 7 independent traces, max/min value detection display, calculation between traces display, normalized display, curve fit display, peak curve fit display, marker curve fit display, roll averaging (2 to 100 times)
Others	Trace copy /trace clear, Write/Fix setting, show / hide setting
Marker &Search	
Marker	Delta marker(Max.1024), vertical / horizontal line markers, advanced marker
Search	Peak search, bottom search, auto search (On/OFF), search between vertical axis line marker, search within zoom area
Data analysis	
Analysis functions	Spectral width analysis (threshold, envelope, RMS, peak-RMS, notch) , WDM (OSNR) analysis, EDFA-NF analysis, filter peak/bottom analysis, WDM filter peak/bottom analysis, DFB-LD/FP-LD/LED analysis, SMSR analysis, power analysis, PMD analysis
Others	Auto analysis execution setting(ON/OFF), analysis between vertical axis line markers, analysis within the zoom area
Other functions	
Alignment	Auto alignment using built-in calibration light source.

Dimensions

Unit: mm/[approx. Inch]





Specifications

Optical Spectrum Measurement Specifications	
Applicable fiber	SM(9.5/125μm), MMF(50/125μm, 62.5/125μm)
Wavelength range[1]	800 ~ 1650nm
Wavelength resolution setting[1,2]	0.01nm, 0.02nm, 0.05nm, 0.1nm, 0.2nm, 0.5nm, 1nm
Wavelength resolution bandwidth accuracy[1,2,5]	±5%(1450 to 1620nm, Resolution setting: ≧0.1nm, after performing the Resolution Calibration function, at the wavelength of resolution calibration)
Wavelength accuracy[1,2,5]	1520 to 1620 nm ±0.005 nm 1450 to 1520 nm ±0.02 nm Entire wavelength range ±0.05 nm
Wavelength repeatability[1,2]	±0.004 nm (1 min.)
Wavelength linearity[1,2,5]	±0.008 nm (1520 to 1580 nm) ±0.015 nm (1450 to 1520 nm, 1580 to 1620 nm)
Min. sampling resolution[1]	0.001nm
Optical Power Measurement Specifications	
Level sensitivity[2,3,4,7]	-85dBm(1300-1620nm, resolution ≥0.05nm) -80dBm(1000-1300nm, resolution ≥0.05nm) -55dBm(600 - 1000nm, resolution ≥0.05nm)
Maximum input power[2,3]	+23dBm(Per channel,full range)
Maximum safe input power[2,3]	±25dBm(Total input power)
Level accuracy[2,3,4,6]	±0.2dB(1310/1550nm, input level: -20dBm)
Level linearity[2,3]	±0.05dB(input level: -50~+10dBm)
Level flatness[2,3,6]	±0.1dB(1520 to 1580nm), ±0.2dB(1450 to 1520nm, 1580 to 1620nm)
Wavelength sampling points	101 to 50001, AUTO
Optical return loss[11]	>35dB (with angled-PC connector)
Polarization dependence[2,3,6]	±0.05dB(1550nm)
Dynamic range[1,2,8]	Peak ±0.1nm 55dB (Resolution: 0.01nm) Peak ±0.4nm 75dB (Resolution: 0.01nm) Peak ±1.0nm 80dB (Resolution: 0.01nm)
Level sensitivity setting	NORM_HOLD, NORM_AUTO, NORMAL, MID, HIGH1, HIGH2, HIGH3
High dynamic mode	SWITCH(Sensitivity: MID, HIGH1-3)
Sweep time[1,7,9]	0.2s(NORM_AUTO)、0.8s(NORMAL)、1.8s(MID) 4s(H1)、16s(H2)、60s(H3) (SPAN ≤100nm Sampling Points 1001)
Warm-up time	Minimum 1hour

General Specificatons		
Display	10.1 inch TFT LCD touchscreen (Resolution: 1280×800)	
Interface	USB2.0 ×5, USB 3.0, VGA, GP-IB (Option)	
	RJ45 LAN port (10M/100M/1000M), RS232-DB9	
Data storage	Internal storage: 120GB hard-drive File types: CSV,Binary,BMP	
Operating temperature	+5 ~ +35℃	
Storage temperature	−10 ~ +50℃	
Power supply	AC	100-240V 1.7A 50~60Hz
Dimensions	427*221*448 (mm)	
Weight	22kg	
Performance quadrate temperature	+18 ~ +28℃	
Safety standards	EN61010-1	
EMC(Emission)	EN IEC 61326-1, EN IEC 61326-2-1 and CISPR 16-1 series standards, Class A Group 1, IEC 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-8, IEC 61000-4-4, IEC 61000-4-6, IEC 61000-4-11	

1. Horizontal axis scale: In wavelength display mode.
2. 9.5/125 μm single mode fiber (PC polishing), after warm-up of 1 hours, after alignment with a built-in wavelength reference light source or single longitudinal mode laser (wavelength: 1520 to 1560 nm, wavelength stability: ±0.01 nm or less)
3. Vertical scale: absolute value level display mode, resolution setting: 0.05 nm or more, resolution correction: OFF
4. When using 9.5/125 μm single mode fiber
5. After wavelength calibration using a built-in wavelength reference light source or single longitudinal mode laser
6. With the resolution setting of 0.05 nm, at ambient temperature of 23 ±3 °C.
7. High dynamic mode: OFF, pulse light measurement mode: OFF, resolution correction: OFF
8. 1523 nm, high dynamic mode:SWITCH, resolution correction: OFF
9. Span 100 nm or less, wavelength sampling points: 1001, averaging times: 1
10. When applying a HeNe laser (1523 nm), resolution: 0.1 nm, 1520 nm to 1620 nm (excluding peak wavelength ± 2 nm).
11. When using the signal mode fiber with our standard Angled PC connector, it is 15 dB(Typ.) when using the PC connector