NUX

NAI-24

USB Audio Interface

User Manual

USB

32-bit / 192 kHz

Mac / PC

| Audio Series |

2-in | 4-out

WARNING

To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Introduce

Thank you for taking the time to review this manual. Whether or not you decide to purchase the products described here, we hope that the knowledge gained from this brochure will be useful in your creative process. We sincerely appreciate your interest.

The functional requirements for digital audio equipment have evolved drastically over the last decade. Alongside the exacting performance demands of modern producers, there's a growing need to optimize workflow.

At NUX, our professional audio equipment is designed to balance these two aspects, delivering high-quality sound and streamlined workflow for young, modern music producers.

The NAI-24 is a high-performance audio interface, featuring two pure Class-A microphone amplifier circuits utilizing ultra-low-noise discrete transistors. To accommodate low-sensitivity dynamic microphones, we developed the classic 76PRE amplifier circuit, a pure Class-A design using three transistors, which delivers a total gain of 71dB, comparable to standalone microphone preamps.

The NAI-24 is equipped with hardware compression circuitry based on a FET gain control unit. This, combined with digitally controlled calibration, ensures consistent compression across both channels. With three compression modes tailored for different scenarios, the result is fast sound shaping, warm analog tones, and powerful compression characteristics.

To tackle the complexities of home recording environments, the NAI-24's main output channels 1L/2R are powered by two specially customized high-performance audio transformers. These transformers not only reduce ground-loop interference caused by connections between digital devices but also impart a unique warmth to the sound, characteristic of analog audio transformers.

The NAI-24 is a versatile 2-in/4-out USB audio interface, offering two built-in signal routing modes to cater to the diverse needs of producers:

- **Recording Mode:** Provides two independent output channels (1L/2R and 3L/4R) for performance recording or outboard hardware rendering.
- **A/B Mode (Dual Monitor Switching Mode):** Allows one-click switching between two sets of monitor speakers for comparison.

The NAI-24 combines a robust hardware design with stable software functionality, ensuring seamless performance and USB connectivity to support your creative projects for years to come.

If you have any questions or suggestions, please feel free to visit our website www.nuxaudio.com or social media channels. We're always eager to hear from you and appreciate your support and feedback.

Features

- 2-in/4-out desktop USB audio interface with support for up to 32-bit/192kHz sample rate.
- Pure Class-A discrete transistor preamplifier delivering ultra-high dynamic range and resolution.
- FET type 76PRE compression circuit with multiple preset modes for various applications.
- Studio-grade audio transformer on Main Output 1L/2R channels for warm, professional sound characteristics.
- Additional 3L/4R output channels for auxiliary output, enhancing versatility in different setups.
- Two high-performance headphone amplifiers with routable channels for customized monitoring.
- USB powered, no external power supply required.
- 48V phantom power with independent on/off control for each channel.
- Ultra-low latency direct monitoring channels for real-time performance.
- Provides stable and reliable signal transmission using high-quality XLR connectors and 6.35mm connectors.

NAI-24 System Requirements

- USB 3.0 (or higher) interface
- Intel, AMD or apple silicon CPU
- 8GB or more RAM
- Windows 10/11(64bit), MacOS Catalina 10.15.6 or later
- Internet connection (for online updates)

Driver Installation

MacOS

The NAI-24 audio interface is fully compliant with the USB 2.0 audio class standard, ensuring effortless connection to any Mac running macOS 10.15 or later. Simply connect via USB, and the Mac will automatically recognize the NAI-24 as a USB audio device—no additional drivers needed. This allows immediate access to its inputs and outputs within your preferred audio software. Core settings, such as hardware sample rate, can be easily configured directly through the host software.

Windows

The NAI-24 audio interface is USB 2.0 audio class compliant, allowing seamless connection to any Windows computer (Windows 10 or later) via USB without the need for additional drivers. Upon connection, your computer will automatically recognize the NAI-24 as a USB audio device, giving you access to its inputs and outputs through your audio software. Basic settings, like hardware sample rate, can be adjusted directly in the Windows "Sound Settings." However, to unlock the full range of the NAI-24's features, installing the dedicated NAI-24 driver is recommended.

1. Download Driver Installer

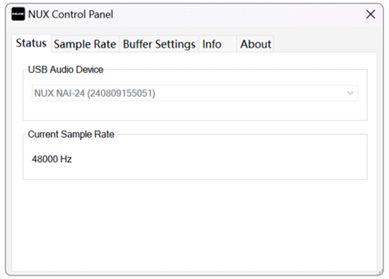
Visit the official NAI-24 website at **www.nuxaudio.com** to download the latest version of the driver.

2. Installation of Drivers

Connect the NAI-24 to your computer, open the downloaded driver installation package, and follow the prompts to install it. Once the installation is complete, restart your computer.

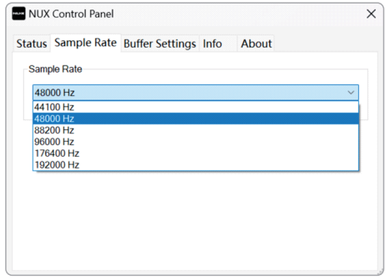
After restarting, open the NAI-24 driver by clicking on the NUX control panel icon in the system tray. If everything is working correctly, the control panel screen should appear.

Status



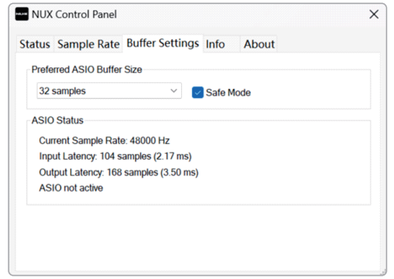
The Status tab shows the ID number of the USB audio device along with the current sample rate of the device.

Sample Rate



The Sample Rate tab shows the current sample rate of the device, allowing you to select and set the appropriate rate from the drop-down menu.

Buffer Settings



The Buffer Settings page allows you to view and set the buffer size of the current device's ASIO driver. You can select the desired buffer size from the drop-down menu. A smaller buffer size reduces audio latency to the host software, with buffers of 256 samples or less resulting in nearly imperceptible latency.

> **Notes:** Please be cautious when using very small buffer sizes (less than 32 samples), as they may cause performance issues with the host software or computer.

Safe Mode

Under the Buffer Settings page, you'll find the Safe Mode option. If you experience audio lag or latency issues, enable Safe Mode. This adds an extra buffer to help ensure the stability and reliability of your data transmission.

Product Description

Top Panel

1 GAIN	5 76PRE Buttons	9 LOOPBACK	13 Phones Level 1/2
2 Input Peak Level Meter/Function Indication	6 MIX	10 MONITOR	14 USB indicator
3 48V Phantom Power	7 STEREO	11 MUTE	15 HI-Z
4 Line Input Switches	8 OUT 3/4	12 OUT 3/4	16 Phones jacks 1 and 2

1 GAIN

The GAIN knobs are used to adjust the preamplifier gain for microphones, instruments, or line-level devices connected to the corresponding input. For optimal gain, rotate the GAIN knob to adjust the input signal level while monitoring the connected source. Aim for the Input Peak Level Meter to display as much green and orange as possible without triggering the red, which indicates clipping.

> **NOTE:** When the input signal reaches -1dBFS (near the maximum digital system level of 0dBFS), the red LED indicator will light up. At this point, the system is digitally clipping the sampled signal, which compromises the integrity of the recorded audio.

2 Input Peak Level Meter/Function Indication

The Input Peak Level Meter shows the input signal level, controlled by Gain knob 1. When the input signal reaches -1dBFS (near the maximum 0dBFS level acceptable to a digital system), the red Input LED will illuminate, indicating the digital signal is beginning to clip. The Input Peak Level Meter reflects the digital signal level after A/D conversion (from analog to digital), ranging from -27dBFS to 0dBFS.

> **NOTE:** Clipping happens when a digital signal is overloaded, causing unwanted distortion. While clipping in analog equipment can be used creatively, clipping in digital systems should typically be avoided.

3 48V Phantom Power

Pressing this button toggles the 48V phantom power for the Microphone In XLR connector. The LED indicator will flash red when phantom power is turning on or off. Once phantom power is fully active, the LED indicator will remain solid red.

> Most condenser microphones require phantom power, but dynamic or ribbon microphones usually do not (special note: phantom power can damage some ribbon microphones).

Note: Make sure phantom power is off before connecting or disconnecting the microphone.

❹ Line Input Switches

When a 6.35mm TRS plug is connected to the combo jack on CHANNEL 1/2, press the LINE button to switch the signal to line level. If an XLR cable is connected to the combo jack, ensure the LINE button remains off.

Note: The most common silent fault occurs when the LINE button setting does not correspond to the type of plug being used.

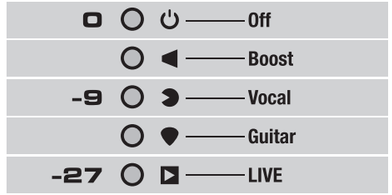
❺ 76PRE Buttons

The 76PRE button is used to toggle the 76PRE preamplifier module on or off. This preamp delivers a low-noise, highly dynamic, pure Class-A amplification, offering extra gain to drive low-sensitivity dynamic microphones. Each preamp is also equipped with a FET gain control unit that provides four FET-type compression characteristics.

When the 76PRE function button is pressed, the 76PRE button lights up, indicating the preamp is switched on. The function indicator illuminates for 2 seconds to display the current state of the 76PRE module. While the indicator is lit, pressing the 76PRE button again will cycle through the four compression modes. After 2 seconds, the indicator turns off, and pressing the 76PRE button once more immediately deactivates the module's functions.

When the preamplifier module is active, the 76PRE button remains lit. Pressing the 76PRE function button switches it off, with the off state indicated for 1 second.

The 76PRE preamplifier module supports four modes: Boost, Vocal, Guitar, and Live.



Off	Deactivates the 76PRE function module.
Boost	Adds an extra 8dB of gain to the preamp, resulting in a total amplifier gain of 71dB.
Vocal	Configures the ATTACK and RELEASE features to medium speeds, tailored to vocal characteristics for smooth compression.
Guitar	Offers fast response and smooth release, delivering balanced and sustained volume for guitar or bass.
Live	Provides very fast compression, ensuring clarity and integrity of the live signal.

❻ MIX

The MIX knob adjusts the balance between the input signal and the signal from the PC's USB port. Rotating the knob clockwise to the maximum position mutes the input signal from CHANNEL 1/2 and outputs only the signal from the USB port. Conversely, turning the knob counterclockwise to the minimum position mutes the USB signal and outputs only the input signal from CHANNEL 1/2. When the knob is set to the middle position, it mixes the input signal from CHANNEL 1/2 with the USB signal equally.

Adjust this knob to optimize the balance between the input signal and the signal from the PC's USB port.

Note: If the software monitor of the DAW on PC is active, adjust the MIX knob clockwise to the maximum position to turn off the input monitor signal and avoid phase issues with the hardware monitor.

❼ STEREO

The STEREO button toggles the stereo function on or off. When the button is off, the input signals from CHANNEL 1 and CHANNEL 2 are mixed and routed to the stereo bus as a combined signal. When the button is pressed, the input signals from CHANNEL 1 and CHANNEL 2 are sent to the stereo bus separately, maintaining their distinct stereo channels.

❽ OUT 3/4 (knob)

Recording Mode: The OUT 3/4 knob can adjust the volume of the output channel 3/4.

A/B Mode: The OUT 3/4 knob can adjust the output level of 3L/4R to compensate for the volume difference caused by different input levels of two external devices.

❾ LOOPBACK

Pressing the LOOPBACK button routes the output from channels 3/4 back to the input channels 1/2. This allows audio sent to output channels 3/4 to be captured and returned to the computer as input on channels 1/2. This feature is useful for capturing the signal in your host software, streaming it to the web, or broadcasting it with podcasting software.

❿ MONITOR

Recording Mode: The MONITOR knob can adjust the volume level of the output channel 1/2.

A/B Mode: The MONITOR knob can control the main output volume.

⓫ MUTE

Pressing the MUTE button will silence the output signal. Additionally, this button is used to toggle between Recording Mode and A/B Mode. To switch modes, press and hold the MUTE button while powering up the device. The MUTE button will flash, indicating that the device is switching between the two modes.

⓬ OUT 3/4 (button)

Recording Mode

Press the OUT 3/4 button to route the 3/4 channel signal to the Monitor Level, overriding the 1/2 channel signal, and output it to 1L/2R for monitoring.

A/B Mode

Connect your primary monitors (A) to 1L/2R and your secondary monitors (B) to 3L/4R. Press the OUT 3/4 button briefly to switch between Speaker A and Speaker B. In this Mode, the 3L/4R jacks no longer function as outputs for the 3/4 channels. Instead, they mirror the signal from the 1L/2R jacks, with the A/B switch controlling which pair is active while the other is muted.

Headphone Monitor

In either mode, pressing and holding the OUT 3/4 button for more than 2 seconds will switch the signal of the 3/4 channel to headphone output 2 for monitoring. At this point, the indicator light of the OUT 3/4 button will change from off to dim when the button is in the off position. Pressing and holding the OUT 3/4 button for more than 2 seconds again at any time will switch the signal of the 1/2 channel back to headphone output 2 for monitoring. At this point, the indicator light of the OUT 3/4 button will change from dim to off when the button is in the off position.

⓭ Phones Level 1/2

These knobs is used to adjust the output volume level of the phones 1 and 2.

⓮ USB indicator

When the NAI-24 is connected to the PC's USB port and data transfer begins, the USB indicator will light up.

⓯ HI-Z

The HI-Z jacks are designed to connect high-impedance instrument output signals to the NAI-24's input port CHANNEL 1. When you insert a 6.35mm TR plug into the front panel HI-Z connector, the interface will automatically route the signal to CHANNEL 1.

> ⚠ **Note:** High impedance refers to a signal source with a very high output impedance, typically ranging from tens to hundreds of kilo-ohms. The NAI-24's High Impedance input is specifically designed for connecting such high impedance instruments, including electric guitars, electric basses, or acoustic instruments equipped with passive (non-powered) pickups.

⓰ Phones jacks 1 and 2

The Phones jacks 1 and 2 are used to connect headphones. Phones jack 1 is connected to output channel 1, while Phones jack 2 is connected to output channel 2.

Rear Panel

17 | Input Jacks CHANNEL 1/2	18 | Output Jacks 1L/2R	19 | Output Jacks 3L/4R	20 | USB-C

17 Input Jacks CHANNEL 1/2

CHANNEL 1/2 are used to connect microphones or line-level devices. The combo input jacks accept XLR, 6.35mm balanced TRS, or 6.35mm unbalanced TS cables.

18 Output Jacks 1L/2R

Balanced Output Jacks. Used to connect stereo monitor speakers to output jacks 1L/2R. Connect the left monitor speaker to jack 1L and the right monitor speaker to jack 2R.

> ⚠ **Note:** It is recommended to use balanced TRS (Tip-Ring-Sleeve) cables for the connection. If the connected device does not support balanced TRS cables, please use a high-quality unbalanced TS (Tip-Sleeve) cable instead.

19 Output Jacks 3L/4R

Balanced Output Jacks. Used to connect stereo monitor speakers to output jacks 3L/4R. Connect the left monitor speaker to jack 3L and the right monitor speaker to jack 4R, or connect to the input of other outboard devices.

> ⚠ **Note:** 1. It is recommended to use balanced TRS (Tip-Ring-Sleeve) cables for the connection. If the connected device does not support balanced TRS cables, please use a high-quality unbalanced TS (Tip-Sleeve) cable instead.
>
> 2. It is recommended to connect the higher-sensitivity monitor speakers to the 3L/4R channels and the lower-sensitivity monitor speakers to the 1L/2R channels. Then, use the OUT 3/4 knob to adjust the volume balance between the two sets of speakers.

20 USB-C

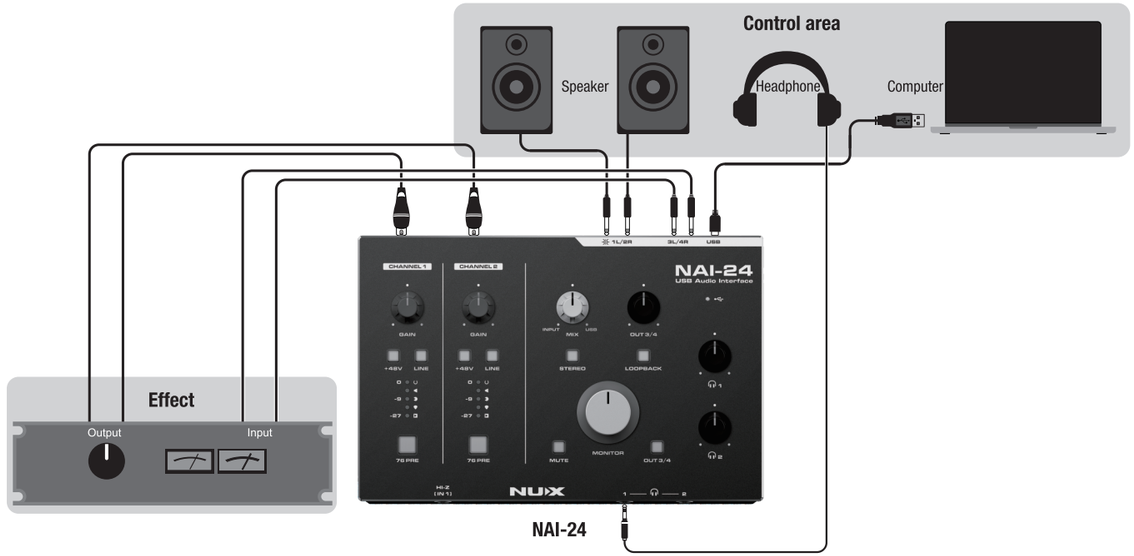
Connect the NAI-24 to a USB 3.0 (or higher) port on your computer using the included USB-C to USB-A cable, or another high-performance USB-C cable.

> ⚠ **Note:** The NAI-24 must be connected to a USB 3.0 compliant port that is powered by the USB bus. Some USB ports, such as those on inferior hubs, may not meet USB compliance standards and might not provide sufficient power. If the NAI-24 does not power up properly, connect it directly to a USB 3.0 port on your computer.

Application Example

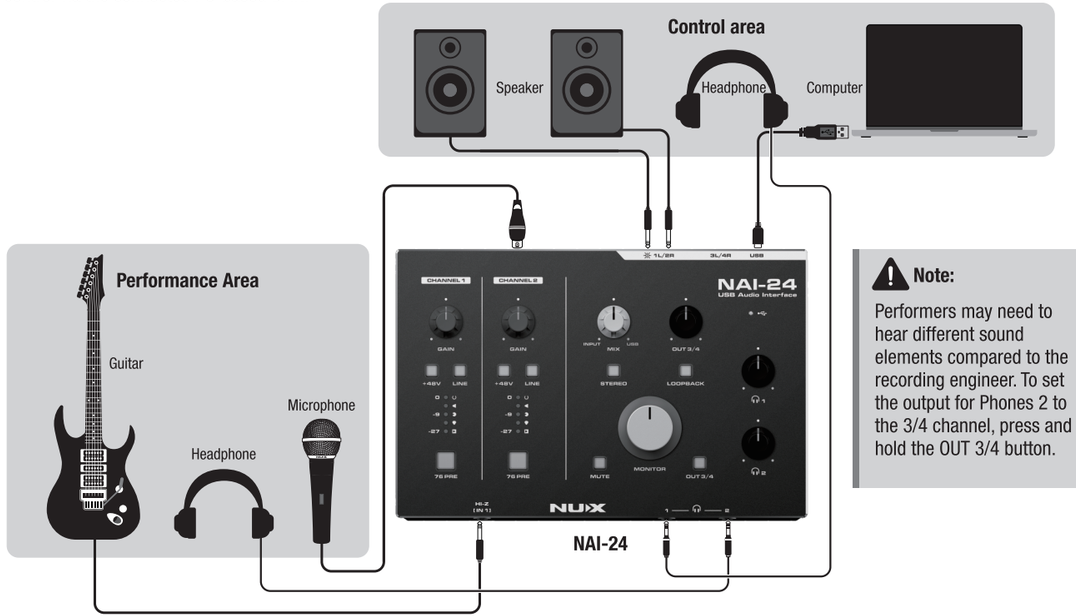
1. Production with Outboard Effects

Set the NAI-24's OUT 3/OUT 4 channel in your DAW to a SEND channel or an INSERT output. Set IN 1/IN 2 to a channel or an external INSERT input. Connect the input and output jacks of an outboard device to the OUT 3L/4R and IN CHANNEL 1/2 jacks respectively. The DAW will then route the signal to the outboard effect for processing and subsequently re-input the processed signal into the DAW through the CHANNEL 1/2 jacks.



2. Recording a Singer

During the recording process, the performer completes their performance using the equipment in the performance area, with backing music provided through the headphones connected to Phones 2. A high-impedance guitar or other instrument is connected to CHANNEL 1, while a microphone for recording vocals is connected to CHANNEL 2. The sound engineer monitors through the control room's speakers or through Phones 1, and manages recording and signal control via the connected PC-based DAW.

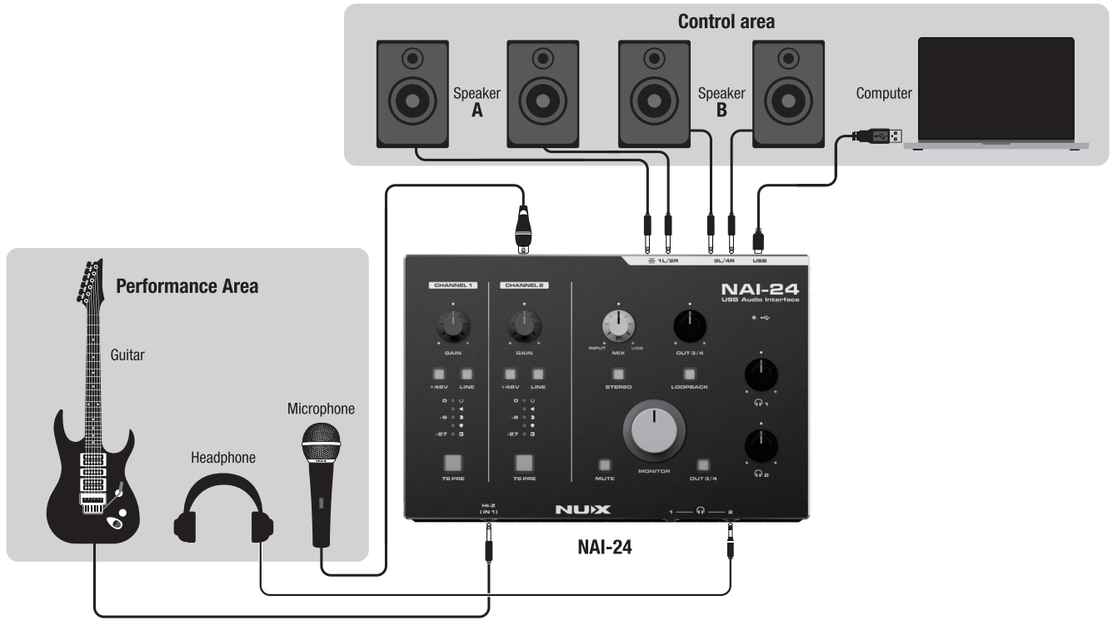


Note:

Performers may need to hear different sound elements compared to the recording engineer. To set the output for Phones 2 to the 3/4 channel, press and hold the OUT 3/4 button.

3. Mix Down

If you have two different sets of studio monitors and wish to switch between them to compare the mix, connect the primary monitors (A) to the 1L/2R outputs of the NAI-24, and the secondary monitors (B) to the 3L/4R outputs. To toggle between the A and B speakers, quickly press the OUT 3/4 button.



Specifications

MIC IN	
Dynamic Range	114dB(A-weighted)
Frequency Response	20 - 20000Hz ± 0.1dB
THD+N	0.002%@-1dBFS (at minimum gain)
EIN	-126dB(A-weighted)
Maximum Input Level	6dBu(at minimum gain)
Gain Range	5.4 - 63dB
Input Impedance	2.4kΩ

LINE IN	
Dynamic Range	114dB(A-weighted)
Frequency Response	20 - 20000Hz ± 0.12dB
THD+N	0.003%@-1dBFS (at minimum gain)
Maximum Input Level	26dBu (at minimum gain)
Gain Range	-12.6 - 45dB
Input Impedance	21kΩ

HI-Z	
Nominal Input Level	-10dBu
Input Impedance	1MΩ

1L/2R	
Dynamic Range	112 dB(Balanced, 600 Ω, A-weighted)
Frequency Response	20 - 20000Hz ± 0.5dB
Maximum Output Level	+12.4dBu(Balanced, 0dBFS)
THD+N	0.003%@-1dBFS
Output Impedance	580Ω

3L/4R	
Dynamic Range	112 dB(Balanced, 200kΩ, A-weighted)
Frequency Response	20 - 20000Hz ± 0.1dB
THD+N	0.001%@-1dBFS
Maximum Output Level	+18.4dBu(Balanced, 0dBFS)
Output Impedance	240Ω

PHONES OUTPUT	
Dynamic Range	104 dB (A-weighted)
Frequency Response	20 - 20000Hz ± 0.25dB
THD+N	0.005%@-5dBFS
Power Output	30mW@32Ω

Dimensions	194(L) x 128(W) x 67(H)mm
Weight	722g

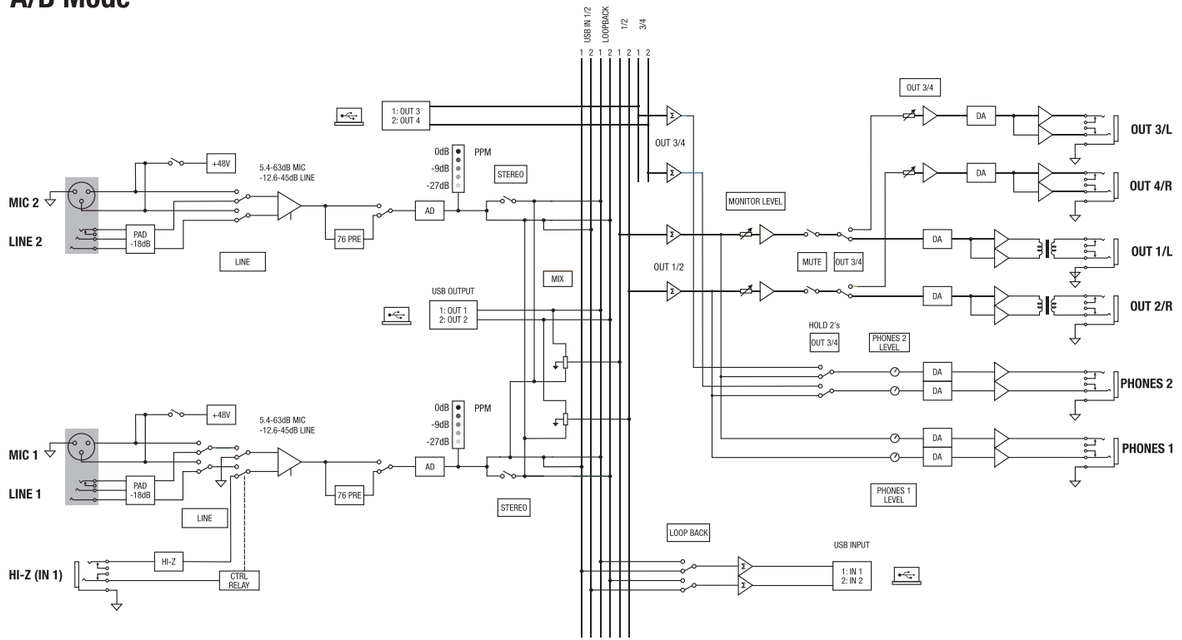
Accessories

- USB-C cable
- Manual
- NUX logo sticker
- Cubase Le License redemption card

*Specifications and features are subject to change without notice.

NAI-24 Block Diagram

A/B Mode



NAI-24 Block Diagram

Recording Mode