NADAC D

TRUE ONE BIT AUDIO DIGITAL TO ANALOG CONVERTER

USER MANUAL

MASTER FIDELITY

www.master-fidelity.com

First of all, thank you for choosing

NADAC D

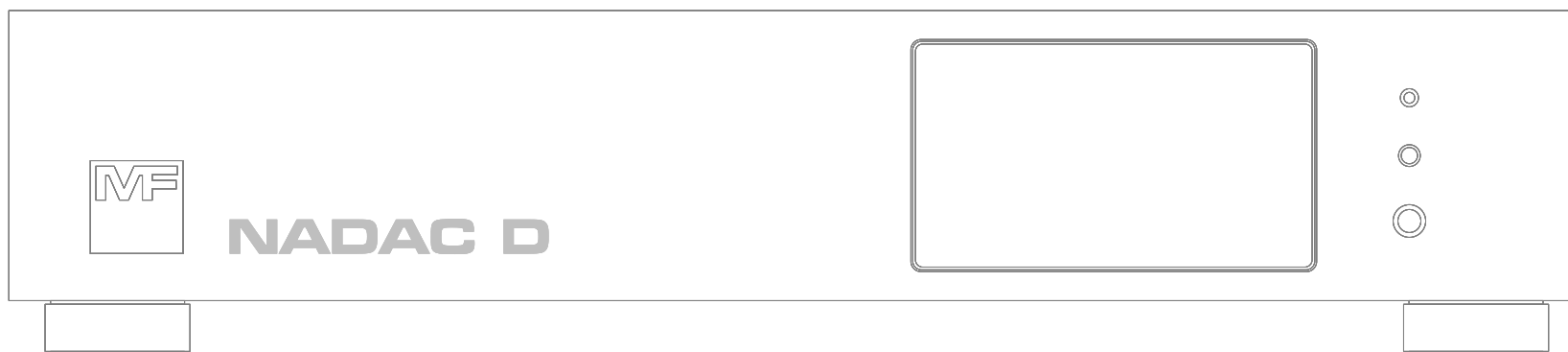**TRUE ONE BIT AUDIO DIGITAL TO ANALOG CONVERTER !**

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1. Important Safety and Installation Instruction

1.1 Important Instructions to Prevent Possible Fire, Electric Shock and Other Personal Injury

WARNING – The following are basic precautions that should be followed when using electrical products. Please read the following information very carefully before attempting any installation and use. Failure to follow instructions strictly may result in damage to the unit, resulting in fire, electric shock, or personal injury.

1). Read all of the safety instructions thoroughly. Read the installation instructions and understand the explanations of all graphic symbols used in the manual and on the unit before using this unit.

2). This unit is not equipped with a power supply cord. The user should use a power supply cord with a grounding connection according to the latest standards of the country or region of use in accordance with all local codes and ordinances. This unit must be grounded properly, otherwise it could malfunction, breakdown or cause electrical shock. This unit should be grounded using a power cord with the smallest ground resistance, proper current rating and shortest length to reduce the risk of electric shock or malfunction.

DANGER – This warning cannot be overstated: Improper connection of this unit-grounding can result in the risk of an electric shock. Do NOT use power cords that are inconsistent with local power outlet standards for a grounded 3 prong power cord with 2 blades and 1 earth ground. Also do not use an adapter that defeats the function of the equipment-grounding conductor (earth ground). If you are in doubt as to whether this unit is properly grounded, check with a qualified serviceman or electrician prior to use.

> **CAUTION**
> **RISK OF ELECTRIC SHOCK**
> **DO NOT OPEN**
>
> **CAUTION:**
> TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER.
> NO USER-SERVICEABLE PARTS INSIDE.
> REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
>
> The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
>
> The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
>
> **WARNING:**
> TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

THE DEVICE MUST BE GROUNDED – <u>Do not remove any protective grounding or shielding connections of signal cables to avoid ground loops. Any such removal or disconnection is not advised by MASTER FIDELITY and will result in the invalidation of electromagnetic compatibility certification, safety certification, and warranty terms.</u>

3). Do not use this unit in a damp environment or close to any exposed water sources.

4). Care should be taken so that objects do not fall on this unit and liquids are not spilled into any opening on the enclosure. Liquids spilled on this unit or inside this unit could result in electrical shock, malfunction or unit breakdown.

5). This unit installation height should be within 2 meters from the ground.

1. Important Safety and Installation Instruction
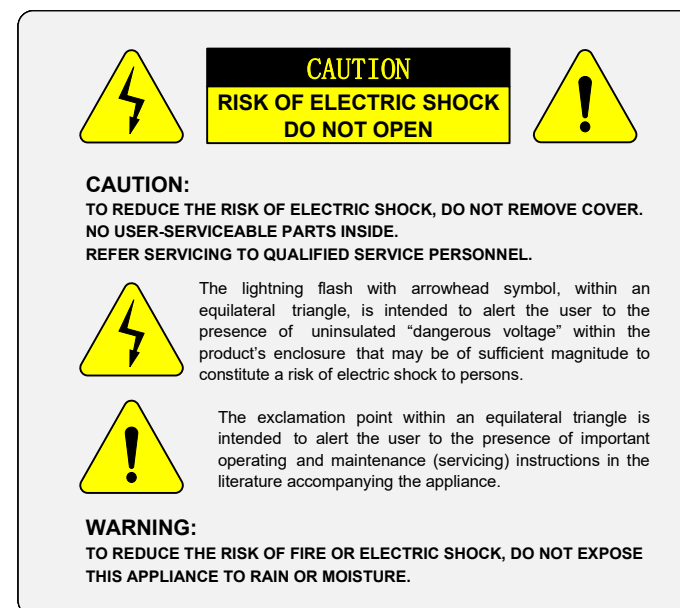
6). Whether this unit is installed in a rack or placed in another location, the user shall provide good ventilation with adequate heat dissipation.

7). This unit should be located away from heat sources such as radiators, heat registers, or other equipment that produces direct or indirect heat.

8). This unit should be serviced by qualified service personnel when:
   A). The power supply cord or plug has been damaged.
   B). Objects have fallen on this unit, or liquid has spilled into this unit.
   C). This unit has been exposed to rain.
   D). This unit does not appear to be operating normally or exhibits a marked change in performance.
   E). This unit has been dropped, or the enclosure damaged.

9). The power-supply cord(s) of this unit should be unplugged from the AC outlet when this unit is expected to be left unused for long periods of time.

   When unplugging the power cord(s), do not pull on the cord(s), but grasp them by the plug. Protect the power cord(s) from being walked upon or pinched- particularly at plugs interfaces at the AC receptacles and the point where they attach to this unit.

10). **WARNING -** Do not place objects on the power supply cord(s), or place this unit in a position where anyone could trip over, walk on, or roll anything over cord(s). Do not allow this unit to rest on or be installed over cord(s) of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

11). Do not attempt to service this unit beyond that described in the user maintenance instructions. All servicing should be referred to qualified professional service technical.

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All company and product names are ™ or Registered Trademarked ® to their respective owners.

<u>Under no circumstances</u> will MASTER FIDELITY, its owners, directors, officers, employees or agents be liable to the user or any persons near the equipment in use, for any consequential, incidental, indirect or direct loss or damages including loss of time, loss of business, loss of profits, loss of data or other resulting loss from the use of or inability to use any MASTER FIDELITY products.

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1.2 Static Electricity Danger Notice

Please be aware that this device contains fragile electronic components which may be damaged or even completely destroyed by static electricity. It is imperative to take all necessary precautions to avoid discharging static electricity when touching any connectors on this device.

1.3 Product Safety Compliance

This unit has been tested and verified to comply with the following safety regulations:

(1) European Union (CE): **Verification of LVD Compliance**

  Applicable standard: EN 62368-1/A1 Audio/video, information and communication technology equipment - Safety requirements - Part 1: Safety requirements (IEC 62368-1, modified).

(2) Japan (PSE): **Verification of Safety**

  Applicable standard: IEC 62368-1; J62368-1 (H30).

1.4 Product EMC Compliance

This unit has been tested and verified to comply with the following EMC regulations:

(1) European Union (CE): **Verification of EMC Compliance**

  Applicable standard: EN 55032, EN 55035, EN 61000-3-2 and EN 61000-3-3

    EN 55032 Electromagnetic compatibility of multimedia equipment - Emission requirements.

    EN 55035 Electromagnetic compatibility of multimedia equipment - Immuni requirements.

    EN 61000-3-2 Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissons (equipment input current ≤16 A per phase).

    EN 61000-3-3 Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.

(2) United States (FCC):

  Applicable standard: FCC CFR Title 47 Part 15 Subpart B Section 15.107 and Section 15.109.

    Federal Communications Commission - Electronic Code of Federal Regulations (e-CFR);

    Title 47. Telecommunication; Part 15. Radio frequency devices; Subpart B. Unintentional radiators;

    Section 15.107. Conducted limits and Section 15.109. Radiated emission limits.

(3) Japan (PSE):

  Applicable standard: J55032 (H29) Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

Electromagnetic Compatibility Notices: MASTER FIDELITY **NADAC D** complies with Class B of FCC regulations.

FCC Class B notice

This unit complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This unit may not cause harmful interference.
2. This unit must accept any interference received, including interference that may cause undesired operation.

1.5 Environmental Limits

Parameter Limits

Operating Temperature +5°C to + 45°C with the maximum rate of change not to exceed 10°C per hour.

Non-Operating Temperature -40°C to +70°C.

Non-Operating Humidity 95%, non-condensing @ 30°C.

2. Overview

2.1 Overview

MASTER FIDELITY **NADAC D** represents a break through advancement in true 1-bit decoding technology, leading a revolution in true 1-bit (True 1-bit) digital-to-analog conversion.

In the past decade, DACs targeting the audiophile market have generally chosen between two technical approaches:

1. Using off-the-shelf audio DAC ICs from manufacturers like AKM, ESS, or Cirrus Logic (CS).
2. Building custom designs using FPGAs/CPLDs and discrete components.

Although commercial DAC chips often look excellent on spec sheets, they are usually considered "industrial-grade products." This is because they must cater to a broad market and are constrained by both semiconductor manufacturing limits and cost-efficiency balance, making them unable to achieve the ultimate performance sought in extreme audiophile designs.

Designs using FPGA/CPLD discrete components can ignore cost and leverage powerful high-density logic chips. However, when it comes to converting digital signals to analog, they often require low-density, high-performance logic circuits suitable for audio applications (i.e., "discrete chips"). In reality, no semiconductor manufacturers are willing to produce such specialized "discrete chips" solely for the HiFi industry due to volume constraints.

Therefore, development in both approaches has been effectively stalled by market demand limits.

MASTER FIDELITY **NADAC D** as a truly native 1-bit DAC, overcomes all these limitations.

Firstly, MASTER FIDELITY adopts a true 1-bit solution, which relies heavily on hardware performance - particularly clock precision, power quality, and other high-quality components. To this end, MASTER FIDELITY developed a custom integrated circuit (ASIC) exclusively for Hi-End DACs. By investing without compromise in IC design, **NADAC D** achieves an ideal state in both theoretical technology and manufacturing implementation, resulting in a truly superb solution for 1-bit audio digital-to-analog conversion and delivering extraordinary sound quality.

Advantages of True 1-bit technology include: Exceptional linearity. Traditional multi-bit DACs, such as 5-bit (AKM), 6-bit (ESS), or 20-bit R2R (TI), inherently suffer from linearity issues. Even today's flagship commercial DAC chips, while significantly improved, still exhibit minor non-linearities.

Naturally, true 1-bit DACs also face significant challenges:

1. They rely heavily on sophisticated algorithms. Excellent 1-bit signal processing (SDM) requires advanced mathematical expertise. MASTER FIDELITY's rich experience in algorithm development enables them to meet this challenge successfully.

2. Extremely high clock accuracy and power quality are required. MASTER FIDELITY has designed a thermostatically controlled power supply specifically for **NADAC D** to ensure clock precision and achieve optimal audio performance.

3. The biggest challenge lies in the lack of suitable components for constructing a true 1-bit DAC. MASTER FIDELITY has fundamentally solved this problem with a custom-designed audio chip exclusively for **NADAC D**.

Highlights of **NADAC D**'s circuit design:

● Enhanced clock system: Whether working with USB audio clocks or AES/SPDIF recovered clocks, **NADAC D** delivers outstanding clock performance. When using the USB audio interface, **NADAC D** can accept an external high-precision 10 MHz clock (e.g., **NADAC C**) to further improve sound quality. MASTER FIDELITY employs a dual-stage frequency synthesis technique to ensure frequency accuracy and significantly reduce jitter, achieving uncompromising sound quality. When using AES/SPDIF inputs, **NADAC D** employs an advanced digital-domain clock data recovery system (ADD-CDR). Traditional analog clock recovery systems cannot handle low-frequency jitter, whereas MASTER FIDELITY's ADD-CDR reduces jitter down to 1 Hz, effectively eliminating jitter across the entire audio bandwidth for optimal audio quality.

● Enhanced Amanero USB audio interface: **NADAC D** uses an Amanero-based USB solution, well-known in the HiFi community. MASTER FIDELITY has implemented extensive hardware and software optimizations, enabling support for PCM up to 32-bit / 384 kHz and native DSD512.

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● MASTER FIDELITY Super Isolation Unit: In digital-analog hybrid systems, isolation units are commonly used to improve audio quality. While magnetic (GMR) and capacitive (OOK) isolation technologies are widespread due to low cost and convenience, they produce residual jitter up to 2 ns, potentially compromising audio performance despite isolating noise. MASTER FIDELITY's Super Isolation Unit employs custom-designed ASICs, reducing jitter to 110 femtoseconds and delivering superior sound quality.

● Hybrid, thermostatic power supply reference system: **NADAC D** employs a hybrid power system - linear transformer-based supplies for analog circuits and high-quality switching power supplies with multi-stage linear voltage regulation for digital circuits. While thermostatic control is widely known for oscillators, power supplies themselves are also temperature-sensitive. To ensure optimal DAC performance, MASTER FIDELITY has designed an instrument-grade thermostatic reference system specifically for **NADAC D**.

Through these comprehensive efforts, MASTER FIDELITY demonstrates its commitment to innovation, design excellence, and manufacturing quality in developing **NADAC D**.

It is our hope that **NADAC D** will bring a new level of musical enjoyment to your listening experience.

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3. Front Panel

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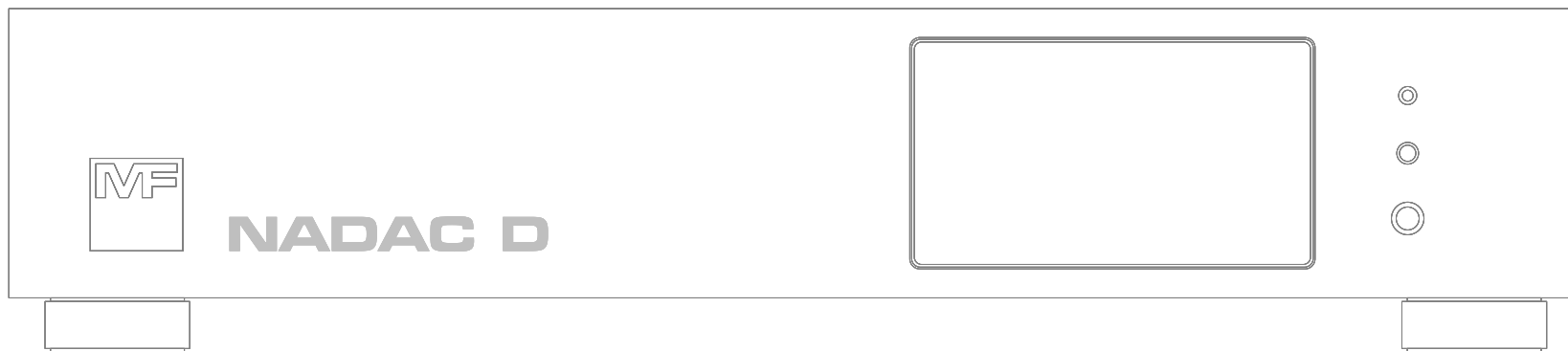
3.1 Touch Screen

① **Touch Screen**

All operational sates, parameter settings, and user interactions of the **NADAC D** are conducted through this touch screen.

3.2 Headphones Output Port

② **Unbalanced stereo headphones output port**

6.35mm TRS connector, output impedance of 1 ohm, used for plugging in unbalanced stereo headphones.

③ **Balanced stereo headphones output port**

4.4mm Mini headphones connector, output impedance of 1 ohm, used for plugging in balanced stereo headphones.

3.3 Infrared Remote Control Receiver

④ **Infrared remote control receiver**

An infrared receiving sensor, used to receive remote control signals emitted by the Infrared Remote Controller provided with the **NADAC D**.

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NADAC D
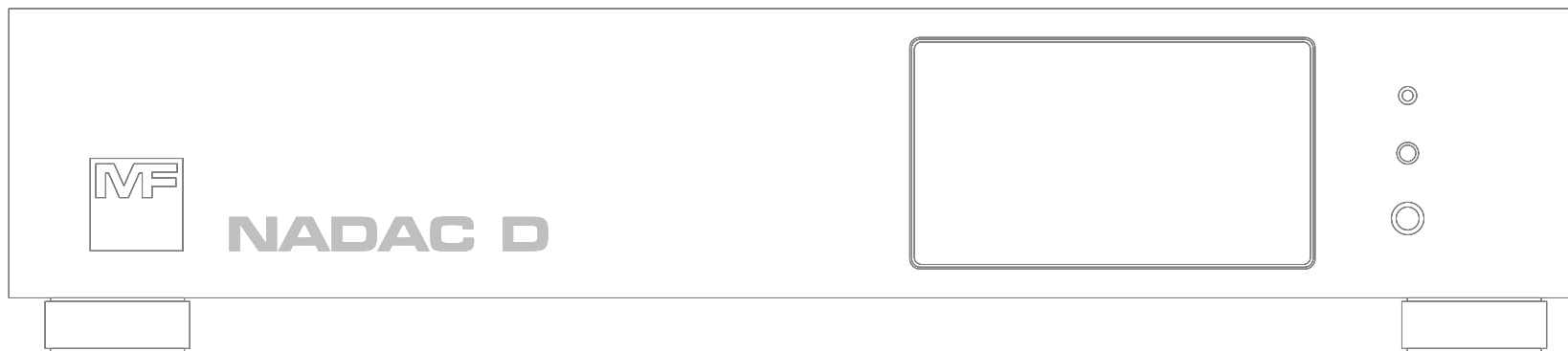
4. Rear Panel

4.1 AC Power Connector, AC Input Voltage Selector, AC Power Switch, and Fuse

① **AC power connector, AC power input voltage Selector, AC power switch, and fuse.**

Compliant with IEC 60320 C14 standards, equipped with an input voltage selector, power switch, and a single fuse for the AC power input socket.

The AC input voltage ranges from 100 V to 120 V or 200 V to 240 V, with a frequency of 50 or 60 Hz.

The type of fuse is a slow-blow, with dimensions of 5 x 20 mm.

4.2 Analog Audio Output Connector

② **Stereo balanced output connector**

The output uses a pair of XLR-3-M connectors, providing balanced transmission.

③ **Stereo unbalanced output connector**

The output uses a pair of RCA (phono) connectors, providing unbalanced transmission.

④ ⑤

4.2 Digital Audio Input Connector

④ **RAVENNA input connector**

This is a reserved optional network interface for future use. Currently, it is covered by a blank panel.
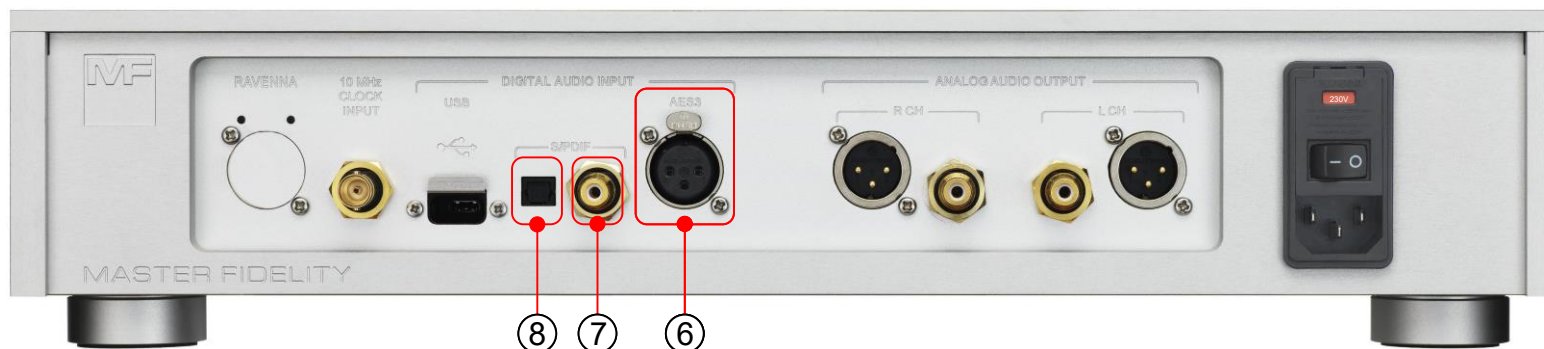
⑤ **USB input connector**

The connector specification is USB Type-C 2.0. Supported digital audio formats and sampling rates include:

PCM digital audio: 44.1 kHz / 88.2 kHz / 176.4 kHz / 352.8 kHz, 16 bit / 24 bit / 32 bit;

48 kHz / 96 kHz / 192 kHz / 384 kHz, 16 bit / 24 bit / 32 bit.

DSD digital audio: 2.8224 MHz (DSD64) / 5.6448 MHz (DSD128) / 11.2896 MHz (DSD256) /

22.5792 MHz (DSD512), 1 bit.

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⑥ AES3 balanced input connector

The connector specification is XLR-3-F, impedance 110 ohm, for balanced transmission. Supported digital audio formats and sampling rates include:

PCM digital audio: 44.1 kHz / 88.2 kHz / 176.4 kHz, 16 bit / 24 bit;
48 kHz / 96 kHz / 192 kHz, 16 bit / 24 bit.

DoP digital audio: DoP64, 16 bit / 24 bit.

⑦ S/PDIF coaxial input connector

The connector specification is RCA (Phono), impedance 75 ohm, for coaxial transmission. Supported digital audio formats and sampling rates include:

PCM digital audio: 44.1 kHz / 88.2 kHz / 176.4 kHz, 16 bit / 24 bit;
48 kHz / 96 kHz / 192 kHz, 16 bit / 24 bit.

DoP digital audio: DoP64, 16 bit / 24 bit.

⑧ S/PDIF optical input connector

The connector specification is TosLink, for optical transmission. Supported digital audio formats and sampling rates include:

PCM digital audio: 44.1 kHz / 88.2 kHz / 176.4 kHz, 16 bit / 24 bit;
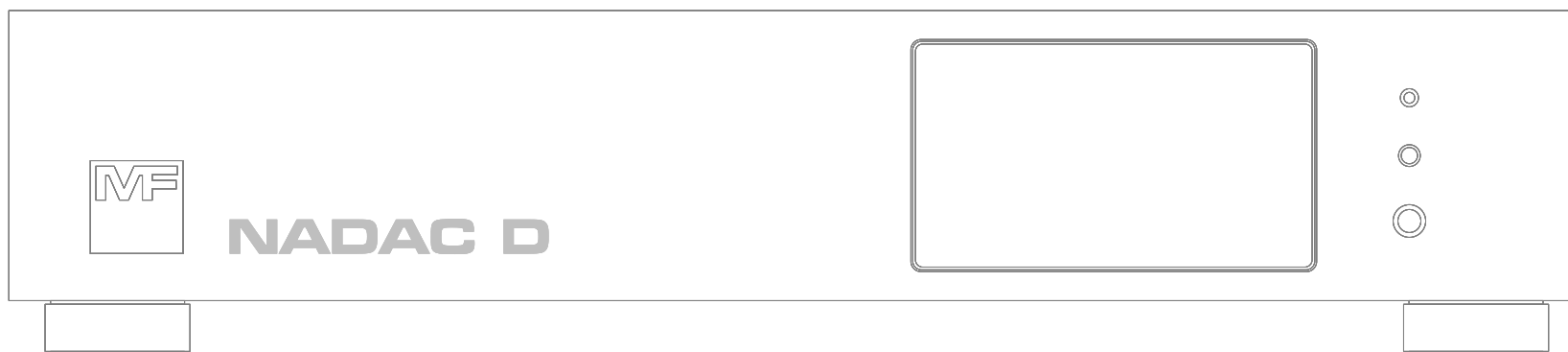48 kHz / 96 kHz / 192 kHz, 16 bit / 24 bit.

DoP digital audio: DoP64, 16 bit / 24 bit.

⑨

4.4 10 MHz Clock Input Connector

⑨ **10 MHz clock input connector**

The connector specification is BNC, with an impedance of 50 ohms and is also compatible with 75 ohm impedance.

5. Touch Screen and Display Pages
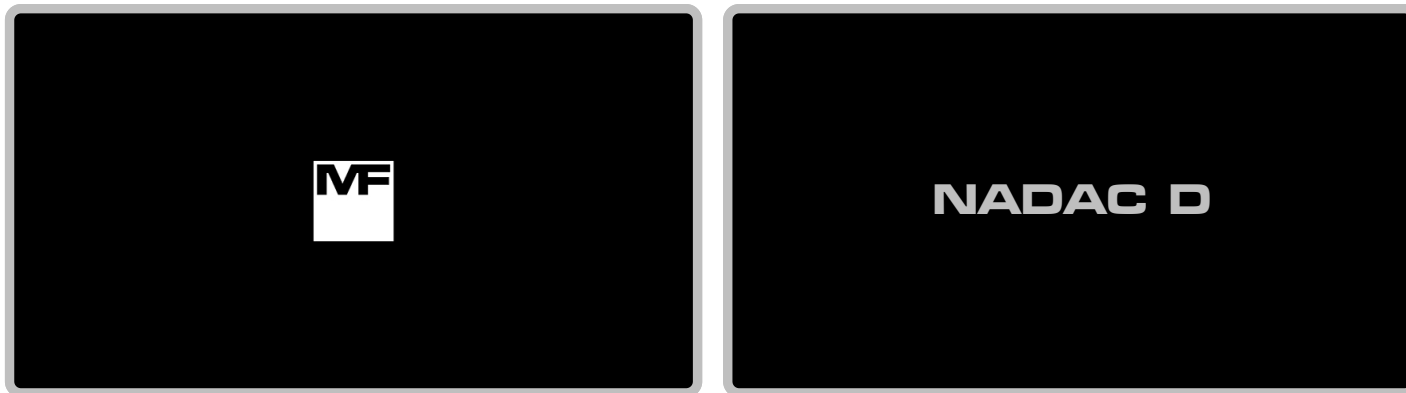
5.1 Touch Screen

The display screen used by **NADAC D** is a 5-inch color LCD touch screen, with a display area of 109.5 (width) x 61.5 (height) mm, and a pixel matrix of 854 (RGB) x 480.

5.2 Display Pages of the Touch Screen

The display of the **NADAC D** touch screen is divided into a power-on page, warm-up page, working page, and settings page.

5.2.1 Power-On Pages

Upon power-up, the **NADAC D** briefly displays the power-on pages consisting of the company logo and product name. Each of these two pages appears for approximately three seconds.

5.2.2 Warm-Up Pages

After the power-on page, the touch screen enters the warm-up page. The warm-up page is divided into an initial warm- up page and a gradual warm-up page, indicating the two stages of the complete warm-up process.

5.2.2.1 Initial Warm-Up Page

Under this page, **NADAC D** is in the initial warm-up period after starting up.
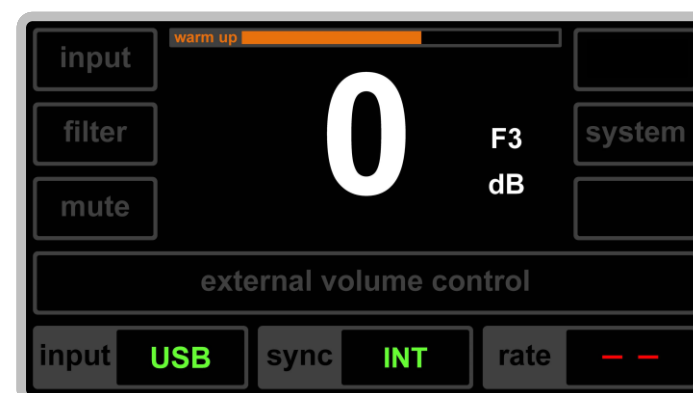
5.2.2.2 Gradual Warm-Up Page

The gradual warm-up page is formed by overlaying the gradual warm-up progress bar on top of the working page of **NADAC D**.

When transitioning from the initial warm-up phase to the gradual warm-up phase, the gradual warm-up progress bar may be overlaid on any one of the following three Working Pages, forming the gradual warm-up page display.

Line (speakers) Output in Internal Volume Control Mode

Line (speakers) Output in External Volume Control Mode

Headphones Output in Internal Volume Control Mode

Which specific working page the progress bar overlays depends on the working page setting stored in memory during the previous power-off.

5. Touch Screen and Display Pages

Under the gradual warm-up page, **NADAC D** will be in the process of gradually stabilizing. During this period, all functions of **NADAC D** can be operated and used.

Note: Although **NADAC D** can be used for playback during the gradually stabilizing warm-up period, the sound quality at this stage will differ noticeably from the performance achieved once it reaches its normal operating state.

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5.2.3 Working Page

After completing the power-on, initial warm-up, and gradual warm-up, the touch screen transitions to the working page.

The working page is the normal page for **NADAC D**, divided into internal volume control mode and external volume control mode based on different volume control settings.

5.2.3.1 Internal Volume Control Mode Working Page

Internal volume control mode is where volume adjustment is made using **NADAC D**'s internal volume controller.

This mode has separate working pages for **line (speakers)** output and **headphones** output.

**Internal Volume Control Mode Working Page
for Line (speakers) Output**
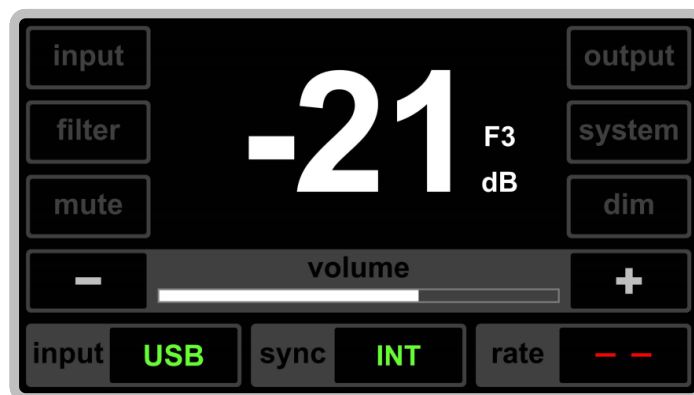
**Internal Volume Control Mode Working Page
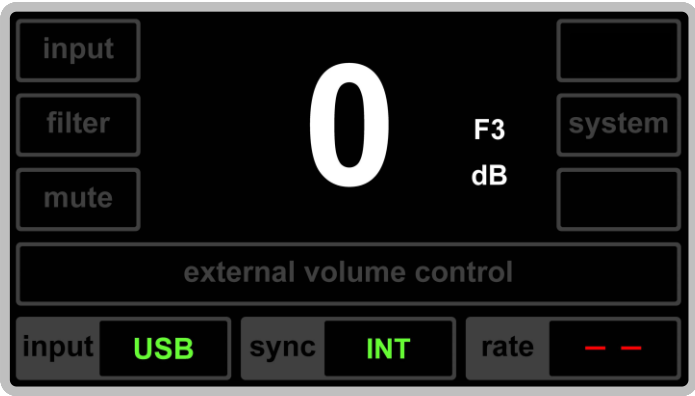for headphones Output**

5.2.3.2 External Volume Control Mode Working Page

External Volume Control Mode is intended for users who have an external, independent preamplifier. In this mode, **NADAC D**'s internal volume controller is bypassed, and the unit outputs audio at a fixed level of 0 dB without attenuation.
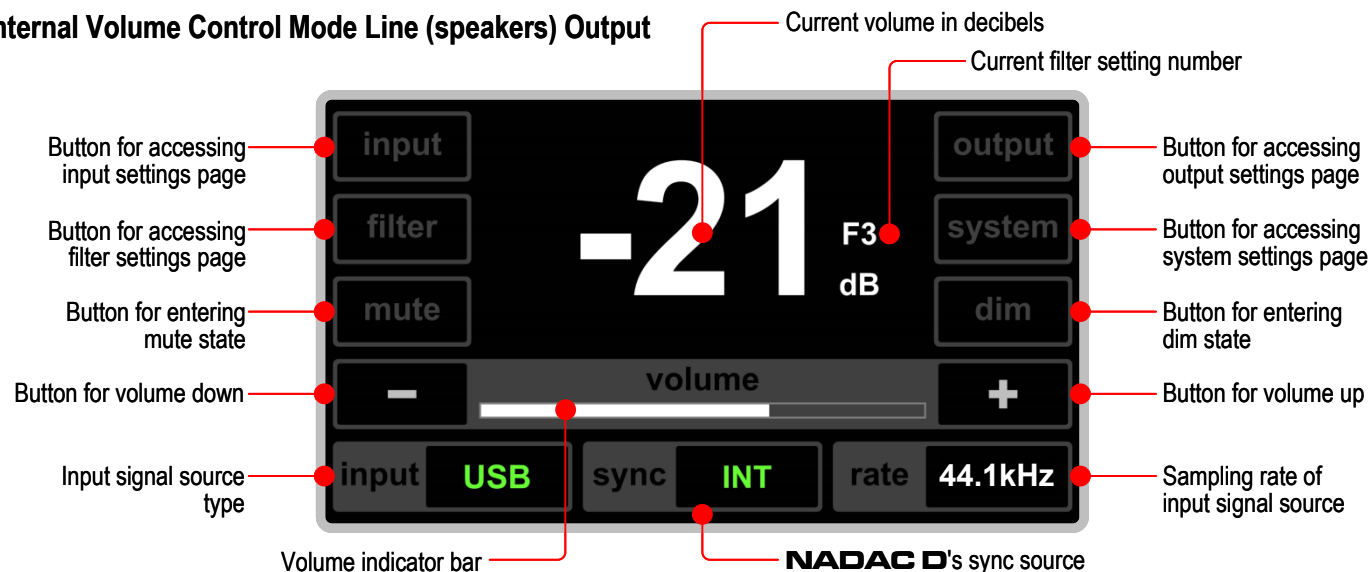
This mode is applicable only to the working page for **line (speakers)** output.

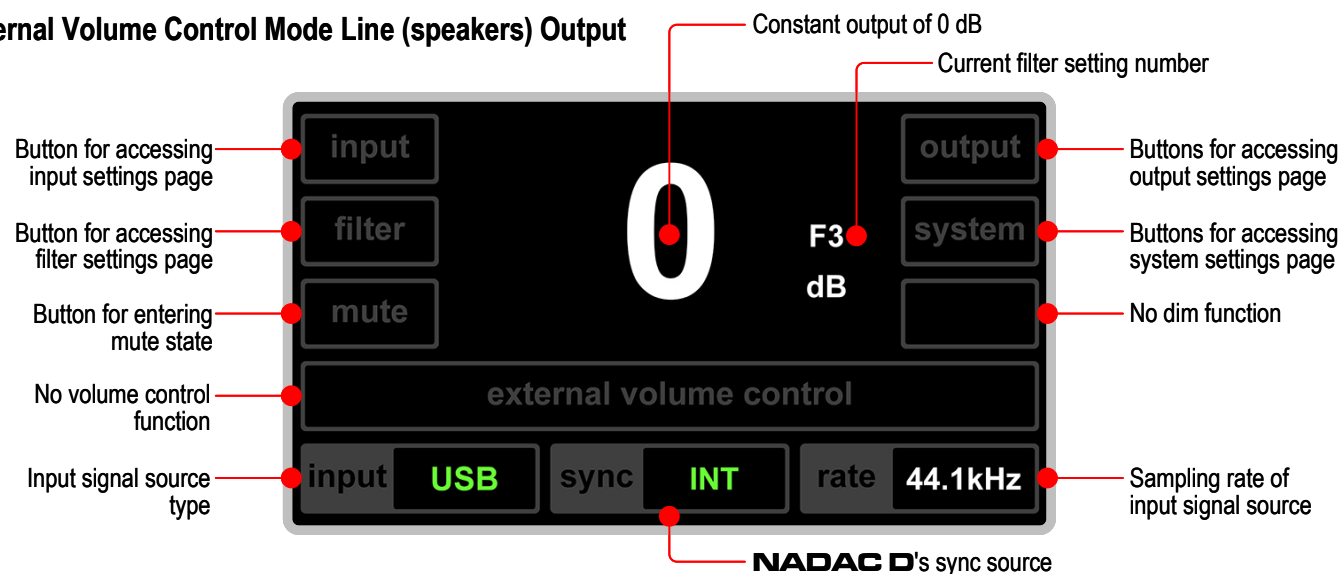**External Volume Control Mode Working Page**

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5.2.3.3 Composition and Function of Working Page

Internal Volume Control Mode Line (speakers) Output

Current volume in decibels

Current filter setting number

Button for accessing input settings page → input

Button for accessing filter settings page → filter

Button for entering mute state → mute

Button for volume down → **–**

Input signal source type → input **USB**

Volume indicator bar

-21 F3 dB

output ← Button for accessing output settings page

system ← Button for accessing system settings page

dim ← Button for entering dim state

volume **+** ← Button for volume up

sync **INT** rate **44.1kHz** ← Sampling rate of input signal source

NADAC D's sync source

External Volume Control Mode Line (speakers) Output

Constant output of 0 dB

Current filter setting number

Button for accessing input settings page → input

Button for accessing filter settings page → filter

Button for entering mute state → mute

No volume control function →

Input signal source type → input **USB**

0 F3 dB

output ← Buttons for accessing output settings page

system ← Buttons for accessing system settings page

← No dim function

external volume control

sync **INT** rate **44.1kHz** ← Sampling rate of input signal source

NADAC D's sync source

Note: For headphones output, only the internal volume control mode working page is available.
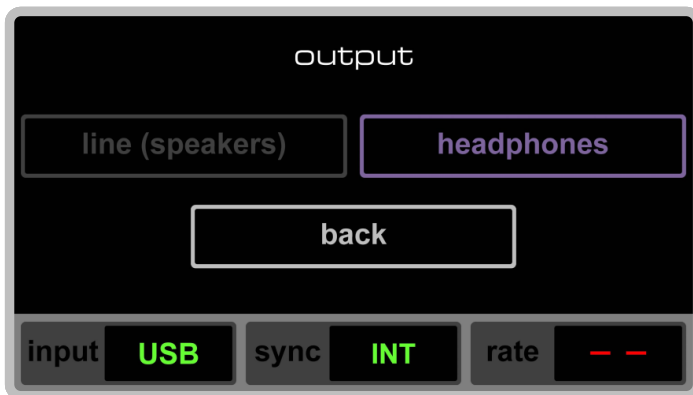
5.2.4 Settings Pages

5.2.4.1 Input Settings Page
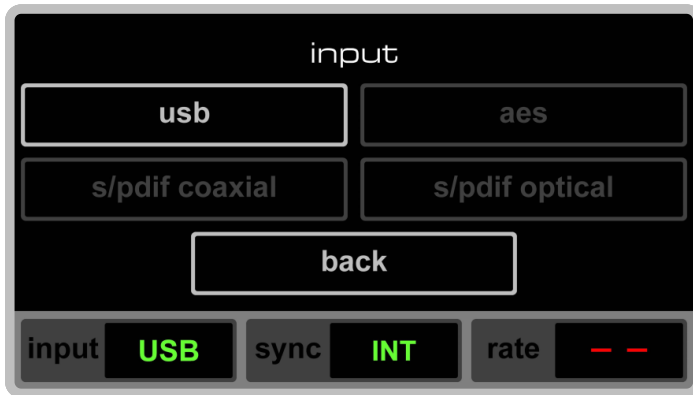
The ınput settings page is accessed by tapping the **input** button on the working page.

This page is used to select the input source (i.e., to set the signal input port).
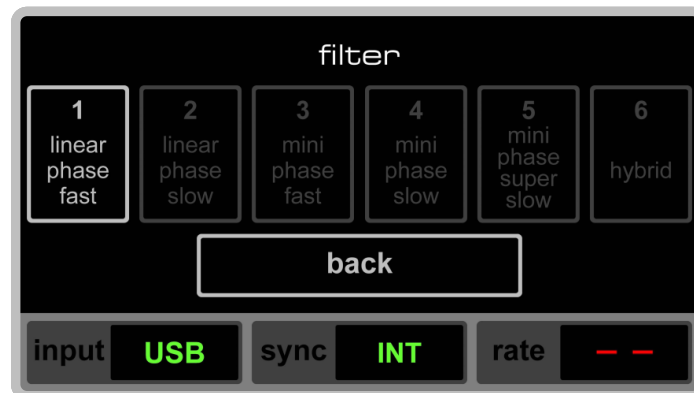
5.2.4.2 Output Settings Page

The output settings page is accessed by tapping the **output** button on the working page.

This page is used to select whether the output will be set to **line (speakers)** or **headphones**.

Note: In **external volume control** mode, only **line (speakers)** output is available; **headphones** output cannot be selected.
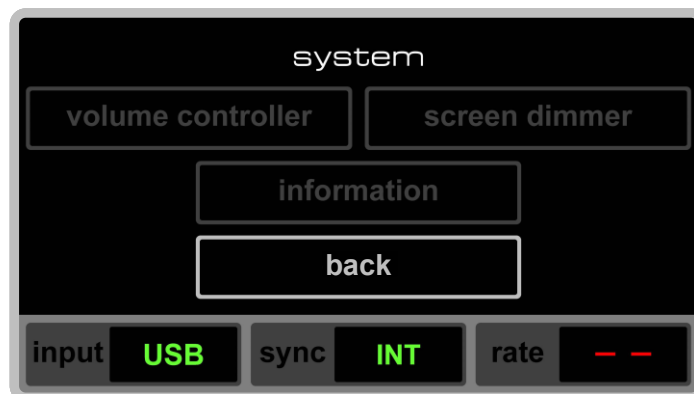
5.2.4.3 Filter Settings Page

The filter setting page is accessed by tapping the **filter** button on the working page.

This page offers a selection of six filters, each with different characteristics.

Note: Filter selection and settings are effective only for digital audio signals in PCM format.

5.2.4.4 System Settings Page

The system setting page is accessed by tapping the **system** button on the working page.

From this page, you can choose to enter any of the three subpages under system settings: the **volume controller** subpage, the **screen dimmer** subpage, and the **information** subpage.

### 5.2.4.5 Subpages Under the System Settings Page

5.2.4.5.1 Volume Controller Subpage
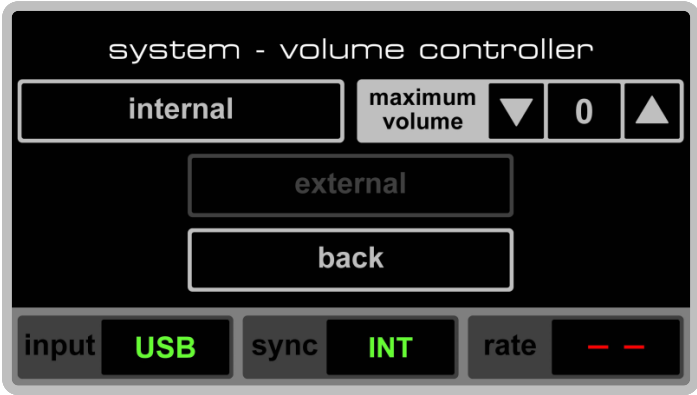
On the system-volume controller subpage, you can choose and set whether **NADAC D** uses its internal volume controller, an external independent volume controller, or a preamplifier for volume control. Additionally, when choosing to use the internal volume controller, you can also set a maximum volume limit for it.

You can enter the system-volume controller subpage from any of the four input sources.

5.2.4.5.2 Screen Dimmer Subpage
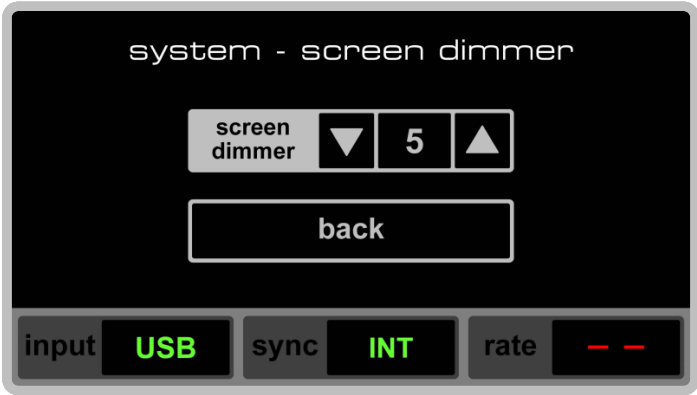
On the system-screen dimmer subpage, you can adjust and set the brightness of **NADAC D**'s screen.

You can enter the system-screen dimmer subpage from any of the four input sources.

5.2.5 Three Current Operation Status Display Panes

At the bottom of the screen, there are three operation status display panes, arranged from left to right as follows:

● **input** – Displays the current input setting.

● **sync** – Displays the status of the current synchronization source.

● **rate** – Displays the signal format and sampling rate of the currently playing audio.

These three panes are consistently displayed on all pages—whether working pages or settings pages - and remain unchanged.
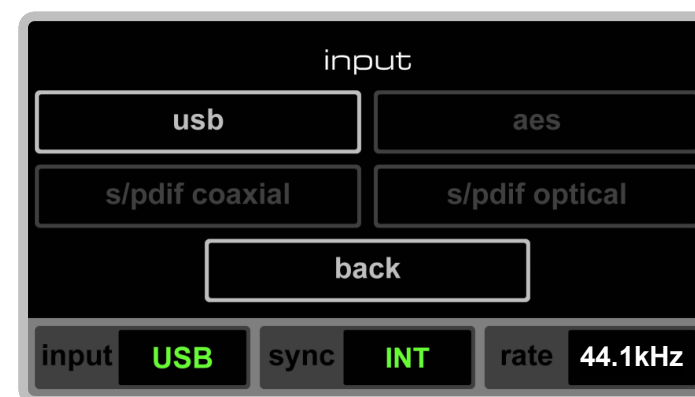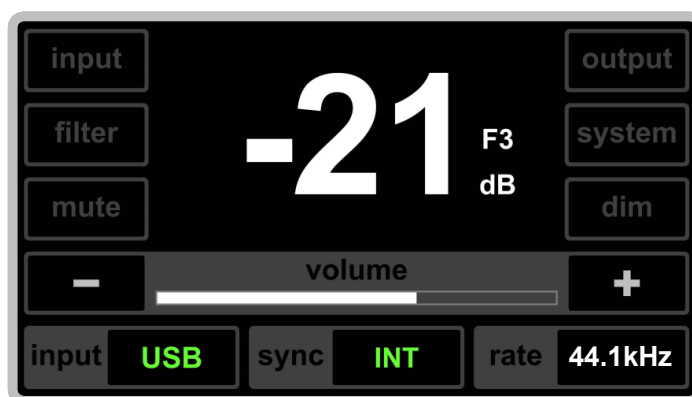
5.2.5.1 Information displayed in the three current working status boxes during USB input

input **USB**   sync **INT**   rate **44.1kHz**

input

Input Port	Signal Source Status	Input Display Box	Signal Format	Sampling Rate
USB	Normal	USB	PCM	44.1 kHz 88.2 kHz 176.4 kHz
USB	Normal	USB	DXD	352.8 kHz and above
USB	Normal	USB	PCM	48 kHz 96 kHz 192 kHz 384 kHz
USB	Normal	USB	DSD	2.8224 MHz 5.6448 MHz 11.2896 MHz 22.5792 MHz
USB	Normal	USB	DSD	3.072 MHz 6.144 MHz 12.288 MHz 24.576 MHz
USB	Not Played or not connected or open circuit or short circuit	USB	Nothing	Nothing

sync

External 10MHz Clock Status	Sync Source Status	Sync Display Box
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT
Connected and normal	External	EXT
Not connected or open circuit or short circuit	Automatically switch to internal	INT

rate

Sampling Rate Display Box
44.1kHz 88.2kHz 176.4kHz
352.8kHz
48kHz 96kHz 192kHz 384kHz
2.8MHz 5.6MHz 11.2MHz 22.5MHz
3.0MHz 6.1MHz 12.2MHz 24.5MHz
--

5.2.5.2 Information displayed in the three current working status boxes during AES input

input AES sync AES rate 44.1kHz

input

Input Port	Signal Source Status	Input Display Box	Signal Format	Sampling Rate
AES3 (AES/EBU)	Normal	AES	PCM	44.1 kHz / 88.2 kHz / 176.4 kHz
				48 kHz / 96 kHz / 192 kHz
				352.8 kHz and above
			DoP	2.8224 MHz
				5.6448 MHz and above
	Not connected or open circuit or short circuit		Nothing	Nothing

sync

External 10MHz Clock Status	Sync Source Status	Sync Display Box
With clock not related	Automatically lock to input signal	AES
	Unable to lock with input signal	U/L
	Automatically lock to input signal	AES
	Unable to lock with input signal	U/L
	Unable to lock with input signal	U/L

rate

Sampling Rate Display Box
44.1kHz
88.2kHz
176.4kHz
48kHz
96kHz
192kHz
– –
2.8MHz
– –
– –

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5.2.5.3 Information displayed in the three current working status boxes during S/PDIF Coaxial input

input **COA** sync **COA** rate **44.1kHz**

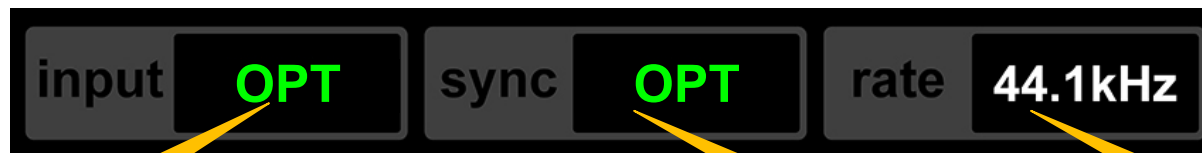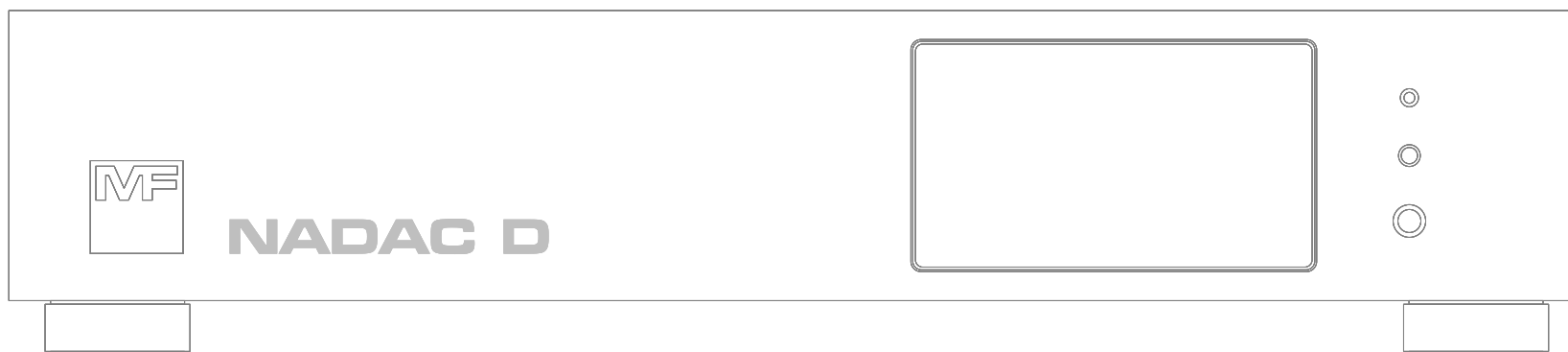| input					sync			rate
Input Port	Signal Source Status	Input Display Box	Signal Format	Sampling Rate	External 10MHz Clock Status	Sync Source Status	Sync Display Box	Sampling Rate Display Box
S/PDIF Coaxial	Normal	**COA**	PCM	44.1 kHz 88.2 kHz 176.4 kHz	With clock not related	Automatically lock to input signal	**COA**	44.1kHz 88.2kHz 176.4kHz
				48 kHz 96 kHz 192 kHz				48kHz 96kHz 192kHz
				352.8 kHz and above		Unable to lock with input signal	**U/L**	− −
			DoP	2.8224 MHz		Automatically lock to input signal	**COA**	2.8MHz
				5.6 MHz and above		Unable to lock with input signal	**U/L**	− −
	Not connected or open circuit or short circuit		Nothing	Nothing		Unable to lock with input signal	**U/L**	− −

5.2.5.4 Information displayed in the three current working status boxes during S/PDIF Optical input

input					sync			rate
Input Port	Signal Source Status	Input Display Box	Signal Format	Sampling Rate	External 10MHz Clock Status	Sync Source Status	Sync Display Box	Sampling Rate Display Box
S/PDIF Optical	Normal	OPT	PCM	44.1 kHz 88.2 kHz 176.4 kHz	With clock not related	Automatically lock to input signal	OPT	44.1kHz 88.2kHz 176.4kHz 48kHz 96kHz 192kHz
				48 kHz 96 kHz 192 kHz				
				352.8 kHz and above		Unable to lock with input signal	U/L	– –
			DoP	2.8224 MHz		Automatically lock to input signal	OPT	2.8MHz
				5.6 MHz and above		Unable to lock with input signal	U/L	– –
	Not connected or open circuit or short circuit		Nothing	Nothing		Unable to lock with input signal	U/L	– –

6. Infrared Remote Controller

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6.1 Infrared Remote Controller

The **NADAC D** is equipped with an infrared remote controller.

① **sby (standby)** — Standby button. Each press of this button switches **NADAC D** between operating mode and listen mode.

Note: On certain remote controls, the **lis** button may be labeled **sby** (standby), but it performs the same function.

② **usb (USB)** — Input source selection button. Pressing this button selects USB as the input source for **NADAC D**.

③ **aes (AES3)** — Input source selection button. Pressing this button selects AES as the input source for **NADAC D**.

④ **coa (coaxial)** — Input source selection button. Pressing this button selects the S/PDIF coaxial as the input source for **NADAC D**.

⑤ **opt (optical)** — Input source selection button. Pressing this button selects the S/PDIF optical as the input source for **NADAC D**.

⑥ **mut (mute)** — Mute button. Each press of this button toggles **NADAC D** between mute and playback.

⑦ **dim (dim)** — Dim button. Each press of this button toggles **NADAC D** between dim and normal volume.

⑧ **vol (volume)** — Volume adjustment button. Pressing the up (or down) volume button repeatedly or holding it down gradually increases (or decreases) **NADAC D**'s volume until reaching the maximum (or minimum) level.

Note: The maximum volume value is either 0 dB or a preset limit, while the minimum volume is –57 dB.

Power for the remote is provided by two 1.5V AAA batteries.
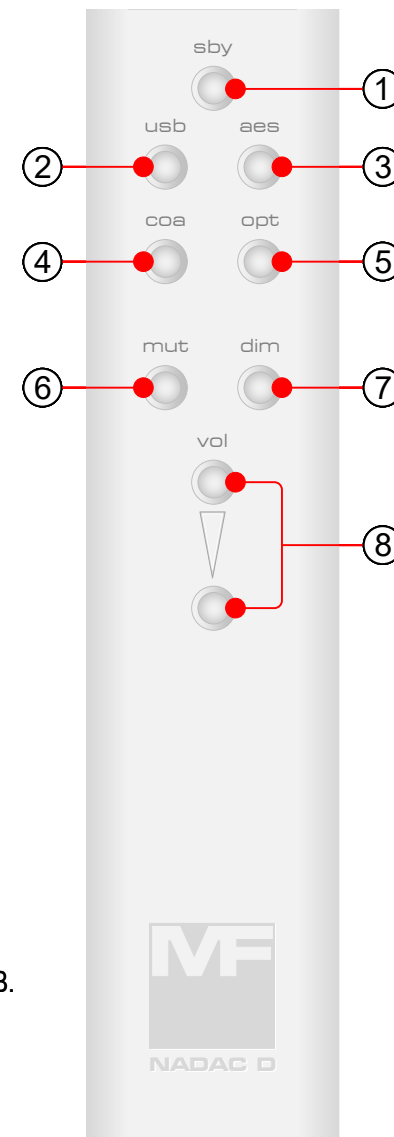
7. Operating

7.1 AC Power
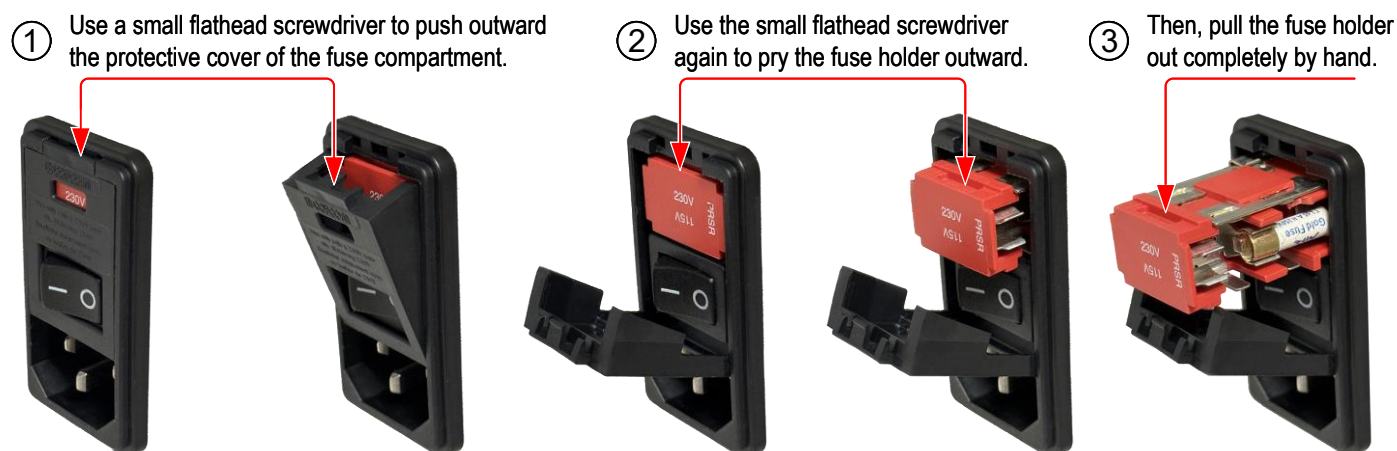
7.1.1 AC Input Voltage Indicator

NADAC D's AC input voltage can be either 100-120 V or 200-240 V. The voltage setting can be selected using the voltage selector located at the rear AC power inlet. Before connecting **NADAC D** to mains power, you must check whether the voltage displayed in the red window on the power inlet matches your country or region's mains voltage. The red window displays "115V" for a voltage range of 100-120 V, and "230V" for a voltage range of 200-240 V. Additionally, every brand-new **NADAC D** unit comes with a factory seal label on the AC power inlet clearly indicating the factory-set input voltage.
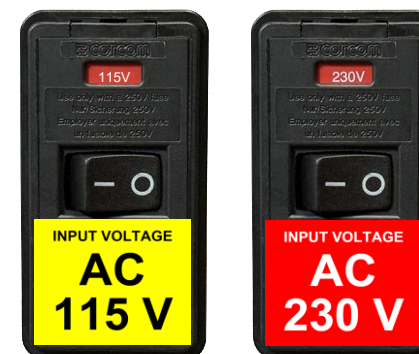
7.1.2 Changing the AC Input Voltage

Important Note: If the voltage setting does not match your local mains voltage, it is necessary to open the power inlet and change the voltage setting. If you are unsure how to perform this operation safely**,** contact your **NADAC D** dealer or a qualified electrical engineer. MASTER FIDELITY will not cover damage caused by incorrect operation under warranty, nor be responsible for electric shock or personal injury resulting from improper handling.

7.1.2.1 Removing the Fuse Holder

① Use a small flathead screwdriver to push outward the protective cover of the fuse compartment.

② Use the small flathead screwdriver again to pry the fuse holder outward.

③ Then, pull the fuse holder out completely by hand.

7.1.2.2 Changing Input Voltage

Changing the input voltage involves repositioning both the fuse and the voltage selection clip inside the fuse holder.

When facing the fuse holder:

For 100-120 V operation, position the fuse holder so that the "115V" mark faces upward. The fuse should be installed on the right side, and the voltage clip on the left side.


For 200-240 V operation, position the fuse holder so that the "230V" mark faces upward. The fuse should be installed on the right side, and the voltage clip on the left side.
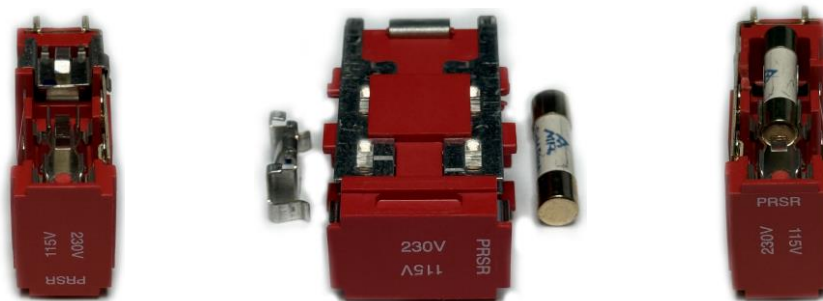
After inserting the fuse and voltage clip correctly and double-checking their positions, insert the fuse holder back into the power inlet, ensuring that the mark faces upward, and push it all the way in. Finally, close the protective cover of the fuse compartment.

7.1.3 Connecting and Powering on the AC Supply

① After confirming that the selected or adjusted AC input voltage setting is correct for your country or region, connect the AC power cable. The end of the AC power cable that connects to **NADAC D** must conform to the IEC-60320 C14 standard. The plug at the other end, which connects to your mains power outlet, must comply with safety regulations in your country or region.

Note: **NADAC D** does not come with a supplied AC power cable.

② Press the power switch on rear panel to turn on the **NADAC D**'s AC power.
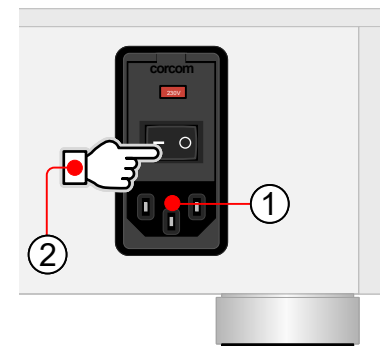
7.2 Power-On Pages
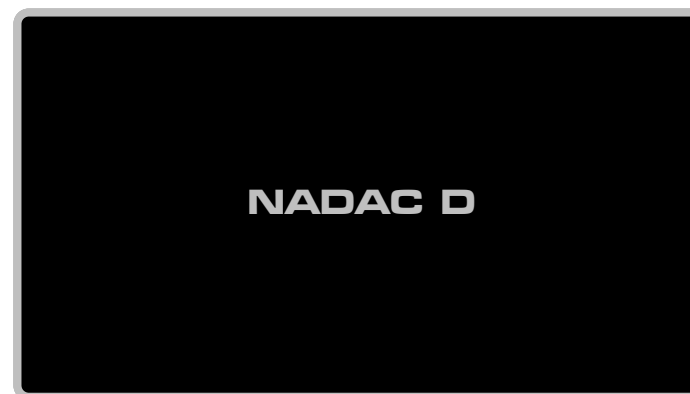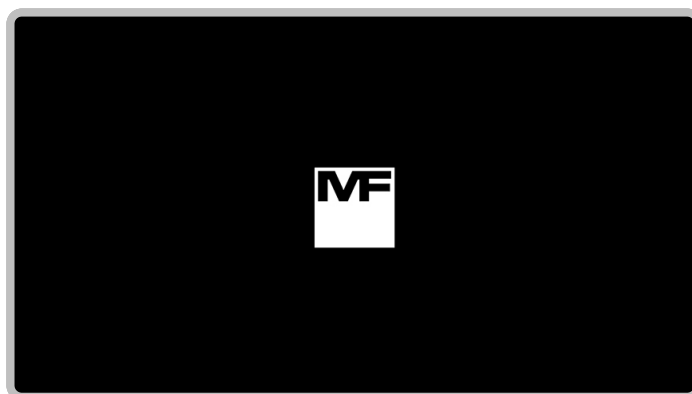
Upon powering on, the power-on pages are displayed. These consist of the company logo and the product name, each shown for approximately 3 seconds.

7.3 Warm-Up

Because **NADAC D** is engineered as an ultra-high-precision and high-performance digital-to-analog converter, its power supply for the digital-to-analog conversion module is designed as a thermostatic power supply. This design provides strong support and a solid foundation for **NADAC D**'s low noise specifications and exceptional sound quality.

Due to the presence of the thermostatic power supply, **NADAC D** requires a warm-up period after powering on.

This warm-up consists of two stages: the initial warm-up stage and the gradual warm-up stage.

7.3.1 Initial Warm-Up

After the power-on pages are displayed, **NADAC D**'s power supply enters the initial warm-up stage, which lasts approximately two minutes. During this period, the screen displays the initial warm-up page.

7.3.2 Gradual Warm-Up

Once the initial warm-up is complete, the power supply enters the gradual warm-up stage. This gradual warm-up stage refers to the period from the end of the initial warm-up until the thermostatic power supply reaches thermal stability.

Note: Although **NADAC D** is capable of audio playback during the gradual warm-up stage, its sound quality may not yet have reached its optimal performance, as the output of the thermostatic power supply is still stabilizing.

During the gradual warm-up stage, the display transitions to the gradual warm-up page, which overlays an orange progress bar across the top of the current operation screen.

The duration of the gradual warm-up stage depends on the ambient temperature surrounding **NADAC D**. Under typical room temperature conditions (approximately 25°C), this period is around 15 minutes. When the orange warm-up progress bar reaches the far right end, **NADAC D** has entered its fully operational state.

Note: The working page that appears during the gradual stabilization warm-up phase will be the same as the one that was active when the device was last shut down, along with all previously stored settings - such as volume control mode, volume level, input, output, digital filter, screen brightness, etc. Therefore, this working page may display either internal volume control mode or external volume control mode, and the output may be set to either line (speakers) or the headphones.
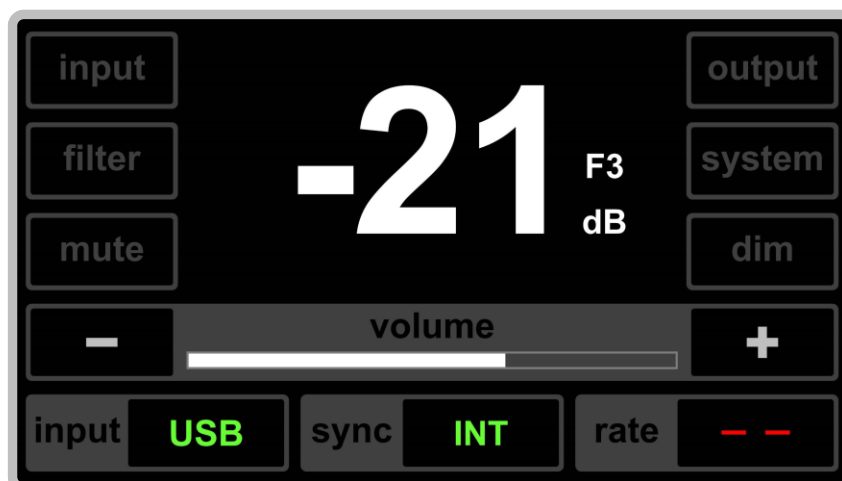
After the gradual warm-up is completed, the progress bar disappears and **NADAC D** enters normal working state.

7.4 Volume Control

7.4.1 Modes of Volume Control

The **NADAC D** offers three modes of volume control:

1. Internal mode - using **NADAC D**'s internal volume controller;

2. External mode - using an external volume controller or preamplifier (provided by user);

3. Remote control mode using the infrared remote controller in internal volume control mode.

7.4.1.1 Internal Volume Control Mode

This mode uses **NADAC D**'s internal volume controller for adjusting the output volume. In this mode, the volume control for line (speakers) or headphones is the same.

Internal Volume Control Mode
Line (speakers) Output Working Page
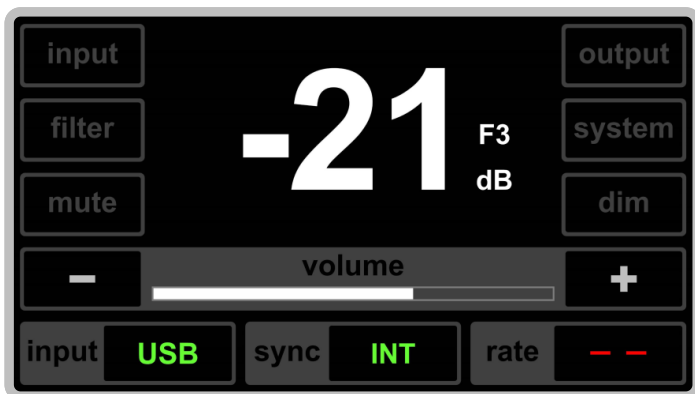
Internal Volume Control Mode
Headphones Output Working Page

7.4.1.1.1 Adjust Volume Using Touch Screen

Adjustment for Line (speakers) Output Volume
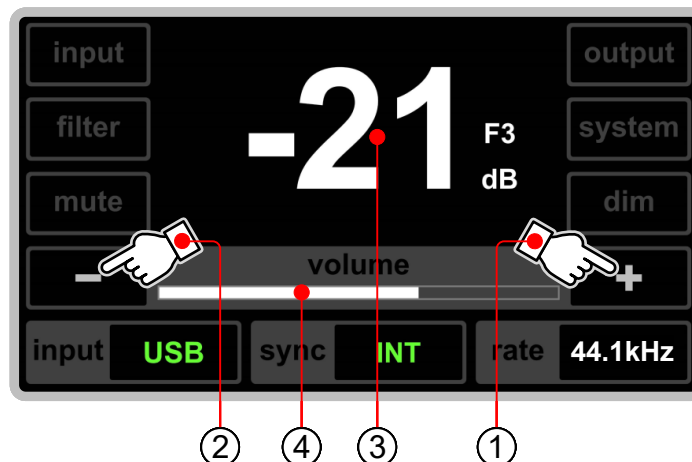
Adjustment for Headphones Output Volume
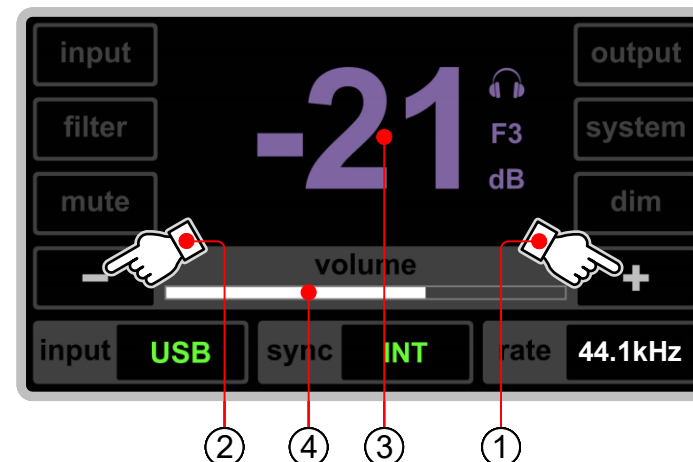
① Increase volume using the + button at the right end of the volume indicator bar. Each tap increases the volume by one step. You can also keep pressing the + button to continuously increase the volume until you either release the button or reach the maximum value.

② Decrease volume using the - button at the left end of the volume indicator bar. Each tap decreases the volume by one step. You can also keep pressing the - button to continuously decrease the volume until you release the button or reach the minimum value.

③ The large number displayed in the center of the screen represents the volume in decibels (dB). The dB value changes as you adjust the volume. Its range varies from -57 dB (minimum volume) to 0 dB (maximum volume), with a total of twenty steps of 3 dB each for increasing or decreasing the volume.

④ The volume indicator bar on the screen is divided into twenty segments, displaying the change in volume from low to high from left to right synchronously.

7.4.1.1.2 Adjust Volume Using Infrared Remote Controller

⑤ Increase volume using the upper button of vol on the remote controller. Each press increases the volume by one step. You can also press and hold this button to continuously increase the volume until you release the button or reach the maximum value.

⑥ Decrease volume using the lower button of vol on the remote controller. Each press decreases the volume by one step. You can also press and hold this button to continuously decrease the volume until you release the button or reach the minimum value.

When adjusting the volume step by step or continuously using the infrared remote controller, the changes in the volume dB value and volume indicator bar on the screen are identical to those when operating via the touchscreen.
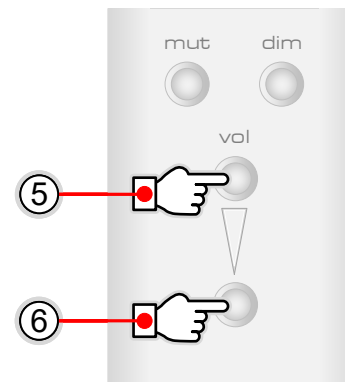
7.4.1.2 External Volume Control Mode

The external volume control mode is designed for users who already have a volume controller or preamplifier in their sound system. In this mode, the internal volume controller of the **NADAC D** is bypassed, and the output is at 0 dB. This means that in this mode, the **NADAC D** does not have volume control functionality and outputs at its maximum unattenuated volume. Therefore, the volume value in the center of the screen will always display as 0 dB.

External Volume Control Mode Working Page
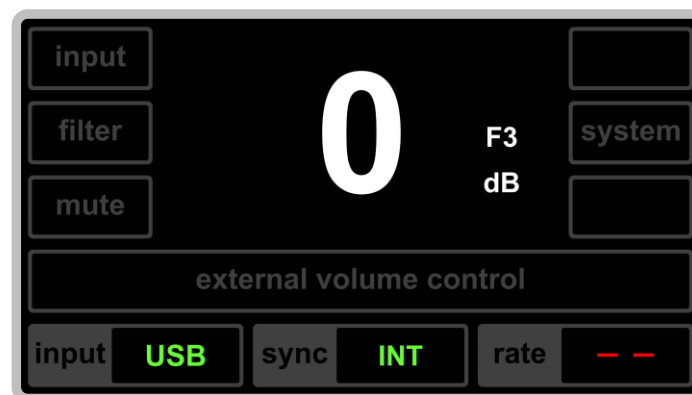
Only **line (speakers)** output can be configured to use external volume control mode.

In external volume control mode, since volume is controlled externally, the infrared remote control does not provide volume adjustment functionality.

In this mode, pressing the vol volume buttons on the remote control will display an ⊘ (operation unavailable) prompt on the screen for 1 second, as shown in the right figure.
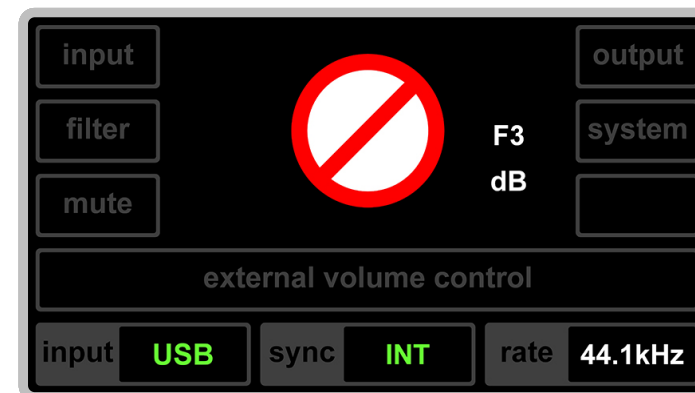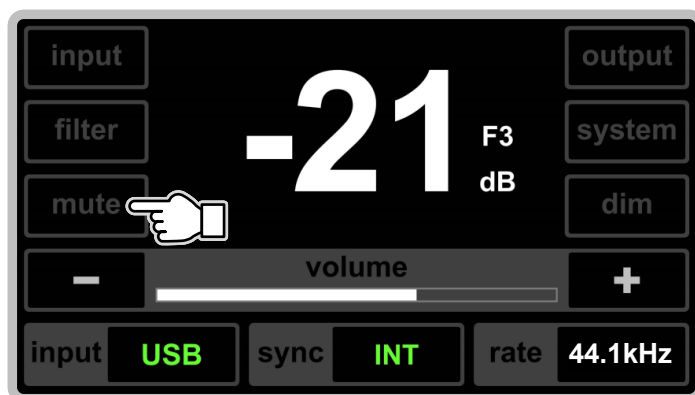
7.5 Mute

In mute state, the input signal is completely blocked from being sent to the output ports.

Note: When the entire sound system is powered on, placing the **NADAC D** in mute state for plugging and unplugging the input signal cable is the safest practice to protect the system.

7.5.1 Entering and Exiting Mute

Tap the mute button on any working page, or press the mut button on the Infrared Remote Controller, and the **NADAC D** will immediately enter mute state.
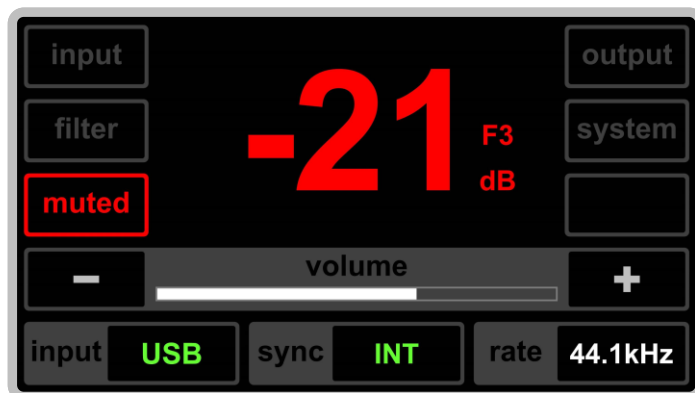
At this time, the volume dB value in the center of the screen remains unchanged but turns red. The border and text of the mute button on the page also turn red, and the text changes to muted.

Since the dim function is not applicable in mute state, the dim text in the right side dim button frame disappears when entering the mute working page.
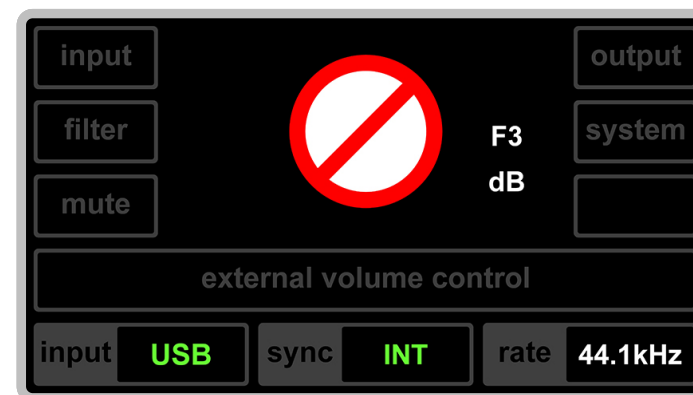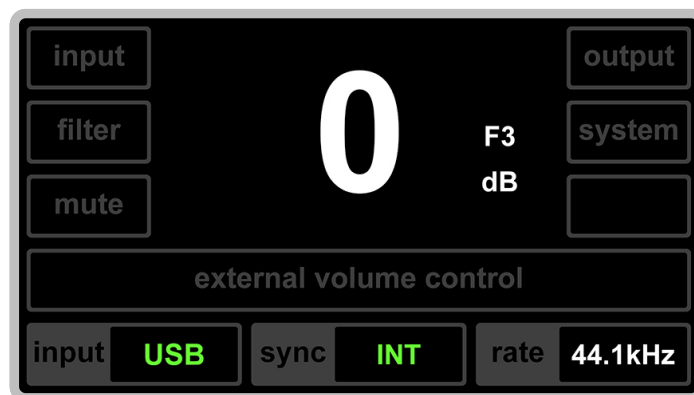
To unmute, simply tap the muted button on the page again or press the mut button on the Infrared Remote Controller, and the mute will be immediately released.

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7.6 Dim

Tapping the dim button immediately reduces the playback volume by a preset amount. In **NADAC D**, this preset value is -20 dB.

Explanation: Dim is a very practical feature. For example, when listening to music and needing to answer a phone call or have a brief conversation, you can use the dim function to reduce the current volume by 20 dB. After the conversation, pressing the dim button again immediately restores the volume to its level before dim.

Note: The dim function is only available in internal volume control mode. In external volume control mode, there is no text in the dim button frame (left figure below), and it has no functionality. Pressing the dim button on the remote control in external mode will display an 🚫 (operation unavailable) prompt for 1 second (right figure below).

7.6.1 Entering and Exiting Dim
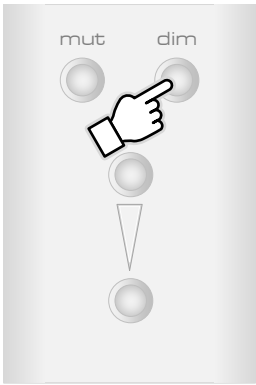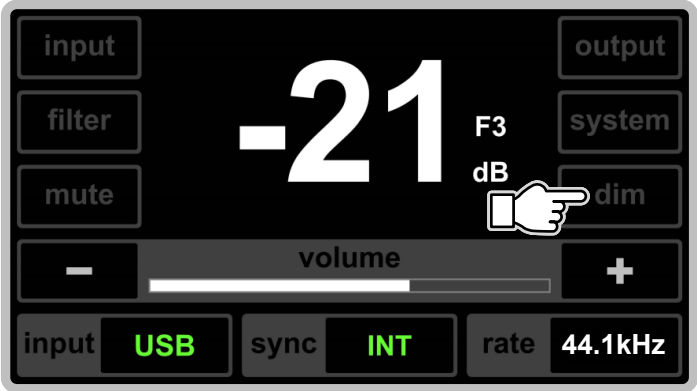
Tap the **dim** button on the internal volume control mode working page, or press the dim button on the Infrared Remote Controller, and the **NADAC D** will immediately enter dim state.
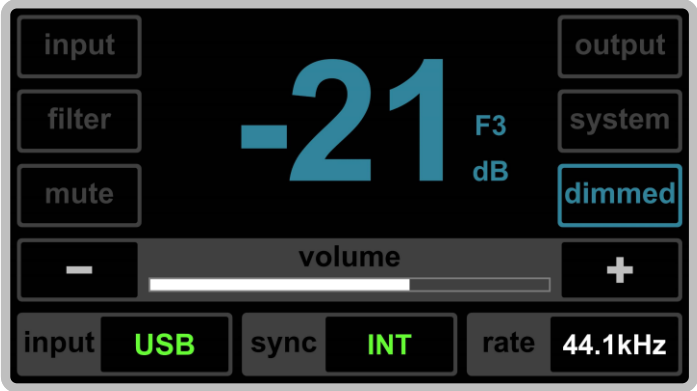
At this time, the volume dB value in the center of the screen remains unchanged but turns blue-gray. The border and text of the dim button on the page also turn blue-gray, and the text changes to dimmed.

To exit dim, simply tap the dimmed button on the page again or press the dim button on the Infrared Remote Controller, and the dim will be immediately released.
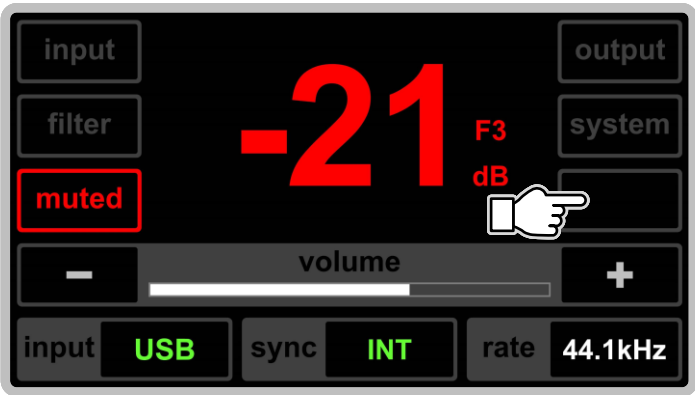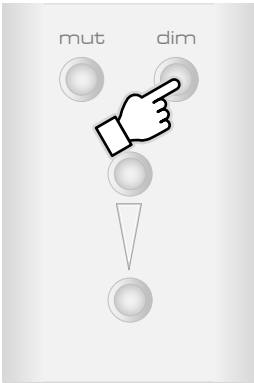
7.6.2 Relationship Between Dim and Mute
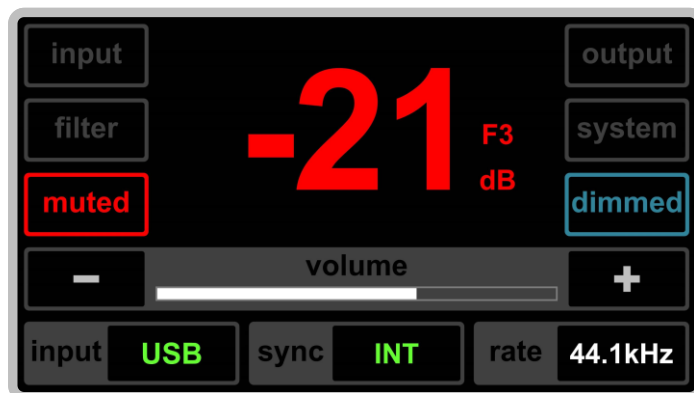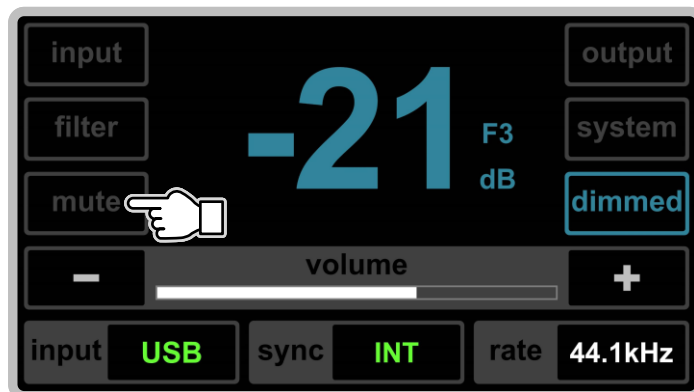
When in internal volume control mode, the **NADAC D** can enter mute state by pressing the mute button on the page or the ⎧⎫⎩⎭ button on the Infrared Remote Controller, even after entering dim state.

At this time, the volume dB value in the center of the screen remains unchanged but turns red. The border and text of the mute button on the page also turn red, and the text changes to muted. The dimmed button on the right side of the page continues to display in blue-gray, indicating that the **NADAC D** is currently in a muted state following dim

**Note:** Although you can enter mute state from dim, you cannot enter dim state from mute as volume reduction has no practical effect when output is already muted. Therefore, when the **NADAC D** is in mute state, the dim button on the screen will display no text.

If you press the dim button on the Infrared Remote Controller while in mute state,

an ⃠ (operation unavailable) prompt will appear on the screen for 1 second.
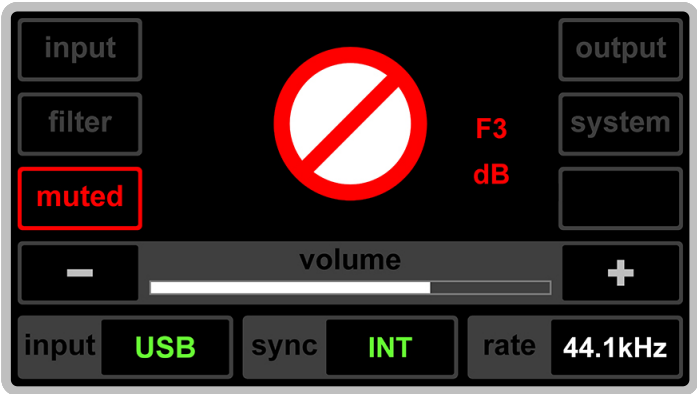
7.7 Input Settings

The **NADAC D** offers four input options: 1. **usb** (USB); 2. **aes** (AES3); 3. **s/pdif coaxial**; 4. **s/pdif optical**.

7.7.1 Set Input Source on Touch Screen

7.7.1.1 Enter Input Settings Page

In either internal or external volume control mode, on any line (speakers) or headphones output working page, you can enter the ᴉᴎᴘᴜᴛ settings page by tapping the **input** button.
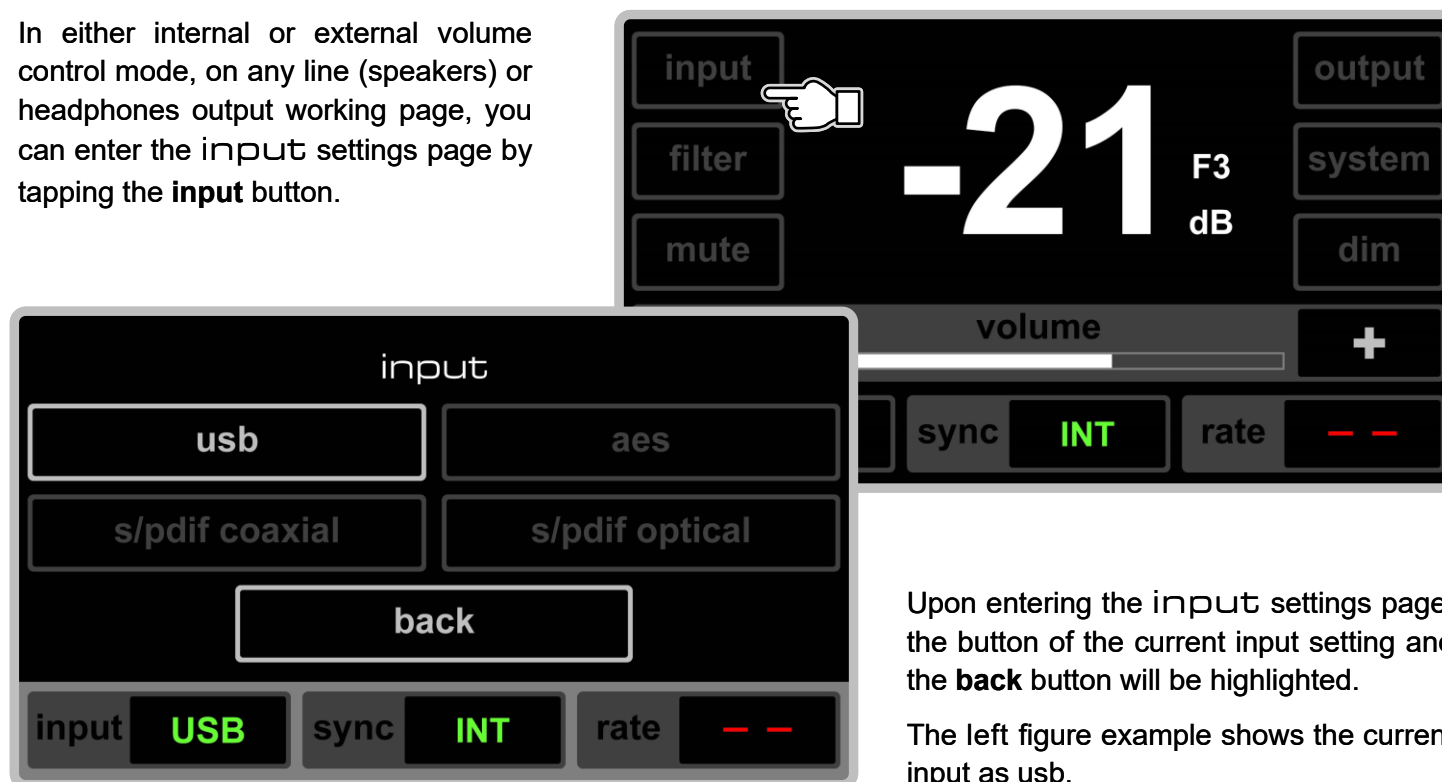
Upon entering the ᴉᴎᴘᴜᴛ settings page, the button of the current input setting and the **back** button will be highlighted.

The left figure example shows the current input as usb.

If you decide not to change the input after entering the ᴉᴎᴘᴜᴛ settings page, you can directly tap the **back** button to return to the working page. Additionally, if no action is taken for 10 seconds on the ᴉᴎᴘᴜᴛ settings page, it will automatically return to the working page before entering the settings page.

7. Operating

7.7.1.2 Change Input Source (e.g., from usb input to aes input)

Tap the **aes** button on the input settings page.
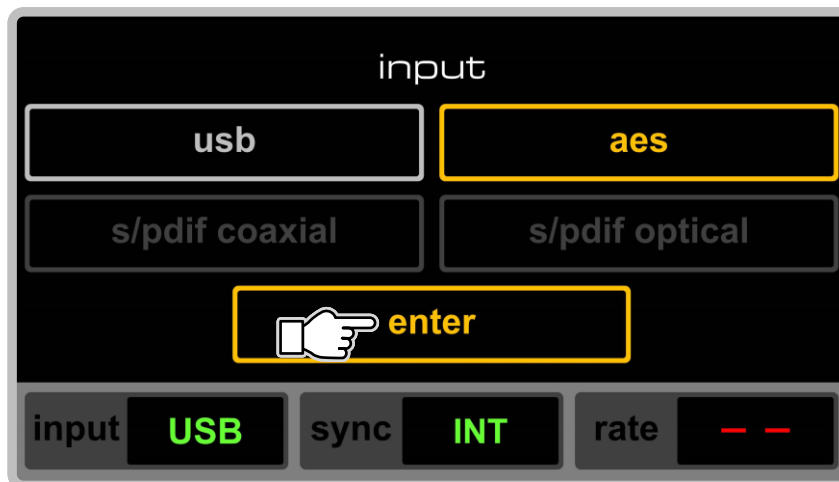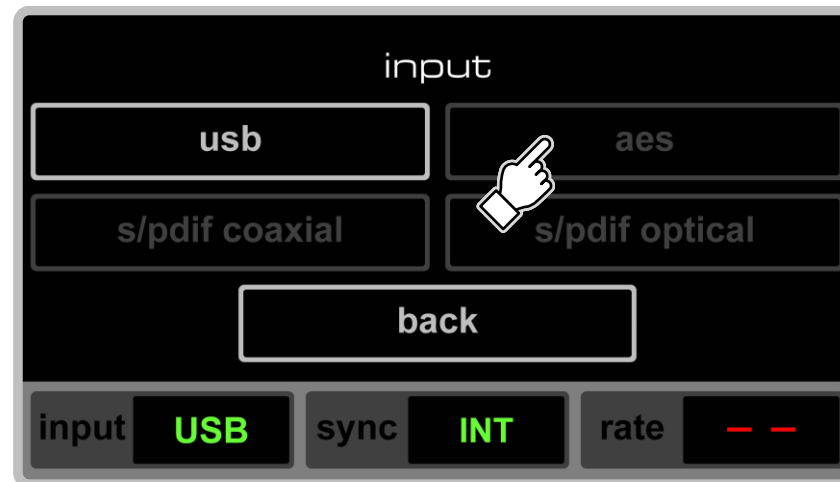
After tapping, the **aes** button will turn yellow, and at the same time, the **back** button will also turn yellow, and the text in the button will change to enter, becoming a pending confirmation page. At this time, the **usb** button continues to be highlighted, and the input pane on the lower left side of the screen also continues to display **USB**, indicating that the current input is still USB, so the sync pane remains unchanged.

To confirm the change to aes input, tap the **enter** button.

You can also select another input option by tapping its button while aes and enter are in yellow confirmation state. The newly selected input button will turn yellow, and the previously selected one will turn dark gray.

After the change is completed, the **usb** button turns dark, and the **aes** button becomes highlighted. At the same time, the yellow **enter** button also becomes highlighted, and the text in the button changes to **back**. The input pane at the bottom of the screen displays AES, and the sync pane displays green AES (connected normally) or yellow U/L (unable to lock) depending on the connection status of the signal source.

Tapping the **back** button again will return you to the working page before entering the input settings page.

Regardless of the state of the input settings page, if no action is taken for 10 seconds, the page will return to the previous level, up to the original working page.

Note: The operation method and steps to switch from any current input to any other input are the same as the above USB to AES. However, when the input is switched to USB, the display in the sync pane will be INT (internal clock) or EXT (external clock) according to the actual connection status of the clock of **NADAC D** at that time. When the input is switched to COA or OPT, the sync pane will display green COA or OPT (normal connection) or yellow U/L (unlockable).

7.7.2 Set Input Source on Infrared Remote Controller

Directly press the desired input button on the infrared remote controller, and the input of the **NADAC D** will immediately switch to that port.
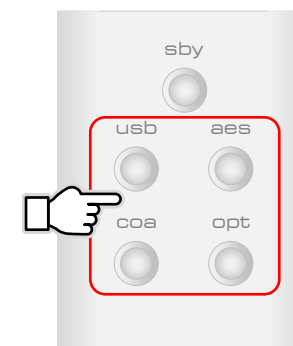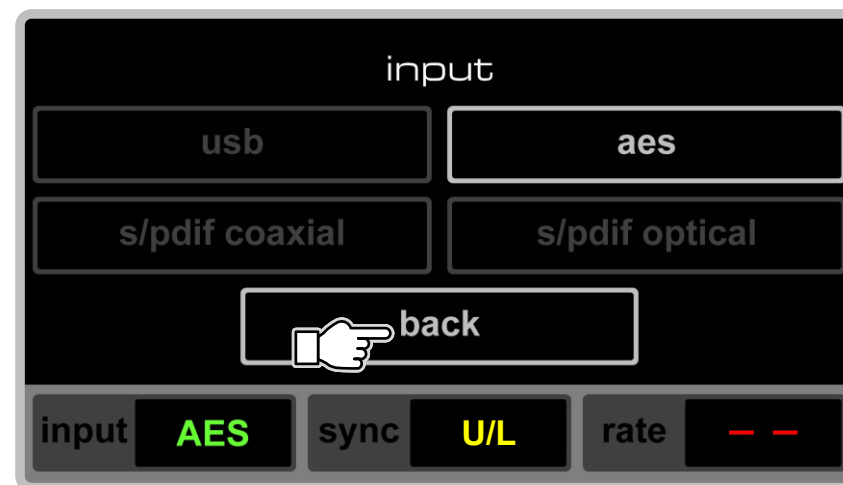
7.8 Output Settings

In internal volume control mode, **NADAC D** offers two selectable output paths: 1. **line (speakers)** output, 2. **Headphones** output. However, in external volume control mode, only **line (speakers)** output is available.

7.8.1 Set Output on Touch Screen

7.8.1.1 Enter Output Settings Page

In the **line (speakers)** or **headphones** output working page in internal volume control mode, you can enter the output settings page by tapping the **output** button.
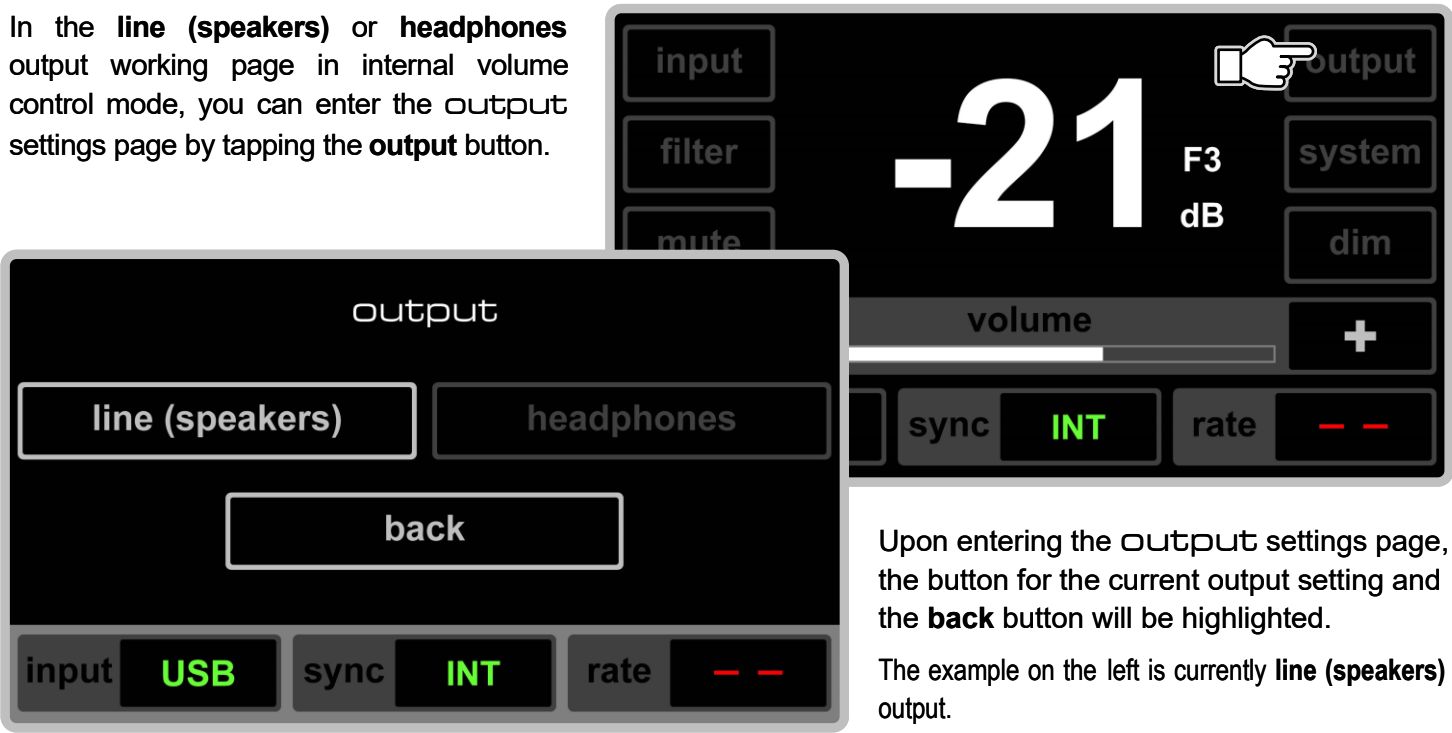
Upon entering the output settings page, the button for the current output setting and the **back** button will be highlighted.

The example on the left is currently **line (speakers)** output.

If you decide not to change the output after entering the output settings page, you can directly tap the **back** button to return to the working page. Additionally, if no action is taken for 10 seconds on the output settings page, it will automatically return to the working page before entering the settings page.

7.8.1.2 Change Output (e.g., From Line (Speakers) Output to Headphones Output)

On the output settings page, tap the **headphones** button.
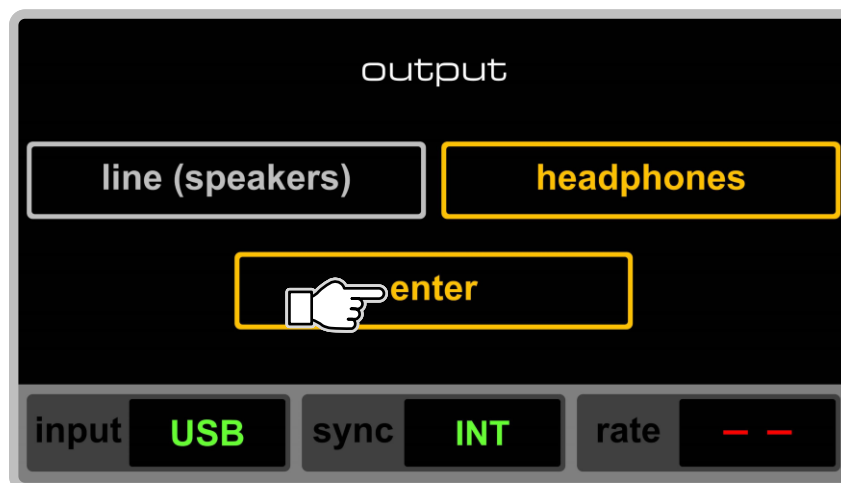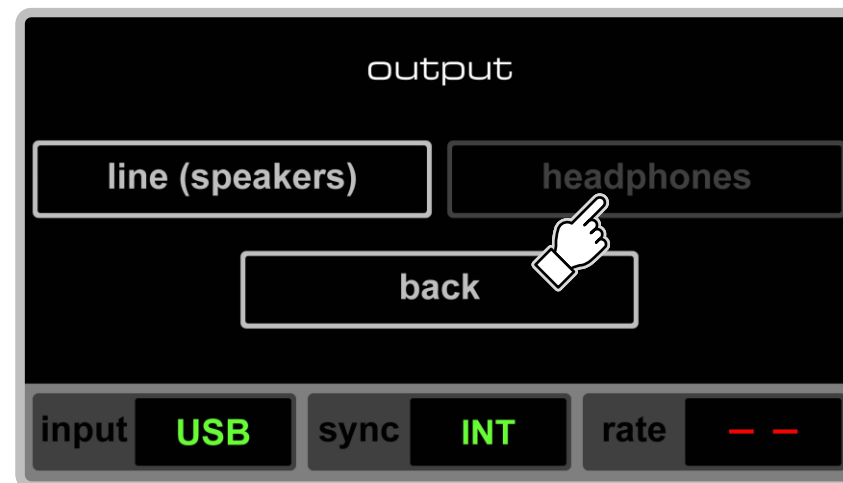
After tapping, the **headphones** button will turn yellow, and at the same time, the **back** button will also turn yellow, and the text in the button will change to enter, becoming a pending confirmation page. At this time, the **line (speakers)** button will continue to be highlighted, indicating that the current output is still **line (speakers)**.

To confirm the change to **line (speakers)** output, tap the **enter** button.

You can also reselect the output by tapping the **line (speakers)** button again while **headphones** and **enter** button are in yellow pending confirmation state. The reselected **line (speakers)** button will turn yellow, and the previously selected **headphones** button will turn dark gray.

After the change is completed, the **line (speakers)** button turns dark, and the **headphones** button becomes highlighted in purple to match the page it is working on, indicating the current output settings. At the same time, the yellow **enter** button also becomes highlighted and the text in the button changes to back.

Tapping the **back** button again will return you to the working page before entering the input settings page.
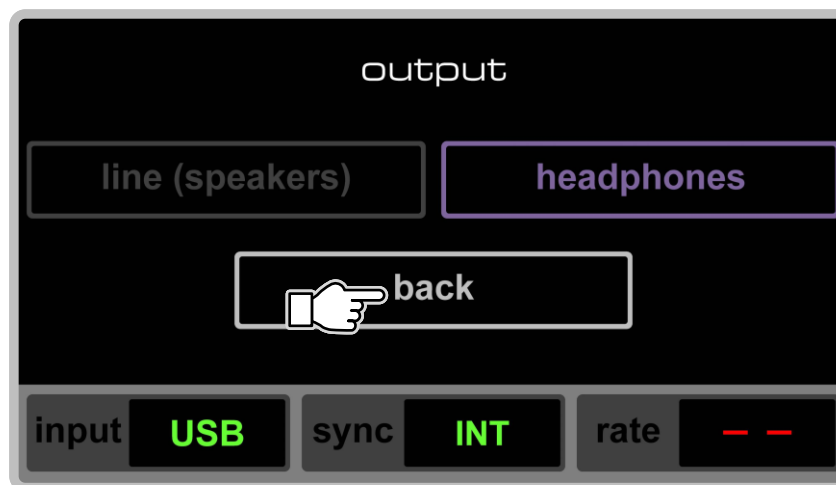
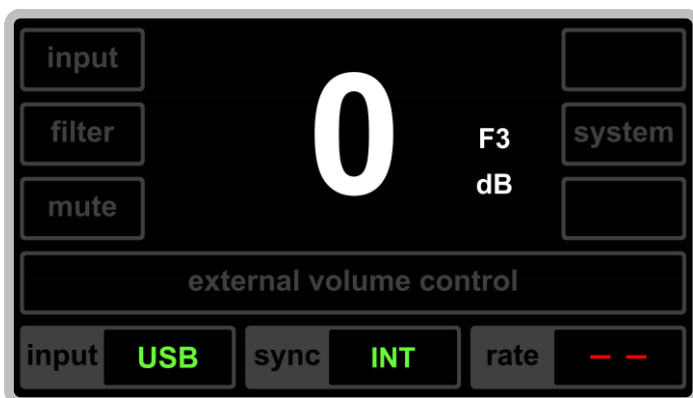Regardless of the state of the output settings page, if no action is taken for 10 seconds, the page will step back one step at a time until it returns to the original working page.

Note: Conversely, the operation method and steps for changing from headphone output to line (speakers) output are the same as those for changing from line (speakers) output to headphone output.

Since external volume control mode does not support headphone output, the output button box on the external volume control working page displays no text, and tapping this area has no effect.

In other words, to use headphone output, **NADAC D** must be operating in internal volume control mode. If the current mode is external volume control mode, you must first switch to internal volume control mode before being able to select headphone output.

Attention: There is no function for output selection and setting on the Infrared Remote Controller. Output selection can only be performed via the touch screen.

7.9 Power-On and the Relationship Between Input/Output Switching and Volume Levels

In order to protect both the user's audio system and their hearing during every power-on, as well as during input source switching or output path switching, MASTER FIDELITY has specially designed the following relationships in **NADAC D** between source switching and output level in internal volume control mode:

1. Upon every power-on, whether using line (speakers) or headphones, the volume controller is always set to a level of –21 dB.

2. When switching input sources while in line (speakers) output, the volume level for the newly selected input source will match the volume level of the input source being deselected. In other words, the volume controller level remains unchanged during the switch.

3. When switching input sources while in headphones output, regardless of the volume level of the input source being deselected, the newly selected input source's volume level will always be set uniformly to –21 dB.

4. During output path switching, whether switching from line (speakers) to headphones or vice versa, the volume controller level after switching will always be uniformly set to –21 dB.
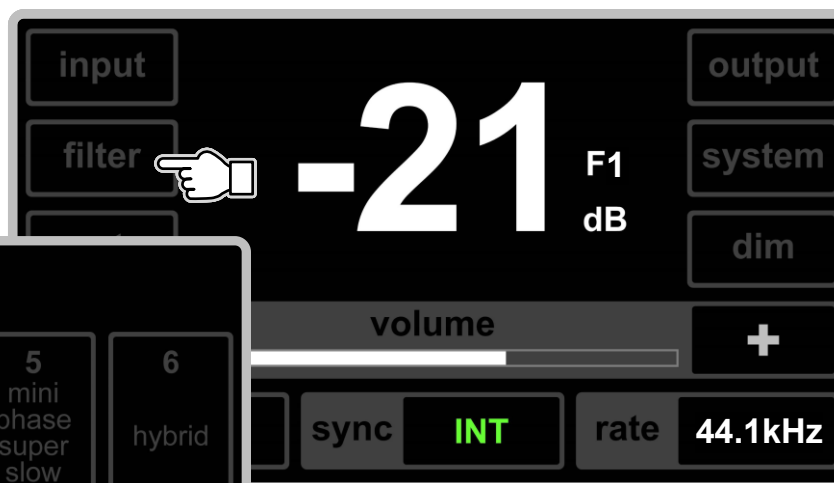
7.10 Filter Settings

The **NADAC D** offers six preset filters for selection: 1. **linear phase fast**; 2. **linear phase slow**; 3. **mini phase fast**; 4. **mini phase slow**; 5. **mini phase super slow**; 6. **hybrid**.

Note: Filters are only effective for PCM format digital audio.

7.10.1 Set Filter on Touch Screen

7.10.1.1 Enter Filter Settings Page

In either internal or external volume control mode, on any line (speakers) or headphones output working page, you can enter the filter settings page by tapping the **filter** button.
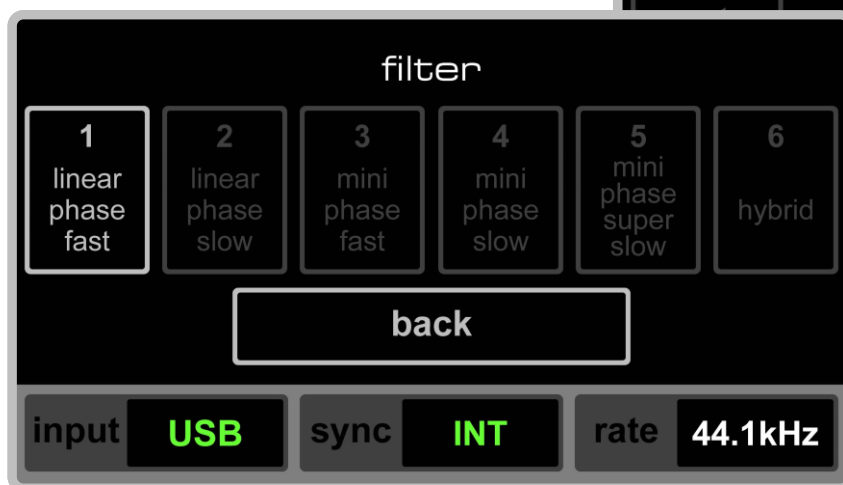
Upon entering the filter settings page, the button for the currently selected filter and the **back** button will be highlighted.

The right figure example shows the current filter selection as 1.

If you decide not to change the filter after entering the filter settings page, you can directly tap the **back** button to return to the working page. Additionally, if no action is taken for 10 seconds on the filter settings page, it will automatically return to the working page before entering the settings page.

7.10.1.2 Change Filter (e.g., From 1 to 3)

Tap the **3 mini phase fast** button on the filter settings page.
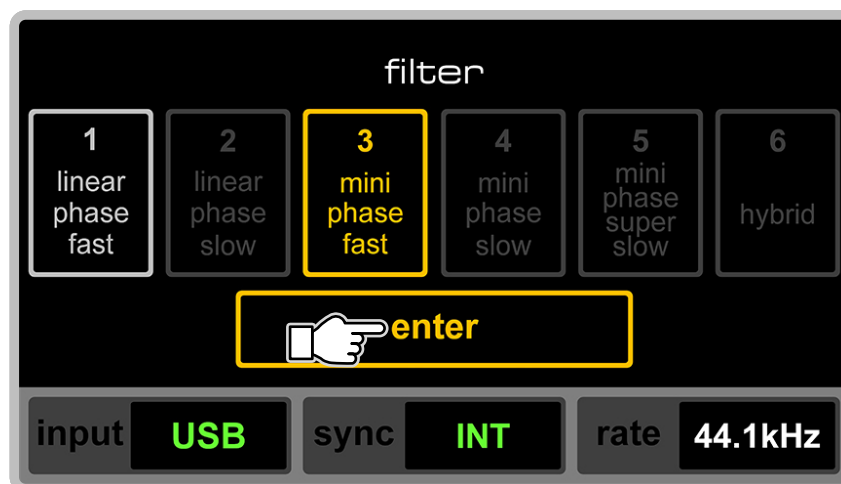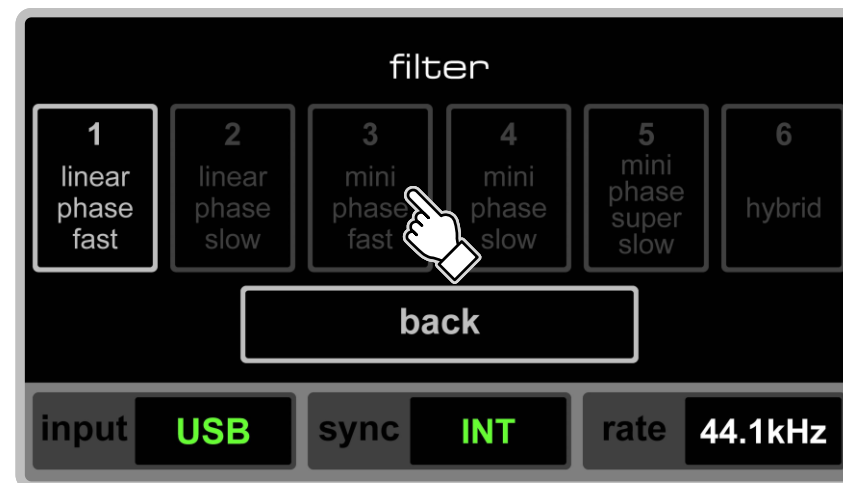
After tapping, the **3 mini phase fast** button will turn yellow, and at the same time, the **back** button will also turn yellow, and the text in the button will change to enter, becoming a pending confirmation page. At this time, the **1 linear phase fast** button will continue to be highlighted, indicating that the current filter is still **1 linear phase fast**.

To confirm the change to 3 Mini phase fast, tap the **enter** button.

You can also reselect the filter by tapping another filter option button while **3 mini phase fast** and **enter** are in yellow pending confirmation state. The reselected filter button will turn yellow, and the previously selected filter button will turn dark gray.

After the change is completed, the **1 linear phase fast** button turns dark, and the **3 mini phase fast** button becomes highlighted, indicating the current filter settings. At the same time, the yellow **enter** button also becomes highlighted and the text in the button changes to back.

tapping the **back** button again will return you to the working page before entering the filter settings page.
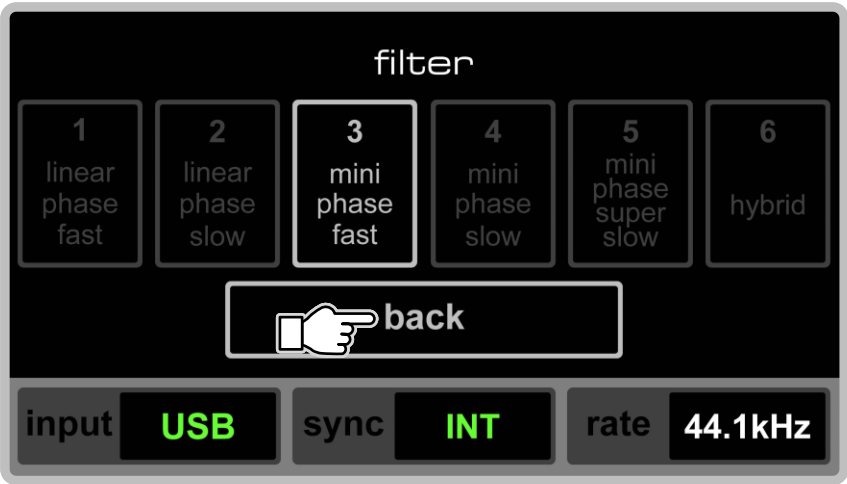
Regardless of the state of the filter settings page, if no action is taken for 10 seconds, the page will return to the previous level, up to the original working page.

Note: The method and steps for changing from any current filter to any other filter are the same as those described for changing from Filter 1 to Filter 3.

Attention: There is no functionality for selecting and setting filters on the infrared remote controller. The selection and setting of filters can only be completed on the touch screen.

7.10.2 Comparison Table of Six Filters

Filter Number	1	2	3	4	5	6
Filter Name	Linear Phase Fast	Linear Phase Slow	Mini Phase Fast	Mini Phase Slow	Mini Phase Super Slow	Hybrid
Filter Architecture	Traditional High-Order Symmetric Architecture	Traditional Low-Order Symmetric Architecture	Optimized High-Order Asymmetric Architecture	Optimized Low-Order Asymmetric Architecture	Best Transient Response Asymmetric Architecture	Psychoacoustics Optimized Asymmetric Architecture
Passband Flatness	Best	Good	Very Good	Good	Good	Good
Stopband Attenuation	Best	Good	Very Good	Good	Good	Good
Ring	Larger Pre-Ring and Post-Ring	Smaller Pre-Ring and Post-Ring	"ZERO" Pre-Ring Larger Post-Ring	"ZERO" Pre-Ring Smaller Post-Ring	"ZERO" Pre-Ring Tiny Post-Ring	Optimized Pre-Ring and Post-Ring
Group Delay	Higher	Lower	Tiny	Tiny	No	Lower

7.11 System Settings

The **NADAC D**'s system settings page contains three subpages: 1. **volume controller**; 2. **screen dimmer**; 3. **Information**.

7.11.1 Set System on Touch Screen

7.11.1.1 Enter System Settings Page

From any working page on **NADAC D**, you can tap the **system** button to enter the system settings page.
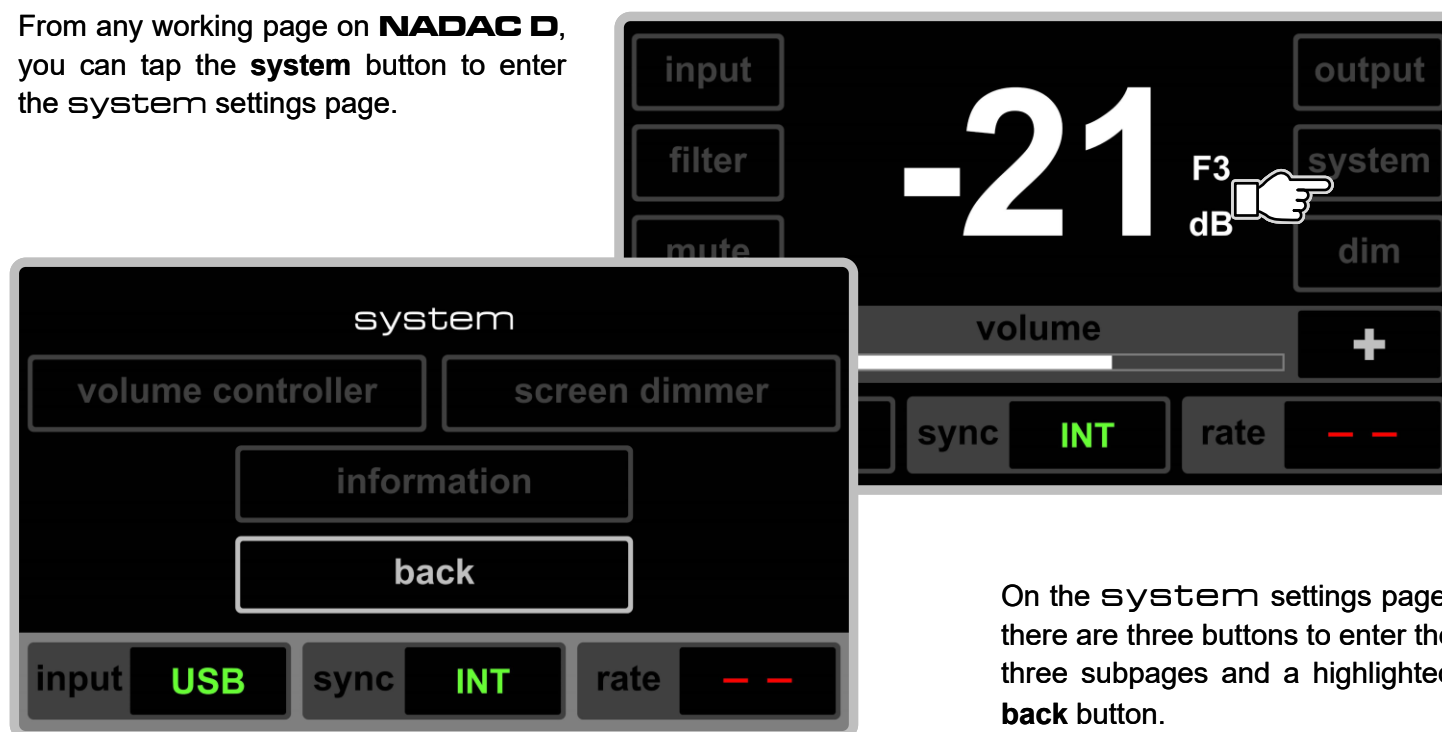
On the system settings page, there are three buttons to enter the three subpages and a highlighted **back** button.

From the system settings page, you can tap any of the three buttons to enter the respective subpage.

If you decide not to change system settings after entering the system settings page, you can directly tap the **back** button to return to the working page. Additionally, if no action is taken for 10 seconds on the system settings page, it will automatically return to the previous working page.

7.11.1.2 Enter Volume Controller Settings Subpage

On the system settings page, tap the **volume controller** button to enter the system - volume controller subpage.
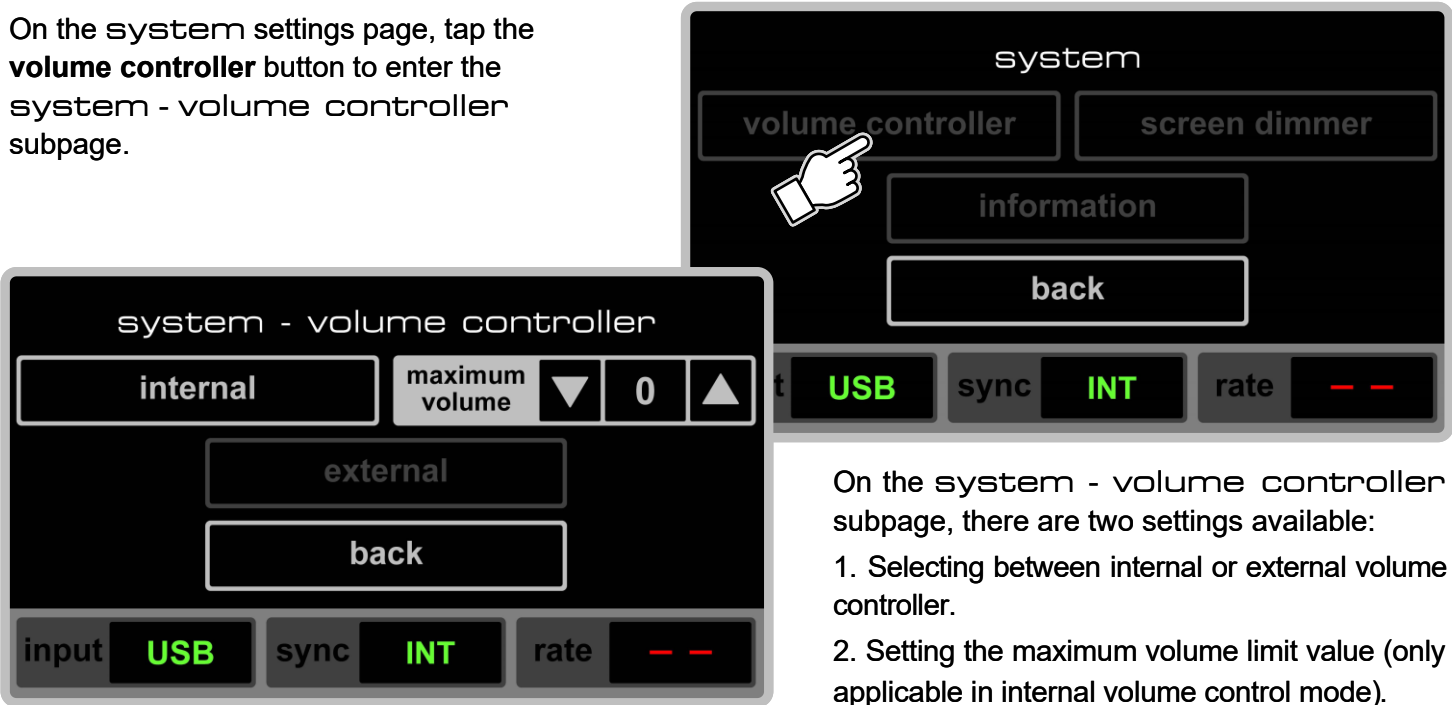
On the system - volume controller subpage, there are two settings available:

1. Selecting between internal or external volume controller.

2. Setting the maximum volume limit value (only applicable in internal volume control mode).

Upon entering the system - volume controller subpage, the button corresponding to the current volume controller setting, as well as the back button, will appear highlighted.

In the example shown in the figure, the current volume controller is set to internal, with the maximum volume limit value set to 0 dB.

After entering the system - volume controller subpage, if you decide not to change the volume controller setting, you can simply tap the **back** button to return to the working page. Additionally, if no operation is performed on the system - volume controller subpage for 10 seconds, the screen will automatically return to the previous page displayed before entering this subpage.

7.11.1.2.1 Set Maximum Volume Limit (e.g., From 0 dB to -3 dB)

The function of setting the maximum volume limit value is mainly designed to ensure that **NADAC D** can be correctly preset for its output level when integrated into different audio systems, preventing distortion or damage due to improper volume control by the user.

Note: The function of setting the maximum volume limit value is only effective when the volume controller is set to internal. For line (speakers) output and headphones output under the internal volume controller, this function operates identically.

On the system - volume controller page, tap the downward-pointing triangle (decrease) button next to the maximum volume window (since the example is changing from 0 to –3 dB).
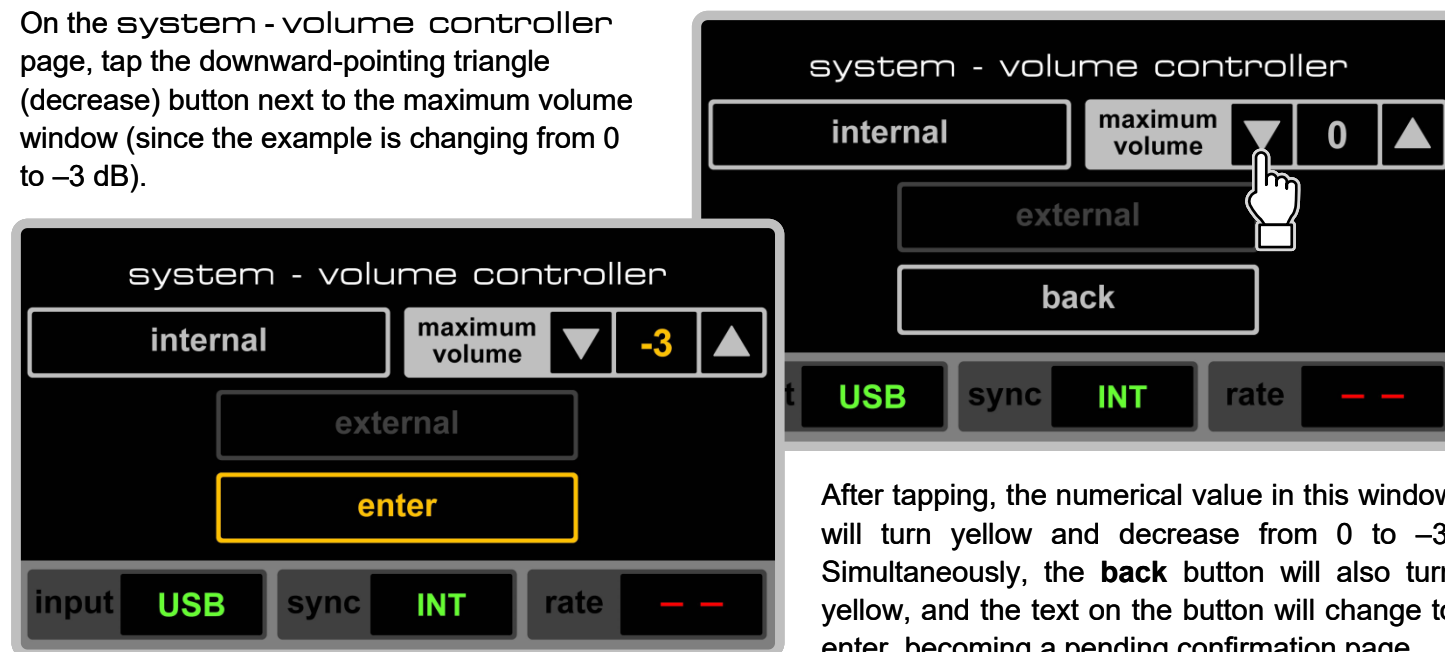
After tapping, the numerical value in this window will turn yellow and decrease from 0 to –3. Simultaneously, the **back** button will also turn yellow, and the text on the button will change to enter, becoming a pending confirmation page.

On this pending confirmation page, you can also tap the up or down triangle buttons again to continue adjusting the maximum volume limit value. Additionally, if no operation is performed on this page for 10 seconds, the pending confirmation state will be automatically canceled.

Note: To adjust the value in the maximum volume pane, use the up and down triangle buttons on either side of the pane. The adjustment range is from –15 dB to 0 dB. Adjustments can only be made by single taps on the up or down buttons (holding the buttons has no effect). Each step adjusts by ±3 dB.

In this example, when the maximum volume value has been set to –3 dB, if you wish to confirm this change, tap the **enter** button to complete the adjustment.

system - volume controller

internal

maximum volume ▼ **-3** ▲

external

👉 enter

input **USB**   sync **INT**   rate – –

system - volume controller

internal

maximum volume ▼ -3 ▲

external

👉 **back**

input **USB**   sync **INT**   rate – –
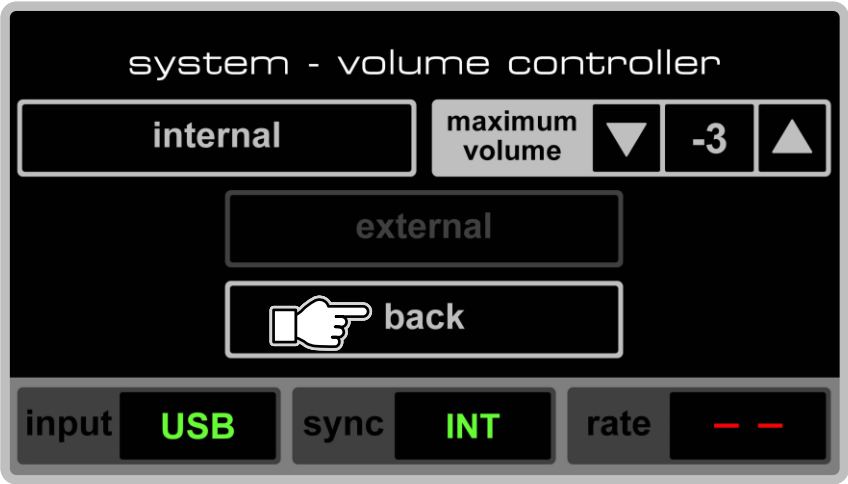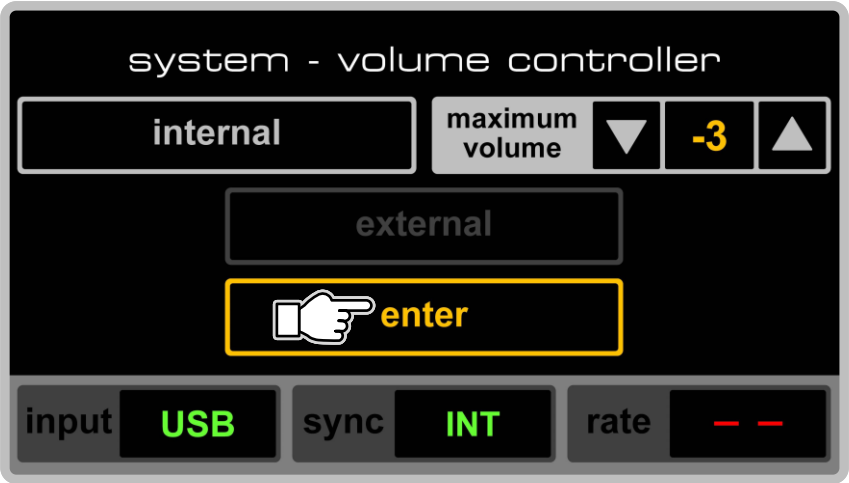
After the change is confirmed, the –3 dB value in the maximum volume window will change from yellow to highlighted. Simultaneously, the previously yellow **enter** button will also become highlighted, and the text on the button will turn to back.

At this point, tapping the **back** button again will return you to the working page displayed before entering the system - volume controller page.

Regardless of the state of the system - volume controller page, if no operation is performed for 10 seconds, the screen will automatically step back one step at a time until it returns to the original working page.

7.11.1.2.2 Display of Maximum Volume Limit on Working Page

The maximum volume limit set in the system - volume controller settings page is displayed on the working page in two ways:

> In the figure on the right, setting the maximum volume limit to -12 dB will be used as an example to illustrate the two forms of display.
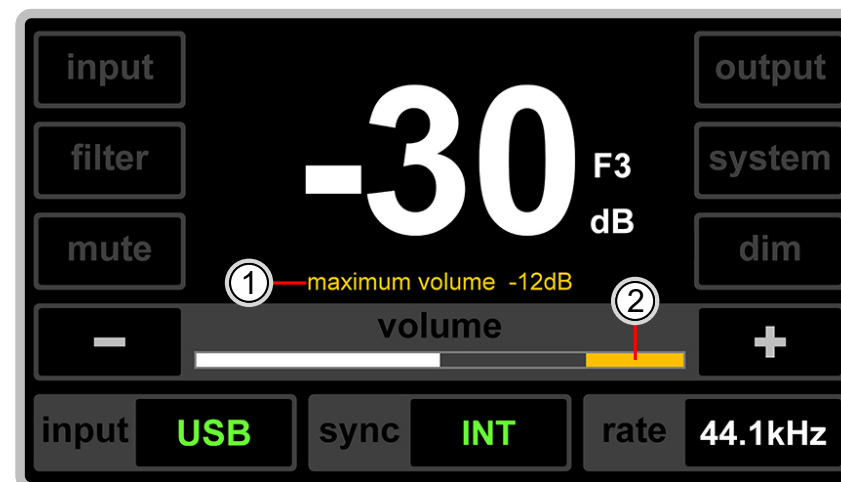
① In the middle of the screen, "maximum volume" is displayed in yellow text, followed by the value (e.g., -12 dB in the example), which is the maximum volume limit set on the volume controller settings page.

This text appears only during volume increase operations (whether using the touch screen or infrared remote) and disappears 5 seconds after stopping the volume increase. Thus, it's hidden during the normal display on the working page.

② On the volume indicator bar of the working page, the maximum volume limit is shown by filling from the right end towards the left in yellow, corresponding to the limit set on the volume controller settings page, with each filled segment representing 3dB. Without a set limit, there's no yellow fill.

As the volume increases (whether using the touch screen or infrared remote), the white volume indicator bar extends towards the right end until it touches the yellow limit bar, indicating the maximum volume limit is reached and cannot be increased further. If there's no maximum volume limit set, the white bar can extend to the very right end, i.e., 0dB position.

Note: These two display forms are the same for both line (speakers) output and headphone output working pages.

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7. Operating

7.11.1.2.3 Set Internal / External Volume Controller (e.g., From Internal to External)

On the system - volume controller settings page, when the volume controller is currently set to internal mode (in this mode, the **internal** / **maximum volume** and **back** buttons are highlighted), tap the **external** button.
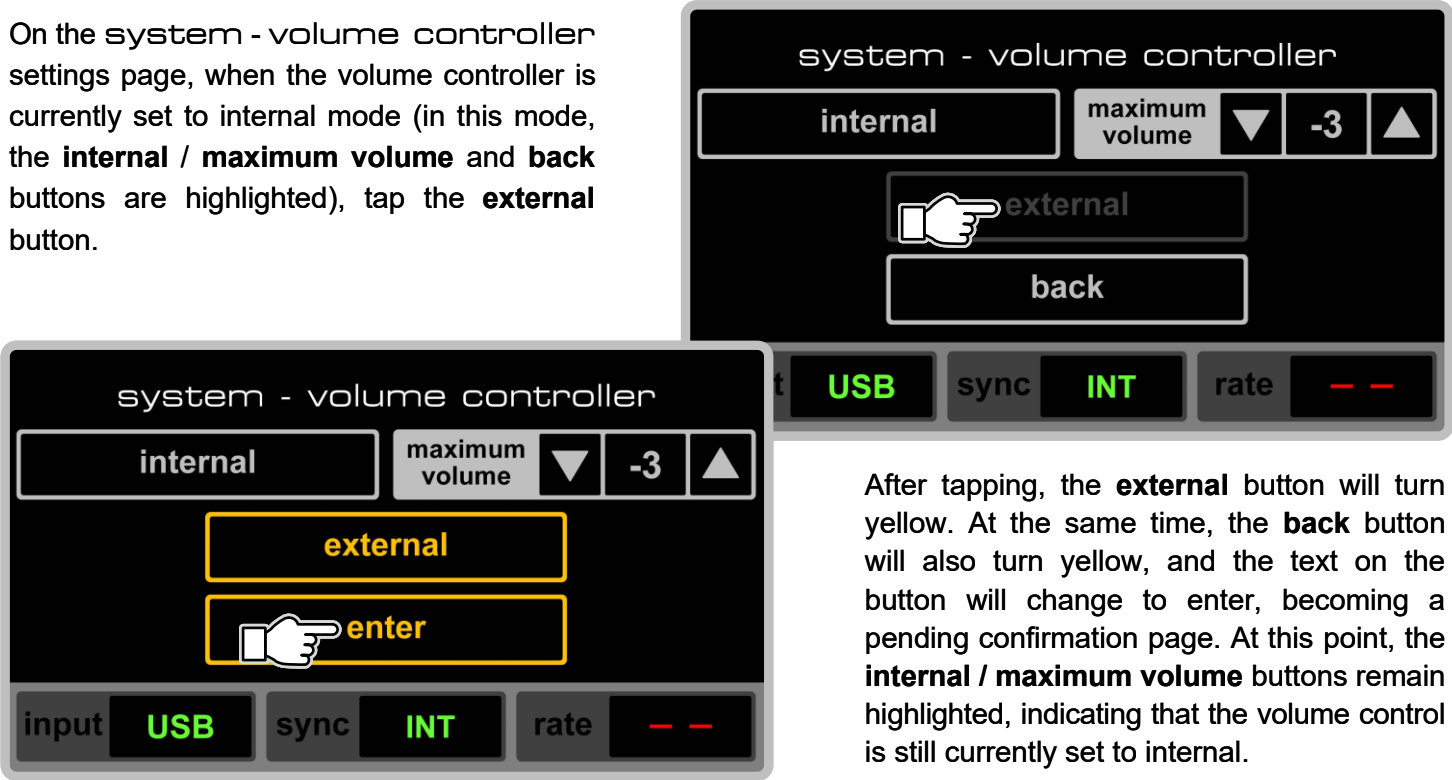

After tapping, the **external** button will turn yellow. At the same time, the **back** button will also turn yellow, and the text on the button will change to enter, becoming a pending confirmation page. At this point, the **internal / maximum volume** buttons remain highlighted, indicating that the volume control is still currently set to internal.

If you wish to confirm switching to external volume control, tap the **enter** button to complete the change.

While both the **external** and **enter** buttons are displayed in yellow in the pending confirmation state, you can also tap the **internal** button again to reselect the volume controller. The newly selected **internal** button will turn yellow, while the previously selected **external** button will turn to a dark gray.

Once the change is completed, the **internal / maximum volume** buttons will dim, while the **external** button will become highlighted, indicating the current volume controller setting.
Simultaneously, the previously yellow **enter** button will also become high-lighted, and the text on the button will turn to back.
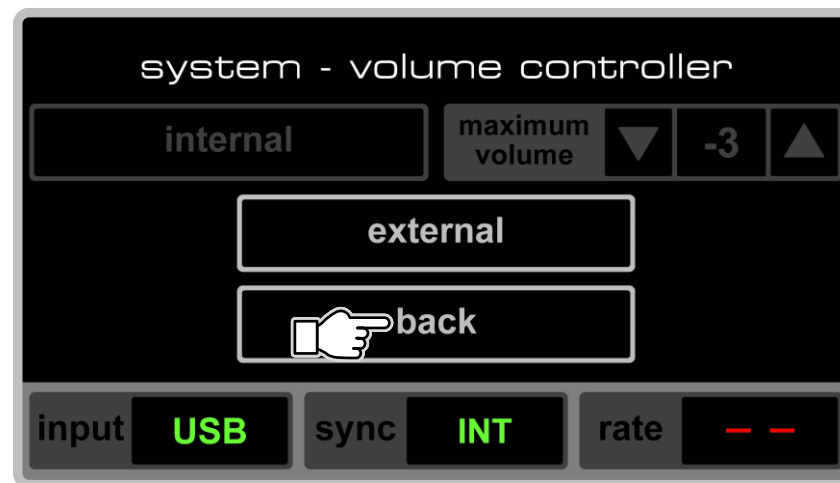

At this point, tapping the **back** button again will return you to the system settings page that was displayed before entering the system - volume controller page.

Regardless of the state of the system - volume controller settings page, if no operation is performed for 10 seconds, the screen will automatically step back one level at a time until it returns to the original working page.

7.11.1.3 Enter Screen Dimmer Settings Subpage

Tap the screen dimmer button on the `system` settings page to enter the `system - screen dimmer` settings subpage.
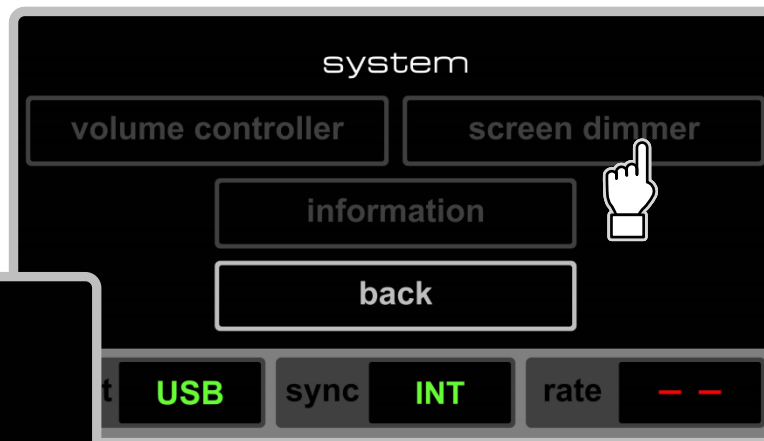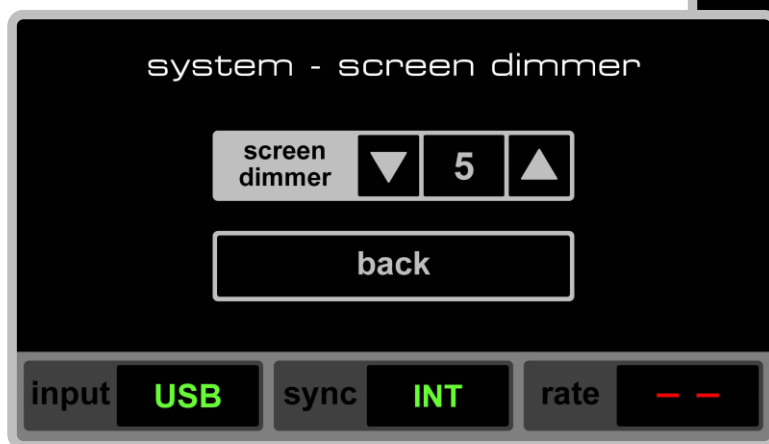
Upon entering the `system - screen dimmer` subpage, the screen dimmer setting pane and the enter button are highlighted.
The brightness value ranges from 0 to 5, with 0 being the dimmest and 5 the brightest.

Note: In the example above, the current screen dimmer setting is at brightness level 5.

If you decide not to change the dimmer brightness after entering the `system - screen dimmer` subpage, you can directly click the enter button to return to the working page. Additionally, if no action is taken for 10 seconds on the subpage, it will automatically return to the previous `system` page.

7.11.1.3.1 Adjust Screen Brightness (e.g., From 5 to 3)

To adjust the brightness of the screen dimmer, first tap the downward-pointing triangle (decrease) button on the screen dimmer pane (since the example is changing from 5 to 3) on the system - screen dimmer page.
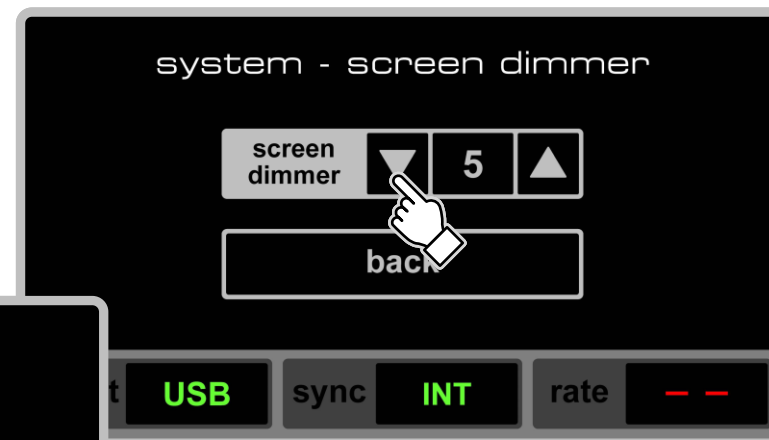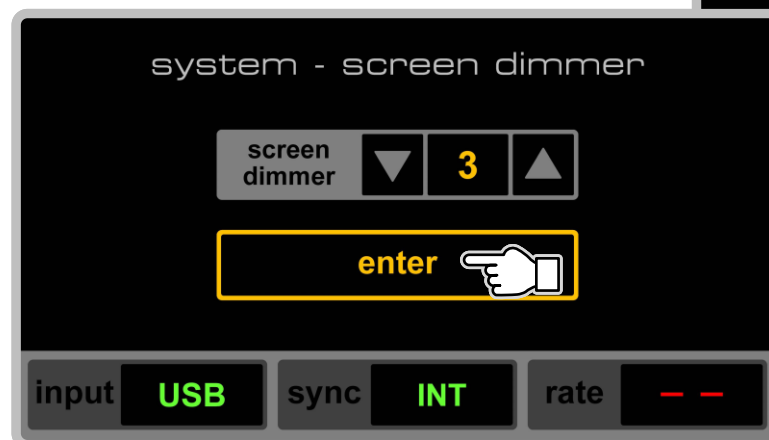
After tapping, the value in the pane turns yellow and decreases from 5 to 4. At the same time, the **back** button also turns yellow, and the text in the button changes to enter, becoming a pending confirmation page. After clicking again, the value changes from 4 to 3.

When adjusting, the brightness of the screen will change in real time as the brightness value changes.

At this point, if you confirm that you want to change the brightness value to 3, tap the **enter** button to complete the change.

On this pending confirmation page, you can also click the up or down triangle buttons again to continue adjusting the screen brightness value. In addition, if no operation is performed for 10 seconds, the page will automatically cancel the pending confirmation status.

Note: Use the up or down triangle buttons on either side of the screen dimmer pane to adjust the screen brightness. The adjustment range is from 5 down to 0. Brightness can only be adjusted step by step by tapping the up or down triangle button (holding the button has no effect), with each step changing the value by ±1.

After the change is completed, the adjusted screen brightness value 3, which was originally yellow, becomes dimmed. At the same time, the **enter** button, which was originally yellow, becomes highlighted, and the text in the button turn to back.

At this point, tap the **back** button again to return to the previous system page.

system - screen dimmer

screen dimmer ▼ 3 ▲

back

input USB sync INT rate – –
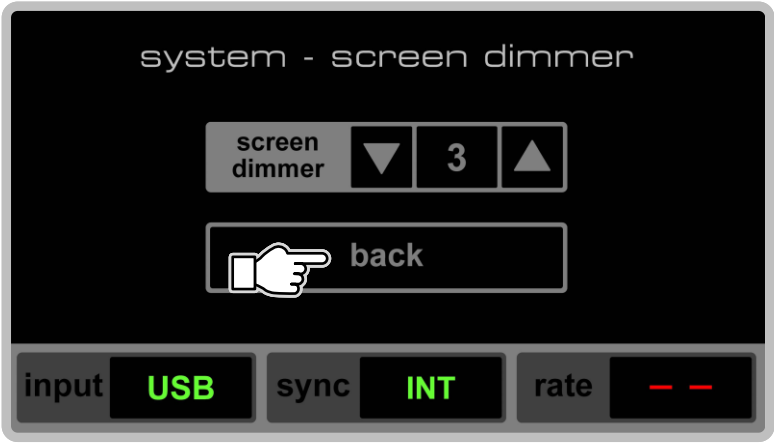
7.11.1.4 Enter System Information Subpage

On the system settings page, tap the **information** button to enter the system - information subpage.
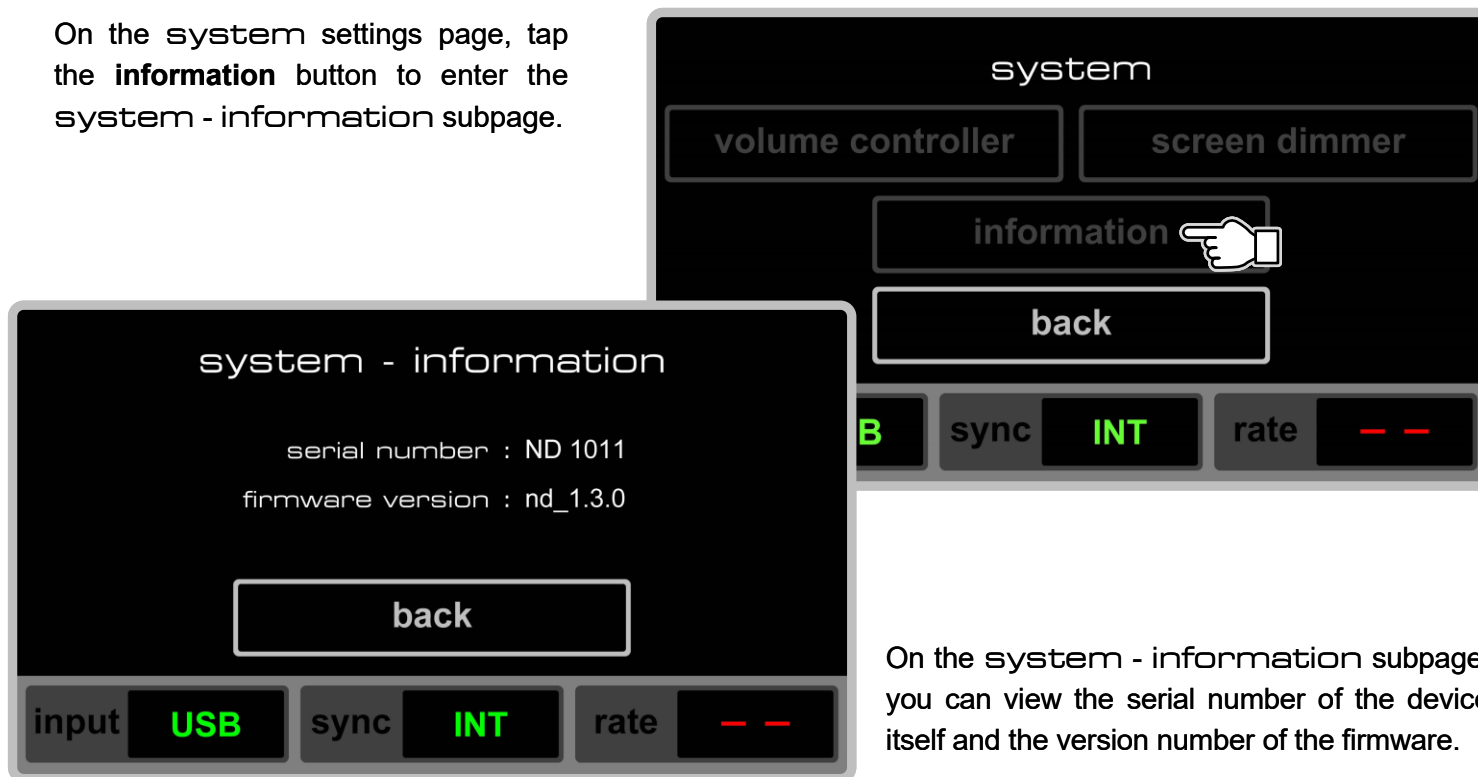
On the system - information subpage, you can view the serial number of the device itself and the version number of the firmware.

You can return to the system page by tapping the **back** button. If you do not perform any operation on the page for 10 seconds, the page will return to the previous level until you return to the original working page.

7.12 Listening Page

7.12.1 Enter Listening Page on the Touch Screen

On any working page, tap the large volume level display area in the center of the screen and **NADAC D** will enter the listening page.
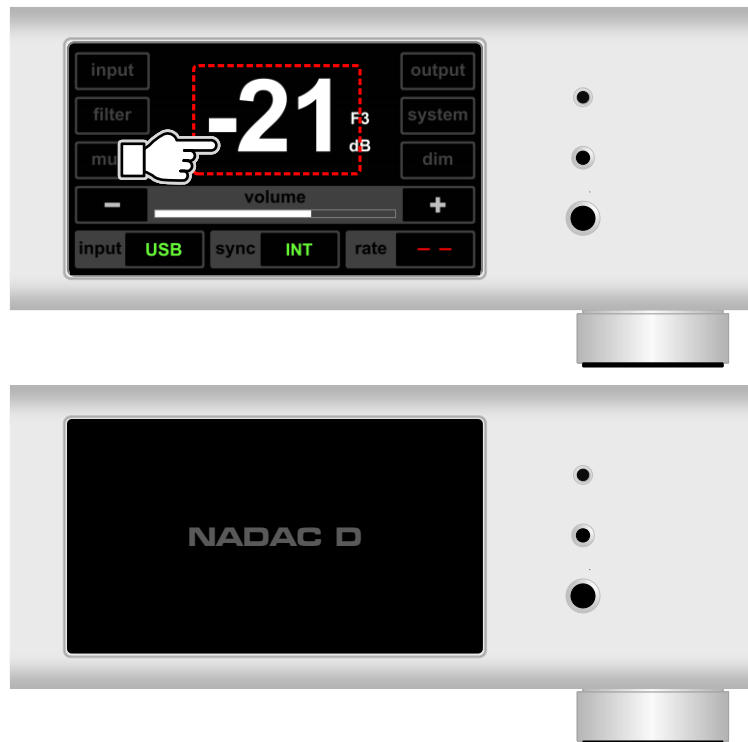
The brightness of the **NADAC D** characters on the listening page is fixed and cannot be adjusted.

7.12.2 Exit Listening Page on the Touch Screen

Tap the **NADAC D** area in the middle of the listening page to exit the listening state and return to the working page before entering the listening state.
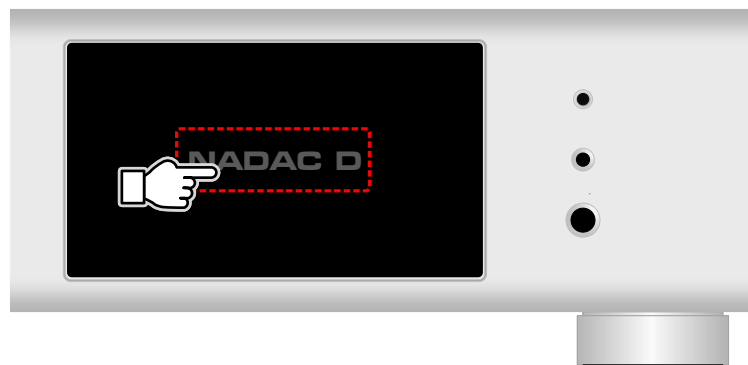
7.12.3 Enter and Exit the Listening Page on the Infrared Remote Controller

On any working page, simply press the lis (listen) button on the Infrared Remote Controller and **NADAC D** will immediately enter the listening page.

To exit the listening page, you can:

① Press the lis (listen) button again. The unit will immediately close the listening page and return to the working page.

② While on the listening page, press the mut, dim, or vol (Volume) buttons. The screen will immediately exit the listening page, return to the working page, and simultaneously perform the corresponding function.

Please note that the four input selection buttons are inactive while on the listening page.

Note: On some infrared remote controllers, the label above the lis button is engraved as sby (standby). Despite the different label, its function is identical to lis.
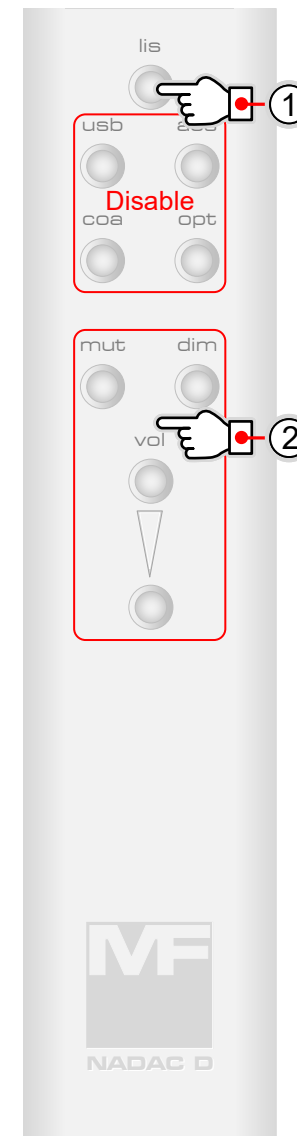
7.13 Shutdown

Simply press the power switch on the power socket on the rear panel to shut down the **NADAC D**.

NADAC D

8. Specifications

8.1 General Specifications

Power Supply

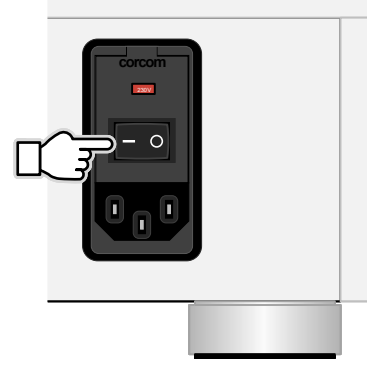|	
Voltage and Frequency	AC 100 - 120 V or 200 - 240 V changeable (change through the AC power socket on the rear panel); 50 / 60 Hz
Power Consumption	Maximum < 100 W; Stable (Typical) 18 W
Connector	IEC 60320 C14
Fuse	3.15 A, 5 x 20 mm Slow Blow

Dimensions and Weight

Dimensions	435 mm (W) x 95 mm (H) x 390 mm (D)
Weight	10.7 kg

8.2 Core Parts Specifications

Specially Designed D/A Converter Chip	Architecture	Audiophile custom BJT-CMOS true 1 bit EET D/A ASIC (Application-Specific Integrated Circuit)
	Features	◆ Master Fidelity Edge-Entanglement-Technology (MF EET) ◆ Uncompromising Passive Discrete Capacitors & Resistors
Clock Data Recovery System	Architecture	Master Fidelity advanced clock data recovery system
	Features	◆ Experimental Grade Wander & Jitter Eliminator ◆ Super Low Intrinsic & Residual Jitter
Oversampling Processor	Architecture	Master Fidelity enhanced upsampling
	Features	◆ Superior psychoacoustics optimized algorithm ◆ Fully double-precision 64bit computing ◆ Digital domain THD+n < -185dB @ 32bit Useful-Band ◆ Spur free / periodic steady state noise free ◆ Master Fidelity DSP capability: 200 GMAC/s @ 64bit (Conventional DSP capability: 4 GMAC/s @ 32bit)

8.3 Audio and Clock Specifications

Input / Output Specifications

USB Input	Standard	UAC2.0
	Supported OS	**Windows**: 7 / 8.0 / 8.1 / 10 / 11; 32 / 64 bit,　　**Mac OS**: X 10.9 and above;　　**Linux**: UAC2 Supported Linux Core
	Audio Format	44.1 / 88.2 / 176.4 / 352.8 kHz; 48 / 96 / 192 / 384 kHz; 16 / 24 / True 32 bit. Native DSD64 / DSD128 / DSD256 / DSD512; True 1 bit
	Connector	Neutrik mediaCON (USB Type-C) x1
AES3 Input	Audio Format	44.1 / 88.2 / 176.4 kHz; 48 / 96 / 192 kHz; DoP64; 16 / 24 bit
	Impedance	110 ohm; @ Balance
	Connector	XLR-3-F x1
S/PDIF Input (Coaxial)	Audio Format	44.1 / 88.2 / 176.4 kHz; 48 / 96 / 192 kHz; DoP64; 16 / 24 bit
	Impedance	75 ohm; @ Unbalance
	Connector	Phono (RCA) x1
S/PDIF Input (Optical)	Audio Format	44.1 / 88.2 / 176.4 kHz; 48 / 96 / 192 kHz; DoP64; 16 / 24 bit
	Connector	TosLink
Analog Balance Line Output	Level	+12 dBV (4 Vrms)
	Source Impedance	200 ohm
	Connectors	XLR-3-M x2
Analog Unbalance Line Output	Level	+6 dBV (2 Vrms)
	Source Impedance	100 ohm
	Connectors	Phono (RCA) x2
Analog Balance Headphones Output	Power	300 mW;
	Impedance	@ 32 ohm;
	Connector	4.4 mm mini x1
Analog Unbalance Headphones Output	Power	100 mW;
	Impedance	@ 32 ohm;
	Connector	6.35 mm Stereo Phone x1
Clock Input	Frequency	10 MHz
	Impedance	50 ohm (Compatible with 75 ohm)
	Connector	BNC x1

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Audio and Clock Specifications (Room Temperature, Typical)

THD+n	0.0003% @ 4 V rms / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth 0.0003% @ 1 V rms / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth 0.0006% @ 0.35 V rms / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth
SNR	120 dB @ 10 Hz - 20 kHz Bandwidth / A - Weight
Flatness	$<$ +/- 0.2 dB @ 10 Hz - 20 kHz
Analog Volume Control	Attenuation 3 dB / Step, Total 20 Steps (0 / -3 / -6 / -9 / -12 / -15 / -18 / -21 / -24 / -27 / -30 / -33 / -36 / -39 / -42 / -45 / -48 / -51 / -54 / -57 dB)
Channel Attenuation Error	$<$ 0.1 dB @ Any Attenuation Step
Channel Phase Error	$<$ 0.1 Deg @ 10 Hz - 20 kHz
Channel Separation	$<$ 120 dB @ 10 Hz - 20 kHz
USB Internal Clock Source Jitter	$<$ 800 fS @ 10 Hz - 100 kHz Bandwidth
USB Internal Clock Source Frequency Accuracy	$<$ 10 ppm @ 5 - 45°C
USB External Clock Source Frequency Accuracy	Fully Follow External 10 MHz Clock Accuracy
Digital Audio Input Jitter Attenuation	$>$ 80 dB @ $>$ 50 Hz Sine Jitter $>$ 60 dB @ Wideband Random Noise Jitter
Digital Audio Input Locking Range	$<$ +/- 120 ppm
Digital Audio Input Clock Data Recovery Setting Time	$<$ 1200 mS
Digital Audio Input Clock Data Recovery Intrinsic Jitter	$<$ 1 pS @ 10 Hz - 100 kHz Bandwidth

8.4 Infrared Remote Specifications

Infrared Receiver

Peak Wavelength	940 nm
Reception Distance	Minimum 15 Meter @ ray axis 0 degrees; Minimum 7.5 Meter @ ray axis 45 degrees;
Half Angle	45 degrees

Infrared Remote Controller

Peak Wavelength	940 nm @ I_F = 20 mA
Viewing Angle	45 degrees @ I_F = 20 mA
Control Function	Standby; Input selection (Ravenna Temporarily unavailable; USB; AES; S/PDIF Coaxial; S/PDIF Optical); Mute; Dim; Volume.
Power	2x AAA Batteries
Dimensions	40 mm (W) x 21 mm (H) x 180 mm (D)
Weight	0.19 kg (Excluding batteries)

Specifications are subject to change without notice.

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