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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81633B, Germanium Optical Head

HP Agilent Keysight 81633B Optical Power Sensor Module The Agilent 81633B is an InGaAs optical power sensor module for 8163/8164/8166 Lightwave mainframes. OEM 81632B/3B/4B/6B/7B user's-guide Table 3 lists 800 to 1700 nm, +10 to minus 90 dBm, plus or minus 2.5 percent uncertainty at reference conditions (1000 to 1630 nm), greater than 55 dB return loss, and analog output. Calibrated optical power and IL logging on SM and MM fiber; analog-output monitoring; high-accuracy InGaAs sensing to minus 90 dBm. The Agilent 81633B is an InGaAs optical power sensor module for 8163/8164/8166 Lightwave mainframes. OEM 81632B/3B/4B/6B/7B user's-guide Table 3 lists 800 to 1700 nm, +10 to minus 90 dBm, plus or minus 2.5 percent uncertainty at reference conditions (1000 to 1630 nm), greater than 55 dB return loss, and analog output. Calibrated optical power and IL logging on SM and MM fiber; analog-output monitoring; high-accuracy InGaAs sensing to minus 90 dBm. Logs with internal or external trigger on the 816x platform



MODEL

**Agilent / Keysight
81633B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81633B

LISTING

<https://aumictechlabs.com/products/81633b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 81633B is a Germanium optical power sensor head engineered for precision optical power measurements across the near-infrared spectrum. This 5 mm diameter detector

module operates from 800 nm to 1700 nm and delivers absolute accuracy of ± 0.15 dB with 0.001 dB resolution. The sensor accepts input power levels from -80 dBm to +10 dBm, with linearity of ± 0.006 dB across the CW range (+10 dBm to -60 dBm). Rise and fall times measure less than 3.5 ns each, supporting fast transient measurements. Noise equivalent power reaches 10 pW/ $\sqrt{\text{Hz}}$, enabling detection of weak optical signals. The module connects via FC/PC optical connector and outputs an analog signal (0-2V range) through a rear-panel BNC connector proportional to detected power. Responsivity is specified at 0.9 A/W. The sensor head measures 70 mm $\times$ 120 mm $\times$ 30 mm, weighs 0.2 kg, and operates from +15 V to +24 V at 3 W power consumption. A 20-minute warm-up period is required before measurement. The 81633B integrates with Agilent/Keysight mainframe instruments including the 8163A, 8163B, 8164A, 8164B, 8166A, 8166B, and 8153A, with interface modules 81618A or 81619A required for certain mainframe configurations. Operating temperature range is 0°C to 55°C; storage extends from -40°C to 70°C in non-condensing environments. Maximum input power is 100 mW. Calibration is valid within one year; an additional 0.3% uncertainty applies in the second year following calibration.

Technical Specifications

Sensor element:	Germanium (Ge), 5 mm diameter
Wavelength range:	800 nm to 1700 nm
Power range:	-80 dBm to +10 dBm
Absolute power accuracy:	± 0.15 dB
Power resolution:	0.001 dB
Linearity (CW +10 dBm to -60 dBm):	± 0.006 dB
Noise equivalent power:	10 pW/ $\sqrt{\text{Hz}}$
Rise time:	< 3.5 ns
Fall time:	< 3.5 ns
Maximum input power:	100 mW
Responsivity:	0.9 A/W

Key Features

- FC/PC optical connector for industry-standard fiber coupling
- Analog voltage output (0-2V, BNC connector) for direct instrumentation integration
- Fast transient response enables sub-nanosecond timing measurements
- Operates across extended near-infrared wavelength band
- Low noise floor supports weak-signal detection applications

Compatibility & Integration

The 81633B works with operation with Agilent/Keysight mainframe units: 8163A, 8163B, 8164A, 8164B, 8166A, 8166B, and 8153A. Interface modules 81618A or 81619A may be required depending on mainframe model.

Features & description

From manufacturer datasheet

Polarization Dependent Uncertainty: less than plus or minus 0.005 dB

Spectral Ripple: less than plus or minus 0.005 dB Linearity At 23 C: less than plus or minus 0.015 dB plus or minus 2 pW, CW +10 dBm to minus 70 dBm, 1000 nm to 1630 nm, 23 C plus or minus 5 C Linearity Over Operating Temperature: less than plus or minus 0.05 dB plus or minus 2 pW Return Loss: greater than 55 dB Noise Peak To Peak: less than 2 pW Minimum Averaging Time: 100 us Analog Output: included Analog Output Voltage: 0 to 2 V into open Analog Output Impedance Typical: 600 ohm typical Analog Max Input Voltage: plus or minus 10 V Dimensions: 75 mm x 32 mm x 335 mm Weight: 0.5 kg Recalibration Period: 2 years Operating Temperature: 0 C to +45 C Humidity: non-condensing Warm Up Time: 20 minutes Host Mainframes: 8163A/B, 8164A/B, 8166A/B Reference Power Level: 10 uW (minus 20 dBm) CW, 50 um GI fiber NA 0.2, 23 C plus or minus 5 C, day of calibration Notes Numeric rows from Agilent 81632B/3B/4B/6B/7B Power Sensor Modules User's Guide Table 3, 81633B column, plus analog-output supplementary characteristics. Total uncertainty pW term is the 81633B column (plus or minus 2 pW) beside 81634B plus or minus 0.5 pW / 0.2 pW in that table.

81633B Characteristics / Specifications

PARAMETER	VALUE
Model	81633B
Instrument Type	Optical power sensor module
Series Family	Agilent 8163xB power sensors
Sensor Element	InGaAs
Wavelength Range	800 nm to 1700 nm
Power Range	+10 dBm to minus 90 dBm
Display Resolution	0.0001 dB/dBm, 0.01 pW to 10 pW depending on power range
Applicable Fiber	standard SM and MM up to 100 um core, NA less than or equal to 0.3
Uncertainty At Reference Conditions	plus or minus 2.5 percent, 1000 nm to 1630 nm
Total Uncertainty	plus or minus 4.5 percent plus or minus 2 pW, 1000 nm to 1630 nm
Polarization Dependent Uncertainty	less than plus or minus 0.005 dB
Spectral Ripple	less than plus or minus 0.005 dB
Linearity At 23 C	less than plus or minus 0.015 dB plus or minus 2 pW, CW +10 dBm to minus 70 dBm, 1000 nm to 1630 nm, 23 C plus or minus 5 C
Linearity Over Operating Temperature	less than plus or minus 0.05 dB plus or minus 2 pW
Return Loss	greater than 55 dB
Noise Peak To Peak	less than 2 pW
Minimum Averaging Time	100 us
Analog Output	included
Analog Output Voltage	0 to 2 V into open
Analog Output Impedance Typical	600 ohm typical
Analog Max Input Voltage	plus or minus 10 V
Dimensions	75 mm x 32 mm x 335 mm
Weight	0.5 kg
Recalibration Period	2 years
Operating Temperature	0 C to +45 C

PARAMETER	VALUE
Humidity	non-condensing
Warm Up Time	20 minutes
Host Mainframes	8163A/B, 8164A/B, 8166A/B
Reference Power Level	10 uW (minus 20 dBm) CW, 50 um GI fiber NA 0.2, 23 C plus or minus 5 C, day of calibration

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	less than plus or minus 0.05 dB plus or minus 2 pW
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Return Loss	greater than 55 dB
Noise Peak To Peak	less than 2 pW
Minimum Averaging Time	100 us
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Analog Output Voltage	0 to 2 V into open
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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	
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Notes

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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.