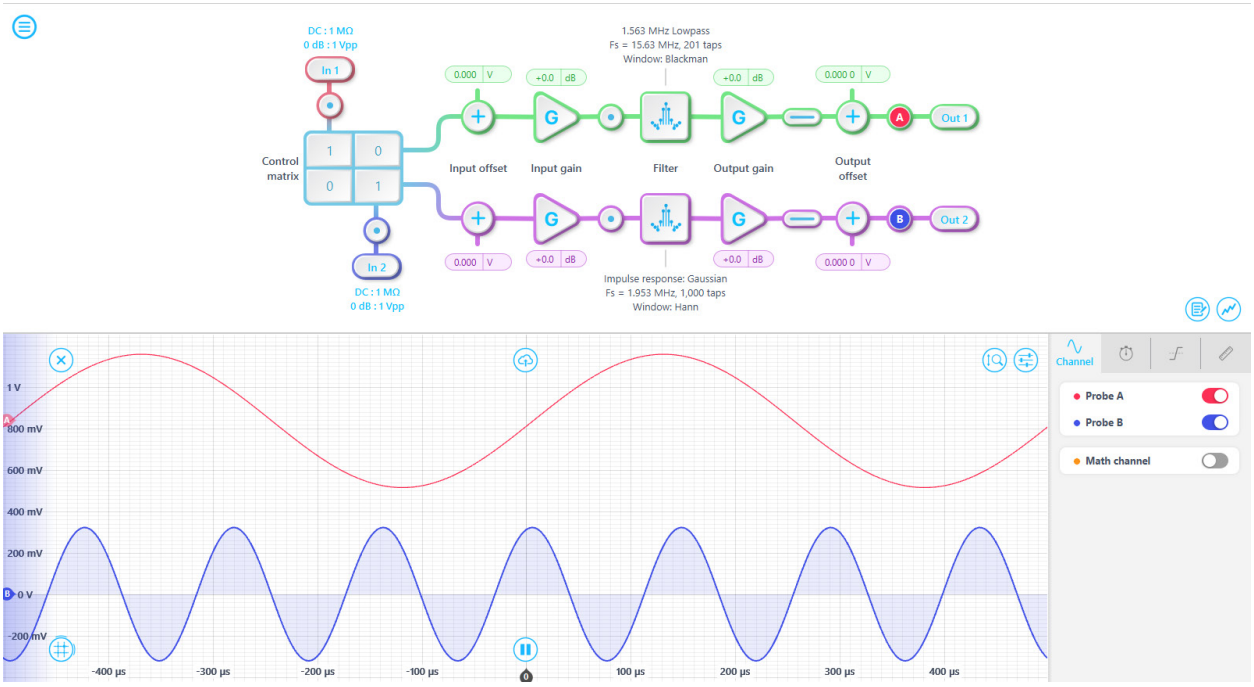
Moku:Lab Instrument Datasheet

FIR Filter Builder

With the Moku:Lab FIR Filter Builder, you can design and implement lowpass, highpass, bandpass, and bandstop finite impulse response (FIR) filters with up to 14,819 coefficients. The Moku interface allows you to fine-tune your filter's response in the frequency and time domains to suit your specific application. Select between four frequency response shapes, four common impulse responses, and eight different window functions.



Sampling Rate	Filter Coefficients	Input Range	Output Voltage Range	Integrated Oscilloscope
Up to 15.625 MHz	**Up to 14,819**	**1 Vpp or 10 Vpp**	**2 Vpp into 50 Ω**	**500 MSa/s**

Features

- Visualize your signal and configuration in real time: design filters in the time domain or in the frequency domain
- Visualize the filter's transfer function, impulse and step response, or group and phase delay
- Block diagram view of the digital signal processing with built-in probe points for signal monitoring
- Load your own filter coefficients or enter an equation to create a customized impulse response

Specifications

- Independent channels: 2
- Coefficient count at various sampling rates:
  - 2 to 232 @ 15.63 MHz
  - 2 to 928 @ 3.906 MHz
  - 2 to 3712 @ 976.6 kHz
  - 2 to 14819 @ 244.1 kHz
- Filter coefficient precision: up to 24 bits
- Design domains: time (impulse response), frequency (frequency response)
- Impulse response: rectangular, sinc, triangular, gaussian, equation input, custom
- Frequency response: lowpass, highpass, bandpass, bandstop

Applications

- Impulse response simulation
- DSP system design
- Noise filtering
- Signal amplification
- Fractional delay generation