

matrIQ-Laser-1002

# matrIQ-Laser™ 1000 Series Tunable Laser Source

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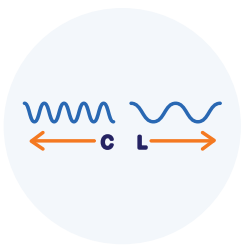
## SPEC SHEET

matrIQ-Laser™ 1000 Series is a Continuous Wave (CW), tunable laser source offering high-power output, narrow 100 kHz linewidth and 0.01 pm resolution tunability.

Its stackable, space-saving design and simple, intuitive software controls make it a perfect choice for the optical lab or test bench.

  
coherent  
solutions  
complexity made simple.

# Features



## Full tunability across C band or L band

Ideal for telecommunications applications; full coverage of DWDM channels.



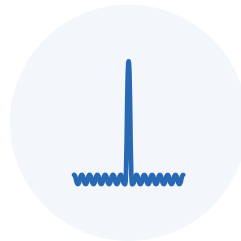
## Smarter calibration for enhanced power uniformity

Minimise inter-channel power variance with enhanced power uniformity between channels.



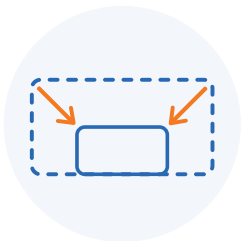
## 0.01pm tuning resolution

Tune to anywhere within C or L band with a high 0.01pm tuning resolution.



## Narrow 100kHz linewidth, up to 16.5dBm of power

High stability 100kHz linewidth makes it an ideal candidate for some of the most demanding applications, such as coherently modulated high-speed communications.



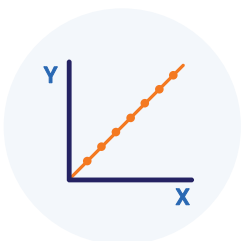
## Compact and flexible form factor

Housed in a compact and robust metallic case, its small footprint helps you utilize your bench space.



## Simple, intuitive operation with cohesionUI

cohesionUI makes it simple to control matrIQ-Laser from your PC or mobile device. Its cutting-edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.



## Excellent measurement correlation with our optical PXI modules

Shared product architecture lets you validate your system and test requirements in the lab with matrIQ-Laser, and scale up to high-volume automated production testing with the LaserPXIe module.



## USB or LAN operation

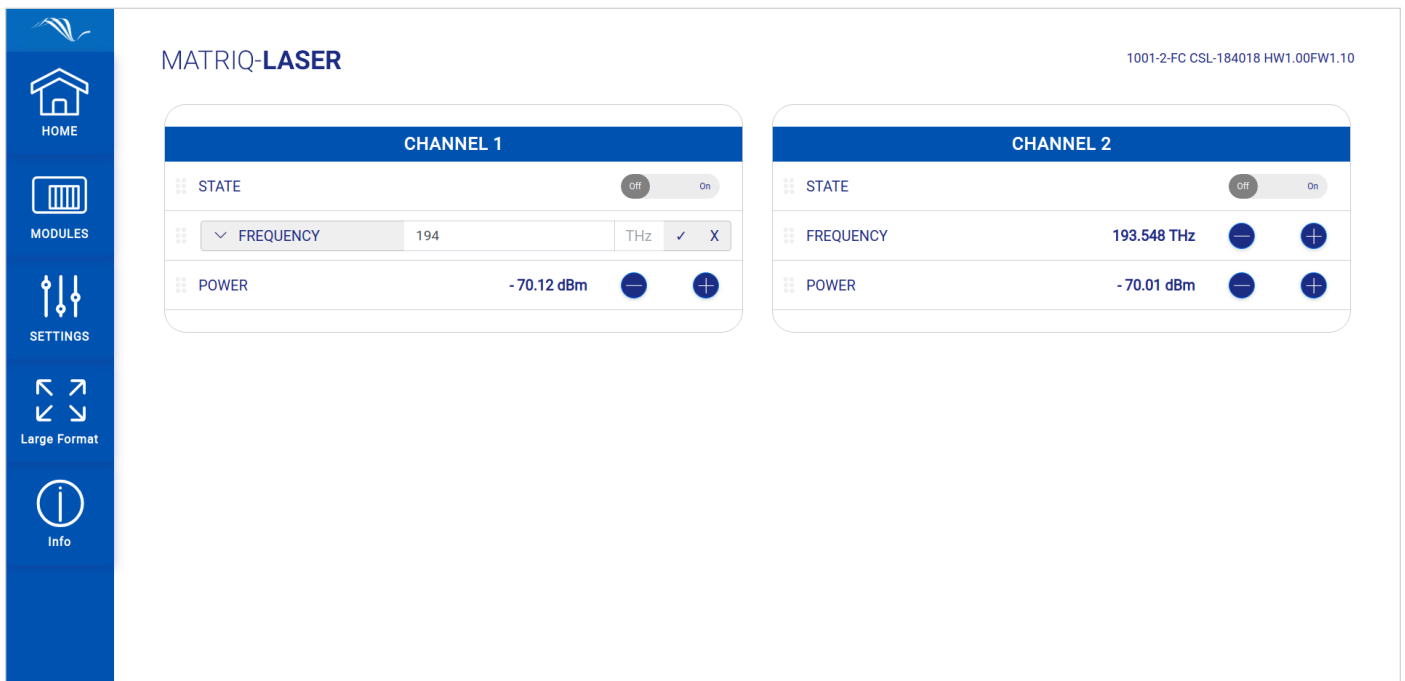
Connect to matrIQ-Laser with USB or LAN for simple setup and operation.

# Target Applications

- Stable local oscillator for coherent receivers
- WDM network loading
- General purpose stable light source for telecom and physics
- Amplifier testing
- Polarization maintaining output ideal for polarization sensitive experiments and testing

# cohesionUI™

cohesionUI graphical user interface makes it simple to control PXIe instruments from your PC or mobile device. Its cutting edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.



matrIQ-Laser-1001 2 channel laser control in cohesionUI

# Technical Specifications

General Specifications	matrIQ-Laser 1000 Series			
Connecting	USB and Ethernet			
Optical connector type	FC/PC, FC/APC, SC/PC, SC/APC			
Number of channels	1, 2 or 4			
Dimensions (HxWxD)	45 x 114 x 212 mm   1.7 x 4.5 x 8.3 inch			
Weight	~ 1.1 kg   ~ 2.4 lbs			
Operating temperature range	5 °C to 45 °C   41 °F to 113 °F			
Storage temperature range	-40 °C to 70 °C   -40 °F to 158 °F			
Model Number	1001	1002	1003	1004
Operating frequency range	191.5 - 196.25 THz		186.0 - 191.1 THz	191.5 - 196.25 THz
Operating wavelength range <sup>5</sup>	1527.605 - 1568.773 nm		1568.773 - 1611.787 nm	1527.605 - 1568.773 nm
Laser type	Thermally tuned external cavity			
Step frequency tuning resolution (wavelength) <sup>2</sup>	100 MHz (1 pm)			
Step tuning time	< 25 s			
Fine frequency tuning resolution <sup>2</sup>	1 MHz (0.01 pm)			
Linewidth (FWHM), instantaneous <sup>3</sup>	< 100 kHz			
Side-mode suppression ratio	40 dB (55 dB Typical)			
Frequency linearity (wavelength) <sup>2</sup>	± 1.5 GHz (± 13 pm)			
Frequency uncertainty (wavelength) <sup>2</sup>	± 2.5 GHz (± 22 pm)			
Frequency stability (wavelength) <sup>2</sup>	± 0.3 GHz (± 3 pm) over 24 hours			
Maximum optical output power	≥ 13 dBm	≥ 15 dBm	≥ 13 dBm	16.5 dBm
Minimum optical output power	≤ 8 dBm			
Optical power uncertainty after calibration <sup>4</sup>	± 0.6 dB			
Power stability	± 0.1 dB over 24 hours			
Output power tuning resolution	0.01 dB			
Power flatness, peak-to-peak	± 0.25 dB over entire wavelength range			
Polarization extinction ratio	> 18 dB at the PM fiber output			
Relative intensity noise RIN (for 13 dBm)	-140 dB/Hz (10 MHz – 40 GHz)			
Power monitoring	Built-in			



Model Number	1005	1007
Operating frequency range	186.0 - 191.1 THz	Ch 1: 191.5 - 196.25 THz Ch 2: 186.0 -191.1 THz
Operating wavelength range <sup>5</sup>	1568.773 - 1611.787 nm	Ch 1: 1527.605 - 1568.773 nm Ch 2: 1568.773 -1611.787 nm
Laser type	Thermally tuned external cavity	
Step frequency tuning resolution (wavelength) <sup>2</sup>	100 MHz (1 pm)	
Step tuning time	< 25 s	
Fine frequency tuning resolution <sup>2</sup>	1 MHz (0.01pm)	
Linewidth (FWHM), instantaneous <sup>3</sup>	< 100 kHz	
Side-mode suppression ratio	40 dB (55 dB Typical)	
Frequency linearity (wavelength) <sup>2</sup>	± 1.5 GHz (± 13 pm)	
Frequency uncertainty (wavelength) <sup>2</sup>	± 2.5 GHz (± 22 pm)	
Frequency stability (wavelength) <sup>2</sup>	± 0.3 GHz (± 3 pm) over 24 hours	
Maximum optical output power	≥ 15.4 dBm	≥ 13 dBm
Minimum optical output power	≤ 8 dBm	
Optical power uncertainty after calibration <sup>4</sup>	± 0.6 dB	
Power stability	± 0.1 dB over 24 hours	
Output power tuning resolution	0.01 dB	
Power flatness, peak-to-peak	± 0.25 dB over entire wavelength range	
Polarization extinction ratio	> 18 dB at the PM fiber output	
Relative intensity noise RIN (for 13 dBm)	-140 dB/Hz (10 MHz – 40 GHz)	
Power monitoring	Built-in	

**SPECS AS OF JUNE 2019**

Notes

1 Specifications are valid at 23 °C ± 3 °C.

2 Varies slightly according to wavelength.

3 The laser uses a small FM dithering as part of its wavelength-locking mechanism. The instantaneous linewidth is measured in 1 ms (integration time).

4 At maximum output power.

5 Wavelength is an approximation. Laser is controlled in frequency.



# Ordering Information

LaserMatrIQ-XXXX - X - XX

## Model number

- 1001 = 1527 - 1568 nm, 8 - 13 dBm
- 1002 = 1527 - 1568 nm, 8 - 15 dBm
- 1003 = 1568 - 1611 nm, 8 - 13.5 dBm
- 1004 = 1527 - 1568 nm, 8 - 16.5 dBm
- 1005 = 1568 - 1611 nm, 8 - 15.4 dBm
- 1007 = Ch 1: 1527 - 1568 nm, Ch 2: 1568 - 1611 nm, 8 - 13.5 dBm

## Connector type

- FC = FC/PC
- FA = FC/APC
- SC = SC/PC
- SA = SC/APC

## Number of channels

- 1 = 1 Channel
- 2 = 2 Channels
- 4 = 4 Channels



## Product Warranty

This product comes with a 3 year warranty.

## About Coherent Solutions

Coherent Solutions is a world-leader in photonics test and measurement. Our portfolio of benchtop and modular test instruments is rapidly expanding to meet the needs of scientists, engineers and manufacturers around the world. No matter where you are, we'll work with you to solve complex problems with simple, intuitive solutions.

**To find out more, get in touch with us today.**

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