Viparspectra 165W to Apex 0-10v Control

A Guide Using Steve’s LEDs Aquarium Control Interface (ACI)

The short version

Don’t want the walkthrough? OK- it can be done, but you have to use both variable control ports on the apex and a four channel ACI or just control power by plugging it into an apex powerbar. You cannot turn the light on and off via dimming because of the way the light is wired. The ACI instruction PDF is on the website and scan through this document for pictures.

Why does this guide exist?

When trying to determine if this could be done before I bought the lights, I was unable to find a good source online that seemed well informed; even the ACI instructions were pretty unclear. After completing the project, I wished there had been a resource that I could have referenced for clear information, because I would have done this a lot sooner if I had known it was so easy.

Why do this?

I became frustrated with what I would consider extremely expensive lights either failing within two to three years or just underperforming. I have 30” tall tanks, and had not been able to achieve a PAR distribution at the sandbed that I was satisfied with based on recommended fixture spreads from a couple different major manufacturers over the years, and simply refused to go edge to edge with overly priced lights.

The Viparspectra 165W light caught my attention because it has solid PAR output and, quite frankly, a horrible light spread. It projects a comparatively direct beam with the stock lens reflectors, and as a result, penetrates my 30” tank beautifully. At 100% blue and 30% white, I can achieve PAR values between 300 and 400 from 6” below the surface down to the sandbed, and with the cost of each light, I can go edge to edge for significantly less than a major manufacturer's recommended fixture spread, creating a very even distribution.

The issue with this light is the lack of control. The fixture has four independent controls: white on/off, blue on/off, white 0-100, and blue 0-100. The internal clocks of these lights never keep perfect time, and you cannot program sunrise/sunset dimming, only a set intensity value. For a variety of reasons, both practical and aesthetic, I wanted to be able to control all four of those individual parameters via apex.

The end result

The box has a single RJ45 jack, a 12v power supply, and six waterproof 5 pin low voltage ports. None of this is necessary, everything could be directly wired inside the light if one preferred, but I wanted to be able to remove or replace any individual light without impacting the control system, and I like a clean install. To connect, just plug in the modified light and an ethernet cable, and you're off and running.

The light has an added 5 pin port, and an extension cable of appropriate length can be run to each light.

The project box and LED cable/connectors were purchased on amazon, the ACI from Steve's LEDs, and I had everything else. The RJ45 jack is just a keystone wall plate cut done to just the important bits and glue to the inside of the project box, which can be easily drilled and cut.

Steve’s LED ACI

The apex uses 0-10v control, and the Viparspectra uses PWM. You can use a variety of boards out there to convert the signal, but at $25 at the time of publication for the four channel version, this board seemed an inexpensive solution that would be plug and play. Instructions are on the website, and it's pretty straightforward. The one thing I’d note is that their instructions number the pins for a RJ45 jack incorrectly. Apex uses pins 1, 2, 5, and 6 on each variable dimming port, which is an RJ45 connector, aka ethernet jack. Steve’s LEDs pictures are correct, they’ve just labeled the pins wrong. For T-568B wiring, that is white/orange, orange, white/blue, and green. If you just want variable dimming via apex, that’s all you need, and you can get away with a 2 channel ACI. If you want to turn the light on and off without using an outlet or want to turn on just blue or just white, you need to use the second variable dimming port and a 4 channel ACI. I have used white/green, blue, white/brown, and brown for the third and fourth channel respectively. You could just run two ethernet cables from the two apex ports and take 1, 2, 5, and 6 from each, but I chose to run one cable and one port in the project box. In order to do so, you need a purpose built splitter.

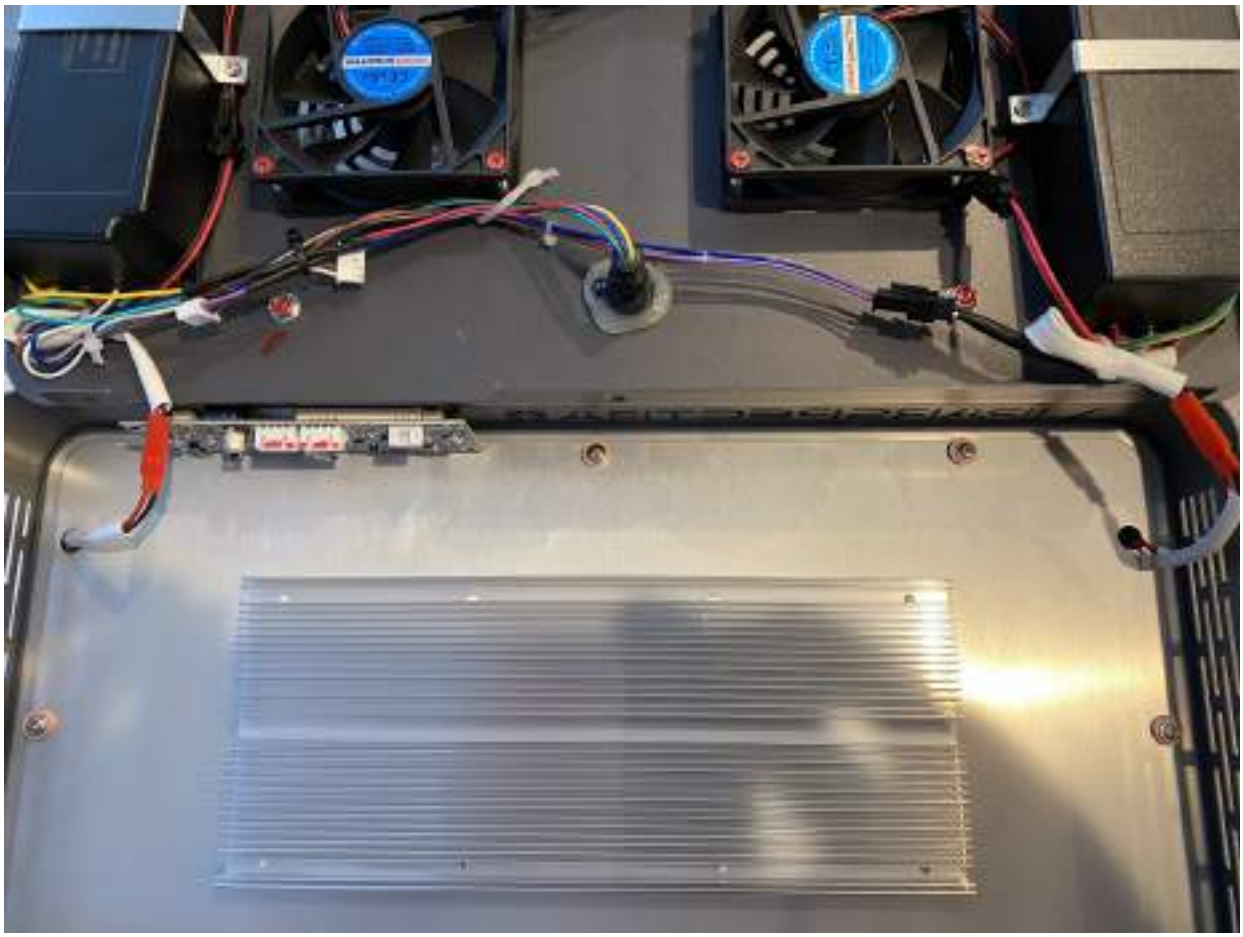
Variable dimming port splitter

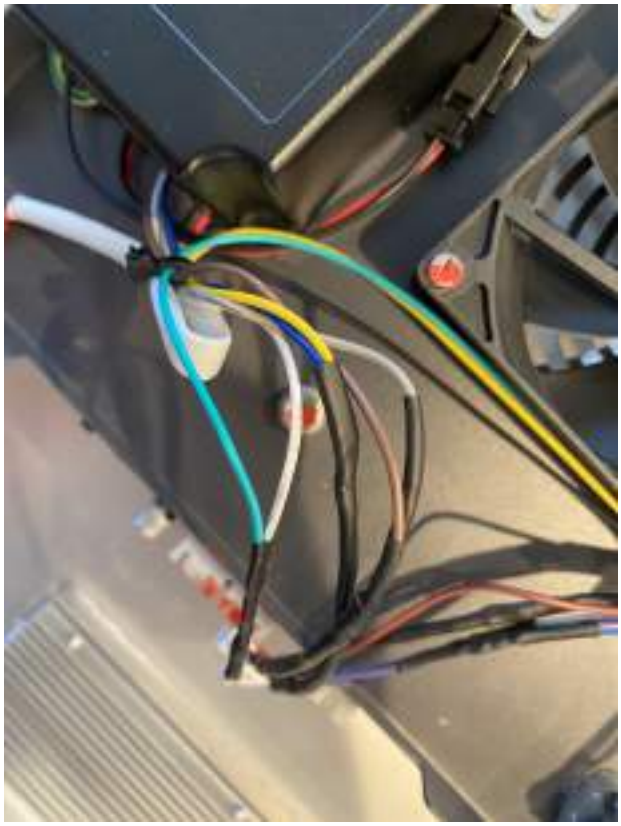
Simply split 1, 2, 5, and 6 from 3, 4, 7, and 8. Crimp the first set as one would normally, then offset 3, 4, 7, and 8 to match your first crimp. On the other end of the cable, crimp a standard layout. I have used an inline coupler because I already had an ethernet cable pulled through the puzzle that is above and below my tank, and did not want to modify it. When plugged into V1/V2 and V3/V4 on the apex, you'll have control of all four channels over one cable. The left picture below shows the splitter with an inline coupler. A standard ethernet cable can be used to connect the coupler to the project box. The right picture below shows the wire layout assuming the other end is wired 568B. To be clear, you could just run two ethernet cables to the ACI stuffed inside the light. You do not need to have a bunch of tools to make it work.

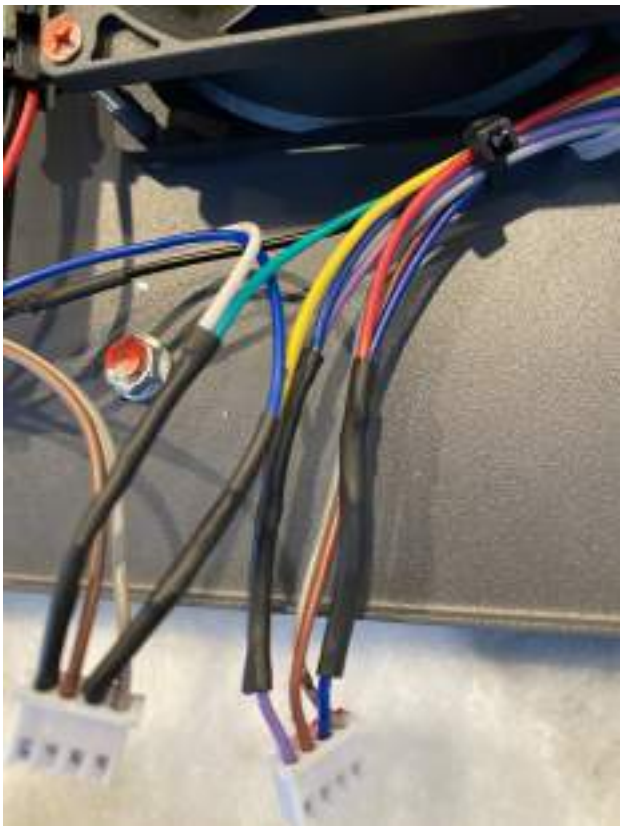
Modified Viparspectra 165W Light

The light cannot be plugged into its internal board and the apex at the same time. I decided to make my changes reversible, as my quarantine and fry grow out setups do not have VDM modules nearby, and I move equipment around more than I like to admit. Once it's all buttoned up, it's a pretty clean install. In the picture below, the light is ready to accept a signal from the apex, and the internal board is not plugged in at all. If it's not plugged into the apex, just plug the connectors back into the board and use as originally intended. In the lights and with the connector cables that I purchased, the blue wire from the drivers are PWM control, the white wire from the left driver is on/off control, and the purple wire from the right driver is on/off control.

Obviously if you are using another cable, color doesn't matter, just keep it the same, but here it is. I've used red for white channel dimming, and spliced into the right blue wire. Yellow for blue channel dimming, and spliced into the left blue wire. Green for blue channel on/off control, spliced into the left white wire. Blue for white channel on/off control, spliced into the right purple wire. Black for ground, soldered to a grounding wire. You can cut and solder in or just use T connectors if you aren't up for soldering. It would have made more sense to do a different order, but it doesn't really matter, as you can easily identify each control via apex once everything is wired up.

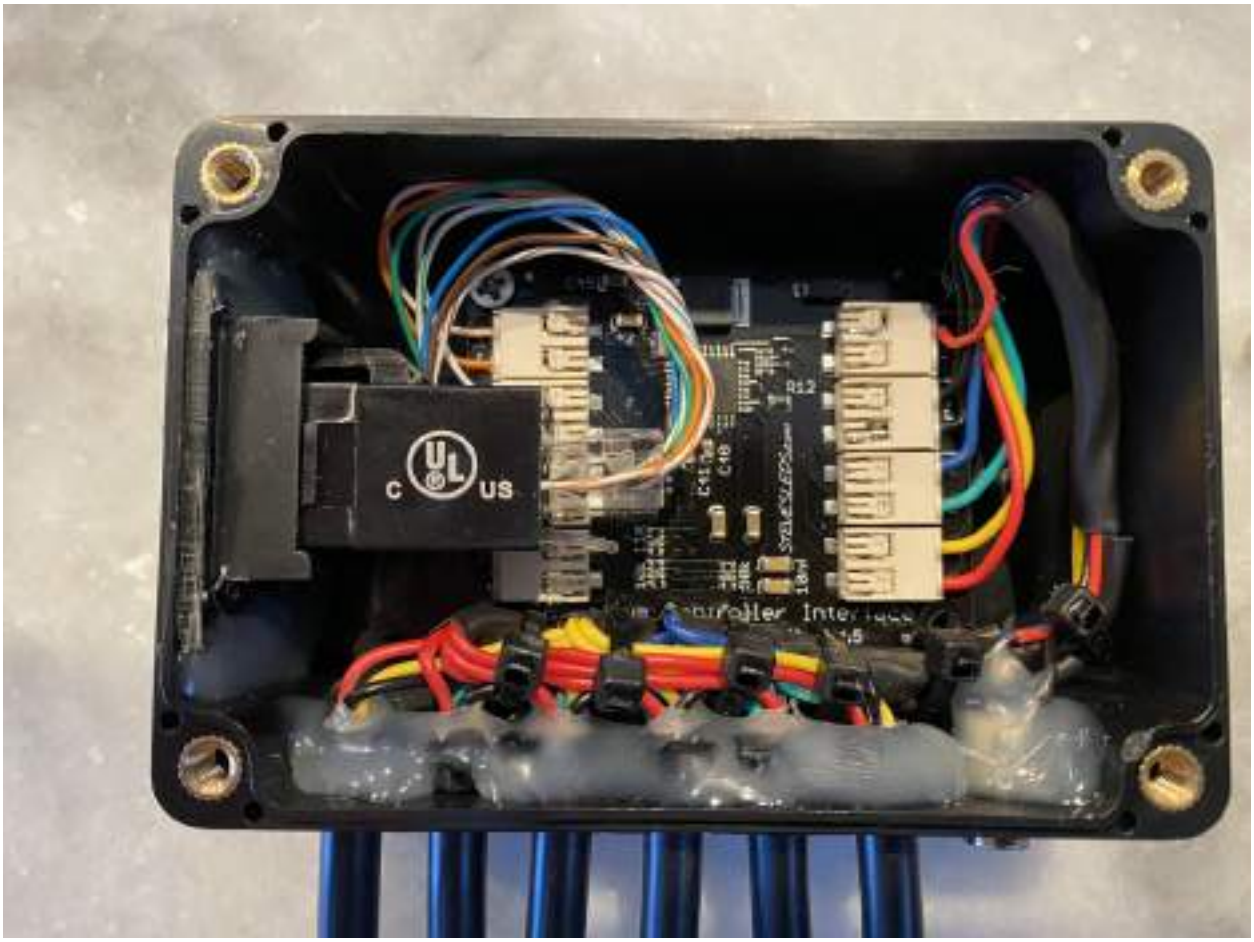


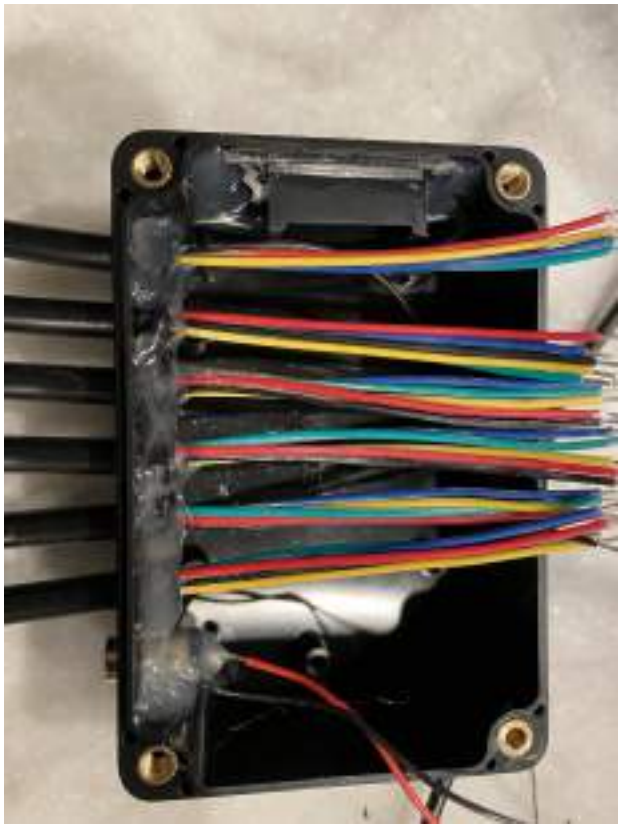




The Project Box

The connector cables are zip tied then hot glued in place. I'm using six lights, but the ACI can accept at least 12 according to Steve's LEDs. The ACI can be powered directly by one of the lights, but I chose to give it an independent 12v source, also just zip tied and hot glued in place. The 5 wires from the connector cables are then cut, stripped, and soldered together down to a single feed each that then terminates on the board. In the picture below on the right side, the bottom red wire is channel 1 from the connector cables, yellow is channel 2, green is channel 3, blue is channel 4, black is ground, then the second black is ground from the 12v supply, and the top red is power from the 12v supply.





On this 4’x4’ tank with central overflow, six Viparspectra lights achieve a far more even PAR distribution than four Radions or Kessils did. Whether the spectrum is suitable for the same speed of growth is a separate question, but ultimately I’m just not paying for another expensive light to quit. The lights are mounted 19” off the surface, basically as high as I could put them, so that I can access anywhere in the tank easily with the canopy facade removed. The lights ramp up and down and turn on and off together just like any other apex ready light would.