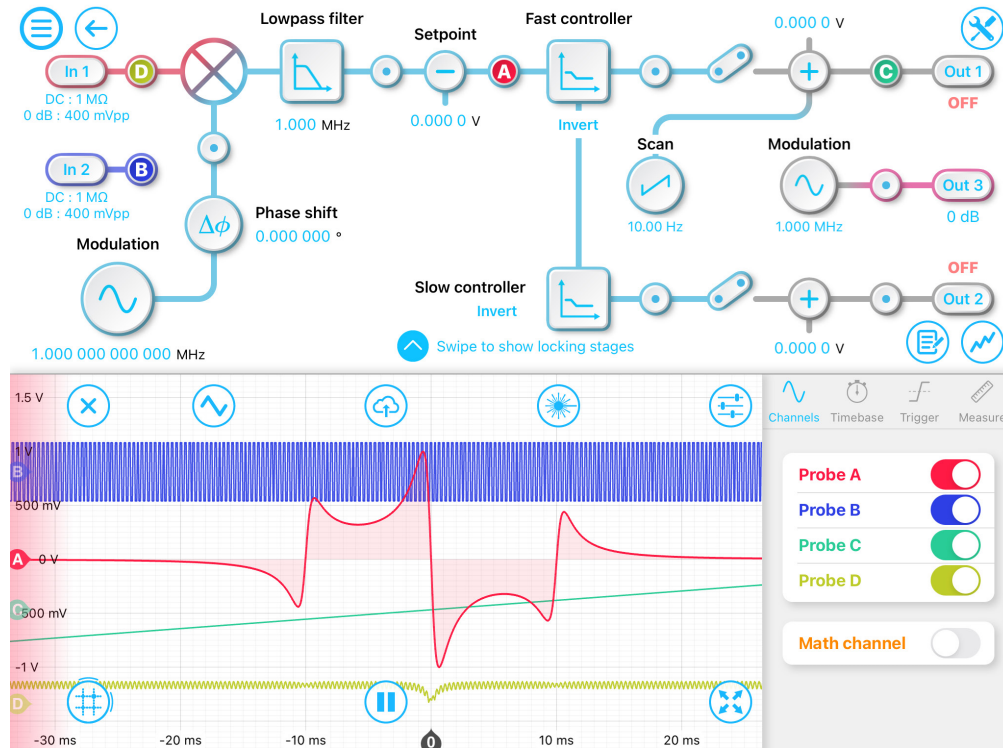




Laser Lock Box

The Moku:Pro Laser Lock Box enables you to lock a laser's frequency to a reference cavity or atomic transition using high-performance modulation locking techniques. The Laser Lock Box includes a "Lock Assist" feature, enabling you to quickly lock to any zero-crossing on the demodulated error signal. With Multi-instrument Mode (MiM), you can deploy up to four laser lock modules simultaneously on a single Moku:Pro. Each module shares the same clock base from the internal or an external source. This is the ideal solution for multi-laser stabilization systems.



Demod. Frequency
1 mHz to 600 MHz

Scan Frequency
Up to 10 MHz

Adjustable Filter
2.6 kHz to 35 MHz

DAC Resolution
16 bits

Built-in Controllers
Dual PID

Integrated Oscilloscope
1.25 GSa/s

Features

- Stabilize a laser's frequency to a reference cavity or atomic transition
- Virtually probe within signal processing chain with an integrated oscilloscope
- Quickly lock to any zero-crossing in the error signal using the "Lock Assist" feature
- Individually configure high- and low-bandwidth PID Controllers for fast and slow feedback
- Quickly access the controls you need with a customizable control palette view
- Built-in IIR filter for custom filtering
- Stream or save traces from any point in the signal processing chain

Specifications

- Local oscillator frequency: 1 mHz to 600 MHz
- Scan waveforms: positive sawtooth, negative sawtooth, triangle
- Scan frequency: 1 mHz to 10 MHz
- Infinite impulse response low-pass filter corner frequency: 2.6 kHz to 35.16 MHz (second or fourth order)
- Integrator crossover frequency: 312.5 mHz to 3.125 MHz, 988.2 mHz to 9.882 MHz (double integrator)
- External PLL frequency multiplier: 0.125x to 250x
- Ultrafast data acquisition: snapshot mode up to 1.25 GSa/s, continuous mode up to 10 MS/s

Applications

- Custom phase-locked loop
- Gravitational wave detection
- Closed-loop control systems
- Pound-Drever-Hall technique
- Precision spectroscopy