



CHICKEN TRAILER INFO SHEET – DOOR AUTOMATION

This document contains details on how to set up your own solar powered automatic door system for chicken trailers.

It is worth noting that there are some good off shelf solutions for small chicken coops. Omlet have a battery powered system (https://www.omlet.com.au/shop/chicken_keeping/automatic_chicken_coop_door_opener/) as do Coop Secure (<https://www.coopsecure.com.au/>), Chicken Guard (<https://www.chickenguard.com.au/>) and I'm sure there are others. These are small doors though and are more suited for backyard setups. They can also be prone to failure.

If you're wanting to create something a bit more reliable or larger that gives space for more chickens to jump in and out then the following should help.



Basic Concept

- you have one or more doors that open and close using 12V linear actuators that are mounted on brackets
- you have two timers; one opens the door and the other closes the door.
- the timers can be set so that doors open and close at predetermined times, or they manually overridden. This is handy if you have a portable trailer and want to move the chickens in the morning and need to ensure they stay in the trailer whilst you are moving them.
- the timers are wired to the actuator through a SPDT relay module that reverses the polarity of the actuator(s)
- the actuators are powered by a 12v battery connected to a low watt solar panel and 12v solar charge controller.

Actuators

The bigger the door the longer the stroke length required. Longer stroke lengths also mean the door takes longer to close, giving chickens more time to move out the way. I use a 400mm stroke length and purchase them through ebay:



<https://www.ebay.com.au/itm/193300709863?mkevt=1&mkpid=0&emsid=e11050.m43.l1123&mkcid=7&ch=osgood&euid=fe06eec492054b68a2eca7ca7c62eb43&bu=43447349304&osub=-1%7E1&crd=20210723125846&segname=11050&sojTags=ch%3Dch%2Cbu%3Dbu%2Cosub%3Dosub%2Ccrd%3Dcrd%2Csegname%3Dsegname%2Cchnl%3Dmkcid>

Relay Modules

I use relays like this one:



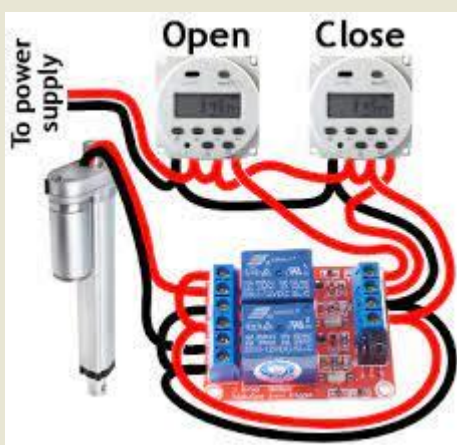
<https://www.ebay.com.au/itm/133126746192?hash=item1efef8f050:g:WDcAAOSw6OFdPeOF>

Timers

I've tried various timers – I use 12v din rail mounted timer switches, but I've also used round ones that you just screw into a back board. Again, I source them from ebay.

Wiring

I've found the wiring can depend on what timers you get. Below is a simple diagram for the round timers.



Here is a photo of my slightly messy set up:



With these timers it's easier if I explain what terminals each wire goes to. On the relay there are 6 terminals on one side (I have these on the left) and 4 terminals on the other side (the right). I keep the relay in a plastic container for extra protection.

Open Timer Terminal 1 (top left) -> Open Timer Terminal 4 (bottom middle)

Open Timer Terminal 1 -> Close Timer Terminal 1

Open Timer Terminal 2 -> Close Timer Terminal 2

Open Timer Terminal 2 -> Solar Controller (+)

Open Timer Terminal 4 -> Close Timer Terminal 4

Open Timer Terminal 4 -> Solar Controller (-)

Open Timer Terminal 3 -> Relay Terminal 1 on right side

Close Timer Terminal 2 -> Relay Terminal 3 on right side

Close Timer Terminal 3 -> Relay Terminal 2 on right side

Close Timer Terminal 4 -> Relay Terminal 4 on right side

Relay Terminal 1 on left side -> Relay Terminal 4 on left side

Relay Terminal 2 on left side -> Actuator (+)

Relay Terminal 3 on left side -> Relay Terminal 6 on left side

Relay Terminal 4 on left side -> Relay Terminal 4 on right side

Relay Terminal 5 on left side -> Actuator (-)

Relay Terminal 6 on left side -> Relay Terminal 3 on right side

Resources

Here is the website I first used as inspiration. I've modified some of the information based on what equipment I bought but it's still a useful resource.

<http://blog.netscraps.com/diy/heavy-duty-automatic-chicken-coop-door-ii.html>