

Press Release

June 5, 2023

FC1500-Quantum: Complete solution for cold atom applications

Menlo Systems' FC1500-Quantum is the all-in-one solution for your Quantum 2.0 applications. Whether you aim to develop an optical clock, an atom interferometer, or a quantum computer based on ions or neutral atoms, Menlo Systems will tailor a system to your requirements and deliver an engine for operating your physics package. This rack-mounted system consists of Menlo's ORS Ultrastable Laser with sub-Hz linewidth, an FC1500-250-ULN Ultra Low Noise Optical Frequency Comb with light in the visible and infrared spectral range, and as many CW lasers as required by your application. The ULN comb transfers the narrow linewidth and stability of the ultrastable laser throughout the entire comb spectrum, and via high-fidelity phase-lock loops stabilizes the CW lasers required to drive atomic transitions. Optical lattice clocks and quantum computers based on ions or neutral atoms can require up to eight lasers operating at specific frequencies. The FC1500-Quantum includes them all in three 19" racks, providing sub-Hz linewidth at all wavelengths, ready to be sent to your physics package. For instance: For the critical clock transition at 698 nm in neutral strontium, spectral purity is transferred, resulting in a fractional frequency instability down to the 10^{-18} level at 1 second.



Figure: FC1500-Quantum Complete CW Laser System with Optically Referenced Frequency Comb

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About Menlo Systems:

Precision in Photonics. Together we shape light.

Menlo Systems GmbH is a leading developer and global supplier of instrumentation for high-precision metrology. The company with headquarters in the west of Munich is known for its Nobel Prize winning optical frequency comb technology. With subsidiaries in the US, Japan, and China, and a global distributor network, Menlo Systems is closely connected to its customers from science and industry. The main product lines are optical frequency combs, time and frequency distribution, terahertz systems, ultrafast and ultra-stable

lasers, and complete systems for quantum technology applications. Besides standard products, Menlo Systems develops and manufactures tailored solutions for laser-based precision measurements.