

## **PS Audio BHK Signature Pre-Amplifier**

Introducing one of the most remarkable musical instruments in the world, the BHK Signature Preamplifier. This exceptionally built vacuum tube preamplifier opens up the music and reveals nuances, life and space not previously heard on your system. It is the perfect interface between your sources and power amplifier. Preamplifiers play a critical role in any separates audio system, strategically positioned between sources of music: CD players, phono preamps, DACs, tape recorders and tuners – and your power amplifier – the preamp serves essential roles of control and isolation. Control is simple in concept, but extraordinarily difficult to design in an acoustically transparent manner. Control duties such as input switching, volume, balance, and amplification can place unwanted acoustic thumbprints on the music if not designed with extraordinary care. The challenge in any design is to do as little damage to music's purity as possible. Details on how each section of the BHK Signature executes control with minimal sonic impact can be found in the

Preamplifiers are the the heart of any high-end music system controlling input selection, the critical first amplification stage, volume and balance functions, and the all important electrical isolation between sources and power amplifiers. Place the BHK Signature Preamplifier between your musical sources, such as a phono preamp, DAC, tuner or auxiliary source—and your power amplifier—and magic happens. Suddenly you are enveloped in a wealth of musicality you've not yet experienced: deeper, wider soundstaging, improved separation of instruments and voices, Subterranean bass, extended highs, and an openness you have yet to experience without this instrument in the system.

### **High current oversized transformer**

Power supplies play a critical role in the performance of any well designed audio equipment. And the key to great sounding gear is to keep the impedance low, and the power supplies over-built. It's been our experience over the years that the one place designers should go overboard on—never skimping—is the all important power supply. It's been said that amps and preamps are really nothing more than modulated power supplies. And the importance of those power supplies cannot be overstated. The BHK Signature leverages an oversized toroidal analog power supply feeding 5 MOSFET based discrete regulators. Each of the regulators is based on years of experimenting and listening to find the best sounding architecture. They are explained in the video labeled “BHK on the Preamp” on this page.

### **Discrete hand-selected components**

Most modern audio products rely upon surface mount components to pass audio signals. PS Audio also uses sophisticated surface mount parts in our digital products because they have advantages unavailable with through-hole technology. The same cannot always be said for high-end analog electronics, like those inside the BHK Signature preamplifier. When compromise is not an option, analog audio products benefit from incorporating through-hole discrete parts in the signal path. Hand-selected through-hole PRP resistors, high grade Audiophile capacitors and the finest of discrete parts are used throughout the BHK Signature preamplifier. Nothing was spared in its design. Even the solder we use has been auditioned for best sound.

### **Zero loss vacuum tube input stage**

The heart of any preamplifier is both the gain stage that provides the amplification and the volume control that manages how loud or soft the music plays. Inside the BHK Signature Preamp a pair of hand-selected and matched 12AU7 dual triode vacuum tubes provides the unit's gain. The tubes are fed from a discrete MOSFET based high voltage regulator on their plates, and a discrete MOSFET constant current source on their cathodes. The filament voltage is supplied from a separately regulated supply delivering a clean source of free flowing electrons.

#### **Resolution perfect volume and balance controls**

The second most important area of a preamplifier's performance is the mechanism used for controlling the volume. Inside the BHK Signature, a combination of a stepped discrete input attenuator is combined with a novel switched gain adjustment controlling the actual gain of the vacuum tube. This topology offers the cleanest, lowest impact gain control in half dB steps. The sonic transparency achieved by this unique architecture, coupled with the zero loss vacuum tube, are largely responsible for the remarkable levels of openness and transparency afforded users of the preamplifier.

Control of the volume is handled through the front panel haptic feedback rotary encoder, or the supplied infra red remote control.

#### **Balanced circuit topology**

Regardless of the type of input, single ended (RCA) or balanced (XLR), the vacuum tube input stage remains fully balanced for lowest distortion and highest linearity. It is instructive to click on the video link on this page labeled "BHK on Balanced Audio". There, designer King offers insight into the value of a true balanced design, like that found from input to output in the BHK Signature instrument.

#### **DC output triggers**

Whether you're using a pair of PS Audio's BHK Signature power amplifiers, or any other product that can be switched on and off through a DC trigger, the BHK Signature Preamp offers two +12V outputs. Connect each DC trigger output to the DC trigger input of a compatible power amplifier or source, and control power-on duties from the front panel of the BHK Signature preamplifier.

#### **Vacuum tube standby control**

It is important for any high-end audio product to remain active for best sound quality, and the BHK Signature is no exception. Using the front panel PS logo button, the preamplifier can easily be placed in standby mode or activated to play music. When in standby mode, all the internal solid state circuitry such as the headphone amplifier, voltage regulators and high current output stage remain active, while the input vacuum tubes are turned off, thus preserving their life.

#### **Input naming, home theater bypass**

The front panel OLED display on the BHK Signature Preamplifier is deceptively simple. Touch the single button to switch inputs, or use the supplied remote control. But hold down the front panel button and you enter the setup mode. Here, HT bypass modes for each input,

as well as custom input naming can be accommodated to customize the BHK Signature to your system.

#### **Extended bandwidth and subterranean bass**

Though humans, even those with the best of hearing, cannot perceive frequencies extending beyond 20kHz or below 20Hz, it is sonically critical a high-end preamplifier extend its reach beyond those limits. It has been demonstrated, time and again, that audio amplification products with extended bandwidth sound more open and natural than their frequency restricted counterparts. Reasons vary, but essentially, an unrestricted bandwidth of both high and low frequencies assures zero phase shift performance in the audio band that permits overtones their full harmonic richness and transient rise times identical to the recording – and all without compromise. The BHK Signature extends well beyond 100kHz on the top end, and well below 0.1Hz on the low end. This extended bandwidth is partly responsible for the effortless presentation of music BHK preamplifier owners enjoy.

#### **Hear more than you ever imagined**

Perhaps one of the most common exclamations we've heard when auditioning the BHK Signature for the first time is one of surprise at the extraordinary level of missing nuance and details revealed. There's an old saying that we don't know what we're missing until it's gone. Perhaps the corollary of that chestnut might apply to the BHK Signature. You don't know what's been missing until the sound is revealed.

First time listeners to the BHK preamplifier remark at how much better the space around instruments and vocals appears. Most are gobsmacked when they hear nuances like those found in subtle hall reverb cues, extended harmonic richness and detail, depth and extended soundstage width. Perhaps even more remarkable is the improvement brought by this preamplifier when placed between a DAC that had once been connected directly to the power amplifier. One school of thought suggests that fewer pieces of equipment in the signal path offer the greatest chance of achieving sonic purity. It is, after all, a logical thought that makes great sense. And, depending on the quality of the instrument added to the signal path, can often be accurate. But the BHK Signature changes that dynamic, and not in a small way. Placed between even the finest DACs in the world – with zero loss digital volume controls – the improvements in sound quality are nothing short of ground breaking. Openness, transparency, increased space around instruments and voices come alive in ways most never thought possible. Music becomes convincing, part of the soul of the listener, rather than living on the edges – appreciated cerebrally, but felt less in the tapping of one's foot.

The BHK Signature is the culmination of one man's quest for musical perfection, coupled with one company's obsession to bring musical truth to as many people as it can. PS Audio has consistently sought out the finest design talent both from within and from outside, for the benefit of music lovers around the world. The BHK Signature embodies the lifelong design experience of Bascom H. King, and executed by PS Audio's chief engineer, Bob Stadtherr – responsible for mechanizing everything inside that makes it work. A strong engineering and production team, lead by Dave Paananen, coupled with the ears, experience, and design chops of one of the legends of high-end audio, Bascom H. King, help make the BHK Signature one of the finest preamplifiers the world has ever enjoyed.

Proudly built in Boulder, Colorado by hand.