# RANDOM LIGHTS by Fred Miller, MMR

Note: This is a modification of the Fire Flicker circuit. The logic in generating a random pattern is described in the Fire Flicker article.

This electronic circuit will light a set of lamps in a seemingly random fashion. The circuit was designed to accommodate up to eight 6V lamps although the circuit shown below on shows four lamps. It will appear as if each of the lamps lights independently for a random amount of time. The cycling provided by the circuit is for one minute. In other words every minute a different pattern of lights will be lit. It is possible one or more of the lamps will remain lit from the previous cycle thereby appearing as a random length of on time.

Note that the circuit was designed to use a 6.3VAC supply for the board electronics as well as the 6V 40ma lamps to be lit. My layout has a buss of 6.3VAC readily available throughout.

Random Lights Control
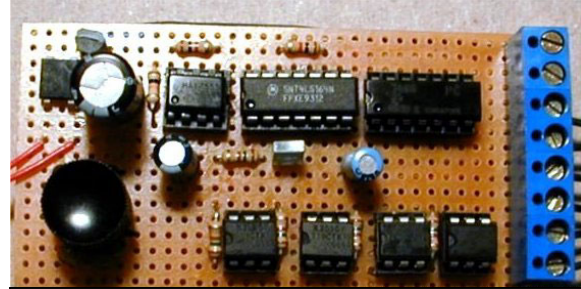"Random Noise" Generator ~ 1 min cycle time
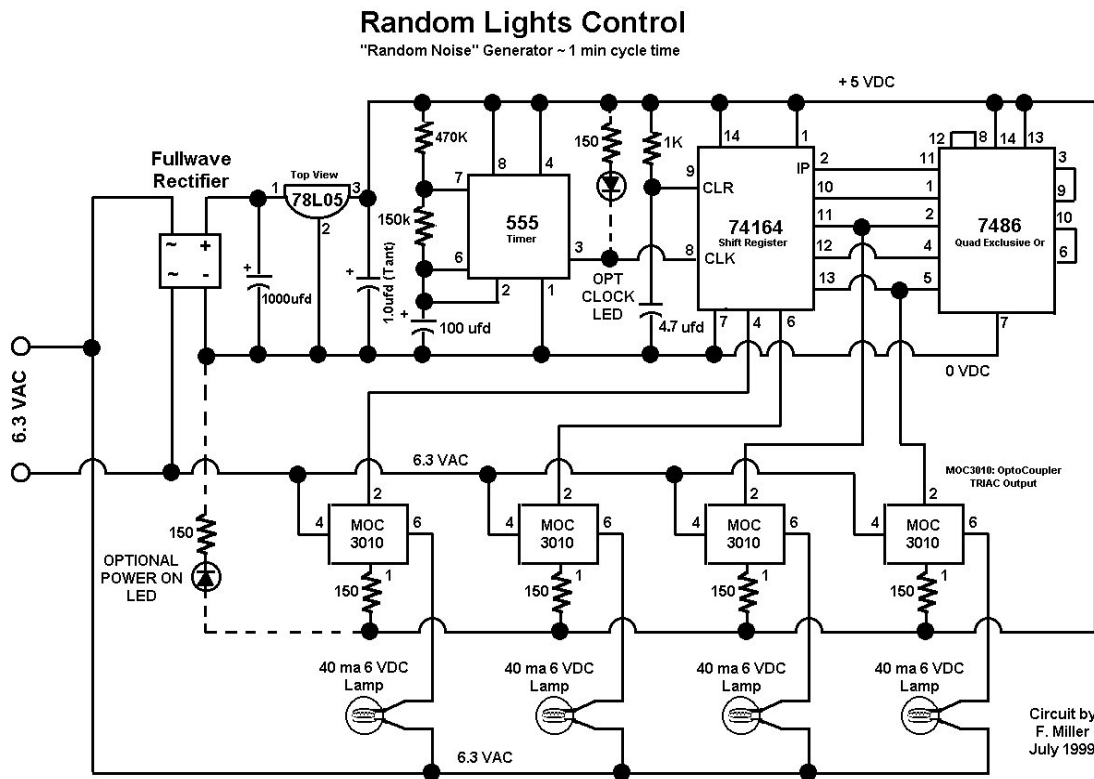
The circuit makes use of inexpensive TTL (Transistor-Transistor-Logic) chips to produce a pseudo random sequence of on-off states for the lamps. See the article on the Fire Flicker circuit for design and operation of the pseudo-random sequence generator. Sampling the outputs of the eight registers will yield an apparently random length of on-off cycles.

The output is used to drive the opto-couplers, which act like relays to turn on the 6.3VAC to the lamps. The circuit presented here only samples four of the shift register outputs (pins 4, 5, 11 and 13 of the 74164) but the additional registers could also be accessed for additional outputs (pins 3,5,10 and 12).
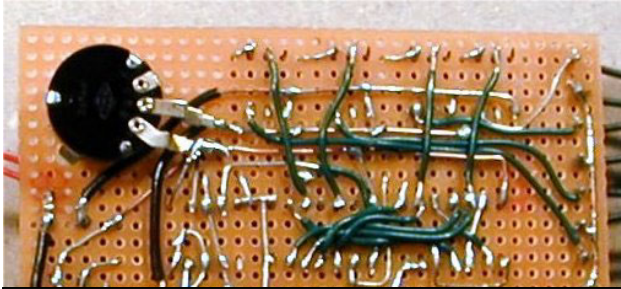
RANDOM LIGHTS BOARD – BOTTOM (WIRING) VIEW	RANDOM LIGHTS BOARD – TOP VIEW

The circuit is constructed on a small project perf-board available from Radio Shack. Many of the other parts are also available from Radio Shack, but Jameco, Digikey or Mouser are the best bet for mail-order at a good price. The circuit is soldered together using any available small gauge wire.