



# Apex Pinnacle

## BEFORE YOU TURN ON THE AMP:

1. Make *SURE* you have the line voltage (the red switch on the back) set correctly for your area. 115V for 110/115/120V, and 230V for 220/230/240V.



2. Install the tubes as shown below. The 6SN7 tube goes in the center – it is keyed, so rotate it until it drops into the socket. The socket will be quite snug at first. The two PX4 tubes are installed in the outer sockets. Note that the PX4 has two large pins and two small pins – insert it in the socket the correct way. Trying to force it in wrong may damage the tube or sockets. The tubes provided with the amp are matched, so it doesn't matter which one is which.



3. Connect the umbilical cable between the amp and the power supply. It is symmetrical so it doesn't matter which end is which. It's keyed, so you need to rotate it until it starts to engage, then turn the ring on the connector clockwise until it is fully seated. Never connect or disconnect the umbilical while the amp is plugged in to the wall!

## OPERATION:

*Power* – You will see that there is a power switch on the back of the power supply, near the AC line input. And there is also a switch on the front of the amp, which is labeled “STBY” and “ON”.

The switch on the rear of the power supply removes all power to the amp. This does the same thing as unplugging the amp. You should turn off this switch before unplugging the amp, or if you plan to not use it for an extended period of time. Otherwise, you can leave it turned on.

When the rear power switch is on, a small “housekeeping” power supply is active inside the amp. You will see the “STBY” LEDs (green) on the amp and power supply are lit. In this mode, all power to the amplifier itself is turned off. The tubes are not heated.

When you move the amp power switch from “STBY” to “ON”, a power-up sequence begins. You will see the “ON” LED becomes illuminated red, and the LEDs indicating the input and output selections light. At this point power is applied to the tube heaters and filaments to allow them to warm up. After about 30 seconds, the high voltage power supplies are activated. At about 60 seconds after turn-on, the output is enabled, the “ON” LED turns blue, and the LED(s) corresponding to the selected output will light.

Moving the power switch back to “STBY” immediately disconnects the outputs and removes all power from the amplifier.

*Inputs* – The Pinnacle has three sets of inputs. Both XLR and RCA connectors are provided for each input; however, only one or the other can be used at one time. Each input has a switch to select balanced or unbalanced operation. This switch *does not* switch between the RCA and XLR connectors – it merely selects if the input should be referenced to ground (unbalanced) or truly floating (balanced). You can use the RCA or XLR inputs in balanced mode or unbalanced mode. Use whichever setting results in the lowest noise.

Which of the three inputs is fed to the amplifier is set by the “INPUT” control on the amp front – 1, 2, or 3.

*Output* – The pinnacle has three different outputs, provided on a number of different connectors. On the amp front is a ¼” stereo unbalanced headphone jack, and balanced headphone outputs on a single 4-pin XLR and two 3-pin XLR jacks (for left and right channels). The 3- and 4-pin XLR connectors are connected together – normally only one set or the other is used, but there is no harm in driving two sets of headphones at the same time if desired. Finally, on the amp rear, there are both XLR and RCA preamp outputs. The preamp outputs can be unbalanced (one side grounded) or balanced (still ground referenced, with but positive and negative signals) depending on the setting of the switch on the back. Again, both sets can be used at the same time if desired – for example, you could feed a power amplifier from the XLR connectors, and a subwoofer amp from the RCA connectors.

Which output is active is selected by the “OUTPUT” switch on the amp front panel. It has 6 positions:

- IEM – this provides an attenuated, unbalanced output to the ¼” jack. A green LED at the jack will be lit. This output is appropriate for sensitive, low impedance IEMs.
- UNBAL LOW – this provides a low source impedance unbalanced output to the ¼” jack. A red LED at the jack will be lit.
- UNBAL HIGH – this provides a higher source impedance (and higher gain) output to the ¼” jack. A blue LED at the jack will be lit.
- BAL LOW – this provides a low source impedance, balanced signal to both the 3- and 4-pin XLR jacks. Red LEDs will be lit near both jacks.
- BAL HIGH – this provides a higher source impedance (and higher gain) balanced signal to both the 3- and 4-pin XLR jacks. Blue LEDs will be lit next to both jacks.
- PREAMP – this routes the output (at low gain) to the preamp output jacks on the back of the amp.

Generally, the “LOW” settings are used with lower impedance headphones (below about 100 ohms) and “HIGH” for higher impedance headphones. But you can select whichever setting sounds better to you. In some cases, low impedance headphones sound better driven from high impedance sources – and vice-versa. Use whichever you like better.

## **TUBES**

It is possible to try tube types other than those supplied with the Pinnacle. You can change the sound of the amplifier somewhat using different tubes. Following are some suggestions and warnings.

Note that whenever you change tubes in the Pinnacle, you should allow time for the tubes to cool, both before removing them (or you may burn yourself!) and before turning the amp back on. It is safe to change tubes when the power switch is in “STBY” – you do not need to turn off the rear power switch.

*Input Tube* – The Pinnacle uses a 6SN7 dual triode as the input tube. This tube provides all the voltage gain in the amp. The Pinnacle is normally supplied with a current manufacture, Tung-Sol branded 6SN7 made in Russia.

Any 6SN7 type can be used. The suffix – the letters after “6SN7” – denote various constructions and grades, but make no difference in terms of the electrical characteristics. So, 6SN7, 6SN7GT, 6SN7GTA, 6SN7WGT, 6SN7WGTA, etc. are all interchangeable. Similarly, the type 5692 is simply a military ruggedized 6SN7, so it is also interchangeable.

The European ECC32 and ECC33, although having a bit different characteristics, can be used.

Other tubes, even with the same base connections, should not be used. 6SL7, 6BX7, 6BL7 are examples of tubes that cannot be used here.

*Output Tubes* – The output tubes are current production PX4 tubes that use the American UX4 base. Tubes from Sophia, TJ “Full Music”, and KR can be used. NOS PX4 tubes cannot be used, as they have a different base.

## **MISCELLANEOUS INFORMATION:**

*Fuses* – The Pinnacle uses two 5mm x 20mm slow-blow fuses. If you have a power surge, lightning strike, blown tube, etc. it is possible that a fuse may blow. Use a 3.15A fuse if you have 120V power, or a 1.6A fuse if you have 240V. Turn off the power switch and remove the AC line cord, then you can remove the fuse drawer by squeezing the tabs at its top and bottom.

Inside the amplifier, there are also two fuses that are designed to protect the output transformers in the event of a tube fault. These fuses are 5mm x 20mm, 200mA, fast acting fuses. If you have a tube meltdown, it is possible that one of these fuses could blow. They are fairly easy to access by removing the amp bottom cover, but you should have a qualified technician do this.

*Gain* – If you find that the Pinnacle has too much gain for your system, it is possible to lower the gain (in all modes) by 6dB. There are two sets of jumpers, clearly labeled, inside on the amp PCB, near the input transformers. This is accessed by removing the amp bottom cover. Again, only a qualified technician should open the amplifier chassis!