NADAC L

DIGITALLY CONTROLLED ANALOG PREAMPLIFIER

USER MANUAL

MASTER FIDELITY

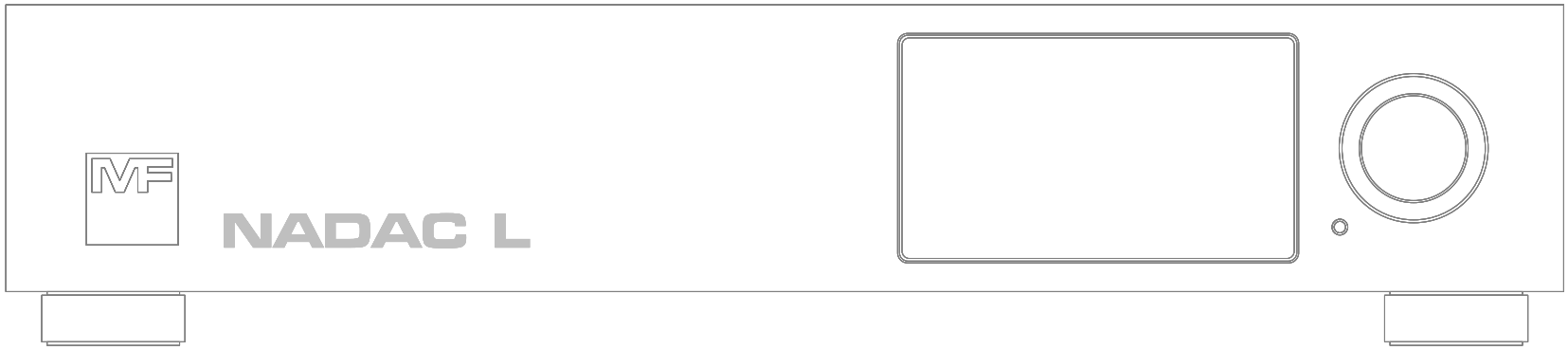
www.master-fidelity.com

First of all, thank you for choosing

NADAC L

DIGITALLY CONTROLLED ANALOG PREAMPLIFIER

Contents



1. Important Safety and Installation Instruction

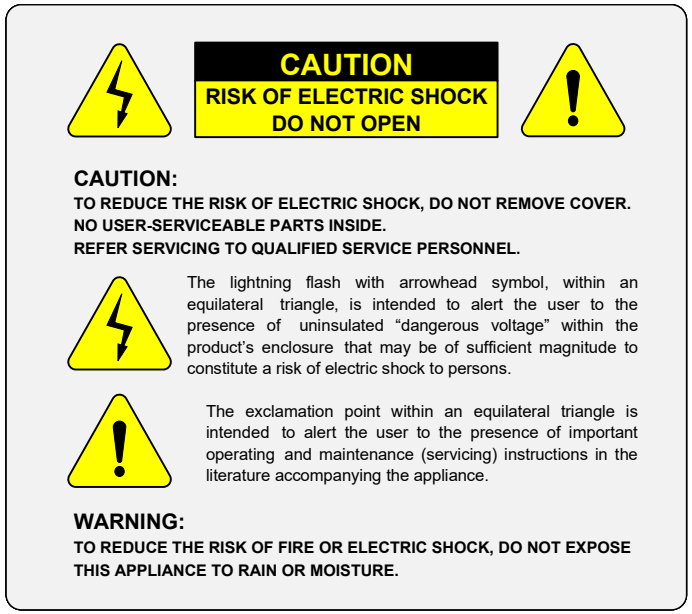
1.1 Important Instructions to Prevent Possible Fire, Electric Shock and Other Personal Injury

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.



THE DEVICE MUST BE GROUNDED – 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.

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.

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.

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 C** 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.

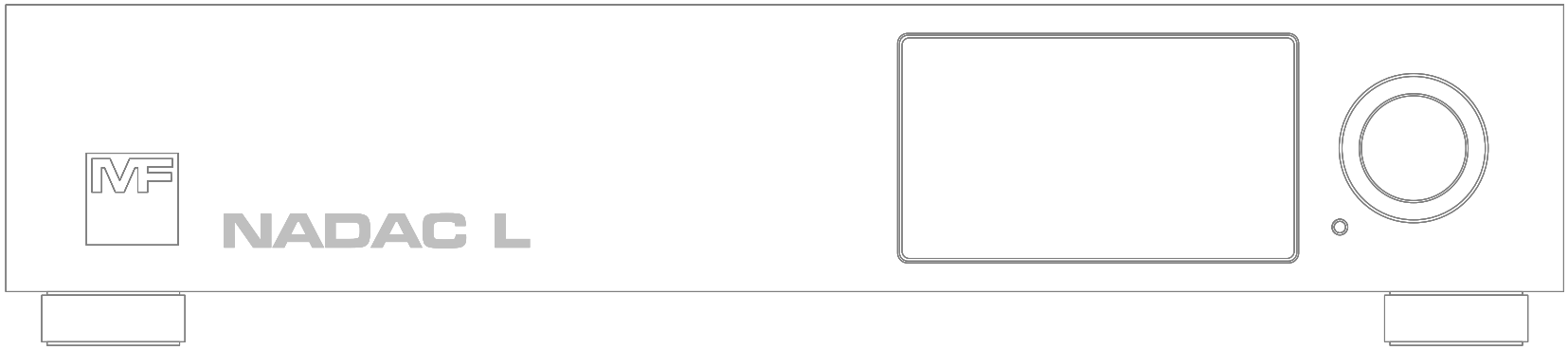
1.5 Environmental Limits

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

The **NADAC L** is the latest addition to the MASTER FIDELITY NADAC family. "L" can be interpreted as either Line Stage or Line Level. It is defined as a critical signal connection and transmission platform within the NADAC high-end audio system-a digitally controlled analog line-level preamplifier designed to perfectly match the revolutionary true 1-bit DAC, **NADAC D**, and the ultra-high-precision digital audio clock, **NADAC C**.

Continuing the design philosophy established with **NADAC D**, **NADAC L** was co-developed with top semiconductor partners and features a dedicated volume control chip tailored specifically for high-end audio applications.

This chip, based on Hi-End customized JFET-like CMOS ASIC technology and a pure signal-transmission philosophy, delivers precise 1 dB step volume control from 0 to –60 dB with channel imbalance of less than 0.1 dB, ultra-low total harmonic distortion plus noise (THD+n), an exceptionally high signal-to-noise ratio (SNR), and absolutely click-free operation during volume adjustment.

Structurally, the **NADAC L** adopts a true dual-mono circuit design, ensuring virtually negligible crosstalk between channels. The digital control system and the analog audio circuits are fully electromagnetically isolated.

All components along the audio signal path - including 5 ppm ultra-precision resistors and high - quality hybrid capacitors - are meticulously selected to ensure uncompromised sonic performance.

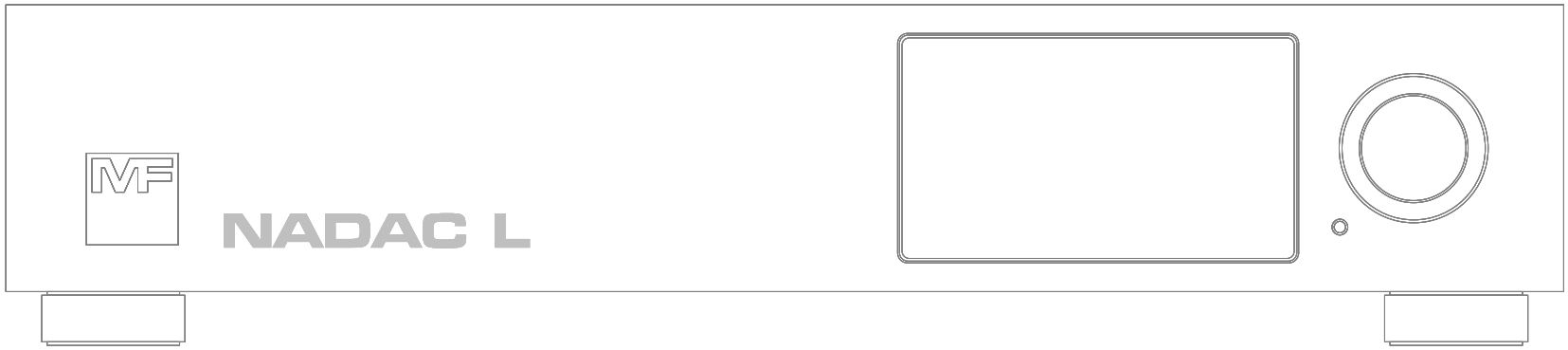
In terms of power, **NADAC L** is equipped with a super - linear power system. Its toroidal transformer is crafted from the highest-grade core material, with only the finest sections selected from each coil batch - limiting production to just ten **NADAC L** transformers per batch. Combined with an ideal rectification circuit and a large-capacity, natural-toned capacitor array, the power section enables ultra-low noise and outstanding transient response.

Regarding input and output flexibility, the **NADAC L** provides four true differential balanced stereo inputs and two true single-ended unbalanced stereo inputs, all featuring high-linearity current-driving stages, along with three balanced stereo outputs and one single-ended stereo output. The three balanced outputs can operate independently or be linked together as grouped outputs, accommodating Tri-Amp or Bi-Amp configurations.

Furthermore, **NADAC L** incorporates professional-standard LED peak meters for monitoring both incoming and outgoing signal levels, with ±0.05 dB accuracy and peak hold functionality.

All of these design elements culminate in an ultra-low noise floor and outstanding channel separation, delivering precise, stable stereo imaging and expansive soundstages. Its immense dynamic headroom and rapid transient response allow the **NADAC L** to reproduce any genre of music with breathtaking fidelity.

The combination of **NADAC C + D + L** elevates the long-pursued dream of achieving analog-like sound from digital audio to unprecedented heights.



3. Front Panel

3.1 Touchscreen

① **Touchscreen**

All operating statuses, parameter settings, and the majority of user operations of the **NADAC L** are managed through this touchscreen.

3.2 Volume Control Knob

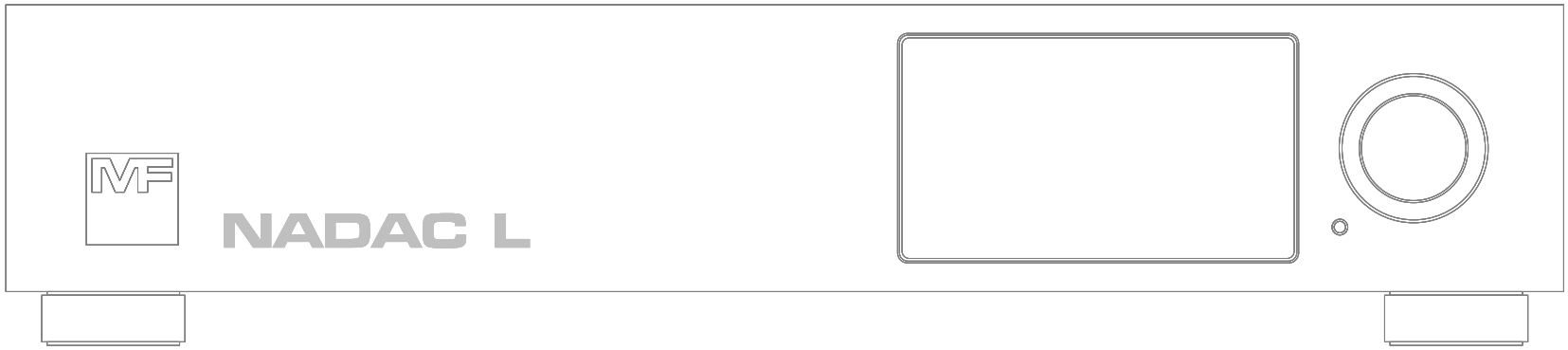
② **Volume control knob**

The volume control knob serves two functions: real-time volume adjustment and pre-setting volume levels during programming.

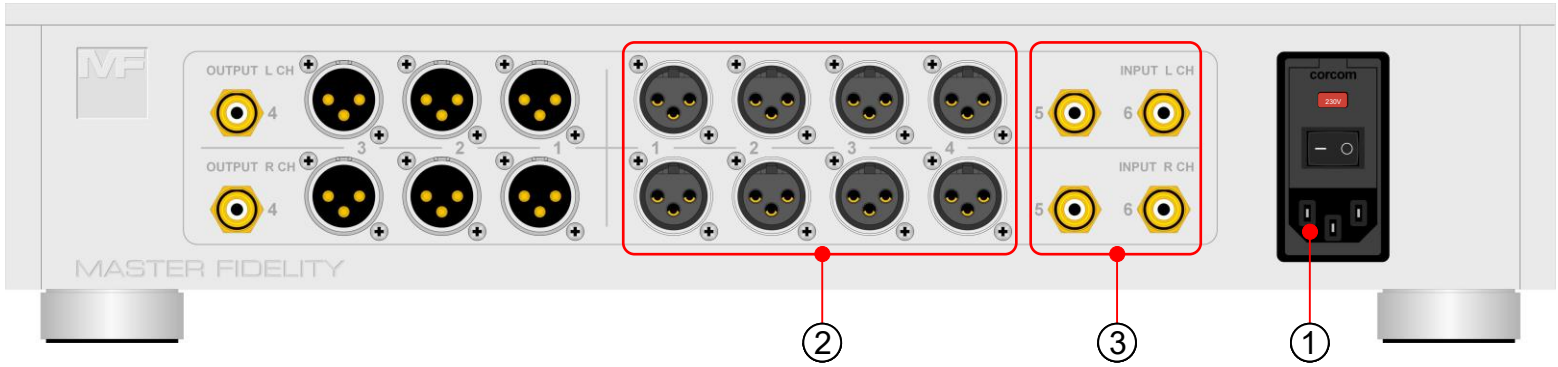
3.3 Infrared Remote Control Receiver Sensor

③ **Infrared remote control receiver sensor**

It receives remote control signals transmitted by the infrared remote controller provided with the **NADAC L**.



4. Rear Panel



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

① **AC power connector, input voltage selector, power switch, and fuse**

The AC power inlet complies with IEC 60320 C14 standards and is equipped with an input voltage selector, a power switch, and a single fuse.

The AC input voltage range is 100 V to 120 V or 200 V to 240 V, at 50 or 60 Hz.

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

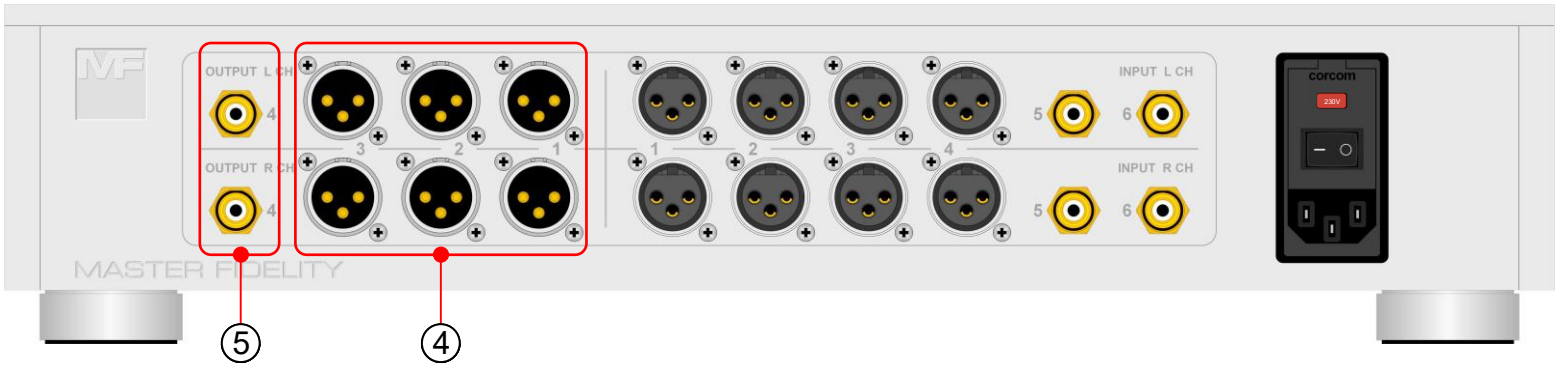
4.2 Analog Audio Input Connectors

② **Balanced stereo input connectors**

XLR-3-F (four pairs), balanced transmission.

③ **Unbalanced stereo input connectors**

Phono (RCA) (two pairs), unbalanced transmission.



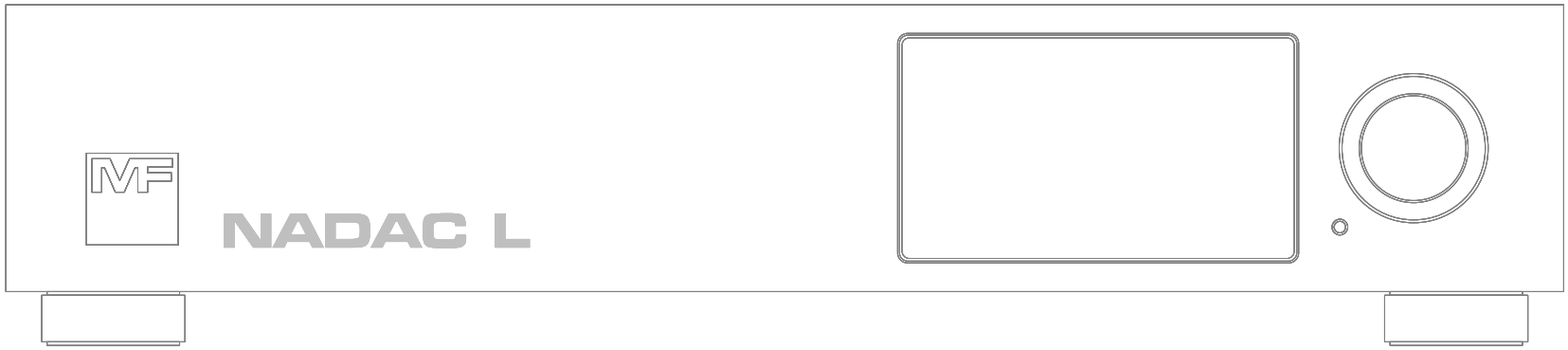
4.3 Analog Audio Output Connectors

④ **Balanced stereo output connectors**

XLR-3-M (three pairs), balanced transmission.

⑤ **Unbalanced stereo output connectors**

Phono (RCA) (one pair), unbalanced transmission.



5. Touchscreen and Display Pages

5.1 Touchscreen

The **NADAC L** features a color LCD touchscreen with a MIPI interface. The display area measures 109.5 mm (width) x 61.5 mm (height), with a resolution of 854 x 480 pixels.

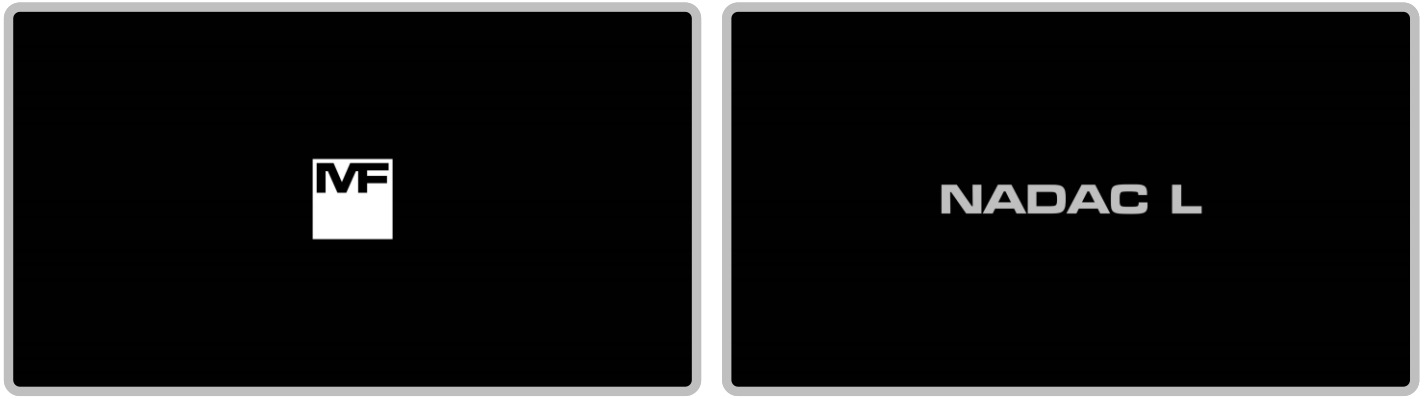
5.2 Touchscreen Display Pages

The touchscreen interface of the **NADAC L** includes the following pages: Boot Page, Operation Page, Settings Page, and Listening Page.

5.2.1 Boot Pages

The Boot page appears briefly when the **NADAC L** is powered on.

It consists of two screens displaying the company logo and the device name.

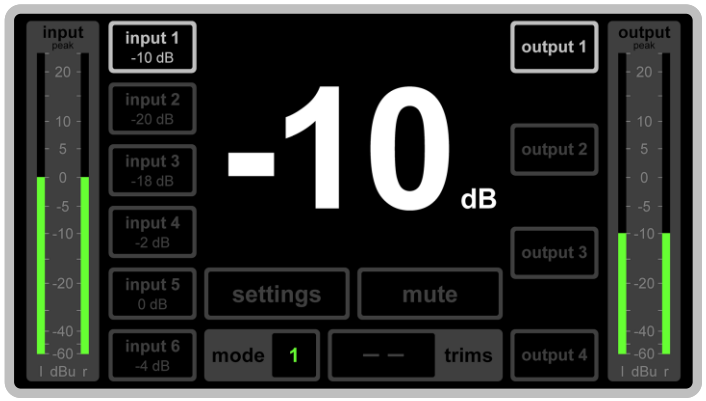


5.2.2 Operation Page

After the Boot Page is displayed, the touchscreen transitions to the Operation Page. This is the default screen during normal use of the **NADAC L** .

5.2.2.1 Operating Modes of the Operation Page

The Operation Page of the **NADAC L** supports five different operating modes: **mode 1**, **mode 2**, **mode 3**, **mode 4**, and **mode 5**.

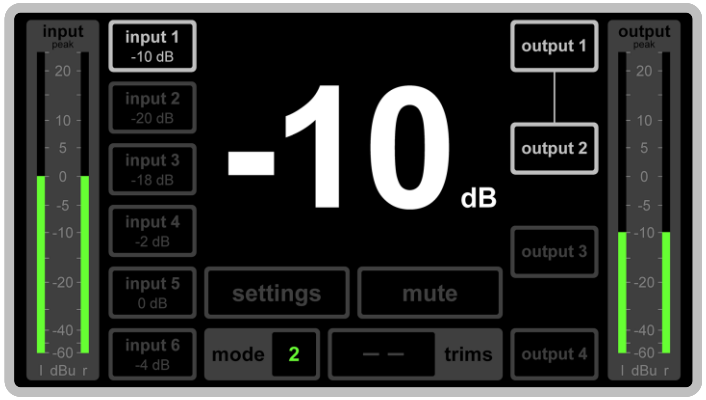


mode 1 is the most basic and commonly used operating mode.

Input switching: one of six (4 balanced + 2 unbalanced).

Output switching: one of four (3 balanced + 1 unbalanced).

Volume levels are adjusted in real time, with no pre-trim memory.

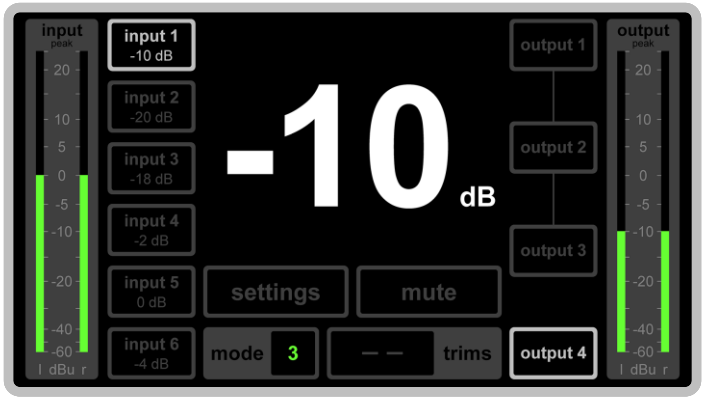


mode 2 is designed for bi-amp 2-way speaker systems.

Input switching: one of six (4 balanced + 2 unbalanced).

Output is either simultaneous through two balanced outputs, one additional balanced output, or one unbalanced output (one-out-of-three).

Volume levels are adjusted in real time, with no pre-trim memory.

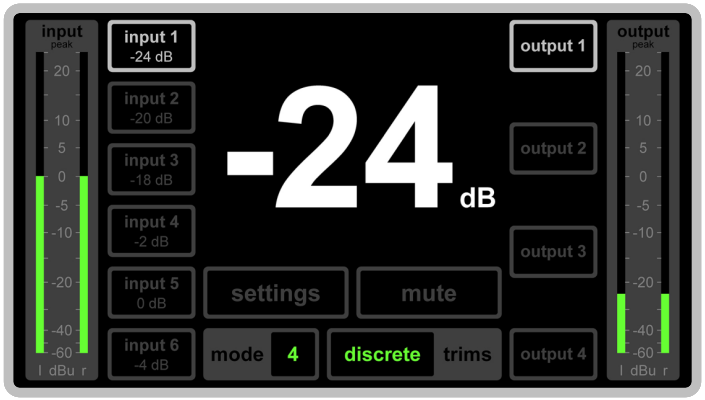


mode 3 is designed for tri-amp 3-way speaker systems.

Input switching: one of six (4 balanced + 2 unbalanced).

Output is either simultaneous through three balanced outputs or through one unbalanced output (one-out-of-two).

Volume levels are adjusted in real time, with no pre-trim memory.



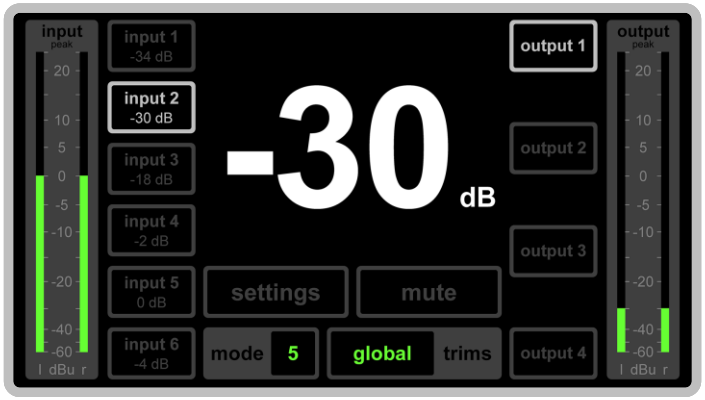
mode 4 is the advanced application mode of the NADAC L .

Input switching: one of six (4 balanced + 2 unbalanced).

Output switching: one of four (3 balanced + 1 unbalanced).

Each of the four outputs can be independently programmed and stored with pre-trim levels for each input.

Real-time volume adjustment is performed on top of the stored pre-trim levels.



mode 5 is a simplified version of mode 4.

Input switching: one of six (4 balanced + 2 unbalanced).

Output switching: one of four (3 balanced + 1 unbalanced).

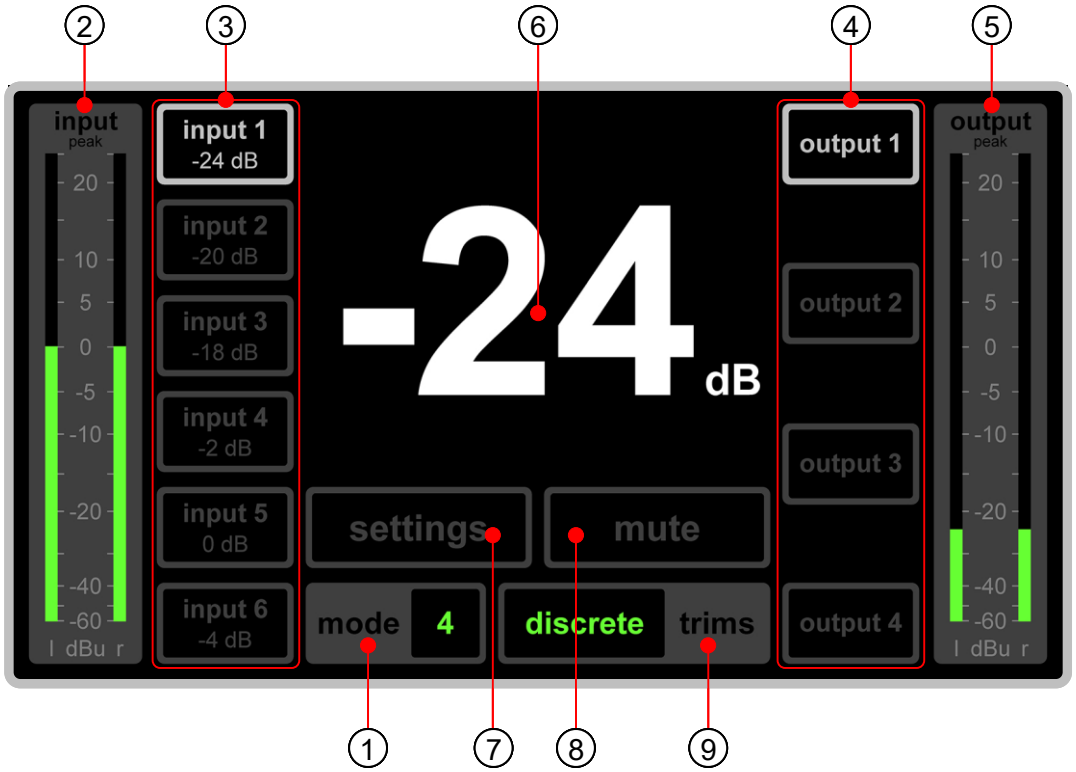
All four outputs share the same pre-trim levels per input (global trims), which are layered with real-time volume adjustment.

5.2.2.2 Structure of the Operation Page

The Operation Page of the **NADAC L** consists of the following elements (Example: **mode 4**) :

① Mode Indicator pane, ② Input Level Meter, ③ Input Switching Buttons, ④ Output Switching Buttons, ⑤ Output Level Meter, ⑥ Volume Level Indicator, ⑦ Settings Button, ⑧ Mute Button, ⑨ Trim Status Indicator pane.

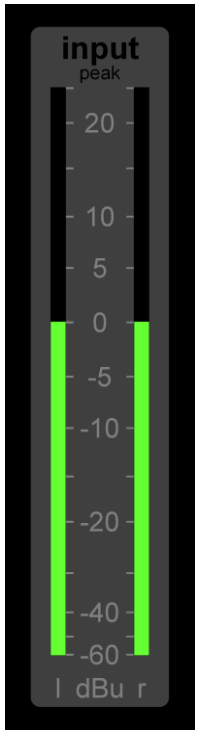
Note: Item ⑨ only appears in **mode 4** and **mode 5**.



① Mode Indicator Pane

Displays the current operating mode of the unit. Mode selection and switching are performed on the settings page.

② Input Level Meter



These meters dynamically reflect the signal level of the currently selected input (indicated by the light gray input button). They are not affected by volume settings or mute status — they always display the actual incoming signal level.

A peak-hold feature is included: the highest detected level remains displayed for 10 seconds unless a new, higher peak is detected.

Note: When selecting the **input 5** or **input 6** unbalanced input ports, due to their design maximum input level of 15.6 dBV, this maximum input level corresponds to a display of 17.8 dBu on the screen input level meter.

③ Input Switching Buttons

There are six buttons labeled input 1 to input 6, corresponding to the six available input ports.

A light gray button indicates the currently selected input. A dark gray button indicates inactive inputs.

The upper text in each input button (input 1 … input 6) can be renamed by the user according to their needs.

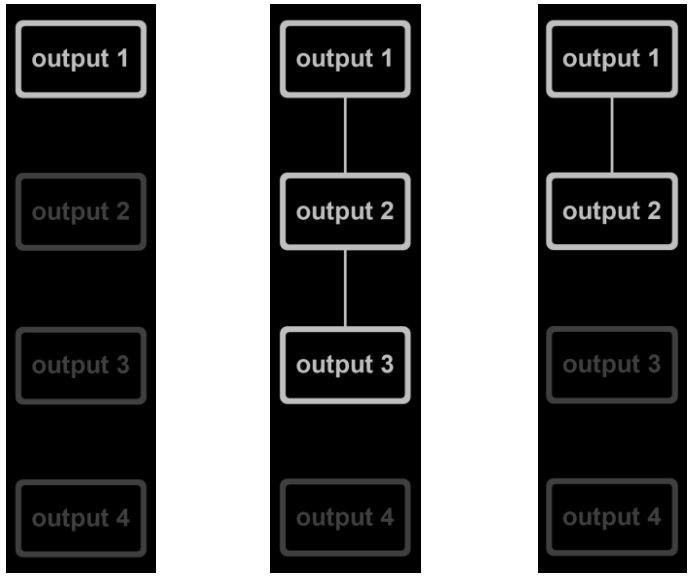
The value shown below each button is either: the last used volume level (in **mode 1**, **2**, or **3**), or the stored pre-trim level (in **mode 4** or **5**). This helps users anticipate potential volume differences when switching inputs.

④ Output Switching Buttons

There are four buttons labeled **output 1** to **output 4**, corresponding to the four output ports.

A light gray button indicates the currently selected output. A dark gray button indicates inactive outputs.

The upper text in each output button (output 1 … output 4) can be renamed by the user according to their needs.



a. Output switching buttons on mode 1, 4 and 5 pages

b. Output switching buttons on mode 2 page

c. Output switching buttons on mode 3 page

Output button behavior depends on the current mode:

a. mode 1, 4, and 5 – Output Configuration:

Outputs operate in a 4×1 “OR” configuration — only one output is active at a time.

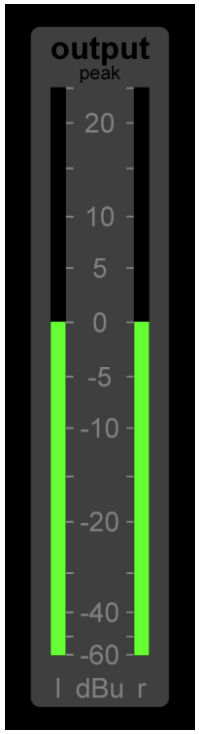
b. mode 2 – Output Configuration:

output 1, **2**, and **3** operate simultaneously “AND”; **output 4** is mutually exclusive — only one set can be active at a time (3+1 configuration).

c. mode 3 – Output Configuration:

output 1 and **2** operate simultaneously “AND”; **output 3** and **4** are exclusive with the others (2+1+1 configuration).

⑤ Output Level Meter



These meters reflect the final signal level being sent out from the selected output, and are affected by pre-trim settings, real-time volume adjustments, and mute status.

Output level logic:

1. In **mode 1, 2,** or **3**:

   On input switching: Output level = Input level + last used volume level.

   After adjustment: Output level = Input level + current knob-adjusted volume.

2. In **mode 4** or **5**:

   On input switching: Output level = Input level + stored pre-trim level.

   After adjustment: Output level = Input level + current knob-adjusted volume.

3. In **any mode**:

   When muted: Output level = – ∞

A peak-hold function is also present, displaying the highest peak for 10 seconds unless a higher one appears.

Note: When selecting the **output 4** unbalanced output port, due to their design maximum output level of 15.6 dBV, this maximum output level corresponds to a display of 17.8 dBu on the screen output level meter.

⑥ Volume Level Indicator

The volume level is displayed prominently in the center of the screen using large characters.

The volume can be adjusted using the rotary knob located on the right side of the front panel, with a range from 0 dB to –60 dB in 1 dB increments, totaling 61 steps.

When switching inputs, whether in **mode 1** to **3** (where volume recall applies) or **mode 4** or **5** (where pre-trim recall applies), the volume transition is executed gradually to avoid sudden level jumps that may result in audible pops.

⑦ Settings Button

This button switches from the operation page to the settings page.

It is always displayed in dark gray but can be taped at any time to enter the settings page.

⑧ Mute Button

Tapping this button immediately mutes the **NADAC L**. Tapping it again will cancel mute and return to normal playback.

⑨ Volume Level Trim Pane

The volume level trim pane displays the status or type of volume level trim under the current operating mode.

a. **Volume Level Trim Status for Mode 1, 2, and 3**

Since **mode 1**, **mode 2**, and **mode 3** do not support volume level trimming, the volume level trim pane on the working page displays only two short horizontal lines.

a. Volume level trim status for mode 1, 2, and 3

b. **Volume Level Trim Type for Mode 4 — Discrete Trims**

In **mode 4**, volume level trims can be individually set and stored for each pairing between **output 1** to **output 4** and **input 1** to **input 6**. Therefore, the volume level trim pane displays "**discrete**".

b. Volume level trim type for mode 4

c. **Volume Level Trim Type for Mode 5 — Global Trims**

In **mode 5**, **output 1** to **output 4** share a common set of volume level trims for **input 1** to **input 6**. Therefore, the volume level trim pane displays "**global**".

b. Volume level trim type for mode 5

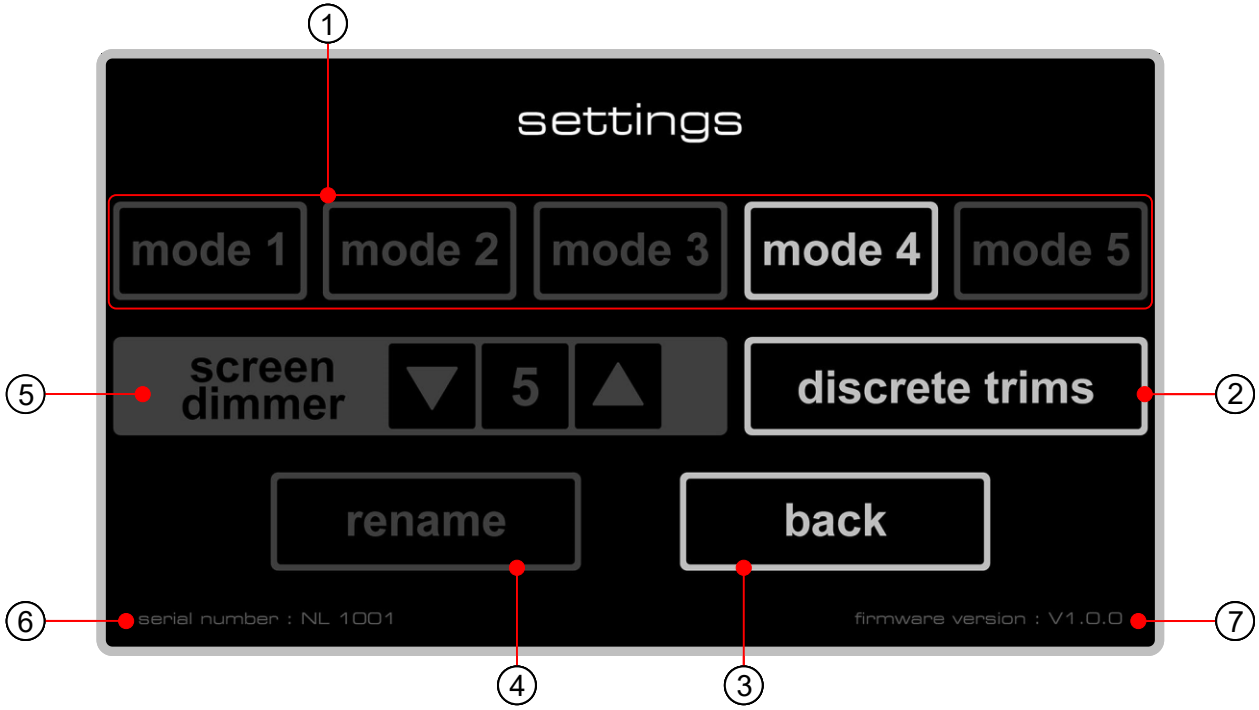
The volume level trims pane on the working page is not tapable. To adjust or reset the output trims for **mode 4** or **mode 5**, you must first enter the settings page and then navigate to the volume level trim sub-page to complete the operation.

5.2.3 Settings Page

Tapping the **settings** button on the operation page opens the settings page.

5.2.3.1 Structure of the Settings Page

The settings page of the **NADAC L** consists of the following components: ① Five mode switching buttons, ② Trim subpage entry button (only available for mode 4 and 5), ③ Back button, ④ Rename button, ⑤ Screen brightness control, ⑥ Device Serial Number, ⑦ Firmware Version.



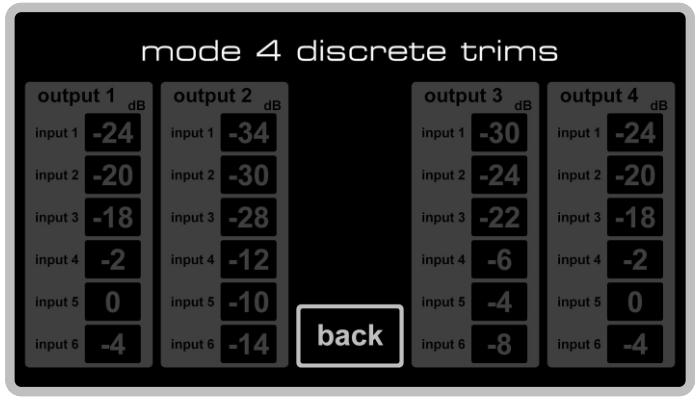
Note: Item ② — the Trim Subpage Entry Button — is exclusive to mode 4 and mode 5. It becomes active (light gray with a visible label) only when either mode 4 or mode 5 is currently selected (i.e., the corresponding mode button is displayed in light gray).

(In the example above, mode 4 is active.)

5.2.3.2 Volume Trim Subpage – mode 4 (Discrete Trims)

In this subpage, each output (**output 1** to **4**) can be independently assigned a pre-trim level for each input (**input 1** to **6**).

The adjusted values are stored and automatically recalled when using **mode 4**.



5.2.3.3 Volume Trim Subpage – mode 5 (Global Trims)

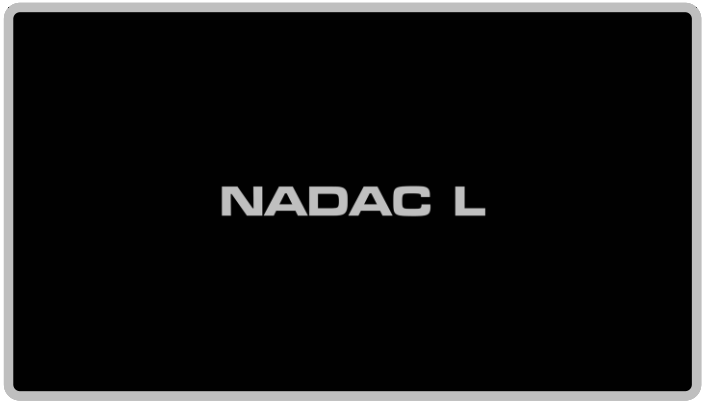
In this subpage, a shared pre-trim level is assigned for all outputs (**output 1** to **4**) for each input (**input 1** to **6**).

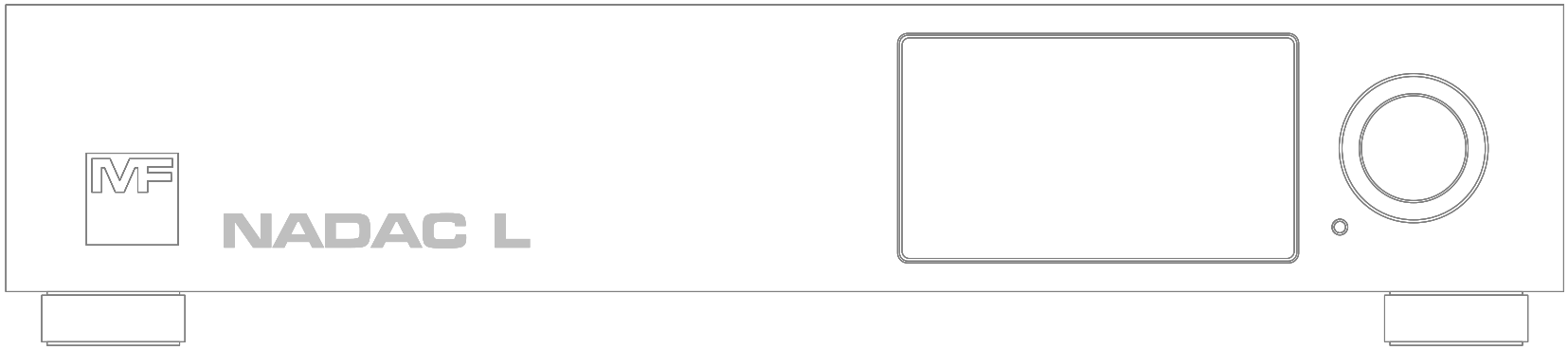
The adjusted values are stored and automatically recalled when using **mode 5**.

5.2.4 Listening Page

The Listening Page is visually identical to the device name screen shown during startup, but displayed at a lower brightness level.

This page is designed to minimize visual distraction once all operating parameters have been set and the user begins focused music listening. It provides a calm, simplified display environment to support an immersive listening experience.

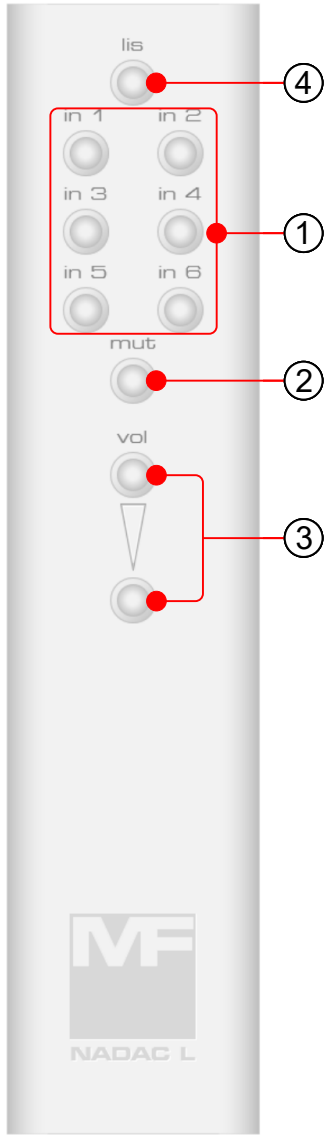




6. Infrared Remote Controller

6.1 Infrared Remote Controller

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



① in 1 ~ in 6 — Input switching keys for the six available inputs (input 1 to input 6).

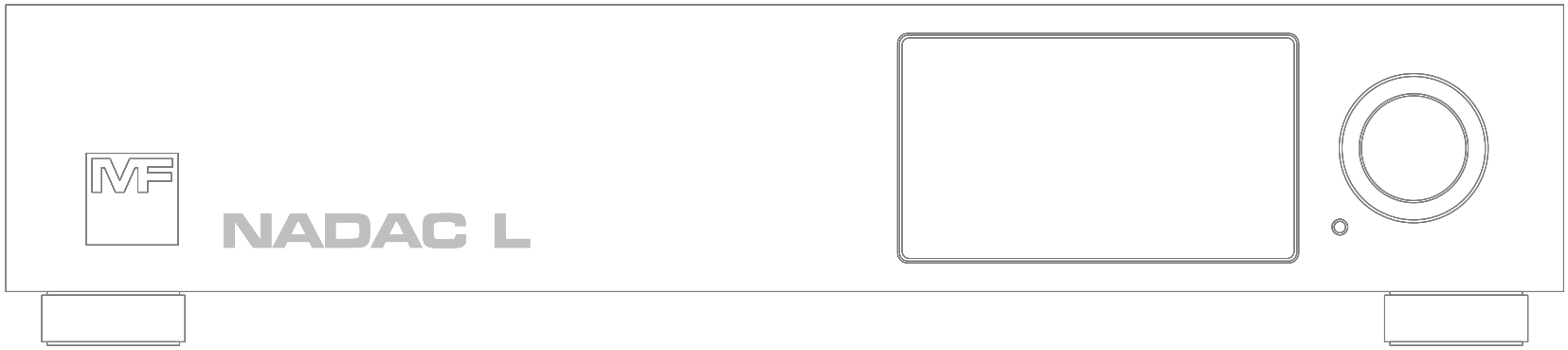
② mut (mute) — Mute key. Each press toggles the **NADAC L** between mute and unmute states.

③ vol (volume) — Volume adjustment keys. Pressing the upper or lower volume key repeatedly or continuously increases or decreases the volume step by step, until the maximum or minimum level is reached.

Note: The volume range spans from -60 dB to a maximum of 0 dB (or a defined trim limit), with each press adjusting the level in 1 dB increments.

④ lis(listen) — Listening mode key. Each press toggles the **NADAC L** between Listening State and Operation Mode.

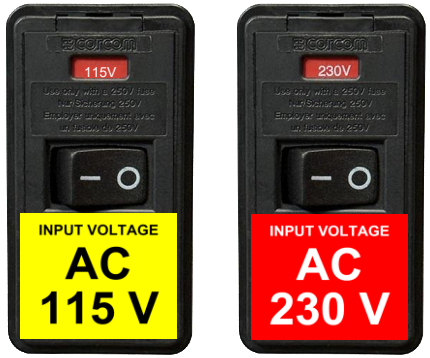
The remote control is powered by two 1.5V AAA batteries



7. Operation

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 in the fuse holder.

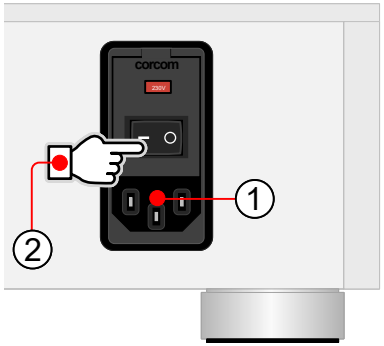
When facing the fuse holder:

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

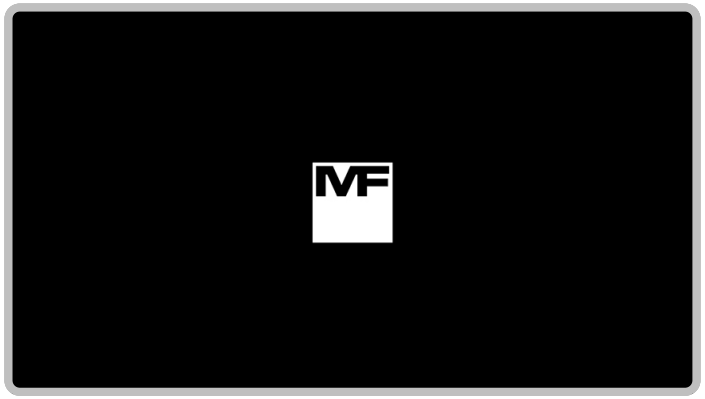


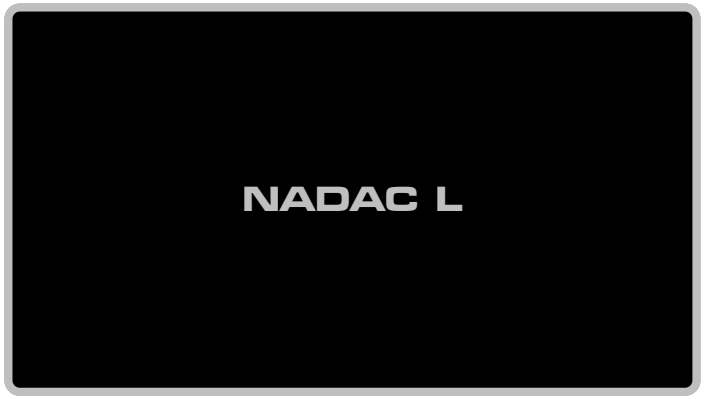
① After confirming that the selected or adjusted AC input voltage setting is correct for your country or region, connect the AC power cable. The end of the AC power cable that connects to **NADAC D** must conform to the IEC-60320 C14 standard. The plug at the other end, which connects to your mains power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





Upon powering on, the boot pages are displayed. These consist of the company logo and the product name, each shown for approximately 3 seconds.

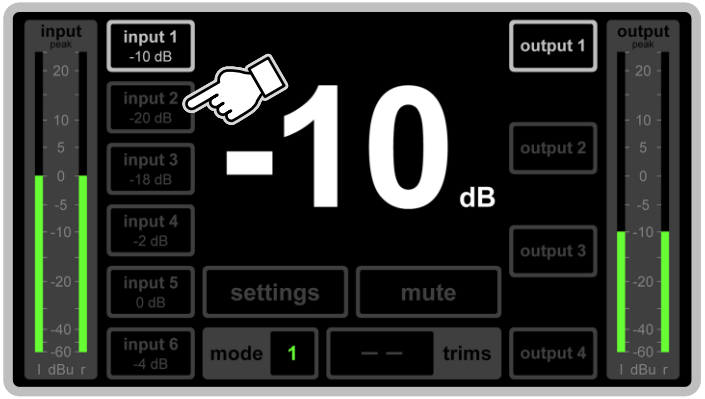
7.3 Input Switching

7.3.1 Input Switching via Touchscreen (Example: Switching from input 1 to input 2 in mode 1)

On the **mode 1** working page, simply tap the input button you wish to switch to (in this example, **input 2**) to complete the input change.

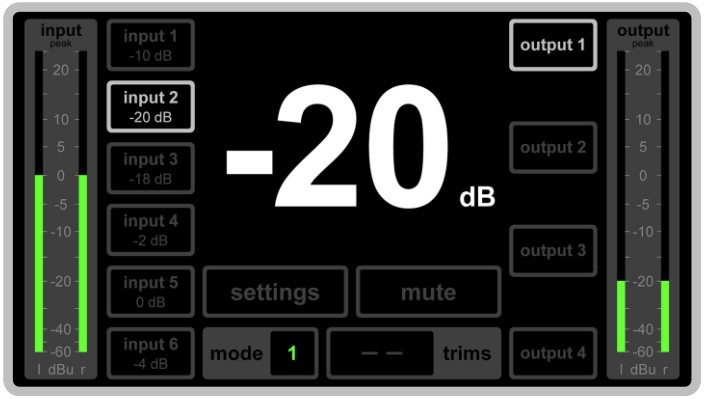
Note: In this example, the -10 dB shown on the **input 1** button represents the current volume level of NADAC L, which will be stored when **input 1** is deselected and restored the next time it is selected.

The -20 dB shown on the **input 2** button is the last remembered level from when **input 2** was previously deselected.



Upon completion of the switch, the **input 1** button changes to dark gray, the **input 2** button changes to light gray, and the connection line is updated to reflect the new input switching.

Note: When **input 2** is selected, its previously stored volume level (in this case, -20 dB) is automatically recalled, and NADAC L adjusts the current output level accordingly. To prevent abrupt signal jumps caused by significant differences between the deselected and newly selected input levels, all transitions - whether from low to high or high to low - are processed using gradual fade-in and fade-out handling.



The input switching procedure is identical across all five working modes (**mode 1** through **mode 5**). The only difference lies in how the volume level is recalled:

In **mode 1**, **2**, and **3**, the system recalls the last volume level at the time the input was deselected.

In **mode 4** and **5**, the system recalls the preset volume level stored in the output trims page.

7.3.2 Input Switching via infrared remote controller

(Example: Switching from input 1 to input 2 in mode 1)

On the infrared remote controller, press the corresponding IN 1 through IN 6 key (in this example, IN 2) to switch inputs in the same manner.

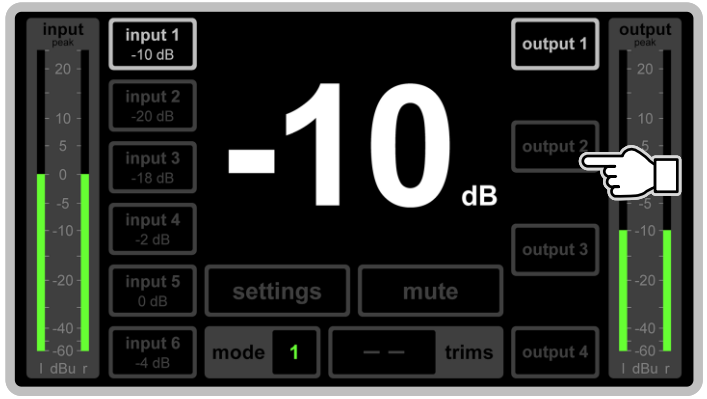
7.4 Output Switching

7.4.1 Output Switching in mode 1, 4, and 5

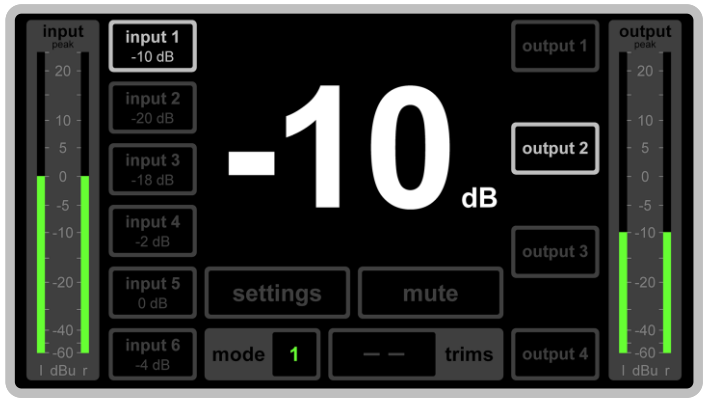
(Using mode 1: Switching from output 1 to output 2 as an example)

In **mode 1**, **4**, and **5**, the four output channels are structured as 1 + 1 + 1 + 1 — that is, **output 1**, **2**, **3** and **4** are completely independent. Therefore, switching is limited to a “one-out-of-four” choice.

On the operation page of **mode 1**, simply tap the desired output button (in this example, **output 2**) to complete the switch.



Once the switch is completed, the **output 1** button will turn dark gray, and the **output 2** button will turn light gray. The connection line associated with the button will also update accordingly.



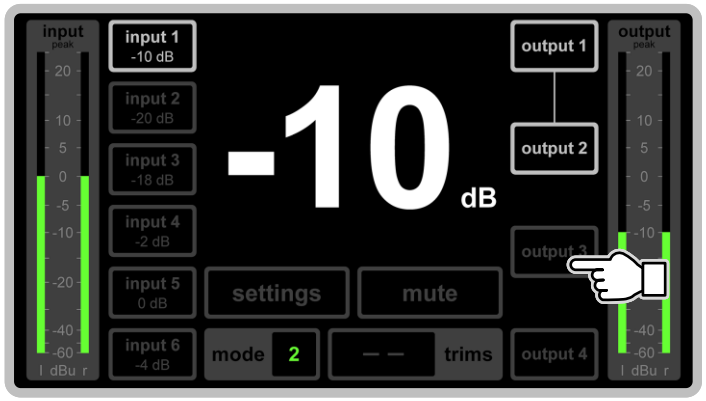
The switching operations in **mode 1**, **4**, and **5** are identical.

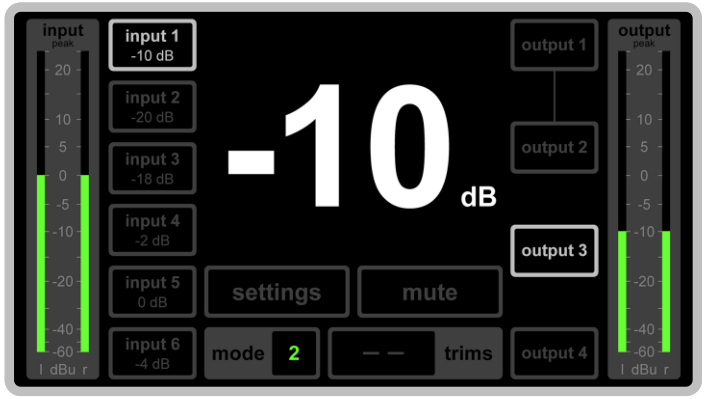
7.4.2 Output Switching in mode 2 (Using mode 2: Switching from output 1/2 to output 3 as an example)

In **mode 2**, the four output channels are configured as 2 + 1 + 1 - meaning **outputs 1** and **2** are grouped together, while **output 3** and **output 4** are independent. Therefore, switching is limited to a "one-out-of-three" choice between **output 1/2**, **output 3**, and output **4**.

On the operation page of **mode 2**, simply tap the desired output button (in this example, **output 3**) to complete the switch.

Once the switch is completed, the **output 1/2** buttons will turn dark gray, while the **output 3** button will turn light gray.

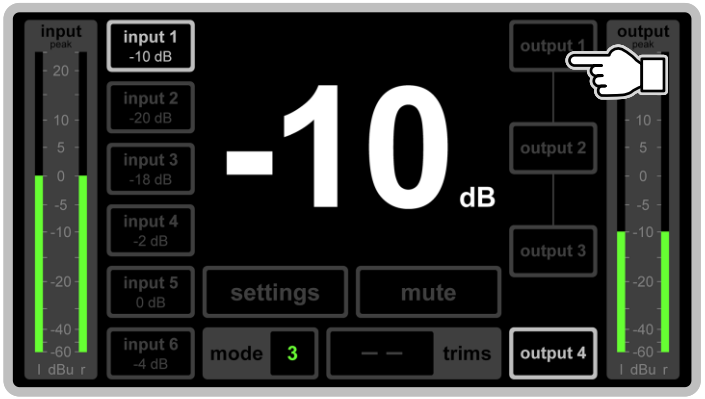




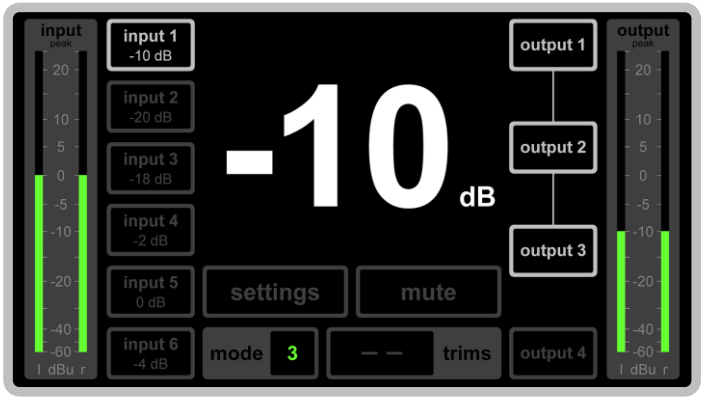
7.4.3 Output Switching in mode 3 (Using mode 3: Switching from output 4 to output 1/2/3 as an example)

In **mode 3**, the four output channels are configured as 3+1 - meaning **outputs 1**, **2**, and **3** are grouped together, while **output 4** is independent. Therefore, switching is limited to a “one-out-of-two” choice between **output 1/2/3** and **output 4**.

On the operation page of **mode 3**, simply tap any one of the **output 1**, **2**, or **3** buttons to complete the switch.



Once the switch is completed, the **output 4** button will turn dark gray, while the **output 1/2/3** buttons will turn light gray.



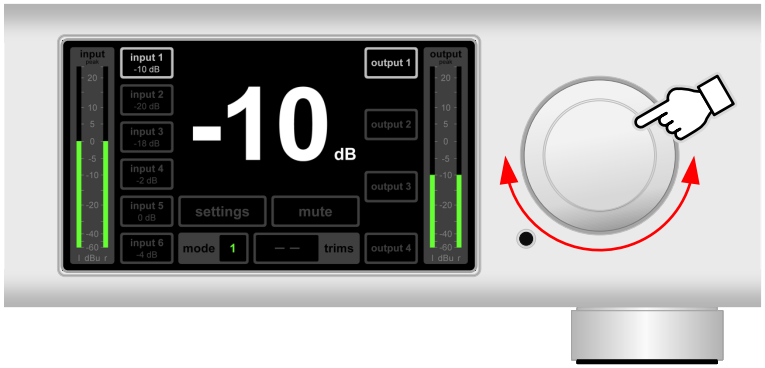
Note: Output switching is not available via the Infrared Remote Controller. All output switching must be performed via the touchscreen interface

7.5 Volume Adjustment

7.5.1 Adjusting Volume via Onboard Knob

Volume can be adjusted using the rotary encoder located on the front panel of the **NADAC L**.

The volume adjustment range spans from a maximum attenuation of -60 dB to 0 dB (no attenuation), with a step size (precision) of 1 dB, resulting in a total of 61 steps.



To increase the volume, rotate the encoder knob clockwise. Each detent during rotation increases the volume by 1 dB.

To decrease the volume, rotate the knob counterclockwise. Each detent reduces the volume by 1 dB.

As you rotate the encoder, the large numerical volume level displayed at the center of the screen will update in real time. The displayed value ranges from -60 dB (minimum) to 0 dB (maximum) and changes in 1 dB increments, corresponding to the 61-step scale.

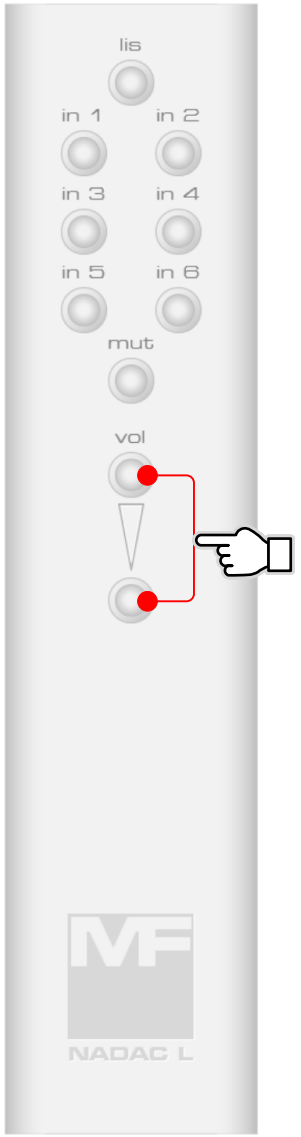
7.5.2 Adjusting Volume via Infrared Remote Controller

Regardless of the working page (**mode 1** through **mode 5**), volume can be adjusted via infrared remote controller.

To increase the volume, press the upper VOL key. Each press increases the volume by 1 dB. You can also hold down the key to increase the volume continuously until it is released or reaches the maximum.

To decrease the volume, press the lower VOL key. Each press decreases the volume by 1 dB. You can also hold down the key to decrease the volume continuously until it is released or reaches the minimum.

As the volume is adjusted, the large volume level value displayed in the center of the screen updates accordingly, ranging from -59 dB (minimum) to 0 dB (maximum) in 1 dB steps, for a total of 60 steps.



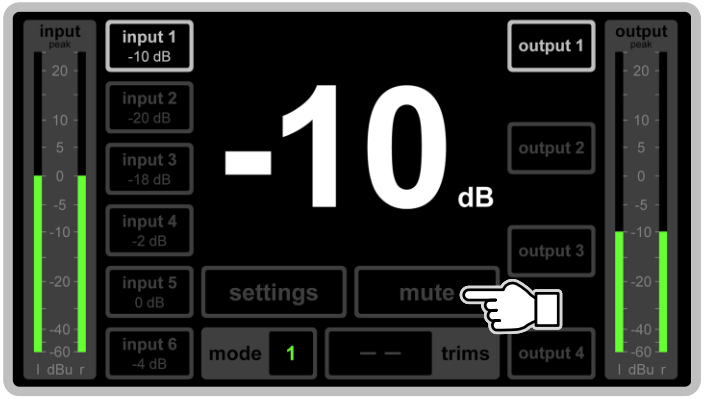
7.6 Mute

When **NADAC L** is in mute state, the input signal is completely blocked and is not routed to any output ports.

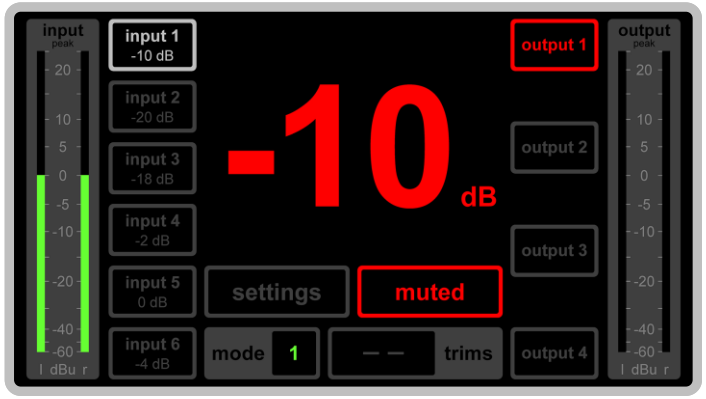
Note: While the entire audio system is powered on, it is safest to place **NADAC L** in mute state before plugging or unplugging signal cables from the input ports.

7.6.1 Entering and Exiting Mute State via Touchscreen

On any of the working mode pages (**mode 1** to **mode 5**), simply tap the **mute** button on the screen to immediately activate mute state.



When mute state is activated, the **mute** button, the large volume decibel display at the center of the screen, and the button and connecting line of the currently selected output channel will all turn red, while the output level meter will display – ∞, indicating that the signal path has been cut off by the mute function and no output level is present.



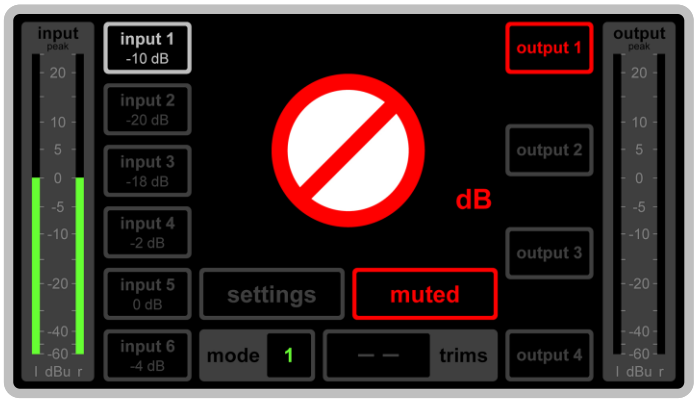
To exit mute state, simply tap the **muted** button on the screen again to restore output.

7.6.2 Entering and Exiting Mute State via Infrared Remote Controller

Regardless of which working mode page (**mode 1** to **mode 5**) is active, pressing the mut (mute) key on the Infrared Remote Controller will immediately place **NADAC L** into mute state.

To exit mute state, press the mut (mute) key again to restore signal output.

Note: When the sound is muted, the lis button on the remote control is disabled. If you press the button at this time, the ⊘ (operation disabled) icon will be displayed on the screen for 1 second.

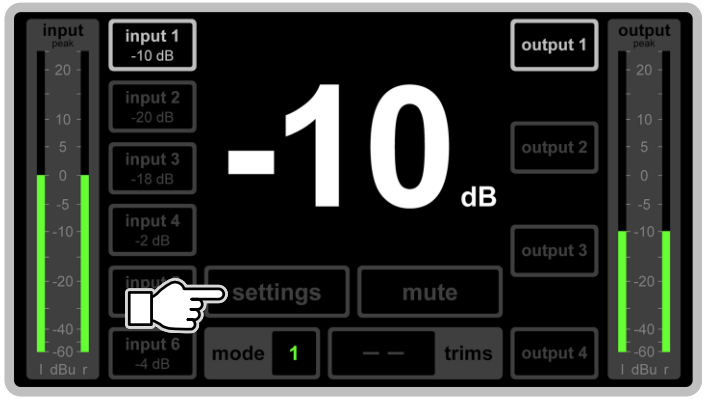


7.7 Switching Between Working Mode Pages

Switching between the five working mode pages (**mode 1** through **mode 5**) is performed on the settings page.

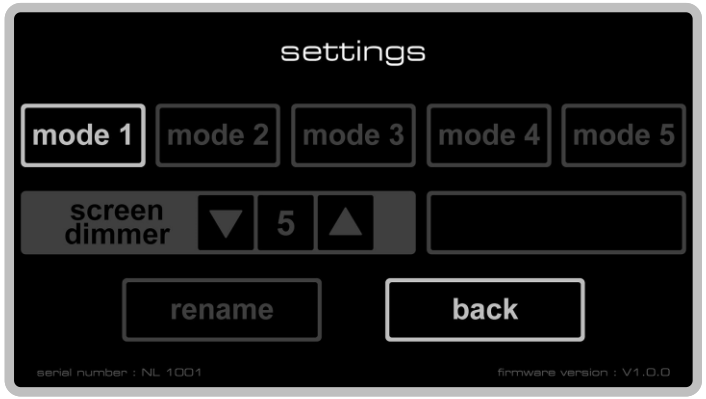
7.7.1 Entering the Settings Page

From any of the working mode pages (**mode 1** to **mode 5**) - for example, from **mode 1** - you can enter the settings page by tapping the **settings** button



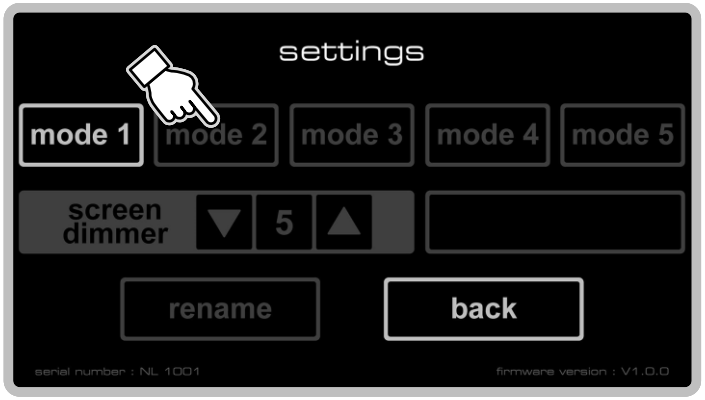
On the settings page, the button for the mode from which the settings page was accessed (e.g., **mode 1**) and the **back** button will both be highlighted.

In this state: If you choose not to switch modes, you can tap the **back** button to return to the **mode 1** working page. Alternatively, if no action is taken within 10 seconds, the system will automatically return to the previously active **mode 1** working page.



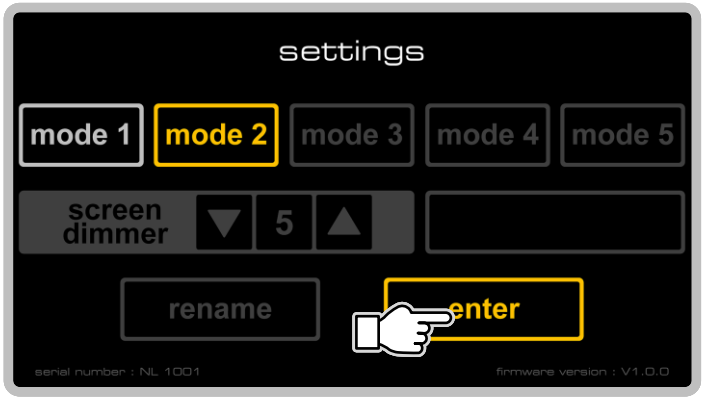
7.7.2 Switching Working Mode Page (Example: Switching from mode 1 to mode 2)

On the settings page, tap the **mode 2** button.



After tapping, both the **mode 2** and **back** buttons will turn yellow, indicating that the system is awaiting confirmation. The **mode 1** button remains light gray, signifying that **mode 1** is still the currently active working mode.

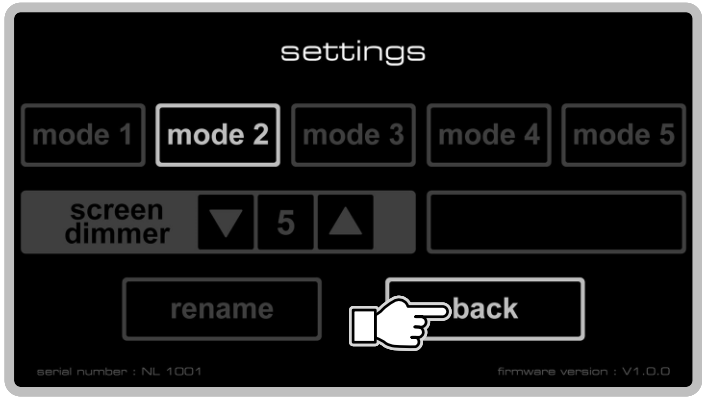
To confirm the switch to **mode 2**, tap the **enter** button.



While **mode 2** and **enter** are displayed in yellow (pending confirmation), you may also tap a another mode button to reselect a different working mode. The newly selected button will turn yellow, while the previously selected one will revert from yellow to dark gray.

Once the mode change is confirmed, the **mode 1** button turns dark gray, and both the **mode 2** and **enter** buttons turn light gray, indicating that **mode 2** is now the active working mode.

Tap the **back** button to return to the **mode 2** working page.



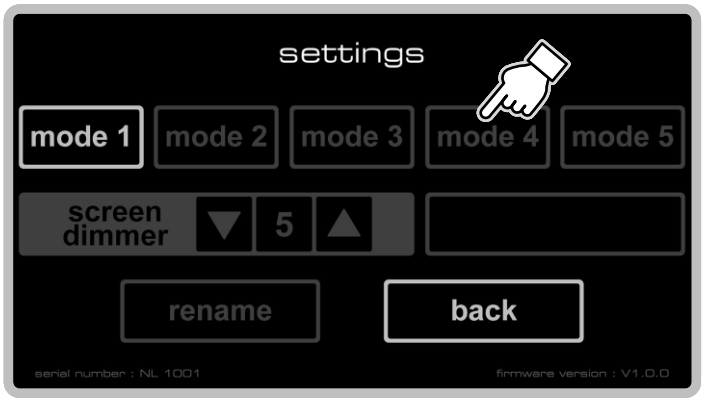
Regardless of the current state of the settings page, if no operation is performed within 10 seconds, the system will automatically return to the currently active (light gray) working mode page.

Note: The procedure for switching from any currently active working mode to **mode 3** is the same as the steps described above for switching from **mode 1** to **mode 2**. However, the procedures for switching to **mode 4** and **mode 5** differ slightly. For detailed instructions, please refer to section **7.7.3 Switching Working Mode Page (Example: Switching from mode 1 to mode 4)** and section **7.7.4 Switching Working Mode Page (Example: Switching from mode 1 to mode 5)**.

Important: There is no button on the infrared remote controller for accessing the settings page or for performing any settings operations. All such functions must be executed via the touchscreen interface.

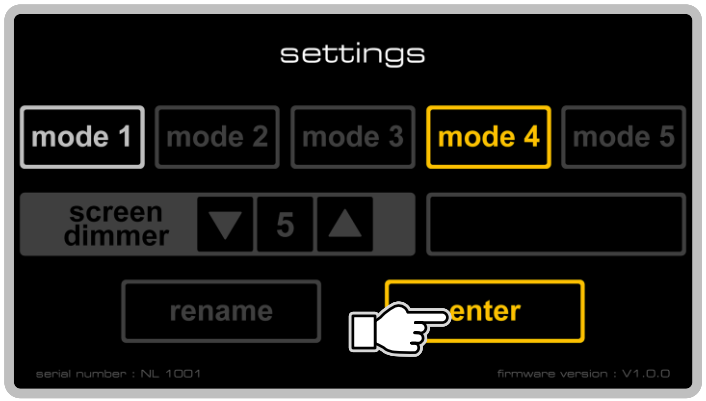
7.7.3 Switching Working Mode Page (Example: Switching from mode 1 to mode 4)

On the settings page, tap the **mode 4** button.



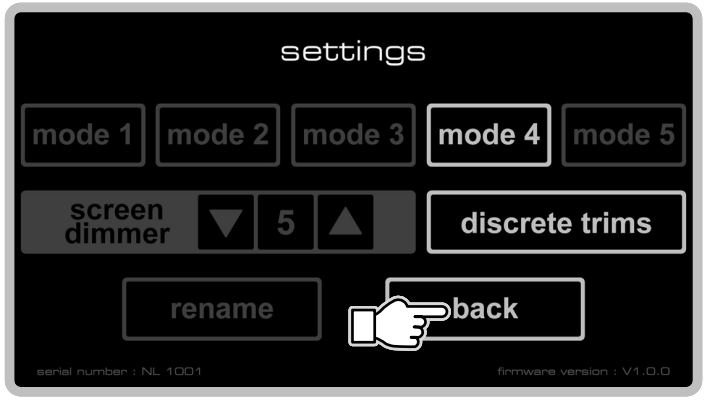
After tapping, both the **mode 4** and **enter** buttons will turn yellow, indicating a pending change, while the **mode 1** button remains light gray, signifying that **mode 1** is still the currently active working mode.

To confirm the switch to **mode 4**, tap the **enter** button.



While **mode 4** and **enter** are displayed in yellow (pending confirmation), you may also tap another mode button to reselect a different working mode. The newly selected button will turn yellow, while the previously selected one will revert from yellow to dark gray.

Once the mode change is confirmed, the **mode 1** button turns dark gray, and both the **mode 4** and **enter** buttons - as well as the previously empty button box below - turn light gray, indicating that **mode 4** is now the active working mode. The button box will also display the label **discrete trims**.



Tap the **back** button to return to the **mode 4** working page.

Regardless of the current state of the settings page, if no operation is performed within 10 seconds, the system will automatically return to the currently active (light gray) working mode page.

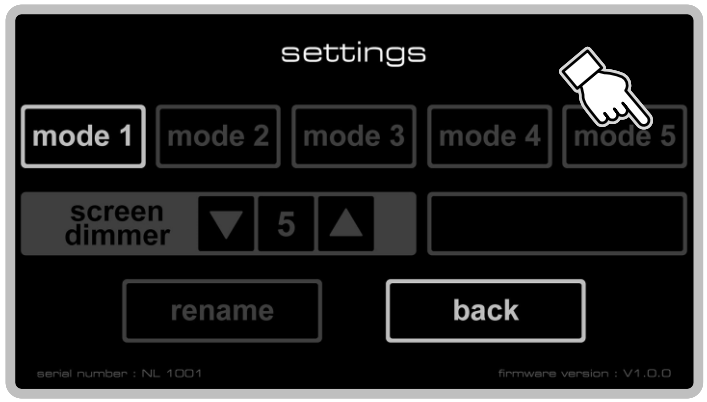
Note: The "**discrete trims**" label will appear in the button box beneath the **mode 4** button only when **mode 4** is currently active (light gray). Tapping this button will navigate to the mode 4 discrete trims sub-page. For details on operating this sub-page, please refer to section **7.8.1 Accessing the "Mode 4 Discrete Trims" Sub-Page**.

If **mode 1, 2**, or **3** is active, or if **mode 4** and **enter** are still in the yellow (pending) state, the button box will remain blank and tapping it will have no effect.

Important: There is no button on the infrared remote controller for accessing the settings page or for performing any settings operations. All such functions must be executed via the touchscreen interface.

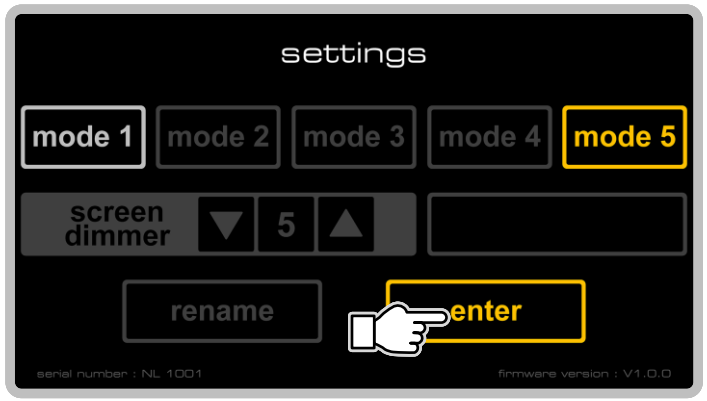
7.7.4 Switching Working Mode Page (Example: Switching from Mode 1 to Mode 5)

On the settings page, tap the **mode 5** button.



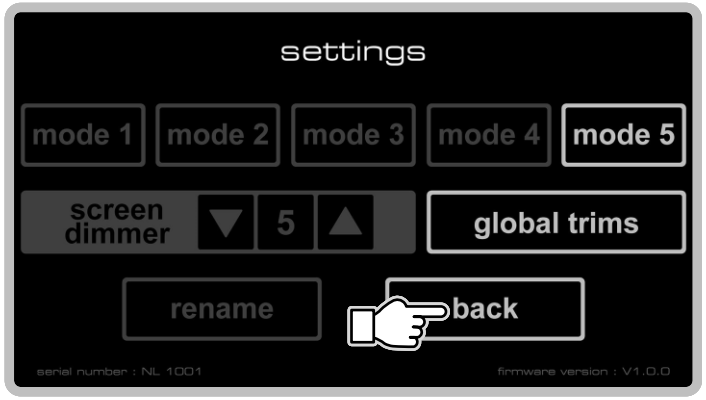
After tapping, both the **mode 5** and **enter** buttons will turn yellow, indicating a pending change, while the **mode 1** button remains light gray, signifying that it is still the currently active mode

To confirm the switch to **mode 5**, tap the **enter** button.



While **mode 5** and **enter** are displayed in yellow (pending confirmation), you may also tap another mode button to reselect a different working mode. The newly selected button will turn yellow, while the previously selected one will revert from yellow to dark gray

Once the mode change is confirmed, the **mode 1** button turns dark gray, and both the **mode 5** and **enter** buttons - as well as the previously empty button box below - turn light gray, indicating that **mode 5** is now the active working mode. The button box will also display the label **global trims**.



Tap the **back** button to return to the **mode 5** working page.

Regardless of the current state of the settings page, if no operation is performed within 10 seconds, the system will automatically return to the currently active (light gray) working mode page.

Note: The "**global trims**" label will appear in the button box beneath the **mode 5** button only when **mode 5** is currently active (light gray). Tapping this button will navigate to the mode 5 global trims sub-page. For details on operating this sub-page, please refer to section **7.8.2 Performing Discrete Volume Trims for mode 4 (Example: Adjusting input 1 for output 1)**.

If **mode 1, 2**, or **3** is active, or if **mode 5** and **enter** are still in the yellow (pending) state, the button box will remain blank and tapping it will have no effect.

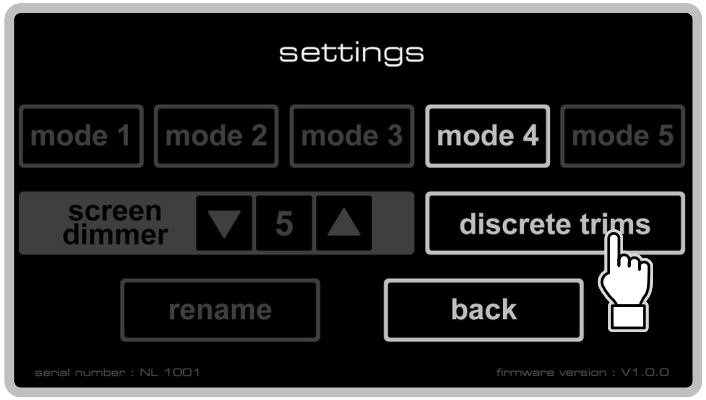
Important: There is no button on the infrared remote controller for accessing the settings page or for performing any settings operations. All such functions must be executed via the touchscreen interface.

7.8 Volume Trim Adjustment

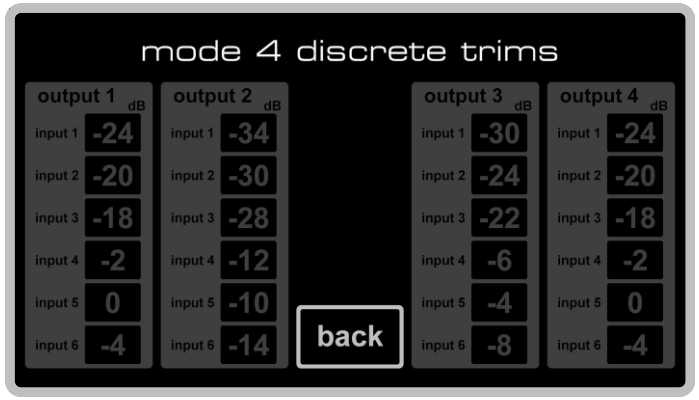
The volume trim function is exclusive to **mode 4** and **mode 5**. Therefore, only when **mode 4** or **mode 5** is currently active (indicated by the corresponding button being light gray) can you proceed to operate this function from the settings page. If **mode 1**, **2**, or **3** is active, you must first switch to **mode 4** or **mode 5** by following the procedures in sections **7.7.3** or **7.7.4** before performing any volume trim operations.

7.8.1 Accessing the "Mode 4 Discrete Trims" Sub-Page

When on the settings page and **mode 4** is active (light gray), tap the **discrete trims** button.



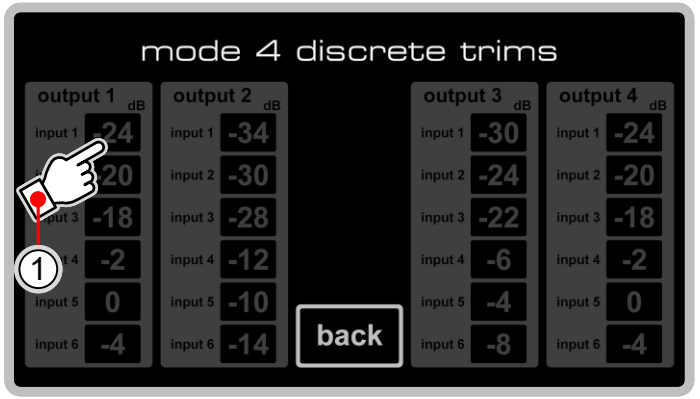
The screen will switch to the mode 4 discrete trims sub-page.



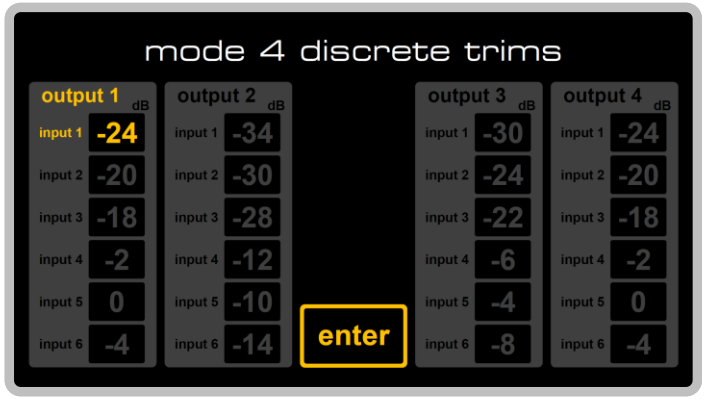
7.8.2 Performing Discrete Volume Trims for mode 4 (Example: Adjusting input 1 for output 1)

Each time you enter the trim sub-page from the settings page, all adjustable elements (except the page title and the **back** button) will appear in dark gray, indicating they are inactive.

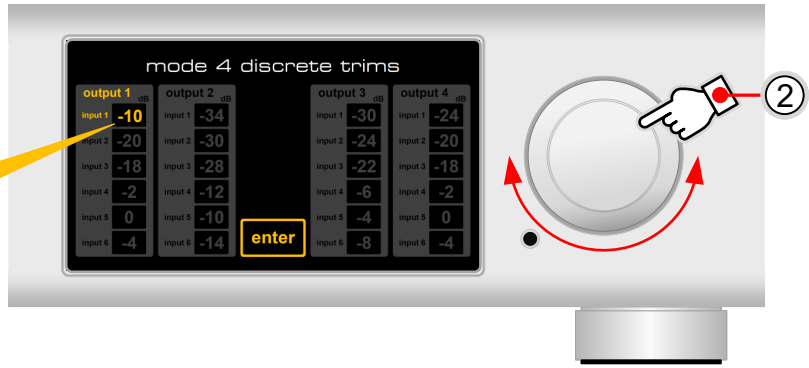
① In the **output 1** trim section, tap the dB value pane for **input 1**.



Upon tapping, the **output 1** section, the **input 1** label and its corresponding dB value pane, as well as the **enter** button, will all change to yellow, signifying that the system has entered trim adjustment mode.

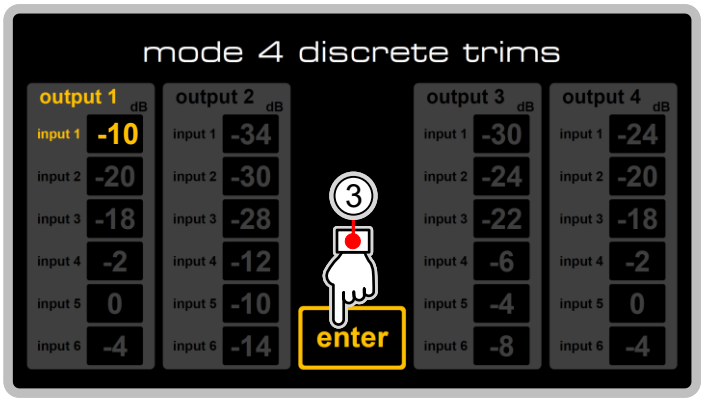


② While observing the yellow dB value in the **input 1** pane, turn the rotary encoder on the front panel to adjust the value to your desired level (e.g., -10 dB).

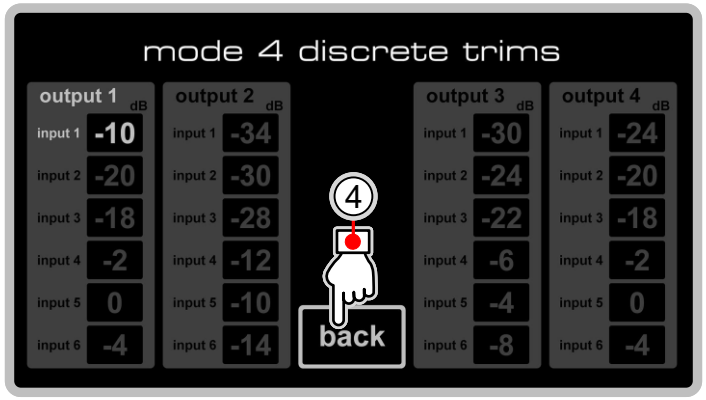


③ Once you've reached the desired value (e.g., -10 dB), tap the **enter** button at the bottom of the page to confirm the adjustment.

Note : You must confirm and store each input adjustment individually. Do not adjust multiple inputs and then press enter once to confirm them all - only the last adjusted value will be saved, and the previous changes will be lost.



After tapping enter, all previously yellow elements (output 1 label, input 1 label and dB value, and enter button) will turn light gray, indicating the trim for input 1 on output 1 has been stored.



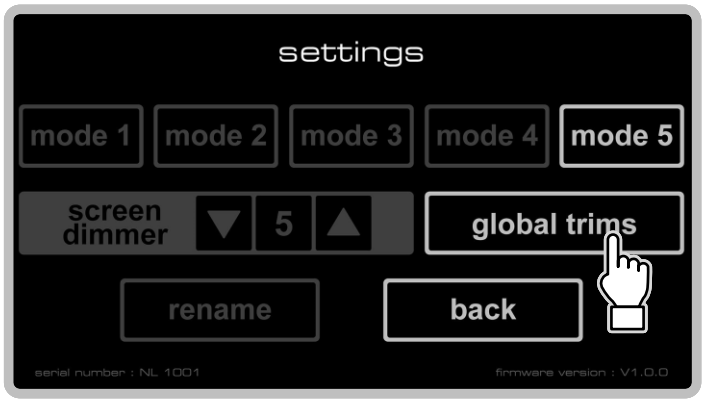
To adjust another input's trim, you may select any input in any order and repeat the same steps as above; adjustments can be made freely across all output sections (from output 1 to output 4), and once each trim is confirmed, the corresponding input label and value will remain in light gray to indicate that it has been successfully stored.

④ After confirming all desired trims (you are not required to adjust all 24 input trims across 4 outputs), tap the **back** button that is currently in bright gray again to finalize and store all changes.

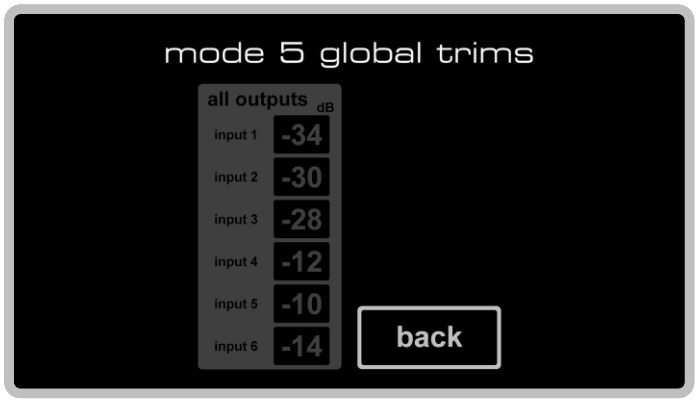
The screen will then return to the settings page.

7.8.3 Accessing the "Mode 5 Global Trims" Sub-Page

When on the settings page and **mode 5** is active (light gray), tap the **global trims** button.



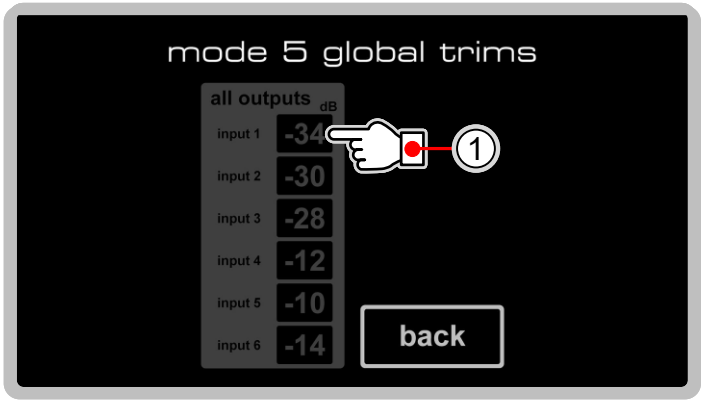
The screen will switch to the mode 5 global trims sub-page



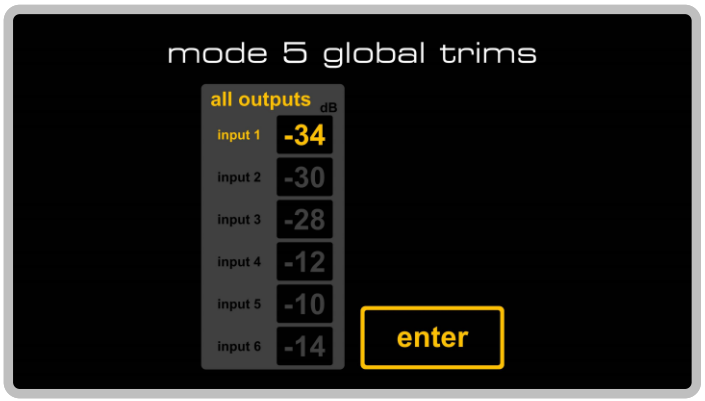
7.8.4 Performing Global Volume Trims for Mode 5 (Example: Adjusting Input 1)

Each time you enter the trim sub-page from the settings page, all adjustable elements (except the page title and the **back** button) will appear in dark gray, indicating they are inactive.

① In the **all output** trim section, tap the dB value pane for **input 1**.



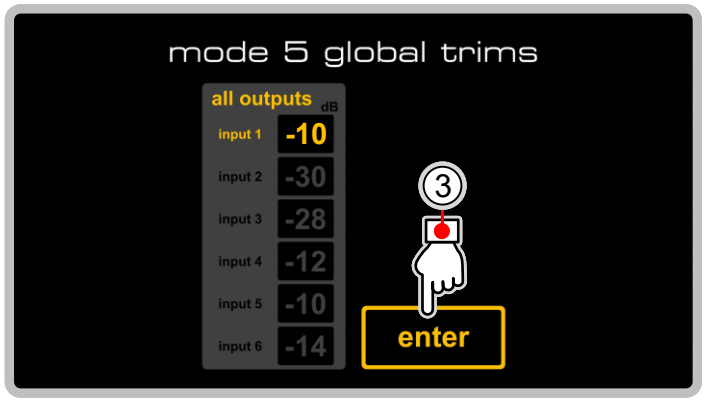
Upon tapping, the **all output** section, the **input 1** label and its corresponding dB value pane, as well as the **enter** button, will all change to yellow, signifying that the system has entered trim adjustment mode.



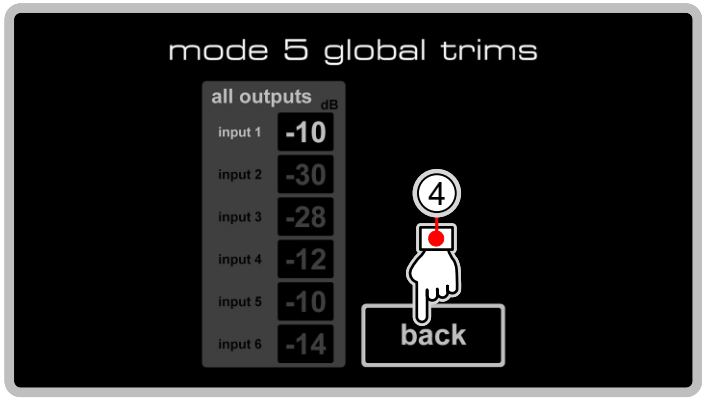
② While observing the yellow dB value in the **input 1** pane, turn the rotary encoder on the front panel to adjust the value to your desired level (e.g., -10 dB).

③ Once you've reached the desired value (e.g., -10 dB), tap the **enter** button at the bottom of the page to confirm the adjustment.

Note : You must confirm and store each input adjustment individually. Do not adjust multiple inputs and then press enter once to confirm them all - only the last adjusted value will be saved, and the previous changes will be lost.



After tapping enter, all previously yellow elements (all outputs label, input 1 label and dB value, and enter button) will turn light gray, indicating the trim for input 1 on output 1 has been stored.



To adjust another input's trim, you may select any input in any order and repeat the same steps as above; adjustments can be made freely across all input, and once each trim is confirmed, the corresponding input label and value will remain in light gray to indicate that it has been successfully stored.

④ After confirming all desired trims (you are not required to adjust all 6 input trims), tap the **back** button that is currently in bright gray again to finalize and store all changes.

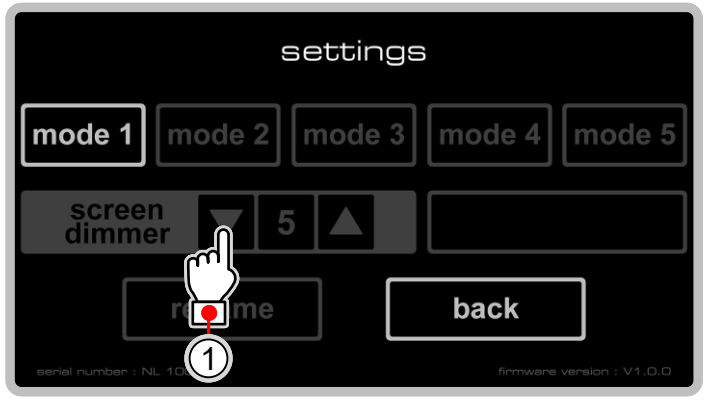
The screen will then return to the settings page.

7.9 Screen Brightness Adjustment

The screen brightness can be adjusted from the settings page, which is accessible from any of the working mode pages (mode 1 to mode 5). The dimscreen mer adjustment area is located within this page, with brightness levels ranging from 0 (dimmest) to 5 (brightest).

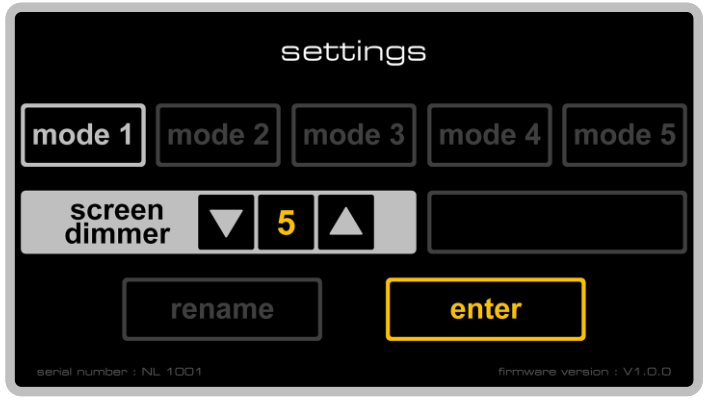
7.9.1 Enter the Screen Dimmer Brightness Adjustment State

① To adjust the screen brightness, tap the up or down triangle button within the screen dimmer section.



After tapping a triangle button, the label indicating the screen dimmer section, along with the up/down triangle buttons and the brightness value, will all turn yellow, signaling that a change is pending.

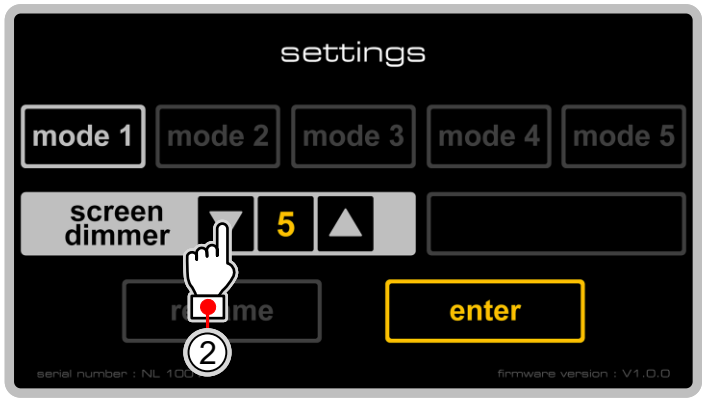
At this point, if you decide to cancel the adjustment, simply tap the **enter** button to retain the original brightness value. If no action is taken within 10 seconds, the pending status will automatically be canceled, and all elements will revert to dark gray.

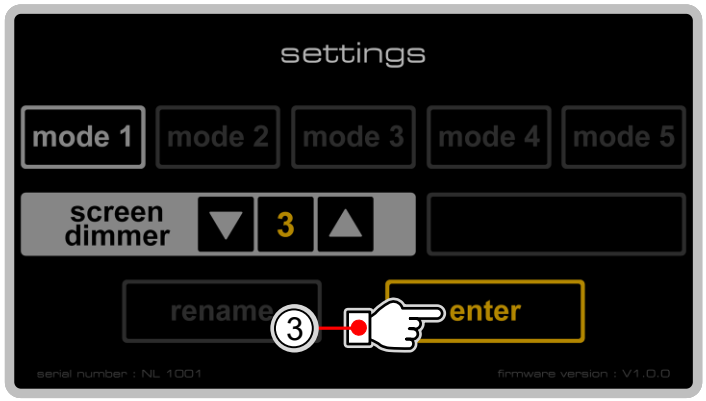


7.9.2 Adjust screen brightness (Example: adjust the brightness from 5 to 3)

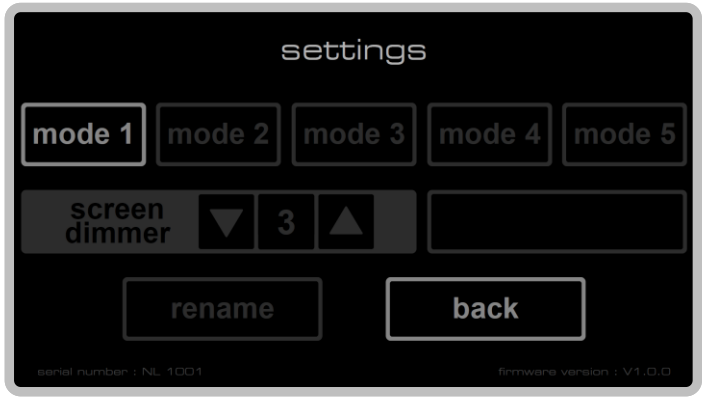
② When the screen is waiting for confirmation of the brightness value, tap the downward pointing triangle button one by one to adjust the brightness value in steps of minus 1 until the brightness value is adjusted to 3.

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





③ At this point, if you confirm the changed brightness value, click the **enter** button to complete the change.



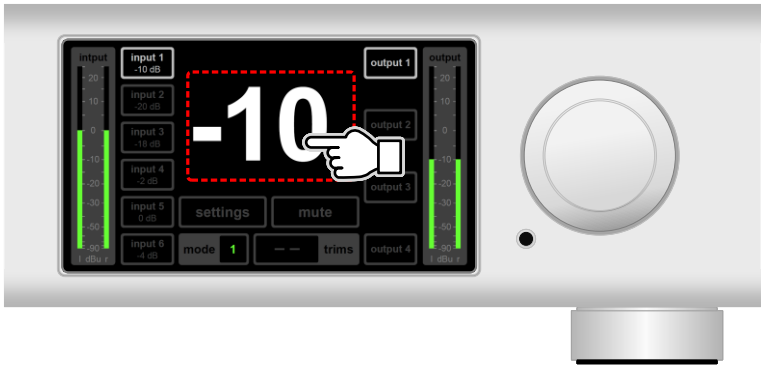
After tapping the **enter** button, the **screen dimming** pane, the up and down triangle buttons, and the yellow brightness value, which were previously displayed in light gray while waiting for confirmation, will all turn dark gray. At the same time, the **rename** button and the **enter** button will both turn light gray, and the **enter** symbol in the **enter** button will return to **back**.

This indicates that the screen brightness value has been adjusted and stored. In addition to determining the current screen brightness, it also determines the **NADAC L** screen brightness the next time it is turned on.

7.10 Listening State

7.10.1 Entering Listening State via Touchscreen

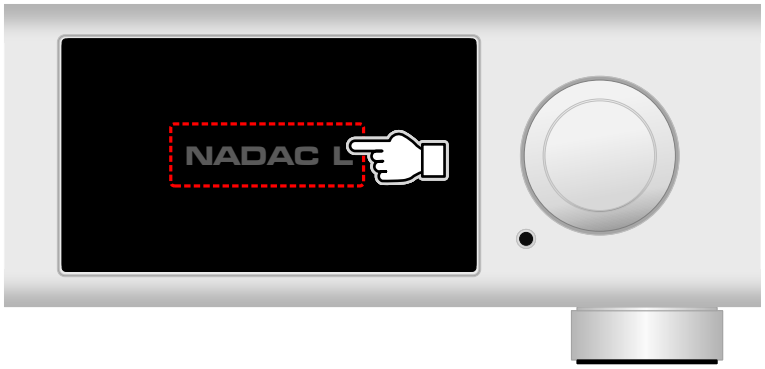
On any working mode page, tap the large volume level display area in the center of the screen. **NADAC L** will then enter listening state



In the listening state screen, the brightness of the "**NADAC L**" characters is fixed and cannot be adjusted

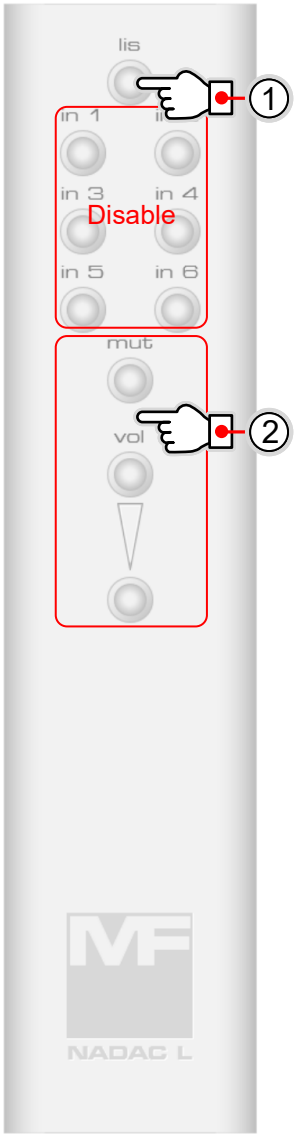
7.10.2 Exiting Listening State via Touchscreen

To exit listening state, tap the **NADAC L** area in the center of the listening state screen. This will return the display to the working mode page that was active before entering listening state



7.10.3 Entering and Exiting Listening State via Infrared Remote Controller

Regardless of which working mode page (from mode 1 to mode 5) is active, pressing the lis (listen) key on the infrared remote controller will immediately switch **NADAC L** into listening state.



① To exit the listening mode, simply press the lis (listen) button on the infrared remote control again. This will immediately exit the listening mode and return to the working screen.

② While in the listening mode, pressing the mut (mute) or vol (volume) button on the infrared remote control will immediately exit the listening mode and return to the working screen, performing the corresponding operation.

While in the listening mode, pressing the six input selection buttons will have no effect.

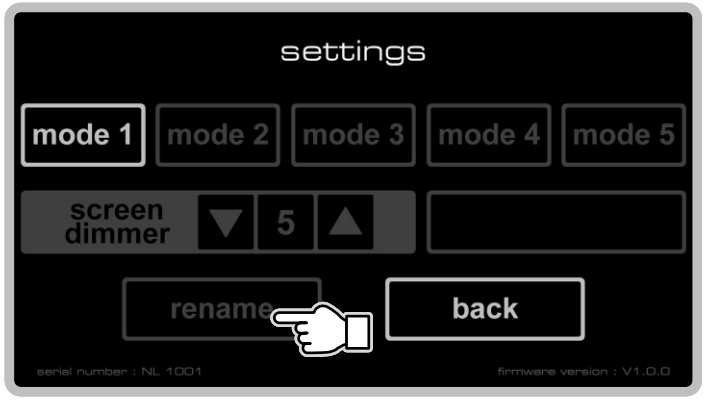
7.11 Renaming of Input and Output Buttons

On the **NADAC L**, you can rename the six input buttons and four output buttons on its work page.

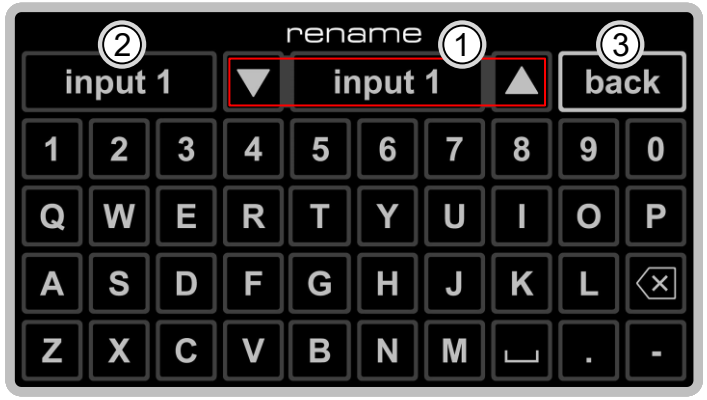
The six input buttons can be renamed for the input source names in the row above them without affecting the level display below.

7.11.1 Enter Rename Screen Keyboard

On the settings page, tap the rename button.



Open Rename On-Screen Keyboard



When renaming via the on-screen keyboard, you can type the numbers 0-9, the letters (uppercase only) A-Z, and the symbols dot " . ", dash " - ", and space " ␣ ". There is also a backspace key " ⌫ ".

① **Rename the button selection pane:** Tap the upward triangle button on the left side of the pane (or the downward triangle button on the right side). The buttons in the pane will be displayed sequentially (or reversely) from input 1 to input 6 and then output 1 to output 4.

② **Rename enter pane:** Before you start typing a new button name, the contents of this pane change in sync with the contents of the ① rename button selection pane. If the selected button has not been renamed, this pane displays the original name of the selected button (i.e., the same name as in the ① rename button selection pane). If the selected button has been renamed, this pane displays the renamed name of the selected button.

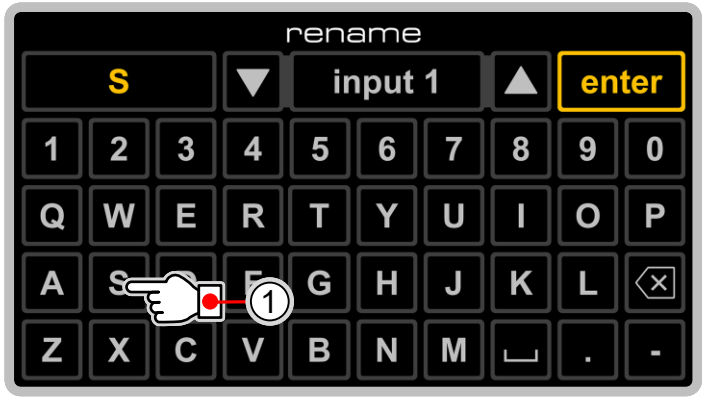
③ **Back button：** If you give up renaming the button before typing in a new name, tapping this button will return to the settings page。

Note： Regardless of which mode you enter the rename button from, Mode 1 to Mode 5, the renamed button remains active in all modes.
The keyboard page will not automatically return to the settings page.

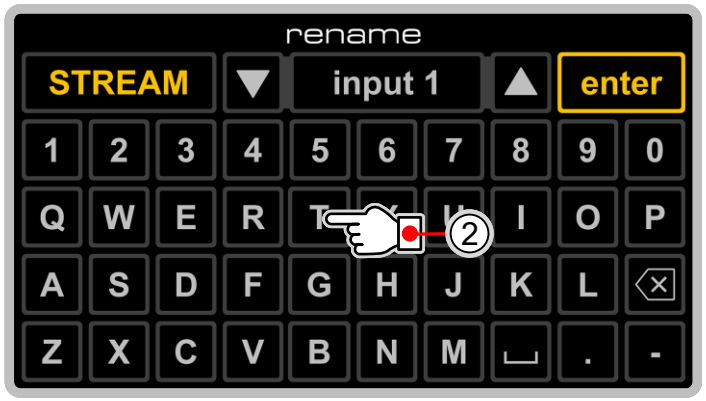
7.11.2 Complete the rename on the on-screen keyboard

(Example: rename the input 1 button to STREAMER)

① Type the first letter "S" of "STREAMER" on the keyboard. The original content in the rename typing pane disappears, and the first letter "S" appears in yellow. At the same time, the **back** button also turns yellow, and the "**back**" icon changes to "**enter**," indicating that the page is waiting for confirmation.



② When the keyboard is in the confirmation state, type the second letter T, and continue to type the subsequent letters R, E, A, M …….

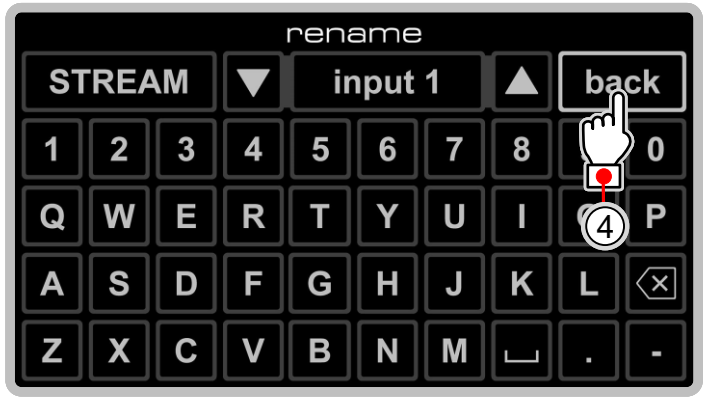


Note: The number of characters you can type in the rename input pane varies based on the width of the characters themselves. Once the pane is full, no further input will be accepted. For example, in this example, the new name you want to enter is the eight-letter "STREAMER," but you can only enter six letters, and the last two letters, "E" and "R," cannot be entered. In this case, you can omit letters or use an abbreviation as appropriate.

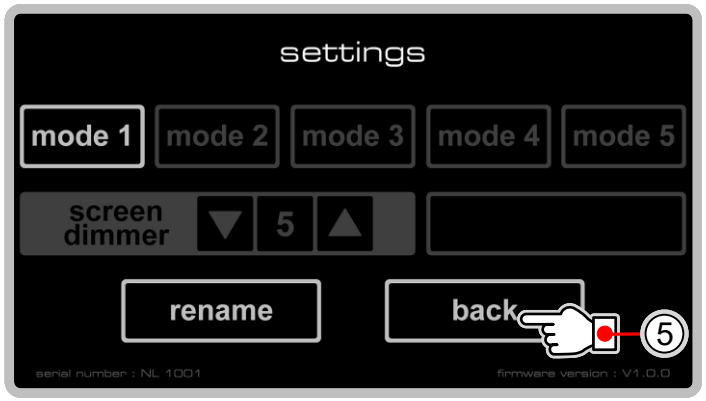
③ After typing the new name STREAM, tap the **enter** button to confirm the rename.

After confirmation, the new name STREAM and the **enter** button in the rename input pane turn light gray, and the **enter** button changes to **back** button.

④ Tap the **back** button to return to the settings page。

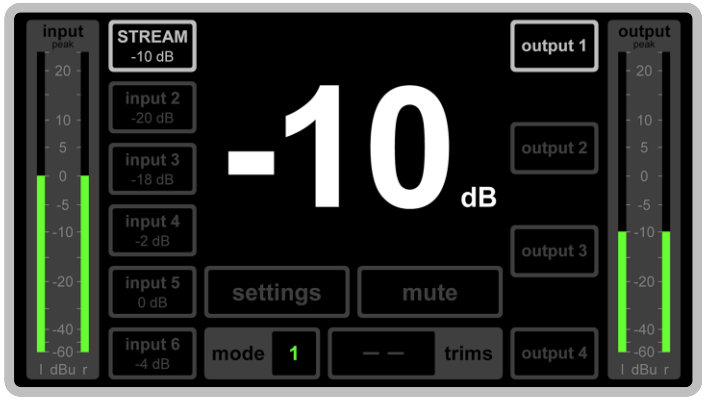


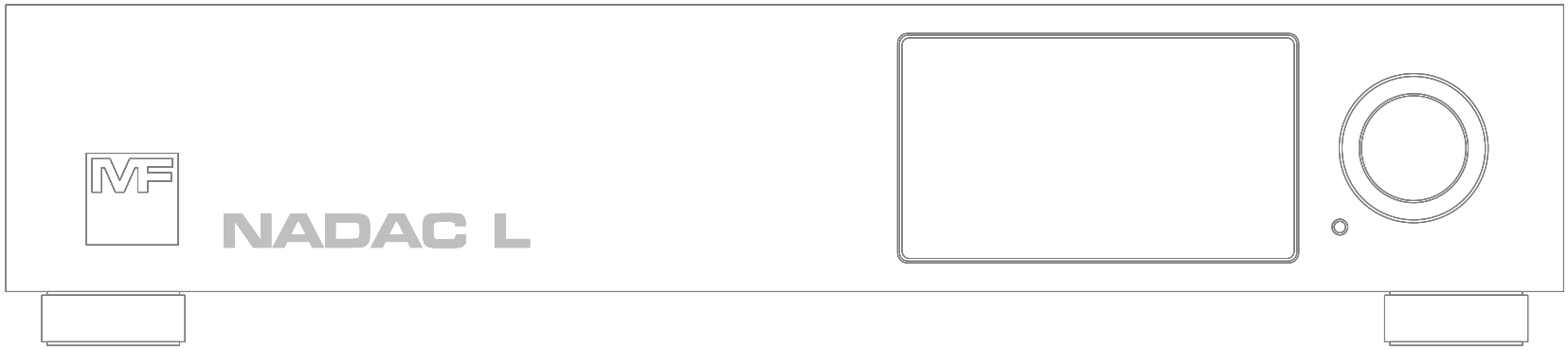
⑤ Tap the **back** button on the settings page to return to the working page.



On the working page, you can see that the **input 1** button has been renamed to STREAM.

The renaming is complete.





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 16 W; Typical 12 W
Connector	IEC 60320 C14
Fuse	2.0 A, 5 x 20 mm Slow Blow

Dimensions and Weight

Dimensions	435 mm (W) x 95 mm (H) x 390 mm (D)
Weight	9.7 kg

8.2 Core Parts Specifications

Specially Designed Volume Control Chip

Chip Architecture	Using a JFET-like custom CMOS ASIC architecture.
Chip Features	◆ Tap noise free operation. ◆ Channel imbalance less than 0.03dB. ◆ Ultra-low THD+n and high SNR. ◆ 1dB steps from 0dB to –60dB.

8.3 Audio Specifications

Input / Output Specifications

Balanced Stereo Line Input	Level	Maximum +24 dBu (12.28 Vrms); Typical +22 dBu (9.75 Vrms)
	Impedance	500 k ohm
	Connectors	XLR-3-F x4 (Pairs); Pin 2 = Hot, Pin 3 = Cold, Pin 1 = GND
Unbalanced Stereo Line Input	Level	Maximum +15.6 dBV (6.02 Vrms); Typical +14 dBV (5.01 Vrms)
	Impedance	500 k ohm
	Connectors	Phono (RCA) x2 (Pairs)
Input Stage Coupling		Precision AC-Coupling
Input Common Mode Rejection Ratio (CMRR)		> 80 dB @ 10 Hz - 20 kHz
Balanced Stereo Line Output	Level	Maximum +24 dBu (12.28 Vrms); Typical +22 dBu (9.75 Vrms) @ Analog Gain = 0 dB
	Impedance	200 ohm
	Connectors	XLR-3-M x3 (pairs); Pin 2 = Hot, Pin 3 = Cold, Pin 1 = GND
Unbalanced Stereo Line Output	Level	Maximum +15.6 dBV (6.02 Vrms); Typical +14 dBV (5.01 Vrms) @ Analog Gain = 0 dB
	Impedance	100 ohm
	Connectors	Phono (RCA) x1 (Pair)

Audio Specifications

THD+n	0.00012% (-118 dB) @ -3 dB Gain / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth
	0.0002% (-114 dB) @ -20 dB Gain / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth
	0.0008% (-102 dB) @ -40 dB Gain / 1 kHz Tone / 10 Hz - 20 kHz Bandwidth
SNR	130 dB @ -3dB Gain Relative-Input / 10Hz – 20kHz BW / A-Weight
	136 dB @ -20dB Gain Relative-Input / 10Hz – 20kHz BW / A-Weight
	142 dB @ -40dB Gain Relative-Input / 10Hz – 20kHz BW / A-Weight
Flatness	< +/- 0.08 dB @ 10 Hz - 200 kHz
Analog Gain	1 dB / Step, Total 60 Steps (0 to -60 dB)
L-R Channel Gain Error	< 0.03 dB @ All Gain Stage
L-R Channel Phase Error	< 0.1 Deg @ 10 Hz - 20 kHz
L-R Channel Separation	< 130 dB @ 10 Hz - 20 kHz
Input Channel Separation	< 130 dB @ 10 Hz - 20 kHz

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	Listen state; Input selection (input 1, input 2, input 3, input 4, input 5, input 6); Mute; 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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