HALL RESEARCH

User's Manual

AMP-4840

40 Watt Audio Amplifier with RS-232 and IR Control

UMA1272 Rev B

CUSTOMER SUPPORT INFORMATION

Order toll-free in the U.S. 800-959-6439
FREE technical support: 714-641-6607 or support@hallresearch.com
Hall Research, 1163 Warner Ave. Tustin, CA 92780
www.hallresearch.com

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FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference even if it causes undesired operation.

This equipment has been desinged to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

1.0 Introduction

The AMP-4840 is a compact, economical and energy efficient (Class D) mono / stereo audio amplifier with 3 inputs (2 line in and 1 balanced microphone). Versatile design is compatible with dynamic, condenser or wireless microphones with fully adjustable control options including RS-232, IR, and front panel buttons. Functions include bridge connection, dual-mono, EQ control, and microphone mixer.

The AMP-4840 is a perfect for classrooms, meeting rooms, boardrooms, sports bars, and more.

Features

- Drives: 2x 20w @ 4 Ω or 2x 10w @ 8 Ω or 1x 40w @ 8 Ω in bridge mode
- Two stereo audio inputs, switchable by button, IR remote & RS-232
- Volume / Bass / Treble controllable by buttons, IR remote & RS-232
- MIC port supports balanced or unbalanced signals
- 3.5mm jack line audio output with controllable volume
- Mono mix switch for summing left and right channels for driving mono outputs
- Microphone input can be mixed with line input and each can be controlled separately
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC
- Auto noise squelch. Detects audio on inputs and mutes the output when there is no input
- Does not have fans

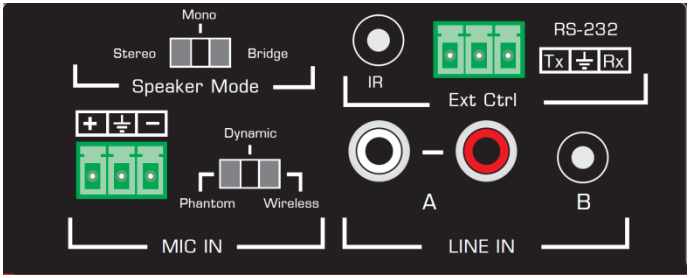
2.0 Package Contents

(1x) AMP-4840 device itself
(1x) AC Adapter (24 VDC) Power supply
(1x) User's Manual

Optional Accessories (sold separately)
IR Remote with IR Detector Cable

3.0 Connectors, Indicators, and Controls

3.1 Input Panel



The input panel is shown above. There are two audio inputs that are mixed together they are the Mic In and Line In. The speaker output audio is a mix of these two inputs. You can control the level of each used in the composite output from the top panel as described below.

Within the Line input group, there are two inputs labeled A and B. Only one can be active at a time based on the selection made from the top panel.

The microphone input is a balanced 3 terminal detachable screw-type connector. There is a 3-position slide-switch next to the screw terminal to select the type/level of the Microphone input signal as described below:

- Phantom: Use this position for microphones requiring phantom power such as condenser Mics. Typical input level for this mode is (-48 dBV, -45 dBu) or around 4 mv rms sine wave.
- Dynamic: This position is used for dynamic microphones with low-level outputs. Typical input level for this mode is (-60 dBV, -58 dBu) or around 1 mv rms sine wave.
- Wireless: This position is for Mics that output full consumer line level outputs, such as wireless microphone receive outputs.

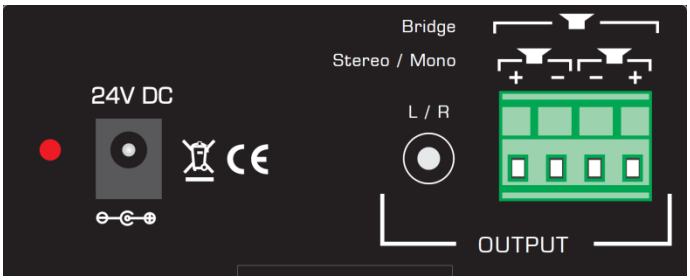
The External Control group includes a screw terminal for RS-232 (please see related section below), and IR jack for connection of optional IR detector cable.

The Speaker Mode is a 3-position slide switch that functions as described below:

- Stereo: This position is used for connecting two 8 Ω or 4 Ω speakers. The Left and Right channel audio separations are intact and you will get stereo output sound.

- Mono: This position is also used for connecting two speakers, but the amplifier mixes the Left and Right audio so the sound from both speakers is identical. Use this position if you want the same mono sound from all speakers. In a large classroom, it may make sense to use this mode so all students get the same sound regardless of how close they are sitting to each speaker.
- Bridge: This position is used to drive 40 watts into a single 8 Ω speaker.

3.2 Output Panel

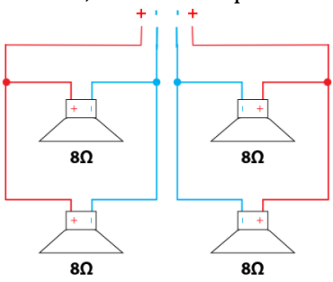


Power input jack is used to connect the supplied 24 V adapter. There is a Red LED indicator to show power status.

There are two outputs, Line (L/R) and Speaker screw terminal. The L/R outputs standard consumer line-level (variable) audio. When connecting two speakers connect them as shown for Stereo/Mono settings.

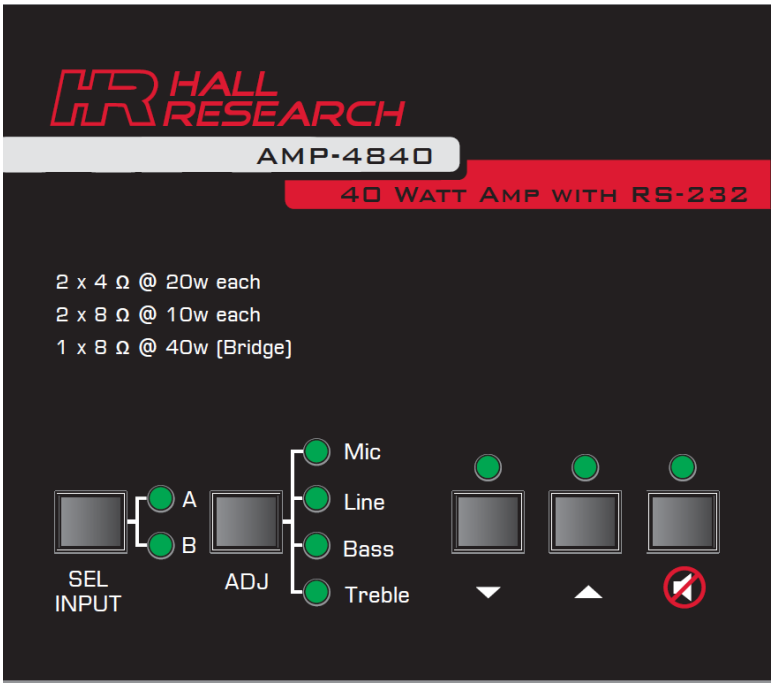
When connecting a single 8 Ω speaker (40 w), use the outer two (+) terminals as shown. Make sure to set the Speaker Mode slide switch to Bridge position

NOTE In Stereo or Mono modes, you can connect more than two speakers. For example, you can connect two 8 Ω speakers in parallel to each side, or two 4 Ω speakers in series to each side.



Example showing four 8 Ω speakers

3.3 Top Panel



The SEL INPUT button and A/B LED indicators is to select which line input you are using, RCA inputs or 3.5mm. Remember, the selected input gets mixed with microphone input. If you are not using microphone input, reduce its volume to zero so you don't have the added noise from the microphone amp in the output.

The ADJ button is used to select which parameter to adjust, then use the Up and Down arrow bottons to make the adjustment.

 This button is for Muting the audio

4.0 RS-232 Serial Control of Amplifier

RS232 communication protocol:
Baud rate: 9600
Data bit: 8 - Stop bit: 1 - Parity: none

Valid commands are listed in the table below

Command	Description	Response
1A1.	Switching the audio to input 1	A: 1 -> 1
2A1.	Switching the audio to input 2	A: 2 -> 1
0A0.	Mute Audio of MIC and Line out	Mute
1A0.	Mute audio of MIC	Mute MIC
2A0.	Mute audio of line out	Mute LIN
0A1.	Unmute Audio	Unmute
3A0.	Switch on squelch	Gate On
4A0.	Switch off squelch	Gate Off
600%	Checking the working status	A: 1 -> 1 Volume: 30 Bass: 00 Treble: 00
601%	MIC volume up	Volume of MIC: 51
602%	MIC volume down	Volume of MIC: 51
603%	Line volume up	Volume of LINE: 51
604%	Line volume down	Volume of LINE: 51
605%	Bass level up	Bass of LINE: 04
606%	Bass level down	Bass of LINE: 04
607%	Treble level up	Treble of LINE: 04
608%	Treble level down	Treble of LINE: 04
609%	Initiate Factory Restore	Init OK
5[xx]%	Direct set MIC volume [xx] range: 00 to 60	Volume of MIC: 50 *(factory default)*
7[xx]%	Direct set LINE volume [xx] range: 00 to 60	Volume of LINE: 50 *(factory default)*
8[xx]%	Direct set the bass level [xx] range: 00 to 08	Bass of LINE: 04 *(factory default)*
9[xx]%	Direct set the treble level [xx] range: 00 to 08	Treble of LINE: 04 *(factory default)*

Do not append carriage returns.
Commands are terminated with "." or "%"

5.0 Troubleshooting

If you are experiencing problems getting the amplifier to work properly, please use the following troubleshooting suggestions.

- Cycle Power on the device
- Issue RS-232 Factory Restore command
- Check wiring and speaker impedances used

If you determine that your amp is malfunctioning, do not attempt to repair the unit instead, contact Hall Research Technical Support at 714-641-6607. To return the unit to Hall Research you must first get a Return Authorization (RMA) number. Package the unit carefully, if returning. We recommend that you use the original container.

6.0 Specifications

Audio	
Rated Output	2 x 20 w @ 4 Ω 2 x 10 w @ 8 Ω 1 x 40 w @ 8 Ω - in bridge mode
Gain	32 dB
Frequency Range	20 Hz to 20 KHz
Signal/Noise Ratio	80 dB (at max output)
Total Harmonic Distortion	1% (1 KHz), 0.3% (20 KHz) -- at nominal levels
Input Impedance	>10 Kohm
Output Impedance	3.5mm Loop Out: 50 Ω Speaker out: 4 Ω ~ 8 Ω - Amplified
Stereo Channel Separation	>75 dB from 20 Hz to 20 KHz
CMRR	>70 dB from 20 Hz to 20 KHz
Temperature	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Humidity	20 to 90% non-condensing
Power	
Max Consumption	40 watts
Idle Consumption	4 watts
General	
Power Supply	Input: 100 VAC to 240 VAC, 47-63 Hz Output 24 VDC / 5 A
Dimensions	H x W x D = 38 x 96 x 87 (mm) or 1.5 x 3.78 x 3.43 (inch)
Weight	Device: 0.3 kg (0.66 lbs) Shipping: 0.98 kg (2.16 lbs)
Certifications	Unit: CE, FCC, RoHS Power Supply: cULus

Specifications are subject to change without notice

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