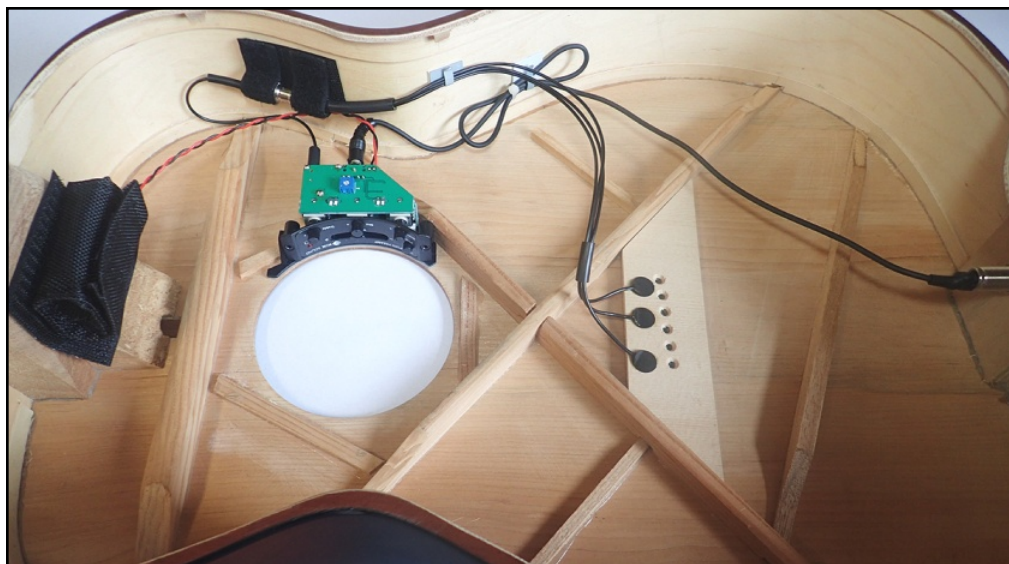


PRODUCT MANUAL

ULTRAPURE PREAMP



Overview photo: UltraPure Mini System, installed in a steel string flattop guitar

Package Contents

- Pure Pickup, with accessories & manual
- UltraPure preamp with battery clip cable
- Battery bag
- Allen wrench
- Output cable with endpin jack
- 3 cable clamps with adhesive backing: 1 big, 2 small
- Cable tie

You Need

- 9-volt battery
- Any materials required for the pickup installation (see Pure Pickup manual)

UNPLUG THE CABLE FROM THE ENDPIN JACK TO SWITCH OFF THE BATTERY. USE A SHIELDED STANDARD MONO ¼" GUITAR CABLE ONLY.

This sound hole mounted UltraPure Preamp features the same EQ and phase switch circuitry as our Pure XLR Preamp, without the XLR output and with components that are optimized for longer battery life. It has a ¼" endpin jack line output.

Features

- Volume control slider
- Proprietary K&K 3-band EQ with +/-20dB Bass, Mid and Treble controls
- K&K's extra wide band midrange filter, especially geared towards acoustic guitar
- Phase switch: flips the phase 180 degrees if pressed in
- Low battery indication light: comes on at about 6.5-volt operating voltage. There will be at least 3-4 hours playing time left.
- Adjustable input gain: a small blue trim pot on the bottom of the preamp

Installation Procedure

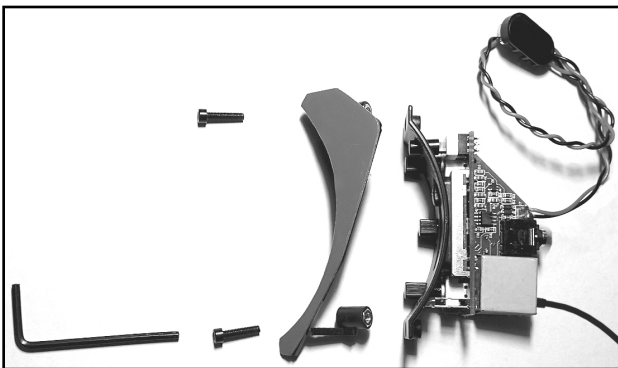
1. **Check to make sure the preamp will fit into the guitar:** Hold the UltraPure preamp in the guitar in its desired position to check the fit. Plug the 1/8" output plug, which is on the cable with the endpin jack, into the preamp to make sure that there is also enough room for the plug.

Different guitars have different soundhole bracing and in some models it may be a tight fit. In very few cases the bracing might be too high and close that it interferes with the preamp or the plug. In this case the preamp will not fit into this guitar properly and should not be used.

2. Install the transducers and drill the endpin hole following the manual for the pickup installation.
3. Apply a strip of masking tape to the edge of the soundhole on the guitar, hold the preamp in place and mark the position of the lower edge of the preamp's mounting bracket with a pencil on the masking tape (the piece with the red tape).

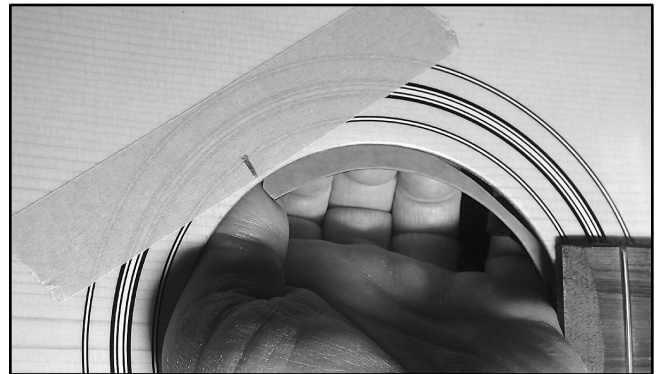


4. Unscrew the 2 screws that hold the mounting bracket to the preamp. The nuts have been secured to prevent falling out.



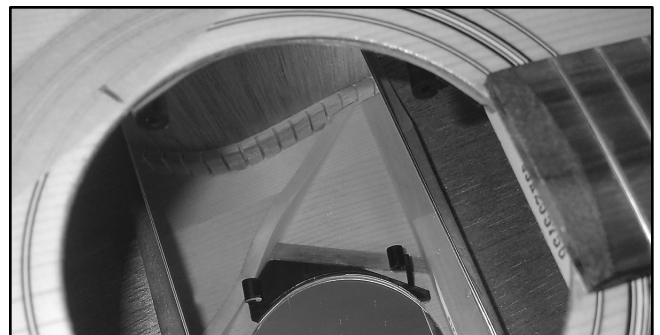
Make sure you separate the mounting brackets from the preamp, and install the brackets to the guitar first. If you attempt to install the brackets with the preamp attached, the preamp will likely come loose.

5. Make sure the area in the guitar where the mounting bracket will be installed, is perfectly clean.
6. Remove the red protective foil from the mounting bracket, align it with the pencil mark you did in step 3.



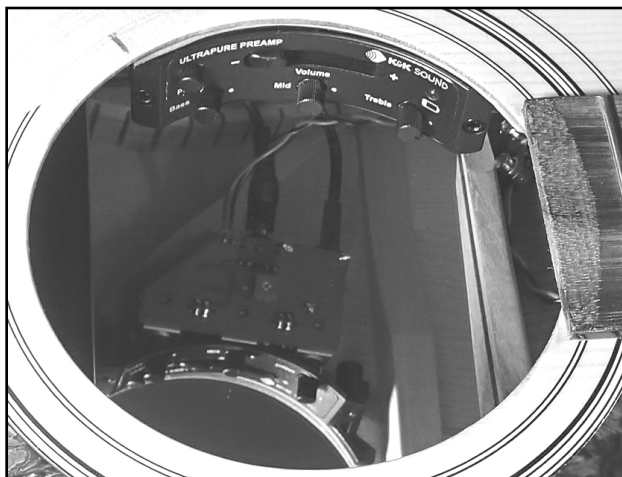
7. Press the mounting bracket onto the wood at its desired position. Make sure not to distort the mounting bracket's natural form when you stick it onto the guitar! Press the bracket tightly against the guitar top over its entire length to ensure good bonding.

We recommend waiting about an hour before continuing the installation in order to allow the bond of the tape to settle. The tape will take 24 hours until the final bonding strength is reached.



8. Establish a precisely fitting length of the endpin jack cable by making a loop in it, about where the cable meets the waist of the guitar (see overview photo, p. 1). Secure this loop with the supplied cable tie and cut off the excess of the cable tie.

9. Plug the 3.5mm plug of the endpin jack cable into the 3.5mm output jack on the back of the preamp.
10. Attach the preamp to the mounting bracket with the 2 screws that you removed in step 4. Start with the screw on the neck end of the preamp. This is the narrower end with less tape. Be gentle to avoid stressing the fresh hold of the tape while doing this.



11. Plug the pickup into the RCA connector on the preamp's input cable and stick the RCA connection either to the side or to the bottom of the guitar with the supplied self-adhesive Velcro material. Secure the pickup cables with the smaller metal clip and the output/endpin cable with the bigger clip as shown in overview photo on page 1.
12. Install the endpin jack according to the pickup manual.
13. Stick the supplied rectangular Velcro piece to the neck block for the battery bag (see overview photo, p. 1).
14. Connect the battery clip to a new 9-volt battery (not supplied) and put it into the battery bag.
15. Stick the battery bag to the Velcro on the neck block (see overview photo, p. 1).

Adjustable Input Gain Control

This is a small blue trim pot that is located on the bottom side of the preamp circuit board. It is factory set to the middle position.

To access this trim pot you have to remove the 2 Allen screws, separate the preamp from the mounting bracket (as described in point 4) and take it out of the guitar.

This control sets the amount of pre-amplification and allows using the UltraPure Preamp with a large variety of pickup systems, including non K&K systems. You can lower (turn counterclockwise) or raise (turn clockwise) the input gain if necessary.

Gain and volume both have an effect on the output volume of the preamp, but they accomplish different tasks. The gain (also called input gain or sensitivity control) is located at the INPUT of the circuit. It sets the amount of pre-amplification before the signal enters the EQ section. The volume control is located at the OUTPUT (the very end of the circuit) and simply allows you to adjust the volume.

To get the best performance out of the UltraPure Preamp, the input gain can be set to fit the instrument you are using. An instrument with a high output signal will require less gain than one with a weaker output. The gain is factory set to a "happy medium" position that will most likely be just fine if you use the Pure Pickup. Too much input gain will distort the sound when you strike the guitar hard, too little input will raise the noise floor of your amplification system.

Phase Switch

Phase switches are usually marketed as a feedback-controlling device, but they accomplish more than just that. Phase determines at what point in time a sound wave has its peak or bottom.



This picture shows two simple (identical) sine waves, but the wave on the bottom (2) is inverted in respect to the wave on top (1). Interestingly enough, if these 2 waves were played back simultaneously, they would cancel each other out and no sound be heard. Amplification systems and effect pedals may or may not invert the phase with respect to the signal sent in.

Every acoustic instrument projects sound waves in a certain phase. The phase that is projected from the amplified speaker source needs to be "in phase" (not inverted) with the acoustic instruments' own

sound waves or the result will not be optimal. If the amp projects the inverted phase, the acoustic instrument will fight its own sound and balanced tone cannot develop. Round and warm tone is only achieved when acoustic and amplified sound oscillate in the same phase.

The UltraPure's phase switch allows for instant correction of this problem. Play your instrument and flip the phase switch back and fourth. You will experience a fuller and warmer tone one way or the other (in most cases it will be correct when the phase switch is not pressed in, but there are exceptions!).

EQ Specifications

The Ultrapure Preamp features strong ± 20 db bass, mid, and treble controls. The special super-wide-band midrange filter is absolutely great in combination with the Pure Pickup. The bass control is set to roll off at 100Hz, the midrange at 1.5kHz with extra large bandwidth and the treble are set at 10kHz. Input impedance is 1 meg. Output impedance is 100 Ohm. Frequency response is 30 – 20000 Hz.

We recommend pre-setting the 3-band EQ and phase at sound check as the EQ knobs are somewhat difficult to reach on the fly. When done correctly, there should be no need to adjust during the performance. If there is, we found it easiest to turn the knobs with thumb and middle fingers, encircling the strings. The volume slider is always easily accessible.

