

KEYSIGHT TECHNOLOGIES (AGILENT HP)

86140A

The Keysight Agilent 86140A is a high-performance benchtop optical spectrum analyzer (OSA) designed for demanding research and development (R&D) and high-throughput manufacturing environments. Offering high wavelength accuracy, exceptional dynamic range, and flexible measurement capabilities, the 86140A provides accurate analysis for WDM systems, optical amplifiers, and active laser sources.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB), RS-232, Parallel Printer Port, VGA Output, Analog Output, Trigger Input/Output, PS/2 Keyboard/Mouse Ports
Display	6.4-inch active matrix color LCD

Physical

Power Supply	90 V to 260 V AC, 47 Hz to 63 Hz, < 230 VA
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	425 mm × 222 mm × 509 mm mm
Weight	16.5 kg kg

Wavelength Specifications

Wavelength Range	600 to 1700 nm
Wavelength Accuracy	±0.5 nm (600 to 1700 nm), ±0.2 nm (1525 to 1570 nm)
Wavelength Reproducibility	±0.01 nm
Wavelength Temperature Dependence	±0.01 nm/°C
Minimum Span	0.2 nm
Maximum Span	1100 nm
Wavelength Tuning Repeatability	±0.003 nm

Resolution Bandwidth (RBW)

Resolution Bandwidth Settings (FWHM)	0.07, 0.1, 0.2, 0.5, 1, 2, 5, 10 nm
Resolution Bandwidth Accuracy	±3% (at 1550 nm, 0.07 to 2.0 nm settings)
Minimum Resolvable Wavelength Spacing	0.07 nm

Amplitude and Power Specifications

Power Measurement Range	-90 to +10 dBm
Minimum Input Decibel	-90 dBm
Maximum Input Decibel	+10 dBm
Maximum Safe Input Power	+20 dBm
Amplitude Accuracy	±0.5 dB (at 1550 nm)
Amplitude Flatness	±0.2 dB (1525 to 1570 nm)
Amplitude Linearity	±0.05 dB (for -50 to +10 dBm)
Dynamic Range at ±0.5 nm offset	-50 dB
Dynamic Range at ±1.0 nm offset	-55 dB
Polarization Dependence	±0.15 dB (1525 to 1570 nm)
Noise Floor (Sensitivity)	-90 dBm (1250 to 1610 nm)

Sweep and Measurement Performance

Minimum Sweep Time	180 ms
Sweep Time (50 nm Span)	180 ms
Number of Trace Points	51 to 10001

Optical Interface and Calibration

Optical Input Connector Type	Keysight/HP Universal Adapter (FC, SC, ST, etc.)
Optical Input Fiber Type	9/125 µm Single-Mode Fiber
Internal Calibration Source Wavelength	1520 to 1560 nm (with Option 006)
Optical Port Return Loss	>35 dB
Optical Alignment Function	Automatic optical alignment for input optimization

Analysis and Application Software

WDM Channel Analysis	Built-in channel power, wavelength, spacing, and SNR measurements
Optical Amplifier Analysis	Built-in Erbium-Doped Fiber Amplifier (EDFA) Gain & Noise Figure (NF) analysis
DFB Laser Analysis	Built-in center wavelength, SMSR, and bandwidth characterization
FP Laser Analysis	Built-in peak wavelength, FWHM, and mode spacing characterization
LED Analysis	Built-in mean wavelength, FWHM, and total power characterization
Passive Component Test Functions	Bandpass filter, isolation, insertion loss, and crosstalk analysis
Multi-wavelength Analysis	Simultaneous evaluation of multiple spectral peaks
Marker and Trace Functions	6 active traces, delta markers, peak search, active tracking

Connectivity and Interfaces

GP-IB (IEEE-488) Interface	Dual ports (HP-IB system control & external controller)
RS-232 Interface	9-pin D-sub port
External VGA Output	15-pin D-sub connector
Parallel Printer Port	25-pin D-sub (Centronics)
Floppy Disk Drive	3.5-inch 1.44 MB MS-DOS compatible
Trigger Input / Output	BNC connectors (TTL levels)

Environmental and Compliance

Warm-up Time	40 minutes
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Configuration and Options

Optical Connector Interface Options	FC/PC, SC, ST, DIN, HMS-10
Option 001	Current source output
Option 002	Built-in white light source
Option 006	Built-in wavelength calibrator

Options

Option 004	Built-in 1310 nm EELED source
Option 005	Built-in 1550 nm EELED source

Option Specifications

Option 001 Current Source Range	0 to ± 100 mA
Option 001 Current Source Voltage Limit	± 2.7 V (compliance voltage)
Option 002 Source Wavelength Range	900 nm to 1700 nm

Measurement Resolution

Wavelength Display Resolution	0.001 nm
Amplitude Display Resolution	0.01 dB

Power Requirements

Maximum Power Consumption	230 VA
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Environmental Specifications

Operating Altitude	Up to 4,600 m
Storage Altitude	Up to 15,240 m

Compliance

Electromagnetic Compatibility	Conforms to CISPR Pub. 11 Group 1, Class A
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Optical Performance

Monochromator Type	Single-pass
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System & Programming

Command Set	SCPI (Standard Commands for Programmable Instruments)
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Interfaces

Keyboard Connector	PS/2 mini-DIN
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Built-in Source Options

Option 002 Spectral Power Density	>= -55 dBm/nm (900 nm to 1700 nm, -50 dBm/nm typical)
Option 003 EELED Output Power Density	>= -40 dBm/nm (at 1310 nm and 1550 nm)

TECHNOLOGY

Optical Spectrum Analysis

APPLICATIONS

Fiber Optic Communications Test & Measurement

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.