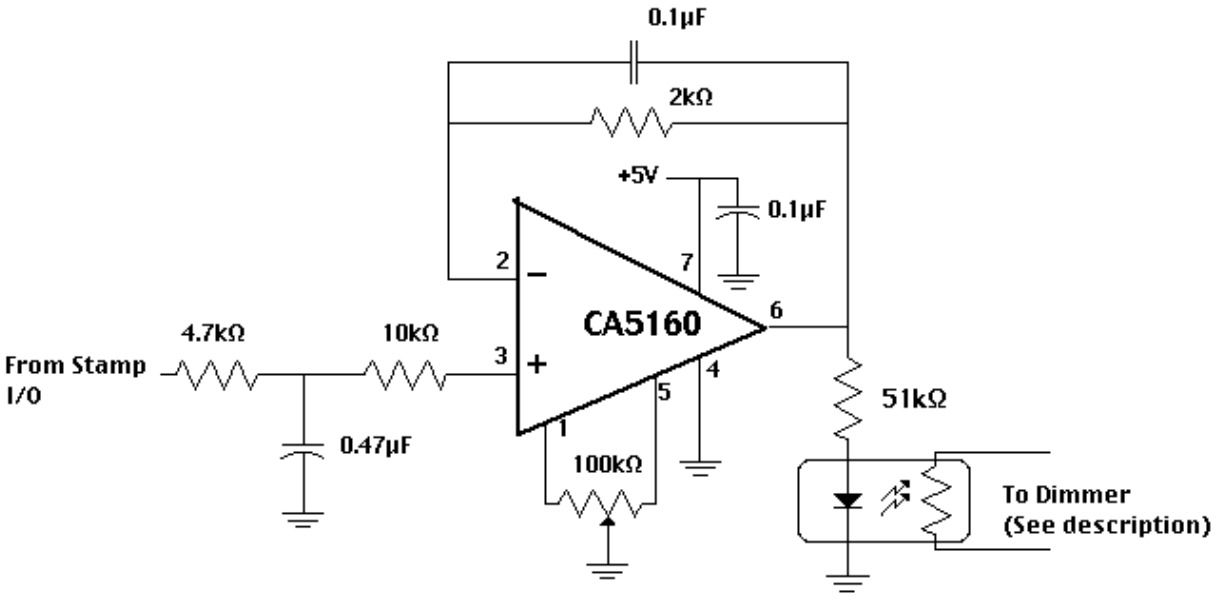
An AC Dimmer for Use with the Stamp

The Document contains directions for converting a comercial 120VAC dimmer for use with the stamps PW output.

IDEA OF OPERATION

The basic idea of the circuit is to replace the variable resistor that is connected to the knob of a dimmer wit optoisolater. The optoisolator is connected to an operational amplifier that interfaces with the stamp. Users this circuit should read and be familiar with the operation of the stamps PWM function. This document assumes that you have read and understood the PWM section of the stamp manual. It is also asumed that y have some experience wiring AC. As it is likey you do not have experience with AC, pleae find someone w has. AC is dangerous and it can kill you.



The circuit is simple, The op-amp provides current amplification allowing the optoisolator to sink current without discharging the 4.7µF capacitor. The 51k_ resistor provides the right current through the optoisola to provide the right resistance on the output of the optoisolator.

Parts

Dimmer: Lutron Rotary Dimmer, part # D-600RH-WH avaliable for Home Depot.

Op-amp: Manufactured by Harris, avaliable from Newark Electronics, Newark Part # 06F2202

Optoisolator: Manufactured by EG&G Optoelectronics, EG&G part # VTL5C8, avaliable from Newark Electronics, Newark Part # 97F1140

Directions For construction

Carefully remove back plastic cover from the dimmer. There should be two rivets holding it on. I recomme using a drill to remove the head of the rivet.

On the back of the plate you will find a cylider about an inch in diameter and half an inch tall. Around the of the cylider are a bunch of components. On the flat side of the cylider there are two leads, These leads ar the on-off switch of the dimmer. On one side of the rounded part of the cylider there are three solder lugs, of which are connect to wires or other components. Remove the components from the center one, this shou just be just one resistor. Place the end of the optoisolator labeled 'cell' between the center lug and the resist you just removed.

Build the circuit on a small piece of perf-board, use wires to connect the optoisolator to the perf-board. Remember that the input of the optoisolator is a LED and the polarity is important. The polarity should be marked on the case of the optoisolator.

There should be three wire coming out of the dimmer, one green and two black. The green wire should be connected to ground, the bottom, round prong on a plug. The two black wires should be connect in series v the load.