

peterson

V-SAM Virtual Strobe Audio Metronome™ 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 V-SAM Guitar, Bass and Steel Guitar Guide

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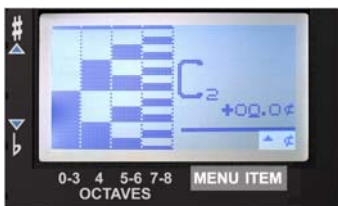
peterson V-SAM Quick Start Guide - The Basics



1. The V-SAM comprises 3 separate devices; a Virtual Strobe Tuner, an Audio Tone Generator and a Metronome. 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 V-SAM** for Guitar & Bass

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

- Switch the tuner on.

5, 6 & 7 String Bassists, Contrabass & Stick players:



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

The V-SAM 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 hand side of the V-SAM.

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 V-SAM requires very little signal to display accurately.
2. Bassists in "Bass Shift" do not need to play a 12th fret flageolet ("harmonic") to get a reading, as the V-SAM is capable of displaying much lower tones than the open 5th 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 V-SAM 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 set the intonation of your instrument.

Setting Intonation using the **peter**son V-SAM

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 V-SAM'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 **peter**son strobe tuner!*

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

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 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th or 9th 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.

peterson V-SAM - 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 temperament "root" is the first note in the scale.

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 or root, but other temperaments offer different "flavors" or characters, among the temperaments in your V-SAM, 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 4th & 5th 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.

JST – Useful for pure open tunings for Dobro or slide guitar, by adjusting the root control, all major key open tunings can be tuned to achieve better results than using Equal temperament.

*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*

Tonal Root = C

Key = C

- **Connect the V-SAM's input jack to the output of the guitar, volume pedal or amplifier line-out. We recommend the use of a Peterson Pitch Holder for mounting the V-SAM to a mic or keyboard stand and 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 V-SAM'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 V-SAM'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. Root=C**
- **The "Save" parameter: This allows you to save your previously chosen Tuner parameters into the V-SAM's memory. Now, every time you switch on the V-SAM, these saved parameters will be active.**

The following should be visible in the top right-hand corner of the V-SAM screen:

T(C): GTR

A440.0

KY:C

4 string Bass - Using the BAS temperament

The correct settings -

Concert A = 440.0Hz

Temperament = BAS*

Tonal Root = C

Key = C

- Connect the V-SAM'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 V-SAM 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 V-SAM'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 V-SAM'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 V-SAM's memory. Now, every time you switch on the V-SAM, these saved parameters will be active.

The following should be visible in the top right-hand corner of the V-SAM screen:

T(C): BAS

A440.0

KY:C

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

The correct settings:

Concert A = 440.0Hz

Temperament = S-E9 & S-C6

Tonal Root = C

Key = C

- Connect the V-SAM'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 V-SAM 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 V-SAM'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 V-SAM'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 V-SAM'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 1/10th cent increments.
- The V-SAM contains the first ever tuner presets (E9 & C6) for Steel Guitar. To access them follow the steps below.

- Switch the V-SAM 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 (ROOT: E) Tempered Steel Guitar E9 Tuning
 - SC6 (ROOT: C) Tempered Steel Guitar C6 Tuning
 - SE9 (ROOT: Bb) Tempered Steel Guitar D9 Tuning
 - SC6 (ROOT: B) Tempered Steel Guitar B6 Tuning
- By pressing gently on the "Value" knob ("ROOT:") you can transpose the chosen temperament to any one of 12 chromatic keys, in the case of the E9 neck choose "TPMR: SE9" and then "ROOT: C" (for C6 choose "TMPR: C6" and then "ROOT: C"), then proceed to tune open strings, pedal and lever positions.

Note : The V-SAM's default Root is "C", always check settings especially if more than one person is using the tuner.
- The "Save" parameter: This allows you to save your previously chosen Tuner parameters into the V-SAM's memory. Now, every time you switch on the V-SAM, these saved parameters will be active.

The following should be visible in the top right-hand corner of the V-SAM screen:

T(C): E9 (or C6)
A440.0
KY:C
- For D9 tuning, select "TEMPR: E9" and then "ROOT: Bb", for B6 select "TMPR: C6" and then "ROOT: B"
- The V-SAM 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 V-SAM 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 V-SAMs cent control until the image is immobile. The drop will be displayed on the screen in cents/10th of cents.

Dobro & Slide Guitar - Using the JST temperament

For slide guitar tunings which are major chords, you can use the Just (JST) temperament to flatten the thirds and achieve a much smoother and consonant sound than is possible with Equal temperament.

- Switch the tuner on and using either of the two menu buttons go to the TMPR menu, using the Value knob, select JST.
- Depending on the tuning, adjust the root accordingly by pressing the knob gently and scrolling through the 12 major roots (Open D - Root=D, Open G - Root=G etc).

Example - The following will be visible on the top right corner of the VS-II screen for Open G:
T (G): JST

For minor open tunings, you can enter Just minor offsets in the programmable section and also adjust their roots. See the Peterson forum for details on this and more at:

<http://www.peterson tuners.com/forum/default.asp>

Programming the V-SAM



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 V-SAM.

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

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.jeffran.com)**

Using the V-SAM 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 V-SAM is showing you an immobile image for that F. Note the cent offset on the screen and write it down.

Put the V-SAM 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.

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 V-SAM 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.

Intonation is first set at the bridge in the conventional manner using the V-SAM. 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 V-SAM Tone Generator

- Switch the V-SAM on, and press the "Mode" button once to activate the V-SAM's 9 octave tone generator. 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 10thcent increments.
- The V-SAM'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.

Using the V-SAM Metronome

- Switch the V-SAM on and press the "Mode" button twice to activate the metronome.
- To choose a tempo, rotate the "Value" knob. Press the "Value" knob to start the metronome, press it again to stop. In addition to the audio beats, the V-SAM's screen will display the beats and their position in the measure.
- Use the upper menu button to step through the metronome's parameters.
- The "Beats" parameter: Rotate the "Value" knob to select from 1 to 9 beats per measure or bar.
- The "Div" parameter: Rotate the "Value" knob to choose between 1/4 note, 8th note, triplet, triplet with rest and syncopation.
- The "Intro" parameter: To turn the "Intro" feature on, press the "Value" knob, to turn it off, press again. Rotate the "Value" knob to choose from 1 to 16 measures of audible beats before the metronome mutes and continues in visual mode only. Choose 0 to deactivate the audible beats entirely, and have the metronome display the beats only.
- The "Tap" parameter: Tap the top of the "Value" knob in time to the required tempo, the V-SAM will "pick up" the rhythm from your actions. To stop the metronome, press once again.

Miscellaneous

- Backlight: Switch the V-SAM 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

Auto Note Detection	OR	Manual Operation
1 Cent Increment	OR	10th of a Cent Increment*
Key Name	OR	Fret Number
Backlight On	OR	Off
Temperament	OR	Tonal Root
Metronome ON	OR	Metronome OFF
Intro ON	OR	Intro OFF
Tap Tempo ON	OR	Tap Tempo OFF

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 V-SAM's savable parameters are:

Concert A = 410Hz to 490Hz in 0.5Hz increments

Key Name (Bb to A) /Fret Number (-2 to +9)

Preferred Temperament Presets (12 choices)

Preferred Temperament Tonal Roots (12 choices)

User-programmable temperaments (24 note offsets programmable to 0.1 cent resolution)

Metronome tempo, beats per bar, subdivisions and intro.

Backlight On/off

Peterson V-SAM - 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).
Metronome - 40 - 240 beats/minute.

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 V-SAM can transpose to any chromatic key in any of its temperaments
and also features transposition by numbers for quick non-standard guitar tunings and capo changes.

BACKLIT DISPLAY:

The V-SAM'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 V-SAM with one hand.

INPUT:

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

OUTPUT:

Built-in high-powered speaker.
1/4" Jack socket for headphones or line-out tones/metronome to 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

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

<http://www.petersontuners.com>



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