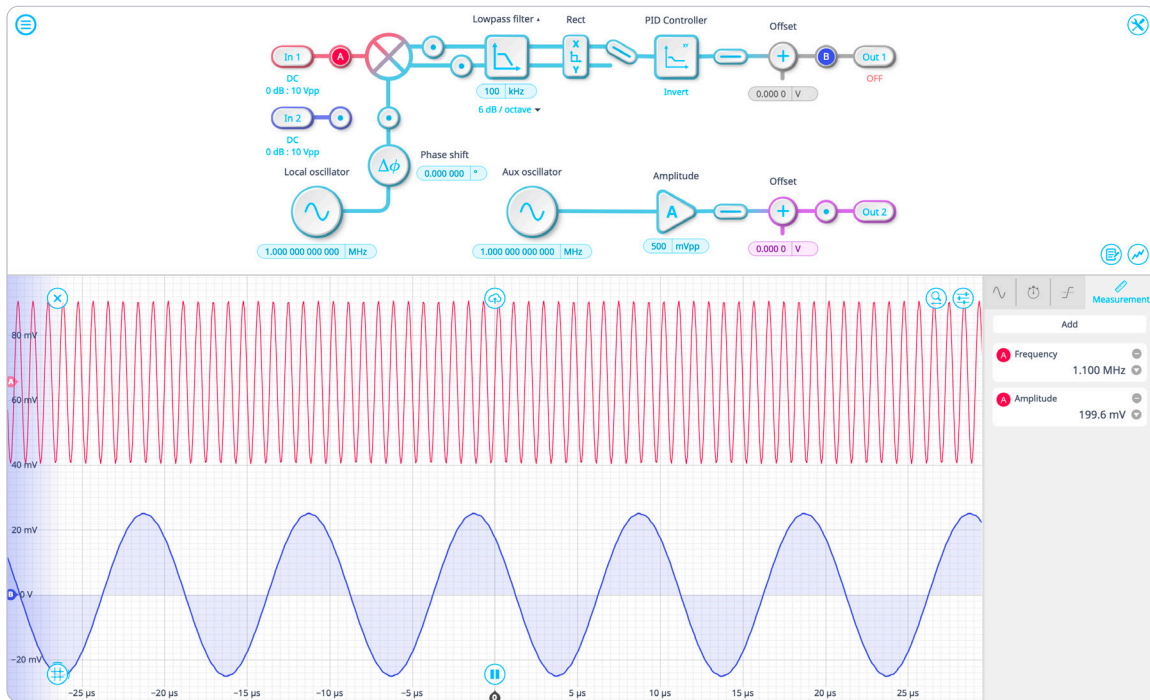




# 30 MHz Lock-in Amplifier



The Moku:Go digital Lock-in Amplifier supports dual-phase demodulation (XY/R $\theta$ ) from DC to 30 MHz. It features an integrated 2-channel Oscilloscope and Data Logger, enabling you to observe signals at up to 125 MSa/s and log data at up to 1 MSa/s. A PID Controller can also be placed after the demodulation stage for phase-locked loop applications.



**Demod. frequency**  
1 mHz to 30 MHz

**Time constant**  
128 ns to 2.15 s

**Filter slopes**  
6, 12, 18, 24 dB/Oct

**Dual-phase demod.**  
X/Y or R/ $\theta$

**Signal generator**  
Up to 20 MHz

**Built-in feature**  
PID Controller  
Data Logger

## Features

- Block diagram view of the digital signal processing chain
- Built-in probe points for signal monitoring and data logging
- Internal or external demodulation modes including a phase-locked loop (PLL)
- Demodulate at up to the 250th harmonic or down to 1/8th of the fundamental frequency
- Dual-phase demodulation
- Toggle between rectangular (X/Y mode) or polar coordinates (R/ $\theta$  mode)
- Built-in PID Controller

## Specifications

- Demodulate with frequencies ranging from 1 mHz to 30 MHz with  $\mu$ Hz resolution
- Phase shift precision of 0.000 001°
- 1 M $\Omega$  input impedance, AC/DC coupling
- Adjustable time constant from 128 ns to 2.15 s
- 6, 12, 18, or 24 dB/octave filter roll-off
- Output gain range: -80 to +160 dB
- Local oscillator output up to 20 MHz with variable amplitude
- Dynamic reserve > 100 dB
- Onboard data acquisition: snapshot mode up to 125 MSa/s, continuous mode up to 1 MSa/s

## Applications

- Laser frequency stabilization
- Phase-locked loop
- Radio receiver education
- Signal extraction from noise education
- Signal modulation and demodulation
- Software-defined radio