

Accelerate aerospace and defense outcomes



With Moku:Pro, Moku:Lab, and Moku:Go

Redefine test and measurement

Moku solutions from Liquid Instruments deliver unrivaled performance and flexibility to enable new possibilities for cutting-edge optics and photonics research, automated test systems, and a range of other aerospace and defense applications. Discover a new standard in test equipment that brings flexibility to the lab, with integrated instruments including bench essentials like the Oscilloscope and Spectrum Analyzer to specialized optics instruments like the Laser Lock Box and Lock-in Amplifier. Built using powerful FPGAs, Moku devices utilize Instrument-on-Chip architecture to provide the versatility of software-defined instruments with the performance of dedicated hardware. Deploy up to four software-defined instruments into four slots on Moku:Pro, allowing arbitrary signal routing between instruments in FPGA for simultaneous, real-time digital signal processing. To accelerate research and test, Moku integrates 13+ easy-to-use instruments in one reconfigurable, FPGA-based hardware device. For aerospace and defense sectors looking to push technology boundaries while effectively managing risk, ensuring system longevity, and future-proofing the lab, Moku delivers a single, high-performance hardware package.



Moku:Pro

Meet the most advanced Moku test and measurement solution. Moku:Pro offers an innovative hybrid front-end design, providing four low-noise input and output channels.



Moku:Lab

Ensure peak performance in the optics lab in a compact form factor. Moku:Lab provides 500 ppb clock stability and two inputs and two outputs, all in a robust package.



Moku:Go

Monitor and debug signals with the engineering lab you can deploy to the field. With optional integrated power supplies, Moku:Go is flexible enough to use on projects in and out of the lab.



Features and benefits

- 13+ integrated lab instruments, including an Oscilloscope, Arbitrary Waveform Generator, Lock-in Amplifier, Laser Lock Box, Spectrum Analyzer, and more
- Use Multi-instrument Mode to deploy up to four instruments simultaneously with Moku:Pro, or two at a time with Moku:Lab and Moku:Go
- Deploy custom functionality or signal processing to the FPGA with Moku Cloud Compile
- API support for Python, LabVIEW, MATLAB, and more for easy remote access or automation
- Intuitive UI with iPadOS, macOS, and Windows applications

Key highlights

Leverage a range of benefits across the program lifecycle:

Accelerate new programs

- Directed energy mission systems
- Free-space optical (FSO) communications
- Laser ranging and LiDAR
- Interferometry
- Laser frequency stabilization
- Other complex electro-optical systems

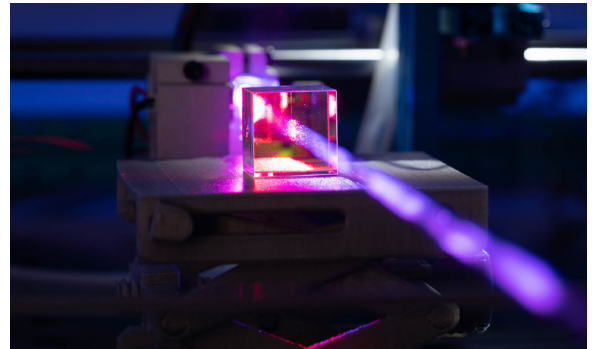
Reduce risk and cost of existing programs

- Increase capabilities of existing infrastructure
- Replace obsolete instrumentation
- Consolidate legacy technology
- Reduce SWaP-C
- Lower complexity with simplified ITA design and maintenance

With Moku, you can perform an entire suite of tests, generating and measuring signals, performing in-field testing, or logging data to analyze later. The ability to combine multiple instruments on one device, swap out instruments without interrupting ongoing measurements, and create custom features ensures maximum scalability at lower size, weight, and cost.

Directed energy research

In cutting-edge technology and system development, precisely measuring and controlling the frequency and phase of multiple lasers can be difficult. With Moku, it's easy to stabilize multiple lasers simultaneously with a single hardware platform and intuitive configuration. Depending on the requirements, you can either use a multi-frequency Lock-in Amplifier or Phasemeter to easily stabilize, steer, and measure multiple phase-coherent lasers.



Time and frequency reference development

Both advanced deep-space and terrestrial applications require test equipment with the flexibility to deliver multiple instruments simultaneously and the performance to enable the development of stable, reliable time and frequency references, such as optical clocks. Projects involving quantum sensors and atom interferometers require ultra-stable, high-precision measurement equipment like low-noise lock-in amplifiers and laser frequency stabilization electronics. One Moku device can serve these needs while also providing spectrum analysis, digital filtering, and reference waveform generation.

Electronic device validation

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