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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 71400C – Lightwave Signal Analyzer

HP Agilent 71400C Lightwave Signal Analyzer The HP/Agilent 71400C lightwave signal analyzer combines a microwave spectrum analyzer with a wideband optical receiver to measure modulated light on single-mode fiber from 100 kHz to 22 GHz. OEM specification summaries list 1200 to 1600 nm operation (Option 850: 750 to 870 nm), calibrated average and modulated optical power, and full 71210C-class microwave spectrum analysis in the 70000 MMS. Laser transmitter and modulator characterization, RIN and linewidth measurements with 11980A interferometer, chirp/FM analysis of DFB lasers, and calibrated microwave spectrum analysis to 22 GHz. The HP/Agilent 71400C lightwave signal analyzer combines a microwave spectrum analyzer with a wideband optical receiver to measure modulated light on single-mode fiber from 100 kHz to 22 GHz. OEM specification summaries list 1200 to 1600 nm operation (Option 850: 750 to 870 nm), calibrated average and modulated optical power, and full 71210C-class microwave spectrum analysis in the 70000 MMS. Laser transmitter and modulator characterization, RIN and linewidth measurements with 11980A interferometer, chirp/FM analysis of DFB lasers, and calibrated microwave spectrum analysis to 22 GHz.



MODEL

**Agilent / Keysight
71400C**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

71400C

LISTING

<https://aumictechlabs.com/products/71400c-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Agilent/Keysight 71400C Lightwave Signal Analyzer characterizes optical devices - semiconductor lasers, laser transmitters, optical modulators, and detectors - by combining microwave and RF spectrum analysis with a sensitive, wide-bandwidth optical receiver. The instrument delivers calibrated measurements across baseband intensity modulation, harmonics, and noise floor analysis to 22 GHz, essential for fiber-optic communications development and production test.

Technical Specifications

Frequency and Wavelength Range

Electrical bandwidth: 100 kHz to 22 GHz

Standard wavelength operation: 1200 nm to 1600 nm

Option 850 wavelength range: 750 nm to 870 nm

Optical Receiver Module (Agilent 70810B)

Optical sensitivity: -60 dBm (10 Hz bandwidth)

Displayed average noise level: better than -65 dBm (optical) in 10 Hz bandwidth

Built-in optical attenuator: enables measurements up to 1 watt laser power

Integrated optical power meter with analog and digital readout

Measurement Performance

Relative Intensity Noise (RIN): -165 dB/Hz (laser RIN); -150 dBc/Hz system RIN on 1 mW laser

Optical measurement accuracy: ± 1 dB across full bandwidth

Average power accuracy (factory calibrated): ± 0.65 dB ± 0.5 nW $\pm$ connector variation at 1300 nm, 1550 nm, or 830 nm

Linewidth, chirp, and frequency modulation measurement of single-frequency lasers

Modulation characterization: analog and digital formats on single-mode fiber

Key Features

Broadband PIN photodiode with internal optical attenuator and electrical preamplifier

RIN measurement routine removes receiver shot noise and thermal noise for accurate laser characterization

Functions as electrical spectrum analyzer (100 kHz to 22 GHz)

Optical power meter with visual analog bar and precision digital display (linear or logarithmic)

Modular Measurement System (MMS) design for integration with additional modules

Typical Applications

Laser RIN and intensity noise characterization

Single-frequency laser linewidth and chirp measurement

Optical modulator and detector evaluation

Broadband signal analysis and modulation depth testing

High-dynamic-range optical power measurement

Compatibility & Integration

Designed as part of the Modular Measurement System (MMS), enabling expansion and integration with complementary modules for complex optical test scenarios. Compatible with Agilent 11980A fiber-optic interferometer for advanced linewidth measurements.

71400C Characteristics / Specifications

PARAMETER	VALUE
Model	71400C
Instrument Type	Lightwave signal analyzer system
Wavelength Range Standard	1200 nm to 1600 nm
Wavelength Range Option 8	750 nm to 870 nm
Optical Input Return Loss Total	greater than 35 dB
Optical Input Return Loss Internal	greater than 40 dB
Frequency Range	100 kHz to 22 GHz
Frequency Span	1 Hz to 22 GHz plus 0 Hz
Maximum Input Average Power Optical	+30 dBm
Maximum Modulated Power Optical	+15 dBm
Average Power Accuracy At 1300 Or 15	plus or minus 0.65 dB optical plus or minus 0.5 nW plus connector losses
Modulated Power Accuracy At 100 Mhz	plus or minus 1.0 dB optical relative to average power
Frequency Response 100 Khz To 22 Ghz	plus or minus 1.0 dB optical relative to 100 MHz
Host Architecture	HP 70000 Modular Measurement System
Microwave Analyzer Class	HP 71210C capability class
Related Interferometer	HP 11980A fiber-optic interferometer for linewidth
Lightwave Section Family	HP 70810B optical receiver module class
Optical Attenuator Range Family	30 dB in 1 dB steps in 70810B architecture
Preamplifier Gain Family	32 dB AC path improvement in application literature
Fiber Type	single-mode optical fiber input
Measurement Domains	optical modulation, noise, average power, RIN, linewidth, chirp/FM
Display	fully calibrated MMS display of optical and microwave quantities
Expansion Modules	optical spectrum analyzer and tracking generator modules supported
Connector Options Class	FC/PC DIN ST biconic diamond interfaces listed on product option tables

PARAMETER	VALUE
Form Factor	MMS mainframe based system
Wavelength range	Standard: 1200 nm to 1600 nm
Bandwidth	option listed on product tables
Linewidth	Lightwave Section Family: HP 70810B optical receiver module class
Return loss	Total: greater than 35 dB

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	
Specifications	
PARAMETER	VALUE
Model	71400C
Instrument Type	Lightwave signal analyzer system
Wavelength Range Standard	1200 nm to 1600 nm
Wavelength Range Option 850	750 nm to 870 nm
Optical Input Return Loss Total	greater than 35 dB
Optical Input Return Loss Internal	greater than 40 dB
Frequency Range	100 kHz to 22 GHz
Frequency Span	1 Hz to 22 GHz plus 0 Hz
Maximum Input Average Power Optical	+30 dBm
Maximum Modulated Power Optical	+15 dBm
Average Power Accuracy At 1300 Or 1550	plus or minus 0.65 dB optical plus or minus 0.5 nW plus connector losses
Modulated Power Accuracy At 100 Mhz	plus or minus 1.0 dB optical relative to average power
Frequency Response 100 Khz To 22 Ghz	plus or minus 1.0 dB optical relative to 100 MHz
Host Architecture	HP 70000 Modular Measurement System
Microwave Analyzer Class	HP 71210C capability class
Related Interferometer	HP 11980A fiber-optic interferometer for linewidth
Lightwave Section Family	HP 70810B optical receiver module class
Optical Attenuator Range Family	30 dB in 1 dB steps in 70810B architecture
Preamplifier Gain Family	32 dB AC path improvement in application literature
Fiber Type	single-mode optical fiber input
Measurement Domains	optical modulation, noise, average power, RIN, linewidth, chirp/FM
Display	fully calibrated MMS display of optical and microwave quantities
Expansion Modules	optical spectrum analyzer and tracking generator modules supported
Connector Options Class	FC/PC DIN ST biconic diamond interfaces listed on product option tables

Option 007 Class: 10 Hz to 300 kHz resolution bandwidth option listed on product tables

Form Factor: MMS mainframe based system

Notes

Numeric optical and RF rows from Keysight/Agilent 71400C specification summaries matching HP lightwave signal analyzer literature. 70810B attenuator/preamp details are architectural context from HP Application Note 371 describing the 71400C/70810B receiver path.

Ordering Information

OPTION	DESCRIPTION
Option 007	Class: 10 Hz to 300 kHz resolution bandwidth option listed on product tables

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

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30-day returns
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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.