

INSTALLATION INSTRUCTIONS

C-4.1 MULTI-ROOM CONTROLLER



IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

To completely disconnect this equipment from the AC mains, disconnect the power supply cord plug from the AC receptacle.

The mains plug of the power supply cord shall remain readily operable.

INTRODUCTION.....	4
SYSTEM OVERVIEW	4
FEATURES	5
C-4.1 CONTROLLER TOP PANEL	5
C-4.1 CONTROLLER TOP SIDE PANEL.....	6
C-4.1 CONTROLLER BOTTOM SIDE PANEL.....	6
WP4 REMOTE INPUT MODULE FRONT PANEL	7
WP4 REMOTE INPUT MODULE REAR PANEL	8
K-4.1 KEYPAD FRONT PANEL	9
K-4.1 KEYPAD REAR PANEL.....	10
DESIGNING AND INSTALLING A C-4.1 SYSTEM	13
System Design.....	13
Head End Considerations.....	13
Room Considerations	13
INSTALLATION.....	14
Controller Location.....	14
Ventilation	14
Source Components	14
Keypad Location & Mounting.....	14
WIRING.....	14
Keypads.....	15
Speakers.....	15
Video (Option).....	15
WP4 Remote Input Module.....	16
CONNECTIONS.....	16
C-4.1 CONTROLLER CONNECTIONS.....	16
Rooms (Keypads/Speakers)	16
From Input Panel (WP4 Remote Input Module – Sources, Emitters)	16
WP4 REMOTE INPUT MODULE CONNECTIONS.....	17
Audio Inputs.....	17
IR Outputs	17
ROOM CONNECTIONS	17
Keypads.....	17
Speakers	17
Video (Option)	17
EXPANDED SYSTEMS.....	18
Audio Inputs.....	18
IR Outputs	18
Rooms (Keypads /Speakers)	18
Expansion.....	18
KEYPAD CONFIGURATION	19
Source Buttons	19
PROGRAMMING	19
Programming IR Commands	19
Erasing IR Commands.....	20
OPERATING INSTRUCTIONS.....	21
ON/OFF, Source Select, Volume.....	21
Tone Controls	21
CD, DVD, VCR, MP3 etc	21
Satellite, Cable, XM, Sirius, VCR Tuner etc	21
TROUBLESHOOTING	22
SPECIFICATIONS	23
WARRANTY.....	24

INTRODUCTION

Welcome to Nexus Audio Systems and congratulations on your purchase of the C-4.1 Multi-Room Controller.

The C-4.1 Controller is the most unique multi-room controller/amplifier in production today. It's compact size, mechanical design and simple connections allow it to be installed just about anywhere. The C-4.1 can be mounted on the back or side wall of an entertainment center, in an electrical room, on a closet wall, or just about any location convenient for the termination of all wire runs. The four source components connect to the C-4.1 via the WP4 Remote Input Module, which gets installed in a standard dual gang J-box, up to 150 feet away from the C-4.1, and is connected with CAT-5 Cable. This design concept also allows the source components and WP4 Remote Input Module to be placed almost anywhere in the home, allowing unprecedented system design and installation flexibility.

The C-4.1 supports a single zone of 4 rooms and infrared (IR) control of 4 external audio/video source components. Each room features a solid 20 Watts per channel analog amplifier for clean, unfatigueing listening. Each of the four source IR Outputs is routed, allowing selective control of multiple same-brand, same-model devices, such as multiple DVD, Satellite Receivers, etc. The system is expandable to 8 rooms using two C-4.1 Controllers.

Source power management is referenced to system status with all sources being automatically turned on when the first room is activated and turned off when the last room turns off. Programming power management takes only seconds and requires no additional connections or components.

The K-4.1 Keypads provide simple, intuitive control of room power, source selection, source control, volume and treble and bass. Four easy to read, backlit source select buttons, indicate room status (ON/OFF) and the source selected. The K-4.1 features three programmable buttons that can be used for basic device control such as chapter skip, stop or pause for transport devices and tuner up/down or preset up/down for tuners. The keypad features a built-in infrared receiver that can be used with the included RC-4 Remote Control for additional flexibility and armchair control.

The greatest feature of the C-4.1 Controller is its 'Phantom Control' Technology. The C-4.1 requires no special control wiring by integrating easily onto the same 4 wires used to drive the speakers. This makes the C-4.1 the perfect choice for any installation. With new or existing construction, the C-4.1 Controller provides the greatest flexibility, ease of operation and simplicity of installation of any multi-room product on the market today. At Nexus that's our goal. To provide you with well thought-out system components that reduce the time spent on-site allowing you more time for managing other important parts of your business...such as selling and installing more Nexus Audio Systems!

Thank you for your support.

SYSTEM OVERVIEW

- Four source/one zone (four room) system ideal for pre-wiring new homes and condos where the location of the head end is yet to be determined
- 20 Watts per channel stereo amplifier (x4) housed in a compact wall mount unit designed to be installed in an out of sight location, such as the electrical room or closet
- Includes four keypads with built-in IR receivers that connect to the controller via the same four conductor wire carrying audio to the speakers, using 'Nexus Audio Systems' "Phantom Control" technology
- Convenient wall plate with four sets of RCA and IR emitter jacks for connecting and controlling source components, once the home owner verifies the head end location
- Wall plate connects to the controller via one CAT-5 cable
- RJ45 expansion output to link two units for up to eight rooms of audio
- Room LED's double as programming indicators when learning IR codes

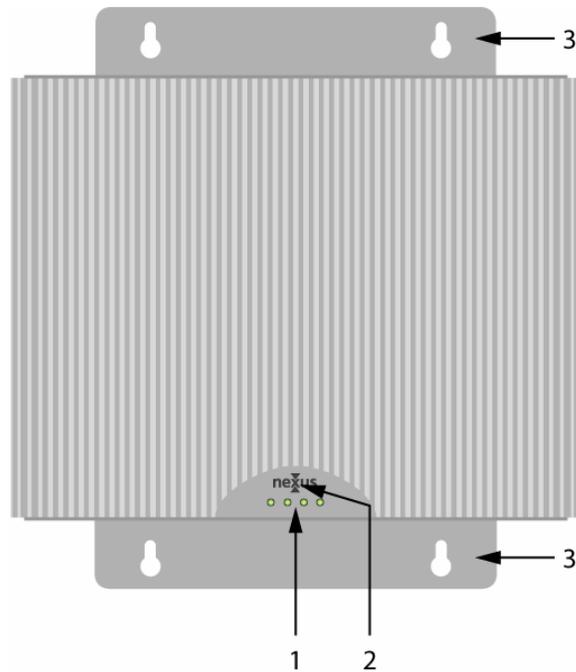


Figure 1 C-4.1 Top Panel

FEATURES

C-4.1 CONTROLLER TOP PANEL

1. **Zone Status/Programming Indicators** – Four multicolor/multifunction LED's indicate the following modes:
 - **Power Up** – During power up, the C-4.1 will enter an initialization mode where it will try to make contact with the attached keypads. The LEDs give an indication of this process on a per room basis by illuminating green while the keypad for that room is tested. If the keypad is contacted successfully, the LED for that zone will remain green, and the LED for the next room will illuminate as it is tested. If there is a failure to communicate with a particular keypad, because there is no keypad connected or due to a wiring error, the LED for that room will turn red for the duration of the initialization sequence, after which all LEDs will turn off. Additionally, the first two LEDs will alternately illuminate green as the C-4.1 first tries to make contact with a WP4 Remote Input Module, and if unsuccessful, another C-4.1. This is how the C-4.1 configures itself as a master or a slave. If the C-4.1 finds a WP4, it becomes the master. If it doesn't find a WP4, but finds another C-4.1 via the expansion cable, it becomes the slave.
 - **Zone Status** – Solid green indicates an active room. (Room ON)
 - **Source IR Output** – When an IR command is output from the C-4.1 the LED for the room initiating the command will flash green to indicate that the code was sent. When a button is pressed that does not have a command programmed to it, the LED will flash red.
 - **Programming Status** – LEDs will change from green to red to orange with varying modes of scrolling, flickering, flashing and solid states indicating different programming modes and status. See Section: **Programming** for additional information.
2. **IR Port** – IR sensor used for learning IR controlled source commands.
3. **Mounting Flange** – Mounting bracket for wall mounting the C-4.1. Four key-holes assure a secure mount.

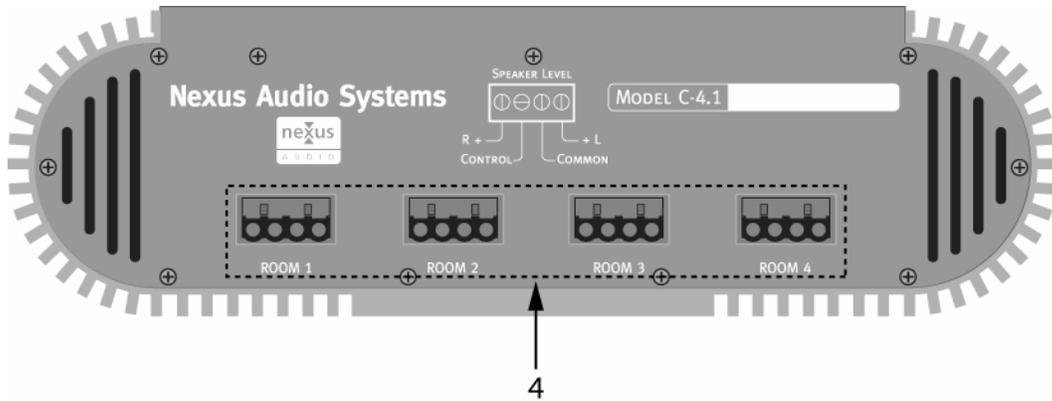


Figure 2 C-4.1 Top Side Panel

C-4.1 CONTROLLER TOP SIDE PANEL

- Room 1-4 (Keypad/Speaker) Terminal** – Four plug-in connector terminals connect to the K-4.1 Keypads and speakers in remote zones. These connections send speaker level audio and DC voltage to the keypads and receive system and source control data from the keypads.

WARNING: THESE ARE NOT TYPICAL SPEAKER TERMINALS. IMPROPER CONNECTION OF SPEAKERS OR KEYPADS CAN CAUSE DAMAGE TO THE CONTROLLER, THE KEYPADS AND SPEAKERS. SEE SECTIONS: ‘C-4.1 CONTROLLER CONNECTIONS - ROOMS’ AND ‘ROOM CONNECTIONS - KEYPADS/SPEAKERS’ BEFORE MAKING ANY CONNECTIONS OR TURNING ON THE MAIN POWER. NEXUS WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER CONNECTIONS.

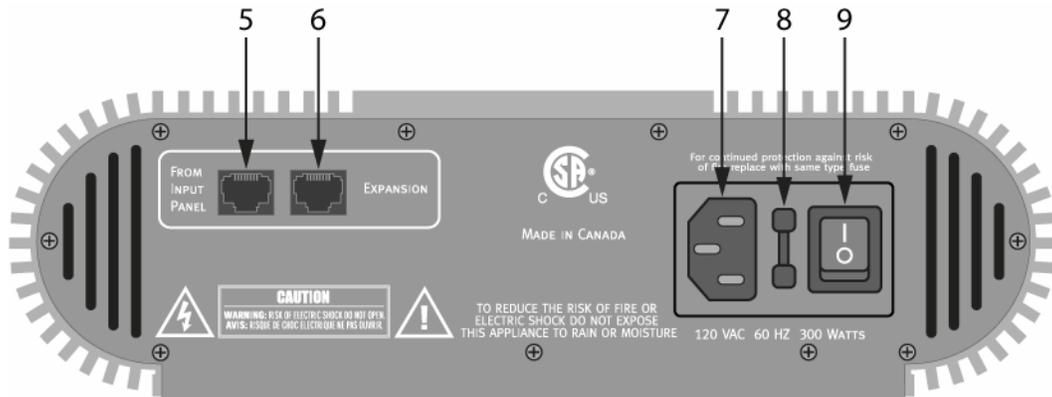


Figure 3 C-4.1 Bottom Side Panel

C-4.1 CONTROLLER BOTTOM SIDE PANEL

- From Input Panel** – One RJ45 jack connects to the Controller Port on the WP4 Remote Input Module via CAT-5. Balanced line audio is received from the WP4 and IR Control is transmitted to the WP4 over this connection. CAT-5 should be terminated with RJ45 plugs in a pass-through (pin to pin) configuration utilizing the TIA568A Standard pin-out.
- Expansion** – One RJ45 jack connects to the Expansion Port on a Slave C-4.1 via CAT-5 to communicate system status, source audio and control between controllers. CAT-5 should be terminated with RJ45 plugs in a pass-through (pin to pin) configuration utilizing the TIA568A Standard pin-out.

7. **AC Mains** – One standard IEC 3-pin AC line cord receptacle connects to the included AC line cord.
RATING: 120VAC; 60Hz.
8. **AC Fuse** – One T4AL Fuse.
9. **Main Power Switch** – One rocker switch turns AC power to the C-4.1 ON/OFF.

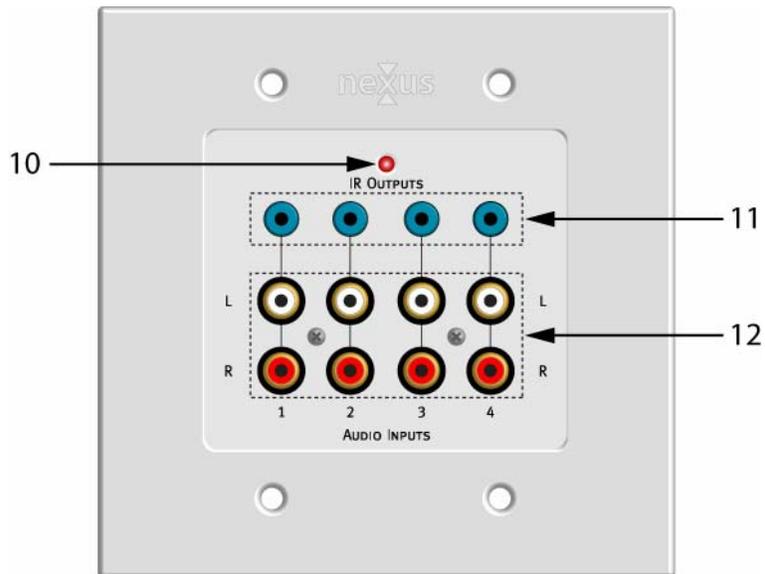


Figure 4 WP4 Remote Input Module Front Panel

WP4 REMOTE INPUT MODULE FRONT PANEL

10. **Power LED** – One LED illuminates red to indicate system AC Mains are turned on, the system has power and the WP4 is connected to the C-4.1.
11. **IR Output** – Four 3.5mm mini jacks connect to standard IR emitters for IR control of external sources. When initiated by keypad or RC-4 button presses, these outputs are routed IR, allowing selective control of multiple same-brand, same-model components (multiple DVD players, SAT receivers, etc).
PINOUT: TIP=SIG; SLEEVE=GND.
12. **Audio Inputs** – Four stereo pair RCA jacks connect to the left & right line level audio outputs on the system source devices. **PINOUT:** TIP=SIG; SLEEVE=GND.

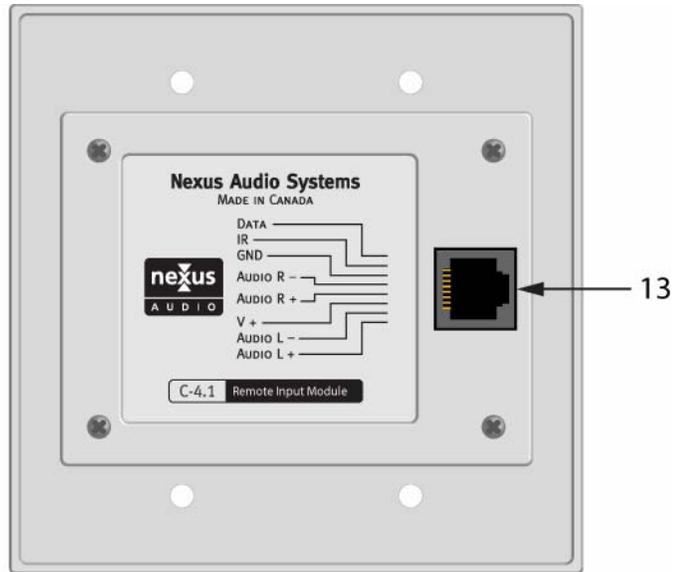


Figure 5 WP4 Remote Input Module Rear Panel

WP4 REMOTE INPUT MODULE REAR PANEL

- 13. Controller Port** – One RJ45 jack connects to the ‘From Input Panel’ jack on the C-4.1 via CAT-5. Balanced line audio is sent from the Remote Input Module to the Controller and source IR control commands are sent to the Remote Input Module from the Controller via this connection. CAT-5 should be terminated with RJ45 plugs in a pass-through (pin to pin) configuration utilizing the TIA568A Standard pin-out.

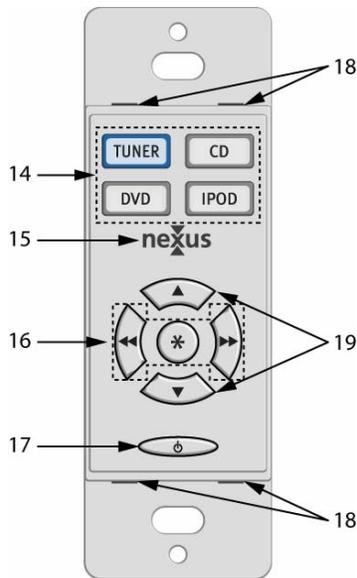


Figure 6 K-4.1 Keypad Front Panel

K-4.1 KEYPAD FRONT PANEL

- 14. Source Select Buttons** – Four configurable, backlit buttons, indicate room status and source selected. When a room is ON, the button for the source selected will illuminate blue. When a room is OFF, no source button will be lit. Each source button can be programmed to send a single IR command such as a play command. This programming will have the selected device play when selected, and also provide a ‘play’ button for normal operation. When programmed, these buttons have the same function as the corresponding buttons on the RC-4 Remote Control.
- 15. IR Receiver** – One 38 KHz photodiode allows remote control of IR controlled source components from the included RC-4 Remote Control.
- 16. Programmable Control Buttons** – Three programmable buttons allow control of the most commonly used commands, by source. For transport devices such as DVD/CD players, MP3 players, iPods, etc. commands such as chapter skip forward/reverse and stop can be programmed. For tuners, commands such as scan up/down, seek up/down, preset up/down, select or band can be programmed. When programmed, these buttons have the same function as the corresponding buttons on the RC-4 Remote Control.
- 17. Power Button** – One button serves multiple purposes. In typical use, one press of this button will turn the local room on and select the last source selected. A second press will turn the local room off. If the room being turned on is the first room in the system to turn on, the C-4.1 will automatically output the source power toggle commands to turn all sources on. If the room being turned off is the last room to be turned off, after a five second delay, the C-4.1 will output the source power toggle commands to turn all sources off. A press and hold of five seconds will turn all rooms off.
- 18. Keypad Bezel Tab Slots** – Four slots lock the keypad bezel tabs in place, securing the bezel, rubber membrane and key caps for installation and normal use. (The keypad bezel is removable to allow configuration of the Source Button Labels.)
- 19. Volume Control Buttons** – Two buttons provide control of local room volume.

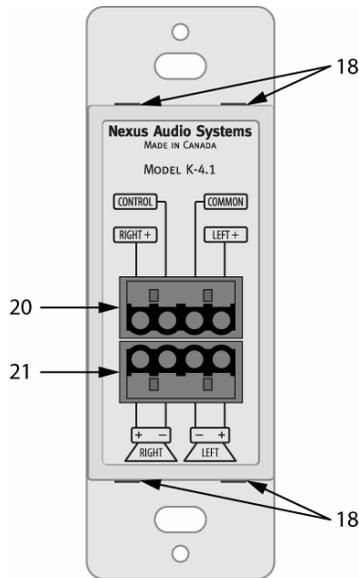


Figure 7 K-4.1 Keypad Rear Panel

K-4.1 KEYPAD REAR PANEL

18. Keypad Bezel Tab Slots – Four slots lock the keypad bezel tabs in place, securing the bezel, rubber membrane and key caps for installation and normal use. (The keypad bezel is removable to allow configuration of the Source Button Labels.)

20. Keypad/Speaker Input Terminal – One plug-in four terminal screw connectors connects the K-4.1 Keypads and speakers to the appropriate Room Terminal on the C-4.1 Controller. These connections receive speaker level audio and DC voltage from the C-4.1 Controller and send system and source control data to the Controller.

WARNING: THESE ARE NOT TYPICAL SPEAKER TERMINALS. IMPROPER CONNECTION OF SPEAKERS OR KEYPADS CAN CAUSE DAMAGE TO THE CONTROLLER, THE KEYPADS AND SPEAKERS. SEE SECTIONS: 'C-4.1 CONTROLLER CONNECTIONS – ROOM KEYPADS/SPEAKERS' AND 'ROOM CONNECTIONS - KEYPADS/SPEAKERS' BEFORE MAKING ANY CONNECTIONS OR TURNING ON THE MAIN POWER. NEXUS WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER CONNECTIONS.

21. Speaker Output Terminal – One plug-in four terminal screw connector connects to room speakers.

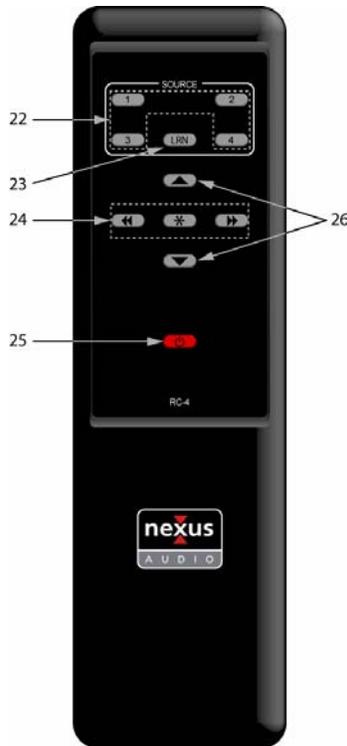


Figure 8 RC-4 Remote

- 22. Source Select Buttons** – Four buttons select the source via the built-in IR receiver in a K-4.1 Keypad. All active (ON) rooms will switch to the selected source. When the system is properly programmed, these buttons have the same function as the corresponding Source Select Buttons on the K-4.1 Keypad (select source and instruct the Controller to output a play command when selecting a transport device such as a DVD/CD player, MP3 player or iPod). These buttons are also used in Program Mode with the IR Port on the C-4.1 Top Panel to select a source during system programming.
- 23. LRN** – One button used to put the C-4.1 into the Program Mode for learning source IR commands. Press and hold for five seconds to enter Program Mode. Press again to exit Program Mode.
- 24. Programmable Control Buttons** – Three programmable buttons allow control of the most commonly used commands, by source. For transport devices such as DVD/CD players, MP3 players, iPods, etc. commands such as chapter skip forward/reverse and stop can be programmed. For tuners, commands such as scan up/down, seek up/down, preset up/down, select or band can be programmed. When the system is properly programmed, these buttons have the same function as the corresponding buttons on the K-4.1 Keypad. These buttons are used in Program Mode with the IR Port on the C-4.1 Top Panel to select source function buttons during system programming.
- 25. Power Button** – One button serves multiple purposes. In typical use one press of this button will turn the local room on and select the last source selected. A second press will turn the local room off. If the room being turned on is the first room in the system to turn on, the C-4.1 will automatically output the source power toggle commands to turn all sources on. If the room being turned off is the last room to be turned off, after a five second delay, the C-4.1 will output the source power toggle commands to turn all sources off. In Program Mode, this button is used with the IR Port on the C-4.1 Top Panel to program the individual source power toggle commands that are used for automatic source power management.
- 26. Volume Control Buttons** – Two buttons provide control of local room volume.

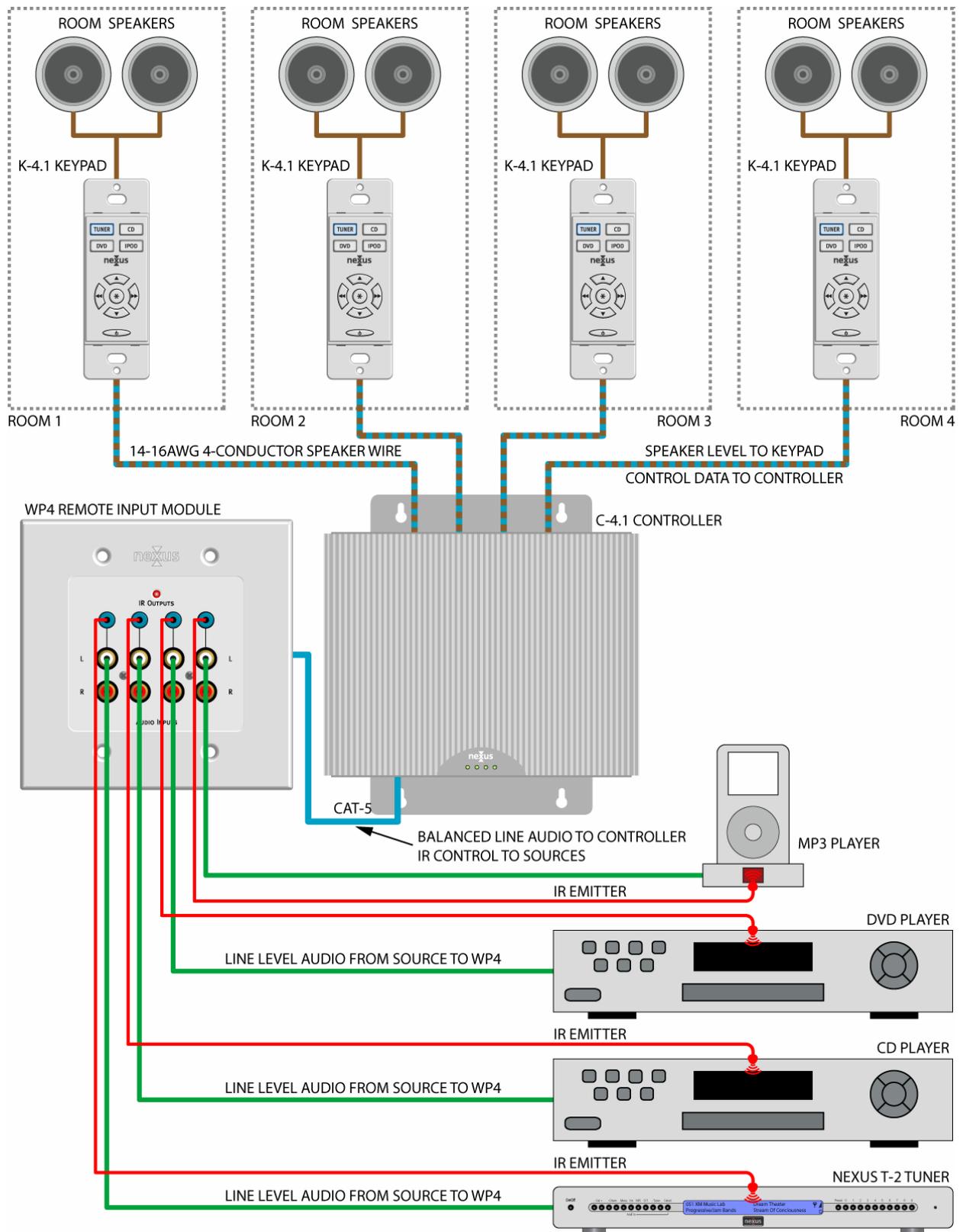


Figure 9 Typical C-4.1 System

DESIGNING AND INSTALLING A C-4.1 SYSTEM

System Design

Though the C-4.1 is an easy system to install and program, it is always good to get as much information from the client/user/homeowner as possible when designing a whole-house system. What sources are they going to use? How many rooms will be included in the system? The system may initially be set up for music, but as the homeowner lives with the system for a while or when a new owner moves in, there may be a desire to upgrade the system to a multi-zone, multi-source A/V system. With a simple wiring infrastructure of home runs of speaker wire and coaxial cable, a C-4.1 multi-room audio system can easily be upgraded to a multi-zone, multi-source A/V system using the Nexus Audio Systems C-6 six-zone, six-source Controller. It's all part of system planning and planning ahead will insure that the system does what the user requires...or asks for later.

Head End Considerations

With most whole-house systems, careful planning goes into designing a location for the system components. Typically the components are installed in an entertainment center, equipment rack or closet. The unique design of the C-4.1 system allows the system components to be installed just about anywhere...so there doesn't need to be a specific 'head-end'. When interviewing the client in the early stages of the project, a good question to ask is: "What room will most commonly be used for entertainment?" This room is where the source components and the WP4 Remote Input Module should be installed. With this location determined, the C-4.1 Controller can be installed anywhere a CAT-5 cable, up to 150 feet, can be run from the WP4 Remote Input Module and where AC power is available. Four runs of speaker wire from the C-4.1 to the keypad locations and speaker wires from the keypads to the speakers is all that's needed for four rooms of music and system control.

When the C-4.1 system is being installed in MDU's, condominiums, or a new housing development as an added-value option prior to the residence being purchased, it may be impossible to determine in which room the source components will reside. In this case CAT-5 wire can be run from several potential head end locations back to the controller, and the WP4 Remote Input Module can be installed at a later date. (Once the residence is purchased and the home owner has determined the location of the source components.) This also permits the home owner the option of relocating the head end in the future.

If considering future upgrades to a multi-zone, multi-source A/V system, in either new or existing construction, always try to find the most convenient location for the system components. Try to find a central location to pull the wire runs to with adequate space for the components and room to work on them. Certainly not the least important consideration should be convenience for the user. Remember: once the system is installed, the user is still going to need to load discs or tapes or program material...easy access is essential. For service or upgrading components, an equipment closet with rear access to the components is ideal but not always possible. Consider a pull-out rack mount system if rear access is not possible. Leave plenty of extra wire to be able to easily remove components should they need service or replacing.

Room Considerations

Think the system through in terms of how the system will be used. What is the layout of each room? Where will the speakers go? Where will the keypads go? Are there going to be any other system components in the remote zones such as TV's or video displays? Be sure to pull all required cabling and observe all local building and electrical codes.

INSTALLATION

Controller Location

The C-4.1 should be located at the termination of the CAT-5 cable from the WP4 Remote Input Module and speaker wire runs from the remote rooms. The C-4.1 is designed to be wall-mounted and can be mounted on the side wall or back of an entertainment center or directly on the wall of an electrical room or closet.

Ventilation

The C-4.1 should always be wall mounted in a vertical orientation, with the Room Keypad/Speaker Terminals at the top and the Remote Input Module and AC power connections at the bottom, to allow proper airflow.

The C-4.1 must be installed in a location that allows adequate airflow. Leave at least twelve inches on all sides of the unit to allow air to flow freely through the heat-sink channels on the C-4.1 Top Panel. Insufficient space around the C-4.1 can inhibit airflow and possibly damage the unit. Placing the unit on a shelf or another component can cause the unit to overheat and is not recommended. Additionally, care should be taken to leave plenty of extra room for wires and cables. Extra wire cramped in around the unit can also inhibit proper airflow.

Source Components

Source components should be located in close proximity to the WP4 Remote Input Module. Audio cables from the sources to the WP4 should not run more than 15'. Source components can be placed on shelves in a wall unit in a media room, or rack mounted in a standard 19" rack mount system. Always provide convenient access for loading CDs and DVDs. Easy access for service should also be a consideration.

Keypad Location & Mounting

The K-4.1 Keypads should be installed in a standard single-gang J-box. The K-4.1 Keypads should never be mounted in the same J-box with AC house wiring or any other high voltage device such as a light switch. Avoid mounting the keypads in areas with high moisture such as around sinks, bathtubs, showers or outdoor locations that will be exposed to rain or high humidity. Care should also be taken to avoid mounting the keypads in locations that will be exposed to direct sunlight. Sunlight can interfere with the IR sensors on the keypads and interfere with system performance.

WIRING

One of the most important aspects of system design and installation is the wiring infrastructure. When planning the wiring infrastructure, always pull extra wire. In new construction, wires can be damaged during construction, so it is a good idea to use wire with additional conductors in case a nail or staple gets run through a wire. Additionally, even though the system has been designed and contracted based on extensive interviews with the homeowner, things do change. The homeowner may decide to add music, video and control to additional rooms long after the walls have been sealed up. In new construction, always pull wire to every room that could ever possibly be added to the system, so when the homeowner decides to add a room to the system, the wire is already in place. Pull two pair of speaker wire for speaker level audio and system control as well as coax for video distribution, (even though the C-4.1 does not switch video and the system will only initially be used for audio sources). Pull each wire or cable to an appropriate location for keypads, speakers and video displays in each room that is either part of the initial system design or may be added later. Terminate with appropriate wall plates or keep a map detailing exactly where the wire runs are terminated in the walls. Always label the wire runs by room and device to assist in installation and troubleshooting.

Additionally, pull a single CAT-5 for the WP4 Remote Input Module from where the source components will be located to the C-4.1 location. Consider pulling additional runs of CAT-5 so the WP4 can be moved to allow options to the homeowner should they decide they want to move the source components to a different location.

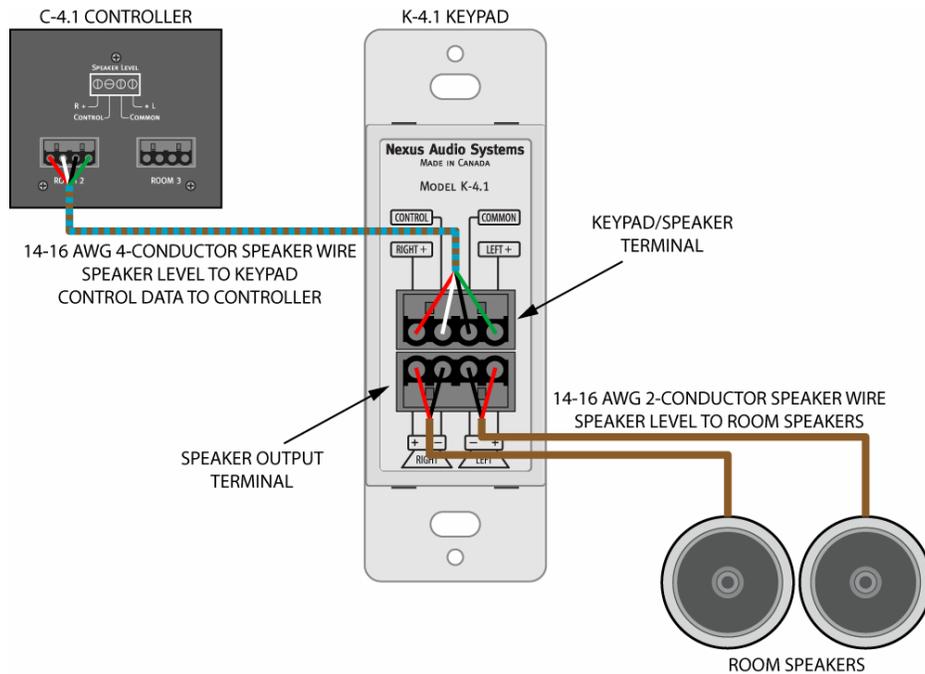


Figure 10 Typical Room Configuration

Keypads

Pull four conductor wire in home-runs directly from each keypad location to the C-4.1 Controller location. **WIRE GAUGE:** 16AWG stranded up to 75'; 14AWG stranded up to 100'. Non-shielded preferred.

Speakers

Pull two conductor wire from each speaker location to the K-4.1 Keypad location for that room. **WIRE GAUGE:** 16AWG stranded up to 75'; 14AWG stranded up to 100'. Non-shielded preferred.

NOTE: MAX LOAD: 8 ohms per zone. Do not load more than one pair of 8 ohm speakers per zone. This can cause the unit to go into protection and may possibly blow fuses.

Video (Option)

Though the C-4.1 does not switch video signals, video cable should be pulled to allow whole-house video distribution with audio signals routed through the C-4.1 rather than the TVs for improved audio performance. Pull RG6 coaxial cable in home runs directly from each possible TV or video display location directly to the C-4.1 Controller location or to the sources if the sources and C-4.1 are not in the same location. RG6 quad shield preferred. Coaxial cable length will vary with system design. Terminate with appropriate quality gold-plated connectors.

WP4 Remote Input Module

Pull a single CAT-5 cable from where the source components will be located to the C-4.1 location. Consider pulling additional runs of CAT-5 so the WP4 can be moved to allow options to the homeowner should they decide they want to move the source components to a different location. Terminate in a pass-through (pin to pin) configuration utilizing the TIA568A Standard pin-out. **MAX LENGTH: 150'**

CAT5	RJ45	SIGNAL
White/Green	PIN 1	Data
Green	PIN 2	IR
White/Orange	PIN 3	GND
Blue	PIN 4	Audio R-
White/Blue	PIN 5	Audio R+
Orange	PIN 6	V+
White/Brown	PIN 7	Audio L-
Brown	PIN 8	Audio L+

Figure 11 RJ45 TIA568A Standard Pin-out

CONNECTIONS

When connecting source components, or making any connections, be sure that the C-4.1 Controller and all system devices are turned OFF and disconnected from AC power to prevent electrical shock and to avoid possibly damaging components.

C-4.1 CONTROLLER CONNECTIONS

Rooms (Keypads/Speakers)

The Room Terminals on the C-4.1 are specially configured for Phantom Control that combines speaker level audio signals, keypad control signals and power for the keypads all on the same wires. Special care must be used in making the Keypad/Speaker connections.

1. Using four conductor stranded wire, strip approximately ¼" of insulation from each conductor. Twist the strands until tight.
2. Connect the bare wires to the plug-in four terminal screw connectors included with the C-4.1 accessories. Be sure to maintain proper polarity from the RIGHT+, CONTROL, COMMON and +LEFT terminals for each room output. Be sure there are no loose strands sticking out that could cause a short.

WARNING: THESE ARE NOT TYPICAL SPEAKER TERMINALS. IMPROPER CONNECTION OF SPEAKERS OR KEYPADS CAN CAUSE DAMAGE TO THE CONTROLLER, THE KEYPADS AND SPEAKERS. SEE SECTIONS: 'ROOM CONNECTIONS – KEYPADS/SPEAKERS' BEFORE MAKING ANY CONNECTIONS OR TURNING ON THE MAIN POWER. NEXUS WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER CONNECTIONS.

From Input Panel (WP4 Remote Input Module – Sources, Emitters)

Using the CAT-5 cable run from the WP4 Remote Input Module, connect the CAT-5 to the 'From Input Panel' RJ45 jack on the C-4.1 Bottom Side Panel.

WP4 REMOTE INPUT MODULE CONNECTIONS

Audio Inputs

Use one quality stereo RCA to RCA type audio cable with gold plated connectors for each audio source component. Connect the LEFT and RIGHT audio outputs of each source component to the LEFT and RIGHT audio inputs on the WP4 Remote Input Module for Sources 1-4.

IR Outputs

Sources 1-4 – Use any standard IR emitter with a 3.5mm mini plug for each source component. Plug emitters into the appropriate source IR output jack 1-4. (If the CD player is source 1, plug the emitter for the CD player into emitter jack 1.) Attach the emitter to the front panel of the device being controlled over the IR eye. If the eye is not obvious, refer to the owner's manual for that product or shine a small flashlight into the front panel to locate the eye.

NOTE 1: IR commands initiated by a K-4.1 Keypad or RC-4 Remote will be routed to the emitter for the selected source. (Commands for Source 1 will only output from Emitter 1.)

NOTE 2: IR emitters are available as infrared (no flash) or visible/infrared (red flash). Either will work. The visible/infrared emitters are recommended in that they give a visual confirmation of IR output and can be helpful when troubleshooting.

ROOM CONNECTIONS

Keypads

The Keypad/Speaker Terminals are specially configured for Phantom Control that combines speaker level audio signals, keypad control signals and power for the keypads all on the same wires. Special care must be used in making the Keypad/Speaker connections.

1. Using four conductor stranded wire, strip approximately ¼" of insulation from each conductor. Twist the strands until tight.
2. Connect the bare wires to the plug-in four terminal screw connectors included with the C-4.1 accessories. Be sure to maintain proper polarity on the LEFT+, CONTROL, COMMON and RIGHT+ terminals for each zone output. Be sure there are no loose strands sticking out that could cause a short.
3. Plug connector into the Keypad/Speaker Input terminal on the back of the Keypad. Repeat for all rooms.

WARNING: THESE ARE NOT TYPICAL SPEAKER TERMINALS. IMPROPER CONNECTION OF SPEAKERS OR KEYPADS CAN CAUSE DAMAGE TO THE CONTROLLER, THE KEYPADS AND SPEAKERS. SEE SECTIONS: 'C-4.1 CONTROLLER CONNECTIONS – KEYPADS/SPEAKERS' AND 'ROOM CONNECTIONS – SPEAKERS' BEFORE MAKING ANY CONNECTIONS OR TURNING ON THE MAIN POWER. NEXUS WARRANTY DOES NOT COVER DAMAGE CAUSED BY IMPROPER CONNECTIONS.

Speakers

The Speaker Output Terminals output speaker level audio only and use a standard speaker connection configuration.

1. Using two conductor stranded wire, strip approximately ¼" of insulation from each conductor. Twist the strands until tight.
2. Connect the bare wires to the plug-in four terminal screw connectors included with the C-4.1 accessories. Be sure to maintain proper polarity from the L+, L-, R- and R+ terminals for each speaker pair output. Be sure there are no loose strands sticking out that could cause a short.
3. Plug connector into the Speaker Output Terminal on the back of the Keypad. Repeat for all rooms.

Video (Option)

Using appropriately terminated RG6 coaxial cable, connect the Video Out from an A/V source or video distribution amp to the appropriate input on a room TV or video display.

EXPANDED SYSTEMS

Two C-4.1 Controllers can be linked together to expand a C-4.1 system to up to eight rooms. The fundamental installation and connections are similar to those on a single controller system with a few minor changes.

Audio Inputs

Connect sources as described in section: **WP4 Remote Input Module Connections/Audio Inputs.**

IR Outputs

Connect emitters as described in section: **WP4 Remote Input Module Connections/IR Outputs.**

Rooms (Keypads /Speakers)

Connect Keypads/Speakers to the appropriate Master or Slave Controller Room Out as described in section: **C-4.1 Controller Connections/Rooms (Keypads/ Speakers).**

Expansion

Using a CAT-5 cable, connect the Expansion Port on the Master C-4.1 to the Expansion Port on the Slave C-4.1. The CAT-5 cable should be terminated with RJ45 connectors in a pass-through (pin to pin) configuration utilizing the TIA568A Standard pin-out.

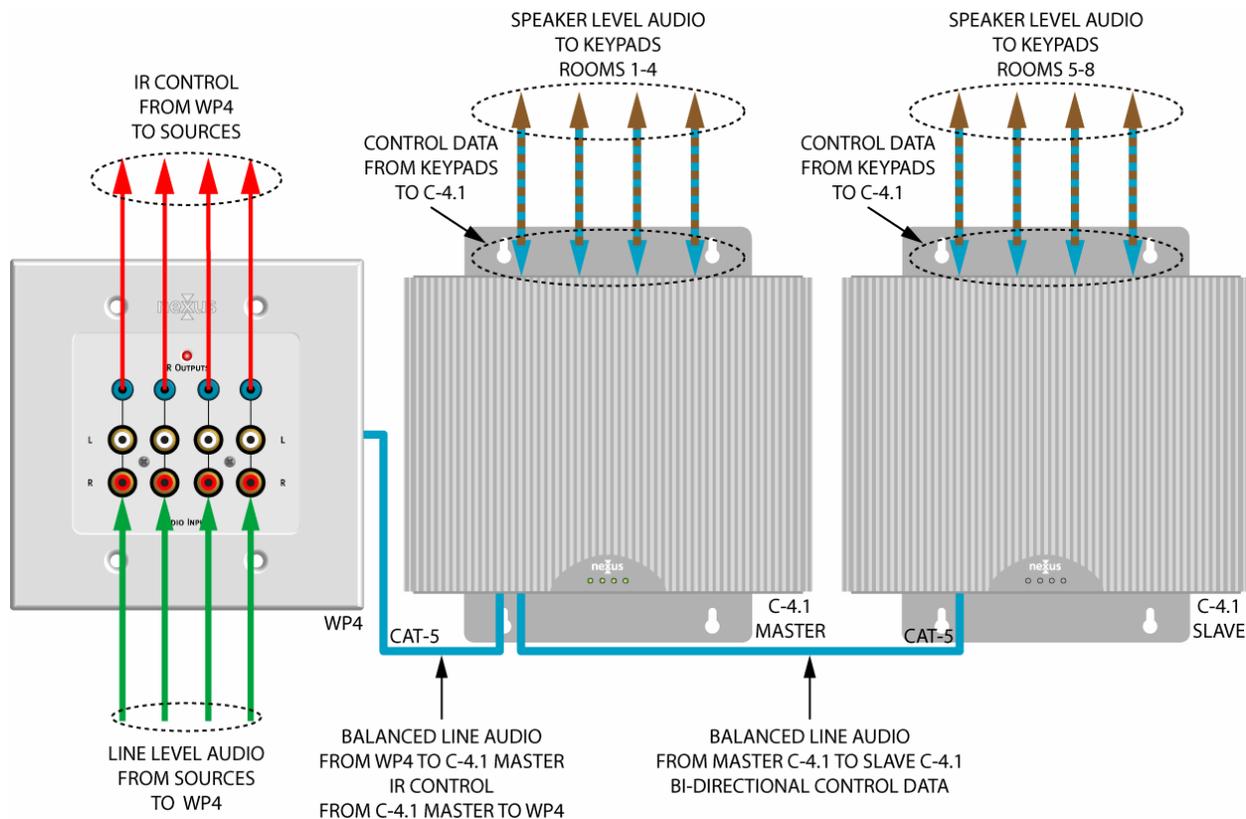


Figure 12 Expanded C-4.1 System

KEYPAD CONFIGURATION

Source Buttons

Each K-4.1 Keypad comes with a set of Source Unit Labels that can be inserted under the Source Button Key Caps to label the Source Buttons.

CD	CD1	CD2	CD3	CD CHG
DVD	DVD1	DVD2	DVD3	IPOD
HDTV	LASER	MP3	RADIO	TUNER
TUNER1	TUNER2	TUNER3	TV	TV1
TV2	TV3	VCR	XM	SIRIUS

Figure 13 Keypad Button Labels

To configure the Keypad Source Buttons:

1. With the keypad disconnected from the Controller, carefully remove the bezel, by pressing the bottom of the bezel with one thumb and then pulling the bezel down and away from the chassis with two fingers at the top of the bezel.
NOTE: Keep the keypad facing up so the rubber membrane and source button key caps do not fall off. If the membrane does come loose, carefully put it back in place, and do not touch the contacts on the circuit board.
2. Carefully remove the source button key caps.
3. Carefully peel the appropriate Button Label off of the sheet provided. Place the label on top of the rubber platform for the source button.
4. Carefully slide the key cap down on top of the label and rubber platform until the key cap is firmly positioned on top of the label and rubber platform.
5. Repeat for all source buttons.
6. Slide the lower bezel tabs into the lower bezel tab slots on the keypad chassis.
7. Slowly press the top of the bezel toward the chassis checking the alignment of all buttons to the bezel.
8. When all buttons are aligned, snap the top bezel tabs to the keypad chassis.
9. Press all buttons to confirm free movement of all buttons.
10. Repeat for all keypads.

PROGRAMMING

Programming IR Commands

C-4.1 System programming takes only a few minutes and provides power management and basic transport control for the connected sources. Out of the box, the system has default programming for Controller & Zone ON/OFF, Input Select and Volume UP/DOWN so those functions do not require programming. When finished, the buttons on the K-4.1 Keypads and RC-4 will have the same functionality.

NOTE 1: The programmable keypad buttons can only be programmed for single IR commands.

NOTE 2: The power management programming only allows for learning IR toggle commands. Some devices have both discrete and toggle commands available. Use the toggle commands when available. In some cases, if a particular device's remote has discrete ON/OFF commands, the toggle command from another model from the same manufacturer will turn a device ON/OFF.

NOTE 3: When using two C-4.1 Controllers in an expanded system, only the Master Controller (the one connected to the WP4) needs to be programmed for Source IR commands.

Programming utilizes the RC-4 Remote Control, the original manufacturer remotes for the sources to be controlled and requires that the C-4.1 Controller has AC power. The WP4 Remote Input Module and all sources should be connected and have IR emitters connected and attached to test commands. To program C-4.1 source control:

1. Activate Learn Mode by pointing the Nexus RC-4 Remote Control at the IR Port (Nexus Logo) on the C-4.1 Top Panel and pressing the LRN Button for 5 seconds. Release the LRN Button. The four LEDs below the IR Port will scroll red from left to right. This indicates the C-4.1 is in Learn Mode and ready for a Source to be selected.
2. Point the RC-4 at the IR Port and press one of the four Source Buttons, (1-4) depending on which source is to be programmed. After a Source has been selected, the LEDs will stop scrolling and the LED corresponding to the source selected will illuminate solid red.
3. If the component being programmed has a play command, (CD play, DVD play etc) on the RC-4, press the source button pressed in Step 2 again to prepare the C-4.1 to learn the play command. (The play command will be placed under the source button and will be output every time the source button is pressed.) If a different source other than the one indicated by the lit LED is selected, the C-4.1 will switch to that source rather than be ready to learn the play command. The LED that was lit solid red will now begin to flash slowly in red. This indicates that the C-4.1 is ready to learn the play command.
4. Point the source remote with the play command to be learned at the IR Port from a distance of 1 to 2 inches. Quickly press and release the play button. The Source LED on the C-4.1 will flicker red, then flash green three times to indicate the command has been learned and then return to solid red. If the LED flashes red three times instead of green, repeat Steps 3-4.
5. Repeat the learning process for the other programmable buttons, (<<, * , >> and PWR) for the selected source, by alternately pressing the <<,*>> and PWR buttons on the RC-4 and then using the source remote to program the corresponding IR commands.
NOTE: The IR command for PWR for all sources is output automatically whenever the first zone in the system comes on, or after the last zone in the system is turned off.
6. To program the IR commands for the other sources, repeat Steps 2-5 selecting a different source in Step 2 until all source commands have been learned.
7. When all IR programming is complete, press the LRN Button on the RC-4 to exit Learn Mode.
8. Test all commands to confirm programming. Repeat previous steps for commands that do not function properly.
9. If programming an expanded system with two C-4.1 Controllers, only the Master Controller (the one connected to the WP4) needs to be programmed for Source IR commands.

Erasing IR Commands

There are two methods to erase IR commands on the C-4.1. One is to erase an entire source the other is to erase an individual command.

1. To erase an entire source:
 - a) Point the RC-4 remote toward the C-4.1 IR Port and press the LRN Button for 5 seconds. This will put the C-4.1 into the Learn Mode.
 - b) Press the ▲ Button. The four LEDs will scroll orange from left to right.
 - c) Press the Source Button (1-4) for the code bank to be erased. All learned IR commands for that bank will be erased and the LEDs will flash green three times.
2. To erase a single command:
 - a) Point the RC-4 remote toward the C-4.1 IR Port and press the LRN Button for 5 seconds. This will put the C-4.4 into the Learn Mode.
 - b) Press the source button (1-4) for the bank that contains the command to be erased.
 - c) Press the ▼ Button. The selected source LED will slowly flash orange.
 - d) Press the RC-4 function button (<<,*>> or PWR) with the code to be erased. Any learned IR command for that button will be erased and the source LED will flash green three times.

OPERATING INSTRUCTIONS

The following describes basic system operation using K-4.1 Keypads with system default programming and suggested IR programming. All functions described can also be controlled by pressing the same buttons on the RC-4 Remote.

ON/OFF, Source Select, Volume

Press Power to turn a Room ON.

Press 1-4 to choose a Source. (All active rooms will change to the selected source.)

Press ▲ or ▼ to adjust Volume Up or Down.

Press Power to turn a Room OFF.

Press and Hold Power to turn ALL ROOMS OFF. (All source buttons will flash once.)

Tone Controls

Press and Hold * on a Keypad until the Source 1 Button flashes. Release * button. Room is in Bass Adjust Mode.

Press ▲ or ▼ on Keypad to adjust Bass. Press * for flat.

While in Bass Adjust Mode (Source 1 flash) press the Source 2 Button. Source 2 will flash indicating that the room is in Treble Adjust Mode.

Press ▲ or ▼ on Keypad to adjust Treble. Press * for flat.

Press any button not related to Tone Control Setup other than the Power Button to exit Tone Control Setup.

NOTE: Tone controls can only be adjusted from the keypads.

CD, DVD, VCR, MP3 etc

Press a Source Button (1-4) to select and play a device such as a CD or DVD player, iPod, etc.

Press ◀◀ or ▶▶ to select previous or next track or disc as programmed.

Press * to stop or output programmed command.

Press RC-4 Remote buttons for same functions from remote.

Satellite, Cable, XM, Sirius, VCR Tuner etc

Press 1-4 to select a Source.

Press ◀◀ or ▶▶ to change frequencies up or down to select preset stations.

Press * for 'enter' if necessary, if programmed or output programmed command. (Optional)

Press RC-4 Remote buttons for same functions from remote.

TROUBLESHOOTING

PROBLEM	SOLUTION
Power	
System will not power up	a) Confirm C-4.1 Controller is plugged into an unswitched AC outlet. b) Confirm Power cord is plugged into C-4.1 Controller.
Keypads will not power up	Confirm connections and polarity of control and common wires from Controller to Keypads.
Audio	
No Audio From Source	a) Confirm that source is ON. b) Confirm source line audio out is connected to the appropriate source input on WP4 Remote Input Module. c) Confirm source is playing.
No Audio In Room	a) Confirm speakers are connected. b) Confirm Room is ON. c) Confirm Room volume is turned up.
No Audio in Expansion Zones	a) Check connection of CAT-5 cable between the Expansion Ports on the Master and Slave Controllers. b) See Troubleshooting sections: 'No Audio From Source' and 'No Audio In Room'.
Infrared Control	
IR Commands are not getting routed to specific Source Components	a) Confirm emitters are plugged into the specific IR output jack for the device being controlled. (Input 1, emitter jack 1 etc.) b) Confirm emitter is attached over the IR eye of the device being controlled and is connected to the proper WP4 Remote Input Module IR Output. c) Confirm IR commands are programmed to the Controller for the selected device.
No IR output from emitters in an Expanded System (Two C-4.1 Controllers)	a) Check connection of CAT-5 cable between the Expansion Ports on the Master and Slave Controllers. b) Confirm Keypad connections. Verify polarity.
RC-4 Remote does not Control Source Components	a) Confirm IR commands have been properly programmed by source.
Source does not respond to IR Command output by C-4.1 Controller	a) Confirm IR emitter is attached over the IR eye of the device being controlled and connected to the proper WP4 Remote Input Module IR Output. b) Check to be sure proper IR command has been programmed to a button.

SPECIFICATIONS

Amplifier

Output Power 20 watts per channel (20Hz to 20 KHz).1% THD all zones driven.
Input Sensitivity .750mV
Input Voltage (max.) 5V

IR

IR Modulation Frequency Bandwidth: 25 KHz-70 KHz (Learned IR)
Keypad IR Sensor Range: 30'

General

Expansion: Up to 8 Rooms using two C-4.1 Controllers
Power Requirements: 120VAC
Power Consumption: 300 Watts
Keypad Connections: 4 plug-in 4 terminal screw connectors
Dimensions: 10 1/2"W x 2"H x 10 5/8"D (including mounting flange and connections.)
Weight: 12 lbs

WP4 Remote Input Module

Source Inputs: 4 stereo audio line level inputs
IR Outputs: 4 source specific
Controller Connection: 1 RJ45 terminal, TIA568A configuration
Installation: Standard dual-gang J-box

WARRANTY

Limited Warranty (North America)

Nexus Audio Systems Inc. (Nexus Audio) Warrant the product designated herein to be free of manufacturing defects in material and workmanship, subject to the conditions set forth below for a period of 5 years, from the date of purchase by the original registered purchaser.

Conditions

1. This Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the Owners Manual, abused or misused, damaged by accident or neglect in being transported.
2. This Warranty is void if the product is altered or otherwise repaired or tampered with by anyone other than Nexus Audio Systems Inc. or an authorized Nexus Audio Systems Inc. repair professional or center, as designated by Nexus Audio.
3. A returned product is to be delivered to Nexus Audio with a Nexus Audio assigned Return Authorization Number. In addition, the returned product is to be accompanied by a written description of the defect and proof of purchase.
4. Nexus Audio Systems Inc reserves the right to modify the design and specifications of any product at anytime, without obligation to advise the purchaser of previously manufactured products and to change the prices of any product without notice to any person.
5. In the sole discretion of Nexus Audio, warranty work may not be undertaken without evidence of purchaser registration by way of the original warranty card filing.

Exclusions

1. This Warranty is valid for specified Nexus Audio product and the assigned serial number for the duration specified in this certificate.
2. This certificate does not extend to any incidental or consequential costs or damages to the purchaser.
3. This Warranty shall provide the original purchaser with specific legal rights, which may vary from State to State in the United States and Province to Province in Canada.
4. This Warranty is a Limited Warranty as defined by the Federal Trade Commission (Magnuson-Moss Warranty Act) in the United States and as defined by Industry Canada (Competition Act) in Canada.

Warrantor:

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