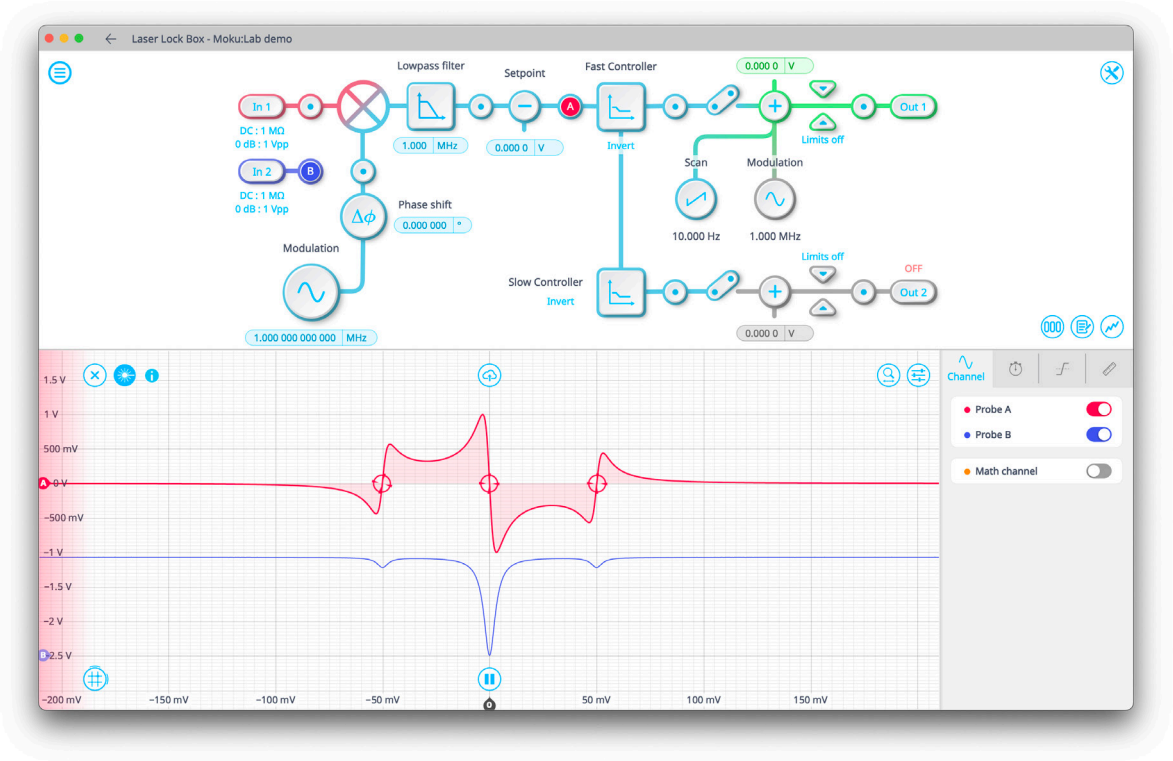
Moku:Lab Instrument Datasheet

Laser Lock Box

The Moku:Lab 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.



Demod. Frequency	Scan Frequency	Adjustable Filter	DAC Resolution	Built-in Controllers	Integrated Oscilloscope
1 mHz to 200 MHz	**up to 10 MHz**	**1 kHz to 14 MHz**	**16 Bits**	**Dual PID**	**500 MSa/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 200 MHz
- Scan waveforms: positive sawtooth, negative sawtooth, triangle
- Scan frequency: 1 mHz to 10 MHz
- Infinite impulse response low-pass filter corner frequency: 1 kHz to 14 MHz (second or fourth order)
- Integrator crossover frequency: 1.25 Hz to 125 kHz (fast PID), 19.53 mHz to 1.953 kHz (slow PID)
- External PLL frequency multiplier: 0.125x to 250x
- Data acquisition: 125 kS/s on two channels, 250 kSa/s on one channel

Applications

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