

GUSTARD

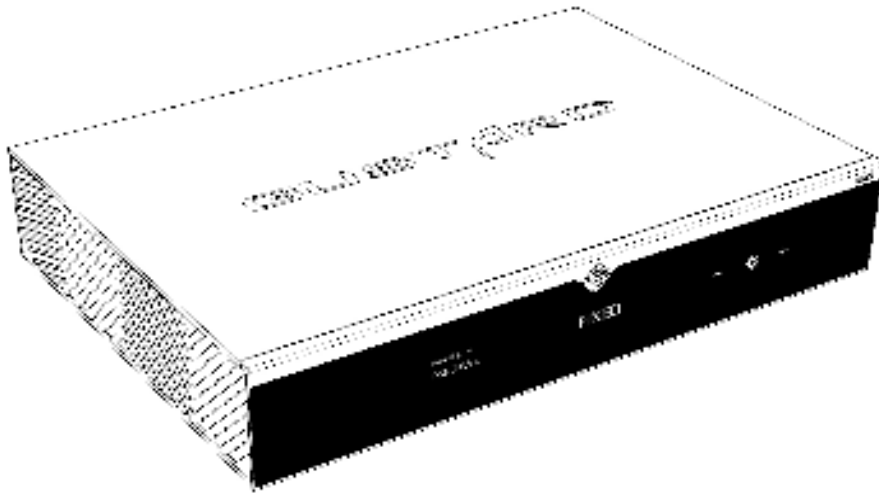
X30

High Performance Audio DAC
User Manual v1.05en



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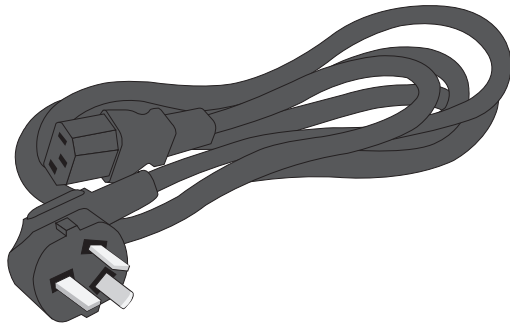
Packaging list:



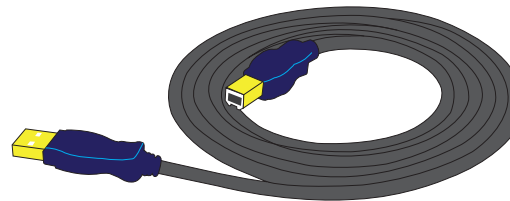
Mainframe



Warranty card



Power cord

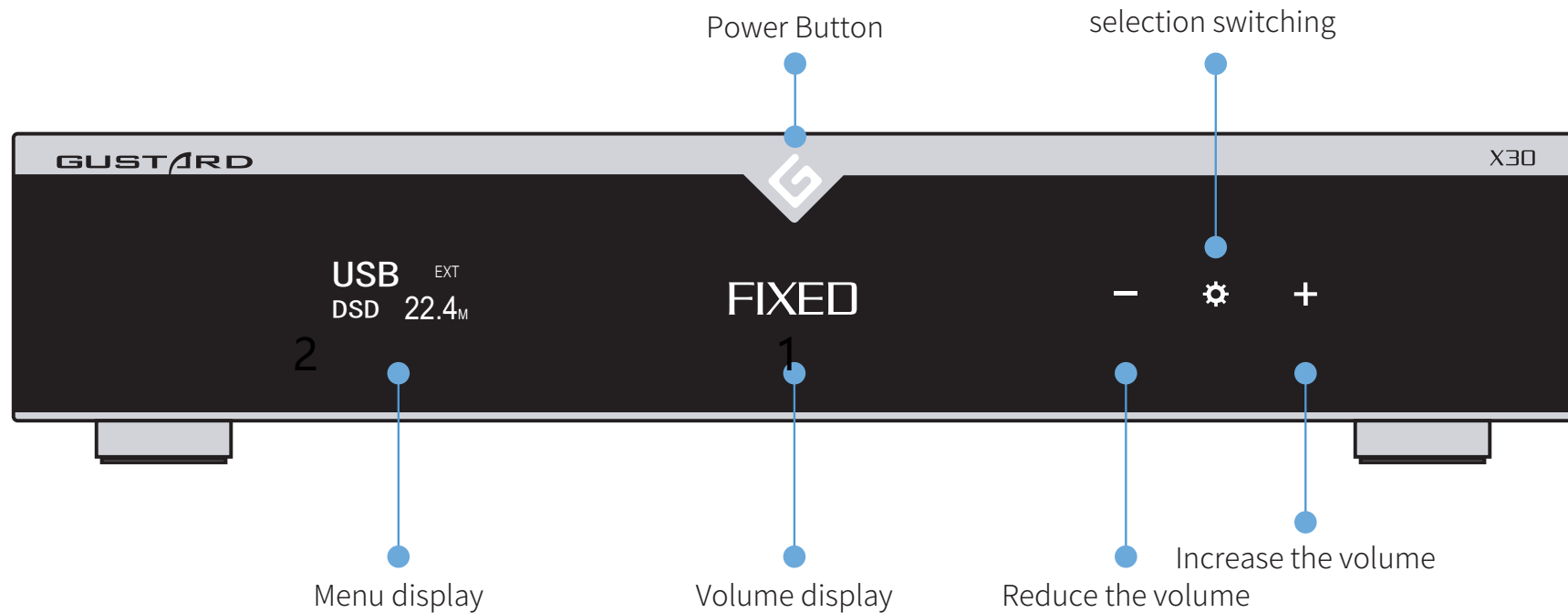


USB cable



Remote control

Front Panel:



1.Power Button: Switches between standby and working states. The X30 can remain in standby mode when the power switch on the rear is turned on.

2.Displays the current input channel, encoding format and sampling rate.

*Display items when entering the menu

3.Displays volume, -90~00dB represents volume, FIXED is volume pass-through.

*Displays options when entering the menu

4.The "-" Button is usually used to attenuate the volume.

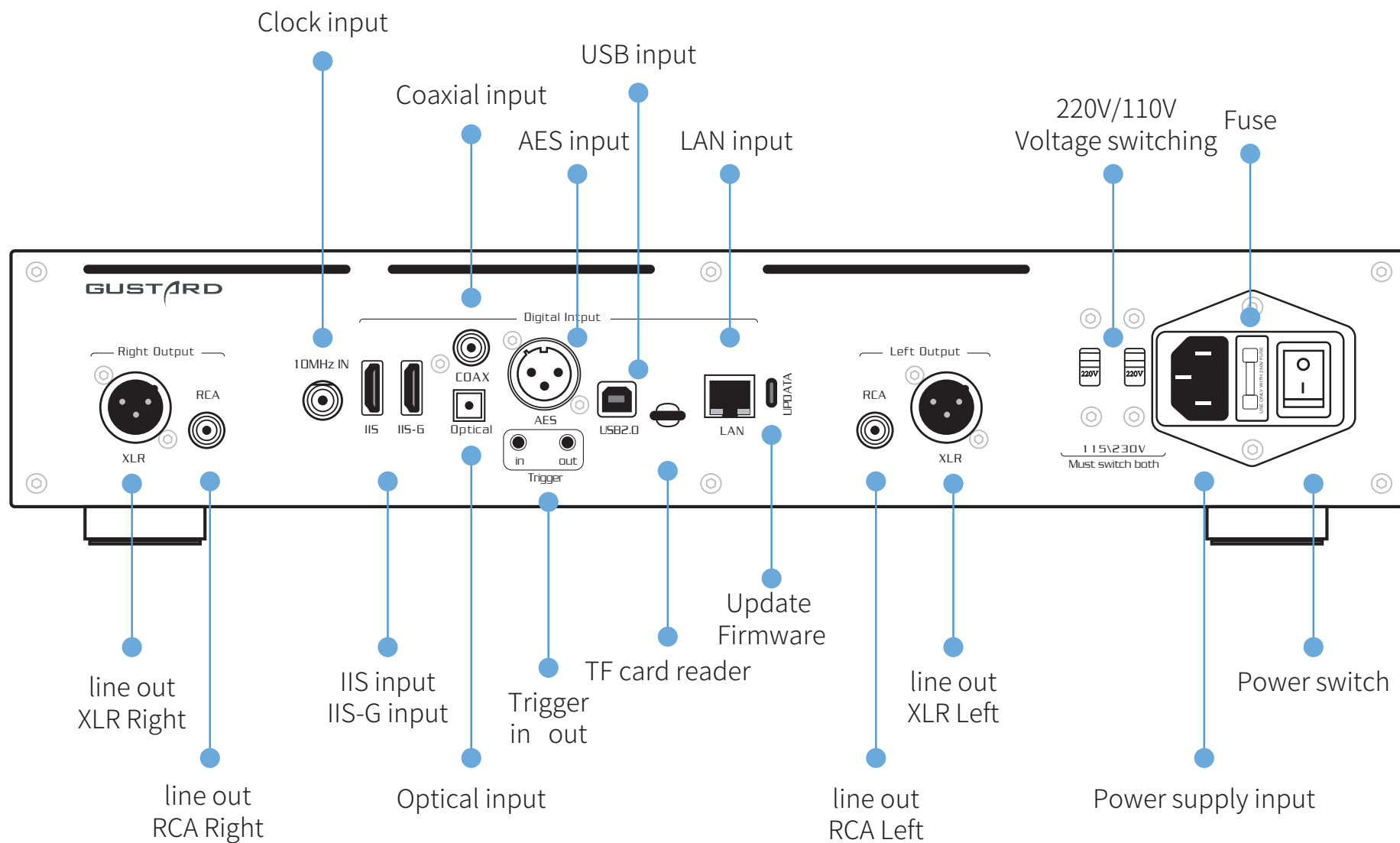
*Used to switch options in the menu interface

5.The small gear button is used for input selection switching when short pressed; long press to enter or exit menu; short press to switch items in the menu

6.The "+" button is usually used to increase the volume

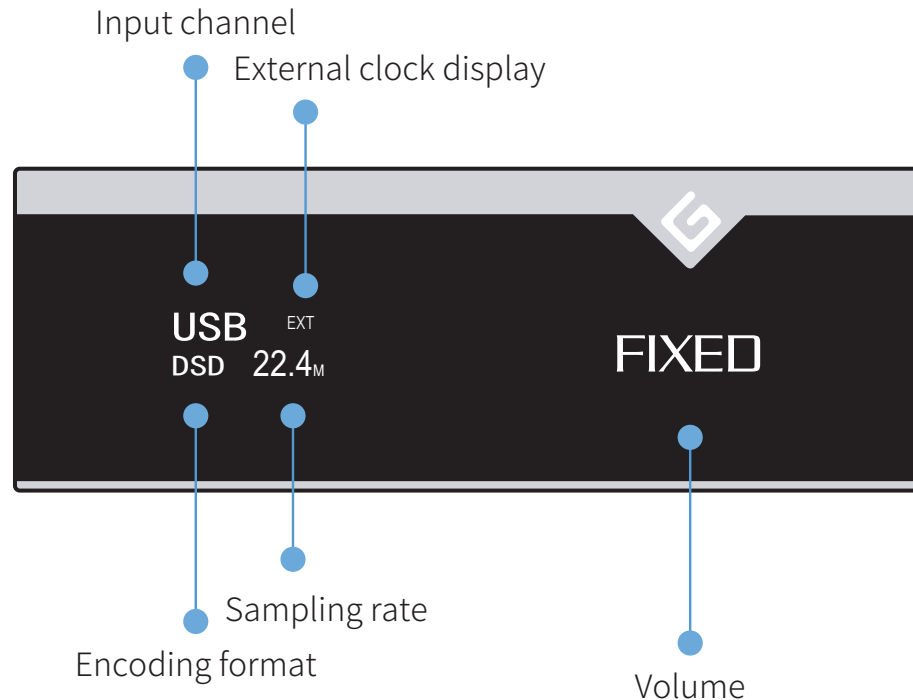
*Used to switch options in the menu interface.

Rear Panel:



Ensure both voltage switches are set to the same voltage when operating the 220V/110V voltage switch, otherwise, it may damage the internal transformer upon powering on.

1. X30 uses a large OLED display for real-time status and function operations. The following figure shows the status of the main screen.



2. Input Channel Selection:

X30 has a total of 7 input channels. In the main screen state, every time the small gear key is pressed, the current input channel can be selected in the order of COAX—AES—OPT—USB—STREAMER—IIS(G)—IIS(M*).

*** Note: The IIS(G) is GUSTARD format and can not adjust; The IIS(M*) is an adjustable IIS port.

3. Volume Adjustment :

When the screen is in main screen state, the "+" and "-" buttons can directly adjust the analog volume attenuation function of the passive preamplifier of the X30. The volume can be attenuated from 00dB to -90dB, with a total of -90dB attenuation.

When the volume is at 00dB, press the "+" button again to enter the fixed output mode (pass-through, bypassing the volume part), and the volume position displays FIXED.

When the volume displays FIXED, press the "-" button reduces the volume to exit FIXED first, and then adjust the volume.

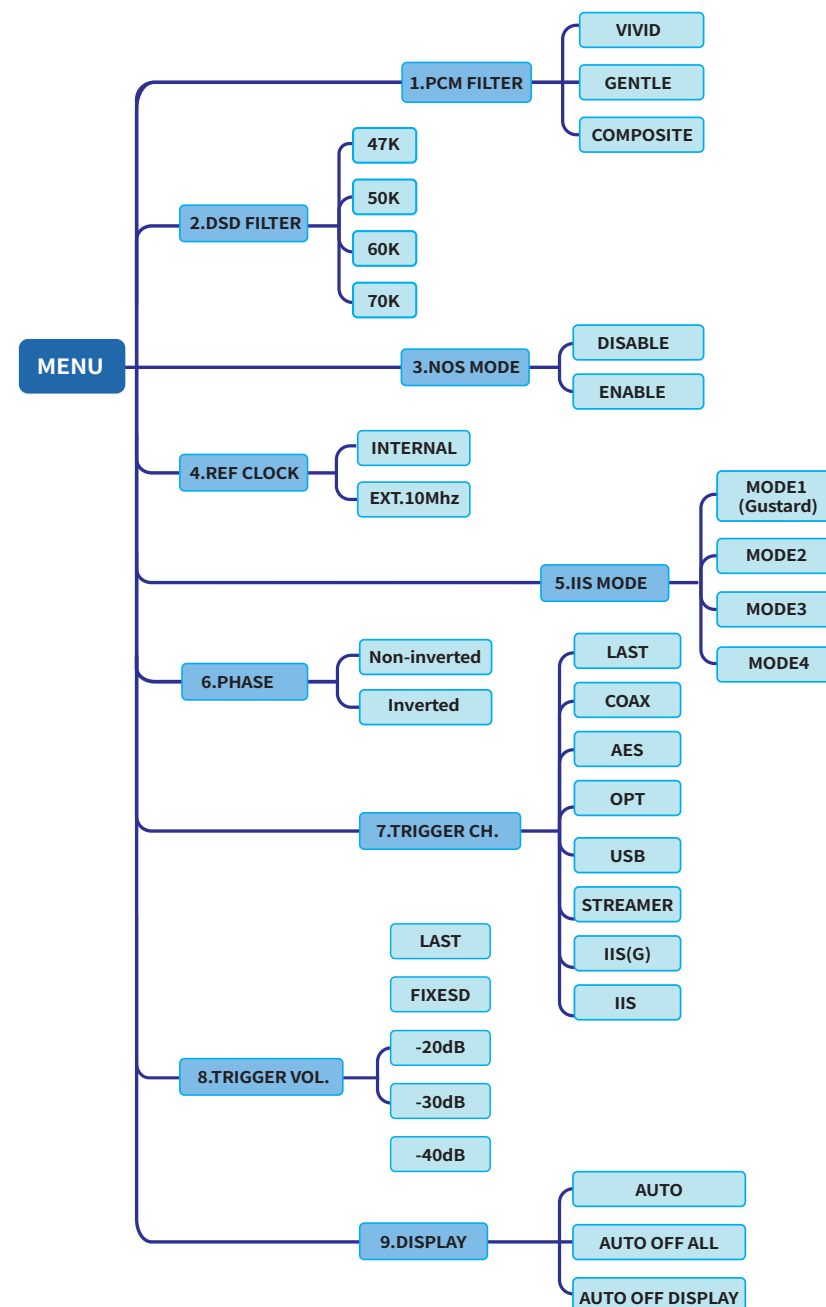
Settings Menu:

On the main screen, long press the small gear button to enter the settings menu (hereinafter referred to as the menu button). In this state, the menu button can sequentially switch the menu items to be modified. "+" and "-" buttons are used to adjust the currently selected menu options.

When the screen is in the settings menu, long press the menu button again to return to the main screen.

The menu directory tree structure is as follows:

1. PCM FILTER (PCM Digital Filter Adjustment):
- 2.DSD FILTER (DSD Digital Filter Adjustment):
- 3.NOS MODE (No Oversampling Filter Mode):
- 4.REF CLOCK (Reference Clock Selection):
- 5.IIS MODE (IIS Pinout Mode Selection):
- 6.PHASE (Phase Setting):
- 7.TRIGGER CH. (Linkage trigger start channel selection):
- 8.TRIGGER VOL. (Link Trigger Boot Volume Selection):
- 9.DISPLAY (Screen Brightness Settings):



When in the main screen state and pressing the menu button to enter the menu, the following are introductions to each menu option.

1. PCM FILTER (PCM Digital Filter Adjustment):

X30 uses a self-developed high-performance DSP PCM digital filter, with a total of 3 PCM digital filter types.

Default → **VIVID**
GENTLE
COMPOSITE

VIVID filter is similar to the FAST roll-off type of traditional digital filter, but the ringing characteristics are better, with very small pre-ringing and fast convergence post-ringing. It can get very real and accurate details, sound field and sound restoration. When listening to most music styles, we strongly recommend that you use this digital filter. GENTLE is similar to the SLOW roll-off type of traditional digital filter, with a soft listening experience. COMPOSITE is a hybrid digital filter, which is between the two and has a very good listening experience.

2. DSD FILTER (DSD Digital Filter Adjustment):

The DSD filter has 4 built-in bandwidth options:

Default → **47K**
50K
60K
70K

3. NOS MODE (No Oversampling Filter Mode):

When enabled, the PCM signal will bypass the oversampling filter and go directly to ES9039SPRO. At the same time, ES9039SPRO also turns off the internal PCM oversampling digital filter.

Default → **DISABLE**
ENABLE

*** When enabled, there may be a slight clicking sound when the playback data format switches between PCM and DSD.

4. REF CLOCK (Reference Clock Selection):

GUSTARD-K2, low-noise clock synthesizer. With ultra-low phase noise, its synthesized clock achieves ultra-low jitter performance of femtosecond level, while being able to directly pass the near-end performance of the reference clock. Due to its high-precision divider, the frequency accuracy of the synthesized audio clock reaches ppb level. Thanks to this, the master clock of the digital processing circuit built into the X30 is also provided by the K2 high-precision lock synthesizer.

REF CLOCK can choose:

Default → **INTERNAL** **Internal reference, using the built-in OCXO**
EXT. 10Mhz Selecting an external 10M reference source

it is recommended to connect to GUSTARD C16 or C18 reference 10M master



In the external clock state(EXT. 10Mhz Options), After exiting the menu. when the external 10M is correctly locked. the main screen will display the word EXT



If the external clock is lost, or the external clock is forgotten to be turned on, or the 10Mhz frequency deviation of the external clock output is greater than +-150ppm, “EXT ERR” will be displayed and flash.

5 . IIS MODE (IIS Pinout Mode Selection):

X30 has 2 IIS input:

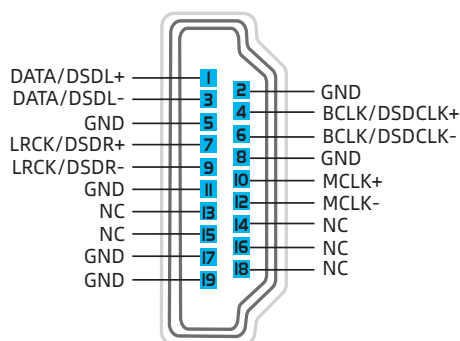
1. IIS(G) is GUSTARD pinout and cannot be adjusted. When playing DSD, a DSD FLAG needs to provide by the front end.
2. IIS(M*) is an adjustable Pinout mode. It can automatically detect PCM and DSD encoding so there is no need a DSD FLAG signal.

The Pinout of IIS(G) (GUSTARD MODE) is as follows:

*** When the IIS(G) input plays back DSD, the front end needs to provide DSD FLAG

***MODE1 is compatible with the GUSTARD mode. If you are connecting to a GUSTARD front end such as U12, U16, U18, S16, S26, etc., you can match them with MODE1, when the former works in the GUSTARD output mode. All MODE1-MODE4 Pinouts refer to the following figure:

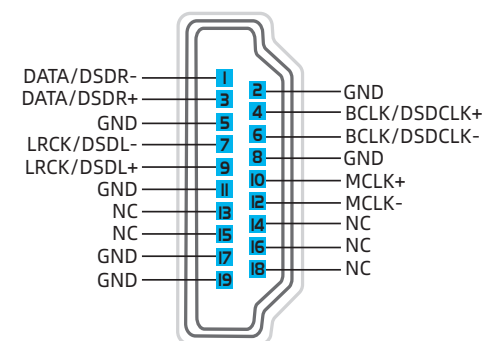
MODE1 (GUSTARD)



IIS OVER HDMI(Socket view)

Please do not connect to the usual HDMI, this is not really

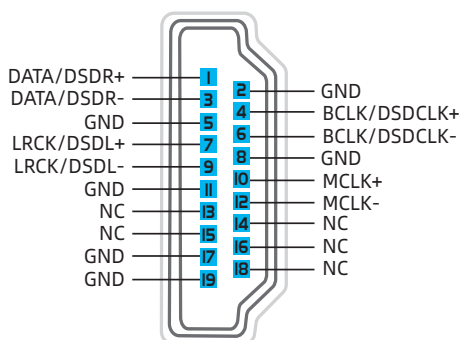
MODE2



IIS OVER HDMI(Socket view)

Please do not connect to the usual HDMI, this is not really

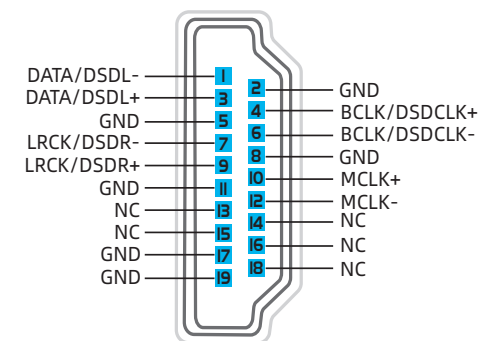
MODE3



IIS OVER HDMI(Socket view)

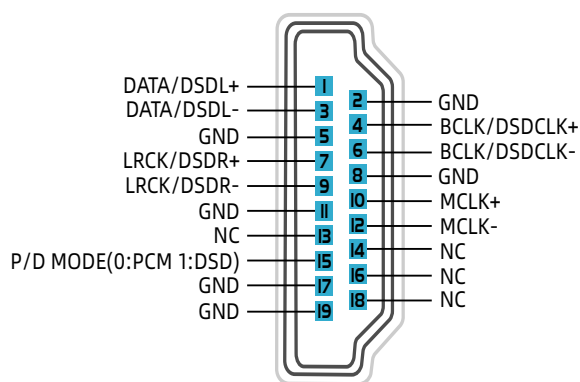
Please do not connect to the usual HDMI, this is not really

MODE4



IIS OVER HDMI(Socket view)

Please do not connect to the usual HDMI, this is not really



IIS OVER HDMI(Socket view)

Please do not connect to the usual HDMI, this is not really HDMI

6. PHASE (Phase Setting):

This function has two options:

Default →

NON-inverted (RCA normal phase output—XLR American standard)
Inverted (RCA inverse phase output—XLR Japan/European standard)

When NON-inverted, the RCA output of X30 is normal phase, and the XLR balanced output is American standard polarity output, that is - 1 ground, 2 hot, 3 cold.

When Inverted, not only the RCA output is reverse phase output, but the XLR balanced output will be Japanese/European standard polarity output, that is - 1 ground, 2 cold, 3 hot.

7. TRIGGER CH. (Linkage trigger start channel selection):

The X30 can be triggered by an external 12V linkage signal and automatically turn on from standby mode. When 30 is working, it is switched to the input channel of this setting by the 12V trigger linkage signal.

If the 12V trigger input signal stops or turns down to 0V, it will automatically enter the standby state Note:

***1 This time the X30 is turned on by 12V trigger, not manually turned on

***2 After this trigger, the X30 is in the trigger channel set

***3 After this trigger, the X30 input channel has not been manually switched

The above 3 conditions are met and the X30 will automatically enter standby to execute

Default →

LAST (the input channel that was in use before entering standby last time)
COAX — AES — OPT — USB — STREAMER — IIS(G) — IIS

For the remaining channels above, whichever one you choose, when the 12V trigger signal comes, it will enter that channel and turn on the X30.

8. TRIGGER VOL. (Link Trigger Boot Volume Selection):

X30 can be triggered by an external 12V linkage signal, and can be turned on automatically from standby mode and set to this volume. Or when X30 is working, it is switched to the set volume by the 12V trigger linkage signal. This option is used to set the volume of the X30 output after the trigger power on.

Default



LAST (The volume used before entering standby last time)

FIXED (Output at fixed full volume)

-20dB (Output at a volume attenuated to -20dB)

-30dB (Output at a volume attenuated to -30dB)

-40dB (Output at a volume attenuated to -40dB)

9. DISPLAY (Screen Brightness Settings):

Default



AUTO Automatically reduce brightness

AUTO OFF ALL Automatically turn off the screen

AUTO OFF DISPLAY Automatically turn off the screen display

Long-term high-brightness use of OLED screens can easily cause screen burn-in, ghosting, etc.

Therefore, it is designed to always.

automatically reduce the brightness, or manually select automatic screen off, which can also reduce interference.

Infrared Remote Control:

* Enter control DAC mode by long pressing the DAC key 3-5 s

① **Standby:** switch between standby and working.

② **Menu:** enter menu.

③ **Pad with 4 direction keys:**

In the main screen, the up and down keys can be used to switch X30 input channels.

In menu, use up/down to choose the option, left/right to change the value.

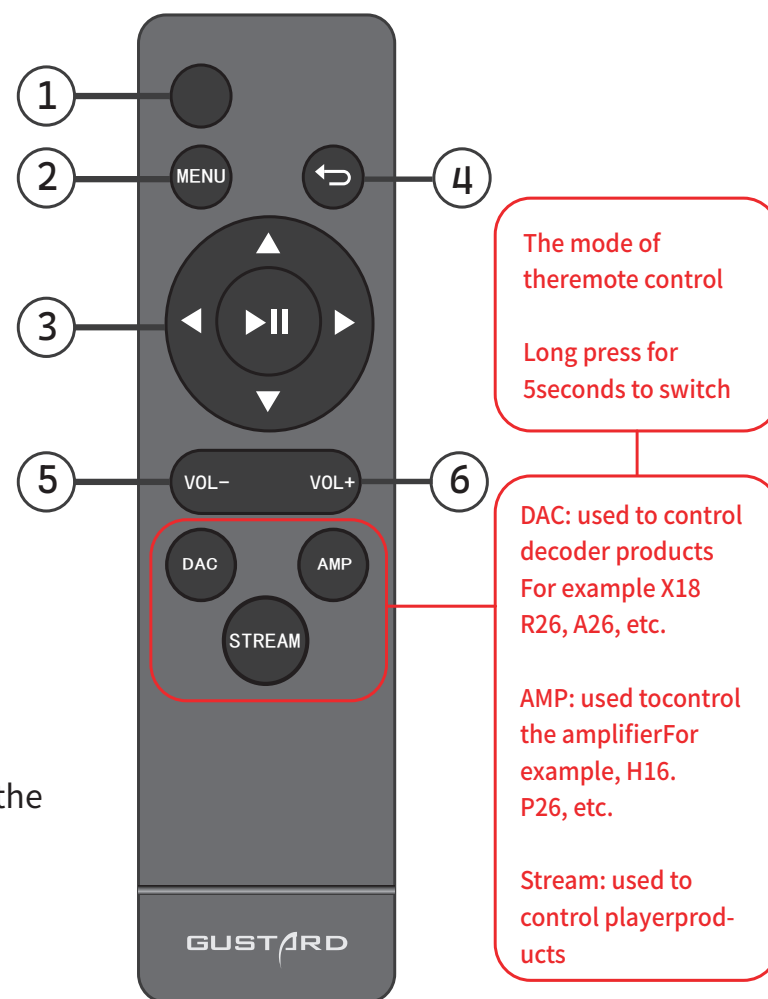
④ **Back:** Back to the main screen.

⑤ **Vol-:** Decrease the volume.

⑥ **Vol+:** Increase the volume.

Note:

- Pay attention to distance and angle.
- If there is an obstacle in front, the remote controller may not work.
- If you don't use the remote control for more than a month, please remove the battery.
- If the battery leaks, thoroughly clean the battery case and replace it with a new one.
- The remote controller may not work properly on other devices.



Operation Introduction of streamer:

After the X30's RJ45 is connected to your LAN.

Select the X30 to Streamer channel and wait for the system to boot up.

(About one minute, when the screen displays DSD 24.5Mhz)

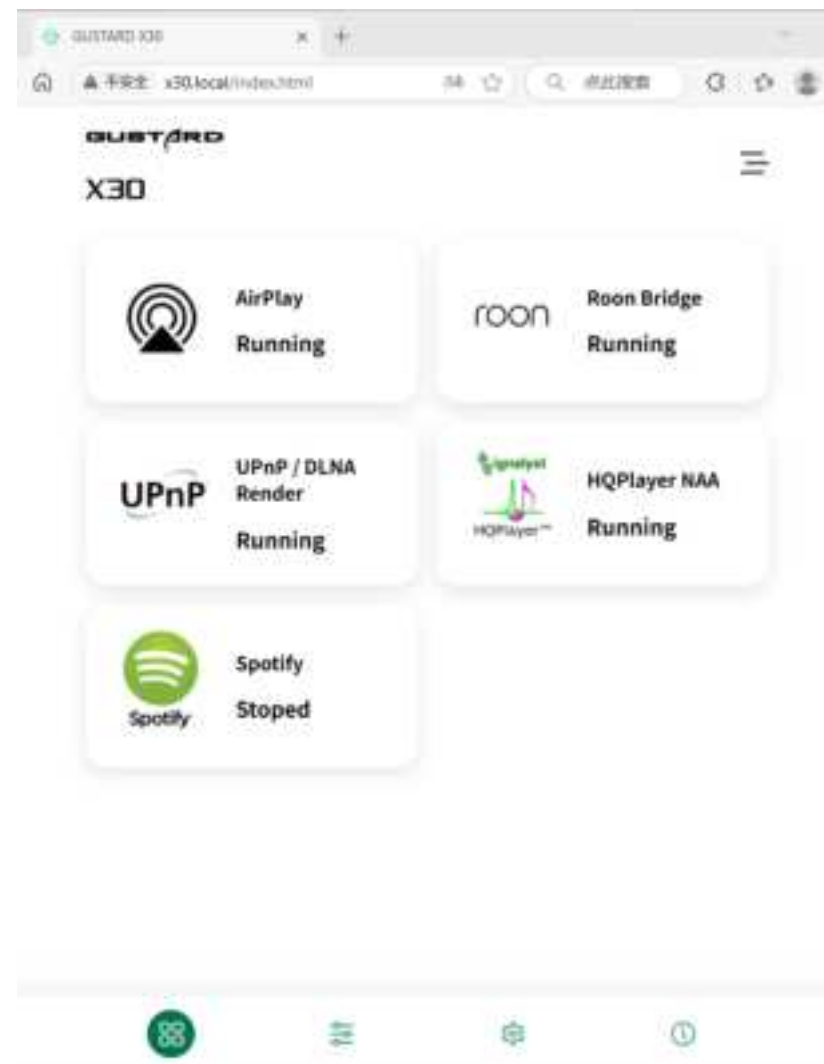
In the browser of a PC, MAC, tablet, iPhone or other device in the local area network,

enter: **http://X30.local**

Open the settings page of the X30 bridge, as shown below:

You can turn off the streaming protocol that is not frequently used through the web page to maximize the system music playback performance.
At the same time, the online upgrade of Streamer is also operated on the web page.

(After the dedicated Streamer APP is launched, the above operations can be performed in the APP)



Digital input support formats :

COAX/AES/OPT : PCM 16-24bit/44.1-192kHz; DOP64

USB: PCM 16-32bit/44.1-768kHz;DSD DOP64-DOP256; NATIVE DSD: DSD64-DSD512

STREAMER: PCM 16-32bit/44.1-768kHz; DSD DOP64-DOP256; NATIVE DSD: DSD64-DSD512
(The STREAMER can set the protocol on and off and it can be upgraded online)

IIS(G) : PCM 16-32bit/44.1-768kHz; DSD DOP64-DOP256; NATIVE DSD: DSD64-DSD512

IIS(MODE1-MODE4) : PCM 16-32bit/44.1-768kHz; DSD DOP64-DOP256;
NATIVE DSD: DSD64-DSD512 (PCM/DSD encoding automatic detection)

USB input OS support: WIN7-WIN11 32-64bit and UP; Mac OSX; IOS; Linux ; Android OTG

10Mhz BNC input: Impedance 50 Ohm, 0dBm-20dBm,
CMOS voltage: Square wave: 0.2V-3.3V, : Sine wave0.5-3.3V

Trigger: IN- 12V Typ. OUT- 12V Typ.

Analog Output:

Frequency response: 20-20kHz /+0.2dB @VIVID setting

Dynamic Range: > 130dB (20K BW Awt.)

Signal-to-Noise Ratio: > 129dB (20K BW Awt.)

Crosstalk: -139dB @ 10kHz

THD+N: < 0.0002% @ 1kHz

IMD: $\approx$ 0.001% @ -1dBfs

RCA level : 2.5Vrms (VOLUME FIXED)

RCA output Impedance: 100 Ω

XLR level: 5.1Vrms (VOLUME FIXED)

XLR output Impedance: 100 Ω

XLR definition: US standard (1 ground, 2 hot, 3 cold) @Non-Inverted Phase setting

Others:

Power Supply: AC 115V/230V 50/60Hz

Power Consumption: < 43W

Size: L430mm * W300mm * H80mm(With machine feet 92mm)

Packing size: L530mm * W400mm * H180mm

Weight: 10Kg (with package)

Thank you very much for choosing the HIFI products of the GUSTARD brand. To safeguard your rights and interests, please read the following warranty terms carefully. So that you can promptly obtain the comprehensive after-sales service provided by GUSTARD for you.

**** Product Warranty ****

You will enjoy the 2-year free warranty and lifetime maintenance after the date purchasing GUSTARD' s HIFI product.

* The manufacturer bears only the freights from Chinese mainland. Part of the freight and tax generated from overseas will be solved by the user with the dealer negotiation.

****Free Warranty Service****

GUSTARD X30 from the purchasing date in the free warranty period, the user uses the product in normal, and the product fails due to component quality or manufacturing problems.

****Beyond the Warranty Service****

Belonging to one of the following circumstances, products are no longer provided warranty service.

- a. Products from the date of purchase has exceeded a predetermined warranty period.
- b. Model, barcodes and purchase date do not match the actual product and warranty card.
- c. Without GUSTARD technician permission, unauthorized modifications to the circuit, components or self-repaired product.
- d. Damaging caused by irresistible natural forces.
- e. Beyond the permitted use of environmental damage.
- f. Damaging due to incorrect use or improper storage. Including but not limited to: the voltage is too high to burn the circuits or components; Bumping and resulting in damaging the shell or internal; damaging due to water, oil, liquid and excessive dust; product oxidation or corrosion, etc.
- g. Beyond the warranty period, such as an individual component damage, appearance due to human damage, firmware modifications lead to unable to work by unauthorized users. GUSTARD commits to take reasonable maintenance fees (except large area components or circuit board burned beyond repair). Freight and maintenance costs, material costs are required the user to bear.



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