

AUTOMATIC GARAGE DOOR CLOSER INSTALLATION

PLEASE NOTE: Older door openers or openers may work on a different operating system than recent model garage door openers and may not be able to accept this modification. Care must be taken to avoid any potentially dangerous situations. **DO NOT** proceed with this modification unless you can positively verify it will be safe to do so. Also, never disable any safety features of the door opener in order to make this modification. To determine if your opener able to accept this modification, perform this simple test:

- A. Remove the garage door open/close switch from the wall and read the voltage where the wires are connected. First test with the meter in AC mode; if signal voltage is low voltage DC (24 vdc or lower), continue to next test step.
- B. Short the terminals of the signal wire with a screwdriver or insulated pliers; the garage door should open or close. If so, proceed to installation procedure.

INSTALLATION PROCEDURE

1. Mount the timer relay socket as close to the garage door opener motor as possible on the garage ceiling or exposed mounting bracket, rafter, etc. Personally, I prefer to stay away from mounting the socket on a metal bracket unless there is no viable alternative location. A solid wood mounting surface is preferred.
2. Open garage door and determine the best location to mount the trigger switch so that it may engage the opener's shuttle (Genie calls it the "shuttle assembly"). Since garage door openers vary in design, this may require a bit of ingenuity. My Genie model has an extruded aluminum rail that encloses and supports the drive screw and has ample room for locating mounting holes for the trigger switch. It is also close in proximity to where the shuttle that attaches to the garage door ends its travel when the door is open. It may not be possible to mount the trigger switch near the shuttle. Some other location will have to be used, such as the leading edge of the garage door itself.
3. When a suitable location for the trigger switch is found, mount the switch so that it will not be damaged should the door travel vary from one time to the next. The design of the specified Omron roller switch is ideal for this application, as it has the ability to 'fold' out of the way if there is any irregularity in the surface that engages it.
4. Cut a length of small diameter (20 awg or smaller will suffice) zip cord that will comfortably reach from the relay socket to the door opener contacts for the open/close switch. Strip both wires on one end and connect to the one pair of common and normally open contacts of the relay socket (this should be contacts 1&3 or 8&6). Consult the relay documentation to find the correct location of the common and normally open contacts. Strip both ends and connect one wire to one switch contact on the door opener; leave the other wire unconnected for now. Wire polarity is not important for this connection.
5. Take the 120VAC power cord and run it along side the power cable for the door opener to where it plugs into the outlet. **DO NOT PLUG IT IN AT THIS TIME!** Use tie wraps to run the cables together, if desired. When you reach the relay socket with the power cord carefully cut only one conductor with wire cutters, (see schematic diagram, below) leaving the other conductor intact. Be sure to

give yourself an extra inch or two to make certain there is sufficient length. Strip the two ends and connect one end to a relay coil contact.

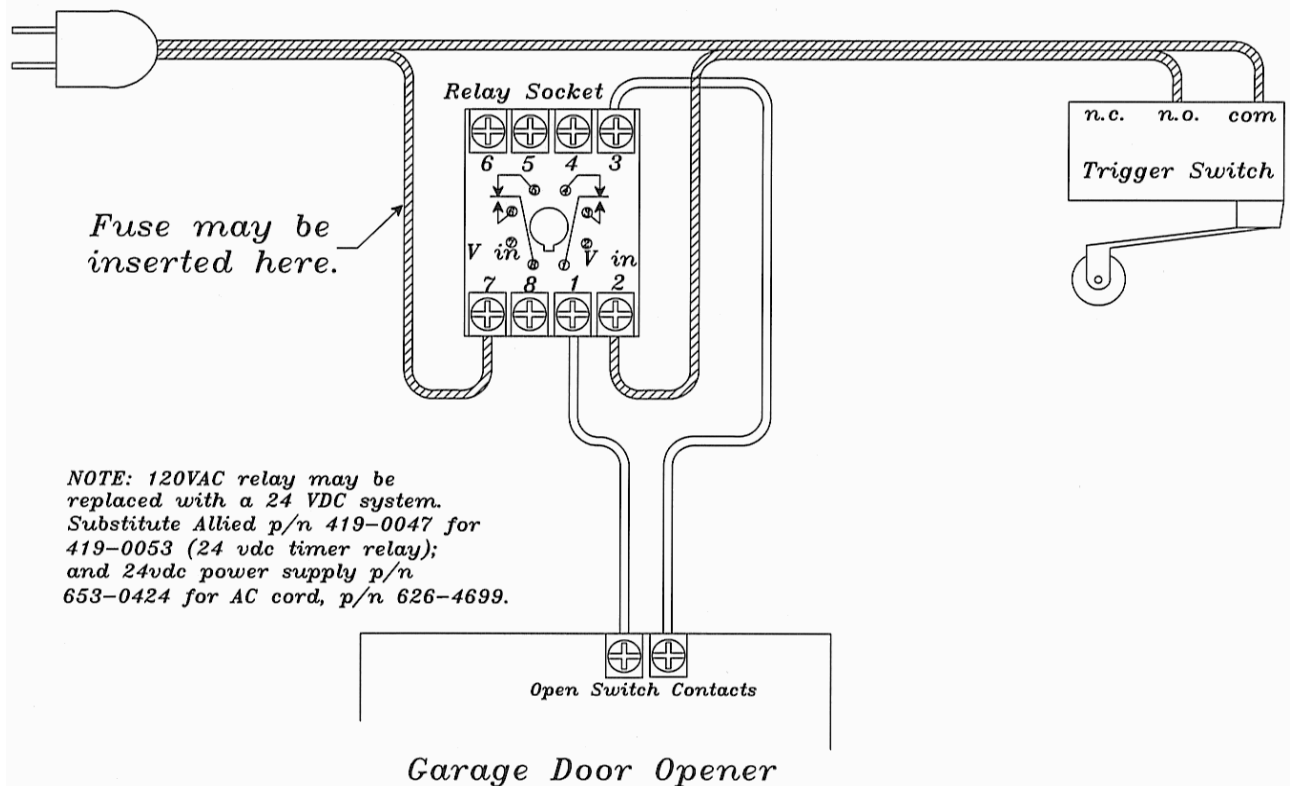
6. **OPTIONAL:** Connect the other wire to one wire of an in-line fuse holder. Route the other fuse holder wire to the remaining relay coil contact. Use a ½ amp, 250VAC fuse in the fuse holder.
7. Route the remaining length of the 120VAC power cord to the trigger switch. It may be necessary to splice extra wire onto the power cord to make it reach. If so, use only wires rated for 120VAC and completely insulate your connections. Strip the ends of the cord and crimp on 2 small ring or spade terminals that will fit under the screw contacts and attach them to the common and the normally open screw contacts of the trigger switch.
8. **SYSTEM TEST** Check all wiring connections against the schematic diagram shown below. When you are certain of your connections it will be time to test your timer. Rotate the knob to its lowest timer setting (fully ccw). Plug in the timer then manually close the trigger switch. You will initially hear nothing until the timing cycle completes, when you will hear the relay contacts close with a ‘click’. When you release the trigger switch you may hear the contacts open with a softer ‘click’. If you do not hear the contacts, you may have someone use an ohm meter to read across the wires that will connect to the door closer contact. When relay operation is verified, connect the final wire to the door closer contact and test the entire system. If test is successful, set the timer to the desired open time and the modification is complete.
9. **THEORY OF OPERATION** When the garage door opens the door shuttle makes contact and closes the trigger switch. This closes the circuit and energizes the timer which begins its count down. When the timer reaches zero, the timer contacts close shorting the door closer contacts of the garage door opener. These contacts stay closed until the door shuttle moves far enough to release the trigger switch. When the trigger switch is released, power is removed from the timer and the contacts open releasing the door closer contacts of the garage door opener. The system then waits for the next cycle.
10. **SYSTEM OPTIONS**
 - A) A 24VDC timer and power supply may be substituted for the 120VAC timer if the higher voltage is a concern. However, you will be limited to a 10 minute timing cycle because the substitute timer (Allied p/n 419-0047) has a maximum 10 minute cycle. Wiring is identical; substitute the 24VDC power supply (Allied p/n 653-0424) for the AC power cord and wire per diagram below.
 - B) An automatic activity sensor to keep the door open when working in the garage may be devised with the use of an Infra-red motion sensor, similar to that used in security systems. Wire the contacts of the motion sensor in series with the trigger switch. Thus as long as the sensor detects someone in the garage it will open the timer circuit, resetting the timer. When no motion is detected during the timing cycle the door will close normally. Allied Electronics does not offer an IR sensor, however, so one will have to be obtained elsewhere. It will need

normally open contacts to work with this system and its power will have to be applied separately.

- C) A simpler way to temporarily disable the automatic door closer is to simply open the trigger switch. The unique design of the Omron roller switch will allow it, if properly mounted, to be 'turned off' when the door is in the open position. Simply push the hinged roller so that it folds out of the way to allow the switch to change states. This disables the timer circuit, however and the door will have to be manually closed. It will function as before when the door is opened again.

SCHEMATIC DIAGRAM

Timer Driven Garage Door Closer



PARTS LIST

Allied Electronics part numbers

419-0053
814-3100
821-0039
920-6098
626-4699

Optional Part Numbers

419-0047
653-0424

Part Description

Delay-On Make Timer Relay, 120VAC
Octal Relay Socket (to mount timer relay)
Unidirectional Short Hinge Roller Switch
6-32 Aluminum Male-Female Stand-offs
2 Conductor 120VAC Power Cord

Delay-On Make Timer Relay, 24VDC
24VDC Power Supply