RGB Mega Tree WS2811 Strips

The RGB Mega tree was constructed with WS2811 LED strips. The center pole is telescoping square tube and a round plate at the top to hold a Topper sphere.

The Mega is defined in Xlights as 16 strings with 270 Degrees. I have 4 data lines from the Falcon F16 V3 to feed data every 4 strings at the bottom. The data lines are 75 to 100ft from the F16V3 controller.

There are two boxes at the base each containing 2-42Amp 12V power supplies for a total of 4 x 42 Amp supplies. I added cooling fans to each of the boxes, although this seems overkill. Some of my other power supplies get quite warm and need ventilation.

What I did differently, Each string as actually 2 WS2811 strips attached back to back. I like this because it is very bright. If there is some wind or breeze, the strings can rotate and the tree still looks good in the display. I run the same data to both strands using a Y connector. I power Each stand at the lower end. My original plan was to use the two stings differently, hence, I am using 4 ports on the F16V3 when I could use 2 ports.

I attached them at the ends with plumber pipe hanger steel strapping. I folded the steel strapping over and pressed 2 steel grommets into each end. I put notches into the steel strap to hold the zip ties in place. I used hot glue gun to secure the zip ties and the wiring to the metal strapping. 3 inch white zip ties should be snug but not too tight. The zip ties on the Wires I leave loose until I get the hot glue squeezed in then I tighten the zip ties into the glue. The top grommet is used for a steel screw attachment to the top plate.

The strands are attached with a screw to the top plate. The bottom of the strands are held down with a Bungie (smallest available at Harbor Freight) to a 12 inch spike in the ground (lowes 12in spike). I use hundreds of zip ties which I get at Harbor freight. I also attached the two LED strips together along the length with a 3 inch zip tie but only barely snug. I used a drop of permatex silicone RTV to hold the zip

tie in place to the silicone tube enclosed WS2811 strips. Amazon Permatex 80050 Clear RTV Silicone Adhesive

4x 42 Amp Power Supplies. I used tab Quick Disconnects that seemed to work well. I was prepared to switch to Anderson Powerpole connectors rated at 45 Amps. I added a ventilation port and some fans I found on Amazon. The wiring to the Tree strands is 10 Awg landscape wire with connectors.

BOM for Power Boxes (ordered from 2 different Aliexpress suppliers)

Power SupplyA Plant Light Factory Store I liked the quality of A better than B

Power SupplyB XINQI YQXINQIDZ Store

Enclosure Hammond CHKO12126 Newark
Enclosure, Hinge Door, Quarter Turn, Knockouts, Type 1, Electrical / Industrial, Steel
I sealed the knockouts with silicone caulk and formed a rain roof with aluminum roof flashing. I cut notches in the bottom for the wiring to exit and too allow air to enter. I used liquid Electrical tape to coat the edges. Amazon Liquid Tape
I used super magnets from Amazon to attach these units to the square steel tub that is the center support for the Mega tree. Amazon Super Magnets

WS2811 LED Strips Aliexpress Sage LED store I used the Sage store several times and I've been happy.
Power connectors for WS2811 Strips Amazon 18AWG Power Pigtail 12V 5A
Spice connectors IDC Amazon Insulation Displacement Connector This is for the 10 AWG main power lines to pigtail connectors; However I use these types (just smaller) for the pigtails to strips.

BUD INDUSTRIES IPV-1115 Newark
Enclosure Accessory, Polycarbonate, External Vent, NEMA Box Enclosures

Cooling 12V fans from Amazon Fan 60x60x10 mm DC 12V

I use Ethernet Patch cords to carry data long distances. I have had good success with 75 and 100ft lengths. I buy the patch cords at monoprice and wait all year for them to go on sale. Often, different colors are much cheaper. Monoprice Ethernet Patch cables

I made interfaces to connect Ethernet cables to F16V3 and to JST sm connectors. JST sm are the connectors on the WS2811 LED strips.

RJ45 pc board Amazon RJ45
RJ45 Connectors Amazon RJ45 connectors

Interface pair image.
This shows both ends for connecting to the Ethernet patch cable. I solder 4 pins to the portion that interfaces with the F16V3 for structural support. I usually leave the power connection open from the F16V3 because I need to inject power to all of my elements.