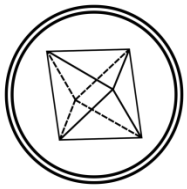

ELECTRONIC AUDIO EXPERIMENTS

Technical Document

Surveyor V2 Manual

Version 2

Last Revised: 29-Jan-21

John Snyder

INTRODUCTION

Thank you for purchasing the Electronic Audio Experiments **Surveyor**. This manual is an in-depth guide for properly understanding and enjoying your pedal. Below is a bit of context. If you would like to skip ahead to how the pedal works, begin reading at the ***Operation*** section on the next page.

The Surveyor began as half of our Dude Incredible pedal, which was a two-channel homage to the guitar tones of Steve Albini. This incarnation does away with the Harmonic Percolator channel in favor of a more compact and manufacturing-friendly form factor – and not to worry, there are a number of excellent percolator clones on the market to mix and match.

The original IVP is a full-featured rackmount preamp with two input channels, an active Baxandall shelving EQ for high and low frequencies, a four-band parametric EQ for midrange frequencies, clean and “Tube Voice” channels, and multiple buffered patch points for external effects. The Surveyor distills the IVP down to just the input stage, Baxandall EQ, and Tube Voice drive circuit. In the IVP, the EQ is placed before the drive circuit, allowing for unique tone shaping. Rather than shaping the final overdriven tone, the user can emphasize which frequencies become distorted. Boosting highs brings forth not just treble content, but midrange and presence as well. Boosting the lows can add heft at lower settings or overwhelm the drive circuit in a musical fashion. The Tube Voice circuit itself uses discrete transistors and a small, low-bandwidth transformer to generate clipping. This combination responds in a smooth manner at lower gain settings but becomes fuzzy and aggressive at higher settings. Thanks to the transformer’s limited bandwidth in the KHz range, it never gets too harsh. You will find that the Surveyor does far more than noise rock clang – it is in fact capable of a huge variety of saturated tones and textures.

I am extremely proud of this pedal and hope you enjoy it. Thanks for reading!

-John Snyder, EAE

OPERATION

Only use a standard, reliable 9VDC supply (2.1mm center negative barrel tip) with the Surveyor (e.g. Truetone, Voodoo Labs, Strymon, Cioks, etc). The Surveyor has a current draw of 75mA when engaged.

As of Version 2, the Surveyor has a power supply protection circuit which shuts down the pedal in the event of reverse polarity or a DC voltage greater than 9V. The Surveyor does not accept battery power. (Note: previous versions do not have voltage protection.)

The Surveyor has soft-touch relay switching with true bypass. In the event of power loss, the pedal will default to its bypassed state in order to mitigate total signal loss in a live performance scenario.

The controls are as follows:

- **Level** - overall volume, with more than enough range for line level output or to overdrive a tube amplifier
- **Gain** - amount of overdrive/saturation equally applied to all frequencies; highly interactive with the Bass and Treble settings
- **Bass** - pre-gain low shelf boost/cut, +/-12dB @ 100Hz
- **Treble** - pre-gain high shelf boost/cut, +/-12dB @ 3KHz
- **Hi/Lo (switch)** - sets the range of the gain control. In the Lo setting the gain range is -15dB to +12dB, in the Hi setting the gain range is +9dB to +36dB.

The Gain control determines the overall level of the signal fed into the Tube Voice overdrive/clipping circuit. Lower settings yield a ragged “edge of breakup” tone characteristic of a good 1970s solid-state amplifier. Higher settings will verge on distortion or fuzz depending on the EQ settings and pickup type/position. The Hi/Lo control will adjust the effective range of the Gain control, which is especially helpful for matching to the output of a specific instrument.

The EQ settings work in conjunction with the gain control, and can greatly extend its effective range. Since the EQ is located *before* the clipping stage, boosting a particular frequency band will increase the amount of drive/clipping at that particular range. Increasing Treble will add crunch and presence as these frequencies become more overdriven. However, the sound never becomes too harsh thanks to the natural bandwidth limiting of the transformer in the Tube Voice clipping circuit. Increasing Bass can push the Tube Voice circuit out of bias, producing a blown out sound with a sagging attack that resembles a fuzz pedal or an overdriven console.

What one might call “classic” IVP tones come from single coil equipped guitars – bonus points if they have aluminum necks, though you can get surprisingly close with a good maple neck. If you are using humbuckers or a low-tuned instrument and desire a more focused tone at higher Gain settings, the Bass control should ideally be kept below the 12:00 setting. Reducing both controls down to 9:00 can also produce a smooth midrange emphasis that is well-suited to more traditional rock styles.

When stacking other pedals (probably a Harmonic Percolator as the obvious choice, though I also recommend trying a good Fuzz Face or octave fuzz), you will want to reduce the gain slightly and keep the output volume on the fuzz pedal on the lower side in order to retain note definition. Of course, you are welcome to disregard this advice for truly apocalyptic results: infinite sustain, squealing feedback, note attack that ducks the signal out entirely, and more.

Finally, the Surveyor may be used as a dedicated always-on preamplifier and has enough output to easily drive a power amp at line level. It is not the primary use case, but experimentation is encouraged.

In conclusion…

The Surveyor pays homage to a classic rackmount preamplifier in the form of a uniquely versatile overdrive pedal. Thank you for supporting our design and manufacturing efforts, and we hope this pedal serves you well for many years to come.

Revision History

Version 2	Clarification of EQ controls and their relation to the Tube Voice circuit
Version 1	Original Surveyor V2 manual release