# Please read this before asking questions.



Thank you for your order. The DiVision was created to use up my inventory of nuvistor tubes in a fun and useful way. I decided since this is a limited edition release it would need to be perfect the first go at it. That was supposed to mean no revisions after the release, but there is a new EQ mod which does increase the flexibility of the DiVision. Upon release the design is at revision C and currently still is. I spent time on and off between November 2020 to April 2021 designing and revising the DiVision. The new EQ mod was developed in October 2022 and comes laboratory-installed on all remaining builds from serials 47-68. My design goals were to create something that would last a very long time without need for servicing and to make a DI Box with a tone all its own. In a couple decades you might want to have the two electrolytic capacitors replaced, but otherwise it should last a very long time. All the components are operating well below their maximum ratings in order to facilitate longevity. Great attention went into the onboard power converter design. It's designed to be ultra low noise and to provide stable voltages for both the tube filament (6V) and the B+ (230V) with a high level of efficiency. The tube used is a 6DS4 nuvistor, which is one of the longest life vacuum tubes out there. I'm running the filament voltage a little under its rating, which doesn't affect performance, but does add a lot of extra life to the tube. Basically, it should last a lifetime or maybe just 3 years if you keep it powered on indefinitely.

#### **Getting Started**

Connect a **9V DC** power adapter to the power receptacle. **Do not use** a 12V supply or anything greater than 9 volts DC because it may destroy the DiVision. Be sure the inner part of the barrel connector is negative polarity. Reversed polarity will not harm the DiVision, as it has a protection feature against this. It simply won't power on. Your 9V DC adapter should be able to provide at least 310mA of current, but more is better. The DiVision idles at about 308mA, but can draw as much as 400mA momentarily on startup. Once powered on, the red LED next to the XLR jack will illuminate. It will take about 10-15 seconds before audio begins to pass. <u>Up until about a minute there may be noise, such as distortion, hiss, or crackle while the tube heats up and the power converter stabilizes.</u> Within 30 seconds or less the DiVision should be operating properly. It can take up to 10 minutes for the power converter to fully stabilize, at which point the DiVision will sound its best. It is possible there may be some noise initially when powering on, but this will dissipate as the onboard supply stabilizes.

The input and bypass jacks are wired parallel. They feed directly into the grid of a 6DS4 vacuum tube. The output signal from the tube travels to the volume control. Here it can be attenuated if desired (maybe for more clarity). From the output of the volume control the signal travels into an LBA-MC15 audio transformer. A hotter signal feeding into this transformer will create more harmonic coloration. The output of the transformer travels to the XLR output of the DiVision. If you are not using the input and bypass jacks simultaneously, you'll probably want to have the GND button (ground) pushed in. The phase switch simply inverts the waveform from the XLR output when it's depressed. The purpose of this switch is to aid with phase coherency when recording a direct signal and a mic'd signal (via bypass) at the same time. The knob labeled, "Vision" is an active equalizer control, which literally gets its power from the vacuum tube. It's a high frequency shelving boost at 10kHz. It can provide up to 6dB of boost.

A passive DI typically introduces volume loss due to the fact that it's using a step-down transformer to convert Hi-Z to Lo-Z. Since the DiVision has a tube preamp stage, it can provide a clean boost in volume of up to 11dB. The XLR output impedance of the DiVision is roughly 150 Ohms, which is intended to be plugged into a microphone preamplifier. The input impedance can vary depending on the source, but typically is about 700k Ohms.

# The EQ MOD

This Mod came out with SN 47/68, but is available for all owners of earlier serials as an upgrade option. Two switches were added to the control panel. The switch to the left is labeled "Range" and the other is "Dark". The Range switch affects the frequency of the "Vision" knob. The "Hi" setting is the original frequency of the Vision control, 10kHz. The "Lo" setting is a *more audible* 3.4kHz shelving boost. The "Dark" switch is either engaged or bypassed. Unlike the Vision control, this is a passive EQ filter. It is a low pass filter, AKA High Cut. It's precisely the inverse slope and the same frequency as the Vision control turned up all the way with a Hi Range selected. The EQ curves cancel each other out, giving you the original frequency response – **BUT, with more color!** That's not all she can do. By having the Dark switch engaged with the Vision on full and the Range at Lo, an upper-mid bell curve boost is created. This can sound like more presence without sounding bright. But if bright is what you want, just bypass the dark switch! Of course, you could just keep the vision off and engage the dark switch for a mellow top-end sheen.

# **Divided**

The "DiVided" jack is a mono TS ¼" unbalanced Hi-Z **wet** output. That's a mouthful. It can be used simultaneously with all other jacks on the DiVision. This jack comes before the output transformer, but after the tube stage and EQ filters. It seemed like there were some people who wished the DiVision had a wet out. Now it does as of 11/2022. This mod will be performed on all future builds starting at SN47/68 and can be retrofitted to older serials.

# <u>Note</u>

**Microphonic Noise.** Virtually all vacuum tubes exhibit this trait to some degree or another. I haven't found a nuvistor tube which didn't experience a lot of this. From my experience they are generally more microphonic than any new tube in production. I did some things to minimize the issue with the original design of the DiVision, although a number of DiVision owners felt enough wasn't done. So, with the Treble mod also comes a tweak that eradicates nearly all the microphonic noise without compromising clarity or tone. It's just more better!

# <u>Warnings</u>

- Do not expose this device to water.
- Use only recommended power adapter of 9V DC with a minimum rating of 350mA.
- Do not leave this unit powered on indefinitely as this will shorten the life of the components.
- Do not attempt to disassemble or service this unit while power is connected. There is high voltage inside when power is supplied. Only those qualified to work on vacuum tube electronics should be permitted to service this device. The high voltage capacitor will automatically discharge to a level safe for servicing within 2 minutes of power down.

For servicing or if you still have questions please contact Lightning Boy Audio either via email to <u>sales@lightningboyaudio.com</u> or by phone 1+716-703-4087, M-F, 8AM-4PM Eastern-time USA.