

# CLIO *pocket*

Release 2.1!



**CLIO Pocket** is Audiomatica's new Electro-Acoustical Multi-Platform Personal measurement system.

The system comes complete of the **CLIO Pocket** software (Windows and OSX native), the CLIO CP-01 Audio Interface hardware, and accessories.

The CLIO CP-01 Audio Interface uses an USB 2.0 connection for maximum portability and compatibility with current and future computer hardware architectures.

**CLIO Pocket** is a powerful, rugged and lightweight portable measurement system.



**And... fits in your Pocket!**

**CLIO POCKET IN PILLS**

# INSIDE THE CLIO POCKET BOX

**CLIO Pocket** is housed in a plastic box:



Inside the box you find:

- The CP-01 Audio Interface
- The CLIO Pocket SD with software and drivers
- The Microphone MIC-02
- One USB 2.0 cable
- One RCA to RCA 2.7m long microphone cable
- One RCA to alligators impedance cable

# TECHNICAL SPECIFICATIONS

## CP-01 AUDIO INTERFACE

### GENERATOR

24 Bit sigma-delta D/A Converter  
Frequency range: 1Hz-45kHz  
Frequency accuracy: better than 0.01%  
Frequency resolution: 0.01Hz  
Output impedance: 150Ω  
Max output level (Sine): 13dBu (3.46Vrms)  
Attenuation: 0.1 dB steps to full mute  
THD+Noise(Sine): .008%

### AC ANALYZER

24 bit sigma-delta A/D Converter  
Input range (full scale): +40dBV down to -40dBV  
Max input acceptance: +40dBV (283Vpp)  
Input impedance: 64kΩ (5.6kΩ mic)  
Phantom power supply: 8.2V

### DC ANALYZER

12 bit A/D Converter  
Input range: ± 6.5V

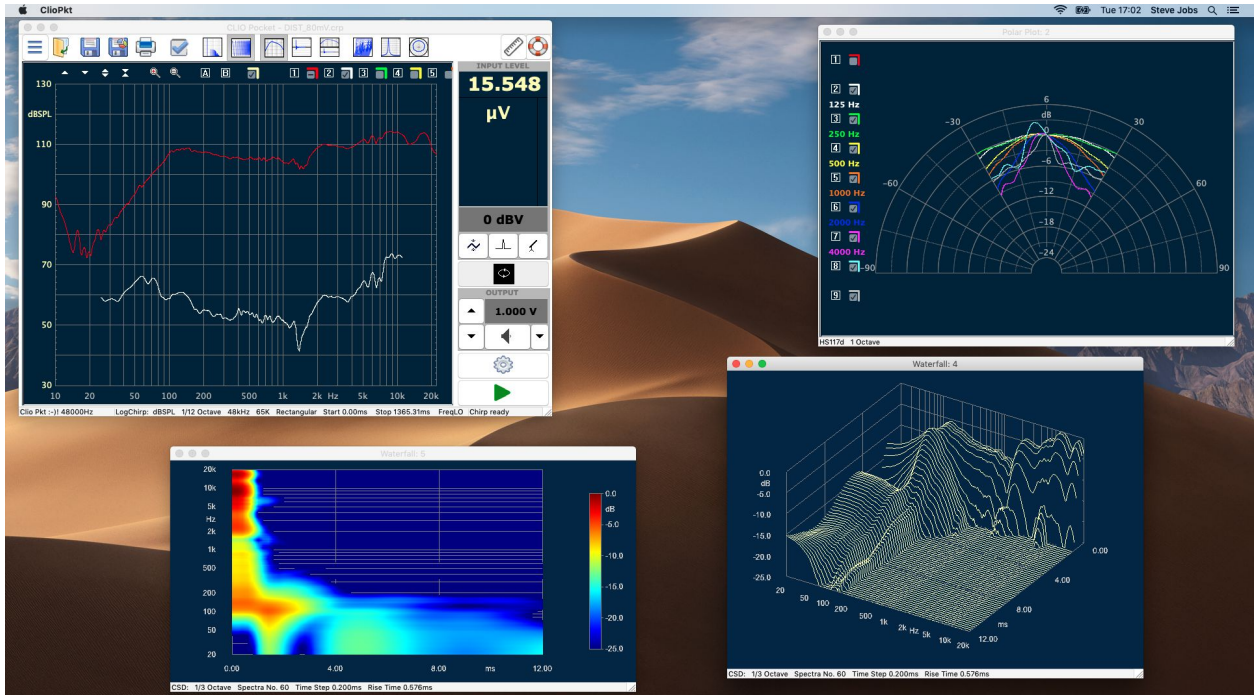
### MISCELLANEOUS

Sampling frequencies: 96kHz and 48kHz.  
Connections: analog RCA in and out  
Digital connection: USB 2.0 port  
Power supply: USB powered (480 mA)  
Dimensions (cm): 9(w)x12(d)x2.5(h)  
Weight: 0.3 kg

## MIC-02 MICROPHONE

Type: Condenser electret  
Accuracy: ±1 dB, 20 Hz to 10 kHz  
±2 dB, 10 kHz to 20 kHz (direct field)  
Maximum level: 130 dB SPL  
Dimensions: 8 mm diameter, 12 cm long

# CLIO POCKET SOFTWARE REL.2.1 UNDER X-RAYS



## LOG CHIRP ANALYSIS

- **Amplitude, frequency and time calibrated response.**
- **Second harmonic, third harmonic and THD response.**
- Chirp length: 16384, 65536 points
- Impulse length range: 1.36s down to 170ms
- Frequency range: 10Hz to 45kHz
- Frequency response units: dBV, dBu, dBRel, dB SPL
- Impedance response units: Ohm
- Frequency and time simultaneous display, analysis and post-processing
- Frequency smoothing (1/48 to 1 fraction of octave)
- **Phase response (Normal, Minimum and Excess)**
- Auto-Capture Delay with manual interactive fine-tuning
- **Group Delay response (Normal, Minimum and Excess)**
- **Time Impulse response**
- **Step response**
- **Schroeder impulse decay**
- **Energy Time Curve**
- **Quasi-Anechoic acoustic response with time window selection**
- Time window: Rectangular or Auto-Half Hann tuned to impulse max
- Continuous loop measurements for easy interactive tuning of systems
- AutoStore to Overlay function to track up to 10 curves on screen
- Math processing: Add file, Subtract file, Divide by file
- Math processing: Add Value, Multiply by value
- Math processing: Merge High and Low frequency response
- Math processing: dB Shift
- Math processing: MIB (Microphone In the Box) technique
- Math processing: LP, HP, BP filter
- Save Impulse time data to wav file
- Export ASCII or Excel data to file or clipboard
- Export Graphic data to file or clipboard for easy reporting
- AutoSave function with automatic file name generation

## **FFT AND RTA ANALYSIS**

### **- Narrow-band FFT analyzer**

- FFT size: 4096, 16384, 65536 points
- Acquisition range: 1.36s down to 42ms
- Frequency range: 10Hz to 45kHz
- Measurement units: dBV, dBu, dBRel, dB SPL
- Time window: Rectangular, Hanning, Hamming, Bartlett, FlatTop
- Average: linear to target count or continuously exponential
- Average count: 1 to 9999
- Continue average function to add next linear count
- Max or Min hold function
- Frequency and time simultaneous display and analysis
- Frequency smoothing (1/48 to 1 fraction of octave)
- Real-Time fraction-of-octave analyzer (RTA)**
- RTA bands: 1/3 or 1/6 octave
- Event trigger with programmable delay and threshold
- OneShot event trigger function
- Save acquired time data to wav file
- Export ASCII or Excel data to file or clipboard
- Export Graphic data to file or clipboard for easy reporting
- AutoStore to Overlay function to track up to 10 curves on screen
- AutoSave function with automatic file name generation

## **SIGNAL GENERATOR AND OUTPUT CONTROLS**

### **- Dedicated Generator Panel with on-the-fly controls**

- Plays standard wave files
- Highly optimized waveform calculator
- Waveform: Sinusoid, FFT-bin optimized, bursted and tapered
- Waveform: Two Sinusoids with relative amplitudes
- Waveform: CEA burst with cycles control, FFT-bin optimized and tapered
- Waveform: White noise
- Waveform: Chirp, Lin or Log, up to 256k size and start and stop frequencies
- Waveform: Pink noise, FFT matched, pseudorandom, low crest factor
- Waveform: All Tones, FFT matched, low crest factor
- Dedicated main window surface with output controls**
- All controls speeded up by hot keys
- Direct 3-digit input of output level
- Button control for 1dB or 0.1dB steps

## **MULTIMETER AND INPUT CONTROLS**

### **- Free-running Voltmeter and Sound Level Meter with bar graph**

- Measurement units: V, dBV, dBr, dB SPL
- Integration: Slow, Fast, Impulse
- Filter: A-Weight & C-Weight
- Voltage reading range: from few  $\mu$ V to 100V RMS
- THD reading: % and dB
- Frequency reading with 0.1Hz resolution
- Direct measurement of microphone sensitivity
- Direct measurement of reference voltage
- Interactive L-C-R meter**
- Measured components: Resistors, Capacitors, Inductors
- L,C,R % reading for easy components selection
- Dedicated main window surface with input controls**
- All controls speeded up by hot keys

- Button control input sensitivity in 10dB steps
- Input-Output Loop button
- Input polarity inversion
- Input gain autorange
- Microphone power supply

## **WATERFALL**

- **Decay analysis with 3-D gesture-controlled swiveling graph**
- Color map 3D & 2D display with selectable shading
- Powerful 3D marker display
- Multiple windows allowed for easy comparison
- Analyzes Log Chirp Impulse response or FFT time data
- Classical **Cumulative Spectral Decay** for loudspeakers characterization
- **Wavelet Cycle Decay** for detailed decay analysis
- Frequency smoothing (1/48 to 1 fraction of octave)
- Reference operation
- Fully configurable frequency, time, cycle and amplitude axis
- Number of spectra: 15 to 120

## **POLAR PLOTS**

- Circular & Half Circular Polar Plots
- Analyzes Log Chirp frequency response
- Frequency smoothing
- Possibility of mirroring data of symmetrical speakers
- Up to nine simultaneous plots at specified frequencies

## **THIELE & SMALL PARAMETERS**

- Interactive Control Panel to simplify operation
- Free Air parameters
- Added Mass or Known Volume methods for full parameters estimation
- Direct measurement of ReDC.
- Multiple windows allowed for easy comparison

## **SYSTEM**

- Software operates native under Windows or OSX
- Touch and gesture compliant software design
- Hardware relies on dedicated USB driver
- Ultra stable, glitch-free, streaming operation
- Self-calibration with comparison to Audiomatica Labs calibration conditions
- Stored calibration parameters trace international standards
- Assistance warning in case of any component run out of spec with time
- Security warning in case of any unauthorized parameter change

## **PC CONFIGURATION**

The CLIO CP-01 audio interface running the **CLIO Pocket** software can be installed in any personal computer with the following system specs:

- Pentium IV class processor (suggested minimum 2GHz)
- One free USB 2.0 port
- 1024x768 video adapter
- Microsoft Windows (XP, Vista, 7, 8, 8.1, 10) or Apple Mac OSX (10.5 to 10.14).



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