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HP 81533B, HP 81520A, HP 81521B, HP 81524A, and HP 81525A Specifications

Specifications describe the instrument's warranted performance. Supplementary performance characteristics describe the instrument's non-warranted typical performance.

Because of the modular nature of the instrument, these performance specifications apply only to this module. You should insert these pages into the appropriate section of the manual.

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HP 81533B Specifications

	HP 81533B with HP 81520A Optical Head	HP 81533B with HP 81521B Optical Head	HP 81533B with HP 81524A Optical Head	HP 81533B with HP 81525A Optical Head
Sensor Element	Si, 5mm	Ge, 5mm	InGaAs, 5mm	
Wavelength range	450-1020nm	900-1700nm	800-1650nm	
Power range	+10 to -100dBm	+3 to -80dBm	+3 to -90dBm	+27 to -70dBm (1250 to 1650nm) +23 to -70dBm (800 to 1650nm)
Display resolution	0.001dB/dBm (0.0001dB/dBm on printout), 0.01pW tpo 10pW (depending on power range)			
Applicable fiber type	parallel beam, 9/125μm - 100/140μm, NA $\leq$0.3			
Uncertainty (Accuracy) at reference conditions[1]	±2.2% (600-1020nm)	±2.2% (1000-1650nm)	±2.2% (1000-1600nm)	±3% (900-1600nm)
Total Uncertainty[2]	±4%±0.5pW (600-1020nm)	±4%±50pW (1000-1650nm)	±4%±5pW (1000-1600nm)	±5%±500pW [3] (900-1600nm)
Linearity 18°C to 28°C const. temp Operating temp. range const. temp	(+3 to -80dBm) ±0.04dB±0.5pW ±0.15dB±0.5pW	(0 to -60dBm) ±0.04dB±50pW ±0.15dB±50pW	(+3 to -70dBm) ±0.04dB±5pW ±0.15dB±5pW	(+10 to -50dBm)[3] ±0.04dB±500pW ±0.15dB±500pW
Noise peak-peak, avg. time 1sec	<0.5pW (700-900nm)	<50pW (1200-1600nm)	<5pW (1000-1600nm)	<500pW (900-1600nm)
Operating Temperature	0°C to +40°C			0°C to +35°C[4]
Dimensions Module Head	75mm H, 32mm W, 335mm D (2.8"×1.3"×13.2") 37.5mm Diameter, 140mm Long (1.5"×5.5")			
Weight Module Head	net 0.6kg (1.3lbs), shipping 1kg (2.2lbs) net 0.45kg (1lbs), shipping 1kg (2.2lbs)			
Recalibration period	2 years			
Warmup time	20 min.			
The display may vary by ±1 count.				

Information on the traceability of power meters is available on request

[1] at the following reference conditions:

- Power level 10μW (-20dBm), Continuous Wave (CW).
- Parallel beam, 3mm spot diameter on detector.
- Ambient temperature 23°C±5K
- At day of calibration. (add 0.3% for aging over one year, add 0.6% over two years).
- Spectral width of source <10nm

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[2] at the following operating conditions:

- Parallel beam, 3mm spot diameter on detector, or connectorized fiber with NA $\leq$0.2
- Ambient temperature 0 to 40°C, non-condensating.
- Within 1 year after calibration, add 0.3% for the second year.

[3] Add 0.008dB/10mW between 10 and 27dBm.

- Lens required (for example for SM 81010BL, for MM 81050BL) or parallel beam, 3mm spot diameter on detector.
- Wavelength range 950-1650 nm.

[4] 30°C for >20dBm input power.

Supplementary Performance Characteristics

Add 1% to total uncertainty for the full wavelength range (except HP 81525A: see footnote 3).

Outside the specified wavelength range, the noise increases by up to 5 times the value shown above.

For fiber applications with NA between 0.2 and 0.3 use specific lenses and add 0.5% total uncertainty for the 850±50nm, 1300±50nm, and 1550±50nm range.

Analog output	
bandwidth	$\geq$DC, $\leq$300 to 1000Hz
	depending on range and optical head
output voltage	0 to 2V into open
output impedance	600Ω typ.
max. input voltage	±10V

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