

# peterson

## VS-II Virtual Strobe™ Tuner Quick Start for Guitar/Bass/Steel Guitar



***Whether you are new to Strobe Tuning or have previously owned a Peterson tuner, thank you for making Peterson your choice of tuner this time. The Peterson company is the sole manufacturer of true strobe tuners and is dedicated to the design and production of tuners that meet the expectations of the world's most discerning ears.***



# Peterson VS-II Guitar, Bass and Steel Guitar Guide

Contents	Page
The basics -----	4
Using the VS-II for guitar & Bass -----	5
Intonation -----	6
A word about temperaments -----	7
Using GTR temperament -----	7
Using BAS temperament -----	8
Transposed Guitar Tuning -----	8
Using S-E9 & S-C6 temperament -----	8
Programming your VS-II -----	9
Universal E9/B6 tuning for Steel guitar -----	10
How to use your VS-II with the Buzz Feiten Tuning System® -----	11
How to use your VS-II with the Earvana Compensated Nut™ -----	11
Using the Tone Generator -----	12
Technical Specifications -----	13
Warranty and Product Support -----	13

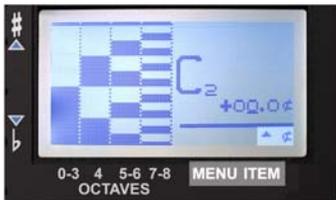
# **peterson** VS-II Quick Start Guide - The Basics



1. The VS-II comprises two separate devices; a Virtual Strobe Tuner and an Audio Tone Generator. Use the "Mode" button to switch between them.



2. To step through the parameters of each device, press either of the two "Menu" buttons below the "Mode" button.



3. The parameters appear one by one below the horizontal line on the lower right side of the display.



4. To change the value of the displayed parameter, rotate the "Value" knob.



5. Within some parameters are further levels of control, press the "Value" knob gently to "Choose" between them.

# Using the **peterson VS-II** for Guitar & Bass

**6, 7 & 12 string Guitarists, 4, 7, 8 and 12-String Bassists:**

- Switch the tuner on.

**5, 6 & 9 String Bassists, Contrabass & Stick players:**



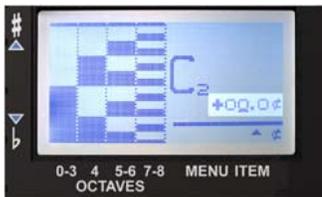
- While holding the lower menu button down - switch the tuner on.
- A bass clef will appear on-screen.

The VS-II is now in "Bass Shift", and can measure frequencies down below 10Hz, two octaves below the "Low B"/Fifth string on a 5 string bass.

Plug your guitar/bass into the lower (EXT IN) jack on the right side of the VS-II.

Having trouble stabilizing the display? Until you get used to using a strobe, roll back the instruments volume knob to zero and advance it one-quarter turn.

1. Pluck any string on your instrument with the flesh of your finger or thumb, do not use a pick. You do not need to pluck the string hard, the VS-II requires very little signal to display accurately.
2. Bassists in "Bass Shift" do not need to play a 12<sup>th</sup> fret flageolet ("harmonic") to get a reading, as the VS-II is capable of displaying much lower tones than the open 5<sup>th</sup> string tone.
3. Observe the display, on the left side, you will see a virtual strobe image, this image will be drifting upwards or downwards depending on how far your plucked string is from the correct target note (E, A D etc.)
4. To the left of the floating strobe image, you will see the Note Name displayed, together with the Octave Number.
5. If your string is "way out" the VS-II will display a "##" or "bb" sign to let you know that you are sharp or flat respectively.
6. To find out how far out of tune your string is, rotate the center knob until the image is immobile or still.



You will see the "out-of-tuneness" displayed in XX.X cents above the horizontal line.

7. Gently press and hold the top of the knob until the cent value returns to zero.
8. Tune the string until the image is immobile or still.
9. Repeat for all strings
10. **NOTE:** to receive maximum benefit from the superior accuracy of your Peterson tuner, you should first use it to set the intonation of your instrument.

# Setting Intonation using the **peterson VS-II**

After deciding on string gauge, setting string height (nut & bridge), neck relief—factors that affect the guitars intonation considerably—the individual string lengths need to be adjusted. For this task, use Equal temperament in the VS-II's TMR menu.

- Lower the pickups away from the strings to avoid "doubling" and electromagnetic pull.
- Lay the guitar flat on a bench to adjust it, but always check the intonation with the instrument in the playing position, as the readings will be visibly (and later audibly) different. You should always aim to freeze or "cage" the image on the Strobe Tuner display, the less movement the more accurate the results.

Where setting the intonation is concerned, an often-used technique is the 12th fret & flageolet comparison method. In this method, the flageolet or "harmonic" of the 12th fret is compared to the fretted string at the 12th fret, and saddle position is adjusted as follows:

- If the fretted note is *flat* compared to the flageolet note, move the bridge saddle *forward* to shorten the string.
- If the fretted note is *sharp* compared to the flageolet note, move the bridge saddle *back* to lengthen the string.
- Adjust until both fretted note and flageolet are identical in pitch.

While this is a common system, it is not always the most satisfactory.

One popular alternative is to adjust each string so that it is in tune at *two* points an octave apart from each other on the fret board using a strobe tuner. Using the 5th and 17th fret as an example:

- Tune a string at the 5th fret.
- Check the string at the 17th. If sharp, move the saddle back, thus lengthening the string. If flat, shorten the string by moving the saddle forward. Remember to fret the string using the pressure that you would normally apply while playing.
- Keep repeating this process until each string is in tune as much as possible at both the 5th and 17th frets.

This method takes time, and has to be repeated if you change string gauges, but if properly executed, yields very satisfactory results.

Now, before you play music with a lot of 5ths on your guitar (e.g. power chords), tune the guitar using the GTR, P5 or G5 setting, depending on which model of strobe tuner you own, otherwise use the EQU (default) setting to tune your guitar.

*The methods above are within anybody's reach, all you need are your ears and your **peterson** strobe tuner!*

Please note that we have not referred to any method involving structural changes to the instrument. These are best discussed with a professional instrument technician.

# **peterson VS-II - A word about temperaments**

Western Musical temperaments are systems used when tuning to determine where each note in the 12 note octave is to be placed in relation to the others. Every time you tweak the tuning on your instrument after using a common LED/needle tuner, you are basically tempering the tuning.

The most commonly used temperament used in modern music is the *Equal Temperament*, this means that the "space" or *interval* between each note is 100.0 cents. Because Peterson tuners are accurate to one tenth of a cent, they can show one thousand "steps" between each notes pitch.

Because of Equal temperament's "equality" the sound of different keys does not vary in character, but other temperaments offer different "flavors" or characters, among the temperaments in your VS-II, the following are guitar related:

**GTR for guitar** – This is a proprietary Peterson temperament, which is suited to guitars tuned normally to concert pitch (EADGBE) or one semitone step below that. It improves the 4<sup>th</sup> & 5<sup>th</sup> intervals and makes a "sweeter" sound when fretting chords.

**BAS for bass** - Corrective temperament for 4-string bass useful when playing with piano.

**S-E9 for lap & pedal steel** – The nature of steel guitar is to produce intervals which are "beatless" or pure, this temperament makes this possible.

**S-C6 for lap & pedal steel** – C6 is commonly tuned straight (Equal temperament), try this special temperament for a more musical effect.

*\*Always make sure to let it be known that you are using special offsets to avoid confusion when you loan your tuner to a friend.*

## **Guitar - Using the GTR temperament**

The correct settings -  
Concert A = 440.0Hz  
Temperament = GTR  
Key = C

- **Connect the VS-II's input jack to the output of the guitar, pedal or amplifier line-out. We recommend the use of a Peterson Pitch Holder to mount the VS-II to a mic or keyboard stand to securely hold the tuner in position, thus optimizing the viewing angle and keeping the tuner out of the way but within easy reach. Play a note. The VS-II's virtual strobe image flows upwards to indicate that the note is sharp in pitch and downwards to indicate that the note is flat. The speed of the movement is in direct accordance with the distance of the played note from the VS-II's target pitch. The note is in tune when the image is immobile.**
- **\*The "TMPR" parameter: Use the Value knob to choose the GTR temperament.**
- **The "Save" parameter: This allows you to save your previously chosen Tuner parameters into the VS-II's memory. Now, every time you switch on the VS-II, these saved parameters will be active.**

**The following should be visible in the top right-hand corner of the VS-II screen:**

T(C ): GTR  
A440.0  
KY:C

## 4 string Bass - Using the BAS temperament

The correct settings -

Concert A = 440.0Hz

Temperament = BAS

Key = C

- Connect the VS-II's input jack to the output of the bass or amplifier line-out. We recommend the use of a Peterson Pitch Holder to mount the VS-II to a mic or keyboard stand to securely hold the tuner in position, thus optimizing the viewing angle and keeping the tuner out of the way but within easy reach. Play a note. The VS-II's virtual strobe image flows upwards to indicate that the note is sharp in pitch and downwards to indicate that the note is flat. The speed of the movement is in direct accordance with the distance of the played note from the VS-II's target pitch. The note is in tune when the image is immobile.
- \*The "TMPR" parameter: Use the Value knob to choose the BAS temperament. Ensure that Root=C

The "Save" parameter: This allows you to save your previously chosen Tuner parameters into the VS-II's memory. Now, every time you switch on the VS-II, these saved parameters will be active.

The following should be visible in the top right-hand corner of the VS-II screen:

T(C ): BAS

A440.0

KY:C

## Transposed Guitar Tuning

You can set the VS-II to display "normally" even if you are tuning a whole step or a half step down, or if you are using a capo on the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> or 9<sup>th</sup> fret. Simply go to "KEY" and press the "Choose" knob once, then dial in -1 for one half step or -2 for two half steps, +1 to +9 to adjust for capo positions or return to +0 for normal display. These settings can be saved as default settings.

## Lap & Pedal Steel Guitar - Using the E9 & C6 temperaments

The correct settings:

Concert A = 440.0Hz

Temperament = S-E9 or S-C6

Key = C

- Connect the VS-II's input jack to the output of the steel guitar, volume pedal or amplifier line-out. We recommend the use of a Peterson Pitch Holder to mount the VS-II to a leg of the steel, thus optimizing the viewing angle and keeping the tuner out of the way but within easy reach. Play a note. The VS-II's virtual strobe image flows upwards to indicate that the note is sharp in pitch and downwards to indicate that the note is flat. The speed of the movement is in direct accordance with the distance of the played note from the VS-II's target pitch. The note is in tune when the image is immobile.
- To step through the parameters, press either of the lower two buttons to the left of the Value knob. The first parameter is Cents.

- To find out exactly how out of tune a tone is, use the Value knob to adjust the cent value until the Strobe image is immobile. In this case you are tuning the tuner to the instrument. The amount of "out of tuneness" will be displayed on the VS-II's screen.
- Press lightly on the Value knob, the cursor will jump from 00.0 cents to 00.0 allowing you to fine tune even further in 1/10<sup>th</sup> cent increments.
- The VS-II contains the first ever tuner presets (E9 & C6) for Steel Guitar. To access them follow the steps below.
- Switch the VS-II on and press the lower menu button three times until "TMPR: EQL" shows in the lower right hand corner of the screen.
- The "TMPR" parameter: Use the Value knob to choose a suitable temperament for your steel guitar –
  - SE9 Tempered Steel Guitar E9 Tuning
  - SC6 Tempered Steel Guitar C6 Tuning
- The "Save" parameter: This allows you to save your previously chosen Tuner parameters into the VS-II's memory. Now, every time you switch on the VS-II, these saved parameters will be active.  
The following should be visible in the top right-hand corner of the VS-II screen:  
T(C ): E9 (or C6)  
A440.0  
KY:C
- The VS-II has two programmable temperaments for any other offsets you may want to save. To commence programming, press and hold the upper menu button while switching the VS-II on. Rotate the "Value" knob to adjust the pitch and press the "Value" knob to advance to the next note. When finished, press the upper menu button twice and follow the screen prompts by pressing the "Value" knob to save the new settings.

To measure "Cabinet Drop" choose a string which is not attached to a pedal and tune it until the strobe image is immobile, then press the A, B & C pedals, pluck the string again and watch for a change in pitch. To work out how much Cabinet Drop is present adjust the VS-II's cent control until the image is immobile. The drop will be displayed on the screen in cents/10<sup>th</sup> of cents.

## Programming the VS-II



Press & hold the upper menu button while switching the tuner on. You are now in "Program" mode.

To enter a cent value rotate the "Value" knob clockwise for a + cent value and counter-clockwise for a – cent value. To move on to another note press the top of the "Value" knob gently.

Enter the tuning offsets one by one. When all offsets for the notes have been entered, press the upper menu button twice and follow the screen prompts to save the offsets ("SURE??" "SAVED"). Two sets of offsets can be stored in the VS-II.

When you wish to tune using your newly programmed offsets, go to the temperament menu (TMPR) and choose P-1 or P-2 according to where you saved the offsets.

If you want the tuner to load the offsets automatically as soon as it is switched on, simply go to the "SAVE" screen while the temperament is active and press the "Value" knob twice.

# Universal 12 String Pedal Steel Guitar – Programming offsets\*

Start by entering the following offsets into P-1 as explained on the previous page.

C# -5.9  
D +9.9  
D# -3.9  
E +9.9  
F -17.7  
F# +5.9  
G# -3.9  
A +3.9  
A# -2.0  
B +7.9

Continue by entering these offsets into P-2:

A# -9.9  
C -17.7  
C# +7.9  
D +5.9  
D# -5.9  
E +7.9  
F -13.7  
F# -1.9

Save them both, switch off the tuner and back on.  
Go to TMPR and select P-1 as your temperament:

Tune all open strings first, then:

Press the A pedal and tune both C sharps  
Press the B pedal and tune all three A`s  
Press the C pedal and tune the C sharp  
Press pedal 6 and tune the D  
Press left knee left and tune the C sharp  
Press left knee right and tune the C sharp  
Press right knee left and tune all three F`s  
Press right knee right and tune the A#

Go from P-1 to P-2 (rotate the knob one click clockwise)

Press the C pedal and tune the F sharp  
Press Pedal 4 and tune the C and the D sharp  
Press Pedal 5 and tune both F`s  
Press Pedal 6 and tune the E  
Press Pedal 7 and tune the C sharp and the A sharp  
Press left knee right and tune the D

Switch the tuner off and on (make sure its in Equal Temperament)  
Dial in +1.9 cents  
Press left knee left and tune both D sharps

\*These offsets were first published by Jeff Newman ([www.jefffran.com](http://www.jefffran.com))

## Using the VS-II with the Buzz Feiten Tuning System® \*

First, tune your low E string to -2 cents, then fret that string at the first fret (F) and observe the image, now adjust the cents by rotating the "Value" knob until the VS-II is showing you an immobile image for that F. Note the cent offset on the screen and write it down.

Put the VS-II in program mode as described on page 8.

Dial all BFTS offsets except the low E (-2 cents) into P-1, when you have entered all 5 offsets, go to F and dial in the offset that you wrote down earlier.

Press the upper menu button twice and follow the prompts to save your settings ("SAVE?"-"SURE??"-"SAVED").

Switch the tuner off and on again.

Now select P-1 as your temperament.

Tune your guitar beginning with the high E and when you get to the low E, fret it at the first fret (tuning F with your offset will cause open E to end up at -2 cents), your guitar is now tuned to BFTS.

For more information about this system call (310) 459-3928 [www.buzzfeiten.com](http://www.buzzfeiten.com)

If you want the tuner to load the offsets automatically as soon as it is switched on, simply go to the "SAVE" screen while the temperament is active and press the "Value" knob twice, look at the top right hand corner of the screen, you should see the following:

T(C ):P-1

A440.0

KY:C

## Using the VS-II with the Earvana Compensating Nut™ \*

If you are installing the Earvana Nut on an acoustic guitar there are a couple of things to consider. You cannot adjust the bridge without re-slotting and moving it. Most techs say the best results come when the bridge is moved forward. Many people buy these for acoustic guitars, it could involve a bridge re-slot, which costs more money, and is a modification best left to a professional technician.

What is recommended for the installation: Check the intonation at the 12th fret before removing the existing nut. If the guitar reads sharp at the 12 fret with the original nut, you should not have to move the bridge forward. Even without moving the bridge, you will enjoy an improvement. You fine-tune an electric guitar much easier, quicker and inexpensively than an acoustic.

Also, when using a wound G-string the compensated G block on the nut top must be filed back. Recommendation is to start slow and check it on the tuner and play some chords as you file slowly back. Never go past the D string block! Generally most people find right even at the D string block sounds best. Work slowly. If you need assistance with this, please contact Earvana tech support: 805-459-3393. [www.earvana.com](http://www.earvana.com)

Intonation is first set at the bridge using the VS-II. The configuration at the bridge will definitely change with the Earvana Nut. It will flatten out.

Make sure all strings intonate correctly at the 12th fret. The next step is to adjust the nut to attain correct intonation at the 1st fret. A simple way to do this is to fret the Low "E", then the High "E" string at the 1st fret ("F" note). The goal is to make the tuner read "00.0" cents flat or sharp at the 1st fret ("F" note). Adjusting the first fret on these two strings will automatically set the other strings. Make certain the tuner reads "00.0" cents sharp or flat when fretting these notes.

\*Buzz Feiten Tuning System® is a registered trademark of Buzz Feiten Design. \*Earvana™ is a trademark of Earvana LLC.

These trademarks are used solely to identify certain products and systems that we believe may benefit from the use of Peterson tuners, and are in no way associated or affiliated with Peterson Electro-Musical Products, Inc.

# Using the VS-II Tone Generator

- Patch the VS-II's *input* to the input of an amplifier (make sure to turn the amplifier's volume to zero before connecting).
- Switch the VS-II on, and press the "Mode" button once to activate the VS-II's 9 octave tone generator, increase volume. Using the "Value" knob, scroll through the tones. By pressing the upper menu button once, you can further adjust the tones pitch in cent and 10<sup>th</sup> cent increments with the "Value" knob.
- The VS-II's tone generator can be used with headphones or alternately patched to a P.A. using the upper of the two jack sockets on the right hand side of the unit.

**Note:** the VS-II's tones are only accessible from the *input* of the tuner, to prevent accidental activation when the tuner is used in-line. Always make sure the amplifier's volume control is at zero before accessing the tone generator.

## Miscellaneous

- **Backlight:** Switch the VS-II on and press the "Mode" button 3 times. The screen will display "Light". Press the "Value" knob once to dim the backlight for longer battery life, press once more to turn it back on again. Light on or off can also be saved as a default value.

### The Value/ Choose Rotary/Push Control – An overview

<i>Auto Note Detection</i>	<i>OR</i>	<i>Manual Operation</i>
<i>1 Cent Increment</i>	<i>OR</i>	<i>10<sup>th</sup> of a Cent Increment*</i>
<i>Key Name</i>	<i>OR</i>	<i>Fret Number</i>
<i>Backlight On</i>	<i>OR</i>	<i>Off</i>

*Program Temperament advance to next note*

*Save Function for User Default Parameters*

\*Press and hold to return to zero cent value immediately.

### Savable Parameters – An Overview

*The VS-II's savable parameters are:*

*Concert A = 433Hz to 447Hz in 0.5Hz increments*

*Key Name (B<sub>b</sub> to A) / Fret Number (-2 to +9)*

*Preferred Temperament Presets (12 choices)*

*User-programmable temperaments (24 offsets in 2 banks programmable to 0.1 cent)*

*Backlight On/off*

## Peterson VS-II - TECHNICAL SPECIFICATIONS

### WEIGHT & DIMENSIONS:

Weight - 1.2lbs (544g)

Size 7.5" Tall, 4.3" Wide, 2.3" Deep (19cm x 11cm x 6cm).

### ACCURACY:

Visual Strobe - 1/10th of one cent (1/1000th semitone).

Audible Tone - 1/10th of one cent (1/1000th semitone).

### RANGE:

Visual Tuner - Normal mode 31Hz (C1) to 6272Hz (G8).

Bass Shift 8Hz (C-1) to 2033Hz (B6).

Audio Tuner - Normal mode 16Hz (C0) to 7902Hz (B8).

Bass Shift 4Hz (C-2) to 2033 (B6).

### TEMPERAMENTS:

Equal, Pythagorean, Just Major, Quarter Comma Meantone

Kirnberger III, Werckmeister III, Young, Kellner,

GTR™ sweetened guitar temperament,

BAS™ Tempered Bass

E9 Tempered Steel Guitar,

C6 Tempered Steel Guitar,

P-1 User Programmable,

P-2 User Programmable.

### KEY SELECTION:

The VS-II features transposition by note name or numbers for quick non-standard guitar tunings and capo changes.

### BACKLIT DISPLAY:

The VS-II's new improved screen makes tuning easy under all lighting conditions,

when the backlight is not needed, it can be switched off to conserve battery life.

### PROTECTIVE BOOT:

The attractive, rugged rubber boot is easy to grip and provides extra protection. The pop-out stand enables adjustment of viewing angle and also allows the user to hold and operate the VS-II with one hand.

### INPUT:

Built in microphone

1/4" Jack socket for electric instrument/pickup/microphone.

### OUTPUT:

1/4" Jack socket for in-line use with amplifier or P.A.

### POWER:

Powered by 3 AA batteries or with 3.2v DC international adapter (included).

### OPTIONAL ACCESSORIES:

Carrying Case, TP-1 Clip-On Tuning Pickup, Pitch Holder tuner clamp.

### GUARANTEE:

The limited warranty covers defects in materials or workmanship for a period of 1 year.

## QUESTIONS ABOUT THIS UNIT?

Contact Peterson at 1-708-388-3311

[info@PetersonTuners.com](mailto:info@PetersonTuners.com)

Join the Peterson Tuner Forum or sign up for tuning tips at:

<http://www.petersontuners.com>

