

KEYSIGHT TECHNOLOGIES (AGILENT HP)

81533B

The HP 81533B is an optical head interface module designed for use with the Hewlett-Packard (later Agilent / Keysight) 8153A Lightwave Multimeter mainframe. It serves as the interface between the mainframe and various HP 8152x series high-performance optical heads, enabling high-precision optical power measurements over a broad spectrum of wavelengths and power levels.

SPECIFICATIONS

General

Interfaces	1x Optical head front-panel input connector, mainframe backplane interface (rear)
Display	0.001 dB/dBm, 0.01 pW to 10 pW (via HP 8153A mainframe)

Physical

Power Supply	Powered by HP 8153A mainframe backplane
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	32 mm × 75 mm × 335 mm mm
Weight	0.5 kg kg

System Architecture

Mainframe Compatibility	HP 8153A Lightwave Multimeter
Compatible Optical Heads	HP 81520A, HP 81521B, HP 81524A, HP 81525A
Form Factor	Single-slot plug-in module for HP 8153A mainframe

System Performance

Warmup Time	20 minutes
Applicable Fiber Type	9/125 μm to 100/140 μm, NA ≤ 0.3
Display Resolution (Logarithmic)	0.001 dB/dBm
Display Resolution (Linear)	0.01 pW to 10 pW

Performance with HP 81520A

Sensor Element (with HP 81520A)	Si, 5 mm diameter
Wavelength Range (with HP 81520A)	450 to 1020 nm
Power Measurement Range (with HP 81520A)	+10 to -100 dBm
Peak-to-Peak Noise (with HP 81520A)	<50 fW (average time 1 s)
Power Uncertainty / Accuracy (with HP 81520A)	±2.2%

Performance with HP 81521B

Sensor Element (with HP 81521B)	Ge, 5 mm diameter
Wavelength Range (with HP 81521B)	900 to 1700 nm
Power Measurement Range (with HP 81521B)	+3 to -80 dBm
Peak-to-Peak Noise (with HP 81521B)	<5 pW (average time 1 s)
Power Uncertainty / Accuracy (with HP 81521B)	±2.2%

Performance with HP 81524A

Sensor Element (with HP 81524A)	InGaAs, 5 mm diameter
Wavelength Range (with HP 81524A)	800 to 1650 nm
Power Measurement Range (with HP 81524A)	+3 to -90 dBm
Peak-to-Peak Noise (with HP 81524A)	<0.5 pW (average time 1 s)
Power Uncertainty / Accuracy (with HP 81524A)	±2.2%

Performance with HP 81525A

Sensor Element (with HP 81525A)	InGaAs, 5 mm diameter
Wavelength Range (with HP 81525A)	800 to 1650 nm
Power Measurement Range (with HP 81525A)	+27 to -70 dBm (1250 to 1650 nm), +23 to -70 dBm (800 to 1250 nm)
Peak-to-Peak Noise (with HP 81525A)	<50 pW (average time 1 s)
Power Uncertainty / Accuracy (with HP 81525A)	±3.0%

Configuration

Number of Channels	1
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Analog Output

Analog Output Voltage Range	0 V to 2 V (into open circuit, linear proportional to power)
Analog Output Impedance	600 Ω (typical)
Analog Output Connector	BNC

Inputs & Outputs

Optical Head Connector Interface	15-pin D-Sub
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Environmental

Storage Temperature	-40 °C to +75 °C
Operating Humidity	95% R.H. (from 0 °C to 40 °C, non-condensing)

Maintenance

Calibration Interval	1 year
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TECHNOLOGY

Fiber Optic Test & Measurement

APPLICATIONS

Optical Power Measurement

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