KEYSIGHT TECHNOLOGIES (AGILENT HP)

86145A

The Keysight Agilent 86145A is a high-performance portable Optical Spectrum Analyzer (OSA) designed for demanding spectral measurements in fiber-optic communications. As part of the 86140A family, it provides benchtop-grade wavelength accuracy, dynamic range, and measurement throughput in a lightweight, portable 14.5 kg package optimized for field deployment and manufacturing lines.

SPECIFICATIONS

General

Interfaces	Dual GPIB (HP-IB) ports, Parallel (Centronics) printer port, VGA video output, two PCMCIA Type II slots, External Trigger input, Analog output
Display	6.5-inch active matrix color LCD (640 x 480 VGA resolution)

Physical

Power Supply	90 V AC to 260 V AC, 47 Hz to 440 Hz, power consumption maximum 230 VA
Operating Temperature	0 °C to +55 °C °C
Dimensions (W×H×D)	325 mm × 222 mm × 427 mm mm
Weight	14.5 kg

Wavelength Specifications

Wavelength Range	600 nm to 1700 nm
Wavelength Repeatability	+/- 0.002 nm (within 1 minute)
Wavelength Span Range	0 nm (fixed tuning), and 0.2 nm to 1100 nm

Optical Power and Amplitude

Power Measurement Range (Sensitivity)	-90 dBm to +15 dBm (from 1250 nm to 1610 nm)
Maximum Safe Input Power	+20 dBm total power (+15 dBm per channel)
Power Level Accuracy	+/- 0.5 dB (at 1310 nm and 1550 nm)
Level Linearity	+/- 0.05 dB (for optical inputs between -50 dBm and +10 dBm)
Optical Return Loss	> 35 dB (with straight HMS-10 or physical contact connector)
Power Level Repeatability	+/- 0.02 dB (over 1 minute)

Resolution and Bandwidth

Resolution Bandwidth (FWHM) Range	0.06 nm to 10 nm
Resolution Bandwidth Settings	0.06 nm, 0.1 nm, 0.2 nm, 0.5 nm, 1.0 nm, 2.0 nm, 5.0 nm, 10.0 nm
Minimum Resolution Bandwidth	0.06 nm
Maximum Resolution Bandwidth	10 nm

Measurement Speed and Sweep

Sweep Cycle Time	< 180 ms (for 50 nm span, auto-zero off)
Trace Points Selection	3 to 10001 points (user selectable)
Measurement Modes	Single sweep, Continuous sweep, Average

Optical Interfaces

Optical Input Connector	HMS-10/HP, FC/PC, SC, ST (utilizes user-exchangeable connector adapters)
Compatible Fiber Types	Single-mode (9/125 um)
Optional Internal Calibration Source	EELED (1550 nm) with integrated Acetylene gas absorption cell (Option 006)

Analysis and Application Software

WDM Analysis Features	Channel Power, Channel Wavelength, Signal-to-Noise Ratio (OSNR), Channel Spacing, Tilt
DFB-LD Analysis	Center Wavelength, Spectral Width, Side Mode Suppression Ratio (SMSR)
FP-LD Analysis	Mean Wavelength, Peak Wavelength, Mode Spacing, FWHM, Total Power
LED Analysis	Mean Wavelength, Peak Wavelength, FWHM, Spectral Width (RMS)
EDFA Analysis	Gain, Noise Figure, ASE Power (Interpolation, Pulse, and Source Subtraction methods)
Spectral Width Analysis	Envelope, RMS, Threshold (dB down)
Marker Functions	Dual active markers, delta markers, peak/min search, noise markers
Curve Fitting Capacity	Built-in curve fitting and mathematical trace processing operations

External Connectivity and Storage

GPIB Port 1	HP-IB system port (IEEE-488 compatible)
GPIB Port 2	HP-IB controller port for control of external instruments
Parallel Port	25-pin D-sub (Centronics) for external printer support
Video Port	15-pin D-sub VGA output to external monitor
External Trigger Input	BNC connector, TTL levels
Analog Output	BNC connector, 0 to 5 V (proportional to signal log amplitude)
Floppy Disk Drive	3.5-inch MS-DOS compatible, 1.44 MB

Environmental and Physical

Storage Temperature Range	-40 °C to +75 °C
Altitude Operating Range	Up to 4,600 meters (15,000 feet)
Warm-up Time	40 minutes

Physical & General

Built-in Printer	Internal thermal printer

Software & Control

Command Language	SCPI (Standard Commands for Programmable Instruments)

TECHNOLOGY

Grating-based Optical Spectrum Analyzer

APPLICATIONS

Fiber-optic component characterization, WDM system testing, laser diode analysis