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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 81628B, Optical Head (Dual Channel)

HP Agilent Keysight 81628B High Power Integrating Sphere Optical Head The Agilent/Keysight 81628B is an InGaAs integrating-sphere optical head for 81618A/81619A interfaces. OEM optical-head specifications list 800 to 1700 nm, minus 60 to +40 dBm, damage level +40.5 dBm, plus or minus 3.0 percent uncertainty at reference conditions (970 to 1630 nm), typical return loss greater than 75 dB, and are required heat sink above +34 dBm. Highest-power EDFA, Raman, and pump measurements to +40 dBm; open-beam and multimode power with an integrating sphere; analog-output monitoring of high optical power. The Agilent/Keysight 81628B is an InGaAs integrating-sphere optical head for 81618A/81619A interfaces. OEM optical-head specifications list 800 to 1700 nm, minus 60 to +40 dBm, damage level +40.5 dBm, plus or minus 3.0 percent uncertainty at reference conditions (970 to 1630 nm), typical return loss greater than 75 dB, and are required heat sink above +34 dBm. Highest-power EDFA, Raman, and pump measurements to +40 dBm; open-beam and multimode power with an integrating sphere; analog-output monitoring of high optical power.



MODEL

**Agilent / Keysight
81628B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

81628B

LISTING

<https://aumictechlabs.com/products/81628b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 81628B is a dual-channel optical measurement head for high-power optical signal detection across the infrared spectrum. It integrates with Keysight Lightwave Measurement platform mainframes via 81618A or 81619A interface modules and features a wavelength-dependent calibrated integrating sphere optimized for accurate measurements at power levels up to +40 dBm.

Technical Specifications

Parameter	Value
Sensor Element	InGaAs
Wavelength Range	800 nm to 1700 nm
Power Range	+40 dBm to -60 dBm
Maximum Input Power	+40 dBm (damage threshold 40.5 dBm)
Aperture Diameter	8 mm
Averaging Time	100 μ s to 10 s
Data Logging	Up to 20,000 samples
Relative Uncertainty	$\leq \pm 0.006$ dB (typical)
Return Loss	> 75 dB (typical)
Noise (peak-to-peak)	< 5 nW
Linearity (CW, 23°C $\pm 5^\circ$ C, 970 nm to 1630 nm)	± 0.03 dB to ± 0.10 dB depending on power level
Reference Uncertainty (970 nm to 1630 nm)	$\pm 3.0\%$
Analog Output	0–2 V via BNC connector

Key Features

- Built-in wavelength-dependent calibrated integrating sphere distributes input power over a large surface area for enhanced linearity and thermal stability
- Detachable heatsink for operation above 2 W input power; required for continuous operation between 34 dBm and 38 dBm
- Supports single-mode fiber ($NA \leq 0.2$) and multimode fiber ($NA \leq 0.4$) via threaded connector adapters
- Automatic power ranging and min/max value monitoring
- 8 mm exposed aperture accommodates open-beam and custom fiber holder configurations

Compatibility & Integration

- Connects to Agilent/Keysight 81618A single-channel or 81619A dual-channel interface modules
- Compatible with threaded-type connector adapters
- Analog output requires autoranging to be disabled
- Operation above 38 dBm proceeds at operator risk; operation above 34 dBm without heatsink may cause connector and hardware temperatures to exceed IEC 61010-1 safety limits (55°C)

Features & description

From manufacturer datasheet

Polarization Dependent Uncertainty Typical: typical less than or equal to plus or minus 0.006 dB

Speckle Noise 0p1 To 100 Pm Typical: typical less than or equal to plus or minus 0.02 dB, 0.1 pm to 100 pm source linewidth Speckle Noise Above 100 Pm Typical: typical less than or equal to plus or minus 0.002 dB, greater than 100 pm source linewidth Linearity To Plus 10 Dbm: less than or equal to plus or minus 0.03 dB, CW minus 40 dBm to +38 dBm, 970 to 1630 nm, 23 C plus or minus 5 C, less than or equal to +10 dBm Linearity 10 To 20 Dbm: less than or equal to plus or minus 0.06 dB, greater than +10 dBm to less than or equal to +20 dBm Linearity 20 To 37 Dbm: less than or equal to plus or minus 0.09 dB, greater than +20 dBm to less than or equal to +37 dBm Linearity 37 To 38 Dbm: less than or equal to plus or minus 0.10 dB, greater than +37 dBm to less than or equal to +38 dBm Operating Temperature Linearity Add: add plus or minus 0.03 dB over the operating temperature range Return Loss Typical: typical greater than 75 dB Noise Peak To Peak: less than 5 nW Minimum Averaging Time: 100 us Analog Output: included Dimensions: 55 mm x 80 mm x 250 mm Weight Without Heat Sink: 0.9 kg Recalibration Period: 2 years Operating Temperature: 0 C to +40 C; max 35 C for input power greater than +30 dBm

81628B Characteristics / Specifications

PARAMETER	VALUE
Model	81628B
Instrument Type	High power integrating sphere optical power head
Series Family	Agilent 8162xB optical heads
Sensor Element	InGaAs integrating sphere
Wavelength Range	800 nm to 1700 nm
Power Range	minus 60 dBm to +40 dBm, 800 nm to 1700 nm
Damage Power	+40.5 dBm
Heat Sink Threshold	heat sink must be used above +34 dBm
Applicable Fiber	open beam; SM NA less than or equal to 0.2; MM NA less than or equal to 0.4; beam diameter less than or equal to 3 mm at sphere center
Uncertainty At Reference Conditions	plus or minus 3.0 percent, 970 nm to 1630 nm
Total Uncertainty To Plus 10 Dbm	plus or minus 4.0 percent plus or minus 5 nW, 970 nm to 1630 nm, less than or equal to +10 dBm
Total Uncertainty 10 To 20 Dbm	plus or minus 4.5 percent, greater than +10 dBm to less than or equal to +20 dBm
Total Uncertainty 20 To 38 Dbm	plus or minus 5 percent, greater than +20 dBm to less than or equal to +38 dBm
Polarization Dependent Uncertainty Typical	typical less than or equal to plus or minus 0.006 dB
Speckle Noise Op1 To 100 Pm Typical	typical less than or equal to plus or minus 0.02 dB, 0.1 pm to 100 pm source linewidth
Speckle Noise Above 100 Pm Typical	typical less than or equal to plus or minus 0.002 dB, greater than 100 pm source linewidth
Linearity To Plus 10 Dbm	less than or equal to plus or minus 0.03 dB, CW minus 40 dBm to +38 dBm, 970 to 1630 nm, 23 C plus or minus 5 C, less than or equal to +10 dBm
Linearity 10 To 20 Dbm	less than or equal to plus or minus 0.06 dB, greater than +10 dBm to less than or equal to +20 dBm
Linearity 20 To 37 Dbm	less than or equal to plus or minus 0.09 dB, greater than +20 dBm to less than or equal to +37 dBm

PARAMETER	VALUE
Linearity 37 To 38 Dbm	less than or equal to plus or minus 0.10 dB, greater than +37 dBm to less than or equal to +38 dBm
Operating Temperature Linearity Add	add plus or minus 0.03 dB over the operating temperature range
Return Loss Typical	typical greater than 75 dB
Noise Peak To Peak	less than 5 nW
Minimum Averaging Time	100 us
Analog Output	included
Dimensions	55 mm x 80 mm x 250 mm
Weight Without Heat Sink	0.9 kg
Recalibration Period	2 years
Operating Temperature	0 C to +40 C; max 35 C for input power greater than +30 dBm
Warm Up Time	40 minutes
Host Interface Modules	81618A single or 81619A dual
Host Mainframes	8163 8164 8166 class lightwave meters
Linewidth	Speckle Noise Above 100 Pm Typical: typical less than or equal to plus or minus 0.002 dB, greater than 100 pm source linewidth
Return loss	Typical: typical greater than 75 dB

General Specifications & Supplementary Characteristics

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Minimum Averaging Time	100 us
Analog Output	included
Dimensions	55 mm x 80 mm x 250 mm
Weight Without Heat Sink	0.9 kg
Recalibration Period	2 years
Warm Up Time	40 minutes
Host Interface Modules	81618A single or 81619A dual
Host Mainframes	8163 8164 8166 class lightwave meters Notes Numeric rows from Keysight 5988-1569EN, 81628B high-power optical head with integrating sphere table. Wavelength must not equal water absorption line. Operation above +38 dBm is at operator risk per the OEM safety note.

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 800 to 1700 nm, minus 60 to +40 dBm, damage level +40.5 dBm, plus or minus 3.0 percent uncertainty at reference conditions (970 to 1630 nm), typical return loss greater than 75 dB, and are required heat sink above +34 dBm.

Applications

Highest-power EDFA, Raman, and pump measurements to +40 dBm; open-beam and multimode power with an integrating sphere; analog-output monitoring of high optical power.

Key Features

Integrating sphere InGaAs head for highest power in the 8162xB family

Heat sink required above +34 dBm

Typical return loss greater than 75 dB

Must be used with 81618A or 81619A interface modules

Analog output included

Technical Specifications

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Model	81628B
Instrument Type	High power integrating sphere optical power head
Series Family	Agilent 8162xB optical heads
Sensor Element	InGaAs integrating sphere
Wavelength Range	800 nm to 1700 nm
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Linearity 37 To 38 Dbm	less than or equal to plus or minus 0.10 dB, greater than +37 dBm to less than or equal to +38 dBm
Operating Temperature Linearity Add	add plus or minus 0.03 dB over the operating temperature range
Return Loss Typical	typical greater than 75 dB
Noise Peak To Peak	less than 5 nW
Minimum Averaging Time	100 us
Analog Output	included
Dimensions	55 mm x 80 mm x 250 mm
Weight Without Heat Sink	0.9 kg
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Operating Temperature	0 C to +40 C; max 35 C for input power greater than +30 dBm
Warm Up Time	40 minutes
Host Interface Modules	81618A single or 81619A dual
Host Mainframes	8163 8164 8166 class lightwave meters

Notes

Numeric rows from Keysight 5988-1569EN, 81628B high-power optical head with integrating sphere table. Wavelength must not equal water absorption line. Operation above +38 dBm is at operator risk per the OEM safety note.

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>

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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.