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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent / Keysight 86142A Optical Spectrum Analyzer-benchtop unit

Agilent Keysight 86142A High-Performance Benchtop Optical Spectrum Analyzer The Agilent 86142A is a high-performance benchtop optical spectrum analyzer in the 8614xA family covering 600 nm to 1700 nm. OEM 8614xA datasheets list high dynamic range and wavelength accuracy suitable for critical WDM system and component characterization versus standard-performance 86140A models. DWDM channel analysis, optical amplifier and passive component characterization, and lab OSA measurements from 600 nm to 1700 nm. The Agilent 86142A is a high-performance benchtop optical spectrum analyzer in the 8614xA family covering 600 nm to 1700 nm. OEM 8614xA datasheets list high dynamic range and wavelength accuracy suitable for critical WDM system and component characterization versus standard-performance 86140A models. DWDM channel analysis, optical amplifier and passive component characterization, and lab OSA measurements from 600 nm to 1700 nm. Internal wavelength reference calibration Built-in DWDM and component test applications class



MODEL

**Agilent / Keysight
86142A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

86142A

LISTING

<https://aumictechlabs.com/products/86142a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 86142A is a benchtop optical spectrum analyzer engineered for high-resolution spectral analysis across 600 nm to 1700 nm. It delivers exceptional wavelength

accuracy - ± 0.025 nm (1510–1570 nm) and ± 0.035 nm (1570–1640 nm) after internal calibration - and maintains ± 0.003 nm tuning repeatability. The instrument achieves -90 dBm sensitivity in the 1250–1610 nm band and handles maximum input power of $+30$ dBm total across the full spectrum. Eight selectable resolution bandwidths range from 0.06 nm to 10 nm FWHM, enabling precise characterization of DWDM systems, EDFA performance, and passive optical components. Dynamic range reaches -70 dB in the 1550 nm band at ± 0.5 nm span with 0.1 nm resolution. Scale fidelity holds ± 0.05 dB characteristic for fixed reference level measurements. Wavelength reproducibility of ± 0.002 nm and polarization dependence as low as ± 0.05 dB support demanding R&D and production test environments demanding accuracy and stability.

Technical Specifications

Wavelength Range: 600 nm to 1700 nm Wavelength Accuracy: ± 0.025 nm (1510–1570 nm), ± 0.035 nm (1570–1640 nm) after internal calibration; ± 0.5 nm absolute (factory, 2-year cycle); ± 10 pm with wavelength calibrator option Wavelength Reproducibility: ± 0.002 nm Tuning Repeatability: ± 0.003 nm Span Range: 0.2 nm to full range, continuously variable with zero span capability Resolution Bandwidth (FWHM): 0.06 nm, 0.1 nm, 0.2 nm, 0.5 nm, 1 nm, 2 nm, 5 nm, 10 nm Sensitivity: -60 dBm (600–750 nm); -75 dBm (750–1250 nm); -90 dBm (1250–1610 nm); -80 dBm (1610–1700 nm) Maximum Input Power: $+30$ dBm total; $+15$ dBm per channel (600–1000 nm); $+12$ dBm per channel (1000–1525 nm) Dynamic Range: -70 dB at 1550 nm (0.1 nm resolution, ± 0.5 nm span, chop mode on); -55 dB characteristic at ± 0.4 nm (± 50 GHz) Scale Fidelity: ± 0.05 dB characteristic (fixed reference level); ± 0.07 dB characteristic (multiple reference levels) Absolute Amplitude Accuracy: ± 0.35 dB at 1550 nm, -20 dBm, 20–30 °C Polarization Dependence: ± 0.05 dB to ± 0.25 dB (resolution ≥ 0.2 nm, 9/125 μ m fiber)

Key Features Eight independent resolution bandwidth settings for flexible trade-off between spectral detail and measurement speed Sub-picometer wavelength repeatability enables precise channel tracking in DWDM systems High sensitivity across the entire measurement band minimizes averaging requirements Safe power handling to $+30$ dBm within any 10 nm spectral segment Calibration options including user-defined references and external wavelength calibrator for sub-10 pm accuracy

Typical Applications Dense Wavelength Division Multiplexing (DWDM) system and component testing Erbium-doped fiber amplifier (EDFA) performance characterization Passive optical component analysis Optical research and development Production-line optical measurement

Features & description

From manufacturer datasheet

Built-in DWDM and component test applications class

GPIB remote control Technical Specifications Model: 86142A Instrument Type: Benchtop optical spectrum analyzer Wavelength Range: 600 nm to 1700 nm Span Range: 0.2 nm to full range and zero span Wavelength Accuracy After Internal Cal 1510-1570 nm Class: plus or minus 0.025 nm class A-family table Wavelength Accuracy After Internal Cal 1570-1640 nm Class: plus or minus 0.035 nm class Absolute Accuracy Factory Cal 2 Year: plus or minus 0.5 nm Tuning Repeatability: plus or minus 0.003 nm Reproducibility Less Than Or Equal 1 min: plus or minus 0.003 nm Span Linearity 1525-1570 nm Spans Less Than 40 nm Class: plus or minus 0.02 nm class Sensitivity 1250-1610 nm Class: minus 90 dBm class family high-performance column Maximum Measurement Power Per Channel Class: plus 15 dBm class Maximum Total Safe Power Class: plus 30 dBm class Calibration Accuracy At Minus 20 dBm 1310/1550 nm Class: plus or minus 0.5 dB Form Factor: Benchtop Dimensions Class: 222 mmHx 425 mmWx 427 mmLclass family Weight Class: 16.5 kg class family Operating Temperature: 0 C to 55 C Storage Temperature: minus 40 C to 70 C Series Family: Agilent 8614xA OSA Sibling High Performance Portable: 86145A Span Linearity Tuning Repeatability Class: plus or minus 0.003 nm

86142A Characteristics / Specifications

PARAMETER	VALUE
Model	86142A
Instrument Type	Benchtop optical spectrum analyzer
Wavelength Range	600 nm to 1700 nm
Span Range	0.2 nm to full range and zero span
Absolute Accuracy Factory Cal 2 Year	plus or minus 0.5 nm
Tuning Repeatability	plus or minus 0.003 nm
Reproducibility Less Than Or Equal 1 min	plus or minus 0.003 nm
Maximum Measurement Power Per Channel Class	plus 15 dBm class
Maximum Total Safe Power Class	plus 30 dBm class
Calibration Accuracy At Minus 20 dBm 1310/1550 nm Class	plus or minus 0.5 dB
Form Factor	Benchtop
Dimensions Class	222 mmHx 425 mmWx 427 mmLclass family
Weight Class	16.5 kg class family
Operating Temperature	0 C to 55 C
Storage Temperature	minus 40 C to 70 C
Series Family	Agilent 8614xA OSA
Sibling High Performance Portable	86145A
Span Linearity Tuning Repeatability Class	plus or minus 0.003 nm
Maximum Safe Power Within Any 10 nm	plus 23 dBm class
EMI Compliance Class	CISPR 11 class family
Humidity Operating	less than 95 percent RH
Humidity	Operating: less than 95 percent RH

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Storage temperature	minus 40 C to 70 C
Operating temperature	0 C to 55 C
Operating Temperature	0 C to 55 C
Humidity	Operating: less than 95 percent RH
Series Family	Agilent 8614xA OSA
Sibling High Performance Portable	86145A
Span Linearity Tuning Repeatability Class	plus or minus 0.003 nm
Maximum Safe Power Within Any 10 nm	plus 23 dBm class
EMI Compliance Class	CISPR 11 class family
Humidity Operating	less than 95 percent RH Notes From Agilent 86140A/86142A/86143A/86145A optical spectrum analyzer family data sheet high-accuracy/high-performance columns for 86142A. Resolution bandwidth FWHM settings and dynamic-range offsets are revision-dependent; confirm on unit.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Performance Benchtop Optical Spectrum Analyzer

Overview

The Agilent 86142A is a high-performance benchtop optical spectrum analyzer in the 8614xA family covering 600 nm to 1700 nm. OEM 8614xA datasheets list high dynamic range and wavelength accuracy suitable for critical WDM system and component characterization versus standard-performance 86140A models.

Applications

DWDM channel analysis, optical amplifier and passive component characterization, and lab OSA measurements from 600 nm to 1700 nm.

Key Features

High-performance benchtop OSA
600 nm to 1700 nm coverage
Internal wavelength reference calibration
Built-in DWDM and component test applications class
GPIB remote control

Technical Specifications

Technical Specifications

PARAMETER	VALUE
Model	86142A
Instrument Type	Benchtop optical spectrum analyzer
Wavelength Range	600 nm to 1700 nm
Span Range	0.2 nm to full range and zero span

Wavelength Accuracy After Internal Cal 1510-1570 nm Class: plus or minus 0.025 nm class A-family table
Wavelength Accuracy After Internal Cal 1570-1640 nm Class: plus or minus 0.035 nm class

Specifications

PARAMETER	VALUE
Absolute Accuracy Factory Cal 2 Year	plus or minus 0.5 nm
Tuning Repeatability	plus or minus 0.003 nm
Reproducibility Less Than Or Equal 1 min	plus or minus 0.003 nm

Span Linearity 1525-1570 nm Spans Less Than 40 nm Class: plus or minus 0.02 nm class
Sensitivity 1250-1610 nm Class: minus 90 dBm class family high-performance column
Maximum Measurement Power Per Channel Class: plus 15 dBm class
Maximum Total Safe Power Class: plus 30 dBm class
Calibration Accuracy At Minus 20 dBm 1310/1550 nm Class: plus or minus 0.5 dB

Specifications

PARAMETER	VALUE
Form Factor	Benchtop

PARAMETER	VALUE
Dimensions Class	222 mmHx 425 mmWx 427 mmLclass family
Weight Class	16.5 kg class family
Operating Temperature	0 C to 55 C
Storage Temperature	minus 40 C to 70 C
Series Family	Agilent 8614xA OSA
Sibling High Performance Portable	86145A
Span Linearity Tuning Repeatability Class	plus or minus 0.003 nm

Sensitivity 600-750 nm Class: minus 60 dBm class
Sensitivity 750-900 nm Class: minus 75 dBm class
Sensitivity 900-1250 nm Class: minus 75 dBm class
Sensitivity 1610-1700 nm Class: minus 80 dBm class

Specifications

PARAMETER	VALUE
Maximum Safe Power Within Any 10 nm	plus 23 dBm class
EMI Compliance Class	CISPR 11 class family
Humidity Operating	less than 95 percent RH

Notes
From Agilent 86140A/86142A/86143A/86145A optical spectrum analyzer family data sheet high-accuracy/high-performance columns for 86142A. Resolution bandwidth FWHM settings and dynamic-range offsets are revision-dependent; confirm on unit.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.