Home Controller HC-500 Installation Guide

Supported Model

C4-HC500-E-B Home Controller HC-500

Introduction to Home Controller HC-500

The Control4 Home Controller HC-500 provides options for controlling lights, home theaters, distributed audio systems, and other devices controlled using various protocols, such as Infra Red (IR), Serial, Contact, and Relay.

It provides extensive media management services for audio sources, such as CDs and DVDs stored in connected devices. It also allows you to use the internal storage or an external storage device with USB support for media storage. It also includes multi-zone audio capabilities, sending music to rooms throughout the home.

Once the controller and other system components are installed and configured (using Control4 Composer software or another Control4 setup program), your users can control the system using one of the two user interfaces included with this controller: On-screen Navigator or System Remote Control or any other Control4 user interface device (available separately).

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. 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. Unplug this apparatus during lighting storms or when unused for long periods of time.
13. 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.
14. This apparatus has no AC mains power switch. The power cable is the AC mains disconnect device.

WARNING! To reduce the risk of electrical shock, do not expose this apparatus to rain or moisture.

WARNING! This CLASS I apparatus must be connected to an AC mains socket outlet that has a protective earthing connection (i.e., third-prong ground conductor). **DO NOT DEFEAT THE PROTECTIVE EARTHING CONNECTION!**

Control4 Supported Devices

Control4 devices that can be controlled by this controller include:

- Touch Screen (Wireless or Wall-Mounted)
- Mini Touch Screen
- LCD Keypad
- Wireless 2, 3, & 6 Button Keypads
- Wireless Thermostat
- Speaker Point™
- Supported Third-Party devices
- Wireless Dimmer
- Wireless Switch
- Wireless Outlet Dimmer
- Wireless Outlet Switch
- Multi Channel Amplifier
- Audio Matrix Switch
- Multi Tuner

For a more information see "Products" at http://www.control4.com.

Requirements and Specifications

Prior to installing this product, ensure that: Ethernet network wiring is in place.

The Home Controller HC-500 specifications include:

Model Number	• C4-HC500-E-B
Network Support	• Ethernet—required (included) • WiFi--optional, requires a WiFi adapter (sold separately)
Media Recognition	• AMG online CD/DVD recognition and media information service
Media Storage Capacity	• 144.9 GB
Audio Playback Formats	• MP3: 32kbps to 320kbps, CBR and VBR
Display	• LED indicators
Power Requirements	• 100-240 VAC, 60/50 Hz, 0.50 A MAX
Dimensions	• H x W x D: 4.1" (104 mm) x 17" (432 mm) x 15.7" (400 mm) (with feet and connectors)
Weight	• 13.85 pounds

What's in the Box

The following are included in your Home Controller box:

- Home Controller HC-500
- Pluggable terminal block connector (4)
- System Remote Control with LCD Navigator display and 4 AAA batteries
- IEC 320 power cord
- IR emitters (6)
- CD containing Easy Importer
- *Home Controller HC-500 Installation Guide* (this document)
- *Control4 System User Guide*
- *Control4 System Remote Control User Guide*

Accessories Available for Purchase

- USB WiFi Adapter for HC-500 (C4-NWA-11G-USB)
- Rack-Mount Kit (C4 - 3URMK - B)

Warranty

Limited 2-year Warranty. Refer to http://www.control4.com/warranty.

Additional Resources

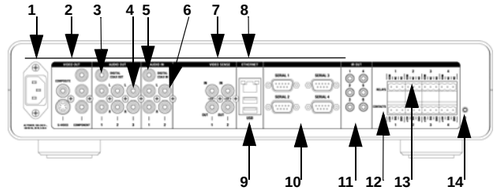
The following resources are available to provide you with additional support.

- Your authorized Control4 reseller
- Control4 Web Site: http://www.control4.com
- Composer online help

Front View

1. **WiFi LED—**This LED blinks first red orange and then blue during the boot process. Once the operating system is running, the WiFi driver changes the LED color depending on the signal strength of its connection to its associated access point. Colors and signal strength are as follows: orange = Fair to Good, blue = Excellent, and no light = No connection.
2. **Data LED—**This blue LED indicates streaming audio is received.
3. **Link LED—**Blue LED light indicates Home Controller has been identified in a Control4 Composer project.
4. **Power LED—**Blue LED light indicates AC power is present. It turns on immediately after the power is applied to the device.
5. **IR Window / IR Blaster—**For capturing third-party IR codes from hand-held devices (such as remote controls) or blasting IR codes. The WiFi LED blinks red when capturing IR codes.

Back View



1. **Power plug port—**AC power receptacle for an IEC 320 power cord.
2. **Video Out—**Composite RCA, S-VIDEO mini-DIN, and Component RCA jacks.
3. **Digital Coax Audio Out**—SPDIF
4. **Audio Out (3 Left-Right pairs)—**RCA jacks for stereo channel line output (line level) for amplifiers or audio switches.
5. **Digital Coax Audio In—**SPDIF
6. **Audio In (2 Left-Right pairs)**—RCA jacks for stereo channel input (line level) for two stereo analog sources.
7. **Video Sense In-Out (2 pairs)—**Composite In-Out RCA jack pairs for monitoring the On/Off status of up to two video sources.
8. **Ethernet—**RJ-45 jack for a 10/100 BaseT Ethernet connection.
9. **USB (2 ports)—**For external storage device with USB support (such as FAT32 formatted devices) and WiFi adapter (C4-NWA-11G-USB).
10. **Serial (4 sets, DB9)—**Four serial devices, such as a receiver or disk changer.
11. **IR Out (6)—**3.5 mm jacks for up to six IR output transmitters.
12. **Contact (4 sets)—**Pluggable terminal block connector for four dry contact closures, logic input connections, door contact sensors, or motion sensors.
13. **Relay (4 sets)—**Pluggable terminal block connector for four normally closed or normally opened switchable connections.
14. **Identification button—**Easily-pressed button used when identifying this device in Composer.

Install the HC-500

To install this controller:

1. **Ensure that your home network is in place before starting your system setup:** The Home Controller HC-500 requires a network connection (wired or WiFi) in order to use all features as designed. When connected, the Home Controller can access Web-based media databases and Control4 system updates.
2. **Connect the HC-500 controller to the network:** To connect using an Ethernet connection, plug the data cable from the home network connection into the Home Controller RJ-45 port (labeled "Ethernet") and the network port on the wall or at the network switch. To connect using the optional USB WiFi adapter (C4-NWA-11G-USB), refer to the installation instructions shipped with the adapter.
3. **Power up the controller:** Plug the HC-500 power cord (provided) into the Home Controller power plug port and an electrical outlet.
4. **Connect system devices** as described in the "Connect Devices" section that follows.

Configure the HC-500

Set Up Media Storage

To set up media storage on the controller or using an external device, use Control4 Easy Importer on a connected computer. (Install Easy Importer from the installation CD included with your controller.) See Easy Importer Help for more information.

Configure Video Output Mode

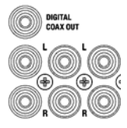
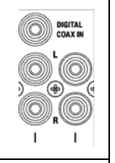
The default video output mode is NTSC over composite. In this mode, there is some bleed-through of the NTSC signal on the component video output connections. However, the video image will not appear correctly in this mode. The HC-500 can be configured to output over component using NTSC (standard definition) or 720p (high definition). To configure the video mode to use the component video outputs, in Composer, make the appropriate bindings for the desired video output mode.

Connect Devices

NOTE: You can use Composer software to step through the connection process before or after the physical connections are complete.

Connect all applicable devices to the Home Controller HC-500 using one of the connection options described in the following table.

Table 1. Connection Options

Power plug port—For use with the IEC 320 power connector (provided)	
Video Out Options—Composite, Component, or S-Video port for displaying navigation menus on a monitor or TV. The Component jack is only for displaying high-definition video. To display standard definition video, use the Composite or S-Video ports. When available, use S-Video instead of Composite for a higher quality display.	
Digital Coax Audio Out—RCA jack for SPDIF digital audio out **Audio Out (3 Left-Right pairs)**—RCA jacks for stereo channel line output (line level) for amplifiers or audio switches	
Digital Coax Audio In—RCA jack for SPDIF digital audio in **Audio In (2 Left-Right pairs)**—RCA jacks for stereo channel input (line level) for one stereo analog source	
Video Sense In-Out (2 pairs)—Composite In-Out port pairs for monitoring up to two video In sources, such as DVD players or VCRs, that allow the system to determine the On/Off status of devices. Each Out port allows the signal to loop through the Controller and continue to its intended video connection. See "Use Video Sense Loops" for more information.	
Ethernet—RJ-45 for a 10/100 BaseT Ethernet connection	

USB (2 ports)—For external storage device with USB support (such as FAT32 formatted devices). See “Set up External Storage Device” for more information or for connecting the optional WiFi adapter C4-NWA-11G-USB.

Contacts (4 sets)—Pluggable terminal block connectors for one dry contact closure, logic input connection, door contact sensor, or motion sensor. Provides power for small devices (12V), signal input (SIG), return path (GND). The current, 250 mA, is shared across all 4 sets of contacts.

Relays (4 sets)—Pluggable terminal block connectors for one normally closed or normally opened switchable connection, such as a blind, a fireplace, or a projector screen. The set contains a connection for Normally Opened (NO), Normally Closed (NC), and Common (COM). Relays are rated for 24 V 6 A maximum operation.

Serial (4 sets)—DB9 connector for a serial device, such as a receiver or disk changer. See “Connect the Serial Ports” for more information.

IR Out (6)—3.5 mm jacks for up to six IR output transmitters. See “Set Up IR Emitters or IR Blaster” for more information.

Use the remaining content in this section to learn more about some of these connection options.

Use Video Sense Loops

Video sensing can enhance the ability to sense the power state of a device, such as whether the device is on or off. If you need to add video signal sensing capabilities for a video device (such as a VCR, DVD player, etc.), connect one of the device’s composite Video Out ports to a HC-500 Video Sense In port. Then use the companion Video Sense Out port for the device’s video out as needed.

For Video Sense only (no loop-through), connect a device’s Composite Video Out port to one of the two Video Sense In ports.

Use Pluggable Terminal Block Connectors

For the Contact and Relay ports, the HC-500 makes use of pluggable terminal block connectors—removable plastic parts to lock in individual wires. These connectors are included.

To connect a device to the Pluggable Terminal Block:

1. Insert one of the wires required for your device into the appropriate opening in the Pluggable Terminal Block you reserved for that device (refer to Figure 1 on page 2).

   For example, if you were adding a motion sensor, you would connect its wires to the following Contact openings: power input to +12V output signal to SIG, and ground connector to GND. See the sections that follow for instruction on connecting the various protocols.
2. Lower the openings latch until it locks the wire in place.
3. Repeat Steps 1-2 for all wires required for your device.

NOTE: When you connect dry contact closure devices, such as door switches, connect the switch between +12V (Power) and SIG (Signal).

Connect to a Contact Port

The HC-500 provides four contact ports. See the following figures to determine how to connect the device to a contact port.

Figure 1: Contact Port for Voltage Source (i.e. Motion Sensor)

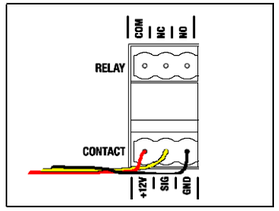


Figure 2: Contact for Dry Contact (i.e. Door Contact Sensor)

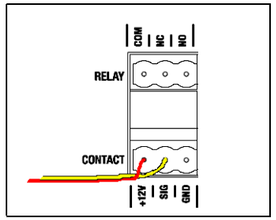
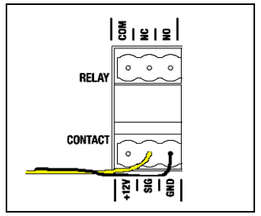


Figure 3: Contact for Self-Powered Voltage Source Device



Connect to the Relay Ports

The HC-500 provides four relay ports.

For most applications, attach one wire to the common terminal and the other to the normally open terminal. The relay switches closes when the relay is activated. The HC-500 can support applications that require a normally closed contact.

Figure 4: Relay Port: Normally Open

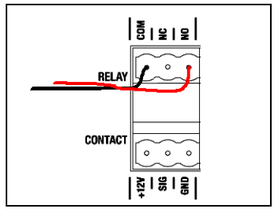
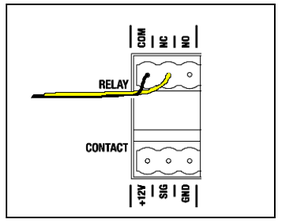


Figure 5: Relay Port: Normally Closed



Connect the Serial Ports

The HC-500 provides four DB9-style serial ports. Connect a device to the HC-500, like a receiver or disk changer, by aligning the pins and tightening the screws. Serial ports support many different band rates but do not support hardware flow control.

Set Up IR Emitters or IR Blaster

Your system may contain third-party products that are controlled with IR commands (usually through remote controls). To provide a way for the Home Controller to control a device that only recognizes IR commands, complete one of the following setups: IR Emitters or IR Blaster.

IR Emitters

1. Plug the 3.5 mm connector end of one of the six IR stick-on emitters provided into an IR Out port on the HC-500.
2. Place the stick-on emitter end over the IR receiver on the media player, TV, or other target device to drive IR signals from the HC-500 to the target.

IR Blaster

In addition to IR emitters, the HC-500 is also equipped with an IR blaster, which is located just under the front LEDs. To use the blaster instead of an IR emitter:

1. In Composer, connect Front IR Out of the Home Controller to the IR In of the device you wish to control.
2. Test and verify that the HC-500 is positioned in such a way that the blaster can reach the device you wish to control.

Troubleshooting

To reset the HC-500, press and hold the identify button until the WiFi LED blinks orange, signaling the start of the boot process.

To reset to network defaults (wired connection), power cycle the HC-500 and hold the identify button until the Data, Link, and Power LEDs are solid blue, then immediately release.

If during the boot sequence, the WiFi LED stays orange, press and hold the identify button until the LED blinks blue, then release.

Regulatory Compliance

This product has been designed and tested to the following U.S., Canadian, European, Australian, and New Zealand standards:

IMPORTANT! Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.

North America

Federal Communications Commission (FCC)

FCC ID: R33C4HC5002—This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Edison Test Lab (ETL)

This product has been tested by ETL and has been found to be in compliance with:

UL60065, 7th Edition, 2006 + A1; 2006—Audio video and similar electronic apparatus - safety requirements

CSA C22.2 No. 60065-03 1st Edition—Audio video and similar electronic apparatus - safety requirements

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Industry Canada

This Class B digital apparatus complies with Canada ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CAN/CSA-C22.2 No. 60065-03 1st ed., 2006-04 +A1: 2006 (Audio, video, and similar electronic apparatus)

Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'opération est sujette aux deux conditions suivantes : (1) ce dispositif peut ne pas causer l'interférence et (2) ce dispositif doit accepter n'importe quelle interférence, y compris l'interférence qui peut causer le fonctionnement peu désiré du dispositif.

Canadian ID IC:7848A-C4HC500E

Europe: CE Declaration of Conformity

European Contact Information

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Tel (801) 523-3100

Product: **Home Controller HC-500**

The undersigned hereby declares, on behalf of Control4 Corporation, that the above-referenced product, to which this declaration relates, is in conformity with the provisions of:

- Council Directive 89/336/EEC (May 3, 1989) on Electromagnetic Compatibility
- Council Directive 1999/5/EC (Mar 9, 1999) on Radio & Telecommunication Terminal Equipment (R&TTE)
- Council Directive 73/23/EEC (Feb. 19, 1973) on Low Voltage Equipment Safety
- Council Directive 93/68/EEC (Jul. 22, 1993) Amending Directives 89/336/EEC and 73/23/EEC

and has been tested to the requirements of, and shown to be in compliance with, the following requisite standards:

- IEC 60065/EN 60065 - 2002 Audio Video and similar electronic apparatus
- EN 55022: 2006 Information Technology Equipment
- EN 55024: 1998 + A1: 2001 Information Technology Equipment—Immunity characteristics—limits and methods of measurement

The Technical Construction File required by these Directives is maintained at the corporate headquarters of Control4, Salt Lake City, Utah, U.S.A.

Signed,

Paul E. Nagel—Vice President of Engineering, December 30, 2007

Australian / New Zealand

- AS/NZS CISPR 22: 2002—Information Technology Equipment—Radio disturbance characteristics.

Recycling

For recycling information, please go to www.control4.com/recycling.

About This Document

 Part Number: 200-00050 Rev C