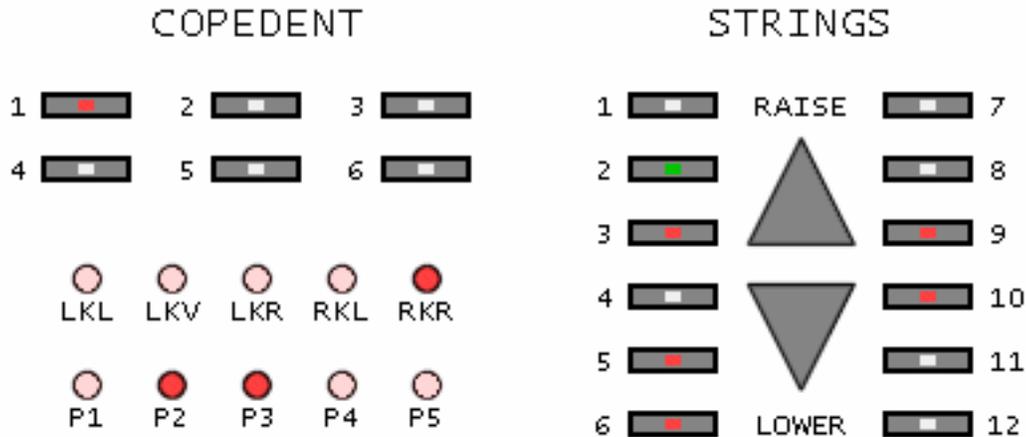


# Pedal Steel Tuning Controller

## Operating Instructions



### ***CONGRATULATIONS ON YOUR NEW PEDAL STEEL***

Your new, state-of-the-art <brand, model> steel guitar supports six simultaneous copedents, the equivalent of three double-12 pedal steels with 10 pedals and 10 levers on each. We at <company> believe that the electronic changer may be the most important advancement in pedal steel technology since the 1950's.

The electronic tuning controller concept will fire the musical imagination of adventurous players and composers. We look forward to hearing the new music that this versatile instrument will inspire, now that players can switch to a variety of new changes with the push of a button.

The instructions that follow will teach you the basics of our easy-to-use tuning control system. An appendix describes our factory-standard copedents. Welcome to the wonderful world of 21st century steel guitar!

### ***STEP 1 - TUNE THE STRINGS FOR COPEDENT 1***

Select copedent 1. The **COPEDENT 1** button will light up. Tune the strings at the tuning head of the guitar as you would on any other pedal steel.

Copedent 1 is your *reference tuning* for the instrument. You should always tune the strings at the tuning head with **COPEDENT 1** selected. You can tune strings to other notes in copedents 2 through 6 by using the string tuning buttons, but everything depends on the strings being properly tuned at the tuning head in Copedent 1.

Because Copedent 1 is the *reference tuning*, the string tuning buttons have no effect when the **COPEDENT 1** button is selected and no pedals are engaged.

## **STEP 2 - TUNE THE PEDALS FOR COPEDENT 1**

For this example, we assume that you have tuned Copedent 1 to the universal E9/B6 as your *reference tuning*.

Engage pedal 1. The **P1** light will turn red, indicating that the pedal is engaged. In the universal E9/B6th, pedal 1 raises string 5 and 9 a full step (from B to C#).

Select string 5. The **STRING 5** button will start blinking, indicating that the string is selected for tuning. Pick the string and push the **RAISE** button. You will hear the pitch of the string begin to rise. Continue pushing the **RAISE** button until the pitch of the string reaches the desired C# note.

When you release pedal 1, the **STRING 5** button will stop blinking. Now, when you engage pedal 1, the **STRING 5** button will turn red, indicating that the changer is pulling that string sharp. You can easily re-adjust the pedal tuning at any time by engaging the pedal, selecting the string and pressing the **RAISE** and **LOWER** buttons to tune the change to the desired pitch.

To tune the string 9 change, engage pedal 1. Then select string 9 and press the **RAISE** button until the string reaches the desired pitch.

**NOTE:** If you engage pedal 1 slowly, you will notice that both strings reach the C# destination at exactly the same time. This is an advantage of the electronic changer that can only be approximated in most mechanical changer designs.

Tune the other pedals and knee levers using the same method described for pedal 1. When a string is lowered instead of raised, the light in the button will be green instead of red.

## **STEP 3: TUNE SPECIAL COMBINATIONS**

The controller software can be taught to treat a combination of pedals differently from the way it treats the pedals individually. For example, let's consider pedal 3 that raises string 4 from E to F#, and Right Knee Left that lowers the same string E to D#. In our example, we want the combination of P3 plus RKL to make an F# note. (This is an example of the "raises win" characteristic of classic push-pull guitars.)

Engage pedal 3 and Right Knee Left together. The **P3** and **RKL** buttons will light up. The **STRING 4** button will be red, indicating the normal (as yet untuned) raise, and **STRING 8** button will be green, indicating the lower from RKL.

Press the **STRING 4** button. It will start to blink. Pick the string, and press the **RAISE** button until the string reaches the desired F# pitch.

Combinations are not limited to strings already activated by the selected pedal. If a player normally tuned string 2 to C#, for example, he could assign RKL as described above and also make it pull the second string up to D#, but *only when used in combination with P3!* When RKL is engaged by itself or with any other combination of pedals, the special P3+RKL combination changes are ignored.

Combination tuning can also be used to counter the "cabinet drop" effect, to provide special "compensator" changes for more accurate intonation in certain pedal positions, and for traditional "tunable splits".

#### **STEP 4: TUNE A SECOND COPEDENT**

In our example, we assumed that the player wanted to use the universal E9/B6 as his *reference tuning*. The strings are tuned to E9th (minus the 9th string D), and the pedals in **COPEDEMENT 1** are tuned to the popular E9th changes.

To switch to the B6th copedent, string 2 must be retuned from D# to C#, and strings 4 and 8 must be retuned from E to D#. This retuning is not done at the tuning head or on a pedal or knee lever - it is accomplished entirely in the controller. Once it is set up, the player can switch to a complete B6th copedent at the push of a button.

First, the *reference tuning* must be correct. Before starting a new copedent, revisit **STEP 1** above and be confident that **COPEDEMENT 1** is nicely in tune.

Select copedent 2. The **COPEDEMENT 2** button will light up. Do not engage any pedals or knee levers. If you have never tuned this copedent before, none of the string button lights will be lit.

Select **STRING 2** (it will start blinking) and press the **LOWER** button until the pitch of that string is at the desired note (C#). The string 2 button will turn green, indicating that the changer is lowering the string.

Repeat the process to lower **STRING 4** and **STRING 8** from E to D#. When you are finished, tap a pedal to knock the controller out of "tuning mode". You can hear the effect on the entire tuning by switching to **COPEDEMENT 1**, strumming the strings, then switching to **COPEDEMENT 2**. You will hear the tuning change from E9 to B6.

You might want to retune other strings in Copedent 2 to make fine adjustments for temperament. These adjustments should all be made with the controller, *not* at the tuning head. Remember, the tuning head of the guitar is for the Copedent 1 reference tuning *only*. All other tuning is handled by the controller and changer.

Use the procedure described in **STEP 2** to tune the B6 pedals for **COPEDEMENT 2**. Refer to the tuning appendix for the standard changes.

**THANK YOU FOR PLAYING A <BRAND> PEDAL STEEL GUITAR!**