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Sonic Farm Tantra

Bass Preamplifier

USER MANUAL



Dear Audio Professional,

Thank you for purchasing the **Tantra**. We hope it will deliver exceptional performance for many years into the future. Please take the time to read this manual. It describes **Tantra**'s design philosophy as well as its most important functions.

DESIGN PHILOSOPHY

At the heels of the success of our 2DI4 Pentode direct box, a conversation arose to build a full-blown bass preamp with extensive functions and an optional high power module capable of fulfilling the needs of today's professional bass player community.

The idea came from a fellow pro-audio designer and a lifelong pro bass player Michael Arnpol. He thought that the 2DI4, as good as it sounded, needed to be taken to the next level. After some initial resistance and a lot of brainstorming between Boris, Michael and me, we warmed up to the idea, and over the course of almost a year, came up with the design you are now seeing in front of you, the **Tantra**.

Apart from the unchanged pentode input section borrowed from the 2DI4, the preamp has an overdrive section, centered around another pentode, followed by several solid-state powered sections: a high-pass filter, a 5-band EQ, a compressor and a 2-part harmonic generator. There are effects loop points (send and return, balanced or unbalanced) that facilitate adding external effect units to the signal chain.

Both the DI and line outputs are still there, just like with the 2DI4, with some important functions added.

There is a place to house and connect an optional ICE1000ASP class D power module as well. This module was suggested to us by the bass community as the one with the best sound, power, impact and clarity amongst all of the available ones today.

All of the sections were optimized for use with a bass instrument, although the unit can be successfully used with other types of signals as well.

The idea was to essentially have a 2DI4 along with all these other sound processors that would have "no sound of its own" and thus not take away from the definition and richness that the 2DI4 is known for. We hope we have fully succeeded in accomplishing that. In addition, all sections can be bypassed, and when they are, one essentially gets the barebone 2DI4 sound.

We hope you will put this preamp through it's paces both in your studio and at your live gigs and that it will give you many years of fulfilling performance!

SOME REMINDERS REGARDING TUBES

Tubes work with very high supply voltages. There are points inside **Tantra** that measure in excess of 350V DC. If touched, those voltages could be lethal!

Make sure that no pointed objects (especially metal) or liquids penetrate the inside of the unit through its cooling grilles or otherwise. If that accidentally occurs, immediately pull the plug out of the power socket and wait for the unit to discharge. **Tantra** must not be operated if moisture penetrates inside.

Before opening the unit one must disconnect the mains cord and then wait several minutes for the internal capacitors to discharge.

When mounting in a rack enclosure, always leave an empty space above the unit to ensure proper cooling.

Please do not replace the mains fuse with one of a higher value: use only slow-blow types rated 630mA@110-120V or 300-350mA@220-240V.

Legal Disclaimer: Neither Sonic Farm nor anybody associated with it can take any liability for damage to persons or property caused by either use, modification or servicing this unit.

HOW TO CHANGE TUBES

This only applies to a functional unit. Please entrust any repairs to qualified service personnel.

Only an EF-86 or EF-806/EF-806S (or equivalent, like 6267, 6CF8 or Russian 6J32P) pentode can be used.

Pull out the power cord. Wait for at least 10 minutes for all the capacitors to discharge.

The left tube will influence the tone more than the other one, which will only affect the overdriven signal, when blended in. Both tubes are of the same type and can be replaced when worn out or if a slightly different tonal texture is desired.

Remove Tantra's cover by removing all of the screws on the cover.

Pull out the tube while adding a subtle but fast left-right motion to loosen the tube from a tight socket. Do not bend the tube much out of the axis because you can break the pins or cause air to enter the tube and destroy it. Paying attention to the pin alignment, push the replacement tube into the socket using same motions but in the opposite direction. Make sure it goes in all the way.

Due to electric shock danger, testing the preamp with the lid removed is not recommended. Screw the cover back in place and you're done.

TANTRA'S FRONT PANEL CONTROLS:



- 1 Instrument ¼" input. Plug your bass (or guitar, keyboard instrument) here. The input impedance is 2.2MΩ.
- 2 Trim controls determining the level of Lo and Hi boost. Up to 9dB in pentode and 5dB in triode tube mode. This boost happens on the first, clean tube stage, and will affect everything else down the chain. Use a mini slot (.098"/2.5mm Ø, .031"/0.8mm wide) or hex screwdriver (.104"/2.64mm hex x .055"/1.4mm deep) to adjust pots.
- 3 The first group of mini toggle switches starts with the DI feed switch. It determines what goes to the DI output (which, of course is mic level). Left: DI is fed from the point after the tubes, and will be affected by the tube mode (pentode/triode, switch 6), Lo and Hi boosts (5 and 7), the attenuation/mute switch (4), clean gain (8), overdrive gain (17) and overdrive blend (10). Right: DI is fed from the output of the preamp and is affected by all processing, including the master level pot.
- 4 3-position attenuation/mute switch, works at the point after the tubes and before the effects loop. Left: mute. Must use before changing tube modes to avoid a loud click caused by re-biasing of the input tube. Most speakers are sensitive to such clicks as well. Middle: no attenuation. Right: 6dB attenuation of the signal; use with stomp boxes in the FX loop to avoid overloading them.

- 5** 3-position Lo boost switch. Left: Bass boosted (shelving type) at first tube. Max 9dB (pentode) and 4dB (triode), depending on the left trim pot setting. Middle: no boost. Right: overall gain boosted, use with very quiet basses or to get more overdrive at the 2nd tube.
- 6** Tube mode switch. Left: pentode. More gain and subtle saturation. Right: Triode. Less gain and cleaner, more polite sound.
- 7** 3-position Hi boost switch. Left: Treble boosted (shelving type, starting at about 2kHz) at first tube. Max 9dB (pentode) and 4dB (triode), depending on the trim pot setting. Middle: no boost. Right: Treble boosted (shelving type, starting at about 4kHz).
- 8** Clean gain mix control. This is post the first tube and will affect everything down the chain (not including the OD tube). It is desirable to have this control as high up as possible without clipping the subsequent stages. You will be watching the bi-color overdrive indicator LED (9) with the switch (14) in the right position. You don't want this LED to turn red even at the loudest notes played. Please note that whereas the tube front end breaks up very musically when overdriven, this not the case with the solid state processors following the FX loop return. They clip in a very unpleasant and jarring way. (See explanation under 14 to make this even more clear) Also see compressor explanation.
- 9** Bi-color overdrive indicator LED (9). Green for signal presence, turns red to show clipping distortion. It can show a clipping on the first tube or elsewhere in the chain, depending on the OL feed switch (14), please see explanation.
- 10** Overdrive blend pot: mixes the overdriven signal coming out of the 2nd tube with the clean one from the 1st. This OD blend can be muted using a foot switch, see rear panel guide. The small orange LED (11) comes on when foot switch muting is active.
- 11** OD mute switch indicator (orange LED). Above it is a blue LED that just indicates that the preamp is ON.
- 12** OD+ switch activates the 2nd overdrive stage (uses FET's). Left: 2nd OD stage active through a high-pass filter. Middle: 2nd OD stage not active. Right: 2nd OD stage full on.
- 13** Effects loop activation switch: Left: FX out. Right: FX in. Make sure this one is pushed to the left with no FX connected, otherwise there will be no sound.
- 14** Overload indicator feed switch. Left: Indicates a possible clipping distortion on the first tube. Gain pot (8) will not affect this. Good to know if you are clipping the first tube with a very loud (high signal output) bass. Switch to Triode to avoid it. Deactivate any boost (5 and 7). This should accommodate even the loudest existing basses. If your signal (maybe a keyboard) still clips the input tube, reduce the output level on the instrument itself. Right (and this is where the switch should normally be): OL indicator monitors the signal just prior to the master level control. Bypassed sections affect neither the sound nor this indication. Clipping at those solid state stages sounds nasty and should be avoided. Use the clean and OD mix controls to adjust.
- 15** Pre OD high-pass filter switch. It will affect the overdriven tone. Left: some bass filtered out to avoid mud. Middle: only mids and treble frequencies pass into the OD tube (use for rock and roll crunch sound or to get more bite out of your bass). Right: full on (think Larry Graham, "Dance to the Music")

- 16** Compressor switch. Left: out. Right: in.
- 17** Overdrive gain control, determines how hard you drive the 2nd tube. Good to keep this at minimum if you are not using overdrive.
- 18** High-pass filter switch. Left: out. Right: in. This is the first processor after the FX loop.
- 19** EQ switch (separate from the HP). Left: out. Right: in. EQ is the second processor, following the HP.
- 20** HP filter frequency: Left: 28Hz. Middle: 60Hz. Right: 40Hz.
- 21** Bass shelving gain (boost or cut, detents in the middle for flat), part of the EQ section.
- 22** Center frequency of the first parametric band filter, 34 to 300Hz. Note that controls affecting the same parametric band filter section are connected by red lines for easy action)
- 23** Center frequency of the 2nd parametric band filter, 150 to 1300Hz.
- 24** 2nd parametric band gain (Boost or cut, flat in the middle). Max boost or cut will interact with the Q2 control (the width of the curve or, to be more precise, the resonance peak or dip intensity). This applies to all 3 parametric bands.
- 25** Center frequency of the 3rd parametric band filter, 690 to 6000Hz.
- 26** 3rd parametric band gain (Boost or cut, flat in the middle).
- 27** 3rd parametric filter band's Q control (resonance or width). The filter will have a narrower and more intense peak or dip, depending on the G3 setting.
- 28** 2nd parametric filter band's Q control (resonance or width).
- 29** 1st parametric band gain (Boost or cut, flat in the middle).
- 30** 1st parametric filter band's Q control (resonance or width).
- 31** High frequency shelving control, boost or cut, flat in the middle)

- 32** Compressor drive control. For the main signal chain, with no harmonics blended in (see 34 or 35), the compressor switch (16) needs to be flipped right for this compression drive control to be active. You are hitting a fixed compression threshold (the level where compression kicks in) with more or less signal, which affects the overall loudness as well as the point in time (from plucking a string all the way to decay) where loudness starts to be “shaven off”. For studio heads, the compression ratio is fixed to around 3.5 to 4, and the release time is optimized for bass instruments. This compressor also features a special, dual time constant, feedback circuit. In plain words, it won’t pump or breathe or squash your attack even at higher settings. Even slapping will yield clean, distortion-free, natural attack. It rivals best studio compressors, and then some. It is important to point out that the signal should be nice and strong (use controls 8 and 10) to get the most out of the compressor. Just make sure you don’t get red clipping with OL fd (14) switch in the right position. The dB markings around the dial indicate maximum gain reduction possible in that setting.
- 33** Master level control. Affects line output, as well as the power amp, if built in.
- 34** 2nd harmonic blend. This section allows giving your bass a bit more “growl”. The effect is limited to low and low-mid frequencies only. The nature of this circuit makes it emphasize louder notes. That’s why we left the compressor permanently engaged with these 2 harmonic generators, so that you can regulate not only the blend, but also the intensity of harmonic generation (even with the compressor switch flipped to the left). With compressor drive at minimum, the effect will be subtler, and you will need to blend in a bit more. As you turn up the compressor drive, the effect will start to be more intense, so adjust to taste. This blend control mixes the harmonic generator output with the main signal.
- 35** 4th harmonic blend. The same as above applies here. The only difference is the sound of the 4th harmonic.

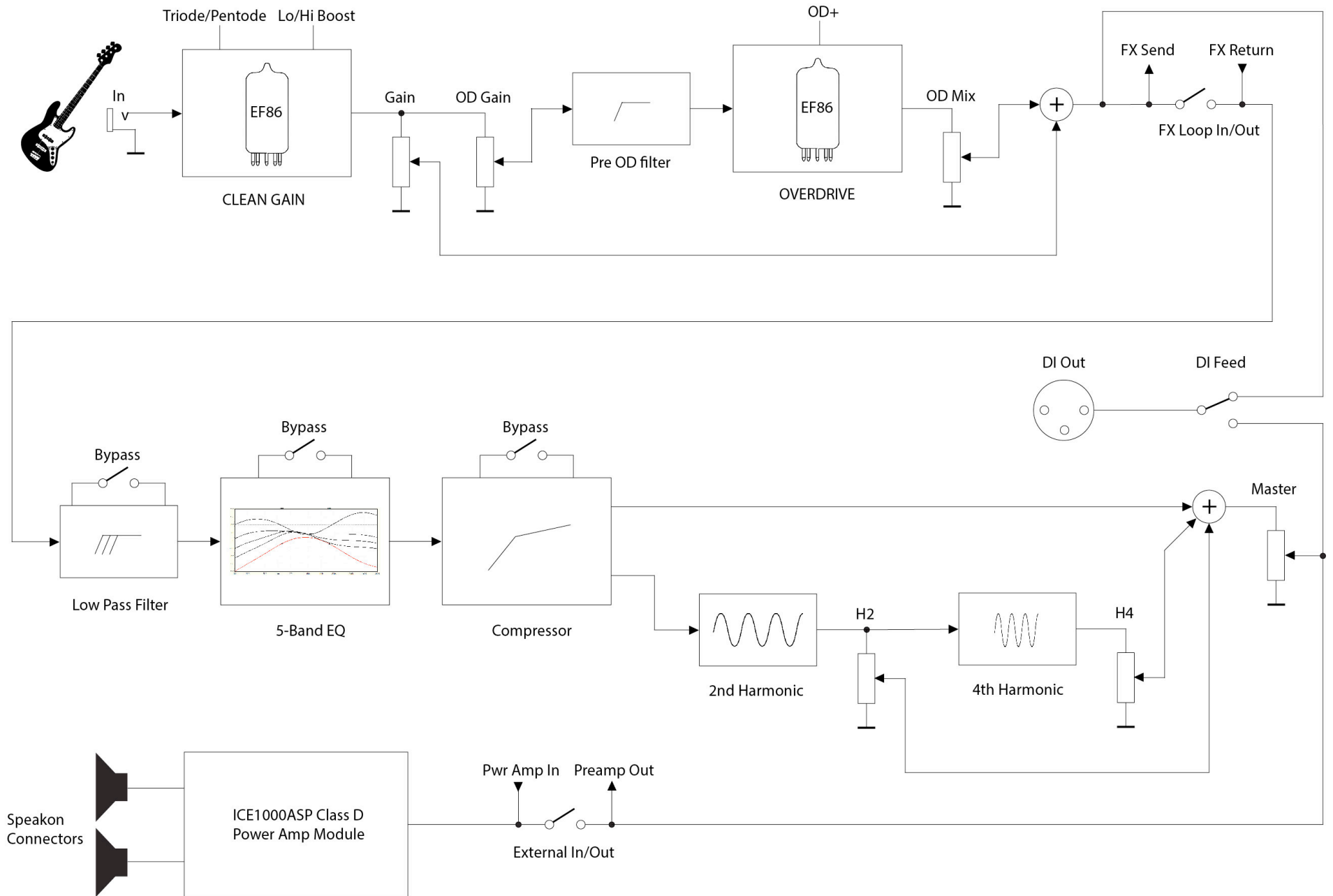
TANTRA'S REAR PANEL CONTROLS:



- 36** Standard IEC-type power receptacle. Just make sure that the fuse ratings correspond to the mains voltage you are using.
- 37** and **38**: Voltage selectors for power amp and preamp separately. These are 2 different circuits; make sure both are set to the correct mains voltage.
- 38** See above.
- 39** and **50**: Speaker “Speakon” connectors. Active only when the power module is built in. Use only the proper Speakon cables. Total minimum speaker impedance not to go under 4Ω (Ohms). This is the same as 2 x 8Ω. Of course, you can use a single 8Ω or a 4Ω speaker cabinet. The maximum output power will be 1000W into 4Ω or 500W into 8Ω.
- 40** External power amp input. Active when the pushbutton switch (41) is depressed.
- 41** Press to activate the external power amp input and separate the preamp from the power amp. The line preamp output will still be active. You can even insert an external (balanced, studio grade) processor in between the preamp line output (42) and the power amp external input (40). For normal amp operation, this switch should be out (not depressed).

- 42 Line level balanced output (electronically balanced). (XLR pin connection: 1=GND, 2=HOT, 3=COLD). Useful for recording or driving an external power amp. **IMPORTANT:** If you want to drive an unbalanced input, you need to make a special XLR to ¼" cable: Connect XLR's pin 1 to ¼" plug ground (sleeve) and connect XLR's pin 2 to ¼" plug tip. Leave XLR pin 3 disconnected (floating). You cannot use this cable on the DI output, only on line out.
- 43 Ground lift switch. Press to prevent hum caused by ground loops (only when the line output is connected to another unit and you get a hum as a result). This function cannot remove hum already present in the instrument signal (for example your bass pickups picking up hum). Under normal operation, this switch should be out.
- 44 DI (or microphone level) output (Transformer balanced). Balanced connection only! (XLR pin connection: 1=GND, 2=HOT, 3=COLD).
- 45 Overdrive blend disable footswitch. Use a standard latching ¼" foot switch that connects tip and sleeve when engaged.
- 46 Effects send jack, tip-ring-sleeve. Can be used for unbalanced effects (only when switch 47 is out), or balanced (switch 47 pressed). You must reduce the signal level when you use unbalanced stomp boxes not to overdrive them. Flip the attenuator switch left, or, if that is not enough, reduce the (8) and (10) controls.
- 47 This switch chooses between unbalanced effects connection, like stomp boxes, or balanced (studio units with XLR connectors). Out for unbalanced, in for balanced. When in balanced mode, jacks (46) and (48) are in TRS mode: Tip: Hot, connect to XLR pin 2; Ring: Cold, connect to XLR pin 3, and Sleeve: Ground, connect to XLR pin 1.
- 48 Effect return, balanced or unbalanced, depending on the switch (47) setting. Remember that the FX loop is activated from the front panel, switch (13).
- 49 Tuner output, mono ¼" jack.
- 50 See 39.
- 51 Preamp fuse, 630mA@115VAC or 300-350ma@220-240VAC. Replace only with a slow blow fuse of the same rating for the appropriate mains voltage.
- 52 Ditto, power amp fuse. 10A@115VAC, 6.3A@220-240VAC. Do not exceed these ratings.
- 53 Preamp power switch. You can use the preamp separately from the power amp (when built in). With the integrated version, always turn the preamp first (before the power amp), and turn it off last (after the power amp).
- 54 Power amp power switch. On the front panel, to the right and above the F3 control (25), there is a small red LED. This is the power amp clipping indicator. If this LED occasionally lights up, it means you are driving the power amp too hard. Reduce the master level.

Tantra's Functional Block Diagram:



TECHNICAL SPECIFICATIONS:

1 channel

Frequency response: 10Hz-50kHz +/- 3dB

Maximum gain: 54dB at the line output, 32dB at the DI (mic level) output

Harmonic distortion: <2% before clipping level, quickly decreases if driven less.

Maximum output level: 30dBu

Minimum output load: 600Ω

Connectors: XLR DI and line output, balanced only

Instrument input: 1/4" unbalanced, mono

Power consumption: 30W preamp, max 1100W power amp.

WARRANTY INFORMATION

Sonic Farm gives a one-year warranty on parts and labor from the date of purchase.

Should you need to send in your unit for warranty-covered service, please contact us for an RMA number first.

We will also tell you where to send the unit.

Any Modification of the unit voids the warranty.

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