

Motion Control

www.earthsands.com/holiday/halloween/propsmotioncontrol.html

Motion Detector Hybrid

Using a standard outdoor lighting motion detector, a simple switching power module can be accomplished. Even some simple timing (timers) on the unit can be utilized.

The best motion detector to look for is one that doesn't come already attached to a light fixture. They sell an add on kit that is used to connect an existing light fixture to the motion detector.

6' house hold extension cord \$1.00
Standard electrical box \$1.00
Standard electrical box cover \$0.50
Motion Detector Conversion Kit ~\$8.00
Total ~\$10.50

Basically, the idea is to use a PIR (Passive Infrared) detector to trigger an event. The trigger usually closes a relay of some sort providing power to some prop. What's great about using an existing PIR is that in many cases the relay and timing circuits already come packaged with the unit. The most common (cheap) units are those associated with outdoor lighting (flood lights).

Once you have the materials, following similar instructions below...

1. Cut the extension cord in half. Split the ends and strip the wire coating from each of the four wire ends.
2. Drill two holes, at opposite ends of the electrical box, and feed each pair (end) into the box. Tie a knot at the ends to prevent the wire from being pulled back through the holes, or use an electrical tie to secure the wires to the housing (box).
3. The motion detector should have 3 wires. One is the ground, the other two are to complete the 110 VAC circuit. Push all of the wires into one of the holes. One of the wires should be marked with some indication that it should be connected to the incoming power. Splice this wire from the detector to one of the incoming power (male end) wires, fastening with a wire nut. Connect the other, non-ground, wire to one of the outgoing power (female end) wires, fastening with a wire nut. Connect the remaining two wires of the extension cord to each other and fasten with a wire nut. The ground can be connected to the ground wire, if you are using a three-conductor extension cord. Cover the electrical box with the box cover.
4. To test the motion detector, plug into a 110 VAC outlet and plug a small AC lamp or other device into the female side of the setup. Make sure the device is switched on. Then attempt to trigger the motion detector. If things work, the small lamp or device should be triggered on. Settings on the motion detector should allow you to set the duration of how long the power is triggered by the detector. In most cases, these times



Figure 1-1
on converting different motion detectors (PIRs) and Haunt Master Products has an inexpensive PIR modification, but you have to provide the relay.

Figure 1-1 depicts a motion detector conversion kit. There are a few different models available, but I found this one particularly easy to work with.

Basically, it has IC (integrated circuit) and relay already housed in a small aluminum case ready for hookup. All that is needed is some simple splicing of wires and you are basically done.

I've search for the company that makes this motion detector on the web and came up empty handed. The manufacturer is Intellectron. I found this model, BC8950, at Menards hardware store for \$7.00 on sale.

Quite the bargain for a motion detector. If you can't find this model, here are some other options. The Bell's Web Site has some ideas or options. The Bell's Web Site has some ideas or options. The Bell's Web Site has some ideas or options.

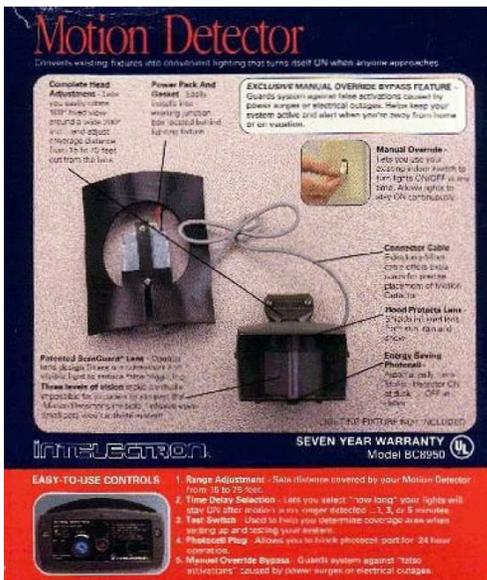


Figure 1-2

Figure 1-2 shows the backside of the motion detector box. As you can see, the PIR device is enclosed separately from the circuit and relay housing.

In my implementation, I remove the rubber gasket and place the aluminum housing in an electrical box. I then use a regular house hold extension cord as the input and output power supply.

I simply cut the cord in half, feed both end into the electrical box, splice the wires as instructed, close the box and I'm finished.

The cycles are 20 seconds, 1 minute, and 5 minutes. After the time expires, the circuit is broken. Re-triggering the motion detector repeats the cycle.



Figure 1-3 shows the completed unit. What is great about this unit is that it has several features than are useful.

It has a light sensor to keep the light from triggering in the daytime, but also comes with a plug so you can effectively trigger it in any lighting conditions.

Figure 1-3

It comes with a switchable activation timer that lets you select how long the relay will be energized. The settings are 1, 3, or 5 minutes.

It has a test switch option that triggers for only 20 seconds. This is the setting I use.

And finally, it has a range adjustment that allows you to set the distance the detector covers from 15 to 75 feet.

Quite the bargain for \$7.00!

Obtained from
Omarshauntedtrail.com