

# Russound

A / V DISTRIBUTION & CONTROL SYSTEMS

## A-H4

## SERVICE MANUAL



1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance in the operating instructions should be adhered to.
4. Follow Instructions - All operating and user instructions should be followed.
5. Water and Moisture - The appliance should not be used near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
6. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
7. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
8. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
9. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
10. Grounding or Polarization - Precaution should be taken so that the grounding or polarization means of an appliance is not defeated.
11. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, receptacles, and the point where they exit from the appliance.
12. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
13. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:

1. **Power – WARNING: BEFORE TURNING ON THE POWER FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.**  
All models are designed for use with either AC120V, 60Hz or AC240, 50Hz voltages. The unit will autoswitch to either of these voltages.
2. **Do Not Touch The A-H1 With Wet Hands –** Do not handle the AH-1 or power cord when your hands are wet or damp. If water or any other liquid enters the A-H1 cabinet, take the A-H1 to a qualified service person for inspection.
3. **Care –** From time to time you should wipe off the front and side panels of the cabinet with a soft cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since this may damage the finish or remove the panel lettering.

**110 punchdown connectors on Amplified Module**

**A-KP2 Amplified Module**

**Wire order**

**1**

**CAT-5 (behind wall)**

**RJ45 Wall Plate (optional) located near Hub**

**When wiring directly to Amplified Module, use T568A RJ45 wire configuration**

**GREEN ORANGE BLUE ORANGE BROWN**

**1 2 3 4 5 6 7 8**

**846C**

**to switched AC outlet**

**Audio Receiver**

**A-PS**

**NEVER connect the Link Out to another Link Out or A-BUS Ready output. This may damage the components and void the warranty.**

**Standard method: Connect multiple sources via Tape 2 or Zone 2 output of Receiver**

**Audio Receiver**

**Source Component**

**Audio Receiver**

**5**

**8**

**Russound NEWMARKET, NH U.S.A.**

**A-BUS 4-ZONE, 1-SOURCE SURFACE MOUNT AUDIO HUB**

**KEYPAD OUTPUTS**

**1 2 3 4**

**5**

**2**

**4**

**4**

**RJ45 CAT-5 patch cables**

**Emitter attaches to each source component's IR window**

**Pos (+)**

**Neg (-)**

**2**

**CD**

**DVD**

**DSS**

**VCR**

**A-VC2**

**A-KP RC (optional)**

**A-KP2**

**7**

INSTRUCTIONS FOR CONNECTING AND USING RUSSOUND MODEL A-H4. REFER TO THE DIAGRAMS INSIDE.

1 AMPLIFIED MODULES

Connect two (4) A-BUS Amplified Modules. A CAT-5 cable is used to connect each A-KP2 or A-VC2 Amplified Module to a keypad output on the A-H4 Hub. For clean installations, use RJ45 CAT-5 patch cables to connect from the Hub to an RJ45 Wall Plate (optional), and then wire from the Wall Plate to the Amplified Module (see diagram). The Amplified Modules have 110 punchdown connectors for the 8 individual conductors of the CAT-5 cable (use a punchdown tool with a 110 blade to insert conductors).

**NOTE:** When wiring directly to an Amplified Module (i.e., not using an RJ45 Wall Plate) use T568A RJ45 wire configuration.

2 IR EMITTERS

**Common IR Outputs.** Connect an IR emitter such as the 845.1 to each of the 4 IR connectors on the A-H4 (you need use only one IR emitter if you've connected a single source directly to the A-H4). The IR signal that is received through a zone's Amplified Module is routed to the A-H4's Common IR outputs. This allows remote operation of sources such as CD, DVD or DSS from each zone.

3 STATUS

The status feature provides two functions:

- Visually confirms when the source component is on
- When the source component is turned off, all Amplified Modules will also turn off

The status feature requires that the source component has a switched AC outlet.

To enable the status feature:

- Move the status jumper on all Amplified Modules to the "Enabled" position.
- Move the status switch on the Hub to the "STATUS" position.
- Using a Russound Model 846C 120V/12VDC or comparable adapter, connect the coaxial plug end to the STATUS input on the Hub, and plug the adapter into a switched AC outlet on the source component.

When the source is on and supplying status voltage to the Hub, the Amplified Module's LED indicator will illuminate green. When the source is turned off, all Amplified Modules that are on will also turn off (the A-VC will mute).

**IMPORTANT:** When the status feature is enabled, it must be used (i.e., supplied with power) in order to ensure proper operation with accessories such as the A-LC2 Local Source Input Module.

4 LINK IN & LINK OUT

The Link In and Out is used to connect the A-H4 Hub with an RJ45 patch cable to other A-BUS single-source Hubs or an A-BUS Ready product to increase the number of rooms in a system. The Link connects the Common IR, Status, and the audio source signal. Single-source A-BUS Hubs such as A-H4, A-H2, A-H4P and A-H1 all use the same format for linking. The A-H484 multi-source Hub is different and cannot be linked to single-source Hubs in this manner.

**The Link Out or A-BUS Ready Sub-Zone output of one device must be connected to the Link In (Expansion Input of A-H2) of the subsequent device.**  
**NEVER connect the Link Out to another Link Out or A-BUS Ready output. This may damage the components and void the warranty.**

*Note: Each Hub in the chain requires its own A-PS power supply.*

5 SOURCE

Although the A-H4 has only 1 audio input, it can be connected to multiple audio sources via the Tape 2 or Zone 2 output of a stereo or home theater receiver. Connecting to a receiver gives the A-H4 access to any audio source connected to that receiver. If a single audio source is connected directly, it can be shared with the receiver by using the Audio Out on the A-H4.

6 POWER SUPPLY

The A-H4 Hub and Amplified Modules are powered by the A-PS 24 VDC/2.5A power supply. The A-PS should be plugged into an unswitched AC outlet (one that is live all the time). When the A-PS is providing power, the A-H4's POWER LED will illuminate.

7 OPERATION

A-KP2 keypads can be operated manually or by using the optional A-KP RC remote control. A-VC2 volume controls are operated manually using the rotary knob. If you installed IR emitters (see Step 2), then sources can be operated with their own remote control by aiming it at the IR window on an A-KP2 keypad.

8 MOUNTING

Mount the A-H4 near the source equipment using screws or hook and loop fastener.



**Model A-H4**  
4-Zone Hub  
for A-BUS® System  
Instruction Manual

A-BUS® SYSTEM OVERVIEW

The product you have just purchased is an integral part of the Russound® A-BUS Multi-Room Audio System. It is a component which, when combined with other essential components and your source equipment (receiver, CD player, etc.), creates a versatile whole-house audio system that will fill your rooms with high-quality sound for years to come.

A-BUS technology is a new, innovative method of providing high quality audio to remote locations with a single 8-conductor cable such as CAT-5. A-BUS technology provides many advantages over other methods of audio distribution, including: simple, single CAT-5 wiring scheme; infrared control of system components; infrared control of the optional A-KP2 amplified keypad module; and system power status.

Every A-BUS System is comprised of components from each of the following three areas.

1. **A-BUS Amplified Modules:** The Module contains both the amplifier for the room's speakers as well as the control for those speakers. One Module should be used for each room you choose to control. The Russound A-KP2 Amplified Keypad (with built-in IR receiver) and A-VC2 Amplified Volume Control are examples of A-BUS® Amplified Modules.
2. **A-BUS Hubs:** All components of the A-BUS system must be wired centrally to a Hub located near your source equipment. The Hub provides the connection for source equipment, volume controls, infrared emitters and power supply. The A-H484, A-H4, A-H4D, and A-H2 are examples of A-BUS® Hubs. The A-H484, A-H4, and A-H2 are surface-mount units. The A-H4D is an in-wall Decora® style unit.
3. **Power Supply:** The power supply plugs into the Hub. The Russound A-PS 24VDC/2.5A unit is an example.

A-BUS® is a registered trademark of LeisureTech Electronics Pty Ltd Australia  
Decora® is a trademark of Leviton Corporation

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A-H4 OVERVIEW

The A-H4 is an A-BUS 4-zone, 1-source Audio Distribution Hub used with A-BUS Amplified Modules. The A-H4 can also be linked to other A-BUS Hubs (such as the A-H484) and to A-BUS Ready stereo receivers in order to increase the number of zones in a system.

**IMPORTANT** – Before installation, review the manuals included with each component in your system. If you are unsure of any of the installation procedures described herein or elsewhere, consult a professional electronics installer.

A-H4 KEY FEATURES

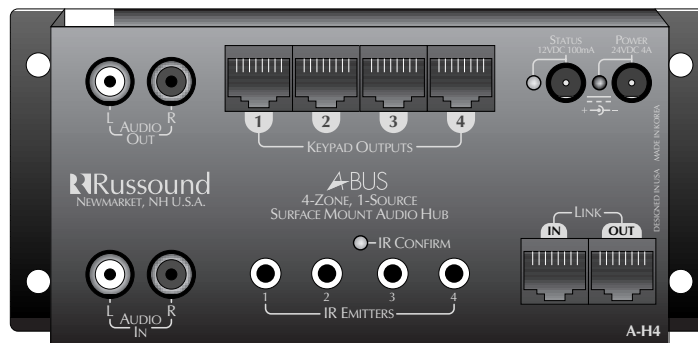
- 1) 1 source audio input and loop output
- 2) 4 common IR outputs, with confirmation LED
- 3) Status power input with LED indicator and selector switch
- 4) Power input with LED indicator
- 5) Link In and Out
- 6) Compact size for mounting near audio equipment

A-H4 SPECIFICATIONS

|                             |                                    |
|-----------------------------|------------------------------------|
| <b>Power Supply:</b>        | A-PS. 24VDC/2.5A                   |
| <b>Status Power:</b>        | 12VDC/100mA                        |
| <b>Keypad Connection:</b>   | RJ-45 T568A Standard               |
| <b>Link Connection:</b>     | RJ-45 T568A Standard               |
| <b>Emitter Connections:</b> | 1/8" Male. Tip (+), sleeve (–)     |
| <b>Dimensions:</b>          | 6.5"W x 3"H x 1.25"D (165x72x32mm) |
| <b>Weight:</b>              | 9.5 oz. (270g)                     |

**LIMITED WARRANTY**

The Russound A-H4 is fully guaranteed for Two (2) years from the date of purchase against all defects in materials and workmanship. During this period Russound will replace any defective parts and correct any defect in workmanship without charge for either parts or labor. For this warranty to apply, the unit must be installed and used according to its written instructions. If service is necessary, it must be performed by Russound. The unit must be returned to Russound at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects under the terms of the warranty. Russound assumes no responsibility for defects resulting from abuse or servicing performed by an agency or person not specifically authorized in writing by Russound. Damage to or destruction of components due to improper use voids the warranty. In these cases the repair will be made at the owner's expense. To return for repairs, the unit must be shipped to Russound at the owner's expense, along with a note explaining the nature of the service required. Be sure to pack in a corrugated container with at least 3 inches of resilient material to protect the unit from damage in transit. Russound sells products only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Any Russound product purchased from an unauthorized dealer or other source, including retailers, mail order sellers and online sellers will not be honored or serviced under existing Russound warranty policy. Any sale of products by an unauthorized source or other manner not authorized by Russound shall void the warranty on the applicable product.



## **A-H4 TEST PROCEDURE**

The purpose of this Test Procedure is to instruct both the Rusound Test Department and any outside Service Technician.

Equipment Needed: CD Player  
2 A-KP  
A-KP Instruction Manual  
2 A-PS  
Speakers  
845.1  
846C Power Supply  
A-KP RC Remote  
MOD-RJ45CAT5 Connectors female  
Patch Cable-Cat 5 (up to 350Mhz)  
2 A-H4  
A-H4 Instruction Manual  
Audio Line Level Cable (This is a cable with wires on one end and RCA jacks on the other)

Inspection: Inspect Sheet Metal for scratches.  
Inspect screening for correct labeling.

Set Up:

NOTE: REFER TO DIAGRAMS FOR ASSISTANCE WITH CORRECT SETUP.

1. Connect a CD player to Audio In on the A-H4.
2. Connect an A-KP (V- V+ ST IR L+ L- R- R+) using CAT 5 to an MOD-RJ45CAT5 female connector. Use standard T568A configuration to the RJ45 female connector (refer to Diagrams 1 for recommended wiring, PAGE 5).
3. Then attach the Patch Cable from the RJ45 female connector to the A-H4 Keypad Output 1.  
(refer to Diagram 2, PAGE 6).
4. Connect the A-PS power supply to the A-H4.
5. Connect the 845.1 to one of the IR Outputs of the A-H4 and to the CD player.
6. Ensure the Bypass-Status switch is in the Status position.
7. Ensure the A-KP is in the Status Override position.
8. Plug in the A-PS power supply to an AC outlet. Only the red power LED should illuminate on the A-H4.

Line Test:

1. Connect the Audio Out (Line Level) from the A-H4 to the DPA 1.2. Using the Audio Line Level Cable (This is a cable with wires on one end with RCA jacks on the other).
2. Turn down the Gain Controls on the DPA 1.2.
3. Connect a pair of speaker to the Speaker A Out of the DPA 1.2.
4. Slowly turn the Gain Controls up on the DPA 1.2 so that the CD can be heard at a comfortable level.

5. Disconnect Audio Line Level Cable from the A-H4 and continue through the procedure.

#### Keypad Test:

1. ON/OFF – Turn on/off the Keypad by pressing the ON/OFF button on the front of the Keypad at the bottom right.
2. Connect the speakers to the Speaker Out (L+ L- R- R+) of the A-KP. Refer to Diagram 5, PAGE 4.
3. VOLUME UP/DOWN – Press the VOLUME UP/DOWN button on the A-KP the volume should increase/decrease. Ensure volume from both speakers goes up/down together.
4. Slide Bypass-Status switch to Bypass. The Status LED on the A-H4 should turn on. The Keypad should still be on.
5. Slide switch back to Status. The Status LED on the A-H4 should go out. The Keypad should be off.
6. Turn Keypad back on and continue through procedure.

#### Infra-Red control:

1. Control the CD player, using the CD remote and pointing it at the IR receiver on the Keypad.
2. Control the volume output by using the A-KP RC remote.
3. The IR Confirm LED on the A-H4 should always blink whenever an IR signal is being sent from any Keypad, whether volume for that zone or control of the equipment.

#### Keypad Outputs:

1. Move the patch cord attached to the A-H4 and A-KP to Keypad Output 2.
2. Repeat Keypad Test and Infra-Red control for the Keypad Outputs 2, 3 and 4.

#### Infra-Red Outputs:

1. With the Keypad in Keypad Output 4 on the A-H4, check each IR output on the A-H4 and ensure that the CD player can be controlled from the Keypad. Ensuring that the IR works through the Keypad for each IR port.

#### Status Test:

##### Status:

1. Disconnect the A-PS from the AC power strip.
2. Connect an 846C Power Supply to the 12V Status Port on the A-H4. Diagram 3.
3. Move the Status jumper on the Keypad over to the Status Enabled position (refer to Diagram 4 for correct position, PAGE 6).

4. Plug the 846C Power Supply to an AC outlet.
5. Plug in the A-PS into the power strip. The Status LED on the Keypad should be green, the Status LED on the A-H4 should be green.
6. Turn on the A-KP.
7. Unplug the 846C from the A-H4. The Keypad should turn off. Both the Status LED on the Keypad and the A-H4 should go out.
8. Plug the 846C into the 12V Status Port on the A-H4. The Status LED should turn on but the Keypad should still be off.
9. Attach a Patch Cable from Link Out on the A-H4 to Link In on a second A-H4. Both A-H4s should be in the Status position.
10. Attach a second A-PS to the second A-H4.
11. Attach a Keypad to the second A-H4, both Keypads should be in the Status Enabled position. All Status LEDs on Keypads and A-H4s should be on.
12. Turn both Keypads on.
13. Control the CD player from both Keypads with the remote.
14. Move the emitter from the A-H4 to an IR Output on the second A-H4.
15. Control the CD player from both Keypads with the remote.

#### Status Bypass:

16. Disconnect the 846C Power Supply from the 12V Status Port on the first A-H4.
17. Move the switch on the first A-H4s to Bypass. All four Status LEDs should turn on.
18. Move the Status jumpers on the Keypads over to the Status Override position on the Keypads (refer to Diagram 4 for correct position, PAGE 6).
19. Turn on the A-KPs.
20. The Status/IR indicators should not be lit when the Keypads are in Status Override mode, unless the IR is being activated from a remote.
21. Slide the Bypass-Status switch to Status. The Keypads should go off.

#### Link Test:

22. Connect a pair of speakers to the Speaker Out (L+ L- R- R+) of the A-KP that is attached to the second A-H4. Refer to Diagram 5, PAGE 4.
23. VOLUME UP/DOWN – Press the VOLUME UP/DOWN button on the A-KP the volume should increase/decrease. Ensure volume from both speakers goes up/down together.
24. TAKE THE A-H4s AND REVERSE THEM. PROCEED THROUGH THE TEST COMPLETELY STARTING WITH THE SECOND A-H4 INSTEAD OF THE FIRST. THIS WILL COMPLETELY TEST “2” A-H4s.

ENSURE THE BYPASS-STATUS SWITCH ON THE A-H4s IS IN THE “BYPASS” POSITION WHEN THEY ARE PUT INTO INVENTORY. THIS IS VERY IMPORTANT.

THE TEST PROCEDURE IS COMPLETE.

Poe 12/10/01

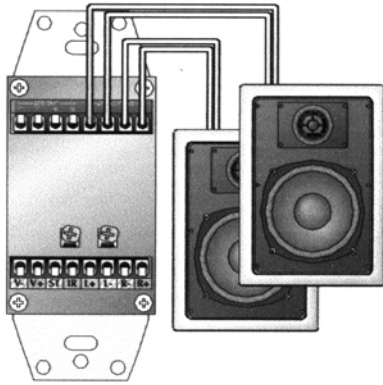
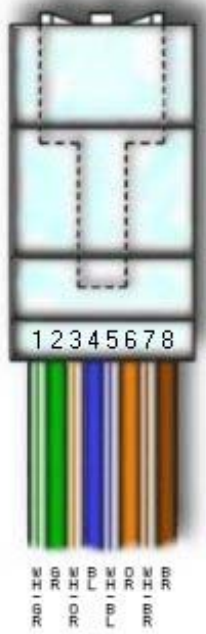


DIAGRAM 5.

DIAGRAMS 1.

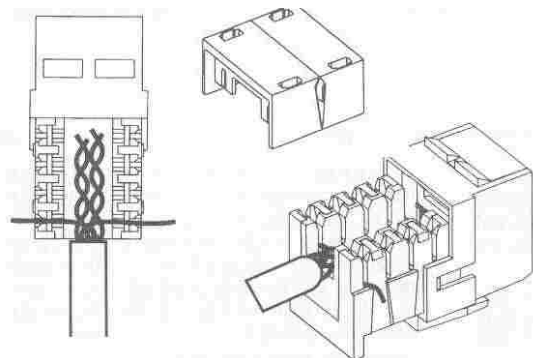
| T568A Wiring Chart |              |        |
|--------------------|--------------|--------|
| Pin                | Color        | Signal |
| 1                  | White-Green  | T3     |
| 2                  | Green        | R3     |
| 3                  | White-Orange | T2     |
| 4                  | Blue         | R1     |
| 5                  | White-Blue   | T1     |
| 6                  | Orange       | R2     |
| 7                  | White-Brown  | T4     |
| 8                  | Brown        | R3     |



PICTURE OF THE END OF  
PATCH CORD. WILL NEED  
TO BE PLUGGED INTO  
MOD-RJ45CAT5  
PLATEMATE CONNECTOR  
WHICH IS WIRED TO TEST  
KEYPAD AND A-BUS HUB.

WIRING  
DIAGRAM ALSO  
WRITTEN ON SIDE  
OF MOD-RJ45CAT5  
PLATEMATE  
CONNECTOR.

MOD-RJ45CAT5 PLATEMATE  
CONNECTOR. ATTACH  
KEYPAD TO THIS CONNECTOR  
FOLLOWING DIAGRAMS AT  
RIGHT USING WIRING  
CONFIGURATION T568A.  
WHEN LOOKING ON THE  
SIDES OF THIS CONNECTOR  
FOLLOW COLOR WIRING "A"  
PATTERN.



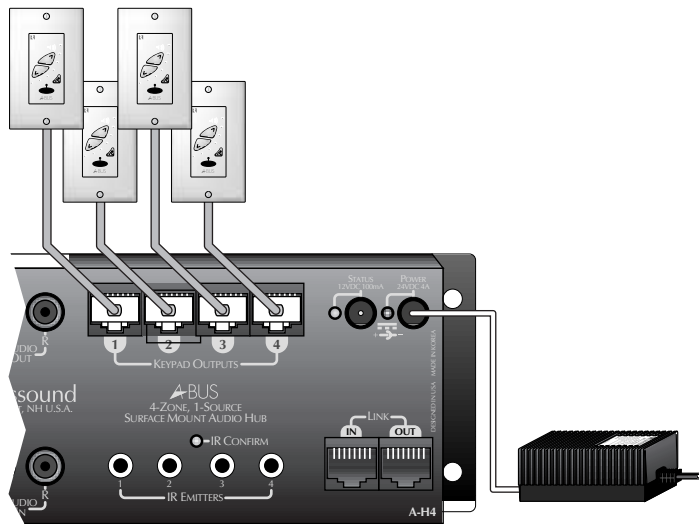


DIAGRAM 2.

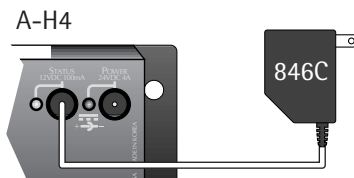


DIAGRAM 3.

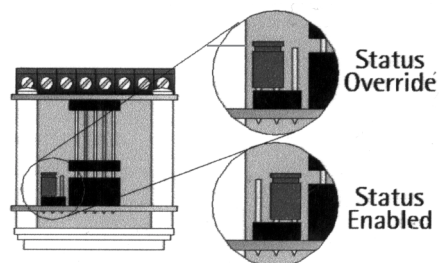
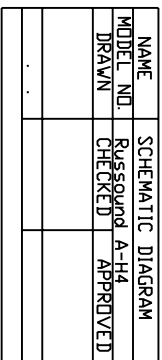


DIAGRAM 4.

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