

Controlling Receptacles...

...Reducing Energy Consumption

What is a Plug Load?

Modern commercial buildings are highly automated systems that actively respond to the needs of their occupants; automatically turning lights on and off and adjusting the temperature to maximize comfort and efficiency.

A plug load is energy consumed by a device that is plugged in to a receptacle. It is not uncommon to see task lighting, flat panel TVs, and monitors left on when a building is not occupied. These plug loads are largely ignored and are drawing power even when in standby. Plug loads consume roughly 25% of commercial electricity use and provide large opportunities for building managers to cut energy consumption, decrease costs, and increase the bottom line.

Why do it? - The Basics

Codes and standards are now mandating that certain electrical outlets be automatically controlled.

ASHRAE 90.1-2010 requires that at least 50 percent of all receptacles be controlled either by an occupancy sensor or by an automatic control device functioning on a time-of-delay (a device intergrated into the electrical system capable of controlling the circuit based on a user configurable or fixed schedule) that turns off receptacles at specific programmed times.

California Title 24 2013 requires that receptacles must be equipped with automatic shutoff controls and all controlled receptacles must be permanently marked to differentiate them from uncontrolled receptacles. It mandates that at least one controlled receptacle shall be installed within 6 feet from each uncontrolled receptacle.

What is Required?

ASHRAE 90.1-2010

8.4.2 Automatic Receptacle Control.

At least 50% of all 125 volt 15- and 20- Ampere receptacles, including those installed in modular partitions, installed in the following space types:

- a. Private offices
- b. Open offices
- c. Computer Classrooms

shall be controlled by an *automatic control device* that shall function on:

- a. a scheduled basis using a time-of-delay operated control device that turns receptacles off at specific programmed times - an independent program schedule shall be provided for areas of no more than 25,000 square feet but not more than one floor, or
- b. an occupant sensor that shall turn receptacles off within 30 minutes of all occupants leaving a space, or
- c. a signal from another control or alarm system that indicates area is unoccupied.



California Title 24 2013

Section 130.5 Electrical Power Distribution Systems

(d) Circuit Controls for 120V AC Receptacles. In all buildings, both controlled and uncontrolled 120 volt receptacles shall be provided in each private office, open office area, reception lobby, conference room, kitchenette in office spaces, and copy room. Additionally, hotel/motel guest rooms shall comply with Item 5.



Controlled receptacles shall meet the following requirements, as applicable:

1. Electric circuits serving controlled receptacles shall be quipped with automatic shut-OFF controls following the requirements prescribed in Section 130.1(c) (1 through 5); and
2. At least one controlled receptacle shall be installed within 6 feet from each uncontrolled receptacle or a splitwired duplex receptacle with one controlled and one uncontrolled receptacle shall be installed; and
3. Controlled receptacles shall have a permanent marking to differentiate them from uncontrolled receptacles; and
4. For open office areas, controlled circuits shall be provided and marked to support installation and configuration of office furniture with receptacles that comply with Section 130.5(d) 1, 2, and 3; and
5. For hotel and motel guest rooms at least one-half of the 120-volt receptacles in each guest room shall be controlled receptacles that comply with Section 130.5(d) 1, 2, and 3. Electric circuits serving controlled receptacles shall have captive card key controls, occupancy sensing controls, or automatic controls such that, no longer than 30 minutes after the guest room has been vacated, power is switched off.
6. Plug-in strips and other plug-in devices that incorporate an occupant sensor shall not be used to comply with this requirement.



Hubbell's Load:Logic™ is a comprehensive system that will assist in attaining ASHRAE 90.1-2010 and California Title 24 2013 compliance and reduce facility energy consumption. Whether it is an existing system or a new one, Hubbell offers a broad range of occupancy/vacancy sensors, control units and receptacles that meet or exceed the latest standards.

Occupancy sensors are already required in most applications to control lighting. These same sensors can now be utilized to control electrical outlets. This minimizes the installation cost and provides a control method that adapts to how the space is actually being used.

Occupancy Based Control

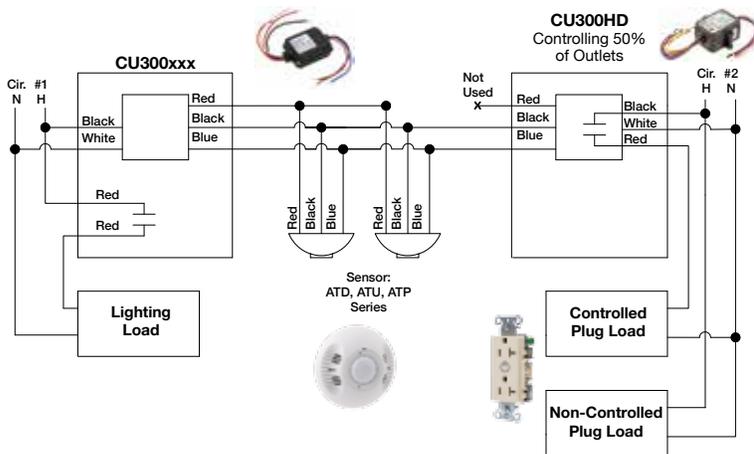
Ease of Deployment

Whether you choose a wired or wireless approach, Hubbell provides you with a solution that utilizes existing occupancy/vacancy sensors. This lowers the cost of a system installation.

The wired option is a common installation method where every other (alternating) receptacle or a split receptacle is wired to a low voltage control circuit to achieve the required 50% automatic receptacle control requirement. This interface between the low voltage and the receptacle load is accomplished by adding Hubbell CU300HD heavy duty control unit.

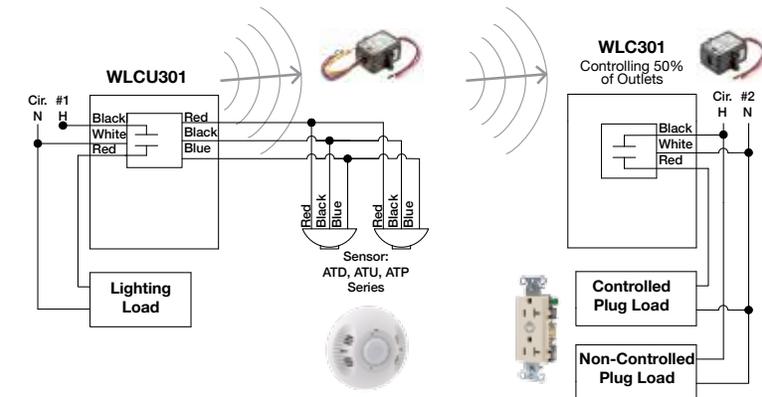
The wireless option eliminates the need for extra wires, provides flexibility to add new devices and significant installation savings. All Hubbell wireless Load:Logic™ products feature the proven Clear Connect™ RF technology. This makes them simple to configure and operate. There is no need for remotes, computers, software or any other device to setup a system.

How to Configure: Wired Option



CU300HD Control Unit
Robust magnetic latching relay that delivers unsurpassed and unrestricted performance for all load types. Auto or manual ON operation. Powers up to 6 low voltage sensors.

Wireless Option



WLCU301 Heavy Duty Load Controller with Integrated Wireless Transmitter
All the robustness of the CU300HD plus the integrated wireless transmitter.

WLC301 Heavy Duty Load Controller with Integrated Wireless Receiver
The integrated wireless receiver unit of the WLC301. It can receive input from up to 10 transmitters.



Also include "Install and forget" Adaptive Technology Occupancy/Vacancy sensors, wireless and low voltage switches, digital timers, enclosed relays and split circuit capable heavy duty receptacles with permanent marking labels to complete your selection for a full compliance solution.