

**Aumictech**

Test & measurement • bought, sold, repaired, calibrated

Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81520A – Optical Head

The HP 81520A is a 5 mm silicon optical measurement head for use with the HP 81533B interface on 8153A/816x lightwave mainframes. OEM HP 8153A series module specifications list 450 to 1020 nm, plus 10 to minus 100 dBm, plus or minus 2.2 percent reference uncertainty, and less than 0.5 pW noise at 1 s averaging. Visible to near-IR average optical power measurements on multimode and single-mode fiber or parallel beam inputs. 0.001 dB display resolution via mainframe Display Resolution: 0.001 dB/dBm (0.0001 dB/dBm on printout) Analog Bandwidth Class: DC to 300 to 4000 Hz depending on range Max Analog Input Voltage: plus or minus 10 V Spectral Width Source For Spec: less than 10 nm From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81520A (5962-9321E / AssetRelay 815xx modules sheet). Binding accuracy is with the 81533B interface and host mainframe.

**MODEL****Agilent / Keysight
81520A****CALIBRATION****Available on
request****CONDITION****Used****STATUS****In stock****RFQ / SKU****81520A****LISTING**<https://aumictechlabs.com/products/81520a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent/Keysight 81520A Optical Head is a silicon PIN photodiode sensor for precision optical power measurement across the visible and near-infrared spectrum. It integrates with Agilent/Keysight mainframe units (8153A, 8163, 8166 series) via interface modules (81533A/B) and the 8152A Optical Average Power Meter. The detector operates in photoconductive mode with a 5 mm sensor element, delivering 0.001 dB resolution and linearity of ± 0.04 dB across its

measurement range. A one-stage Peltier cooler with NTC temperature sensing maintains stable operation at 20°C across the 0–55°C operating envelope.

Technical Specifications

Detector: Silicon PIN diode, photoconductive mode

Wavelength Range: 450 nm to 1020 nm

Power Measurement Range: +10 dBm to –100 dBm

Resolution: 0.001 dB

Linearity: ±0.04 dB (+3 dBm to –80 dBm)

Noise Floor: <0.5 pW (700–900 nm); well below –90 dBm

Absolute Accuracy: ±2.2% (reference conditions)

Total Uncertainty: ±4% ±50 pW (600–1020 nm)

Wavelength Uncertainty: ±2.2% (600–1020 nm)

Sensor Diameter: 5 mm

Operating Temperature: 0–40°C (non-condensing)

Temperature Stability: 0–55°C

Analog Output: 0–2 V proportional to optical signal

Physical Dimensions: 37.5 mm diameter × 140 mm length

Weight: 0.45 kg

Key Features

- Hermetically sealed TO-8 housing protects detector from contamination and humidity
- Individual spectral responsivity calibration in 10 nm increments (450–1020 nm); values stored in head memory
- Accepts standard single-mode and multi-mode fibers up to 100 µm core, NA < 0.3
- Interchangeable optical connectors via 81000xl interface adapters (e.g., 81000FA for FC/PC)
- BNC analog output for direct signal monitoring

Typical Applications

- Optical communication system characterization
- Fiber optic power measurement
- Spectral power distribution assessment
- Telecommunications and test laboratory environments

Compatibility & Integration

Mainframes: 8153A, 8163, 8166 series

Interface Modules: 81533A, 81533B

Power Meters: 8152A

Optical Average Power Meter

Fiber Connectors: Multiple adapter options available

81520A Characteristics / Specifications

PARAMETER	VALUE
Sensor Element	Si 5 mm
Wavelength Range	450 to 1020 nm
Power Range	plus 10 to minus 100 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 600 to 1020 nm
Total Uncertainty	plus or minus 4 percent plus or minus 0.5 pW 600 to 1020 nm
Linearity 18 To 28 C Plus 3 To Minus 80 dBm	plus or minus 0.04 dB plus or minus 0.5 pW
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 0.5 pW
Noise Peak To Peak 1 s Avg	less than 0.5 pW 700 to 900 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
Analog Output Voltage Via Mainframe	0 to 2 V into open
Analog Output Impedance Typical	600 ohm
Analog Bandwidth Class	DC to 300 to 4000 Hz depending on range
Max Analog Input Voltage	plus or minus 10 V
Spectral Width Source For Spec	less than 10 nm

PARAMETER	VALUE
Bandwidth	Class: DC to 300 to 4000 Hz depending on range

81520A Specifications

PARAMETER	VALUE
Agilent HP 81520A Silicon Optical Head	Overview
Key Features	Si 5 mm detector
Plus 10 dBm maximum in head class	0.001 dB display resolution via mainframe
Technical Specifications	Sensor Element: Si 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
Analog Output Voltage Via Mainframe	0 to 2 V into open
Analog Output Impedance Typical	600 ohm
Analog Bandwidth Class	DC to 300 to 4000 Hz depending on range
Max Analog Input Voltage	plus or minus 10 V
Spectral Width Source For Spec	less than 10 nm Notes From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81520A (5962-9321E / AssetRelay 815xx modules sheet). Binding accuracy is with the 81533B interface and host mainframe.

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 450 to 1020 nm, plus 10 to minus 100 dBm, plus or minus 2.2 percent reference uncertainty, and less than 0.5 pW noise at 1 s averaging.

Applications

Visible to near-IR average optical power measurements on multimode and single-mode fiber or parallel beam inputs.

Key Features

Si 5 mm detector

Plus 10 dBm maximum in head class

0.001 dB display resolution via mainframe

Works with 81533B interface

Parallel beam or connectorized fiber

Technical Specifications

Specifications

PARAMETER	VALUE
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 0.5 pW
Noise Peak To Peak 1 s Avg	less than 0.5 pW 700 to 900 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
Analog Output Voltage Via Mainframe	0 to 2 V into open
Analog Output Impedance Typical	600 ohm
Analog Bandwidth Class	DC to 300 to 4000 Hz depending on range
Max Analog Input Voltage	plus or minus 10 V
Spectral Width Source For Spec	less than 10 nm

Technical Specifications

PARAMETER	VALUE
Sensor Element	Si 5 mm
Wavelength Range	450 to 1020 nm
Power Range	plus 10 to minus 100 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 600 to 1020 nm
Total Uncertainty	plus or minus 4 percent plus or minus 0.5 pW 600 to 1020 nm

Linearity 18 To 28 C Plus 3 To Minus 80 dBm: plus or minus 0.04 dB plus or minus 0.5 pW

Specifications

PARAMETER	VALUE
Linearity Operating Temp Const	plus or minus 0.15 dB plus or minus 0.5 pW
Noise Peak To Peak 1 s Avg	less than 0.5 pW 700 to 900 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
Analog Output Voltage Via Mainframe	0 to 2 V into open
Analog Output Impedance Typical	600 ohm
Analog Bandwidth Class	DC to 300 to 4000 Hz depending on range
Max Analog Input Voltage	plus or minus 10 V
Spectral Width Source For Spec	less than 10 nm

Notes

From HP 8153A Lightwave Multimeter Technical Specifications optical head column for HP 81533B with HP 81520A (5962-9321E / AssetRelay 815xx modules sheet). Binding accuracy is with the 81533B interface and host mainframe.

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

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 14, 2026

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