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Data Sheet

August 14, 2026

HP / AGILENT

HP / Agilent 81525A High power InGaAs Optical Head, 5mm

HP Agilent 81525A High Power Optical Measurement Head The HP/Agilent 81525A is a high-power InGaAs optical measurement head (5 mm sensor) used with the 81533B optical head interface on 8153A lightwave multimeters. OEM module specifications rate +27 to -70 dBm from 1250-1650 nm and +23 to -70 dBm from 800-1650 nm with $\pm 3.0\%$ reference accuracy. Intended for high optical power measurements on amplified links, EDFA outputs, and transmitters where standard heads would saturate, while retaining wide dynamic range down to -70 dBm. The HP/Agilent 81525A is a high-power InGaAs optical measurement head (5 mm sensor) used with the 81533B optical head interface on 8153A lightwave multimeters. OEM module specifications rate +27 to -70 dBm from 1250-1650 nm and +23 to -70 dBm from 800-1650 nm with $\pm 3.0\%$ reference accuracy. Intended for high optical power measurements on amplified links, EDFA outputs, and transmitters where standard heads would saturate, while retaining wide dynamic range down to -70 dBm. 5 mm InGaAs sensor for high-power optical measurements



MODEL	CALIBRATION
HP / Agilent 81525A	Available on request
CONDITION	STATUS
Used	In stock
RFQ / SKU	LISTING
81525A	https://aumictechlabs.com/products/81525a-2/

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The HP/Agilent 81525A is a high-power InGaAs optical head designed for precise optical power measurements across the near-infrared spectrum. Built around a 5 mm InGaAs detector element, this optical head delivers measurement accuracy of $\pm 3.0\%$ across 900 nm to 1600 nm and handles power

levels from -70 dBm to $+27$ dBm, making it suitable for both low-level and high-power optical signal characterization. The head exhibits low polarization-dependent loss and high return loss, critical for accurate testing of optical components and systems.

Technical Specifications

Sensor Type: InGaAs
Detector Area: 5 mm
Wavelength Range: 800 nm to 1650 nm
Power Measurement Range: -70 dBm to $+27$ dBm (1250–1650 nm); -70 dBm to $+23$ dBm (800–1250 nm)
Measurement Accuracy: $\pm 3.0\%$ (900–1600 nm)
Wavelength Accuracy: $\pm 3.0\%$ (900–1600 nm)
Polarization Sensitivity: Low PDL
Return Loss: High
Warm-up Time: 15 minutes
Recalibration Interval: 1 year
Physical Dimensions: 50 mm diameter $\times$ 30 mm length
Net Weight: 0.1 kg

Key Features

- 5 mm detector element optimized for high-power measurements
- Wide spectral coverage from 800 nm to 1650 nm
- Dynamic range spanning seven decades of optical power (-70 to $+27$ dBm)
- Low PDL and high return loss for demanding optical test applications
- Attenuation at 850 nm printed on lens; calibration entry via CAL parameter required for precise measurements
- Multiple connector interface options available

Typical Applications

- Optical power measurement in fiber-optic communication systems
- High-power signal characterization
- Optical component and subsystem testing
- Low and high dynamic range power monitoring

Compatibility & Integration

The 81525A integrates with HP/Agilent mainframe units including the 8153A, 8163, 8166, 8163A, and 8164A through interface modules 81533A or 81533B.

Product Status: Obsolete. No longer sold by Keysight; replacement model is the Keysight 81626B High Power Optical Head.

Features & description

From manufacturer datasheet

High power temperature note: 30 °C for greater than 20 dBm input

Dimensions: 37.5 mm diameter × 140 mm length Net weight: 0.45 kg Shipping weight: 1 kg Recalibration period: 2 years Warm up time: 20 minutes Host interface module: HP 81533B Reference power level for accuracy: 10 μ W (–20 dBm) CW Sensor diameter: 5 mm Sensor material: InGaAs High band max power: +27 dBm Wide band max power: +23 dBm Minimum power: –70 dBm Reference accuracy: $\pm 3.0\%$ Notes Specifications are from HP 8153A / 815xx Optical Measurement Equipment technical specification tables for 81533B + 81525A. Add ± 0.008 dB/10 mW between 10 and 27 dBm per OEM footnote; lens or 3 mm parallel beam required for high-power accuracy.

81525A Characteristics / Specifications

PARAMETER	VALUE
Sensor element	InGaAs, 5 mm
Wavelength range	800 to 1650 nm
Power range 1250 to 1650 nm	+27 to –70 dBm
Power range 800 to 1650 nm	+23 to –70 dBm
Display resolution	0.001 dB/dBm (0.0001 dB/dBm on printout)
Applicable fiber type	parallel beam, 9/125 μ m to 100/140 μ m, NA $\leq$ 0.3
Uncertainty at reference conditions	$\pm$ 3.0% (900 to 1600 nm)
Total uncertainty	$\pm$ 5% $\pm$ 500 pW (900 to 1600 nm)
Linearity operating temperature range	$\pm$ 0.15 dB $\pm$ 500 pW
Noise peak to peak 1 s average	less than 500 pW (900 to 1600 nm)
Operating temperature	0 °C to +40 °C
High power temperature note	30 °C for greater than 20 dBm input
Dimensions	37.5 mm diameter $\times$ 140 mm length
Net weight	0.45 kg
Shipping weight	1 kg
Recalibration period	2 years
Warm up time	20 minutes
Host interface module	HP 81533B
Reference power level for accuracy	10 μ W (–20 dBm) CW
Sensor diameter	5 mm
Sensor material	InGaAs
High band max power	+27 dBm
Wide band max power	+23 dBm
Minimum power	–70 dBm
Reference accuracy	$\pm$ 3.0%

PARAMETER	VALUE
Fiber type	parallel beam, 9/125 μm to 100/140 μm, NA ≤0.3

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	range: ± 0.15 dB ± 500 pW
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Noise peak to peak 1 s average	less than 500 pW (900 to 1600 nm)
High power temperature note	30 °C for greater than 20 dBm input
Dimensions	37.5 mm diameter $\times$ 140 mm length
Net weight	0.45 kg
Shipping weight	1 kg
Recalibration period	2 years
Warm up time	20 minutes
Host interface module	HP 81533B
Reference power level for accuracy	10 μ W (-20 dBm) CW
Sensor diameter	5 mm
Sensor material	InGaAs
High band max power	+27 dBm
Wide band max power	+23 dBm
Minimum power	-70 dBm
Reference accuracy	$\pm 3.0\%$ Notes Specifications are from HP 8153A / 815xx Optical Measurement Equipment technical specification tables for 81533B + 81525A. Add ± 0.008 dB/10 mW between 10 and 27 dBm per OEM footnote; lens or 3 mm parallel beam required for high-power accuracy.

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 rate +27 to -70 dBm from 1250-1650 nm and +23 to -70 dBm from 800-1650 nm with ±3.0% reference accuracy.

Applications

Intended for high optical power measurements on amplified links, EDFA outputs, and transmitters where standard heads would saturate, while retaining wide dynamic range down to -70 dBm.

Key Features

5 mm InGaAs sensor for high-power optical measurements

Requires 81533B interface module to the lightwave multimeter host

Parallel-beam or connectorized fiber launch with NA ≤0.3

0.001 dB/dBm display resolution class via host

Two-year recommended recalibration period

Compact cylindrical optical head package

Technical Specifications

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PARAMETER	VALUE
Sensor element	InGaAs, 5 mm
Wavelength range	800 to 1650 nm
Power range 1250 to 1650 nm	+27 to -70 dBm
Power range 800 to 1650 nm	+23 to -70 dBm
Display resolution	0.001 dB/dBm (0.0001 dB/dBm on printout)
Applicable fiber type	parallel beam, 9/125 μm to 100/140 μm, NA ≤0.3
Uncertainty at reference conditions	±3.0% (900 to 1600 nm)
Total uncertainty	±5% ±500 pW (900 to 1600 nm)

Linearity 18 to 28 °C +10 to -50 dBm: ±0.04 dB ±500 pW

Specifications

PARAMETER	VALUE
Linearity operating temperature range	±0.15 dB ±500 pW
Noise peak to peak 1 s average	less than 500 pW (900 to 1600 nm)
Operating temperature	0 °C to +40 °C
High power temperature note	30 °C for greater than 20 dBm input
Dimensions	37.5 mm diameter × 140 mm length
Net weight	0.45 kg
Shipping weight	1 kg
Recalibration period	2 years

PARAMETER	VALUE
Warm up time	20 minutes
Host interface module	HP 81533B
Reference power level for accuracy	10 μ W (−20 dBm) CW
Sensor diameter	5 mm
Sensor material	InGaAs
High band max power	+27 dBm
Wide band max power	+23 dBm
Minimum power	−70 dBm
Reference accuracy	±3.0%

Notes
Specifications are from HP 8153A / 815xx Optical Measurement Equipment technical specification tables for 81533B + 81525A. Add ±0.008 dB/10 mW between 10 and 27 dBm per OEM footnote; lens or 3 mm parallel beam required for high-power accuracy.

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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NIST-traceable calibration · SAM registered ·
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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.