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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81521B 5" Optical Head

The HP 81521B is a 5 mm germanium optical measurement head for the HP 81533B interface. OEM 8153A module specifications list 900 to 1700 nm, plus 3 to minus 80 dBm, plus or minus 2.2 percent reference uncertainty at 1000 to 1650 nm, and less than 50 pW noise at 1 s averaging. 1310/1550 nm average optical power measurements on fiber or parallel beam through 8153A/816x systems. 0.001 dB display resolution via mainframe Option 001 reduced range variant also published Option 001 Power Range: plus 3 to minus 64 dBm Option 001 Total Uncertainty: plus or minus 4 percent plus or minus 600 pW Option 001 Noise: less than 600 pW 1200 to 1600 nm From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81521B. Option 001 column is the reduced-sensitivity Ge head variant on the same sheet.



MODEL

**Agilent / Keysight
81521B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81521B

LISTING

<https://aumictechlabs.com/products/81521b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent/Keysight 81521B Optical Head is a germanium-detector sensor module for precision optical power measurement in fiber optic systems. It connects to Agilent 8152A, 8153A, and 8163/8166 series mainframes via interface modules, delivering accurate measurements across the near-infrared spectrum. The 81521B serves telecommunications, fiber optics, and research applications requiring stable, repeatable power characterization. Technical Specifications Detector Type: Germanium (Ge) Detector Element Size: 5 mm diameter Wavelength Range: 900 nm to 1700

nm Power Measurement Range: +3 dBm to -80 dBm Wavelength Accuracy: $\pm 2.2\%$ (1000 nm to 1650 nm) Linearity: ± 0.04 dB (-60 dBm to 0 dBm) Fiber Repeatability: <0.02 dB with 81000BA/CA bare-fiber adapters Spot Diameter: 3 mm parallel-beam measurement capability Net Weight: 0.46 kg (1.1 lbs) Key Features Supports standard single-mode and multimode fibers to 100 μm core diameter (NA < 0.3) Non-volatile memory for wavelength storage; enables custom wavelength entry beyond 1300 nm baseline Compatible with fiber pigtailed via bare-fiber adapters and multiple connector interface types Compact detector geometry optimized for coupling efficiency in both guided-wave and free-space configurations Typical Applications Optical power budgeting and loss measurements in long-haul and metro fiber networks Detector characterization and responsivity verification across the extended infrared band In-service power monitoring using standard telecom wavelengths and CWDM/DWDM bands Compatibility & Integration Mainframes: Agilent 8152A, 8153A, 8163 and 8166 series Interface Modules: 81533A, 81533B, 81520A Adapters: 81000BA/CA (bare-fiber), 81000FA/SA/VA (connectors), 81000WA (Bicon), 81010BL (multimode lens), 81230FL (attenuating lens), 81001FF (10 dB filter) Note: This product is discontinued; limited support may be available through Keysight Service Centers and third-party providers.

81521B Characteristics / Specifications

PARAMETER	VALUE
Sensor Element	Ge 5 mm
Wavelength Range	900 to 1700 nm
Power Range	plus 3 to minus 80 dBm
Display Resolution	0.001 dB/dBm (0.0001 dB/dBm on printout)
Power Display Resolution Watts	0.01 pW to 10 pW depending on range
Applicable Fiber	parallel beam 9/125 um to 100/140 um NA less than or equal to 0.3
Reference Uncertainty	plus or minus 2.2 percent 1000 to 1650 nm
Total Uncertainty	plus or minus 4 percent plus or minus 50 pW 1000 to 1650 nm
Linearity 18 To 28 C 0 To Minus 60 dBm	plus or minus 0.04 dB plus or minus 50 pW
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 50 pW
Noise Peak To Peak 1 s Avg	less than 50 pW 1200 to 1600 nm
Operating Temperature	0 to plus 40 C
Head Dimensions	37.5 mm diameter x 140 mmLHead Mass: 0.45 kg net
Recalibration Period	2 years
Warm Up Time	20 minutes
Reference Power Level	10 uW (minus 20 dBm) CW
Reference Spot Diameter	3 mm parallel beam on detector
Reference Temperature	23 C plus or minus 5 K
Interface Module	HP 81533B
Mainframe Family	HP 8153A 8163 8164 8166
Aging Add One Year	0.3 percent
Aging Add Two Years	0.6 percent

81521B Specifications

PARAMETER	VALUE
Agilent HP 81521B Germanium Optical Head	Overview
Applications	1310/1550 nm average optical power measurements on fiber or parallel beam through 8153A/816x systems.
Key Features	Ge 5 mm detector
Plus 3 to minus 80 dBm range	0.001 dB display resolution via mainframe
Works with 81533B interface	Option 001 reduced range variant also published
Technical Specifications	Sensor Element: Ge 5 mm

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 to plus 40 C
Operating Temperature	0 to plus 40 C
Head Dimensions	37.5 mm diameter x 140 mmLHead Mass: 0.45 kg net
Recalibration Period	2 years
Warm Up Time	20 minutes
Reference Power Level	10 uW (minus 20 dBm) CW
Reference Spot Diameter	3 mm parallel beam on detector
Reference Temperature	23 C plus or minus 5 K
Interface Module	HP 81533B
Mainframe Family	HP 8153A 8163 8164 8166
Aging Add One Year	0.3 percent
Aging Add Two Years	0.6 percent Notes From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81521B. Option 001 column is the reduced-sensitivity Ge head variant on the same sheet.

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 list 900 to 1700 nm, plus 3 to minus 80 dBm, plus or minus 2.2 percent reference uncertainty at 1000 to 1650 nm, and less than 50 pW noise at 1 s averaging.

Applications

1310/1550 nm average optical power measurements on fiber or parallel beam through 8153A/816x systems.

Key Features

Ge 5 mm detector

Plus 3 to minus 80 dBm range

0.001 dB display resolution via mainframe

Works with 81533B interface

Option 001 reduced range variant also published

Technical Specifications

Specifications

PARAMETER	VALUE
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 50 pW
Noise Peak To Peak 1 s Avg	less than 50 pW 1200 to 1600 nm
Operating Temperature	0 to plus 40 C
Head Dimensions	37.5 mm diameter x 140 mm L
Head Mass	0.45 kg net
Recalibration Period	2 years
Warm Up Time	20 minutes
Reference Power Level	10 uW (minus 20 dBm) CW
Reference Spot Diameter	3 mm parallel beam on detector
Reference Temperature	23 C plus or minus 5 K
Interface Module	HP 81533B
Mainframe Family	HP 8153A 8163 8164 8166

Technical Specifications

PARAMETER	VALUE
Sensor Element	Ge 5 mm
Wavelength Range	900 to 1700 nm
Power Range	plus 3 to minus 80 dBm
Display Resolution	0.001 dB/dBm (0.0001 dB/dBm on printout)
Power Display Resolution Watts	0.01 pW to 10 pW depending on range

PARAMETER	VALUE
Applicable Fiber	parallel beam 9/125 um to 100/140 um NA less than or equal to 0.3
Reference Uncertainty	plus or minus 2.2 percent 1000 to 1650 nm
Total Uncertainty	plus or minus 4 percent plus or minus 50 pW 1000 to 1650 nm

Linearity 18 To 28 C 0 To Minus 60 dBm: plus or minus 0.04 dB plus or minus 50 pW

Specifications

PARAMETER	VALUE
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 50 pW
Noise Peak To Peak 1 s Avg	less than 50 pW 1200 to 1600 nm
Operating Temperature	0 to plus 40 C
Head Dimensions	37.5 mm diameter x 140 mmLHead Mass: 0.45 kg net
Recalibration Period	2 years
Warm Up Time	20 minutes
Reference Power Level	10 uW (minus 20 dBm) CW
Reference Spot Diameter	3 mm parallel beam on detector
Reference Temperature	23 C plus or minus 5 K
Interface Module	HP 81533B
Mainframe Family	HP 8153A 8163 8164 8166

Option 001 Power Range: plus 3 to minus 64 dBm
Option 001 Total Uncertainty: plus or minus 4 percent plus or minus 600 pW
Option 001 Noise: less than 600 pW 1200 to 1600 nm
Aging Add One Year: 0.3 percent
Aging Add Two Years: 0.6 percent

Notes
From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81521B.
Option 001 column is the reduced-sensitivity Ge head variant on the same sheet.

Ordering Information

OPTION	DESCRIPTION
Option 001	reduced range variant also published

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.