

GUSTARD

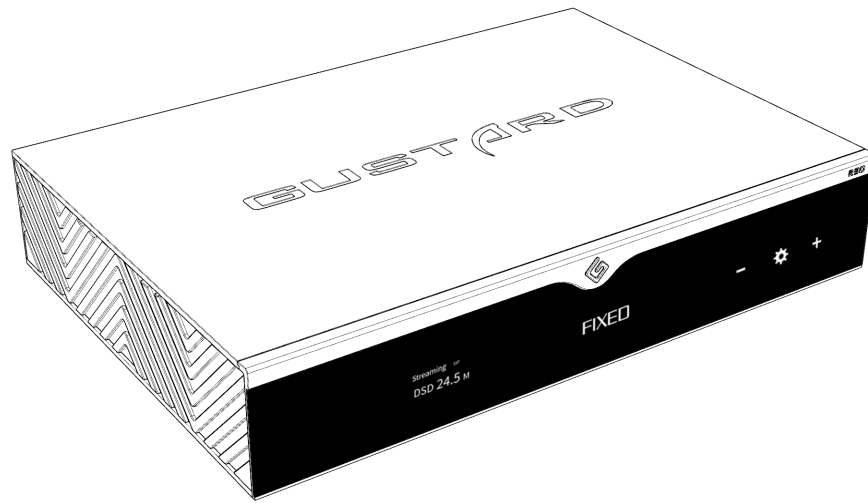
R30

Fully Discrete R2R Network Streaming DAC
User Manual v1.0en



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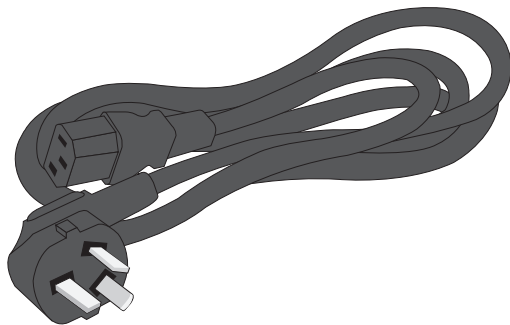
Packaging list:



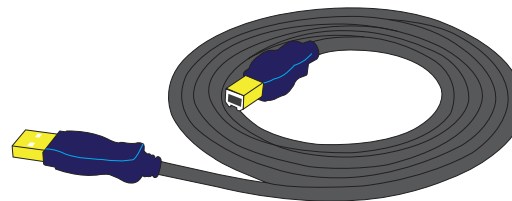
Mainframe



Warranty card



Power cord

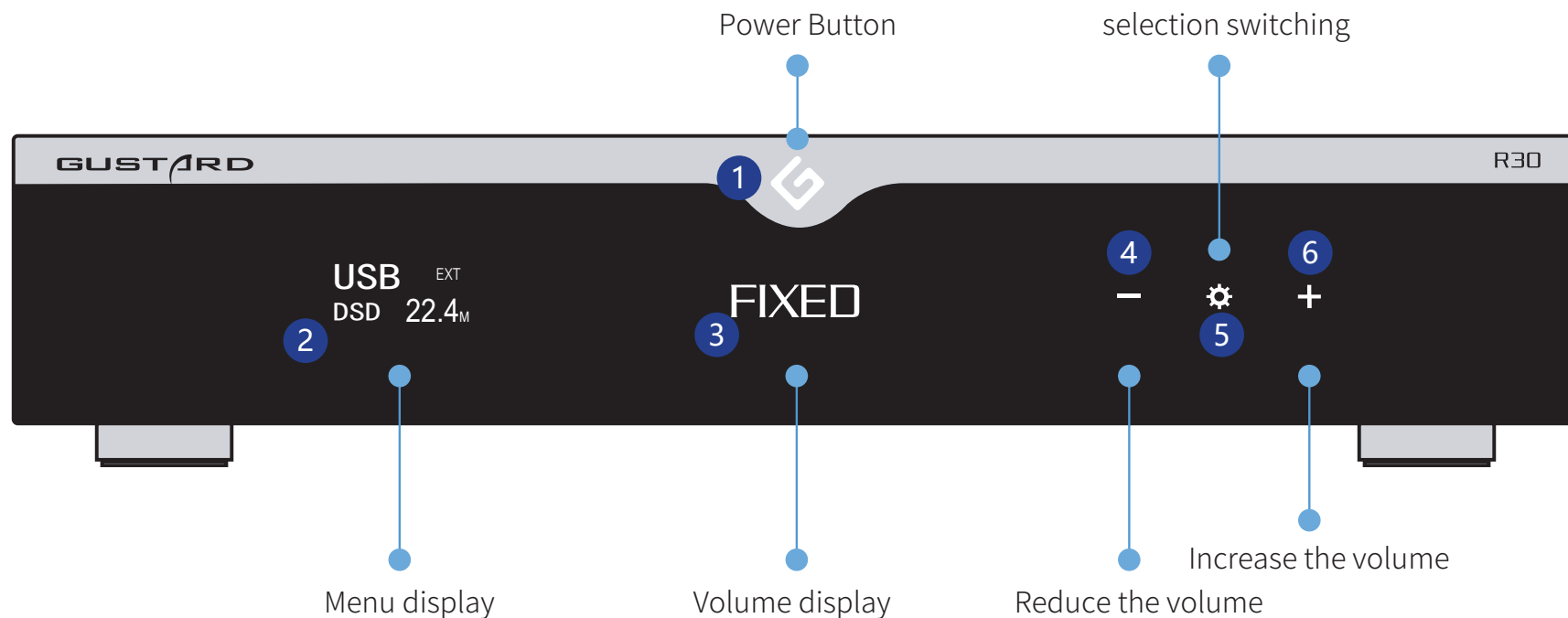


USB cable



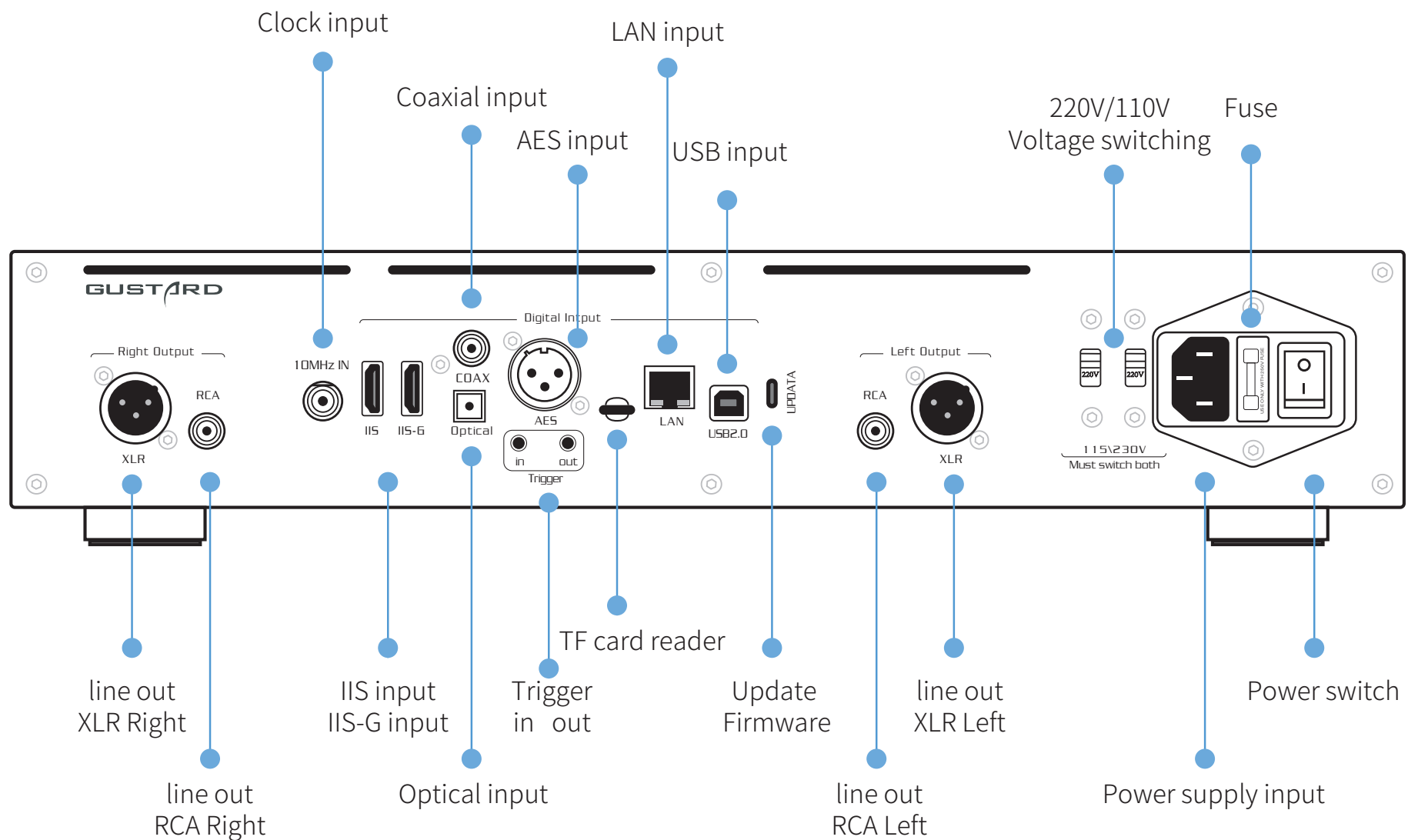
Remote control

Front Panel:



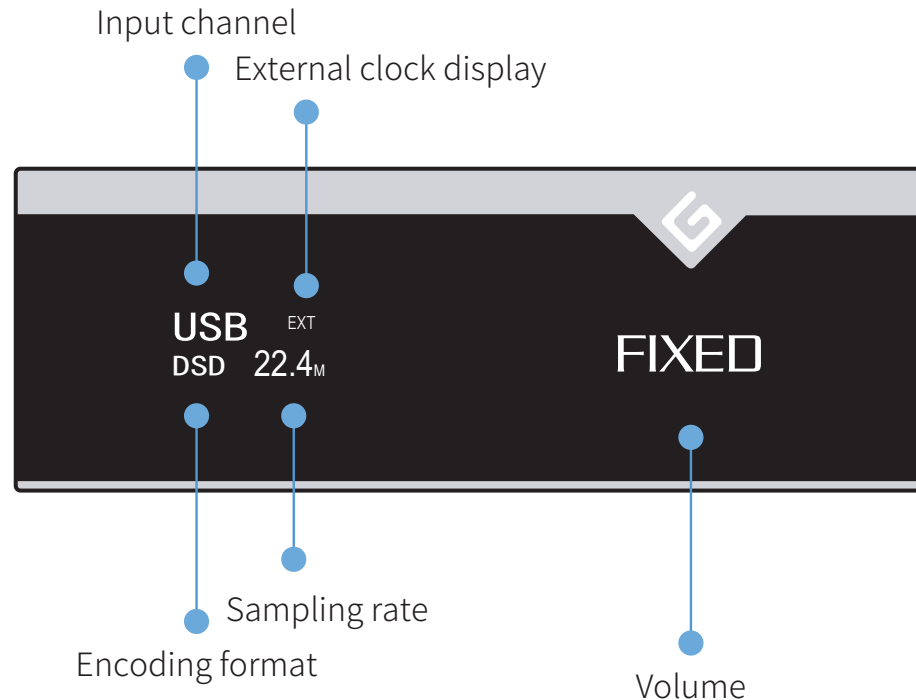
1. Power Button: Toggles between standby and active modes. R30 can maintain standby when the rear power switch is ON.
2. Displays current input channel, encoding format, and sampling rate. *Shows menu items when in the setup menu.
3. Volume indicator: -63.5~00dB for volume level, FIXED indicates bypass mode. *Shows menu options during configuration.
4. "-" Button: Normally decreases volume. *Cycles through options in the menu.
5. Gear Button: Short press switches inputs; Long press enters/exits menu; Short press navigates items in menu.
6. "+" Button: Normally increases volume. *Cycles through options in the menu.

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. The R30 employs a large OLED display for real-time status monitoring and functional operations. The diagram below illustrates the main interface display states.



2. Input Channel Selection:

The R30 features 7 input channels. On the main interface, each press of the Gear Button cycles through available channels in this sequence: COAX → AES → OPT → USB → STREAMER → IIS(G) → IIS(M*).

***Note: IIS(G) interface for fixed Gustard pinout configuration. IIS(M) supports adjustable pinout configuration**

3. Volume Adjustment :

When the main interface is displayed, pressing the "+" or "-" buttons directly adjusts the analog attenuation level of R30's passive preamplifier. Attenuation ranges from 00dB to -63.5dB (total 63.5dB attenuation).

Pressing "+" at 00dB activates Fixed Output mode (bypassing attenuation circuit), displaying FIXED indicator.

When FIXED is displayed, pressing "-" first exits bypass mode before control attenuation level.

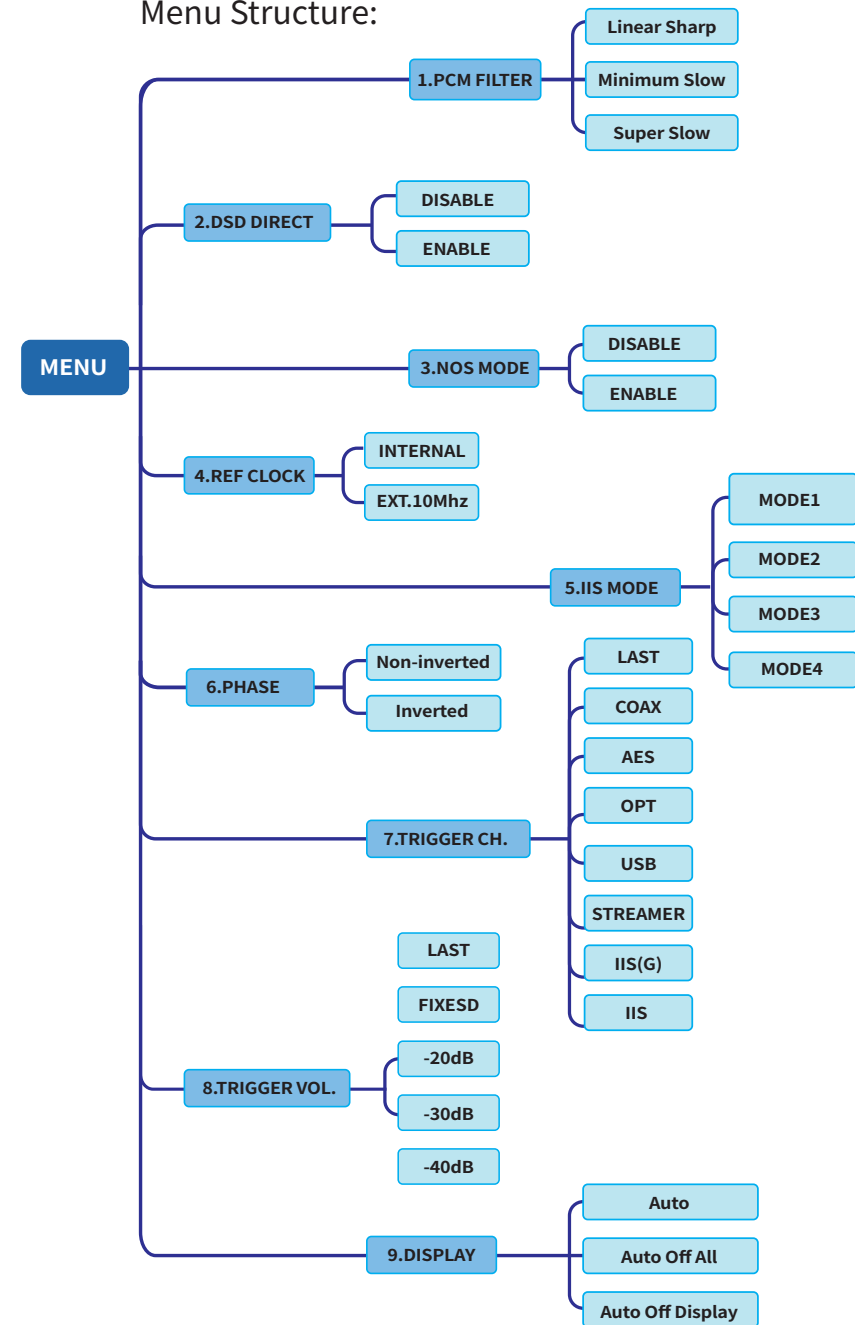
Settings Menu:

Long press the Gear Button on the main interface to access the Setup Menu (hereafter "Menu Button"). In this state:
Menu Button cycles through configurable items
"+" / "-" adjust selected options
Long-pressing Menu Button again exits to main interface

Navigation via numeric cursor:

- 1. PCM Digital Filter
- 2. DSD Direct
- 3. NOS Mode
- 4. Reference Clock
- 5. IIS Mode
- 6. Phase
- 7. Link Trigger Channel
- 8. Link Trigger Volume
- 9. Display Brightness

Menu Structure:



Access the menu by pressing the Menu Button on the main interface. Each menu option is detailed below.

1. PCM FILTER (PCM Digital Filter Adjustment):

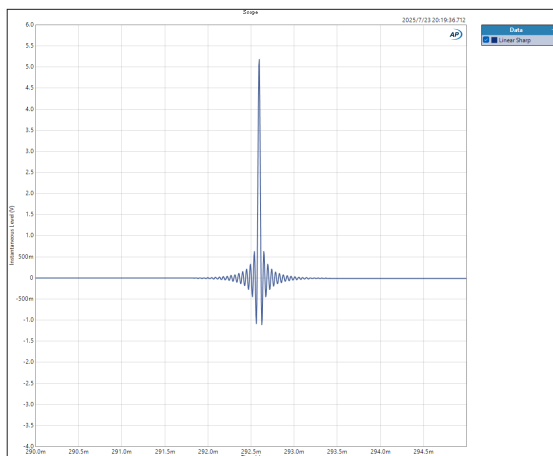
The R30 employs a self-developed high-performance PCM oversampling digital filter module with three filter types:

Default

→ **Linear Sharp**

Minimum Slow

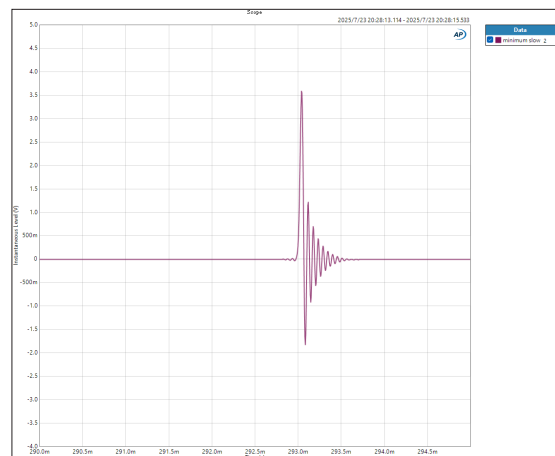
Super Slow



Linear Sharp

The sharp roll-off characteristics and low phase distortion are good, and high-frequency noise is suppressed by optimizing the impulse response. The transient response is extremely fast, the energy is concentrated, and the micro-dynamics and transient details in the music are retained. The high-frequency extension is smooth, the mid-frequency imaging is precise, the low-frequency control is strong, and the depth is firm.

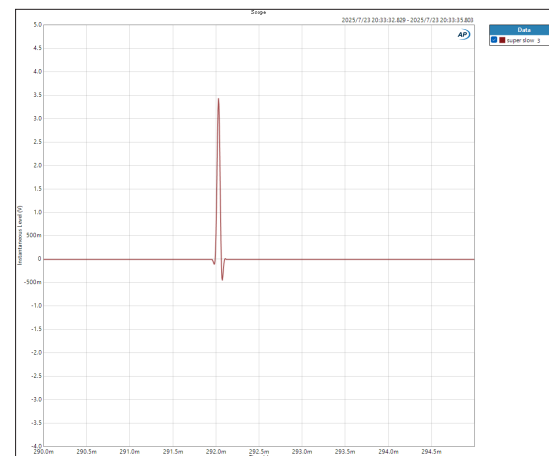
Skilled in resolution: High-frequency transparency, good metallic texture of transient percussion instruments; The mid-frequency stereo is condensed, and the details of the human voice's lips and teeth are distinct. It has excellent low-frequency elasticity and is suitable for complex pieces such as electronic music and large-scale symphonies, presenting a precisely positioned stage feel.



Minimum Slow

The filter exhibits unique transient characteristics, with almost no pre-ringing before the main pulse, which is the core advantage of its algorithm. Although the waveform still has a certain degree of post-ringing after the peak, its attenuation rate has been carefully optimized to ensure that it does not cause a detectable trailing effect on the listening experience.

The high-frequency overtones are delicate without any sharpness, the mid-frequency density is solid and the layers are distinct, and the low-frequency extension is precise without being bloated. Especially skilled at recreating the wooden resonance of classical instruments and the subtle scent of the human voice, presenting an immersive "boundless sound field" experience.



Super Slow

Just like a meticulous master distiller, super slow filter smooth out the sharp edges in digital audio. From the waveform diagram, it can be seen that except for the obvious pulse level spike at the center, the rest of the front and back ringing have been almost eliminated. Its sound aesthetics lie in making the high frequencies as soft as the dusk light, the midrange with the warmth of old-fashioned vacuum tube equipment, and the low frequencies presenting the elastic rhythm of vinyl records. Unlike the resolution pursued by ordinary digital filters, Super Slow pays more attention to creating a natural atmosphere like that of a wooden concert hall, allowing the reverb to dissipate slowly like the aftertaste of fine aged wine. When dealing with rock recordings from the 1970s, it can magically erase the stiffness brought by early digital conversions and restore an organic vitality close to that of the master tape, just like giving a new glass of wine the layers of an aged fine wine. Whether it's the live atmosphere of jazz, the wooden resonance of classical strings, or any music genre that needs to showcase a "simulated temperature", endow them with a unique charm that has been gently polished by time.

Menu Functions:

2. DSD FILTER (DSD Digital Filter Adjustment):

When enabled, slight audible clicking may occur during format switching between PCM/DSD or sampling rate changes.

Default → **DISABLE**
ENABLE

3. NOS MODE (No Oversampling Filter Mode):

Enabling this route PCM signals directly to the R-2R decoder module, bypassing the oversampling filter. PCM filter settings are overridden.

Default → **DISABLE**
ENABLE

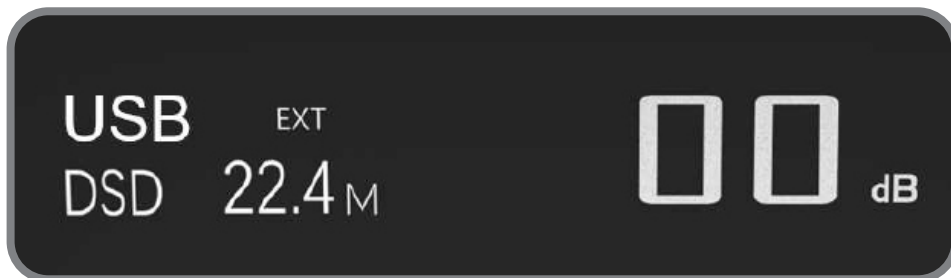
*** When enabled, there may be a slight clicking sound when the playback data format switches between PCM and DSD.

4. REF CLOCK (Reference Clock Selection):

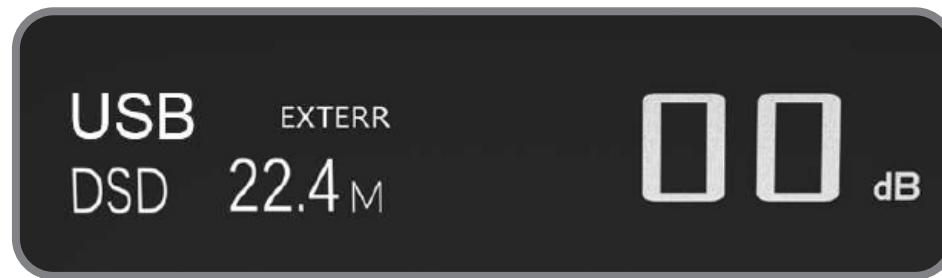
GCLK-02 low-noise clock synthesizer delivers ultra-low phase noise, achieving femtosecond-level jitter performance while preserving the near-carrier phase noise characteristics of the reference clock. This synthesizer provides multiple frequency outputs. R30's digital processing circuits and critical component clocks are synchronized by the GCLK-02.

REF CLOCK options:

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



When EXT. 10MHz is selected and successfully locked, "EXT" appears on the main display.



If the external clock is lost, powered off, or exhibits $>\pm 150\text{ppm}$ frequency deviation, "EXT ERR" blinks.

External clock is only valid for USB and streamer modes.

5 . IIS MODE (IIS Pinout Mode Selection):

The R30 features two IIS input interfaces:

- 1.IIS(G): Fixed Gustard pinout protocol (non-adjustable). DSD playback requires a DSD FLAG signal from the source.
- 2.IIS(M*): Adjustable pinout mode. Auto-detects PCM/DSD encoding, eliminating FLAG requirement.

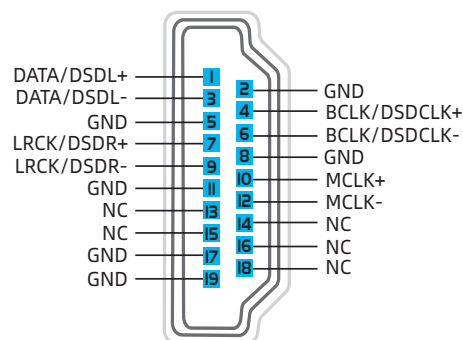
IIS(G) (Gustard Interface) Pinout:

IIS(G) requires DSD FLAG from source for DSD playback

IIS(M*) Adjustable Pinout Modes (4 configurations):

MODE1 maintains Gustard compatibility. When connecting Gustard sources (U12/U16/U18/S16/S26 etc.), select Gustard output mode on the source device and MODE1 on R30. Refer to diagram for MODE1-MODE4 pinouts:

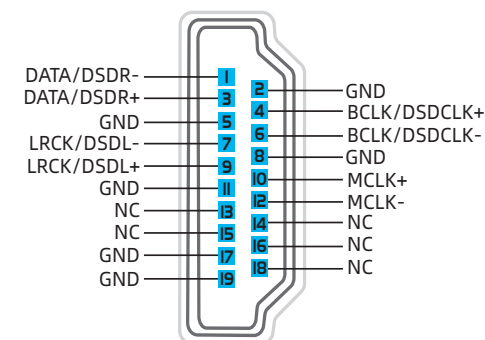
MODE1 (GUSTARD)



IIS OVER HDMI(Socket view)

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

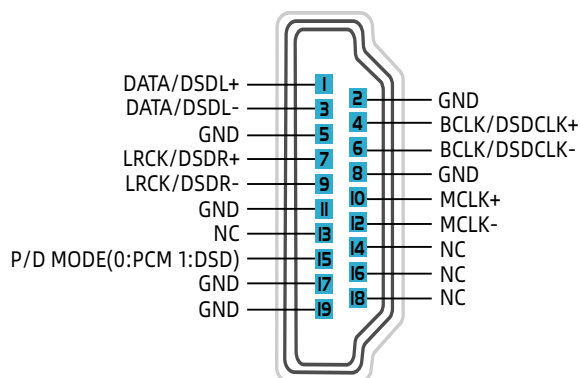
MODE2



IIS OVER HDMI(Socket view)

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

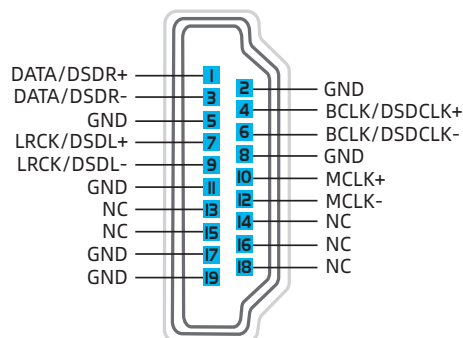
IIS(G)



IIS OVER HDMI(Socket view)

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

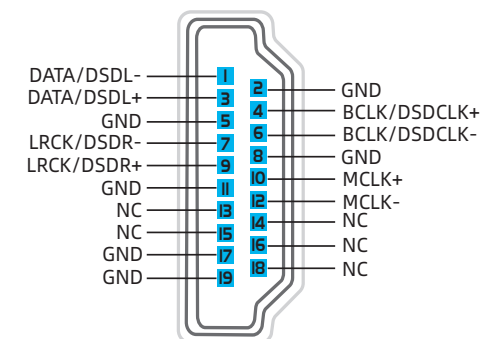
MODE3



IIS OVER HDMI(Socket view)

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

MODE4



IIS OVER HDMI(Socket view)

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

6. PHASE (Phase Setting):

This function offers two options:

Default →

NON-inverted (RCA positive phase — XLR AES standard)

Inverted (RCA inverted phase — XLR JIS/EUR standard)

NON-inverted:

RCA outputs maintain original polarity; XLR balanced outputs follow AES pinout:

Pin 1: Ground | Pin 2: Hot (+) | Pin 3: Cold (-)

Inverted:

RCA outputs invert polarity; XLR balanced outputs adopt JIS/EUR pinout:

Pin 1: Ground | Pin 2: Cold (-) | Pin 3: Hot (+)

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

The R30 can be powered on from standby via an external 12V trigger signal. If triggered during operation, it switches to the preset input channel. When the 12V trigger signal ceases or drops to 0V, automatic standby activation occurs ONLY when all conditions below are met:

***1. Current power-on was triggered by 12V signal (not manual)

***2. System booted to the preset trigger channel

***3. Input channel remained unmodified after trigger activation

Default →

LAST (the input channel that was in use before entering standby last time)

COAX → AES → OPT → USB → STREAMER → IIS(G) → IIS(M*)

Selecting any channel activates it upon receiving a 12V trigger signal.

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

The R30 can be powered on from standby via an external 12V trigger signal and automatically set to the selected volume level. Alternatively, during operation, a 12V trigger signal switches the output to the preset volume. This option configures the output volume after trigger activation.

Default



LAST (Last active volume before standby)

FIXED (Fixed full-scale output bypassing attenuation)

-20dB (Attenuated to -20dB)

-30dB (Attenuated to -30dB)

-40dB (Attenuated to -40dB)

9. DISPLAY (Screen Brightness Setting):

Default



AUTO Auto-dimming

AUTO OFF Auto screen-off

Due to OLED characteristics, prolonged high-brightness use may cause burn-in or ghosting.

Thus, auto-dimming or manual screen-off is implemented to minimize interference.

When operating DAC products, press and hold the DAC button for over 3 seconds to enter DAC control mode. AMP/STREAM modes control other Gustard products.

① **Standby:**

Press once to activate R30 from standby

Press once during operation to enter standby

② **Menu:** Press to access R30's setup menu

③ **Pad with 4 direction keys:**

Up/Down navigates menu items

Left/Right adjusts selected options

Center press activates/deactivates mute

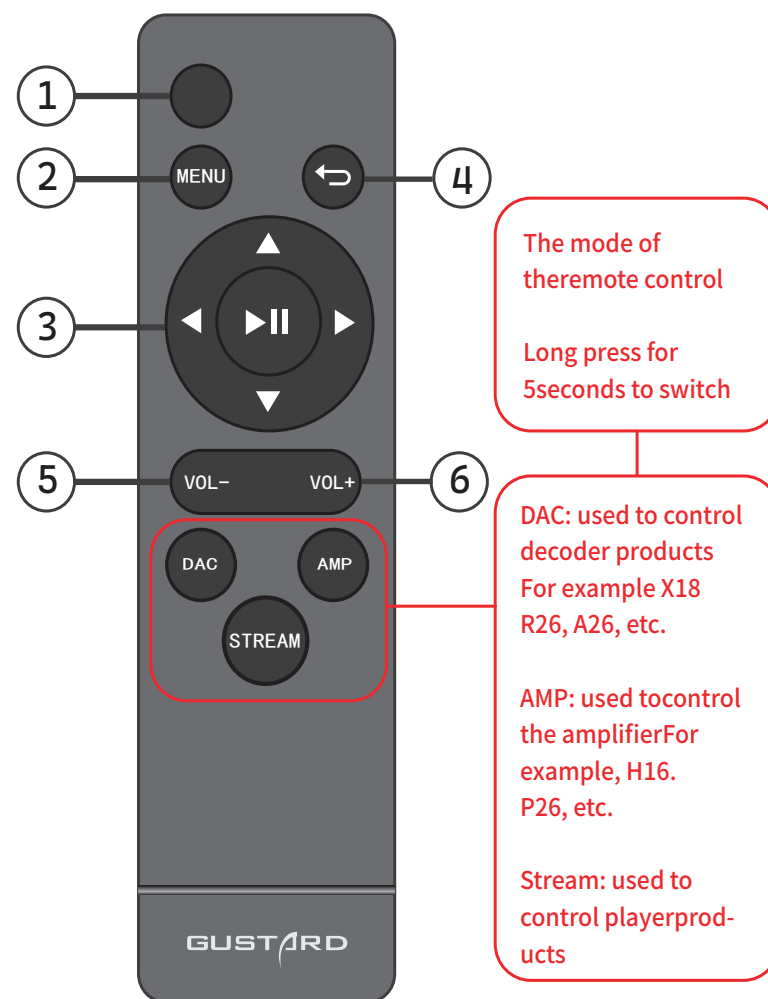
④ **Back:** Returns to main interface

⑤ **Vol-:** Decreases output volume on main interface

⑥ **Vol+:** Increases output volume on main interface

NOTES:

- Operational range varies with angle
- Obstructions between remote and sensor may cause malfunction
- Remove batteries if unused ≥ 1 month
- Thoroughly clean battery compartment if leakage occurs
- May accidentally trigger other IR-controlled devices



Network Bridge Streamer Quick Start

After connecting R30's RJ45 port to your local network:

1. Select STREAMER channel and await system boot (\approx 1 minute, until "DSD 24.576MHz" appears)

2. Access R30's configuration page via: <http://R30.local> (as shown below)
Disable unused streaming protocols on the web interface to maximize system efficiency. Firmware updates are also performed here.

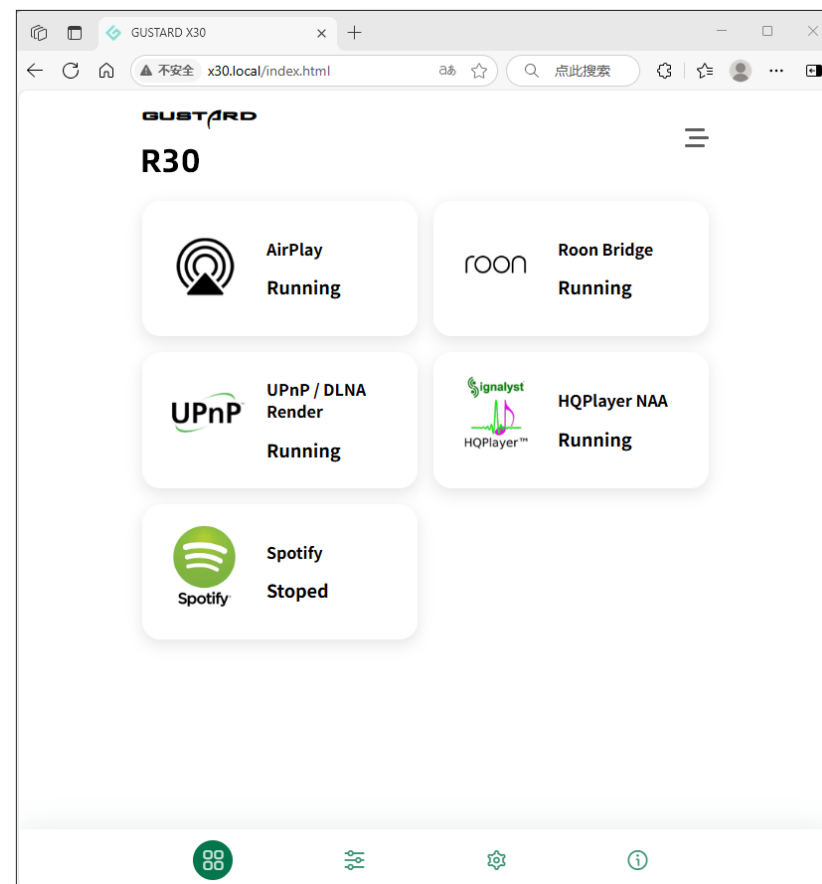
(Mobile/tablet operation pending until dedicated app release)

enter: **<http://R30.local>**

Open the settings page of the R30 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:

CCOAX/AES/OPT: PCM 16-24bit/44.1-192kHz; MQA \leq 384kHz; DoP64

USB: PCM 16-32bit/44.1-768kHz; MQA \leq 384kHz; DSD DoP64-DoP256; Native DSD: DSD64-DSD512

STREAMER: PCM 16-32bit/44.1-768kHz; MQA \leq 384kHz; DSD DoP64-DoP256;

Native DSD: DSD64-DSD512 (Protocols configurable; supports online upgrades)

IIS(G): PCM 16-32bit/44.1-768kHz; MQA \leq 384kHz; DSD DoP64-DoP256; Native DSD: DSD64-DSD1024

IIS (MODE1-MODE4):

PCM 16-32bit/44.1-768kHz; MQA \leq 384kHz; DSD DoP64-DoP256;

Native DSD: DSD64-DSD1024 (Auto-detects PCM/DSD encoding)

OS Support for USB Input:

WIN7/WIN8/WIN10/WIN11 32-64bit; macOS; Linux; Android OTG

10MHz BNC Input:

Input Impedance: 50 Ω , 0dBm-20dBm; CMOS Square Wave: 0.2V-3.3V; Sine Wave: 0.5-3.3V

Trigger Link Interface: IN: 12V Typ. OUT: 12V Typ.

Analog Output:

Analog Output:

Frequency Response: 20-20kHz/ ± 0.2 dB

Dynamic Range: >123dB

Signal-to-Noise Ratio: >121dB

Channel Crosstalk: -139dB @ 10kHz

THD+N: $\leq 0.00145\%$ @ 1kHz

IMD: $\approx 0.002\%$ @ -1dBFS

RCA Output Level: 2.5Vrms (VOLUME FIXED)

RCA Output Impedance: 100 Ω

XLR Output Level: 5.1Vrms (VOLUME FIXED)

XLR Output Impedance: 100 Ω

XLR Pinout: USA standard (1 Ground, 2 Hot, 3 Cold)

Others:

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

Power Consumption: <35w

Chassis Dimensions: W430 × D300 × H80 (including feet: 92mm);

Package Dimensions: L530 × W400 × H180mm;

Shipping 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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