MOKU-LAB

16-bit, 1 GS/s AWG Generator & Oscilloscope

KEY FEATURES

- Two 16-bit, 1 GS/s analog outputs, DC coupled and 2 V range
- Two 12-bit high-speed analog inputs, AC or DC coupling and ±0.5 V / ±5 V range
- Ultra stable clocks, 10 MHz external reference and external triggering
- Convenient connectivity: WI-FI, Ethernet and USB
- Control using iPad, Python, Labview, MATLAB interfaces
- Save data to Dropbox, email, SD card or internal RAM
- SW User interface functions for Waveform generator, Oscilloscope, data logger, spectrum Analyzer mode and more….
- Compact packaging

APPLICATIONS

- Lab / R&D Characterizations
- ATE (Automatic Test Equipment)
- Data logger
- Signal processing
- Big Physics Application
- Semi-conductor test

DESCRIPTION

Moku:Lab device replace multiple piece of equipment with a single device at a fraction of the cost. Moku-Lab couples high speed analog inputs and outputs to fast reconfigurable digital signal processing. Moku-Lab can measure record and generate signals from DC to 200 MHz.

ALL in One

Moku:Lab puts the power of multiple instruments at your fingertips. Moku:Lab hardware can be reconfigured in a matter of seconds to perform an entirely different function. Switch between an oscilloscope, spectrum analyzer, waveform generator, phase meter, data logger, or lock-in amplifier right from the intuitive "Moku:Lab App" for iPad, with more instruments coming soon.

Inputs / Outputs

With DC-coupled, low noise analog inputs and outputs (2 channels of each), you can measure and generate signals from a single device

Analog inputs: Moku:Lab's DC to 200 MHz inputs can be switched between 50 Ω/1 MΩ and AC/DC coupling. For optimizing dynamic range, the 500 MS/s 12-bit ADCs are coupled to an analog front end featuring two gain ranges (± 5 V and ±0.5 V) switchable via the iPad.

Analog outputs: Moku:Lab outputs can drive a 50 Ω load with 2 Vpp at frequencies up to 200 MHz. The 16-bit DACs coupled with custom-designed output conditioning produce extremely precise signals.

Fully Connected

Wi-Fi: Moku:Lab was designed with modern networking technologies in mind. High-speed Wi-Fi lets you interact with your experiment as you move around the lab.

No Wi-Fi in your lab? The Moku:Lab can host its own Wi-Fi network for the iPad to connect to.

Ethernet: For labs where Wi-Fi is not allowed, Moku:Lab has Ethernet and even an airplane mode that turns off its radio hardware.

SD storage: Moku:Lab comes with an 8 GB SD card and with the included Moku:DataLogger instrument you can to perform unsupervised, reliable data logging. Set up an overnight measurement run and the data will be retrieved once you reconnect.

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SPECIFICATIONS

ANALOG I/O	
Analog Output	
Channels	2 (BNC)
Bandwidth (-3 dB)	>300 MHz into 50 Ω
Sampling rate	1 GS/s per channel
Resolution	16-bit
Output impedance	50 Ω
Output coupling	DC
Amplitude range	1 mVpp to 2 Vpp into 50 Ω (100 µV resolution)
Amplitude offset error	<500 µV into 50 Ω
Amplitude channel isolation	>40 dB from DC to 200 MHz
DC offset Range (peak AC + DC)	±1 V into 50 Ω (100 µV resolution)
Phase offset range	0° to 360° (0.0001° resolution)
Waveforms	Sine, Square, Ramp, Pulse, DC
Modulation	Amplitude, frequency, phase, external, burst, sweep
Analog Input	
Channels	2 (BNC)
Bandwidth (-3 dB)	200 MHz into 50Ω
Sampling rate	500 MS/s per channel
Resolution	12-bit
Voltage range	1Vpp / 10Vpp
Input impedance	50 Ω / 1 MΩ
Input coupling	AC / DC
AC coupling corner (-3 dB)	100 Hz into 50 Ω, 30 Hz into 1 MΩ
SNR	60 dBFS (per sample)
Input referred noise	30 nV/√Hz above 100 kHz
EXTERNAL TRIGGER INPUT	
Trigger waveform	TTL compatible
Trigger bandwidth	DC to 5 MHz
Trigger impedance	Hi-Z
Min trigger level	1.9 V
Max trigger level	5 V
Connector	BNC
CLOCK REFERENCE	
On-board clock	
Frequency	10 MHz
Accuracy	<500 ppb
10 MHz reference input	
Frequency	10 MHz ± 250 kHz
Input impedance	50 Ω
Input range	-10 dBm to +10 dBm
10 MHz reference output	
Output frequency	10 MHz
Output level	-3dBm
GENERAL CHARACTERISTIQUES	
Power consumption	20 W typical (30 W when charging USB)
Power voltage range	100 to 240 V, 50/60 Hz
Temperature	Operating 0 to +45°C (Non-operating -10 to +60°C)
PHYSICAL CHARACTERISTICS	
Dimensions	Diameter: 220 mm, Height 430 mm
Weight	1.69 kg (3.73 lbs)

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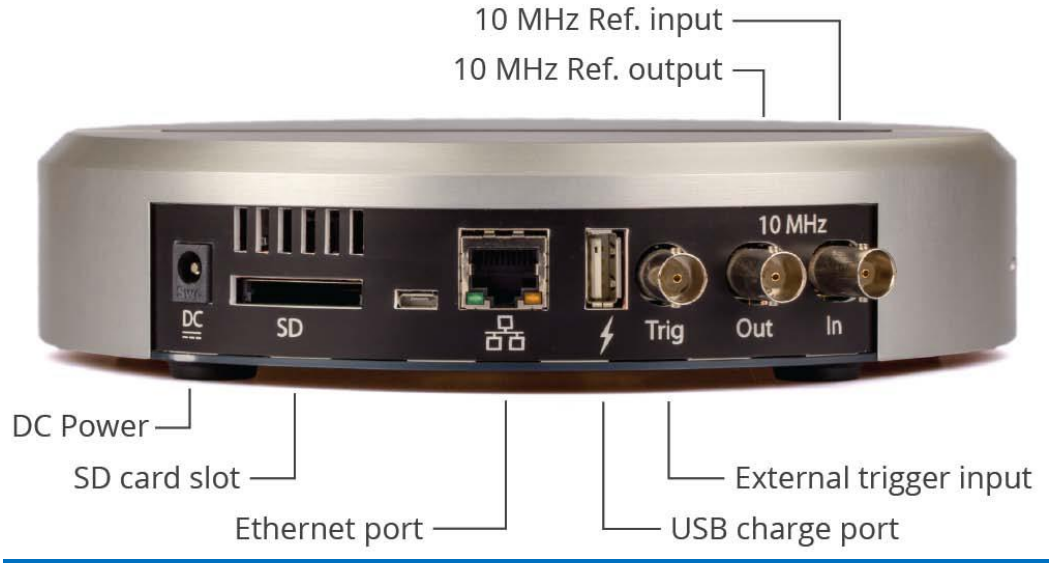
GENERAL CONNECTIVITY

Analog inputs	2 X BNC
Analog outputs	2 x BNC
Network	Ethernet (10/100 Base-T) Wi-Fi 802.11 b/g/n
USB network conection	Micro-USB
USB charge port	10 W
SD card	8 GB class 10 supplied
External trigger input	BNC
10 MHz reference input	BNC
10 MHz reference output	BNC
DC Power	12 V (power module supplied)



ORDERING INFORMATION

Model	Description
MOKU-Lab	Base version with iPad, 9 GB SD card and Power AC/DC module included