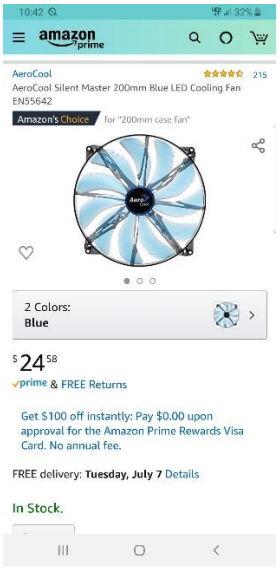
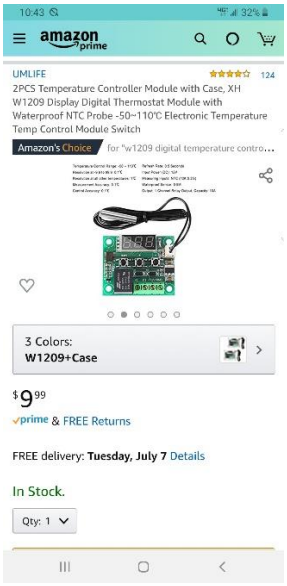
Refrigerator Fan Install on 2019 349M

Parts List:

1. Fans Aero Cool Silent Master 200mm. I used 3



2. Fan Controller



3. #8 Spring clips Napa 665-1344
4. #8 SEMS Screws, Napa 665-1344
5. 1/8” x 1/4” pop rivets
6. 16-Gauge 5052 plate aluminum or simular
7. 24-gauge speaker wire or equivalent
8. 14-16-gauge black wire

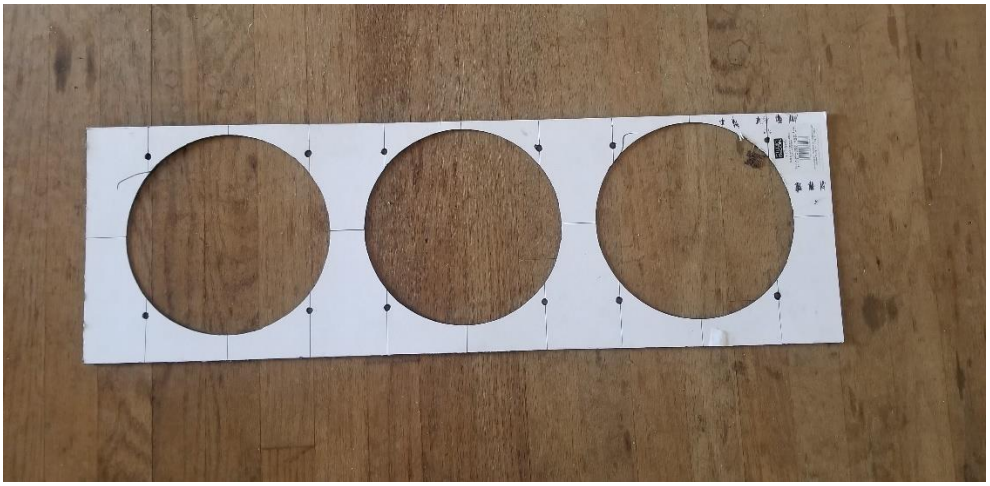
9. 14-16-gauge red wire
10. 1 small 14-gauge crimp eyelet connecter
11. Shrink wrap and solder
12. 5/8 hose clamp
13. Poster board

Fan Mounting;

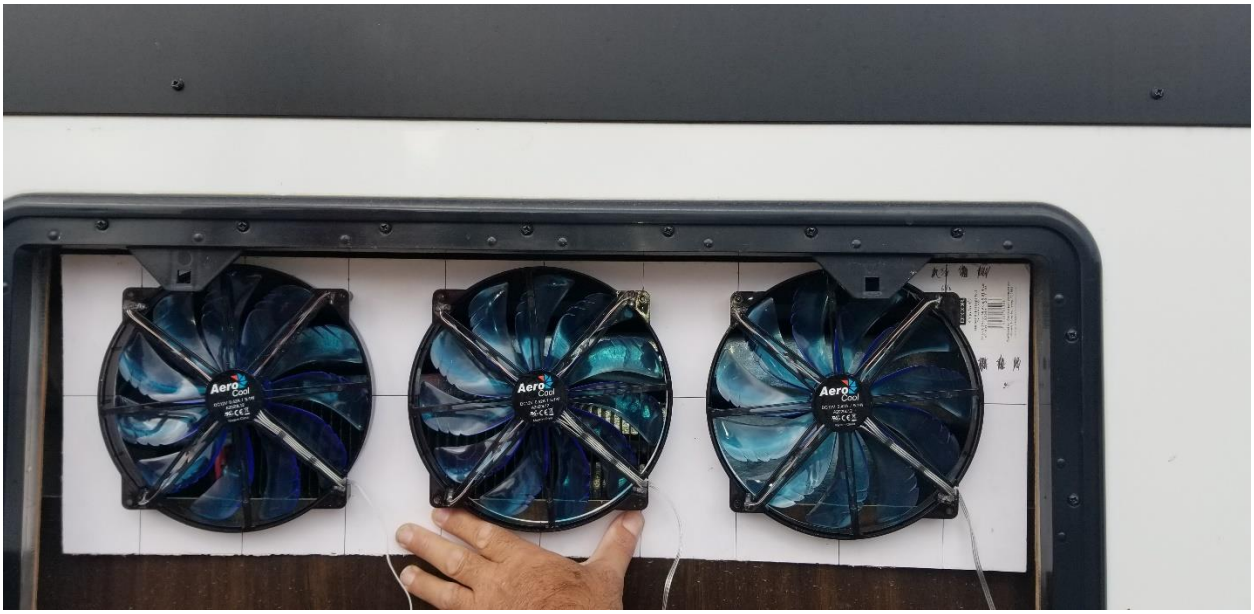
1. Measure your opening to the upper vent area and create a poster board templet. Mine was approx. 38¾" x 9"

2. Using poster board and layout your fans evenly. I used a compass to make nice round circles the size of the ID of fan shrouds. (sorry, the circles are there). Mark where fastener holes will go.

Cut out and punch mounting holes

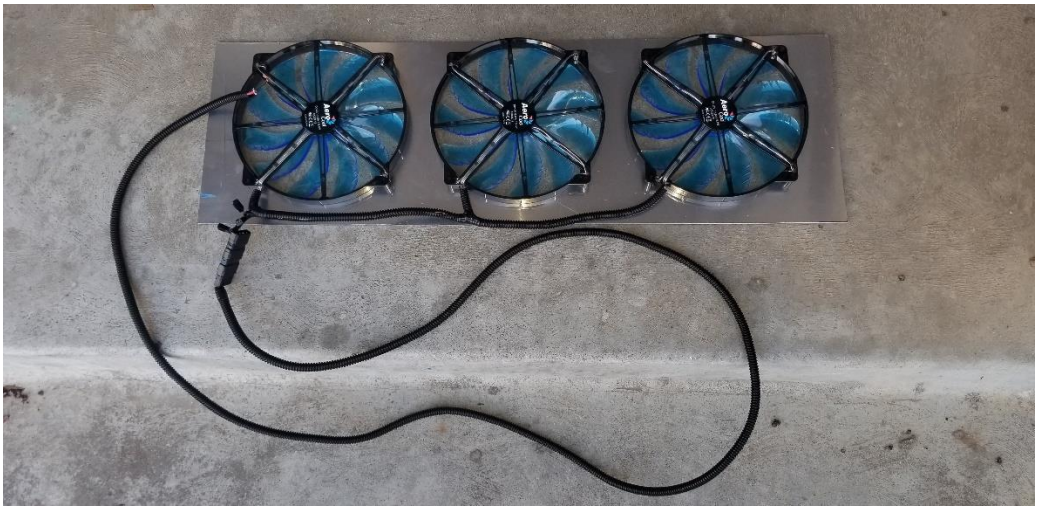


3. Mount your fans to poster board with screws supplied with fans. The poster board I used was fairly thick and supported the fans pretty good. Test fit into your opening.



4. When happy with your templet transfer to 16-gauge aluminum plate and cut to size. Cut out openings and drill mounting holes. I used a skill saw but a good pair of snips will work to. Deburr mounting holes

5. Mount fans to aluminum plate with supplied fasteners. The fans have connectors that will plug into each other. Solder a length of black and red wires to one of the connectors positive and negative terminals. Give plenty of length to reach bottom vent area. Sorry no picture of this connection but you can see in this picture how they plug into each other. I like to put corrugated wire covering on mine.



6. The frame around the upper vent is aluminum square tube. You need to Fab some L brackets to rivet to these tubes. Mine measured 1 ¾ on one leg and 1 ¼ on the other. 9” length. 1 ¾ went from frame tube to factory wood baffle. I bent these with a vise, steel flat stock and rubber mallet. A bending brake would have been nice. You could buy 1 ¾ x 1 ¾ 16-gauge aluminum angle stock.

   Rivet these to the tube frame

7. Fit your fan assembly into position and mark where your mounting screws will go. I used 3 on each side and two on bottom to wood panel. Drill mounting holes . Some trimming to wood panel was needed on mine for the fans and spring nuts.

8. Add spring nuts to your brackets and wood panel.

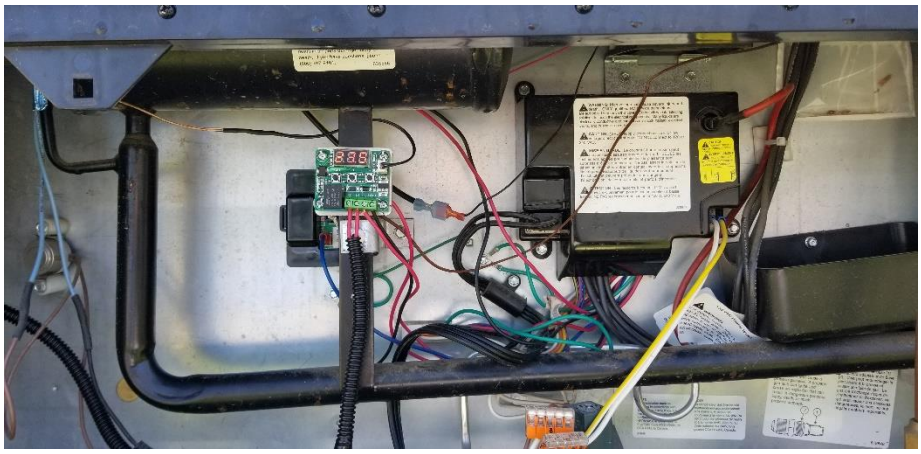
9. At this time you need to attach temp sensor probe to down tube from condenser. But first you need to lengthen the wires to reach lower vent area. Using the 24-gauge speaker wire cut, solder and shrink wrap wires. I cut in the middle of the probe's wires connected the two ends with speaker wire. Sorry no picture of this.

10. Attach probe to tube using a hose clamp and route wires to bottom vent

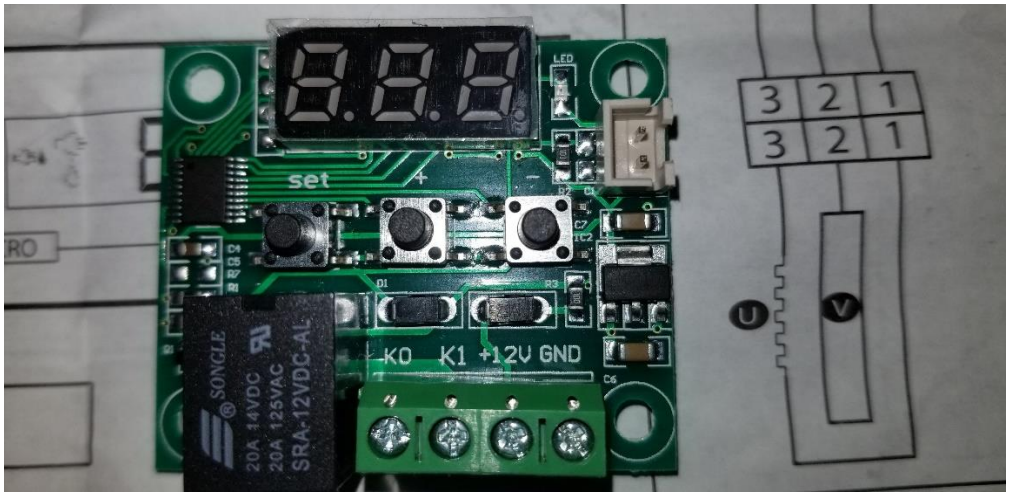
11. You can mount your fan assembly at this time. I routed the wires between the left mounting bracket and wood panel down to lower vent

Wiring;

1. Find a location for controller. I fab'd a plate and rivet it to this support bracket. 6-32 screws and #6 nylon spacers mount board to plate. I've ordered a clear box and will add it later.



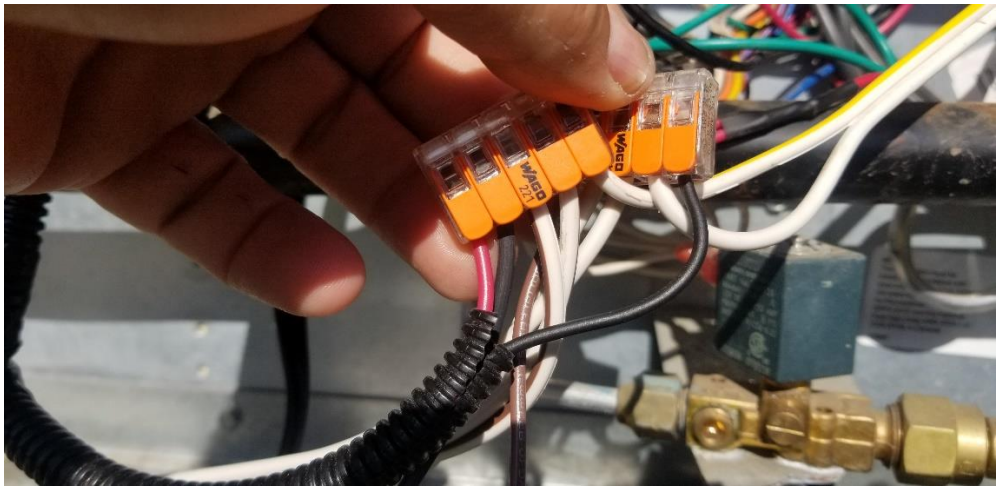
2. Here's the controller. Behind the support bracket above is a ground screw. Add crimp eyelet to a length of black wire and run it to the first connection on right (GND)



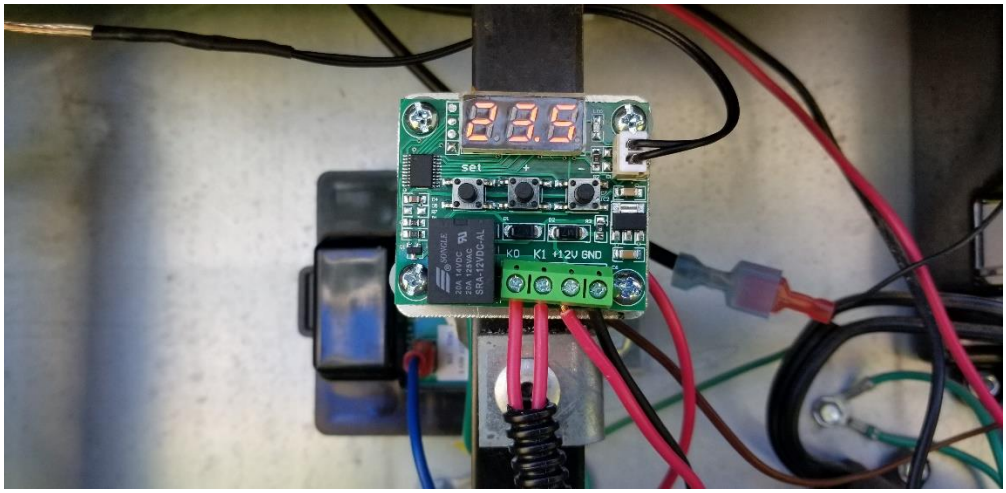
A 12V switched connection will go to the +12V connection. Thanks to Warner Lawson I located a red wire coming from refrigerators control unit. It powered what looks to be another fan relay.

Splice, solder and shrink wrap to this red wire and attach at +12V connection

Fans were connected to a hot 12 V connection and ground to these connecters. Black wire from fans connect directly to the ground connection on right. Red wire from fans is connected to K0 on fan controller. Another length of red wire is connected to 12V hot connecter on left. It gets connected to K1 on fan controller. K1 and K0 are relay connected, switched. No power comes from controller



So, from left to right. “K0”, positive to fans. “K1”, positive from hot 12V source. “+12V” positive from switched source, “GND”, ground to refrigerator. Don’t forget to plug probe in, upper right corner.



Programing;

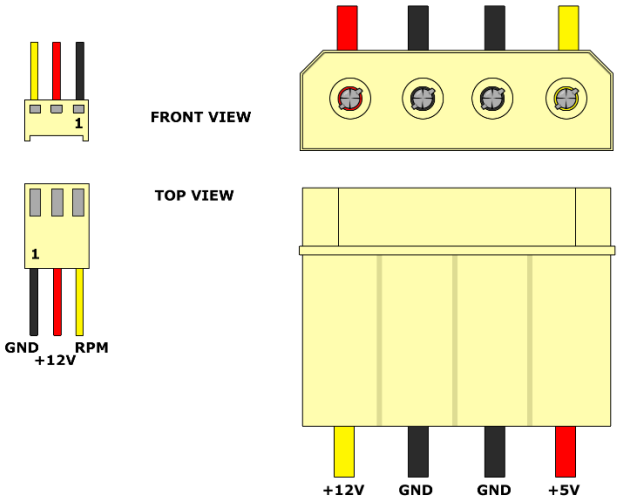
1. This thing is in Celsius! Again, this thing is in Celsius
2. Turn on your refrigerator.
3. See that your controller is powered up. Controller is set to “Cool” by default.
4. Press and let go of “Set” button. Screen starts flashing. Press + or – buttons to reach desired start temp.
5. You can only set hysterias temp. Temperature differential. To set shut off temp. remember you are in Celsius. Press and hold “Set” button for 5-10 seconds. P0 shows on screen. Press “+” button until P1 appears. Press “Set” then “+” or “-“ to set temp differential desired. You have 0.1-15 deg. My initial settings are 38°C start and 6° P1 setting. That’s off at 32° off temp. (100°F and 90°F) Probably a little low.
6. P2 and P3 will not set your on and off temps. They are safety settings.

From the Internet:

Instructions for use :
Connect the power supply and equipment, the measuring temperature is displayed, press the "SET" button, press " + or - " to set the desired temperature (long press " + or - " to quickly increase or decrease), press "SET" to confirm the setting and return, controller
automatically performs the relay ON/OFF. the thermostat output is 10A relay, meet a variety of high-power loads,
LED Indicator: LED off indicates the relay off; Lighting, indicates the relay is closed.
Digital LED Tubes: "LL" indicates sensor open, "HH" indicates overrange, the relay will be forcibly disconnected; "---" indicates high temperature alarm
Long press the "SET" button to enter the main menu settings, press " + or - " to switching between P0-P6,then long press "SET" or 10 seconds without keystrokes to confirm the setting and return.

Buttons:
P0 :Cooling / Heating; Range: C/H; Default: C
P1 :Hysteresis Setting; Range:0.1-15; Default: 2
P2 :Highest Setting Limit; Range:110; Default: 110
P3: Lowest setting Limit; Range:-50; Default: -50
P4 :Temperature Correction; Range:-7-7°c; Default: 0°c
P5: Delay Start Time; Range:0-10 Minute; Default: 0
P6: Key Tone Switch; Range:0-110; Default: Off
When the Thermostat is power off, long press "- or +", you can restore the factory settings

Here is something that doesn’t come with fans.



Well, this was my way. I’m sure there are other ways but, this was mine. Working well. I will need to play with my temp settings to find were it will need to be in 100+ deg weather. Open for suggestions here.

Good luck with your fan projects!!!