Thank you for choosing Harman Kardon. With your purchase of a Harman Kardon Amplified In-Wall Module you will be able to extend the flexibility of your home entertainment system so that it delivers sound to another room in your home. Custom-designed for use exclusively with Harman Kardon® A-BUS®/Ready receivers, the AB 1 enables you to send a separate source to the remote room and power most speakers without the need for an additional amplifier through a single Category 5/e cable. Thanks to a built-in IR sensor you may also control source selection, operate compatible Harman Kardon source components and turn the system on and off using the Zone II remote packaged with your receiver. In order to fully enjoy the benefits of remote keypad control, please take a few minutes to read this owner's manual. It contains important information that will guide you through the correct and safe installation of your Amplified In-Wall Module. If you do not have experience installing in-wall electrical and telecommunications components, you are advised to consult with a qualified low-voltage contractor or custom installer. If you have any questions about this product, its installation or its operation, please contact your retailer or custom installer. They are your best source of product information. Designed for simple installation by a custom installer or advanced do-it-yourself hobbyist, the AB 1 will add to your listening pleasure by distributing sound beyond the confines of an area subject to potential interference with the IR signal.

What Is Included

- Screw holes accept the screws supplied with your Decora-style wall plate to attach it to the AB 1.
- Screw slots - Use the supplied screws to attach your Zone II remote panel in the wall box or other enclosure containing Category 5/5e (or better) UTP (unshielded twisted pair) cable to the AB 1.
- Volume ▲▼ Buttons - Pressing these buttons raises or lowers the volume level of the speakers connected to the AB 1.

Introduction

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Features

- Simple connection to a A-BUS®/Ready Harman Kardon receiver
- Touch button control for volume up/down
- Built-in IR sensor for control of compatible Harman Kardon source devices
- Decora®-style wall plate blends perfectly with other in-wall electrical controls
- Mounts in most standard electrical junction boxes or plaster rings
- Uses standard Category 5/e cable and RJ-45 connectors for easy installation

Typographical Conventions

In order to help you use this guide with the front-panel controls and rear-panel connectors, the following typographical conventions have been used:

Example - Indicates a specific front-panel button or rear-panel connector jack
- Indicates a specific front-panel control or indicator
- Indicates a rear-panel connection

Important Safety and Installation Information

Low-voltage wiring systems must be properly installed to minimize the possibility of accidental contact with hazardous power and lighting wiring. Never place remote control wiring near bare power wires or lighting rods, antennas, transformers, steam or hot water pipes, or heating ducts. Never run low voltage wire in any control box, channel, duct or other enclosure containing power or lighting circuits of any type. In addition to ensuring proper separation between any AC power wiring and the Category 5/e cable used for A-BUS®, it is important to avoid running the A-BUS® cable in parallel to any AC wiring. Always maintain at least the minimum separation between AC wiring and the A-BUS® cable or any low-voltage cable that is required by the NEC, such as low-voltage electrical codes or regulations. Make sure to follow all instructions when preparing wiring for use with the AB 1 module. Failure to do so may result in a potential safety hazard, including possible danger to persons and/or equipment.

If you will be running the cable through a ventilation plenum, remember to use plenum-rated cable to comply with NEC and other safety requirements. Failure to do so may result in a potential fire or safety hazard.

Always observe the appropriate safety codes for concealed wiring. Be extremely careful not to cut through or drill into concealed wiring or pipes. Make a small inspection opening before cutting or drilling. Dust or dirt can cause special problems on wiring contacts. Be sure all contacts are clean, and that all parts are installed correctly to protect them from dust and dirt.

Your new Harman Kardon AB 1 Amplified In-Wall Module has been custom-designed for use with Harman Kardon's A-BUS®/Ready products and it is also compatible with other A-BUS®-compatible systems. Do not connect it to any other device.

The AB 1 is only to be installed by qualified personnel and as per the requirements of all applicable state and local building codes, as well as NEC (National Electrical Code) requirements. Check with your local authorities as needed to ensure that all wiring inside walls is installed in compliance with the proper standards. Failure to do so may present a potential safety hazard.

If you have any doubt about your ability to work with electrical and telecommunications wiring, you are advised to hire a professional licensed electrician or custom installer to install the AB 1 before installation into the wall.

Installation Planning

The AB 1 may be installed in any location appropriate for standard in-wall electrical components. You are responsible for selecting and properly installing an appropriate electrical junction box or plaster ring. Be sure to check the fit of the box or ring with the AB 1 before installation into the wall. Since the AB 1 uses a built-in infrared sensor to relay commands to the A/V receiver, be sure to avoid installing the AB 1 in an area subject to potential interference with the IR signal. Possible sources of interference include plasma video displays, dimmer controlled lighting, bright sunlight, and reflective surfaces such as mirrors or glass walls. You may wish to temporarily place the component to be controlled using the sensor in the proposed location in order to test the integrity of IR signals.

When determining the specific location for an AB 1, keep in mind that it should be in a convenient place where it may be operated manually, or that, when it is used with a remote control, the mounting position enables the built-in IR sensor to “see” commands from any place in the room. In practice, the AB 1 may be mounted close to other wall switches, but remember that the AB 1 should never be installed in the same gang box as any switch or product, such as a light switch or dimmer, where AC line voltage is present.

When planning the installation, it is also wise to consider the distance from the AB 1 module to the speakers, particularly when they are in-wall or ceiling mounted. Be certain that there are no solid walls or bad-bearing structures that would prevent the speaker wires from reaching their location.

The wiring used to connect the AB 1 to the A-BUS®/Ready receiver may be Category 5e or better. Be certain that any safety requirements mandated by the use of plenum wiring are taken into account. The speaker wiring should also be in-wall rated as required, and may not exceed 14 AWG. To simplify wiring you may wish to use two-pair CL-3 rated in-wall wire and run a single cable from the AB 1 to both locations. One pair will be used to connect the first speaker and the other will continue to the second speaker.

Speaker Selection

The AB 1 is compatible with most modern in-wall or ceiling speakers, provided that they have an efficiency rated at 88dB or greater. Minimum speaker impedance is six ohms. It is possible to run two pairs of speakers from one AB 1, but we do not recommend that due to the degradation in performance.

What Is Included

Your AB 1 in-wall module includes two mounting screws: self-starting, universal-head machine screws. You are responsible for providing a Decora-style wall plate, available in a variety of colors and finishes at your local hardware retailer.

You are also responsible for providing the speakers and a sufficient length of Category 5/e or better (UTP) shielded twisted pair cable and an RJ-45 modular plug. The wiring scheme is the standard TIA T568A configuration. The maximum length should not exceed 150 feet in order to avoid degrading the signal. Further information on the correct wiring configuration is provided in these instructions.

Input Cable Connection Block - Use standard IDT punch-down tools, connect the Category 5/e cable linking the AB 1 to the receiver to this connection block in accordance with the color code printed on the circuit board.

Output Level Trims - These trim pots are used to match the output level of the AB 1 module to the specific speakers in use.

Speaker Terminal Block - The wire used to connect the AB 1 to your speakers is connected to this terminal block. Insert the wire in accordance with the color coding shown and tighten the screw. Note that the maximum wire size is 14 AWG.

Installation and Connection

IMPORTANT SAFETY NOTES:

- Before beginning the installation process, make certain that all electronic products in the system are turned off and disconnected from their AV power connection. This avoids the possibility of accidental activation, which could possibly damage the equipment or cause personal injury. Do not turn on the equipment until instructed to do so.
- Be certain to observe all appropriate safety measures when installing any wiring, including, but not limited to, the use of eye protection when required, and attention to the required distances between low-voltage wiring and high-voltage AC mains wiring.

Step One: Run a Category 5/e cable from the receiver location to the module.

Run a splice-free Category 5/e cable from the location where the AB 1 module will be installed to the location where the A-BUS®/Ready receiver is placed. At each end, make certain to leave sufficient wire for ease of installation. Any extra wire may be trimmed back during the installation. Remember that you will need to have access to the rear of the AB 1 after the module is connected, but before the module is secured into the wall box.

Step Two: Prepare and install an RJ-45 plug at the receiver end of the system.

The connection and cable termination at the receiver end of the installation is a standard RJ-45 connector using the TIA 568A configuration. Connect an RJ-45 plug to the wire end of the wire as follows. Looking at the connector with its clip-down and the wires coming out of the connector toward you, number from left to right, the typical pin colors are as follows:

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Stripped Wire Pairs</th>
<th>Solid Wire Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White with Green Stripe</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>3</td>
<td>White with Orange Stripe</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>5</td>
<td>White with Blue Stripe</td>
<td>White</td>
</tr>
<tr>
<td>6</td>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>7</td>
<td>White with Brown Stripe</td>
<td>White</td>
</tr>
<tr>
<td>8</td>
<td>Brown</td>
<td>Brown</td>
</tr>
</tbody>
</table>
Note that one wire in each pair is always a solid color, and the other is either white or striped. Make sure that the twisted pairs of wires consist of those attached to pins 1 and 2, pins 3 and 6, pins 4 and 5, and pins 7 and 8. When making the connections at each end of the cable, strip the outer insulation jacket about 1 1/2" to 2" from the end. The cable is constructed of four twisted pairs of wires as indicated above. Flatten the wire ends to prepare them for insertion into the connector. Fully insert the wire into the connector being certain to check the color codes of the pin assignments one last time. Carefully crimp the connector, making sure that each wire is securely fastened.

Step Three: Connect the Category 5e cable to the AB 1. From left to right, the connections are made to the AB 1 or with the volume back to normal listening level using the Volume Down button A. This step sets the level adjustments for the AB 1. Once this process is complete, all further volume settings are made with the Volume Up/Down Buttons B on the AB 1. The Zone II remote, or an optional third-party remote that is programmed for Harman Kardon products. With the Multiboom system activated and a source playing, press the remote's Power On button. To turn the remote room feed off, press the OFF button on the Zone II or other properly programmed remote.

Troubleshooting Guide
If you cannot hear any sound from the speakers connected to the AB 1:

- Make sure that the Cat. 5/e cable is properly connected to both the AB 1 and receiver.
- Make sure that the receiver is turned on and that the Multiboom setup is properly activated.
- Make sure that any needed volume-level adjustments on the receiver are properly made.
- Make sure that the volume control on the AB 1 is turned up.
- Check for proper adjustments of the output level trims.

Check the speaker connections.
If the receiver or other components do not respond to commands from the AB 1 or a remote pointed at the AB 1:
- Make sure that the A-BUS/Ready receiver's Multiboom setup has been turned on.
- Make sure that the Cat. 5/e cable is properly connected to both the AB 1 and receiver.
- Make sure that there is a proper connection between the A-BUS/Ready receiver and any additional IR controlled components.
- Make sure that the remote is properly programmed to operate the receiver and other components.

Other notes on using the AB 1 and other A-BUS products with Harman Kardon A-BUS/Ready receivers:
- When using the AB 1 with Harman Kardon A-BUS/Ready products, you may connect only one AB 1 at a time unless optional, external A-BUS-powered hub equipment is used.
- If A-BUS keypads or other A-BUS accessories not specifically designed for use with Harman Kardon products are used, their operation may be slightly different than with the AB 1. Consult the support area of the Harman Kardon Web site at www.harmankardon.com.

Specifications
- Wire type required: Category 5/e (or better) cable in compliance with any applicable local building code or NEC requirements for in-wall, in-ceiling or plenum use.
- Wiring protocol: TIA wiring specification for T568A at the A-BUS/Ready product end. Connections at the AB 1 are specified on the AB 1 label.
- Connection terminals: IDT type for Category 5/e wire, screw terminal type for speaker connections.
- Speaker wire: Maximum AWG 14, in compliance with any applicable local building code or NEC requirements for in-wall, in-ceiling or plenum use.
- Speaker impedance: Suitable for connection to speakers with sensitivity above 88dB.
- Infrared compatibility: 38kHz and 56kHz, with talkback sensitive.
- Dimensions (H x W x D): 4-1/4" x 1-3/4" x 2-1/4"
- Weight: 0.25 lb

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