

X10 Tutorial:

How to automate your home on a shoestring budget.

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Home Automation can be as simple as the ability to control one light source, to being as elaborate as having your computer run your whole home, even when you're away! Many people believe that automating your home is an expensive process. I'm going to dispel this belief by showing you how you can start automating your home on a shoestring budget.

The great thing about this, you can get started with just two items at a low cost of around \$30 USD, and over time build your way to a fully wireless home!

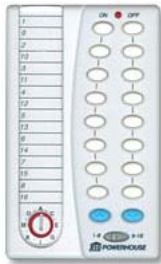
This series will focus starting on the basics and will continue to develop to a more sophisticated automated home over time. The goal is to eventually work our way towards a self-functioning home.

The Basic Devices:

X10 Products are designed to be easy to installed without the need for an expensive technician. Aside from the affordability and low costs for products, this is another reason that the *X-10* protocol is very popular amongst users.

Beginning the process of home automation requires a minimum of two things:

- 1) A *Remote Control*; and
- 2) A *Transceiver Module*



An example of a
standard X10 Remote
Control

The Remote Control:

The *remote control* will be used to perform your basic functions such as turning a device (like a lampshade) *on* and *off*. Depending on the type of remote control, you can even have the ability to dim a light bulb or make the bulb brighter. Keep in mind though, in order to perform these additional functions, the (transceiver) module used must be equipped with those features.

For home automation, a regular remote control (such as one that comes pre-packaged with your television) will be incompatible. You must have a remote control designed to communicate for the purpose of home control using *X-10* signals. A remote control such as the one shown in the image to the left can be purchased at a price of \$19.99 USD via X10's website at www.x10.com.

The Transceiver Module:

A module does not transfer signals to other modules, so can not communicate with them. It is merely designed to receive a signal then perform its own basic function. A *transceiver module* on the other hand, is a *module* with additional purposes of operation. Here are some of these things that the *transceiver module* is designed for:

- 1) Controlling another electronic device. By device I mean anything that requires electrical power and needs to be plugged in to a standard 110 volt outlet. Some examples of devices are a lampshade, a coffee maker, or a television.
- 2) Relaying signals to other modules in order for those modules to perform what they are asked to do.
- 3) Expanding the range of another *module* or *transceiver* you may have in order to use at a greater distance.

A transceiver module such as the one shown in the image below can be purchased at a price of \$12.99 USD at the X10 website at www.10.com.



An example of a standard X10 Transceiver Module as seen from multiple angles.

Installation:

Since we do not have any other additional *modules* at this time, the *transceiver* will serve as our main module to control our lampshade.

On the *transceiver* you'll notice an ON/OFF button and another switch with letters designated from A to P, this switch is also present on some remotes. By default, this switch is set to letter A. As we progress further in this tutorial, I will get into a more detailed explanation as the use of these letters. The ON/OFF button on the transceiver turns the unit on or off. Think of it as a power button. For example, like a vacuum cleaner, if you have the switch to the 'on' position the vacuum powers up, if you have the switch set to the 'off' position the vacuum then shuts down. When the transceiver is turned on, you are able to send commands to it via the remote control and have those commands performed. When the unit is shut off, the *transceiver* will not receive these commands from the *remote control*, thus, will not do as told. So for this example, make sure that the unit is turned on.

Next, find a lampshade that you would like to remotely control. Plug the electrical end of the lampshade into the transceiver, and then plug the *transceiver* into the electrical socket of the wall.

You should now be able to turn the power on and off to the lampshade by clicking either the On or Off button on your remote control. If all is functioning correctly, you now have a basic *home automation* control system.

Definitions:

Device: An item which uses electricity to function or operate.

Home Automation: The process of automating your home for means of comfort, ease, or security. Home automation involves using technology to achieve these means.

Module: A device that when sent a signal, performs a function.

Remote Control: An electronic device which sends signals to another electronic device to perform a function(s).

Transceiver Module: A special module which is used to relay signals from a remote control to a module.

X10: The leading company in home automation whose standards involve the X-10 protocol.

X-10: An industry standard protocol used for communication among devices used for home automation through the use of power line and electrical wiring.

Troubleshooting:

When I press a button on the remote, there is no response.

- 1) Do you have batteries installed in the remote?
- 2) Is your device plugged into the transceiver?
- 3) Is your transceiver plugged into an electrical outlet?
- 4) Is the switch letter on the remote control the same as the letter on the transceiver module?
- 5) Is your remote within an acceptable signal range of your transceiver of 100 ft or less?