

8162-C and N7749C

Optical Power Meter Heads and Optical Head Interface

General Information

Large area detectors

The new 8162-C series optical power heads provide a 5 mm detector area or an integrating sphere and allow flexible placement of the remote optical power meter, which is then connected to the N7749C. A wide choice of adapters allows input from popular fiber connector types, bare fibers or open beams. The magnetic D-shaped adapters allow rapid removal and replacement without twisting attached fibers.

The simple geometry and high-quality detectors provide the highest accuracy measurements. Models are also available with enhanced metrology reference quality calibrations for use as working standards or other demanding applications.

N7749C interface for two or four optical power heads

The N7749C optical head interface controls the remote heads. Readout is supported over LAN and USB interfaces with a built-in web-browser GUI and the SCPI command set common to Keysight optical power meters. Power values can be logged with dual-1M sample buffers for each head, to sample continuously with internal or external triggering. The heads generally have sample averaging times ranging from 100 μ s to 10 s.



Web User Interface but no LAN?

Connect instrument and PC via USB. The instrument shows up as a new drive: double-click the shortcut on that drive. This lets any modern browser open a connection to the instrument: the graphical user interface appears. It's as simple as that!



Table of Contents

General Information	1
Large area detectors	1
N7749C interface for two or four optical power heads.....	1
High-power versions up to +26 dBm and +40 dBm	3
Analog output port perfect for automated alignment.....	3
Members of a growing family	3
Selection guide.....	3
Compatibility notice	3
Key Benefits	4
Ideal for automated and semi-automated alignment applications	4
Flexibility.....	4
Fast Swept-wavelength Measurements with Detached Optical Power Sensors	5
Optical Power Heads Calibrated for use as Metrology Standard	5
Definitions.....	6
Specifications (guaranteed)	6
Typical values (characteristics).....	6
General characteristics	6
81620C Optical Power Head Specifications	7
81623C Optical Power Head Specifications	8
81624C Optical Power Head Specifications	10
81626C Optical Power Head Specifications	12
81628C Optical Power Head Specifications	14
Optical Power Head Typical Analog Bandwidth	16
General Specifications	17
Ordering Information	18
Optical Instruments Online Information.....	20

High-power versions up to +26 dBm and +40 dBm

The 81626C with standard geometry and the 81628C with an integrating sphere are available for high power and special geometry measurements.

Analog output port perfect for automated alignment

Direct feedback for optimization processes like fiber alignment is also provided with analog voltage outputs, both at the remote head itself and now from the N7749C front panel. The front-panel signals can be configured to be either linearly proportional to the optical signal power or logarithmic to provide useful signal over decades of power levels.



Members of a growing family

The N7749C benefits from the N77-C's family-wide, common trigger concept, and a modern, browser-accessible user interface, that makes it convenient to configure the instrument's functionality. High-speed measurement data acquisition, faster data interfaces, the use of dual-ported RAM for uninterrupted simultaneous measurement and readout, all work to minimize overhead time for repetitive measurements.

Selection guide

- 81620C: Si detector, 450 nm to 1020 nm, low noise, best choice for 850 nm
- 81623C: Ge detector, wide 750 nm to 1800 nm range
- 81624C: InGaAs detector, highest accuracy, lowest noise
- 81626C: InGaAs detector, +27 dBm high power
- 81628C: InGaAs detector, integrating sphere, +40 dBm max, highest accuracy at high power

Compatibility notice

The new N7749C optical head interface supports the newly released 81620C, 81623C, 81624C, 81626C and 81628C optical heads and their special calibration variants as well as the previous generation optical heads 81620B, 81623B, 81624B, 81626B and 81628B.

Please note that obsolete optical heads, e.g., those of the 8152xA or 8162xA generation, are not supported by the N7749C optical head interface and there are no plans to add support. Likewise, 8162-C optical heads cannot be used with 81618A or 81619A optical head interface modules or with the 8153A Lightwave Multimeter.

Key Benefits

N7749C provides a fast and compact controller for up to 4 remote optical power heads



- Data acquisition with up to 1 million samples per port
- Memory for 1 M samples/port plus 1 M samples/port buffer for continuous logging
- Fast USB and LAN
- Web browser GUI and SCPI command set
- Supported by N7700 Photonic Application Suite for swept-wavelength measurements together with tunable lasers

Ideal for automated and semi-automated alignment applications

- Easy open beam detection with 5 mm detector diameter or 8 mm aperture on 81628C sphere
- Analog output port with linear or logarithmic feedback signal on N7749C
- Standard BNC connector with 0 to 2 V output

Flexibility

- 8100xyA-series connector adapters support a wide range of common fiber-optic connectors
- Magnetic D-shaped adapters for connectivity without twisting attached fibers (except 81628C)
- Use your threaded adapters with the D-shape adapter 81624DD (except 81628C)
- The instrument can be controlled via LAN and USB
- The comprehensive hardware and trigger concept along with its large memory storage gives the flexibility to adapt the power meter to many test needs
- The instrument programming code is compatible to the Lightwave solution



Fast Swept-wavelength Measurements with Detached Optical Power Sensors

For test scenarios that require swept-wavelength measurements with detached sensors, the 8162-C series of optical power heads can be controlled by the photonic application software suite. To perform spectral measurements of insertion loss and polarization dependent loss they are combined with Keysight tunable lasers and a polarization synthesizer. The very low polarization dependence of the heads, especially the 81624C, provide the lowest PDL measurement uncertainty. The photonic application software suite has a measurement engine for IL and PDL that can combine the sweeps of up to 3 tunable laser wavelength ranges. See the photonic application software suite brochure for details. www.keysight.com/find/n7700.

Optical Power Heads Calibrated for use as Metrology Standard

Compared to the standard models, the accuracy of the optical power meter heads 81623X-C, 81624X-C and 81626X-C are further increased by an additional detector selection and special calibration performed in the factory's Optical Metrology Laboratory. The result is an optical power meter head that is calibrated with lower measurement uncertainties and shorter traceability chain. Consequently, it has tighter specifications, which is most attractive for high accuracy calibration purposes. In addition to responsivity versus wavelength and linearity over the specified measurement range, such a head is characterized for spatial homogeneity over the detector's active area.

The 81624X05C optical power meter head additionally includes the calibration of the spectral responsivity directly at the Physikalisch-Technische Bundesanstalt (PTB), the German national metrology institute. The 81624X05C comes with a factory calibration report and a calibration certificate from the PTB in English language, listing the relative responsivity deviation at the calibration wavelengths. The calibration performed by PTB is described as follows:

	81624X05C
Measurement uncertainty (PTB)	$\pm 0.8 \%$
Wavelengths	1300 nm, 1310 nm, 1320 nm, 1540 nm, 1550 nm, 1560 nm
Power level	10 μ W (–20 dBm)
Beam geometry	Single mode fiber on head connector adapter Keysight 81000xA

Definitions

Generally, all specifications are valid at the stated operating and measurement conditions and settings, with uninterrupted line voltage.

Specifications (guaranteed)

Describes warranted product performance that is valid under the specified conditions. Specifications include guard bands to account for the expected statistical performance distribution, measurement uncertainties changes in performance due to environmental changes and aging of components.

Typical values (characteristics)

Characteristics describe the product performance that is usually met but not guaranteed. Typical values are based on data from a representative set of instruments.

General characteristics

Give additional information for using the instrument. These are general descriptive terms that do not imply a level of performance.

81620C Optical Power Head Specifications

All optical power heads have to be operated with the two or four channel optical head interface N7749C.

	81620C
Sensor element	Si, Ø 5 mm
Wavelength range	450 nm to 1020 nm
Specification wavelength range	600 nm to 1020 nm (if not stated differently)
Power range	–90 dBm to +10 dBm
Maximum safe input power (CW and peak)	+16 dBm
Averaging time (minimal)	100 µs
Applicable fiber type	Standard SM and MM max. 100 µm core diameter, NA ≤ 0.3
Open beam	Parallel beam max. Ø 4 mm
Uncertainty at reference conditions ¹	± 2.2%
Total uncertainty ²	± 4.0% ± 0.5 pW
Linearity: ^{3, 5} at (23 ± 5) °C at operating temp. range	(CW, –70 dBm to +10 dBm) < ± 0.04 dB < ± 0.15 dB
Noise (peak to peak) ⁴	< 0.5 pW (700 nm to 900 nm)

- Reference conditions:
Power level 10 µW (–20 dBm), continuous wave (CW).
Parallel beam, 3 mm spot diameter on the center of the detector.
Ambient temperature (23 ± 5) °C.
On day of calibration (add ± 0.3% for aging over one year; add ± 0.6% for aging over two years).
Spectral width of source < 10 nm full width half maximum (FWHM).
Wavelength setting of power sensor corresponds to source wavelength ≤ ± 0.4 nm.
- Operating conditions:
Parallel beam, 3 mm spot diameter on the center of the detector or connectorized fiber with NA ≤ 0.2 (straight connector).
For NA > 0.2 add 1%.
Averaging time 1 s.
Within one year after calibration; add 0.3% for second year.
Spectral width of source < 10 nm (FWHM).
Wavelength setting of power sensor corresponds to source wavelength ≤ ± 0.4 nm.
- Does not include noise; for wavelength < 1000 nm applies for –50 dBm to +10 dBm.
- Averaging time 1 s, T = (23 ± 5) °C, ΔT ± 1 K, observation time 300 s.
- For input power > 2 mW add ±0.004 dB/mW; zeroing required.

81623C Optical Power Head Specifications

All optical power heads have to be operated with the two or four channel optical head interface N7749C.

	81623C, 81623X80C	81623X01C, 81623X81C
Sensor element	Ge, Ø 5 mm	
Wavelength range	750 nm to 1800 nm	
Power range	–80 dBm to +10 dBm	
Maximum safe input power (CW and peak)	+16 dBm	
Averaging time (minimal)	100 µs	
Applicable fiber type	Standard SM and MM max 100 µm core diameter, NA ≤ 0.3	
Open beam	Parallel beam max. Ø 4 mm	
Relative uncertainty due to polarization ³	< ± 0.010 dB; typical < ±0.005 dB	
Relative uncertainty due to spectral ripple (due to interference) ⁴	< ± 0.006 dB; typical < ±0.003 dB	
Linearity: ^{5, 9} at (23 ± 5) °C at operating temp. range	(CW, –60 dBm to +10 dBm) < ±0.025 dB < ±0.05 dB	
Linearity at fixed power range ^{5, 9}	Typical < ±0.01 dB, within 10 dB of range maximum	
Noise (peak to peak) ⁶	< 100 pW (1200 nm to 1630 nm) < 400 pW (800 nm to 1200 nm)	
Uncertainty at ref. conditions ¹ 1000 nm to 1650 nm	± 2.2%	± 1.7%
Total uncertainty ² 1000 nm to 1650 nm	± 3.5% ± 100 pW	± 3.0% ± 100 pW
Return Loss ⁷	> 50 dB Typical > 55 dB ⁸	> 56 dB

	81623C, 81623X01C	81623X80C, 81623X81C
Uncertainty at ref. conditions ¹ 800 nm to 1000 nm	Typical ± 3.0%	± 2.5%
Total uncertainty ² 800 nm to 1000 nm	Typical ± 4.0% ± 250 pW	± 3.7% ± 250 pW

1. Reference conditions:
Power level 10 μ W (–20 dBm), continuous wave (CW).
Parallel beam, 3 mm spot diameter on the center of the detector.
Ambient temperature (23 \pm 5) °C.
On day of calibration (add \pm 0.3% for aging over one year; add \pm 0.6% for aging over two years).
Spectral width of source < 10 nm full width half maximum (FWHM).
Wavelength setting of power sensor corresponds to source wavelength $\leq \pm$ 0.4 nm.
2. Operating conditions:
Parallel beam, 3 mm spot diameter on the center of the detector or connectorized fiber with NA \leq 0.2 (straight connector; for 81623X01C and 81623X81C also with angled connector \leq 8°).
For NA > 0.2 add 1%.
Averaging time 1 s.
Within one year after calibration; add 0.3% for second year.
Spectral width of source < 10 nm (FWHM).
Wavelength setting of power sensor corresponds to source wavelength $\leq \pm$ 0.4 nm.
3. All states of polarization at constant wavelength (1550 nm \pm 30 nm) and constant power, straight connector, T = (23 \pm 5) °C. For angled connector (8°) add \pm 0.01 dB typ.
4. Conditions:
Wavelength 1550 nm \pm 30 nm, fixed state of polarization, constant power.
Temperature (23 \pm 5) °C.
Linewidth of source \geq 100 MHz.
Angled connector 8°.
5. Does not include noise; zeroing required; for wavelength < 1000 nm applies for –50 dBm to +10 dBm.
6. Averaging time 1 s, T = (23 \pm 5) °C, Δ T \pm 1 K, observation time 300 s.
7. Conditions:
Wavelength 1550 nm \pm 30 nm (1310 nm \pm 30 nm for 81623X80C and 81623X81C).
Standard single mode fiber.
Angled connector min 8°.
8. With D-shape adapter 81001xx return loss > 60 dB typical.
9. For input power > 2 mW add \pm 0.004 dB/mW. (not for 81623X01C and 81623X81C);
For input power < –40 dBm add as dB: \pm 10 log (1 + 50 pW / Power in pW).

81624C Optical Power Head Specifications

All optical power heads have to be operated with the two or four channel optical head interface N7749C.

	81624C	81624X01C, 81624X05C
Sensor element	InGaAs, Ø 5 mm	
Wavelength range	800 nm to 1700 nm	
Specification wavelength range	1000 nm to 1630 nm (if not stated differently)	
Power range	–90 dBm to +10 dBm	
Maximum safe input power (CW and peak)	+16 dBm	
Averaging time (minimal)	100 µs	
Applicable fiber type	Standard SM and MM max 100 µm core diameter, NA ≤ 0.3	
Open beam	Parallel beam max. Ø 4 mm	
Uncertainty at reference conditions ¹	± 2.2%	± 1.5% (970 nm to 1630 nm)
Total uncertainty ²	± 3.5% ± 5 pW	± 2.8% ± 5 pW (970 nm to 1630 nm)
Relative uncertainty due to polarization ³	< ± 0.005 dB; typical < ± 0.002 dB	
Relative uncertainty due to spectral ripple (due to interference) ⁴	< ± 0.005 dB; typical < ± 0.002 dB	
Linearity: ^{5, 8} at (23 ± 5) °C at operating temp. range	(CW, –70 dBm to +10 dBm, 1000 nm to 1630 nm) < ± 0.02 dB < ± 0.05 dB	
Linearity at fixed power range ^{5, 8}	Typical < ± 0.01 dB, within 10 dB of range maximum	
Return loss ⁷	Typical > 60 dB	
Noise (peak to peak) ⁶	< 4.5 pW	

1. Reference conditions:
 Power level 10 µW (–20 dBm), continuous wave (CW).
 Parallel beam, 3 mm spot diameter on the center of the detector.
 Ambient temperature (23 ± 5) °C.
 On day of calibration (add ± 0.3% for aging over one year; add ± 0.6% for aging over two years).
 Spectral width of source < 10 nm full width half maximum (FWHM).
 Wavelength setting of power sensor corresponds to source wavelength ≤ ± 0.4 nm.

2. Operating conditions:
Parallel beam, 3 mm spot diameter on the center of the detector or connectorized fiber with $NA \leq 0.2$ (straight connector); 81624X01C and 81624X05C also with angled connector $\leq 8^\circ$.
For $NA > 0.2$ add 1%.
Averaging time 1 s.
Within one year after calibration; add 0.3% for second year.
Zeroing required.
Wavelength setting of power sensor corresponds to source wavelength $\leq \pm 0.4$ nm.
3. All states of polarization at constant wavelength (1550 nm \pm 30 nm) and constant power, straight connector, $T = (23 \pm 5)^\circ\text{C}$. For angled connector (8°) add ± 0.01 dB typ.
4. Conditions:
Wavelength 1550 nm \pm 30 nm, fixed state of polarization, constant power.
Temperature (23 \pm 5) $^\circ\text{C}$.
Linewidth of source ≥ 100 MHz.
Angled connector 8° .
5. Does not include noise; zeroing required.
6. Averaging time 1 s, $T = (23 \pm 5)^\circ\text{C}$, $\Delta T \pm 1$ K, observation time 300 s, wavelength range 1200 nm to 1630 nm.
7. Conditions:
Wavelength 1550 nm \pm 30 nm.
Standard single mode fiber.
Angled connector min 8° .
With D-shape adapter 81001xA return loss > 60 dB typical.
8. For input power < -50 dBm add as dB: $\pm 10 \log (1 + 2.3 \text{ pW} / \text{Power in pW})$.

81626C Optical Power Head Specifications

All optical power heads have to be operated with the two or four channel optical head interface N7749C.

	81626C	81626X01C
Sensor element	InGaAs, Ø 5 mm	
Wavelength range	850 nm to 1650 nm	
Specification wavelength range	850 nm to 1650 nm (if not stated differently)	
Power range	–70 dBm to +27 dBm (1250 nm to 1650 nm) –70 dBm to +23 dBm	
Maximum safe input power (CW and peak)	+27.5 dBm (1250 nm to 1650 nm) +23.5 dBm	
Averaging time (minimal)	100 µs	
Applicable fiber type	Standard SM and MM max 100 µm core diameter, $0.1 \leq NA \leq 0.3$	
Open beam	Parallel beam min. Ø 1 mm, max. Ø 4 mm	
Uncertainty at ref. conditions ¹	± 3.0% (950 nm to 1630 nm)	± 2.5% (950 nm to 1630 nm)
Total uncertainty ^{2, 8} 950 nm to 1250 nm 1250 nm to 1630 nm	±5.0% ± 500 pW ±5.0% ± 500 pW	±4.5% ± 500 pW (≤ +23 dBm) ±4.5% ± 500 pW (≤ +27 dBm)
Relative uncertainty due to polarization ³	< ± 0.005 dB; typical < ± 0.002 dB	
Relative uncertainty due to spectral ripple (due to interference) ⁴	< ± 0.005 dB; typical < ± 0.002 dB	
Linearity: ^{5, 8} at (23 ± 5) °C at operating temp. range	(CW, –50 dBm to +27 dBm, 950 nm to 1630 nm) < ± 0.04 dB < ± 0.15 dB	
Linearity at fixed power range ^{5, 8}	Typical < ± 0.02 dB, within 10 dB of range maximum	
Return loss ⁷	> 45 dB	> 47 dB
Noise (peak to peak) ⁶	< 500 pW	

1. Reference conditions:
 Power level 10 µW (–20 dBm), continuous wave (CW).
 Parallel beam, 3 mm spot diameter on the center of the detector.
 Ambient temperature (23 ± 5) °C.
 On day of calibration (add ± 0.3% for aging over one year; add ± 0.6% for aging over two years).
 Spectral width of source < 10 nm full width half maximum (FWHM).
 Wavelength setting of power sensor corresponds to source wavelength ≤ ± 0.4 nm.

2. Operating conditions:
 Parallel beam, 3 mm spot diameter on the center of the detector or connectorized fiber with NA ≤ 0.2 (straight connector); 81626X01C also with angled connector $\leq 8^\circ$.
 For NA > 0.2 add 1%.
 Averaging time 1 s.
 Within one year after calibration; add 0.3% for second year.
 Zeroing required.
 Wavelength setting of power sensor corresponds to source wavelength $\leq \pm 0.4$ nm.
3. All states of polarization at constant wavelength (1550 nm \pm 30 nm) and constant power, straight connector, T = (23 \pm 5) $^\circ$ C. For angled connector (8 $^\circ$) add ± 0.01 dB typ.
4. Conditions:
 Wavelength 1550 nm \pm 30 nm, fixed state of polarization, constant power.
 Temperature (23 \pm 5) $^\circ$ C.
 Linewidth of source ≥ 100 MHz.
 Angled connector 8 $^\circ$.
5. Does not include noise; zeroing required.
6. Averaging time 1 s, T = (23 \pm 5) $^\circ$ C, $\Delta T \pm 1$ K, observation time 300 s, wavelength range 1200 nm to 1630 nm.
7. Conditions:
 Wavelength 1550 nm \pm 30 nm.
 Standard single mode fiber.
 Angled connector min 8 $^\circ$.
8. For input power > 10 mW add typ. ± 0.0016 dB/mW. In case of decreasing power, allow time for stabilization of the reading (about 5 s per dB change). In case of decreasing power by more than 50 dB, allow recovery time of 3 minutes.
 For input power < -30 dBm add as dB: $\pm 10 \log (1 + 250 \text{ pW} / \text{Power in pW})$.

Operating Notes (81626C, 81626X01C)

Maintain the optical window free of contamination and deposition and observe the minimum beam diameter and minimum NA requirements to avoid melting-in residues!

81628C Optical Power Head Specifications

All optical power heads have to be operated with the two or four channel optical head interface N7749C.

	81628C
Sensor element	InGaAs
Wavelength range	800 nm to 1700 nm
Specification wavelength range	970 nm to 1630 nm (if not stated differently)
Power range	–60 dBm to +40 dBm (800 nm to 1700 nm) For operation at higher than +34 dBm see safety note!
Maximum safe input power (CW and peak)	+40.5 dBm For operation at higher than +34 dBm see safety note!
Averaging time (minimal)	100 μ s
Applicable fiber type	Standard SM, NA \leq 0.2 MM NA \leq 0.4
Open beam	$\varnothing \leq$ 3 mm on the center of the sphere input
Uncertainty at ref. conditions ^{1, 7}	\pm 3.0%
Total uncertainty ^{2, 7} \leq +10 dBm > +10 dBm to \leq +20 dBm > +20 dBm to \leq +38 dBm	\pm 4.0% \pm 5 nW \pm 4.5%, typ. \pm 3.5% for amb. temp. (23 \pm 5) °C and humidity 50% \pm 10% \pm 5.0%
Relative uncertainty due to polarization ³	Typical < \pm 0.006 dB
Relative uncertainty due to speckle noise ⁴	Typical < \pm 0.02 dB (0.1 pm to 100 pm source linewidth) Typical < \pm 0.002 dB (> 100 pm source linewidth)
Linearity: ^{5, 7, 8} \leq –20 dBm > –20 dBm to \leq +10 dBm > +10 dBm to \leq +20 dBm > +20 dBm to \leq +37 dBm > +37 dBm to \leq +38 dBm	CW, –40 dBm to +38 dBm, at (23 \pm 5) °C < \pm 0.03 dB, add as dB: \pm 10 log (1 + 2.5 nW / Power in nW) < \pm 0.03 dB < \pm 0.06 dB < \pm 0.09 dB < \pm 0.10 dB
Linearity at fixed power range ^{5, 7, 8}	Typical < \pm 0.01 dB, within 10 dB of range maximum
Return loss	Nominal > 75 dB
Noise (peak to peak) ⁶	< 5 nW

1. Reference conditions:
 Averaging time 1 s.
 Power level 10 μ W (-20 dBm), continuous wave (CW).
 Parallel beam, 3 mm spot diameter on the center of the sphere input.
 Ambient temperature $(23 \pm 5) ^\circ\text{C}$.
 On day of calibration (add $\pm 0.3\%$ for aging over one year; add $\pm 0.6\%$ for aging over two years).
 Spectral width of source < 10 nm full width half maximum (FWHM).
 Wavelength setting of power sensor corresponds to source wavelength $\leq \pm 0.4$ nm.
 Humidity $50\% \pm 10\%$.
2. Operating conditions:
 Parallel beam, 3 mm spot diameter on the center of the sphere input or connectorized fiber with $\text{NA} \leq 0.2$ (straight connector).
 For $\text{NA} > 0.2$ add 1%.
 Averaging time 1 s.
 Within one year after calibration; add 0.3% for second year.
 Zeroing required.
 Wavelength setting of power sensor corresponds to source wavelength $\leq \pm 0.4$ nm.
3. All states of polarization at constant wavelength ($1550 \text{ nm} \pm 30 \text{ nm}$) and constant power.
 $T = (23 \pm 5) ^\circ\text{C}$. Straight connector. For angled connector add typical ± 0.01 dB.
4. Conditions:
 Wavelength $1550 \text{ nm} \pm 30 \text{ nm}$, fixed state of polarization, constant power.
 Temperature $(23 \pm 5) ^\circ\text{C}$.
 Measurement time ≤ 3 min.
5. Does not include noise; zeroing required.
6. Averaging time 1 s, $T = (23 \pm 5) ^\circ\text{C}$, $\Delta T \pm 1 \text{ K}$, observation time 300 s.
 Thermal drift at $+38$ dBm, exposure time 30 min: Recovery time 10 min: $\leq 30 \text{ nW}$, 30 min: $\leq 10 \text{ nW}$.
7. Wavelength not within 1340 nm to 1490 nm . Source spectrum must not overlap with any water absorption line.
8. For operating temperature range add ± 0.03 dB.

Operating and Safety Notes (81628C)

When not in use, cover the aperture of the integrating sphere to avoid contamination or moisture to get inside the sphere!

For optical power higher than $+34$ dBm the attached heat sink **MUST** be used!

For continuous optical power or average optical power higher than $+38$ dBm the connector adapters will get warmer than permitted according to the safety standard IEC 61010-1.

The 81628C Optical Head can handle optical power up to $+40$ dBm, however, operation above $+38$ dBm is at the operators own risk.

Keysight Technologies Deutschland GmbH will not be liable for any damages caused by an operation above $+38$ dBm.



Optical Power Head Typical Analog Bandwidth

Power Range	81620C	81623C, 81623X01C, 81623X80C, 81623X81C	81624C, 81624X01C, 81624X05C, 81626C, 81626X01C	81628C
+40 dBm	n/a	n/a	n/a	3.5 kHz
+30 dBm	n/a	n/a	n/a	3.5 kHz
+20 dBm	n/a	n/a	n/a	3.5 kHz
+10 dBm	5.0 kHz	5.0 kHz	5.0 kHz	3.5 kHz
0 dBm	5.0 kHz	5.0 kHz	5.0 kHz	1.8 kHz
–10 dBm	5.0 kHz	5.0 kHz	5.0 kHz	1.8 kHz
–20 dBm	5.0 kHz	5.0 kHz	5.0 kHz	0.12 kHz
–30 dBm	0.5 kHz	0.5 kHz	1.8 kHz	0.12 kHz
–40 dBm	0.5 kHz	0.5 kHz	1.8 kHz	n/a
–50 dBm	0.05 kHz	0.05 kHz	0.12 kHz	n/a
–60 dBm	0.05 kHz	0.05 kHz	0.12 kHz	n/a

General Specifications

	81620C, 81623C, 81623X01C, 81623X80C, 81623X81C, 81624C, 81624X01C, 81624X05C	81626C, 81626X01C	81628C
Operating temperature	0 °C to +40 °C	0 °C to +35 °C; max. 30 °C if optical power ≥ +20 dBm	0 °C to +40 °C; max. 35 °C if optical power ≥ +30 dBm
Operating humidity	≤ 80%, non-condensing		
Storage temperature	−40 °C to +70 °C		
Warm-up time	40 minutes		
Recommended recalibration period	2 years		
Dimensions	57 mm × 66 mm × 156 mm		
Weight	0.5 kg (1 lbs)		
	N7749C Optical Head Interface		
Line power	AC 100 V to 240 V ± 10%, 50/60 Hz, 60 VA max.		
Operating temperature	+5 °C to +40 °C		
Operating humidity	≤ 80%, non-condensing		
Storage temperature	−40 °C to +70 °C		
Dimensions	420 mm × 212 mm × 43 mm (excluding front and back rubber cushions and connectors)		
Weight	3 kg (6 lbs)		
User Interface	N7749C Optical Head Interface		
LAN Access (1 Gbit/s): HTTP VXI-11 SCPI-telnet SCPI-raw	IPv4 and Ipv6 Socket connection: http://<ip_address> or http://<host_name> port 111 (Ipv4 only) port 5024 port 5025		
USB Access (USB 2.0)	Remote NDIS (virtual Ethernet link over USB); USB Mass Storage functions (read-only)		

Ordering Information

Option	Description
81620C-STD	Si Optical Head, 5 mm diameter
81623C-STD	Ge Optical Head, 5 mm diameter
81623X01C	Ge Optical Head, 5 mm diameter, with special calibration for spectral responsivity, linearity, spatial homogeneity, uncertainty 1.7 pct at ref. conditions
81623X80C	Ge Optical Head, 5 mm diameter, with special calibration at 850 nm
81623X81C	Ge Optical Head, 5 mm diameter, with special cal. at 850 nm and special cal. for spectral resp., linearity, spatial homogeneity, uncertainty. 1.7 pct at ref. cond.
81624C-STD	InGaAs Optical Head, 5 mm diameter
81624X01C	InGaAs Optical Head, 5 mm diameter, with special calibration for spectral responsivity, linearity, spatial homogeneity, uncertainty 1.5 pct at ref. conditions
81624X05C	InGaAs Optical Head, 5 mm diameter, calibrated by PTB, with special calibration for spectral resp., linearity, spatial homogeneity, uncertainty 1.5 pct at ref. cond.
81626C-STD	High-Power InGaAs Optical Head, +27 dBm
81626X01C	High-Power InGaAs Optical Head, +27 dBm, with special calibration for spectral responsivity, linearity, spatial homogeneity, uncertainty 2.5 pct at ref. conditions
81628C-STD	High-Power InGaAs Optical Head, +38 dBm
N7749C-200	Optical Power Meter Head Interface, 2 channels
N7749C-400	Optical Power Meter Head Interface, 4 channels

Product	Connector Adapters (required)
8100xyA	One optical head adapter is required per head to connect optical fibers. Please refer to the Lightwave Solution Platform Configuration Guide, page 15 for details.
81000BC	Bare fiber connectivity set for 81620x/23x/24x/26x optical heads. Please refer to the Lightwave Solution Platform Configuration Guide, page 15 for details.
81000BT	Bare fiber connectivity set for 81628x optical heads. Please refer to the Lightwave Solution Platform Configuration Guide, page 15 for details.
81624DD	Adapter (D-shape) for optical heads (except 81628C), works with 81000xA and 81003xA threaded head adapters ¹

1. One 81624DD is included with every optical head except 81628C as its integrating sphere has a threaded fixture.

Product/Option	Recommended Accessories
81624CE	Extension cable for optical heads (4 m)
81625RM	Rack mount kit for 4 optical heads
N7799C-1CM	Rack Mount Kit for 2 half-width instruments, 1 Rack Height Unit, including low profile rails. Requires Filler Kit N7799C-0CM for mounting single instrument
N7799C-0CM	Filler Kit for N7799C-1CM. Required for single half-width instrument; includes front panel and base plate
N7799C-DOC	Documentation of N77-C Platform, Physical Medium

Optical Instruments Online Information

Optical test instruments: www.keysight.com/find/oct

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