Servicing Venbrite LED Systems

Measuring driver load with a DC voltmeter (better option than counting modules)

The measurement is made on the output leads of the driver so all of the load is accounted for. The Driver functions as a current source. It will try to provide a constant current of 120-125mA on its' output. As long as there is a complete circuit and the voltage stays below the limit it will function properly. The driver cannot be run in an open circuit condition. You cannot measure the voltage on the output with no load connected as it will just trip off. It must have somewhere to pump the 120mA.

Knowing that a WHITE LED has a nominal voltage drop of 3V, it is then just a matter of simple math 10 LEDs x 3V = 30V / 100 LEDs x 3V = 300V / 120 LEDs (VLP100 maximum load) x 3V = 360V Measuring a DC voltage above 360V means there is a possibility that more than 120 modules are being run by one supply.

Since 360V is a nominal voltage, there may be instances where the LED V is greater, say 3.1V. In that case, for a full load, the voltage measured should be around 372V. The VLP100 will trip off when the voltage goes above 390V.

The LEDs provided today from Nichia for the VL-W100C have a typical voltage drop of 2.8-2.9V so it is highly unlikely that the LEDs themselves would be a problem. 120 LEDs x 2.8V = 336V

You can also measure across one LED or any number of LEDs in the circuit. If a lit string of LEDs has one module dark and you measure across that module, you should measure 5.6V +/-a few %. This is the zener voltage RED LEDs have a nominal V drop of 2.1V so that is why we can run more RED LEDs than WHITE LEDS.

The VLP200 driver can run 70 WHITE LEDs. 70 LEDs x 3V = 210V The voltage limit for the VLP200 is around 245V.

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