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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 71451B – Optical Spectrum Analyzer

Agilent HP 71451B Optical Spectrum Analyzer The HP 71451B is the stimulus-response capable diffraction-grating OSA system that includes the HP 70951B module with monochromator output and photodetector input. OEM 5963-7040E lists the same 600 to 1700 nm core wavelength specs as the 71450B family plus monochromator insertion loss, photodetector power-meter mode, and optional white-light/PDL stimulus-response kits. Passive optical-to-optical and optical-to-electrical device characterization, swept loss and PDL measurements with Option 002/003, and general 600 to 1700 nm spectral analysis. The HP 71451B is the stimulus-response capable diffraction-grating OSA system that includes the HP 70951B module with monochromator output and photodetector input. OEM 5963-7040E lists the same 600 to 1700 nm core wavelength specs as the 71450B family plus monochromator insertion loss, photodetector power-meter mode, and optional white-light/PDL stimulus-response kits. Passive optical-to-optical and optical-to-electrical device characterization, swept loss and PDL measurements with Option 002/003, and general 600 to 1700 nm spectral analysis.



MODEL

**Agilent / Keysight
71451B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

71451B

LISTING

<https://aumictechlabs.com/products/71451b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 71451B is a diffraction-grating-based optical spectrum analyzer engineered for precise spectral measurements of optical power versus wavelength across the visible and near-infrared spectrum. Built around a unique double-pass monochromator architecture, it delivers real-time sweep capability with -90 dBm sensitivity and 60 dB dynamic range, making it ideal for characterizing optical components, amplifiers, LEDs, and lasers in network testing and R&D environments.

Technical Specifications

Wavelength Range:	600 nm to 1700 nm
Wavelength Accuracy:	±0.3 nm
Sensitivity:	-90 dBm
Dynamic Range:	60 dB
Maximum Measurable Power Level:	+10 dBm (before compression)
Maximum Safe Photodetector Input:	+20 dBm
Maximum Input Power (MONOCHROMATOR INPUT):	+30 dBm
Amplitude Flatness (≥2 dBm input):	±0.4 dB
Amplitude Accuracy:	Excellent
Polarization Dependence:	Low
Span Range:	0.2 nm to full range, zero span supported
Operating Temperature:	0°C to 55°C
Relative Humidity:	<95%
Dimensions:	24 × 20 × 16 in
Weight:	50 lbs

Key Features

- Double-pass monochromator design for enhanced spectral purity
- Real-time sweep rates for dynamic signal observation
- Low polarization dependence minimizes measurement artifacts
- External trigger capability via rear-panel EXT TRIG IN connector for gated sweep operation
- Monochromator output connector enables external signal routing
- Includes HP 70951B module

Optical Interfaces

- Front-panel MONOCHROMATOR INPUT connector (primary signal input)
- Front-panel MONOCHROMATOR OUTPUT connector (external monochromator output)
- Rear-panel EXT TRIG IN for external triggering

Operating Requirements

Specifications apply after 1 hour thermal stabilization and completion of auto-align routine. Avoid thermal shock to prevent condensation. Proper earth grounding and ESD precautions required at rear-panel connectors.

Features & description

From manufacturer datasheet

Polarization Dependence 1250 To 1600 nm: plus or minus 0.5 dB

Sensitivity 1200 To 1600 nm: minus 90 dBm Sensitivity 900 To 1200 nm: minus 75 dBm Dynamic Range 0.1 nm 1250 To 1600 nm: minus 55 dB at greater than or equal to plus or minus 0.5 nm Compression Level 0.05 dB: greater than or equal to 10 dBm Maximum Safe Input: plus 20 dBm per 5 nm plus 30 dBm total Monochromator Loss 850 nm Into 62.5 um: less than 19 dB Monochromator Loss 1300 nm Into 62.5 um: less than 7 dB Monochromator Loss 1550 nm Into 62.5 um: less than 10 dB Photodetector Accuracy At Minus 30 dBm 20 To 30 C: plus or minus 0.35 dB Photodetector Maximum Safe Power: plus 20 dBm Photodetector 1 dB Compression: greater than or equal to plus 7 dBm Photodetector Sensitivity 1250 To 1600 nm: minus 95 dBm Photodetector Sensitivity 600 To 1700 nm: minus 85 dBm Photodetector Flatness 1250 To 1600 nm: plus or minus 0.4 dB Transimpedance Current Range: 0 to minus 10 mA Transimpedance Maximum Current: plus or minus 10 mA Transimpedance Maximum Voltage: plus or minus 10 V Optional Current Source Range: 0 to plus or minus 200 mA Optional Current Source Resolution: 50 uA Optional Current Source Accuracy: plus or minus 2 percent plus or minus 50 uA White Light Source Wavelength Option 002: 900 to 1700 nm

71451B Characteristics / Specifications

PARAMETER	VALUE
Wavelength Range	600 to 1700 nm
Span Range	0.2 nm to full range and zero span
Absolute Wavelength Accuracy	plus or minus 1 nm
Absolute Accuracy After User Cal	plus or minus 0.3 nm
Span Linearity Spans Less Than 40 nm	plus or minus 0.05 nm
Wavelength Reproducibility 1 Minute	plus or minus 0.005 nm
Resolution Bandwidth Fwhm	less than 0.08 nm and 0.1 to 10 nm in 1 2 5 sequence
Amplitude Calibration Accuracy At Minus 30 dBm 1300 nm	plus or minus 0.5 dB
Scale Fidelity Autorange Off	plus or minus 0.1 dB
Flatness 1290 To 1330 nm	plus or minus 0.25 dB
Flatness 1530 To 1570 nm	plus or minus 0.25 dB
Polarization Dependence 1250 To 1600 nm	plus or minus 0.5 dB
Sensitivity 1200 To 1600 nm	minus 90 dBm
Sensitivity 900 To 1200 nm	minus 75 dBm
Dynamic Range 0.1 nm 1250 To 1600 nm	minus 55 dB at greater than or equal to plus or minus 0.5 nm
Compression Level 0.05 dB	greater than or equal to 10 dBm
Maximum Safe Input	plus 20 dBm per 5 nm plus 30 dBm total
Monochromator Loss 850 nm Into 62.5 um	less than 19 dB
Monochromator Loss 1300 nm Into 62.5 um	less than 7 dB
Monochromator Loss 1550 nm Into 62.5 um	less than 10 dB
Photodetector Accuracy At Minus 30 dBm 20 To 30 C	plus or minus 0.35 dB
Photodetector Maximum Safe Power	plus 20 dBm

PARAMETER	VALUE
Photodetector 1 dB Compression	greater than or equal to plus 7 dBm
Photodetector Sensitivity 1250 To 1600 nm	minus 95 dBm
Photodetector Sensitivity 600 To 1700 nm	minus 85 dBm
Photodetector Flatness 1250 To 1600 nm	plus or minus 0.4 dB
Transimpedance Current Range	0 to minus 10 mA
Transimpedance Maximum Current	plus or minus 10 mA
Transimpedance Maximum Voltage	plus or minus 10 V
White Light Source Wavelength Option 0	900 to 1700 nm
White Light Min Density 9/125 um 900 To 1600 nm	minus 67 dBm/nm
System Dimensions	222 mmHx 425.4 mmWx 526 mmDSystem Mass: 28 kg
Operating Temperature	0 to plus 55 C
Line Power Maximum	260 W (350 VA)
Bandwidth	Fwhm: less than 0.08 nm and 0.1 to 10 nm in 1 2 5 sequence

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 to plus 55 C
Operating Temperature	0 to plus 55 C
Line Power Maximum	260 W (350 VA) Notes From HP 71450B/71451B/71452B Technical Specifications 5963-7040E. 71451B includes HP 70951B. Monochromator and photodetector rows are 71451B/70951B additional specifications.

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.

Specifications

Specifications

PARAMETER	VALUE
System Dimensions	222 mm H x 425.4 mm W x 526 mm D
System Mass	28 kg
Operating Temperature	0 to plus 55 C
Line Power Maximum	260 W (350 VA)

Specifications

PARAMETER	VALUE
Wavelength Range	600 to 1700 nm
Span Range	0.2 nm to full range and zero span
Absolute Wavelength Accuracy	plus or minus 1 nm
Absolute Accuracy After User Cal	plus or minus 0.3 nm
Span Linearity Spans Less Than 40 nm	plus or minus 0.05 nm
Wavelength Reproducibility 1 Minute	plus or minus 0.005 nm
Resolution Bandwidth Fwhm	less than 0.08 nm and 0.1 to 10 nm in 1 2 5 sequence

Amplitude Calibration Accuracy At Minus 30 dBm 1300 nm: plus or minus 0.5 dB

Specifications

PARAMETER	VALUE
Scale Fidelity Autorange Off	plus or minus 0.1 dB
Flatness 1290 To 1330 nm	plus or minus 0.25 dB
Flatness 1530 To 1570 nm	plus or minus 0.25 dB
Polarization Dependence 1250 To 1600 nm	plus or minus 0.5 dB
Sensitivity 1200 To 1600 nm	minus 90 dBm
Sensitivity 900 To 1200 nm	minus 75 dBm

Dynamic Range 0.1 nm 1250 To 1600 nm: minus 55 dB at greater than or equal to plus or minus 0.5 nm

Specifications

PARAMETER	VALUE
Compression Level 0.05 dB	greater than or equal to 10 dBm
Maximum Safe Input	plus 20 dBm per 5 nm plus 30 dBm total
Monochromator Loss 850 nm Into 62.5 um	less than 19 dB
Monochromator Loss 1300 nm Into 62.5 um	less than 7 dB
Monochromator Loss 1550 nm Into 62.5 um	less than 10 dB

Photodetector Accuracy At Minus 30 dBm 20 To 30 C: plus or minus 0.35 dB

Specifications

PARAMETER	VALUE
Photodetector Maximum Safe Power	plus 20 dBm
Photodetector 1 dB Compression	greater than or equal to plus 7 dBm
Photodetector Sensitivity 1250 To 1600 nm	minus 95 dBm
Photodetector Sensitivity 600 To 1700 nm	minus 85 dBm
Photodetector Flatness 1250 To 1600 nm	plus or minus 0.4 dB
Transimpedance Current Range	0 to minus 10 mA
Transimpedance Maximum Current	plus or minus 10 mA
Transimpedance Maximum Voltage	plus or minus 10 V

Optional Current Source Range: 0 to plus or minus 200 mA
Optional Current Source Resolution: 50 uA
Optional Current Source Accuracy: plus or minus 2 percent plus or minus 50 uA
White Light Source Wavelength Option 002: 900 to 1700 nm
White Light Min Density 9/125 um 900 To 1600 nm: minus 67 dBm/nm

Specifications

PARAMETER	VALUE
System Dimensions	222 mmHx 425.4 mmWx 526 mmDS System Mass: 28 kg
Operating Temperature	0 to plus 55 C
Line Power Maximum	260 W (350 VA)

Notes
From HP 71450B/71451B/71452B Technical Specifications 5963-7040E. 71451B includes HP 70951B. Monochromator and photodetector rows are 71451B/70951B additional specifications.

Ordering Information

OPTION	DESCRIPTION
Option 002	Optional swept PDL kit Option 003

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.