HALL RESEARCH
User's Manual

AMP-7040
40 Watt Audio Amplifier
with RS-232 and IR Control

CUSTOMER
SUPPORT
INFORMATION

Order toll-free in the U.S. 800-959-6439
FREE technical support: 714-641-6607 or support@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 designed 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-7040 is a compact, economical and energy efficient (Class D) stereo to mono audio amplifier at 70 V or 100 V with 3 inputs (2 line in and 1 balanced microphone). The 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 EQ control and microphone mixer.

The AMP-7040 is a perfect for classrooms, meeting rooms, boardrooms, sports bars and more.

1.1 Features

- Two stereo analog audio inputs and one digital audio input, selectable by buttons, IR remote, or RS-232
- MIC port supports balanced or unbalanced signals
- MIC input supports 48V phantom power, dynamic MIC and wireless MIC
- Amplified output is switchable between 70V and 100V
- Mono audio output at 40 watts
- Supports "Ducking" function
- Addressable RS-232 ports so up to 16 amps can be controlled from one RS-232 port
- Volume / Bass / Treble controllable by buttons IR remote & RS-232
- 3.5mm jack line audio output with controllable volume
- Microphone input can be mixed with line input and each can be controlled separately
- Auto noise squelch. Detects audio on inputs and mutes the output when there is no input
- Does not have fans

2.0 Package Contents

> (1 x) AMP-7040
> (1 x) AC Adapter (24 VDC) Power supply
> (2 x) Mounting brackets with (4 x) screws
> (2 x) Terminal Blocks
> (1 x) RS-232 cable with Terminal Block
> (1 x) User manual card

Optional Accessory (sold separately)
> IR Remote with IR Detector Cable (AMP-7040-REMOTE)

3.0 Connectors, Indicators, and Controls

3.1   Rear Panel

The Power input jack is used to connect the supplied 24 V adapter. The red LED indicates the system power status.

Two separate audio inputs mix together are output at the 70V/100V terminal block. MIC In is always on and either the Line or SPDIF inputs.

The speaker output audio is a mix of these two inputs. You can control the level of each used from the front panel as described below.

Within the Line/SPDIF IN group, there are three inputs labeled A and B and C. Only one can be active at a time based on the selection made from the front panel.

The SPDIF input only supports LPCM 2 channel formats.

Within the MIC IN group 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 microphones. Typical input level for this mode is (-48 dBV, -45 dBu) or around 4 mv rms sine wave.
- Dynamic: This position is 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 microphones that output full consumer line level, such as wireless microphone receive outputs.

Within the EXT CTRL group is a screw terminal block for RS-232 (see related section below) and IR jack for connection of the optional IR detector cable. The ID selector uniquely groups units when connected in a RS-485 configuration using a single RS-232 port. (RS-485 to RS-232 adapters not included)

Within the OUTPUT group is a screw terminal block for 70 and 100 volt speakers. Use the appropriate terminals depending on the speakers being used.

The COM terminal is the common connection for all speakers.

Connect multiple speakers in parallel with a maximum of 40 watts total available.

3.2   Front Panel

The SEL INPUT button and A/B/C LED indicators select which line input on the rear panel is mixed into the MIC INPUT, RCA, 3.5mm or SPDIF inputs respectively.

If you are not using microphone input, it is suggested that you reduce the MIC volume to zero so you do not add noise from the microphone amp into the output audio.

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

This button is for Muting the audio

4.0 RS-232 Serial Control of Amplifier

RS-232 protocol: 9600 baud, 8 data bits, 1 stop bit, no parity

Do not append carriage returns to the commands!
Commands are terminated with ".” or "%”

Command	Description	Response
1A1**.**	Switching the audio to input 1	A: 1 -> 1
2A1.	Switching the audio to input 2	A: 2 -> 1
3A1.	Switching the audio to input 3	A: 3 -> 1
0A0.	Mute Audio of MIC and Audio 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 of MIC: 30 Bass of LINE: 00 Treble of LINE: 00 Ducking Off
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**%**	Factory Default	Init OK
610**%**	Enable/Disable the ducking function	Ducking off Ducking on
4[xx]**%**	Ducking volume [xx] range: 00 to 60	Ducking of LINE: 50 *(factory default)*
5[xx]**%**	MIC Volume [xx] range: 00 to 60	Volume of MIC: 50 *(factory default)*
7[xx]**%**	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)*

Note:

The AMP-7040 has a 16 position selector switch used to identify units connected in a RS-485 configuration.
Prefixing the command with "ID#/" is required where ID# is the selector switch setting: "1" thru "F".
No command prefix is required when the selector switch setting is 0

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 unit 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.

Carefully package the unit when returning it. We recommend that you use the original container the unit was received in.

6.0 Specifications

Audio	
Rated Output	Mono 40 Watt
	70 V or 100 V
Voltage Gain	26 dB
Frequency Range	120 Hz to 20 KHz
Signal/Noise Ratio	80 dB (at max output)
Total Harmonic Distortion	1% (1 KHz), 0.3% (20 KHz) at nominal level
Input Impedance	>10 Kohm
Output Type	Constant 70 V or 100 V
Bandwidth	120 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	5 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: 0.9 kg (2.0 lbs)
	Shipping: 1.9 kg (4.1 lbs)
Certifications	Unit: CE, FCC, RoHS
	Power Supply: cULus

Specifications are subject to change without notice