

Control4 Heavy-Duty Power Controller

Electrician's Guide



Introduction

The Control4® Heavy-Duty Power Controller (ZCA-HPC10A) is wirelessly-controlled power controller specifically designed for use with the Control4® home automation system. This device gives the Control4-automated homeowner the ability to turn high-voltage items on or off based on the time of day and device management from a remote location using the Control4 4Sight™ service.

The Heavy-Duty Power Controller also allows installers to set up a stand-alone configuration that doesn't require integration with the Control4 home automation system. This option requires "hard-wiring" low-voltage dry contact switches to the device.

The device consists of two, high-voltage, 100-240VAC 30 Amp independently-configurable relays that can control the following types of loads in residential or commercial applications:

- Motors
- Resistive loads
- Ballast-type loads

The control and configuration of these relays can occur through the Control4 Composer application (Control4 operating mode) or directly on the device (stand-alone operating mode).

Site requirements and wiring options

- Ensure that the device is placed in a safe, moisture-free location as specified in accordance with all local and national electrical codes for a Type 1 device.
- Ensure that appropriate, accessible disconnect devices (circuit breaker) are installed into the fixed wiring of the device.
- Ensure that the device cover is replaced securely after device setup and configuration.

Warning: An accessible disconnect device shall be installed into the fixed wiring. Device must be wired by an authorized electrician in accordance with the National Electrical Code, ANSI/NFPA 70. In the European community, the unit must be wired by an authorized electrician in accordance with all applicable European codes.

Specifications

Heavy-Duty Power Controller (ZCA-HPC10A)		
Power Input	100-240VAC at 50/60 Hz, 0.1 A or 12VDC, 200 mA	
Low-voltage wiring	20-28 AWG gauge wire—dry contact only	
High-voltage wiring	8-14 AWG gauge wiring depending on load*	
Relay contact ratings (per relay)		
Load type	Voltage	Contact rating
General Purpose	240VAC	30 A
UL resistive	240VAC	25 A
Motor	120VAC	1 HP
Motor	240VAC	2 HP
Ballast	277VAC	10 A
Other		
Operational environment	Type 1 Device shall be mounted in a dry moisture protected location in accordance with National Electrical Code. For use in pollution degree #2 environments.	
Maximum ambient operational temperature	140°F (60°C)	
Dimensions (H × W × D)	2.2" (56 mm) × 10.5" (267 mm) × 4.6" (117 mm)	
Weight	2.78 lbs (1.26 kg)	

*An accessible disconnect device shall be installed into the fixed wiring. Device must be wired by an authorized electrician in accordance with the National Electrical Code, ANSI/NFPA 70. In the European community, the unit must be wired by an authorized electrician in accordance with all applicable European codes

Enclosure

The HPC10A provides a metal Type 1 electrical enclosure for easy wiring and product mounting. There are 1/2" and 3/4" knock-out ports on the side of the enclosure to allow for conduit connectors and/or feedthrough cable clamp connectors. The enclosure has a paint-ready black powder coated textured finish. Loosening the four side-mounting screws releases the lid, exposing the electronics inside and allowing for generous room to attach high-voltage load wires and low-voltage control lines. A 2.4 GHz ZigBee radio controls the device if used in the Control4 Home Automation System. If used as a stand-alone device, the radio is disabled.



Setting the operational mode

The default operational mode of the device is set for Control4 mode. In this mode, the four DIP switches on the board are all set to the OFF position. This mode indicates that the operation of the device is 100% configurable through the driver installed in the Control4 project.

For a summary of the operational mode settings, check inside the lid of the device. The Installation Guide (ctrl4.co/hpc-ig) provides a more detailed description of each operational mode. Please note that the positioning of the DIP switches, in conjunction with the operation of the four dry contact switch inputs, determine the operation of the two load-switching relays.

Operational modes are set according to the table below:

Dip Switches				Input Mode	Input 1	Input 2	Input 3	Input 4
1	2	3	4					
Default Settings				Control4 Mode	Configured through Control4® Automation System			
Normal (Independent Relay) Modes								
OFF	OFF	OFF	ON	2 Button, Latched	Relay A Close Press: Relay A Close Release: Relay A Open	Relay A Open	Relay B Close Press: Relay B Close Release: Relay B Open	Relay B Open
ON	OFF	OFF	ON	1 Button, Momentary	1st: Relay A Close 2nd: Relay A Open		1st: Relay B Close 2nd: Relay B Open	
OFF	ON	OFF	ON	1 Button, Toggle	1st: Relay A Close 2nd: Relay A Open		1st: Relay B Close 2nd: Relay B Open	
ON	ON	OFF	ON	1 Button: Toggle Relay A Momentary Relay B	1st: Relay A Close 2nd: Relay A Open		Press: Relay B Close Release: Relay B Open	
Linked (Motor Control) Modes (All modes subject to travel and delay times. Both relays cannot close at the same time.)								
OFF	OFF	ON	OFF	1 Button, Toggle	1st: Relay A Close, 2nd: Both Open 3rd: Relay B Close, 4th: Both Open			
ON	OFF	ON	OFF	2 Button, Momentary	Press: Relay A Close Release: Both Open		Press: Relay B Close Release: Both Open	
OFF	ON	ON	OFF	2 Button, Toggle	1st: Relay A Close 2nd: Both Open		1st: Relay B Close 2nd: Both Open	
ON	ON	ON	OFF	3 Button, Latched	Relay A Close	Both Open	Relay B Close	
OFF	OFF	ON	ON	Travel Time Limit Adj. Default 15 Seconds.	Press and hold to set time. See manual for details.			
Simulated SPDT Modes (Default Mode: Relay A Open, Relay B Closed)								
ON	OFF	OFF	OFF	1 Button, Momentary	Press: Relay A Close Release: Relay B Close			
OFF	ON	OFF	OFF	1 Button, Toggle	1st: Relay A Close 2nd: Relay B Close			
ON	ON	OFF	OFF	2 Button, Latched	Relay A Close		Relay B Close	

Key: 1st = "First Press" or "First Contact Input Closure," 2nd = "Second Press" or "Second Contact Input Closure," etc.

DIP switch

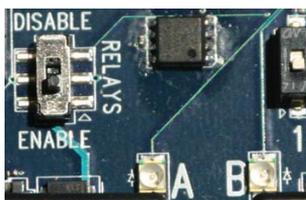
The HPC10A includes a single, four position DIP switch located on the product as shown.



Control4 recommends you remove power from the unit prior to making DIP switch setting changes. However, if this scenario isn't an option, the installer needs to know that DIP switch changes will cause the product to reset, similar to how the device responds when turned on initially. This response is normal operation.

Relay Enable/Disable switch

The Relay Enable/Disable Switch provides the installer with functional device testing that doesn't require the high-voltage relays. The switch proves helpful for repeated testing after wiring the device for loads to ensure correct setup and program operation. The relay enable/disable switch can be moved at any time during operation.

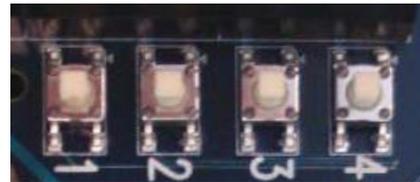


Note: Ensure that the relay enable/disable switch is in the "enable" position for normal product operation. The "disable" switch position is only used during product setup and testing.

There are two LEDs on the board labeled A and B as shown above. These LEDs correspond to the operation of each relay. After supplying power to relay A or B, the corresponding LED will glow green to indicate the state of the relay (ON when powered or closed, OFF when not powered or open). If the relay enable/disable switch is in the "disable" position, the ID LED will flash yellow, indicating the device is in Relay Disable Mode. The device will now function as normal with the LEDs indicating relay operation. However, the high-voltage relays will NOT energize. This mechanism gives the installer a way to test device operation without engaging the high-voltage load. After completing device setup and testing, the installer must return the switch to the "enable" position for proper operation.

Input switches

For setup and testing convenience, you'll find four switches mounted to the board. They are directly wired in parallel to the four input devices that can be wired into the low-voltage connector. These switches make testing device functionality and operation easy during the initial set up, configuration, and troubleshooting.

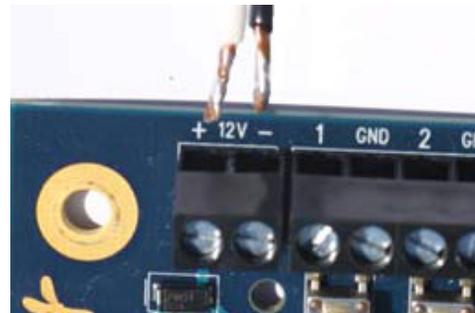


Powering the Heavy-Duty Power Controller

The Heavy-Duty Power Controller is powered by one of two methods:

- 100-240VAC line power connected to the high-voltage terminals as illustrated in *Figure 2*, *Figure 3*, or *Figure 4* of the high-voltage sample wiring diagrams section
- 12VDC power supply connected to the + - DC in low-voltage terminals shown in *Figure 1*.

Figure 1. Low-Voltage DC Power Supply Wiring



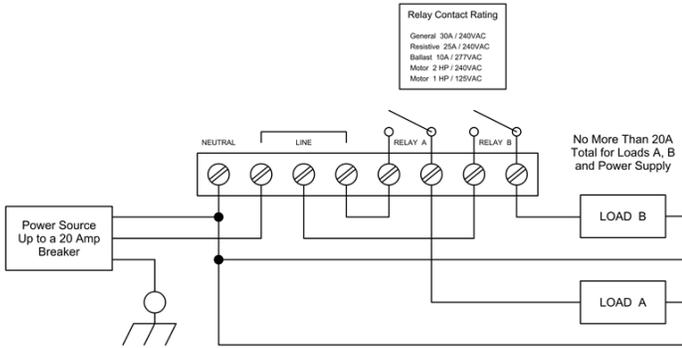
No power jumpers or settings are required—connect one or the other (line power or external DC power supply).

The Heavy-Duty Power Controller is designed for permanent mounting in a fixed location. Power cables can be connected to the device using conduit or by connecting flexible power lines to the device with feed-through cable clamps. For purposes of mounting and installation, installers should treat the Heavy-Duty Power Controller as a Type 1 electrical device.

High-voltage wiring

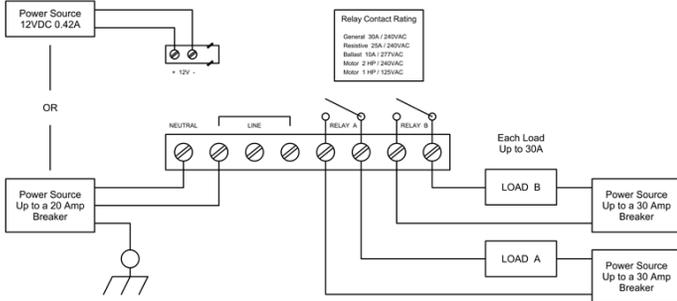
Option 1: Applicable where a single external breaker to the device is used and the load is powered from this power source:

Figure 2. High-Voltage Wiring-Single Power Breaker



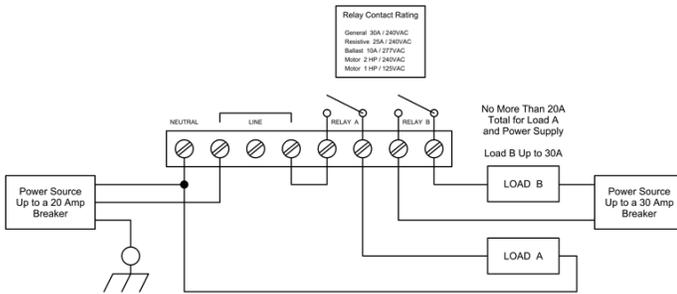
Option 2: Applicable where each load uses its own external circuit breaker:

Figure 3. High-Voltage Wiring-Individual Load Breakers



Option 3: Applicable where a combination of power sources are used; load "A" is powered by an external breaker in the load path, and load "B" is powered by the device's external breaker or power source:

Figure 4. High-Voltage Wiring-Load and Power Breakers



Note: Ensure that LOAD A and/or LOAD B do *not* exceed the relay contact load ratings.

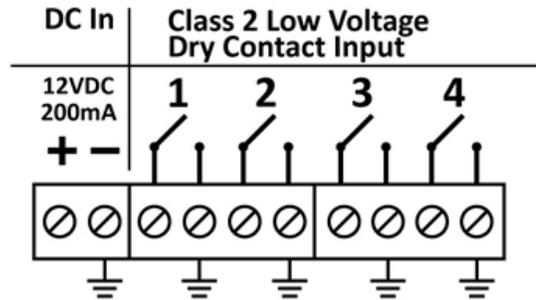
Low-voltage wiring

The low voltage input connector consists of four dry contact inputs. Connecting any type of dry contact switch into these inputs will be sufficient to control the device. Dry contact switch options include:

- Magnetic reed switches
- Relays
- Mechanical switch contacts

For installer convenience, the PC board also includes dry contact switches that correspond to the four dry contact inputs. Pressing these on-board switches can simulate the external switch activity.

Figure 5. Low-Voltage Wiring Diagram



Note: The dry contact inputs should not have anything wired into them that contain an electrical source of any kind (battery or power supply). These inputs are meant for dry contact switches only.

Regulatory/Safety information

To review regulatory information for your particular Control4 products, see the information located on the Control4 website at ctrl4.co/reg.

More help

For the latest version of this document and to view additional materials, open the URL below or scan the QR code on a device that can view PDFs.



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