AGILENT

81624B

The Agilent 81624B is a high-performance InGaAs optical power head designed for precise fiber optic power measurements. Featuring a large 5 mm active area sensor, it provides excellent optical characteristics including exceptionally low polarization dependence (PDL) and high return loss. The head is designed for operation with Agilent/ Keysight 8163, 8164, and 8166 series mainframes via compatible interface modules.

SPECIFICATIONS

General

Interfaces	Proprietary connector to 81618A/81619A interface modules
Display	None (uses mainframe display)

Physical

Power Supply	Powered via interface module from mainframe
Operating Temperature	0 °C to +40 °C °C
Dimensions (W×H×D)	80 mm × 55 mm × 50 mm mm
Weight	0.25 kg kg

Optical & Performance Specifications

Sensor Material	InGaAs (Indium Gallium Arsenide)
Active Area Diameter	5 mm
Wavelength Range	800 nm to 1700 nm
Power Measurement Range	-90 dBm to +10 dBm
Maximum Safe Input Power	+16 dBm
Calibration Wavelength Range	800 nm to 1700 nm
Polarization Dependence (PDL)	< ±0.005 dB (typically < ±0.002 dB) within 1250 nm to 1600 nm
Spectral Ripple (due to interference)	< ±0.005 dB (typical)
Maximum Numerical Aperture (NA)	0.3
Fiber Type Compatibility	Single-mode (SM) and Multi-mode (MM) up to 100 µm core diameter

Measurement Accuracy & Linearity

Absolute Power Uncertainty (Reference Conditions)	±2.2% at 1310 nm and 1550 nm
Absolute Power Uncertainty (1000 to 1630 nm)	±3.0% at reference conditions
Absolute Power Uncertainty (800 to 1000 nm / 1630 to 1700 nm)	±5.0% at reference conditions
Total Operating Power Uncertainty (1000 to 1630 nm)	±4.0% (-70 dBm to +10 dBm)
Power Linearity (1200 to 1630 nm)	< ±0.015 dB (-70 dBm to +10 dBm)
Zeroing Offset	< 2.5 pW
Temperature Dependence of Calibration Factor	±0.04% / K (typical, at 1310 nm / 1550 nm)
Reference Conditions	23 °C ± 5 K, power level -20 dBm, SM fiber 9/125 µm, NA ≤ 0.1

Speed, Sampling & Signal Processing

Minimum Averaging Time	100 µs

Optical Interface & Connectivity

Input Aperture Diameter	5 mm
Interface Cable Length	2 m
Connector Type to Interface Module	D-Sub connector
Compatible Thread Type for Adapters	Agilent 8162x adapter thread

Environmental & Regulatory Compliance

Storage Temperature Range	-40 °C to +70 °C
Operating Humidity Range	15% to 95% R.H., non-condensing
Recommended Calibration Interval	2 years

System Integration & Compatibility

Compatible Mainframes	Agilent / Keysight 8163A, 8163B, 8164A, 8164B, 8166A, 8166B
Compatible Interface Modules	Agilent / Keysight 81618A (Single Channel), 81619A (Dual Channel)

Performance

Noise Peak-to-Peak (1200 to 1600 nm)	< 20 pW (constant temperature, 1 s averaging time, 3σ)
Noise Peak-to-Peak (800 to 1700 nm)	< 50 pW (constant temperature, 1 s averaging time, 3σ)

Operating Conditions

Warm-up Time	40 min

Calibration

Individual Calibration Wavelengths	850 nm, 1300 nm, 1310 nm, 1490 nm, 1550 nm, 1625 nm

TECHNOLOGY

InGaAs (Indium Gallium Arsenide)

APPLICATIONS

Optical power measurement and fiber optic testing