



**Celsius Sound  
Companion One**

**Portable Hi-Res DAC,  
Headphone Amp &  
Wireless Audio**

## FCC Compliance Statement



**Hereby, Celsus Sound, Inc. declares that this device is in compliance with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**WARNING:** Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Notice for customers: The following information is only applicable to equipment sold in countries applying EU Directives.**

## EU Declaration of Conformity



**Hereby, Celsus Sound, Inc. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC.**

The manufacturer of this product is Celsus Sound, Inc., 1712 Pioneer Ave, Suite 1885, Cheyenne, WY 82001

The Authorized Representative for EMC and product safety is Celsus Sound, Inc., 1712 Pioneer Ave, Suite 1885, Cheyenne, WY 82001.

For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

## For customers in Europe



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

## SAFETY INSTRUCTIONS

There are two categories of Safety Instructions included in this manual:

- Product Warnings, (i.e., what must never be done to assure avoiding those hazards that could cause bodily injury or property damage); and
- User Directions (i.e., what must always be done to assure the safe use of your device).

The Safety Instructions contained in this manual have been categorized in accordance with the seriousness of the potential hazards through the use of Signal Words. Those Signal Words, and their intended meanings, are as follows:

**DANGER:** Indicates that a failure to observe the Safety Instructions could result in death or catastrophic bodily injury.

**WARNING:** Indicates that a failure to observe the Safety Instructions could result in serious bodily injury.

**CAUTION:** Indicates that a failure to observe the Safety Instructions could result in minor bodily injury or property damage.

**NOTE:** Designates important information that relates to activities and/or conditions that might result in loss of data and/or damage to your device.

### Safe Use and Operation of Your Device

This equipment emits stray RF energy and will interfere with the reception of signals by airborne electronic navigational devices or medical devices. Do not operate this equipment near any sensitive medical devices.

#### **WARNING: Use only grounded AC power cords.**

Always immediately disconnect the power to the equipment in the event the device emits an unusual odor or sound or generates smoke.

**WARNING:** Never attempt to disassemble, repair or make any modification to your device. Disassembly, modification or any attempt at repair could cause bodily injury or property damage, as well as damage to the device itself.

**WARNING:** Your device is not a toy. Never allow children to play with your device. Misuse, rough or improper handling of your device by children could result in serious bodily injury for any of the enumerated safety warnings in this manual. In addition, always keep all accessories and components out of the reach of small children as small parts might present a choking hazard. Seek immediate medical attention if choking occurs or if any small part has been swallowed.

**CAUTION:** Never raise the sound volume level too high when using your device with earphones. An excessive sound volume level could cause damage to your hearing.

**WARNING:** To reduce the risk of fire or electric shock, do not expose the unit to moisture or water.

Read all the instructions before connecting or operating the component. Keep this manual so you can refer to these safety instructions. Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit shows signs of improper operation.
- The unit has been dropped or damaged in any way.

## **Introduction**

The Celsus Companion One, an advanced and comprehensive portable High-Res audio companion, features a high-performance headphone amp with better than 115dB signal-noise ratio. The USB DAC, utilizing ESS's class-leading ES9018K2M DAC, decodes up to DSD128 and 32Bit/384 kHz PCM audio formats. A built-in Wi Fi network allows Companion One to be used as a media streamer capable of PCM 24bit/192kHz streaming. A digital Toslink S/PDIF and one 3.5mm analog output connect Companion One to a wide array of devices.

## **Unique Market Position**

The Celsus Companion One is the world's first high-performance DAC that supports both USB cable and wireless connections to Windows, Mac, Android (\*OTG) and iOS devices. Another world's first is the Companion One's ability to decode and stream 24bit/192kHz music files. Thus the user enjoys the highest quality desktop USB audio playback available and, with the push of a button, streams music from connected devices with better than CD-level resolution.

## **Low Distortion and Jitter**

With asynchronous USB audio clocking via two internal high-accuracy low-jitter clocks for 44.1kHz (88.2/176.4/352.8) and 48kHz (96/192/384) sampling, the Celsus Companion One optimizes

USB digital data transmission for ultra-low-jitter performance with better than 115dB signal-noise ratio.

## **Build and Sound Quality**

The Celsus Companion One's curved frame, machined from a single block of aluminum, is a pleasure to hold. With its top and bottom gorilla-glass covers, the Companion One's build quality surpasses that of any portable DAC on the market today. The unit's signal path and headphone amplifier circuit have been painstakingly optimized for maximal headphone performance. Discerning audiophiles are bound to appreciate the Companion One's dynamic and richly detailed music presentation.

## **Features**

### **USB Audio:**

- Supports PCM and DSD audio formats
- PCM audio: 16/24/32-bit audio data, 44.1/48/88.2/96/176.4/192/352.8/384 kHz native sample rate.
- DSD audio: DSD64 and DSD128 native decode.
- Asynchronous USB audio clocking with two internal low-jitter clocks separately for 44.1kHz (88.2/176.4/352.8) and 48kHz (96/192/384) sampling.
- Switches between USB High Speed (480Mbps) and Full Speed (12Mbps)
- Extremely low latency <5ms

- Supports ASIO
- Supports Windows, Mac, Android (\*OTG) and iOS devices

### **Wi-Fi Streaming:**

- Supports PCM format: 16/24-bit, 44.1 / 48 / 88.2 / 96 / 176.4 / 192KHz
- Supports uPNP network media streaming.

### **Outputs:**

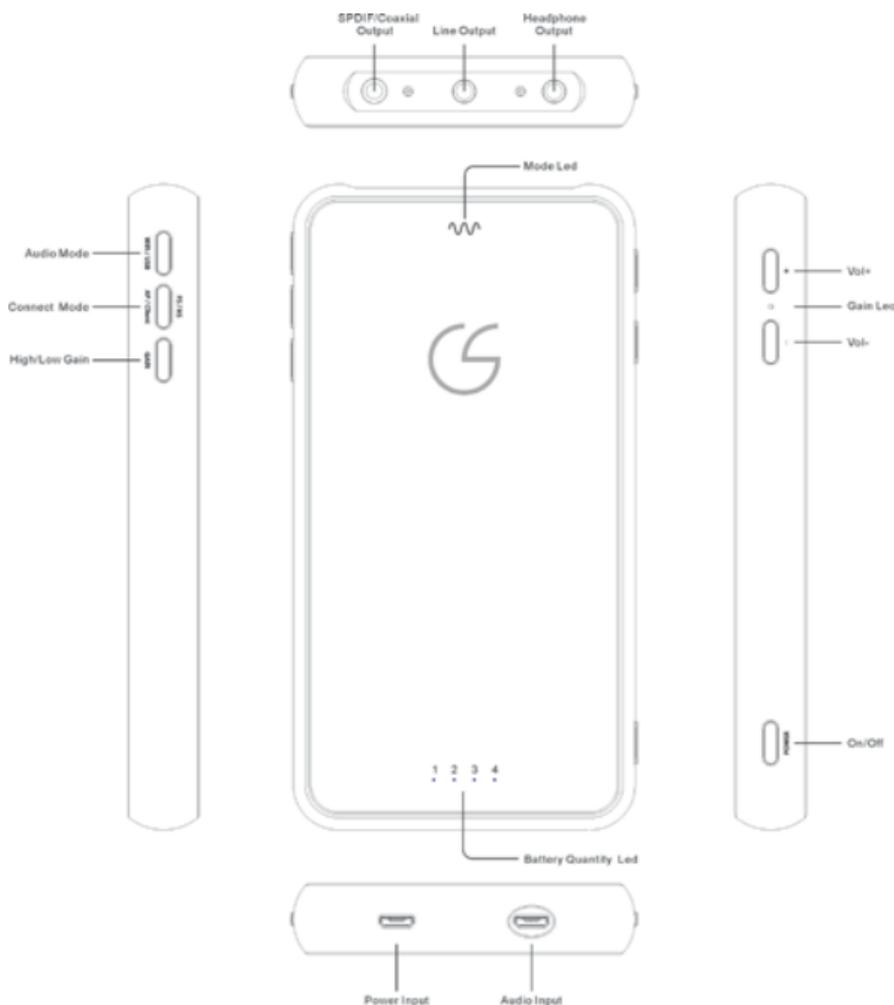
- Digital: Toslink S/PDIF
- Analog: 3.5mm, impedance 75 Ohm, 0.5Vpp
- Volume Control: 100 steps
- Gain Control: 2 levels, for earphone impedance of 16 to 300 Ohm

## **Specifications**

### Analog:

- THD+N: <0.001% at 0dB, 10 kOhm load
- Frequency Response: 20Hz – 22kHz (+0, - 0.5dB)
- Output voltage (0dB): High Gain 3Vrms; Low Gain 1.5Vrms
- S/N ratio: > 115dB (at 2Vrms)
- Crosstalk: <-110dB
- Dynamic range > 115dB
- Output power: 160mW @ 32 Ohm, 28mW @ 300 Ohm.

## **Product Illustration**



## Functions

1. **POWER**—A quick half-second press lights up the battery-power-level LEDs. Pressing for three seconds toggles power on or off.
  - a. **Charging Mod** – Indicator LEDs 1, 2, 3, 4 light up or flash sequentially depending on power storage levels of 25%, 50%, 75% and 100% respectively. When the battery is fully charged, all four LEDs light up. After three seconds Companion One is shutdown.

b. Usage Mod – Indicator LEDs 1, 2, 3, 4 flash or light up depending on power storage levels. When the power is less than 10%, only indicator LED 1 flashes. In order to extend battery life, it is recommended to power up before the level drops below 10%.

2. **AUDIO MODE** - Toggle between USB Audio and WiFi Audio. The default power-on mode is USB Audio. Press and hold for two seconds to toggle between USB and WiFi audio mode.

a. **USB Audio** - Supports Windows, MAC, Android (version 4.2 and above with OTG cable) and iOS (iPhone 4/4s, iPhone 5/5c/5s, iPhone6/6 Plus, iPad/iPad2/iPad Air/iPad MINI) devices. Supports up to PCM32Bit/384KHz, DSD64 and DSD128 decoding and USB hi-speed and full speed mode.

b. **WiFi Audio** – Uses 2.4G wireless network and supports DLNA, Airplay and Qplay. Supports all commonly available music file formats, including FLAC and WAV. Decodes and streams the highest PCM 24Bit/192KHz rate over WiFi. Connects via AP (one-to-one using Companion One WiFi SSID) or Client (using existing WiFi network)

3. **CONNECT MODE** – The Connect Mode functions differently depending on the Audio Mode.

- a. **AP/Client** - When WiFi Audio Mode is first turned on, it is in **AP Connect Mode**, which means that a streaming source has to connect to Companion One's WiFi SSID in order to establish a direct one-to-one connection. Other streaming-source devices can still connect to Companion One and take over the streaming connection by simply connecting to the same SSID. The last stream to Companion One takes over the one-to-one connection. Each of the source devices can supersede other connections by simply streaming to Companion One. Pressing the Connect Mode button for two seconds will toggle between the AP and Client modes. In the Client mode, Companion One is configured to connect to the home WiFi network, so that other streaming-source devices within the home network do not have to connect to Companion One's WiFi SSID.

*To configure the **Client mode***, the user first enters the AP mode and visits the setup URL (it is <http://192.168.10.1> by default: see the Client Connect Mode setup). After the Client Connect Mode setup has been completed, Companion One will be in the Client Connect Mode. If Companion One is out of range or gets disconnected from the home network, it will default to AP Connect Mode and will store the Client Connect Mode setup in its memory. In WiFi Audio Mode, it will try to establish a connection to the Client network. If

unsuccessful, it will default to AP Connect Mode.

- b. **FS/HS** – When USB Audio Mode is first turned on, it defaults to HS Mode in USB 2.0 High Speed (480Mbps). Pressing the Connect Mode button for two seconds toggles between FS and HS modes. FS mode is USB2.0 Full Speed (12Mbps).

#### 4. **Mode LED**

- a. USB Audio – When Companion One is first powered on without connecting to the USB Audio source, the Mode LED flashes between red and green. After Companion One is successfully connected to the source device, the LED turns constant green when it is in HS mode. The Mode LED turns to blinking green when Companion One is in FS mode. When it is playing a PCM digital audio stream, the LED turns to blinking green. When playing a DSD64 audio stream, the LED turns to blinking red. When streaming a DSD128 music source, the LED turns to yellow.
- b. WiFi Audio – Indicator LED flashes between red and blue when it is first powered and not connected to other devices. A red indicator means AP mode; **B** Blue indicator means Client mode.

#### 5. **GAIN** – Press for two seconds to switch between

high and low gain. When Companion One is first powered on, it defaults to low gain with an output of 1.5VRMS (0dB) . In high gain mode, the Gain LED is red; Output is 3VRMS (0dB). The Gain LED does not light up in low-gain mode.

6. **Volume Control** – is divided into 100 steps. Press once to change the volume by one step. Press and hold changes volume rapidly. Vol+: Step 1 to 30, press once to increase by 1.5dB; steps 31 to 100 by 0.5dB. Vol-: Press once to decrease by 0.5dB from vol 100 to 31 and 1.5dB from vol 30 to 0.

#### 7. I/O:

- a. Power Input – Charging input. Using DC 5V/1250mA, charging the 6000mAh Lithium Ion battery takes about 8 hours.
- b. USB Audio Input – USB audio from Android, iOS, MAC or PC is decoded for high-resolution music.
- c. Headphone Output – Able to drive 16 to 300 Ohm earphones.
- d. Line Output
- e. Toslink SPDIF

#### 8. Client Connection procedures:

- a. Connect to Companion One using AP mode and SSID “Companion One”. The default IP address is 192.168.10.1
- b. Access the web interface at <http://192.168.10.1> from a browser.
- c. Choose the home WiFi network SSID and

configure the password for Companion One to connect to your home WiFi network when it is in the client mode. You will hear the voice prompt (if your earphones is connected to Companion One) that it is now connected in client mode.

9. **Reset firmware to factory original version** – in the WiFi Audio mode, pressing the Connect Mode (AP/Client) button for 10 seconds will reset the firmware to factory original version. These are the circumstances where such action is necessary:
  - a. User forgets the WiFi password for the AP mode.
  - b. Roll back from a new firmware update.

## **Celsus Sound's Limited Warranty and Limitation of Liabilities**

### **ADDITIONAL RIGHTS**

FOR CONSUMERS, WHO ARE COVERED BY CONSUMER PROTECTION LAWS OR REGULATIONS IN THEIR COUNTRY OF PURCHASE OR, IF DIFFERENT, THEIR COUNTRY OF RESIDENCE, THE BENEFITS CONFERRED BY THIS WARRANTY ARE IN ADDITION TO ALL RIGHTS AND REMEDIES CONVEYED BY SUCH CONSUMER PROTECTION LAWS AND REGULATIONS. THIS WARRANTY DOES NOT EXCLUDE, LIMIT OR SUSPEND ANY RIGHTS OF CONSUMERS ARISING OUT OF NONCONFORMITY WITH A SALES CONTRACT. SOME COUNTRIES, STATES AND PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY OR CONDITION MAY LAST, SO THE LIMITATIONS OR EXCLUSIONS DESCRIBED BELOW MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY BY COUNTRY, STATE OR PROVINCE. THIS LIMITED WARRANTY IS GOVERNED BY AND CONSTRUED UNDER THE LAWS OF THE COUNTRY IN WHICH THE PRODUCT PURCHASE TOOK PLACE.

### **LIMITED WARRANTY**

For a period of TWO (2) YEARS from the date of retail purchase by the original end-user purchaser ("Warranty Period"), Celsus Sound warrants (in) this product against defects in materials and workmanship, and (ii) that each Product, unmodified and under normal use and conditions, will substantially comply with Celsus Sound' applicable written technical documentation for the Product. Celsus Sound reserves the right to make substitutions and modifications from time to time in the specifications of Products sold by Celsus Sound, provided that such substitutions or modifications do not materially affect overall Product performance.

If a hardware defect exists and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, Celsus Sound will (1) repair the hardware defect at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or (3) refund the purchase price of the product. Celsus Sound may request that you replace defective parts with user-installable new or refurbished parts that Celsus Sound provides in fulfillment of its warranty obligation. A replacement product/part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Celsus Sound's property. When a refund is given, your product becomes Celsus Sound's property.

### **OBTAINING WARRANTY SERVICE**

If you purchased the product in the U.S., deliver the product, at your expense, to any Celsus Sound Service Center located in the U.S. If you purchased the product outside of the U.S., deliver the product to any Celsus Sound Authorized Importer in the country where you purchased the product. Be aware, however, that not all countries have Celsus Sound Authorized Service Providers ('NASP') and not all Authorized Service Providers outside the country of purchase have all parts or replacement units for the product. If the product cannot be repaired or replaced in the country it is in, it may need to be sent to a different country or returned to the country of purchase at your expense for repair or replacement. If you seek service in a country that is not the country of original purchase, you will comply with all applicable import and export laws and regulations and be responsible for all custom duties, V.A.T. and other associated taxes and charges. Where international service is available, Celsus Sound

may repair or exchange defective products and parts with comparable products and parts that comply with local standards.

You can always deliver the product to Celsus Sound's U.S. main service center for obtaining warranty service, however, you may have to pay for return shipping cost.

Celsus Sound may send you user-installable new or refurbished replacement product or parts to enable you to service or exchange your own product ("DIY Service"). Upon receipt of the replacement product or part, the original product or part becomes the property of Celsus Sound and you agree to follow instructions, including, if required, arranging the return of original product or part to Celsus Sound in a timely manner.

When providing DIY Service requiring the return of the original product or part, Celsus Sound may require a credit card authorization as security for the retail price of the replacement product or part and applicable shipping costs. If you follow instructions, Celsus Sound will cancel the credit card authorization, so you will not be charged for the product or part and shipping costs. If you fail to return the replaced product or part as instructed or the replaced product or part is not eligible for warranty service, Celsus Sound will charge the credit card for the authorized amount.

## EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for Celsus Sound that can be identified by the "Celsus Sound" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-Celsus Sound hardware products or any accessories, even if packaged or sold with Celsus Sound hardware. Non-Celsus Sound manufacturers, suppliers, may provide their own warranties. Other accessories distributed by Celsus Sound under the Celsus Sound brand name are not covered under this Limited Warranty. This warranty does not apply: (a) to damage caused by accident, abuse, misuse, misapplication, liquid contact, fire, earthquake, non-Celsus Sound products, or other external causes; (b) to damage caused by service performed by anyone who is not a NASP; (c) to a product or a part that has been modified without the written permission of Celsus Sound; (d) to consumable parts, such as batteries, or protective coatings designed to diminish over time unless failure has occurred due to a defect in materials or workmanship; (e) to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the product; or (g) if any Celsus Sound serial number has been removed or defaced.

**Important:** Do not open the hardware product. Opening the hardware product may cause damage that is not covered by this warranty. Only Celsus Sound or a NASP should perform service on this hardware product.

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Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

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