

TRI-STAR PREAMP

Thank you for choosing the Tri-Star Preamp!



The Tri-Star Preamp is a 3-channel, internally mounted acoustic guitar preamp. It has been designed specifically for use with the K&K Pure Mini, Pure 12 String, or Pure Classic pickup.

The Tri-Star Preamp System has these main features: First, it allows for individual gain control of the three transducers of the Pure pickups (with the Pure Classic the two center pickups are grouped together) to perfectly balance the pickups to your guitar and your playing style. Second, it provides our proprietary 3-band EQ for the overall signal.

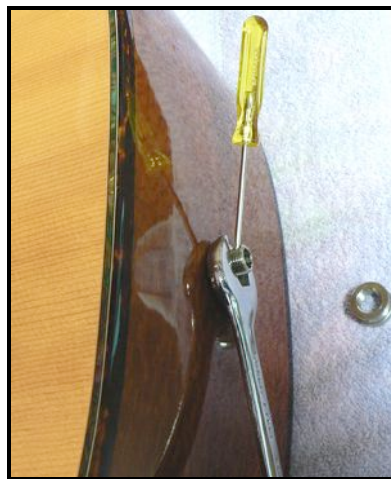
The **Tri-Star Pro Preamp** adds a master volume (thumb-wheel) and a phase switch for optimum tone and best feedback rejection.

To achieve individual gain control, we use one discrete class A operational amplifier/buffer preamp per pickup head. While the channel for the E - A string pickup is set at full range, we progressively add a preset bass-cut to the D-G and B-E channel. At the D-G channel the bass is reduced only slightly below 140 Hz. The B-E channel has a much more dramatic bass cut below 250Hz. As the high strings do not ring at low frequencies at all, this feature provides a very sweet and crystal clear transmission of the high strings that, as a nice by-product, completely eliminates unwanted pick-attack noise.

The trim-pot settings on the main circuit board can be changed with the supplied long screwdriver. In order to easily reach the trimmers through the sound hole, we include two mounting wedges that allow for installing the main preamp board at a 45-degree angle.

We recommend mounting it this way for the first few weeks, until you are absolutely sure you've achieved the perfect EQ setting. After this you may consider removing the wedges and laying the preamp flat on the bottom for a more unobtrusive installation.

INSTALLATION INSTRUCTIONS



Unscrew the strap-nut, the hex-nut, and the washer.



Pull the endpin jack out of the sound hole and unscrew the screw cap to expose the terminals.

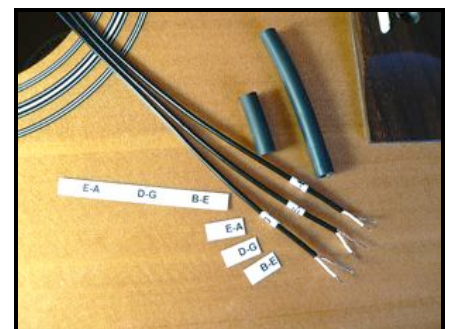
You do **not** need this endpin-jack for this installation.



Unsolder (or cut off) the wires from the terminals.

Pull off the 2 black rubber tube pieces. The long one is at the cable end, the short one is close to the pickup heads. The above picture shows the pieces you have removed.

Separate the 3 individual wires. You may simply cut all 3 wires at the start of the black insulation.



Locate the peel & stick paper label (E-A / D-G / B-E). Cut out the individual markers like shown.

Identify which cable goes to which pickup and mark the wires with the corresponding sticker. Make sure to wrap the stickers tight around the cables as shown.

Carefully re-strip the wires as shown. Make sure to do this properly without damaging the wires or the insulation of the inner wire!

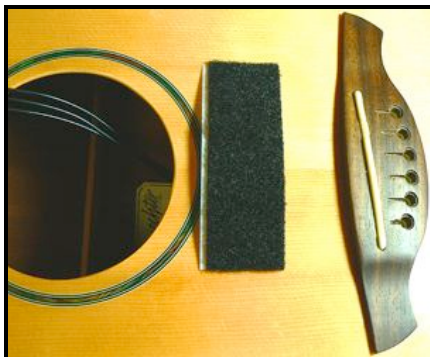
You only need the short rubber tubing piece for this installation.



Push the short rubber piece over the 3 cables. This rubber piece is supposed to tie the 3 wires together 1 1/2 - 2" (4-6cm) from the pickup heads.

If you have silicone spray on hand it is the perfect lubricant (a drop of WD-40 works too or even a drop of salad oil does the trick).

Slide this piece up the cables towards the pickups. It should tie the 3 wires together 1 1/2 - 2" (4-6cm) from the pickup heads.



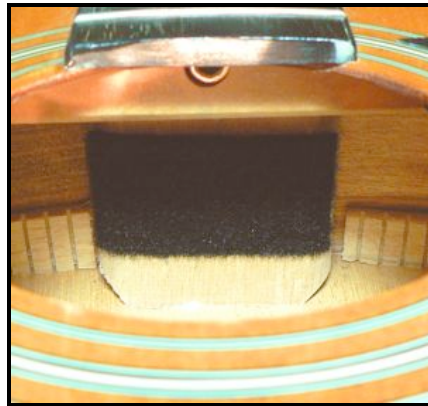
Locate the big rectangular piece of soft Velcro. This is for the main circuit board.



Attach this Velcro piece to the bottom of the guitar as shown.

Locate the 2 mounting wedges (45-degree angle pieces) and mount them on the Velcro as shown.

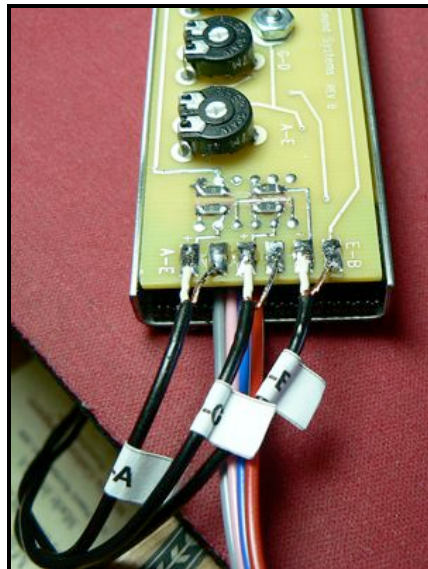
They allow the main circuit board to be in a convenient angle for trim-pot adjustment through the sound hole using a long screwdriver.



Locate the soft Velcro piece that is attached to the battery holder, remove it and stick it onto the neck-block as shown.

NOTE: When changing the battery, we recommend pulling the complete battery holder off the Velcro and removing it from the sound hole.

When inserting the battery, make 100% certain that it is inserted properly and **in the right direction**. It takes some force to snap it into the contacts!



Solder the wires of the 3 pickups to the corresponding pads on the main circuit board. The pads are marked on the board.

From left to right (as seen on the photo) A-E / D-G / B-E.

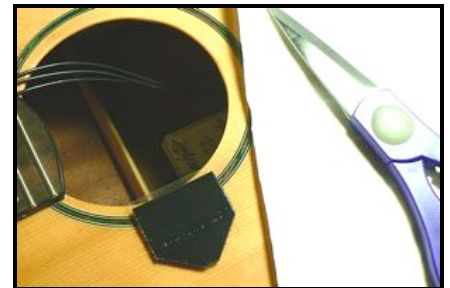
Watch the orientation of hot and ground wires!

Use only fine electronic soldering equipment suitable for this kind of work. A 30-watt iron with a small tip is perfect.

Tri-Star Pro Preamp only:



Locate the square soft Velcro piece for the master volume control element.



Trim it to fit the bracing in the area shown.

This exact location may differ depending on the guitar model.

Find a large enough spot anywhere on the low e-string side of the sound hole. It depends on the support bracing around the sound hole.

Stick the Velcro (inside) to this location.

ENDPIN JACK INSTALLATION

This section explains how the new endpin jack (pre-soldered to the Tri-Star Preamp) is installed:

Unscrew the endpin jack's strap nut.

Take off the outer nut and washer. Do not lose the 2 washers that are still on the jack body.

Find out the thickness of your end block and set the inner nut accordingly. Note: Copy the inner nut distance of the previously used endpin jack.

Once nut is in place, screw the screw cap in as far as it goes. The screwcap does NOT have to lock to the inner nut to be secure, simply screw it in as far as it goes.

Insert the jack from the inside into the endpin hole.

Tip: A chopstick or something similar helps to get a hold on the jack to pull it through the hole.

Attach outside washer and nut and tighten.

Attach the strap nut.

Order of parts on the endpin jack (from outside to inside):

1. Strap nut (outside)
2. Hex nut with smaller inner hole (outside)
3. Flat washer with smaller inner hole (outside)
4. Tooth washer (inside)
5. Flat washer with bigger inner hole (inside)
6. Hex nut with bigger inner hole (inside)
7. Screw cap (on opposite end, inside)

FINAL STEPS

Stick the main circuit board to the mounting wedges and secure the pickup wires with one cable clip.

Note: We recommend attaching the cable clips to the guitar's bottom, to a bottom brace or to the side only. Do not secure cables to the soundboard or to a soundboard brace.



(Tri-Star Pro Preamp only: Stick the master volume control board to the Velcro on the inner edge of the soundboard.)

Insert a new 9-volt battery into the holder and stick it onto the Velcro on the neck block.

Secure the endpin jack and volume control wires with the remaining cable clips.

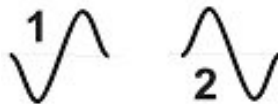
Leave the battery holder wires loose to allow for pulling the holder out of the sound hole for battery change.

HOW THE PHASE SWITCH WORKS

The phase switch on the master volume control board of the **Tri-Star Pro Preamp** is a white miniature switch that moves left/right (2 positions). As long as your amplification equipment does not reverse the phase, the "in phase" setting should be with the white switch to the left – away from the volume wheel.



What is phase? 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 trough.



This picture shows 2 (basically identical) sine waves, but the wave on the right (2) is inverted in respect to the wave on the left (1). Interestingly, if these two waves were played back simultaneously from the same speaker-source with the same volume, they would completely cancel each other out and no sound would be heard. There would be silence.

Out-of-phase guitar sound reproduction also suffers, to a degree, from phase cancellations. Amplification systems, effect units, or any electronic audio device may or may not invert the phase in of the signal coming in. In most cases the manufacturers do not specify. Every acoustic instrument projects sound waves in a certain phase when it is played unplugged. The phase that is projected from the amplified speaker source needs to be "in phase" with the

acoustic instrument's own sound waves or the result will not be optimal.

An out-of-phase problem is indicated by early feedback and tinny, unbalanced sound, which may be tolerable in some tone ranges (positions on the fret board) and quite noticeable in others, even resulting in sound cancellations on some notes.

The phase switch allows for instant correction of this problem. Toggling the phase switch back and forth, you will notice fuller, warmer and nicely balanced tone with less feedback in one setting. Test especially the low E string up the B on the 7th fret. Phase problems are easier noticeable in the low register. The warmer/fuller tone is the correct phase switch setting. Keep in mind that it may be different with different amplification systems.

All K&K products are designed, assembled and packaged in USA using mainly US and European components. Thanks again for choosing K&K.