

HC-250 Controller Installation Guide



Supported Model

- C4-HC250-BL – HC-250 Controller, Black

Introduction

The Control4® HC-250 Controller (HC-250) provides ways to control lights, home theaters, distributed audio and video systems, and other devices controlled by Infrared (IR), IP, Serial, Contact, or Relay connections. The controller has a fast processor, built-in WiFi, HDMI for audio and video, improved ZigBee® radio, and is perfect for smaller systems!

The HC-250 also provides extensive media management for audio and video content: CDs, DVDs, and Blu-ray Discs, or digital media stored on connected devices. Use an external storage device with USB or NAS connectivity to store music and photos. The HC-250 fits easily behind a TV, stacked with AV devices, or mounted on a rack using the Rack Mount Kit (sold separately).

After you install and configure the HC-250 (using the Composer Pro software) along with other system components, your customers can control their system using the On-Screen Navigator, MyHome apps, remotes, touch screens, or any other Control4-supported interface devices (sold separately).

Box Contents

The following items are included in the HC-250 box:

- HC-250 Controller
- AC power cord
- IR emitters (4)
- Universal Television Mounting Plate
- Screws (4)
- Contact/Relay Terminal Block
- Ferrite clamps (2)
- Warranty Card

Accessories Available for Purchase

- Rack Mount Kit (C4-1URMK1B-B or C4-1URMK2B-B)
- Serial Cable Kit (C4-CBL3.5-DB9B)

Warnings



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

AVERTISSEMENT! Pour réduire le risque de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.



CAUTION: In an over-current condition on USB or contact output the software disables the output and then blinks the power LED for 10 seconds. When a USB overcurrent fault is detected, you will see the power light blink the LED five (5) times per second. When a contact overcurrent fault is detected, you will see the power light blink the LED 12 times a second. After the 10-second blinking period is over the over-current circuit will be re-enabled. If the over-current condition remains, then the same sequence will repeat itself.

ATTENTION : Dans une condition de surintensité sur USB ou sortie de contact le logiciel désactive sortie, puis le DEL Power clignote pendant 10 secondes. Quand une erreur de condition de surintensité sur USB est détectée, vous verrez le DEL Power clignoté le DEL (5) fois par seconde et puis quand un défaut de condition de surintensité sur contact est détecté, vous verrez le DEL

HC-250 Controller Installation Guide

clignoté 12 fois par seconde. Après la période de 10 secondes de clignotement, le circuit de sur-courant sera réactivé. Si la condition de surintensité reste donc la même, la séquence se répète.

For more information, refer to the Products or Resources pages at www.control4.com.

Requirements and Specifications



NOTES:

- (1) We recommend using Ethernet rather than WiFi for the best network connectivity.
- (2) The Ethernet or WiFi network should be installed prior to starting the HC-250 installation.
- (3) The HC-250 is **only compatible with PoE injectors** that have DC ground isolated from AC ground. The easiest way to determine if this is the case is to use PoE injectors that only have a two-prong AC power cord. You can find additional PoE information on the Control4 Knowledgebase.
- (4) **Ferrite clamp installation.** When installing a Control4® HC-250 Controller, also attach the two (2) ferrite clamps to the Ethernet cable no farther than 6 inches from the HC-250 Ethernet jack.

The software required to configure this device is Composer Pro. See the *Composer Pro User Guide* for details.

HC-250 Specifications

Model Number	C4-HC250-BL
Network	Ethernet—required WiFi (only supported when the unit is used in a single-controller system or as a Secondary Controller)
Media Recognition	Online CD/DVD/Blu-ray recognition and media information service. Supports MP3, AAC, FLAC.
Video	HDMI 1.4 output; Component Video output; SD 480i; HD 720p, 50-60Hz.
Audio Playback Formats	MP3: 32kbps to 320kbps, CBR, VBR, AAC, and FLAC
Display	LED indicators
Power Requirements	100-240 VAC, 60/50 Hz, 0.25 A PoE requirement: 13W
Power Consumption	Max: 44W, 150 BTUs/hour. Idle: 24W, 82 BTUs/hour
Operating Temperature	32° - 104° F (0° - 40° C)
Storage Temperature	-4° - 149° F (-20° - 65° C)
IR Out	5V 27 mA max/output
IR Capture	0-60 KHz
Contact (1)	DC - 36V maximum operation (low voltage) Maximum output current for 12V rail: 125mA
Relay (1)	AC - 36V, 2A DC - 24V, 2A maximum operation (low voltage)
Dimensions (H x W x D)	1.23" (31.19 mm) x 8.59" (218.13 mm) x 4.92" (125.01 mm)
Weight	1.3 lbs/0.589 kg
Shipping Weight	2.7 lbs/1.224 kg

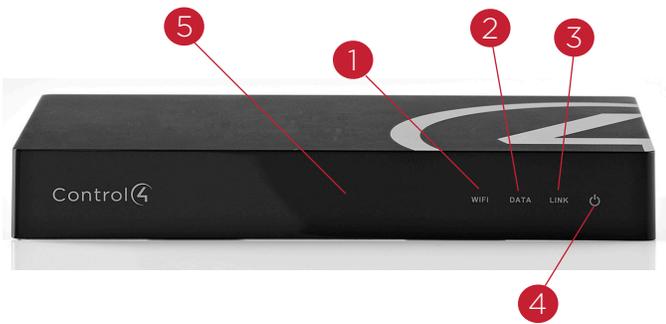
Additional Resources

The following resources are available for more support.

- Control4 Knowledgebase and Forums
- Control4 Technical Support
- Control4 website: <http://www.control4.com>
- Composer documentation in online help or PDF format available on the dealer portal

Front View

Figure 1. Front View



- 1 **WiFi LED.** This LED blinks first Red, then Orange, and finally Blue during the boot process. When 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. Color/signal strength indicators: Orange=Fair to Good, Blue=Excellent, Red=Poor Signal Strength, and No Light=No connection.
- 2 **Data LED.** The Blue LED indicates that the controller is streaming audio.
- 3 **Link LED.** The Blue LED indicates that the controller has been identified in a Control4 Composer project and is communicating with Director.
- 4 **Power LED.** The Blue LED indicates that AC or PoE power is present. The controller turns on immediately after power is applied to it.
- 5 **IR Window/IR Blaster.** For learning IR codes.

Back View

 **NOTE:** Audio cables are not provided with this product.

Figure 2. Back View



- 1 **Power Plug Port.** AC power receptacle for an IEC 320 power cord.
- 2 **Ethernet/PoE.** RJ-45 jack for a 10/100 BaseT Ethernet connection. Supports PoE (802.3af).
- 3 **Audio In (1).** 3.5 mm jack for stereo channel input (line level) for one (1) stereo analog source.
- 4 **Audio Out (1).** 3.5 mm jack for stereo channel line output (line level) for amplifiers or audio switches.
- 5 **Video Out.** An HDMI port to display navigation menus on a monitor or TV. Also an Audio Out over HDMI.
- 6 **Video Out.** Component port.



NOTE: Use only an HDMI or Component cable in one of these ports, not both.

- 7 **USB.** One (1) port for an external storage device or a USB drive (e.g., FAT32-formatted devices). See “Using External Storage Devices” in this document for more information.
- 8 **Identification Button.** Easily-pressed button to identify the device in Composer Pro.
- 9 **IR and Serial Outs (4).** 3.5 mm jacks for up to four (4) IR emitters or for a combination of IR emitters and serial devices. Ports 1 and 2 can be configured independently for serial control, e.g., receivers or disc changers, or for IR control. See “Set Up IR Emitters or IR Blaster” in this guide for more information.
- 10 **Factory Restore Button.** Restores the controller to its factory defaults. This also reboots the controller.
- 11 **Contact (1).** Pluggable terminal block connector for one (1) dry contact closure, logic input connection, e.g., door contact sensor, or motion sensor. Provides power for small devices (12V), signal input (SIG), and return path (GND).
- 12 **Relay (1).** Pluggable terminal block connector for one (1) Normally Closed or Normally Opened switchable connection, e.g., a blind, a fireplace, or a projector screen. The set contains a connection for Normally Opened (NO), Normally Closed (NC), and Common (COM).

Installation Instructions

To install the HC-250:

- 1 Ensure that the home network is in place before starting system setup.** The HC-250 requires a network connection (Ethernet - preferred or WiFi) to use all of the features as designed. When connected, the controller can access web-based media databases, communicate with other IP devices in the home, and access Control4 system updates.
- 2 Mount options.** The HC-250 can be mounted or placed behind a TV, mounted on a wall, placed in a rack, or stacked on a shelf. See “Wall Mount Options” below if mounting the HC-250 on a wall.
- 3 Connect the HC-250 to the network.**
 - **Ethernet.** To connect using an Ethernet connection, plug the data cable from the home network connection into the controller’s RJ-45 port (labeled “Ethernet”) and the network port on the wall or at the network switch.
 - **WiFi.** To connect using WiFi, first connect the unit to Ethernet, and then use Composer Pro’s System Manager to reconfigure the unit for WiFi.

WiFi LED. The LED blinks Orange and then Blue during the boot process. When the operating system starts running, the WiFi driver changes the LED color depending on the signal strength of its connection to its associated access point. Colors for signal strength: Orange=Fair to Good, Blue=Excellent, No Light=No connection or not enabled, and Red=Poor signal strength.

- 4 Power up the controller.** Plug the power cord into the controller’s power plug port and then into an electrical outlet. If you are powering the controller using PoE, you can skip this step.
- 5 Connect the system devices.** Attach the devices as described in “Connect the Devices.”
- 6 Set up any external storage devices as described in “Setting Up External Storage Devices” in this document.**

Wall Mount Options

- Mount the HC-250 horizontally using one (1) standard single-gang back box (sold separately). The wall mounting plate has four (4) horizontal sets of slots. Install a single-gang back box

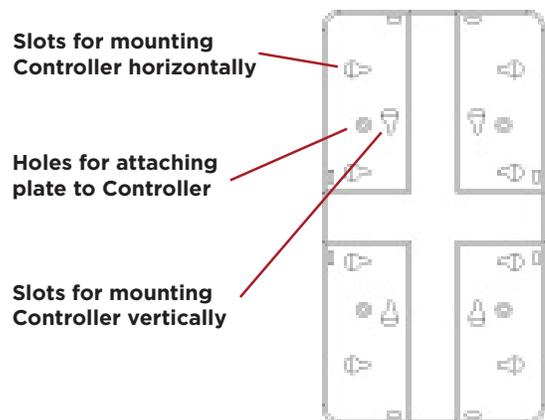
allowing the screws to protrude .08” from the wall.

- Mount the HC-250 horizontally or vertically using one (1) standard double-gang back box (sold separately). Install a standard double-gang back box allowing the screws to protrude .08” from the wall.
- Mount the HC-250 horizontally or vertically (see Figure 3) using four (4) screws (not provided) placed directly into a wall stud or studs. Using the mounting plate as a template, screw the four (4) screws into a stud to align with the four (4) center slots for vertical positioning or into two (2) studs to align with the four (4) corner slots for horizontal positioning and allowing the screws to protrude .08” from the wall.



NOTE: To check the fit of the screws, place the wall mounting plate over the screws before attaching it to the bottom of the controller.

Figure 3. Screw Locations



Mount the HC-250

- 1** Use the four (4) screws (provided) to attach the mounting plate to the bottom of the controller. Ensure that the narrow end of the slots is on top when the device is installed.
- 2** Arrange the wires to fit in the wire channels on the mounting plate.
- 3** Line up the slots on the mounting plate with the screws.
- 4** Press the device onto the screws and slide it down until the screws are in the narrow end of the slots.
- 5** Connect all applicable devices to the HC-250 using the connection options described next.

Connect the IR Ports/Serial Ports (Optional)

The HC-250 provides four (4) IR ports; Ports 1 and 2 can be reconfigured independently for serial communication. If not used for serial, they can be used for IR. Connect a device to the HC-250, for example, a receiver or disc changer, using the special serial cable (optional, C4-CBL3.5-DB9B). Serial ports support many different baud rates (acceptable range: 1200 to 115200 baud for odd and even parity).

The following table shows the serial communication values. Also see Knowledgebase article #268 for correct pinouts.

	Hardware Flow Control	Odd Parity	Even Parity	No Parity	Other
Serial Port 1		X	X	X	
Serial Port 2		X	X	X	

To configure a port for serial or IR, make the appropriate connections in your project using Composer Pro. See the *Composer Pro User Guide* for details.

Set Up IR Emitters or IR Blaster

Your system may contain third-party products that are controlled through IR commands. To provide a way for the HC-250 to control a device that only recognizes IR commands, complete one of the following setups:

- IR Emitters
- IR Blaster

IR Emitters

- 1 Plug the 3.5 mm connector end of one of the four (4) IR stick-on emitters provided into an IR Out port on the HC-250.
- 2 Place the stick-on emitter end over the IR receiver on the Blu-ray player, TV, or other target device to drive IR signals from the HC-250 to the target.

IR Blaster

The HC-250 is also equipped with an IR blaster, for learning codes, which is located just left of the front LEDs. To use the blaster rather than an IR emitter:

- 1 In Composer Pro, connect the **IR Blaster** of the controller to the **IR In** for the device you want to control.
- 2 Test and verify that the HC-250 is positioned in such a way that the blaster can reach the device you want to control.

Setting Up External Storage Devices

You can store and access media from an external storage device, for example, a network hard drive or USB memory device, by plugging the USB drive into the USB port and configure or scan the media in Composer Pro.



NOTES:

- (1) We support only USB drives that are externally powered or USB sticks (solid state). Self-powered USB drives are not supported.
- (2) When using USB storage devices on an HC-250, you can only use one (1) partition with a 2TB maximum size. This limitation applies to the USB storage on all other controllers also.

Composer Pro Driver Information

Select the **Home Controller HC250** driver in Composer Pro and add it to your Composer project. See the *Composer Pro User Guide* for details.

Troubleshooting

Factory Restore Button



CAUTION! The Factory Restore process will remove the Composer project.

To restore the HC-250 for system recovery to the factory default image, perform the following steps:

- 1 Disconnect power to the HC-250.
- 2 Insert one (1) end of a paper clip into the small hole on the back of the HC-250 labeled 'Factory Restore.'

- 3** While pressing and holding the **Factory Restore** button, power on the HC-250.
- 4** Hold the button until the WiFi Status LED blinks Orange. This should take five (5) to seven (7) seconds. The Status LED will blink Orange while the restore is running.

Factory Resets

- Press the **Factory Restore** button, but do not hold it down. The controller will reset.

Identification Button (Network Reset)

To reset the HC-250 network settings to the default, perform the following steps:

- 1** Disconnect power to the HC-250.
- 2** While pressing and holding the **ID** button on the back of the HC-250, power on the HC-250.
- 3** Hold the **ID** button until the Data, Link and Power LEDs are solid Blue, then immediately release the button.
- 4** If during the boot sequence the Status LED stays Orange, press and hold the **ID** button until the LED blinks Blue, and then release it.

Regulatory/Safety Information

To review regulatory information for your particular Control4 products, see the information located on the Control4 website at: <http://www.control4.com/regulatory/>.

Warranty

Go to <http://www.control4.com/warranty> for details.