



# HCA Tech Note 212

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## Working with the Insteon motion sensor

The Insteon motion sensor (2844-222) is a handy little unit whose transmission can be received by the 2413 PowerLinc. There are a few things to know about it especially if you are used to the old X10 style motion sensors.

First off, many of its features – and the most useful ones of the timeout and the “operate only at night” setting - can’t be changed at the device. Setting configuration parameters is done using the Insteon application and the Insteon Hub. It is unfortunate that SmartHome never published programming information for this device. <sup>1</sup>

The next major difference between this motion sensor and others you may have used in the past, is that they don’t report motion after the first motion report. This means if you walk in from of the sensor it sends an ON. If you then move about in front of the sensor, while it does restart its internal countdown timer, it doesn’t send any more ON commands like older style motion sensors did.

### The problem of motion sensors

The biggest program in the use of a motion sensor is in the name itself. It sees and reports motion. This isn’t an “occupancy sensor” because if you just stop moving – reading a book, doing something in the room but outside the sensor area it can see – it sends an OFF even if you are in the room.

The simplest way to implement a room sensor is to just link the sensor to other devices and when it sends an ON then those devices go ON, and when it sends the OFF then those devices go OFF.

The problem with this simplest method is that you have no control. What if you want to have different light levels at different times of the day or have the OFF not be an OFF if some other device is ON in the room? With no “brain” the motion sensor can do only one thing. With a “brain” there are endless possibilities.

### One possible implementation

It’s always good to start with a statement of what you want to happen before you start to implement anything. Let’s try something not too complicated.

- When it’s light and the motion sensor sends an ON, set the room lights to 100%
- When it’s dark and the motion sensor sends an ON, set the room lights to 40%

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<sup>1</sup> We gave up asking for them a while back. Support for 3<sup>rd</sup> party applications is really lacking from them.



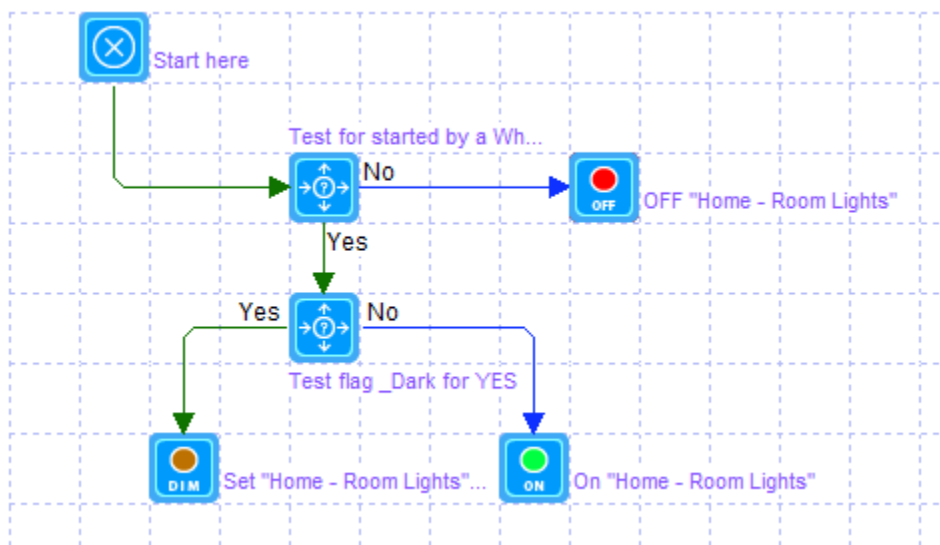
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We are going to let the OFF message from the motion sensor turn the devices OFF. But it would be nice if we could at least try to handle the case when you are in the room but stop moving while in for deep thought for a bit, and the motion sensor loses you.

The program to implement this is simple. It triggers on the motion sensor ON and OFF. It first checks the starting trigger and if it is an ON then checks for light or dark and controls the room lights as you want.

Start the program on any of these triggers:

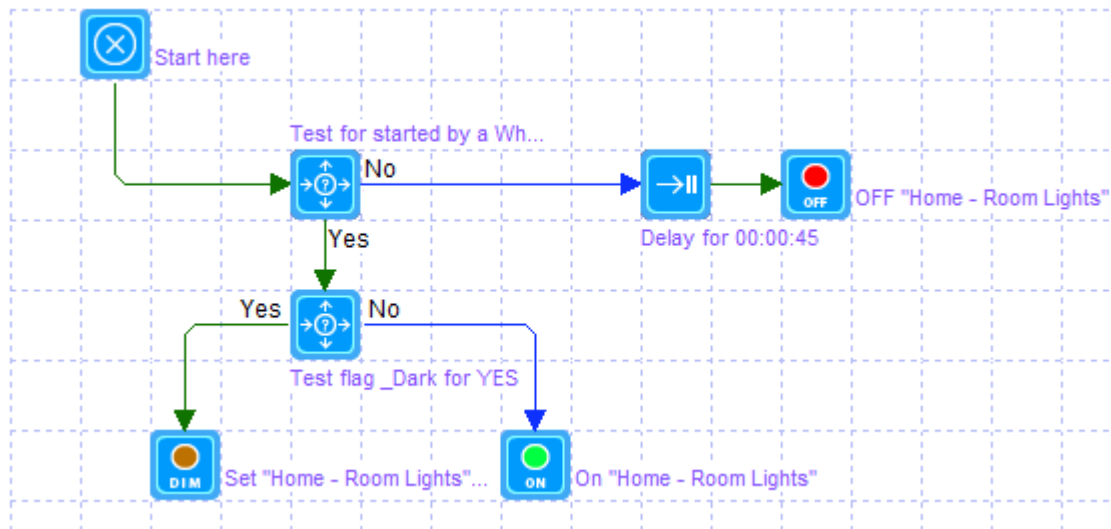
Trigger	Edit	Delete	
➤ When Home - MOTION sends On by group 1	Edit	Delete	
➤ When Home - MOTION sends Off by group 1	Edit	Delete	



The OFF case is easy in that it just controls the room lights OFF. But can we do a bit better? It might be better if when the OFF is received we don't immediately control the lights OFF but rather way a bit – a delay element – and then control the lights OFF. And during that wait, if we receive a new ON command, the program restarts. In effect, cancel the OFF and have the lights stay ON. This give us a bit of time for the motion sensor to “lose” us and then “re-acquire” us. Here is that modified program.




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The “trick” is that we want the program to restart on reception of each trigger and HCA offers a way to do that right on the “Triggers” tab of the program’s properties.

If the trigger is received while the program is running:

- ☐ Ignore it
- ☒ Restart the program from the Start Here element 
- ☐ Start a copy of the program and run it concurrently
- ☐ Add it to a received trigger queue and start the program with it when it stops after processing the current trigger

In this way, when the OFF is received, a 45 second timer starts before the OFF is sent. If during that time the motion sensor sends another ON, the delay element is abandoned, and the program restarts from the Start-Here element,

## Just a starting point

This simple program is just a starting point as you could do much more with it. For example, Ignore the OFF altogether and create your own countdown timers. Or, before doing the OFF check the state of some other device in the room and bypass the OFF depending upon the state of that device.

##end##