

Moku:Lab

Specifications

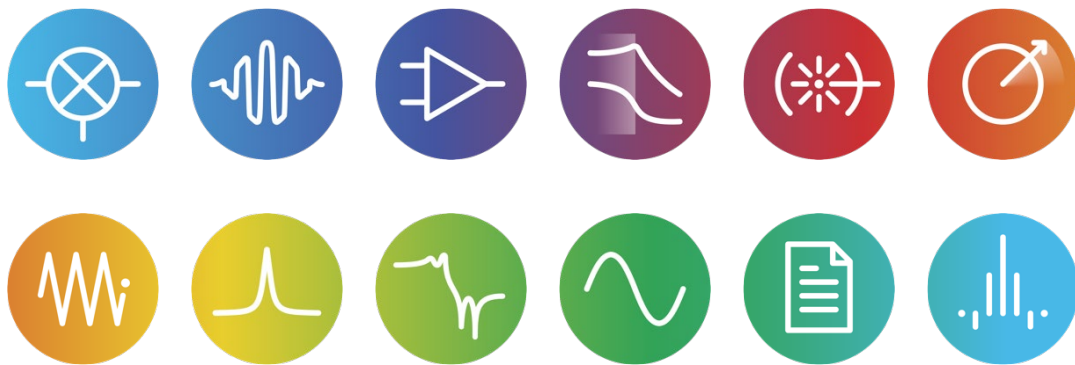


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Hardware

Specifications

Analog I/O

Analog inputs

Channels	2
Bandwidth (-3 dB)	200 MHz into 50 Ω
Sampling rate	500 MSa/s per channel
Resolution	12-bit
Maximum voltage range	10 V _{pp} into 50 Ω with 20 dB attenuation
Input impedance	50 Ω / 1 M Ω
Input coupling	AC / DC
AC coupling corner (-3 dB)	100 Hz into 50 Ω 30 Hz into 1 M Ω
SNR	60 dBFS (per sample)
Input referred noise	30 nV/ $\sqrt{\text{Hz}}$ above 100 kHz
Connector	BNC

Analog outputs

Channels	2
Bandwidth (-3 dB)	>300 MHz
Sampling rate	1 GSa/s per channel
Resolution	16-bit
Voltage range	2 V _{pp} into 50 Ω
Output impedance	50 Ω
Output coupling	DC
Connector	BNC

External trigger input

External trigger

Trigger waveform	TTL compatible
Trigger bandwidth	DC to 5 MHz
Trigger impedance	Hi-Z
Min trigger level	1.8 V
Max trigger level	5 V
Connector	BNC

Clock reference

On-board clock

Frequency	10 MHz
Stability	< 500 ppb

10 MHz reference input

Expected waveforms	Sine / square
Frequency	10 MHz $\pm$ 250 kHz
Input range	-10 dBm to +10 dBm
Connector	BNC

10 MHz reference output

Waveform type	Square
Output frequency	10 MHz
Output level	-3 dBm
Connector	BNC

General characteristics

General and environmental characteristics

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

Electromagnetic compliance



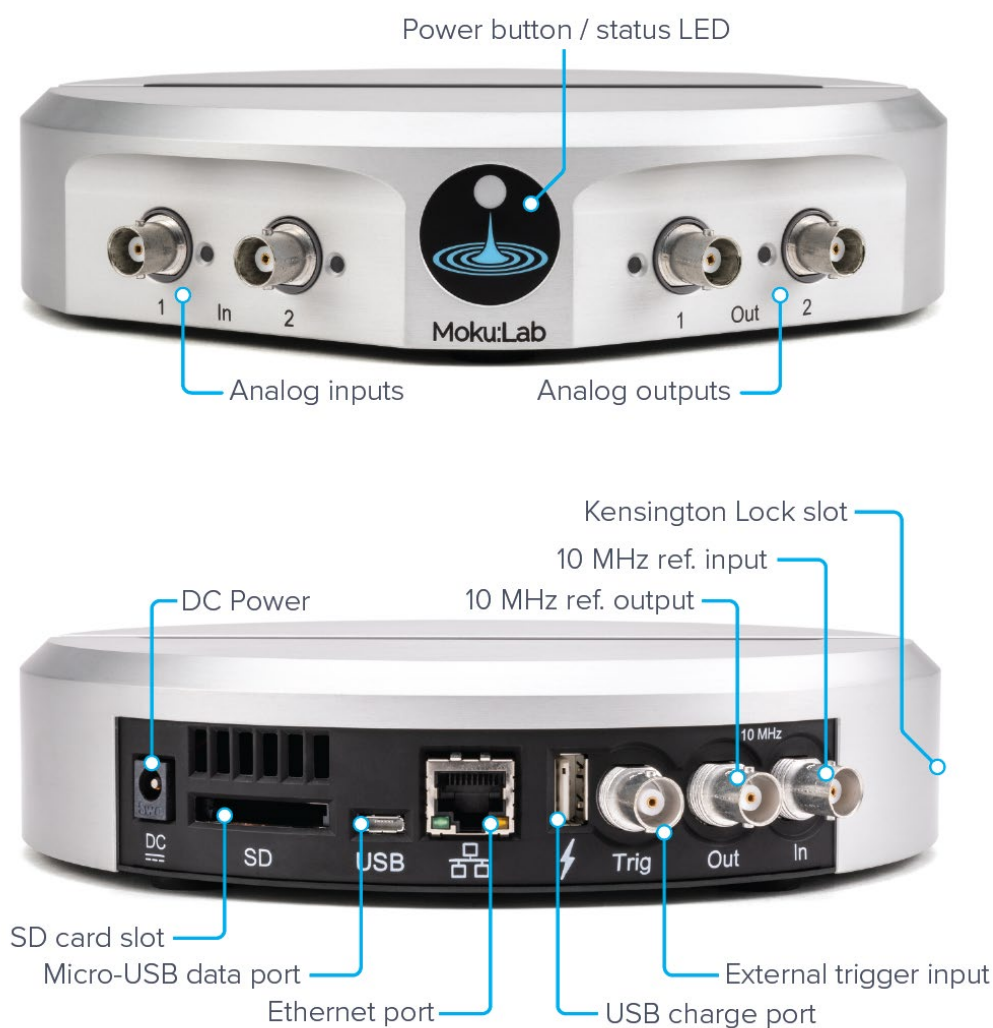
Physical characteristics

Dimensions	Diameter: 22 cm (8.66 in.) Height: 4.3 cm (1.70 in.)
Weight	1.69 kg (3.73 lbs)
Security	Kensington lock compatible

General connectivity

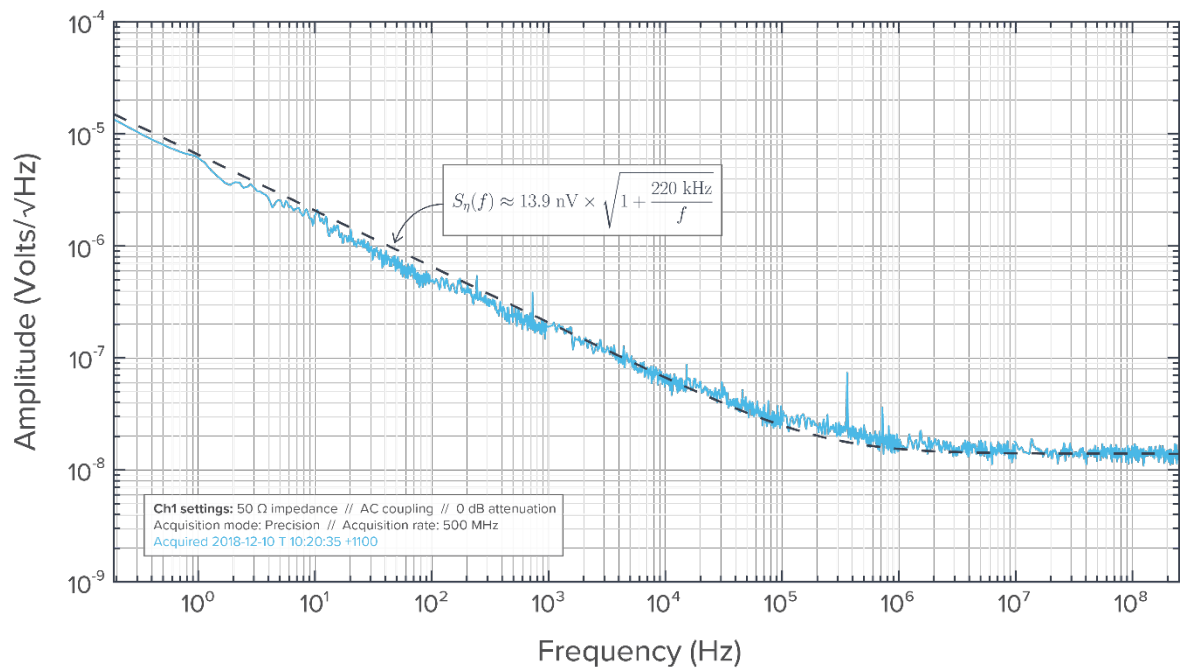
Connectivity

Analog inputs	2 x BNC
Analog outputs	2 x BNC
Network	Ethernet (10/100 Base-T) Wi-Fi 802.11 b/g/n
USB data port	Micro-USB // For connecting the iPad to the Moku:Lab via USB Requires an Apple USB connection kit and Micro-USB to USB cable
USB charge port	Type-A // For iPad charging only (no data connectivity) Maximum power draw 10 W
SD card	16 GB class 10 supplied
External trigger input	BNC
10 MHz clock reference input	BNC
10 MHz clock reference output	BNC
DC Power	12 V (power module supplied)

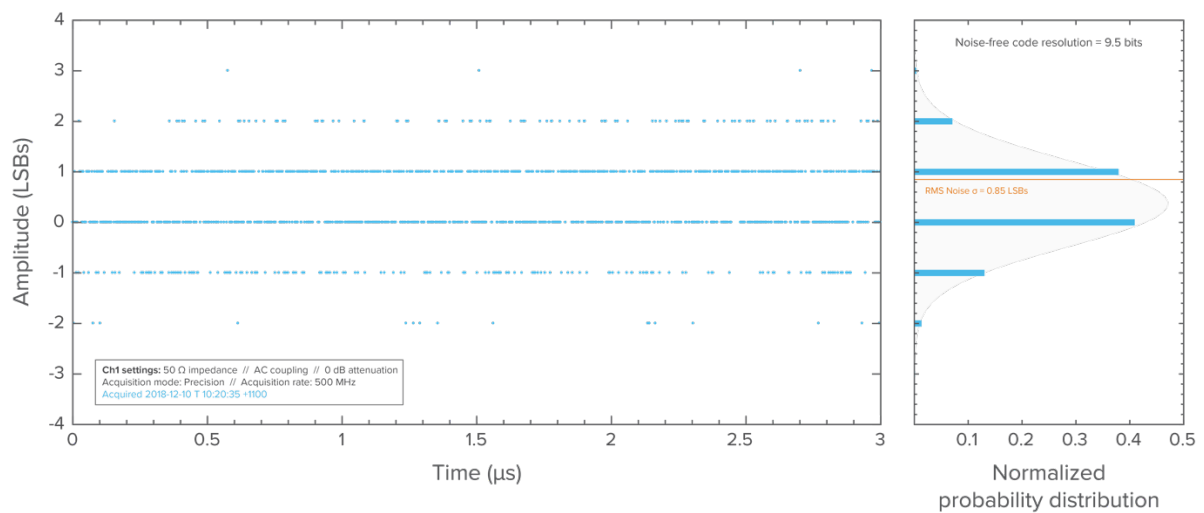


Hardware measurements

ADC input noise

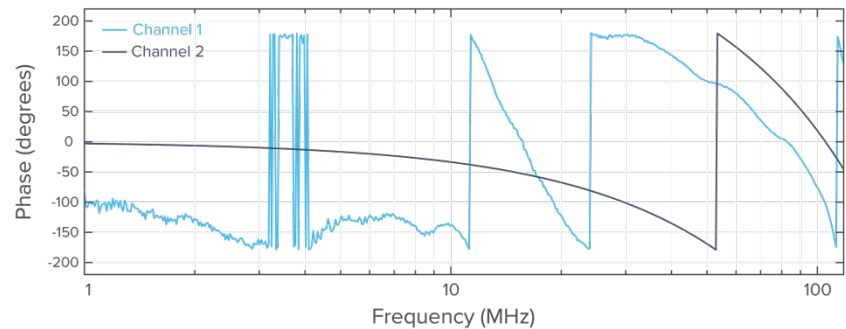
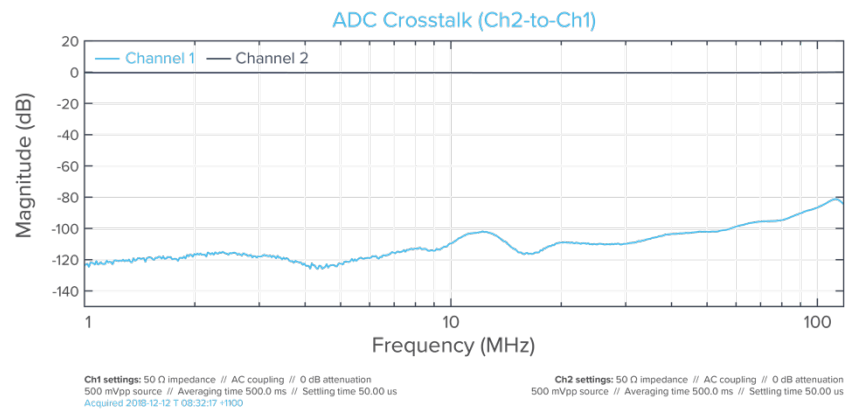
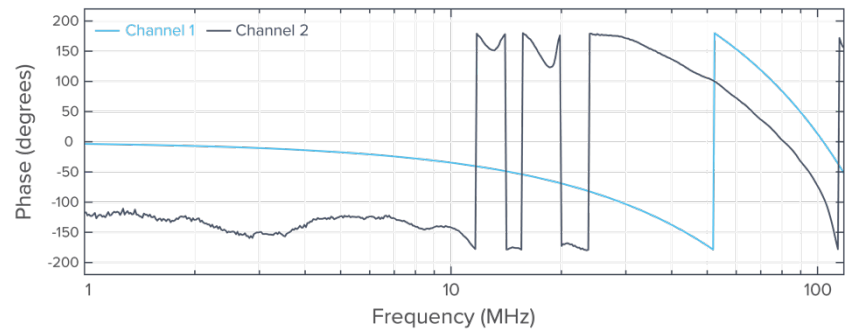
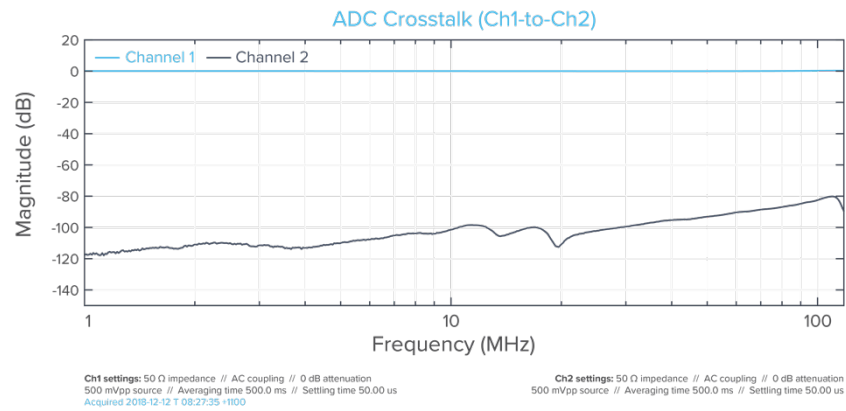


ADC Noise-Free Code Resolution



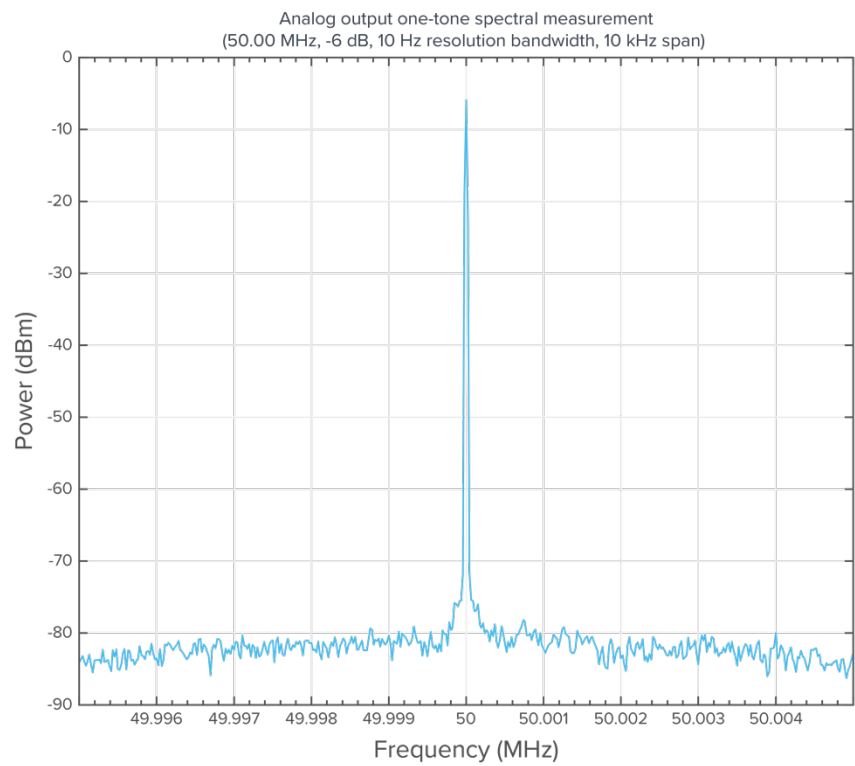
ADC crosstalk

50 Ω // AC coupled // 0 dB attenuation



Analog output noise

One-tone spectral measurement (50 MHz, -6 dB, 10 Hz RBW, 10 kHz span)



One-tone spectral measurement (50 MHz, -6 dB, 10 Hz RBW, 10 kHz span)

