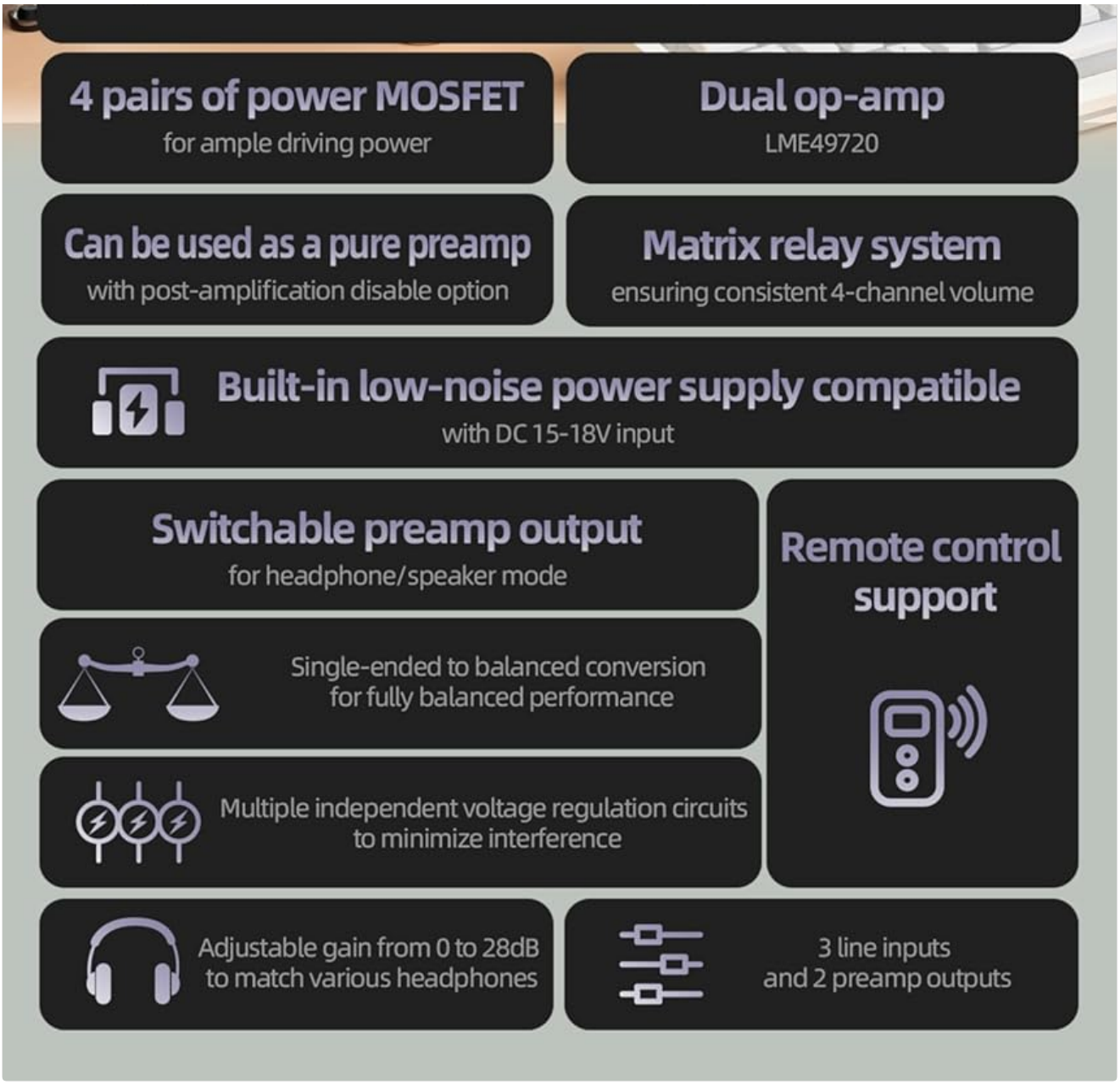
KGUSS HP70

AUDALYTIC HP70 Fully Balanced Discrete Headphone Amplifier User Manual

Model: HP70

1. Introduction

Thank you for choosing the AUDALYTIC HP70 Fully Balanced Discrete Headphone Amplifier. This manual provides essential information for setting up, operating, and maintaining your device to ensure optimal performance and longevity. Please read it thoroughly before use.



The AUDALYTIC HP70 headphone amplifier, shown from the front, featuring its display, volume knob, and headphone outputs.

2. Package Contents

Please check the package for the following items:

- AUDALYTIC HP70 Main Unit
- Power Cable
- Remote Control
- Warranty Card

Diagram illustrating the items included in the AUDALYTIC HP70 package.

3. Product Overview

3.1 Front Panel

The front panel provides access to essential controls and headphone outputs.

Labeled diagram of the AUDALYTIC HP70 front panel.

1. **Power Button:** Short press to mute/unmute; press and hold to switch between standby and on.
2. **Display Screen:** Shows volume level and function menus.
3. **Volume Knob:** Rotate to adjust volume; short press to switch input source; press and hold to enter the menu.
4. **Headphone Jack:** 4.4mm balanced output.
5. **Headphone Jack:** 6.35mm single-ended output.

3.2 Rear Panel

The rear panel features various input and output connections for audio sources and power.

Labeled diagram of the AUDALYTIC HP70 rear panel connections.

- **XLR Balanced Inputs (Left/Right):** For balanced audio sources.
- **RCA Single-Ended Inputs (L1/R1, L2/R2):** Two sets for single-ended audio sources.
- **RCA Single-Ended Outputs (L Out/R Out):** For connecting to other audio equipment.

- **XLR Balanced Outputs (Left/Right):** For balanced output to other audio equipment.
- **DC Input 15-18V:** For external power supply.
- **Power Input:** Standard AC power input. Switching power supply requires no manual voltage selection.
- **Fuse:** Power fuse for protection.

4. Setup

1. **Power Connection:** Connect the provided power cable to the HP70's power input and then to a suitable AC power outlet. Alternatively, connect an external 15-18V DC power supply to the DC input.
2. **Audio Source Connection:** Connect your audio source (e.g., DAC, CD player) to the desired input on the rear panel using appropriate RCA (single-ended) or XLR (balanced) cables.
3. **Headphone Connection:** Plug your headphones into either the 4.4mm balanced output or the 6.35mm single-ended output on the front panel.
4. **Preamp Output (Optional):** If using the HP70 as a preamplifier, connect the RCA or XLR outputs to your power amplifier or active speakers.
5. **Power On:** Press and hold the power button on the front panel to turn on the device.

5. Operation

5.1 Menu Settings

The HP70 features a menu system for configuring various settings. Use the volume knob to navigate and select options.

Menu navigation flowchart for the AUDALYTIC HP70.

- **Menu Graph:** Press and hold the knob to enter the main menu.
- Short press to move to the next line.
- Rotate the knob to select.

Available settings include:

  - **AMP GAIN:** Continuously adjustable from 0 to +28dB.
  - **PRE OUT:** Toggle preamplifier output ON or OFF.

- **AMP POWER:** Toggle amplifier power ON or OFF.
- **SCREEN AUTO OFF:** Toggle screen auto-off ON or OFF.
- **EXIT:** Exit the menu.

5.2 Remote Control

The included remote control provides convenient access to the HP70's functions.

Labeled diagram of the AUDALYTIC HP70 remote control.

1. **Standby Button:** In standby mode, press to wake up the HP70 and activate the display. During normal operation, press to put the HP70 into standby mode.
2. **Input Select Button:** Press to cycle through the available input sources on the HP70.
3. **Four-Directional Navigation Button:** When the settings menu is open: Use the Up/Down buttons to navigate through menu options. Use the Left/Right buttons to adjust the selected setting. Press the OK button to confirm certain selections.
4. **Menu Button:** Press to enter the main menu. Press again to exit the menu and return to the home screen.
5. **Back Button:** Returns to the home screen from any menu or submenu.
6. **Volume Down Button:** Decreases the output volume when the HP70 is on the home screen.
7. **Volume Up Button:** Increases the output volume when the HP70 is on the home screen.
8. **Mute Button:** Toggles audio muting on and off.

Important Notes:

- Operational range may vary depending on the angle of use.
- Obstructions between the remote and the sensor may prevent proper operation.
- Remove the batteries if the remote will not be used for an extended period (one month or longer).
- If battery leakage occurs, thoroughly clean the battery compartment and install new batteries.
- This remote may accidentally operate other infrared-controlled devices when used nearby.

6. Key Features

The AUDALYTIC HP70 is engineered with advanced features for superior audio performance:

Visual summary of the AUDALYTIC HP70's main features.

- **Fully Balanced Discrete Class A Amplifier:** Utilizes 4 pairs of power transistors for ample driving power and superior control. This discrete design allows for precise fine-tuning and offers enhanced development potential, delivering a wider range of sonic characteristics. The post-amplification stage can be disabled, allowing the unit to function as a dedicated pure preamplifier.
- **Pure Preamp Functionality:** The preamp uses two socketed LME49720 dual op-amps. The preamp output can be disabled for seamless switching between headphone and speaker modes.
- **Fully Balanced Input Stage:** A single-ended to balanced conversion circuit ensures RCA inputs benefit from full balanced drive performance.
- **Built-in Low-Noise Power Supply:** Features a 30VA low-noise power supply and also accepts an external 15-18V DC power input for flexibility.
- **Multi-stage Voltage Regulation:** Designed with multiple independent voltage regulation circuits to minimize ripple noise and reduce interference, resulting in cleaner audio reproduction.
- **R-2R Relay Volume Control:** Provides lossless precision adjustment with guaranteed channel matching across all 4 paths. Adjustable gain from 0 to 28dB allows matching with various headphones.

Close-up view of the amplifier and preamp sections, highlighting the discrete components and LME49720 op-amps.

Internal components illustrating the input stage, power supply, multi-stage voltage regulation, and R-2R relay volume control.

7. Specifications

Detailed technical specifications for the AUDALYTIC HP70:

Table summarizing the technical specifications of the AUDALYTIC HP70.

Product Specifications

Category	Specification
Analog Inputs	
RCA Inputs (2 sets)	Typical Input Sensitivity: 2 Vrms, Maximum Input Level: 3 Vrms, Input Impedance: 20 kΩ
XLR Balanced Input (1 set)	Typical Input Sensitivity: +15 dBu (5 V), Maximum Input Level: +18 dBu (6 V), Input Impedance: 10 kΩ
Preamp Analog Output (Rear XLR)	Frequency Response: 20-40 kHz (±0.1 dB), Signal-to-Noise Ratio (SNR): 122 dB, Channel Crosstalk: < -120 dB @ 1 kHz, THD+N: < 0.0004%, IMD: < 0.0004%

Category	Specification
Headphone Output	
6.35mm Single-Ended Output	Output Impedance: 0.1 Ω
4.4mm TRS Balanced Output	Output Impedance: 0.2 Ω, Frequency Response: 20-40 kHz (±0.1 dB), Signal-to-Noise Ratio (SNR): > 120 dB, Channel Crosstalk: -118 dB @ 1 kHz, THD+N (1 kHz): < 0.0005% @ 1000 mW into 32 Ω, IMD: < 0.0005% @ 1000 mW into 32 Ω, Maximum Unclipped Output Power (Balanced): ≈ 2000 mW into 32 Ω
Other Parameters	
Power Supply	AC 115V / 230V, 50 / 60 Hz
Power Consumption	< 15 W
Dimensions (W x H x D)	220 x 50 x 170 mm (Excluding protruding parts)
Net Weight / Gross (with packaging)	1.6 kg / 2.1 kg

8. Performance Charts

8.1 Balanced Headphone Output

Maximum unclipped power (mW) versus load impedance (Ω) per channel for balanced output.

Graph illustrating the balanced headphone output power of the HP70 across various impedances.

8.2 Single-Ended Headphone Output

Maximum unclipped power (mW) versus load impedance (Ω) per channel for single-ended output.

Graph illustrating the single-ended headphone output power of the HP70 across various impedances.

9. Troubleshooting

If you encounter issues with your AUDALYTIC HP70, please refer to the following common troubleshooting steps:

- **No Power:** Ensure the power cable is securely connected and the power outlet is functional. Check the fuse on the rear panel.
- **No Sound:** Verify that the correct input source is selected. Check all audio cable connections. Ensure headphones are properly plugged in and not muted. Adjust the volume level.
- **Distorted Sound:** Check audio cables for damage or loose connections. Ensure the audio source is not overdriving the input. Try a different audio source or headphones to isolate the problem.
- **Remote Control Not Working:** Check battery orientation and charge. Ensure no obstructions are between the remote and the HP70's IR sensor.
- **Intermittent Audio:** Check all connections for looseness. Ensure the device is placed on a stable surface away from strong electromagnetic interference.

If the problem persists after trying these steps, please contact customer support.

10. Maintenance

To ensure the longevity and optimal performance of your AUDALYTIC HP70, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. Avoid using abrasive cleaners, solvents, or chemical sprays, as they may damage the finish.
- **Ventilation:** Ensure the unit has adequate ventilation. Do not block the ventilation holes or place the unit in an enclosed space that restricts airflow.
- **Environment:** Operate and store the device in a cool, dry environment, away from direct sunlight, heat sources, excessive dust, and moisture.
- **Handling:** Handle the unit with care. Avoid dropping or subjecting it to strong impacts.
- **Power Off:** When not in use for extended periods, power off the unit and disconnect it from the power supply.

11. Warranty and Support

Thank you for choosing GUSTARD HIFI products. To safeguard your rights and interests, please read the following warranty terms carefully to ensure you receive comprehensive after-sales service.

11.1 Product Warranty

You will enjoy a **2-year free warranty** and **lifetime maintenance** from the date of purchase of your GUSTARD HIFI product.

- The manufacturer covers freight costs only from mainland China. Any freight and tax generated from overseas will be handled by the user in negotiation with the dealer.

11.2 Free Warranty Service

During the free warranty period, if the GUSTARD HP70 (or GUSTARD X30, as mentioned in the original document) fails due to component quality or manufacturing problems under normal use, it will be repaired free of charge.

11.3 Beyond the Warranty Service

Products will no longer be provided free warranty service under the following circumstances:

- The product's purchase date has exceeded the predetermined warranty period.
- The model, barcodes, and purchase date do not match the actual product and warranty card.
- Unauthorized modifications to the circuit, components, or self-repaired product without GUSTARD technician permission.
- Damage caused by irresistible natural forces.
- Damage beyond the permitted use or environmental conditions.
- Damage due to incorrect use or improper storage, including but not limited to:
    - Voltage too high, burning circuits or components.
    - Bumping, resulting in damage to the shell or internal components.
    - Damage due to water, oil, liquid, or excessive dust.
    - Product oxidation or corrosion.
- Damage beyond the warranty period, such as individual component damage or appearance issues due to human damage, or firmware modifications leading to the unit being unable to work by unauthorized users.

In cases beyond warranty, GUSTARD commits to providing maintenance services for a reasonable fee (excluding large area components or circuit boards burned beyond repair). Freight, maintenance costs, and material costs will be borne by the user.

11.4 Official User Manual Video

For a visual guide to the AUDALYTIC HP70, please watch the official user manual video:

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This video provides a visual guide to the AUDALYTIC HP70, covering its features, connections, and basic operation as detailed in the user manual.

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