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audio

User Guide

absolute ε

Thank you for purchasing the Ideon Audio Absolute ε epsilon anniversary edition digital to analogue processor, our flagship creation.

If you have arrived here from another Ideon product, we are grateful for your continued trust. If you are a newcomer to our musical reproduction journey, we are honored to welcome you on board.
Listening through the Ideon absolute you will gain exciting new levels of musical perception and discover new information, even in the most familiar recordings.

At the current state of sound technology, the absolute DAC is a state-of-the-art component, thanks to its proprietary circuitry and ingenious implementation of the very best electronic and mechanical components.

We are certain that you will enjoy many magical musical moments for years to come. Recording quality and analogue to digital transfer and mastering quality notwithstanding, connecting the absolute to your digital source, will bring you even closer to the musical event contained in the source files.

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Preamble

The absolute will breathe new life into your audio files libraries; it is artifact free; its linear circuit does not impart any audio characteristics of its own.

- The device is fully balanced throughout – a topology that helps minimize the noise floor to vanishingly low levels (~-140dB)

- The Absolute can operate in single-ended and balanced modes without any loss of signal either way.

- Ultra-linear circuitry and hand-selected and matched-to-circuit components are used throughout.

- Contemporary, cutting edge technology is applied in the Absolute design: we choose the latest, highest performing digital-to-analogue conversion technology.

- Future-proof: modular construction for both the digital input and analogue output, which allows for easy updating as necessary.

- Proprietary circuit design optimizes the performance of the state-of-the-art DAC chip and clocks used inside. Three ultra-low jitter clocks are used to support sonic precision and sound stability.

- Proprietary, ultra-low noise, dual-quattro voltage parallel analogue amplification stages implemented in the Absolute:

  ◊ Protects against noise, hum, and signal degradation. Hence, signal accuracy is unparalleled!

  ◊ Ample energy reserves, strikingly improved SNR ratio. Stunning dynamics are achieved!

- The extraordinary stable output stage contains vast power reserves and is

therefore more than capable of driving any commercially available pre & power amplifier combo, as well as longer cables, both in single-ended and balanced operating modes.

- The Absolute DAC's main power banks, both boards and components, are engineered to ensure ultra-high operating stability and precision, thereby negating fluctuations to subsequent stages.

- Proprietary power supply design provides independent power lines to each stage that bypasses the main power boards and ensures insulation from internal noise interference.

- The massive, hand-milled aluminum chassis enhances mechanical stability and provides shielding from airborne vibration. The base alone has more than 1650 cubic cm of solid aluminum.

- A choice of digital filters allows the user to optimize reproduction or, more simply, to match the user's personal taste.

- The Absolute DAC does not introduce non-linear distortion even when operating from a cold start; however, the sound improves significantly after the first half hour of operation.

Burn-in: based on our experience, the absolute needs a little over 300 hours to fully come into its own. Nevertheless, be assured that the musical enjoyment begins from the very first moment!

Before operating the Ideon Audio absolute DAC please read the brief instructions that follow.

Front panel

Multi-function knob **/ On-Off** (functions through **rotate** and/or **press**)

Back panel

Digital SPDIF inputs → signal from CD player/transport

Balanced **Analog**
output → to Amplifier

Digital USB input → signal from Streamer/PC/Server

Single-Ended **Analog** output → to Amplifier

Operating the absolute

Using the Absolute DAC is simple, and its functions are designed to be user-friendly. At the same time, we have included user-controlled digital signal processing options which allow you to personalize certain functionalities and processing parameters.

The Absolute DAC offers a wide array of settings, allowing users flexibility in selecting the best sound for a particular recording, input, or file type. A brief description of the digital parameters follows the multi-function knob operating instructions.

The functions, including power on-off, are all accessible via the Multi-function rounded knob on the front panel.

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If you have opted to drive your amplification directly via the Absolute DAC, please make sure that you have turned down the volume to its minimum (this can be done though the General Settings menu, as explained below) before switching on the power amplifier(s)! This is done through the General Settings menu, as explained below.

Multi-function knob
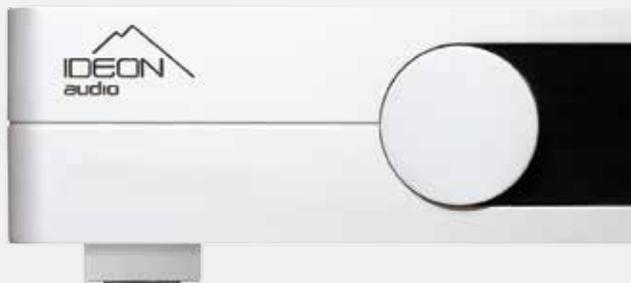
- On-off switch
- Output level
- Input, Filter & Settings selector

Standby

Switching on the device from its IEC switch at the back plate, the Absolute DAC is in stand-by mode.

Pressing the knob **continuously for 7 seconds** or more takes the Absolute DAC back to standby mode.

Power On

Pressing on the knob **once** switches the device on.

Pressing on the knob **for 2-3 secs and releasing it**, takes you to the next screen/menu.

You can navigate between options with the rotary function of the knob. Clicking on an item confirms your choice and takes you to the next item. The system saves the last selected settings.

Absolute DAC front display

Main Screen

The first screen displays:
- the current input (upper left),
- the decoding format (upper right),
- the sampling rate (provided there is a signal),
- and the active filter (bottom).

The input and the filter are user adjustable.

Clicking on the knob activates the selection, and what is selected lights up in **red**. This always indicates the user's current selection.

Turning the multi-function knob takes you through the choices.

You **select** your choice by **clicking** once; the selection is stored, and you are taken to the next menu function.

This home screen on the Absolute DAC can default to screen-saving mode after a few seconds – which means can be dimmed a lot; clicking on the knob wakes it. This can be set through the general Settings screen (explained later).

Pressing and holding the knob for about 3 seconds takes you to the input settings screen.

Input Settings Screen

This screen displays filtering and processing parameters for the chosen input (which appears as a heading). Active functions are highlighted in red. Turning the knob allows to navigate between the options of that function. Clicking on the knob confirms the selection and takes you to the next function. If you do not want to change anything you can simply click once again and move on to the next item on the menu.


```
usb

Filter: hybrid fast roll-off minimum phase

IIR: 47.44kHz

Lock Speed: 16384 FSL edges

De-emphasis: Enabled, 44.1kHz

Back to Main Screen
```

*If you wish to return to the main screen, simply go to **"Back to the Main Screen"** and turn the knob.*

Filter: in many files there is little real musical content above 25-30kHz the rest being noise. The filters address this issue especially for high resolution files. Landing on the filter highlights it in red and opens the selection. Turning the knob takes you through the seven (7) preset filter choices. These are,

- Fast roll-off, minimum phase.
- Slow roll-off minimum phase.
- Fast roll-off linear phase.
- Slow roll-off linear phase.
- Brick wall.
- Hybrid, fast roll-off minimum phase.
- Apodizing, fast roll-off minimum phase

Clicking on your selection confirms your choice and takes you to the next function.

We recommend you start experimenting with these after the first 3-4 weeks of operation.

IIR (infinite impulse response): set at 47.44kHz for PCM it is user selectable for DSD (50-60-70kHz)

Lock speed: this function sets the number of audio samples that are required from the incoming signal before the DPLL and jitter eliminator lock onto it. The default value is 16384.
On the rare occasion where there is no lock turn to the other values, preferably in descending order 8192, 4092, 2048, 1024.

De-emphasis: a filter that attenuates high frequencies and counteracts emphasis often used in mastering. We recommend that you leave this disabled.

Keeping the knob pressed for 2-3secs takes you to the **General settings screen**.
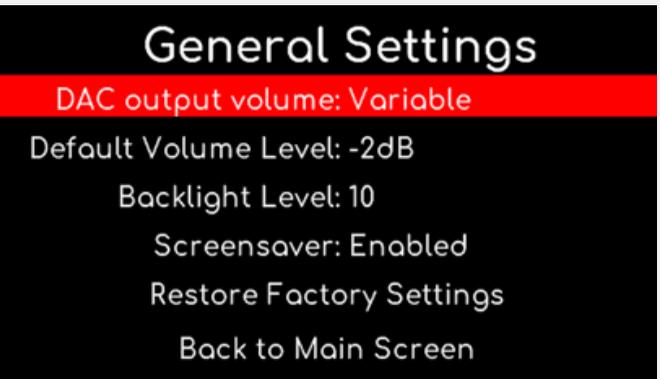
General Settings Screen

This is where you access the variable volume control, screen settings, and the system restore utility.

Output volume / volume control: Fixed or Variable.

The Absolute DAC comes **factory-set** to **fixed** volume output, -0 dB FS (full-scale). This is the recommended setting for systems with top class pre-amplification.

Nonetheless, the variable output level enables the Absolute to be connected to a power amplifier directly without the need of an additional pre-amplification or attenua-

General Settings
DAC output volume: Variable
Default Volume Level: -2dB
Backlight Level: 10
Screensaver: Enabled
Restore Factory Settings
Back to Main Screen

tion circuit. For this reason, the Absolute DAC incorporates a first-rate, hi-precision digital volume attenuator.

IMPORTANT

This is not an analog attenuator, or an analog preamp! Using it you may lose bits from the digital reproduction affecting the sound.

To activate the Absolute DAC's own attenuator simply click on variable output. When you return to the main screen, the knob will function as a rotary volume control and the amplitude level will display in the middle of the screen.

Please note that volume /amplitude levels are displayed in dB of attenuation, so the higher the number the higher the attenuation i.e., the lower the volume. **-0dB means full volume!**

Default volume level: If you have selected the **Variable Output**, this is the output volume level you will get, when you switch on the device. Remember the value you choose is stored automatically when you switch the device to stand-by. To protect against accidents, it is good to provide for some attenuation on start-up: depending on the amplifier's input sensitivity -20dB to -30 are commonly used values.

Please note that we thoroughly recommend the use of a separate quality preamp, despite the introduction of an additional electronic circuit.

Hi-precision though the Absolute's attenuator may be, the music lover is better served in

dynamic contrast, energy, and vivacity.

Note: there may be power amps in existence which - because of their unique impedance and design characteristics - may not function correctly or be incompatible with the Absolute DAC. In those unlikely cases you would need to use a separate preamp or integrated amp.

Backlight level: refers to screen brightness, selectable values

Screensaver: on or off, as required. Dims the screen after some seconds.

Reset factory settings: brings back the DAC to factory defaults.

Tips

This is a brief compendium of ideas and suggestions, often user inspired. Some of these are mentioned above. We thought that putting these all together in one place is worth the boredom of repetition. They are in random order, so the last is not necessarily less than the first!

1. The Absolute DAC in its raw state (i.e. factory-fresh) takes us closer than ever to the musical event; we strongly recommend you privilege listening over tweaking!

2. **Burn-in:** based on anecdotal data, the Absolute DAC needs a little over 300 hours to fully come into its own. Nevertheless, users report, and we confirm that the musical enjoyment begins from the very first moment of operation!

3. Keeping the Absolute DAC on all the time keeps the power supplies charged and the operating temperature at optimum levels. If, however, your main grid is notoriously unstable, it is best to switch the Absolute DAC off when not in use.

4. Absolute DAC off for an extended period of time; upon restart, please allow some time before the device reaches its optimum operating conditions and optimum sound.

5. Vibration control: any vibration control device placed under the Absolute DAC chassis can affect the sound, as can the furniture upon which you place it – just

as it will for any audio device. As always, what you end up doing is a matter of personal choice.

6. Cables: it is well worth trying out good quality interconnects to and from the Absolute DAC. When auditing cables, keep in mind that the Absolute DAC circuits do not impart any sonic flavor of their own. Ultimately, the choice of cable becomes a matter of taste and associated equipment.

7. Power cords: many users opt for after-market power cords and find that this brings changes to the sound. To avoid undue damage to the device, please ensure that the after-market cords you wish to test are correctly engineered. **Important:** before changing power cords make sure you SWITCH OFF the device and disconnect it from associated downstream equipment.

8. Please be careful when switching the Absolute DAC on and off in quick succession, allowing at least 10 seconds between on-off changes.

9. Variable output volume: to avoid inadvertently damaging your speakers with a sudden loud signal, do not forget to set an attenuation level for start-up ("default volume level"). For the most dynamic, realistic sound, the settings above -9dB should be avoided. The -0dB setting is the best.

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QUICK GUIDE

Main Screen

Action	Result
One click from OFF position	**Power ON**
Pressing continuously for 7 seconds or more	**Power OFF**
Pressing and keeping the knob for 3 seconds changes the menu	
The Absolute opening screen has the input selection. Rotating the knob will take you through different inputs USB, RCA, BNC. To select, just press the knob when the desired input appears.	**Inputs: USB, COAX, BNC – highlighted in red.**
Pressing the knob again will take you to the choice of filter for that input; proceed as above to choose your preferred filter for that input using the rotating function of the knob. Click to select	**Fast roll-off, minimum phase; Slow roll-off minimum phase; Fast roll-off linear phase; Slow roll-off linear phase; Brick wall; Hybrid, fast roll-off minimum phase; Apodizing, fast roll-off minimum phase**

Input Settings Screen

Action	Result
Please proceed as above: rotating the knob will take you to different parameters of a specific setting, pressing will select the value of the setting, moving on to the next setting is done by pressing the knob. The default settings were set at Ideon Audio. We recommend you maintain these while you familiarize yourself with the device.	**Filter:** choice of seven filters (see below)
	IIR filter: 47.44 kHz (default), other choices: 50, 60, 70 kHz;
	Lock speed: default value 16384 FSL edges (default), other choices: 8192, 4092, 2048, 1024.
	De-emphasis: enabled-disabled, (default: disabled)
	Back to Main Screen

Description of user controllable parameters and functionalities

Volume: range -127dB- 0dB (full volume). Default setting is -0dB FS (i.e. full volume).

Oversampling filter: enabled this gives access to 7 user-selectable, pre-set filters. The filters influence the frequency response and allows the user to tailor the sound to their personal taste, the recording, or the mastering.

- roll-off, minimum phase

- Slow roll-off minimum phase

- Fast roll-off linear phase

- Slow roll-off linear phase

- Brick wall

- Hybrid, fast roll-off minimum phase

- Apodizing, fast roll-off minimum phase

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We recommend using the default values at least until the Absolute DAC has reached optimum performance levels (empirically over 300 hours of signal processing).

General Settings Screen

Action	Result
In "DAC output level", rotating the knob will change the output volume from default "fixed" to variable. Please refer to the important note on page 6, regarding the volume control. Pressing the knob again will take you to next menu item, "backlight level": using the rotating function you can select the level of the brightness function 1-10 (default is10).	**DAC output volume:** fixed-variable (default: fixed @ 0dB FS) **Default Volume level** (selectable) **Backlight Level:** 1-10 (default is 10) **Restore factory settings** **Back to Main Screen**

Volume: range -127dB- 0dB (full volume). Default setting is -0dB FS (i.e. full volume).

Default volume: where you are at start up, when in variable output mode.

Screensaver: on or off, as required

Backlight level: refers to screen brightness, selectable values

Reset factory settings: if you need to reset your device to factory settings.

Technical Specifications

SUPPORTED FORMATS (INPUT DEPENDENT)	**44.1kHz to 384kHz PCM up to 32 bits , Native DSD**
DIGITAL INPUTS	**4x Advanced isolated input module slots**
XLR BALANCED OUTPUTS	**9Vrms at 0dB**
RCA OUTPUTS	**RCA OUTPUTS 4.5Vrms at 0dB**
THD (A WEIGHTED 20HZ-20KHZ)	**< – 120dB on all outputs**
CHANNEL SEPARATION	**>130dB on all outputs**
SNR (A WEIGHTED 20HZ-20KHZ)	**>130dB on all outputs**
DYNAMIC RANGE	**20HZ TO 20KHZ 147 dB (FS) . 145 dB (AFS)**
DISPLAY	**Custom discrete LED audio clock synchronous display**
DIMENSIONS (W X H X D)	**490 x 350 x 120 mm (19.2 x 13.7 x 4.7 in).**
WEIGHT	**28kg (~58 lbs)**

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Safety Instructions

- WARNING. TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE.

- Clean only with a dry cloth. Do not place flammable material on or underneath this device.

- Do not remove or bypass the ground pin on the end of the AC cord unless necessary to reduce hum from ground loops of connected equipment. Disconnecting the ground may cause RFI (radio frequency interference) to be induced into your playback setup. Removing or bypassing the ground pin on any electrical component is potentially dangerous and should be avoided for safety reasons.

- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Unplug this apparatus during lightning storms or when unused for long periods of time.

Servicing

THERE ARE NO USER-SERVICEABLE PARTS INSIDE ANY IDEON AUDIO PRODUCT. PLEASE REFER ALL SERVICING TO QUALIFIED PERSONNEL.
Please contact your authorized dealer, distributor, or Ideon Audio if you have any questions not addressed in this reference document.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

Warranty

Ideon Audio provides a 2-year manufacturer's warranty on all new Ideon Audio components.

The Ideon Audio seven (7) year and extended Lifetime Limited Warranty

You can extend the standard 2-year manufacturer's warranty into a 7-year warranty by registering your product with us. To do that, you need to send us your Name, Address, tel., email and the proof of purchase in the form of a bill of sale, invoice (or copy thereof) from the Ideon Audio dealer or Distributor. For further detail please contact your dealer or refer to Ideon Audio's official site.

Furthermore, Ideon Audio also offers a Lifetime product warranty that can be purchased at 17,5% of the retail price for any of our products. Please coordinate with your dealer of local distributor for that.

The Ideon Audio limited warranty covers defects in the materials and workmanship in this product. Under the terms of this warranty we will repair the product free of charge (parts and labor) — or replace it where we deem that repair is not possible — for malfunction due to inherent defects in the materials or construction.

Ideon Audio has authorized distribution in many countries of the world. Warranty service should be obtained directly from the importing retailer or distributor from whom you purchased the product. In the unlikely event of service required beyond the capabilities of the importer, Ideon Audio undertakes to fulfill the conditions of the warranty.

In case of malfunction please contact your dealer to arrange for service. If you have purchased the product directly from Ideon Audio, please contact us directly at info@ideonaudio.com, quoting subject: fault and a short description of the issue.

Please note that the product must be returned using original packaging only and accompanied by a written description of the issue, defect, or malfunction.

*Extended, lifetime warranty coverage

- This specially extended warranty covers the lifetime of the product model.

- This warranty is transferable under condition that each new owner informs Ideon Audio importers, dealers, or Ideon Audio directly the device model, number, previous owner name & new owner name & address.

- In cases of obsolescence of materials or superseded technology, the product will be repaired using currently available materials and technology of equivalent performance characteristics, or better.

- "Future proof": if Ideon Audio releases upgrades to, or improved versions of, the purchased product, these are made available to subscribers at cost of parts and materials only. Shipping to the service location is borne by the owner, Ideon Audio or its distributors / dealers pay for return shipping.

This warranty is voided in cases of,

- Damage and /or malfunction caused by tampering or modifications to the product's original state, attempts to fix, or other alterations to the product by persons other than factory authorized service personnel.

- Damage and /or malfunction caused by improper use, abuse, or improper operation of the product.

- Failure to comply fully with Ideon Audio operating instructions.

- Damage to cables or attachments and cosmetic damage induced by use.

- Products obtained outside the network of authorized Ideon Audio dealers and resellers.

General Warranty Terms.

This Warranty is subject to the following conditions and limitations: The Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in this document, abused, or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than Ideon Audio or an authorized Ideon Audio repair center.

1. The product must be packaged and returned to Ideon Audio or an authorized Ideon Audio repair center by the customer at his or her sole expense in the original packing material. Ideon Audio will pay return freight of its choice for original purchasers.

2. Returned product must be accompanied by a written description of the issue or the defect. Ideon Audio reserves the right to modify the design of its products without obligation to purchasers of previously manufactured products and to change the price or specifications of any product without notice or obligation to any person.

In the event the product fails to meet this Warranty and the above conditions have been met, the purchaser's sole remedy under this Limited Warranty shall be to return the product to Ideon Audio or an authorized Ideon Audio repair center where the defect will be repaired without charge for parts or labor.

This warranty does not cover the cost of custom installation, customer instruction and setup adjustments.

This warranty does not cover cosmetic damage or any damage due to accident, misuse, abuse, negligence or modification of, or to any part of the Product, without initial express consent from Ideon Audio. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by Ideon Audio to service the Product.

Enjoy the music, enjoy hi-definition in music!

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