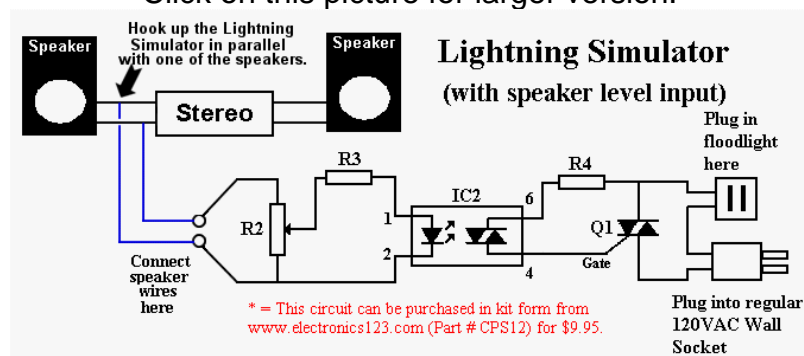


## Making lightning flashes with speaker level input

The first circuit shown below can flash a floodlight in sync with your thunder sounds by connecting the speaker wires directly as shown. ♦ The input sound level required by this circuit is 2W - 60W. You can buy this circuit in kit form from <http://www.electronics123.com/amazon/> for \$9.95 or use the parts list and schematic below to build your own. This circuit uses an opto-isolator (IC2), which means that you are physically separating the dangerous AC current from your music source and volume control (R2). ♦ It should be noted that the component designations on my drawings (R1, R2, R3, etc) differ from those on the purchased kit. Here is the parts list to build the circuit:

Part	Description
R2	1K Potentiometer
R3	330 Ohm 1/2 Watt Resistor
R4	2.7K Ohm 1 Watt Resistor
IC2	MOC-3021 Opto-Triac
Q1	If using <220W floodlight, use: 2N6075 or BT136 Triac If using up to 600W floodlight, use: 6 Amp Triac - Radio Shack #276-1000

Click on this picture for larger version:



It should be noted that you should use a LARGE heat sink on the Triac (Q1). Be sure not to touch any of the parts when the unit is plugged in, as you are dealing with high voltage and this is VERY DANGEROUS! Even the heat sink is 'HOT' with 120VAC! The Triac that comes with the kit can only handle 220W. If you wish to use a floodlight that is larger, replace it with Radio Shack number 276-1000 (6 amp Triac). This will give you the ability to control up to 600W of floodlights.

The speaker wires should be connected to the speakers and the designated spots in the circuit at the same time. ♦ The volume control (R2) should be used to adjust the sensitivity of the circuit. If your floodlight won't flash, compare your connections to the schematic above. If your circuit is wired properly and your floodlight still doesn't flash, turn up the volume of your sound source and re-adjust the volume control in the circuit (R2). Remember, for this circuit to work, your input power level must be at least 2W. If you want to use a line-level input, you must amplify the signal. For this application, use the circuit below.

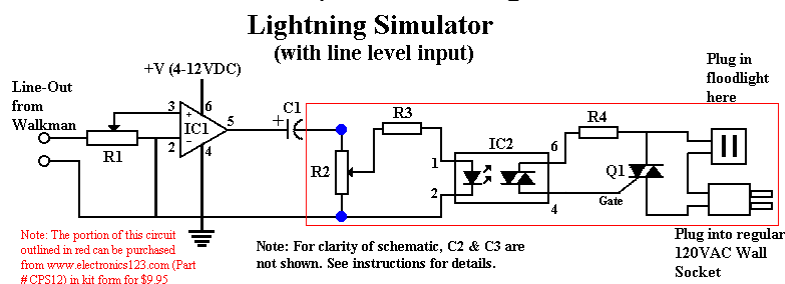
## Making lightning flashes with line level (low level) input

This circuit should be used if you are providing the "lightning simulator" with a line-level input, such as the line-out or headphone jack of a walkman. It is the same as the circuit above, with a simple audio amplifier to boost the input level. You can test the output of the audio amplifier in the circuit (the portion NOT outlined in red) by connecting an 8 Ohm speaker to where the blue dots are in the schematic. R1 is used to adjust the gain of the amplifier and R2 adjusts the sensitivity of the flashing of the "lightning simulator".

Part	Description
R1	10K Potentiometer
R2	1K Potentiometer
R3	330 Ohm 1/2 Watt Resistor
R4	2.7K Ohm 1 Watt Resistor
C1	220 uf Capacitor
C2	.1 uf or larger Connect this capacitor directly across the 4 to 12VDC power supply; one lead to (+) and the other to (-) of the power supply.
C3	10 uf Capacitor Connect this capacitor between pins 1 and 8 of IC1. Connect the positive side of the capacitor to pin 1 of IC1 and the negative side of the capacitor to pin 8 of IC1
IC1	LM386 Op-Amp
IC2	MOC-3021 Opto-Triac
Q1	If using <220W floodlight, use: 2N6075 or BT136 Triac If using up to 600W floodlight, use: 6 Amp Triac - Radio Shack #276-1000



Click on this picture for larger version:



I have built the second circuit (the one with the audio amp) and it works great. Click on the picture below to see the entire set-up that I created. I have two portable

walkmans, one with a thunder sounds CD and the other with spooky Halloween music, hooked up to a sound mixer. That way I can independently control the volume of the thunder vs. the scary music. I have my "lightning simulator" box hooked up to the "line-out" of the thunder sounds walkman, so my floodlight flashes in sync with the crashing thunder sounds.