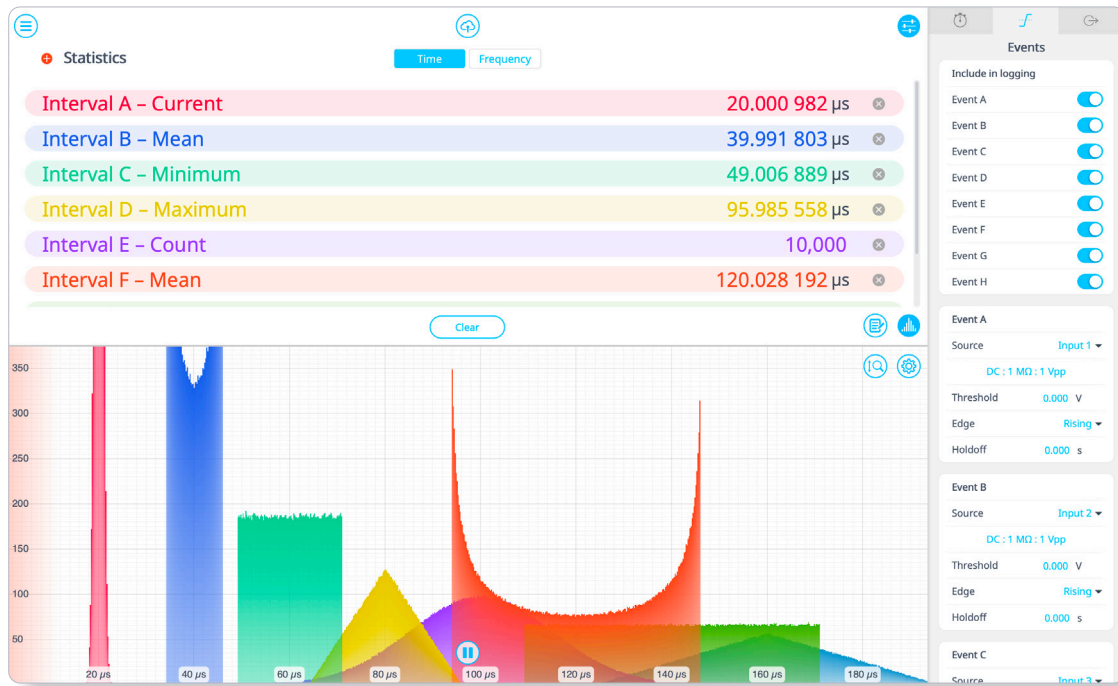




# Time & Frequency Analyzer



The Moku:Delta Time & Frequency Analyzer delivers high-resolution interval measurements between user-defined start and stop events, with a 5 GSa/s sampling rate and 0.2 ps digital resolution. It supports continuous, windowed, or gated acquisition modes, real-time and lossless histograms with statistics, and high-resolution timestamp logging to on-board storage. Optimized for precision timing applications, it is ideal for photon counting, pulsed laser characterization, and synchronized multi-detector systems.



No. of independent  
interval analyzers  
**8**

Clock stability  
**1 ppb**

Digital resolution  
**0.2 ps**

Max interval rate  
**312.5 MHz**

Histogram  
**Real-time and lossless**

## Features

- Up to eight independent event detectors with configurable thresholds on rising edge, falling edge, or both edges
- Lossless, real-time histograms with a minimum bin width of 0.2 ps
- Output interval count or current interval with adjustable scaling factor
- High-resolution raw event timestamp logging to on-board storage for post processing
- Combine with up to seven other instruments in Multi-Instrument Mode for system level characterization and feedback control

## Specifications

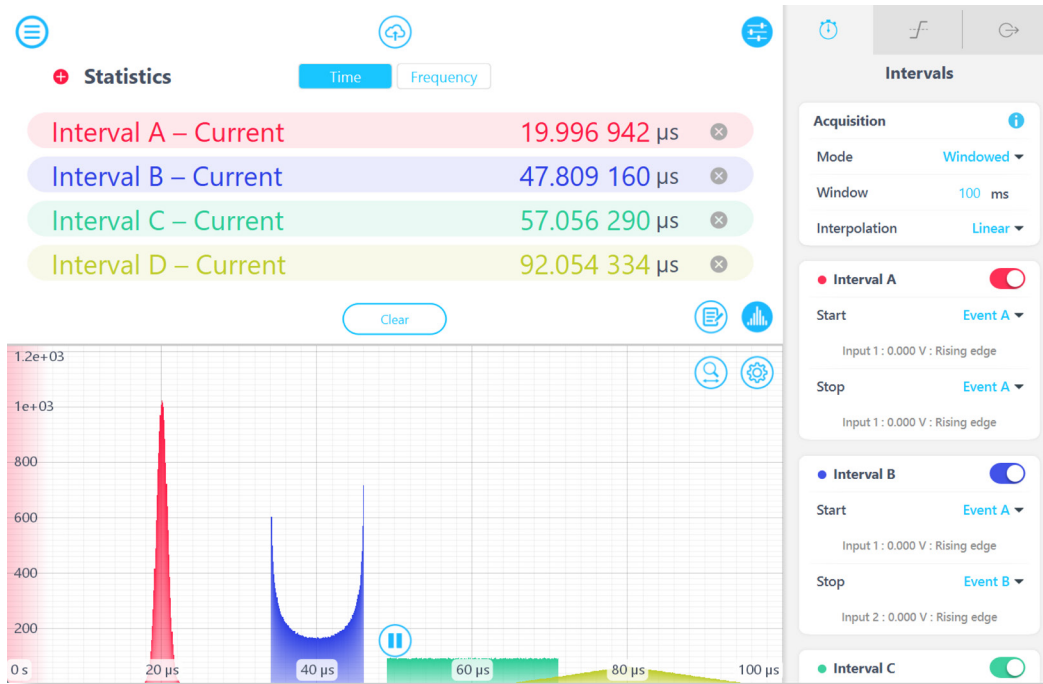
- No. of independent interval analyzers: 8
- Digital resolution: 0.2 ps
- Input frequency range: DC to 2 GHz
- Input trigger threshold range: 100 mVpp, 1 Vpp, 10 Vpp, or 40 Vpp
- Maximum interval rate: 312.5 MHz
- Acquisition mode: continuous, windowed, or gated
- Interpolation mode: none or linear
- Output range: 1 Vpp or 10 Vpp
- Output mode: interval count or current interval

## Applications

- Oscillator analysis
- Photon counting
- Jitter and phase noise analysis
- Linear optical quantum computing
- Pulsed laser stabilization
- Time-of-flight and LiDAR systems
- Particle or neutron detection
- Quantum computing and quantum sensing



The Moku:Pro Time & Frequency Analyzer measures intervals between configurable start and stop events with sub-ns precision. Select between continuous, windowed, or gated acquisition mode, compute histograms of interval duration losslessly and in real time, and log high-resolution event timestamps to on-board storage. Output the measured interval count or current interval to analog output channels for active feedback control.



No. of independent  
interval analyzers  
**4**

Jitter  
**< 20 ps**

Clock stability  
**300 ppb**

Digital resolution  
**0.78 ps**

Max interval rate  
**150 MHz**

Histogram  
**Real-time and lossless**

## Features

- Ultra-low device jitter of < 20 ps for high timing resolution analysis
- Up to four independent event detectors with configurable thresholds on rising edge, falling edge, or both
- Lossless, real-time histograms with a minimum bin width of 0.78 ps
- Output interval count or current interval with adjustable scaling factor
- High-resolution raw event timestamp logging to on-board storage for post processing
- Combine with up to three other instruments in Multi-instrument Mode for system level characterization and feedback control

## Specifications

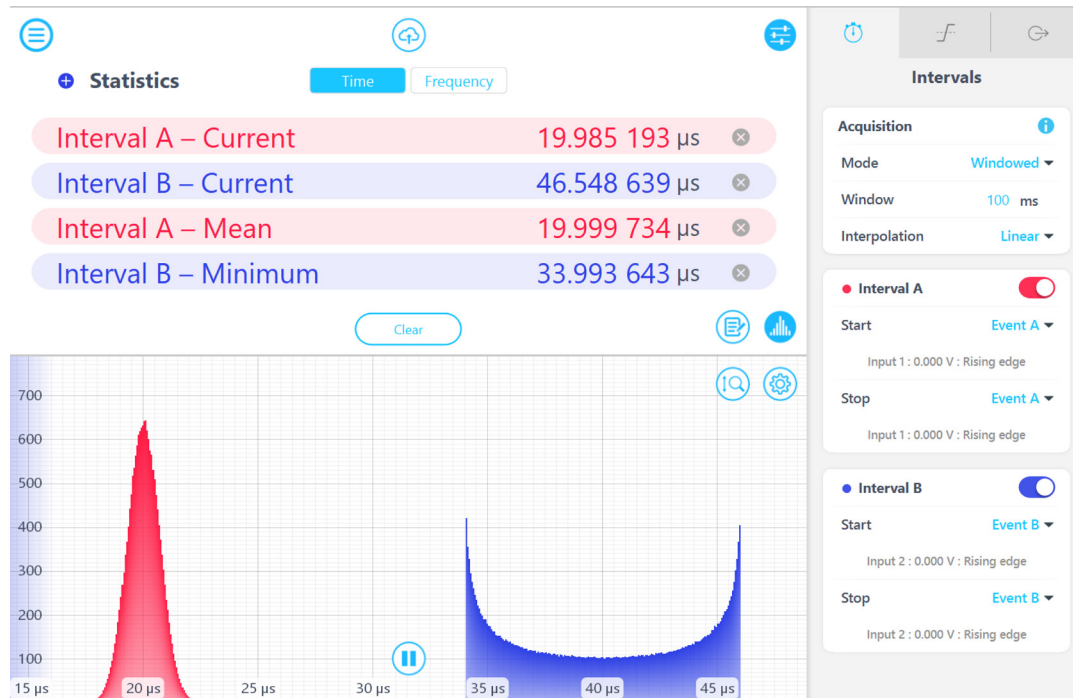
- No. of independent interval analyzers: 4
- Jitter: < 20 ps
- Digital resolution: 0.78 ps
- Input frequency range: DC to 300 MHz
- Input trigger threshold range:  $\pm 200$  mV,  $\pm 2$  V, or  $\pm 20$  V
- Maximum interval rate: 150 MHz
- Acquisition modes: continuous, windowed, or gated
- Interpolation mode: none or linear
- Event logging rate:
  - up to 300 Mevnt/sec burst
  - up to 10 Mevnt/sec continuous
- Output range: 2 Vpp, or 10 Vpp
- Output mode: interval count or current interval

## Applications

- Oscillator analysis
- Photon counting
- Jitter analysis
- Linear optical quantum computing
- Pulsed laser stabilization



The Moku:Lab Time & Frequency Analyzer measures intervals between configurable start and stop events with sub-ns precision. Select between continuous, windowed, or gated acquisition mode, compute histograms of interval duration losslessly and in real time, and log high-resolution event timestamps to an SD card. Output the measured interval count or current interval to analog output channels for active feedback control.



No. of independent interval analyzers  
2

Jitter  
< 20 ps

Clock stability  
500 ppb

Digital resolution  
1.95 ps

Max interval rate  
62.5 MHz

Histogram  
Real-time and lossless

## Features

- Low device jitter of < 20 ps for high timing resolution analysis
- Up to two independent event detectors with configurable thresholds on rising edge, falling edge, or both
- Lossless, real-time histograms with a minimum bin width of 1.95 ps
- Output interval count or current interval with adjustable scaling factor
- High-resolution raw event timestamp logging to an SD card for post processing
- Combine with any other instruments in Multi-instrument Mode for system level characterization or feedback control

## Specifications

- No. of independent interval analyzers: 2
- Jitter: < 20 ps
- Digital resolution: 1.95 ps
- Input frequency range: DC to 125 MHz
- Input trigger threshold range:  $\pm 500$  mV or  $\pm 5$  V
- Maximum interval rate: 62.5 MHz
- Acquisition modes: continuous, windowed, or gated
- Interpolation mode: none or linear
- Event logging rate:
  - up to 125 Mevnt/sec burst
  - up to 10 Mevnt/sec continuous
- Output range: 2 Vpp
- Output mode: interval count or current interval

## Applications

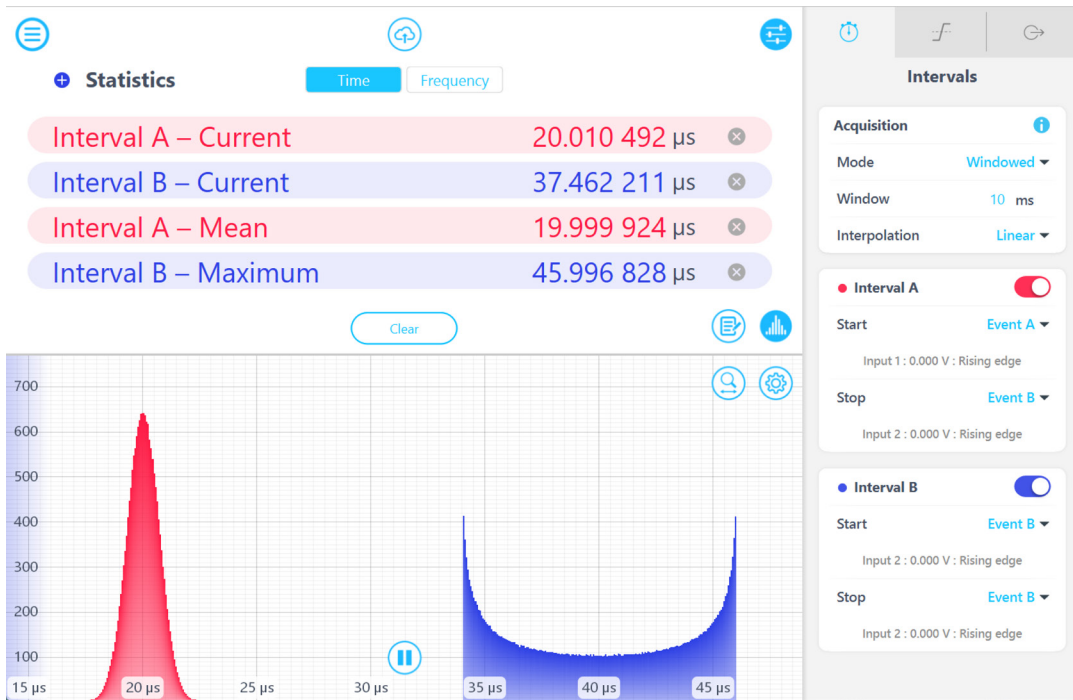
- Oscillator analysis
- Photon counting
- Jitter analysis
- Linear optical quantum computing
- Pulsed laser stabilization



# Time & Frequency Analyzer



The Moku:Go Time & Frequency Analyzer measures intervals between configurable start and stop events with sub-ns precision. Select between continuous, windowed, or gated acquisition mode, compute histograms of interval duration losslessly and in real time, and log high-resolution event timestamps to on-board storage. Output the measured interval count or current interval to analog output channels for active feedback control.



No. of independent  
interval analyzers  
2

Jitter  
< 50 ps

Clock stability  
25 ppm

Digital resolution  
7.8 ps

Max interval rate  
15 MHz

Histogram  
Real-time and lossless

## Features

- Low device jitter of < 50 ps for high timing resolution analysis
- Up to two independent event detectors with configurable thresholds on rising edge, falling edge, or both
- Lossless, real-time histograms with a minimum bin width of 7.8 ps
- Output interval count or current interval with adjustable scaling factor
- High-resolution raw event timestamp logging to on-board storage for post processing
- Combine with any other instruments in Multi-instrument Mode for system level characterization or feedback control

## Specifications

- No. of independent interval analyzers: 2
- Jitter: < 50 ps
- Digital resolution: 7.8 ps
- Input frequency range: DC to 30 MHz
- Input trigger threshold range:  $\pm 5$  V, or  $\pm 25$  V
- Maximum interval rate: 15 MHz
- Acquisition modes: continuous, windowed, or gated
- Interpolation mode: none or linear
- Event logging rate:
  - up to 31.25 Mevnt/sec burst
  - up to 10 Mevnt/sec continuous
- Output range: 10 Vpp
- Output mode: interval count or current interval

## Applications

- Oscillator analysis
- Photon counting
- Jitter analysis
- Linear optical quantum computing
- Pulsed laser stabilization