

High power sensor module specifications (Autorange mode)

	Agilent 81630B
Sensor element	InGaAs
Wavelength range	970 – 1650 nm
Power range	+28 to –70 dBm
Applicable fiber type	Standard SM and MM up to 100 µm core size, NA ≤0.3
Uncertainty (accuracy) at reference conditions ^[1]	±3.0 % for 1255 nm to 1630 nm at 980 nm ±3.5 % (add ±0.5% per nm if 980 nm is not the center wavelength) at 1060 nm ±4.0 % (add ±0.6% per nm if 1060 nm is not the center wavelength),
Total uncertainty ^{[2] [8]}	±5 % ±1.2 nW for 1255 nm to 1630 nm) at 980 nm ±5.5 % ± 1.2 nW (add ±0.5% per nm if 980 nm is not the center wavelenth) at 1060 nm ±6.0 % ± 1.2 nW (add ±0.6 % per nm if 1060 nm is not the center wavelenth)
Relative uncertainty: - due to polarization ^[3] - spectral ripple (due to interference) ^[4]	< ±0.01 dB < ±0.005 dB
Linearity (power): ^[5] - at 23°C ± 5°C - at operating temp. range	CW + 28 to – 50 dBm 970 – 1630 nm ≤±0.05 dB ± 1.2 nW ^[8] ≤±0.15 dB ± 1.2 nW ^[8]
Return loss ^[7]	> 55 dB
Noise (peak to peak) ^{[5] [6]}	< 1.2 nW
Averaging time (minimal)	100 µs
Analog Output	Included
Dimensions (H x W x D)	75 mm x 32 mm x 335 mm (2.8" x 1.3" x 13.2")
Weight	0.6 kg
Recalibration period	2 years
Operating temperature	0°C to +35°C
Humidity	Non-condensing
Warm-up time	20 min

^[1] Reference conditions:

- Power level 80 µW, continuous wave (CW)
- SM Fiber; 9µm; NA = 0.1
- Ambient temperature 23°C ± 5°C
- On day of calibration (add ± 0.3 % for aging over one year, add ± 0.6 % over two years)
- Spectral width of source < 10nm (FWHM)
- Wavelength setting at powermeter must correspond to source wavelength ±0.4 nm

^[2] Operating Conditions:

- Fiber ≤ 50 µm, NA ≤ 0.2
- Within one year after calibration, add 0.3 % for second year
- Add ± 1% for Biconic connector

- Operating temperature range as specified, humidity: non-condensing

^[3] All states of polarization at constant wavelength (1550 nm ± 30 nm) and constant power, straight connector,
T = 23°C ± 5°.
For angled connector (8°) add ± 0.01 dB typ.

^[4] Conditions:
Wavelength 1550 nm ± 30 nm, fixed state of polarization, constant power,
Temperature 23°C ± 5°C
Linewidth of source ≥ 100 MHz, angled connector 8°.

^[5] At const. Temperature ($\Delta T = \pm 1^\circ\text{C}$)

^[6] Averaging time 1s, T = 23°C ± 5°C, observation time 300 s.
Wavelength range 1255-1630 nm.

^[7] Conditions:
Wavelengths 1310nm ± 30 nm and 1550nm ± 30 nm.
Standard single mode fiber, angled connector min 8°.
T = 23°C ± 5°C

^[8] For input power > +10 mW add:
typ. ± 0.0012 dB/mW
In case of negative power change
> 50dB allow additional recovery time of 3 min

^[9] 30°C for > +20dBm input power