BEFACO PONY VCO Pulse Width Module User Guide

BEFACO PONY VCO Pulse Width Module

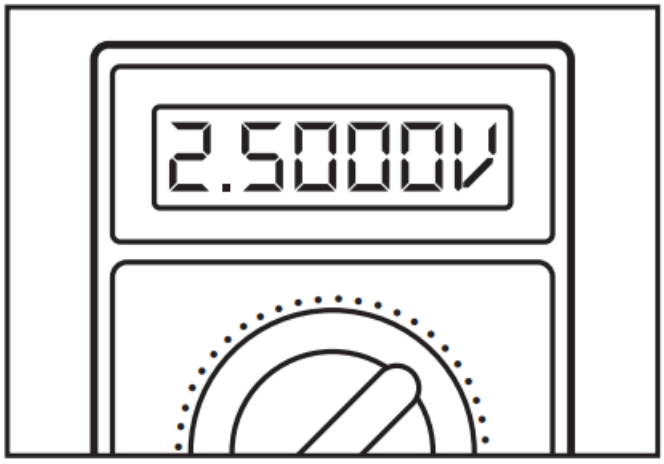
Contents

Pulsewidth Modulation (PWM)

When the Square waveform is selected, the Timbre parameter turns into a bipolar pulse-width modulation control (PWM). It controls the amount of time the Square will be at its maximum level on each cycle. It is normally measured in percentage of a duty cycle, being 50% duty cycle (the middle position of Timbre control) the initial position where the time that the Square is at its maximum and minimum level is the same. Pony VCO counts with a vast PWM range, being able to achieve very tight pulse widths. This is very useful to make monophonic “string” and “chorus” like sounds using external signals to modulate them. Be aware that to achieve these tight pulse widths, the PWM circuit covers the whole range of the duty cycle. This means that at the minimum and maximum position of Timbre (0 and 100% duty cycle) the oscillation will stop.

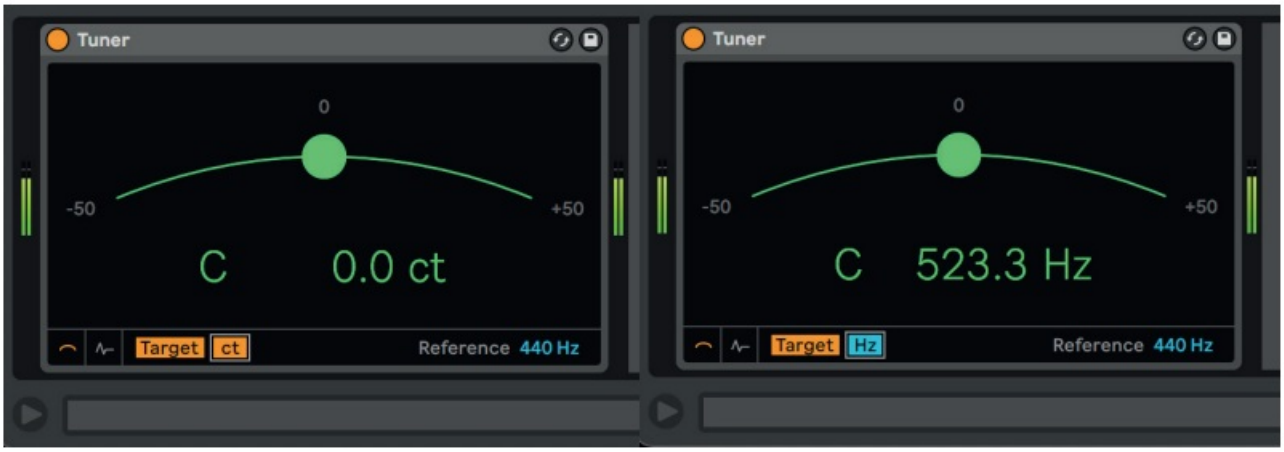
1. Take a look to the back of the module where you should see three Trim-pots. The bottom right one is V-Ref, and the upper ones are Init (left) and V/Oct (right).

2. Pick your multimeter and select DC Voltage mode (typically marked as V=). Connect the black probe to a Ground point (you can use the sleeve of patch cable connected to any other module) and place the red probe touching the point marked.



   You should read a value around 2.5V. Adjust carefully V-Ref trim-pot till you see 2.500V exactly. If you have a good multimeter (6000 counts or more) that shows you 4 zeros, you will be able to adjust this even more accurately.
3. Place the Freq Pot in the middle position, the Octave switch to the second position (C2) and the Timbre slider to the minimum position. Select the Sine waveform and put the Range switch on the Semitone Range position. Double-check all the controls and if all is in its right spot, go to the next step. During the next two steps, be sure to not move Freq and Timbre controls. As those controls affect the frequency, any move on them will affect your readings
4. Connect the output of the module to the input of your Tuner and check the note that it shows you. Should be close to C2. Adjust the Init trim-pot till you get C2 and 0 cents.

5. Move up the Octave switch to the fifth position (marked with 0 on the front panel) and check the Tuner. The note should be close to C5. Adjust the V/Oct trim-pot carefully till you get C5 and 0 cents.



Come back to the C2 position on the Octave switch and check the tuner. If it shows you an accurate C2 (between 0-5 cents), check the rest of the octaves. You should get a C1 to C7 with similar accuracy. If not (which would be the most regular case), repeat steps 4 and 5 till you get good accuracy on every octave. This process is based on iterations of steps 4 and 5 so don't worry if takes a bit to get the right tuning. The number of iterations needed to get a good calibration is different in every unit.

PONY VCO

Documents / Resources

	BEFACO PONY VCO Pulse Width Module [pdf] User Guide PONY VCO Pulse Width Module, PONY VCO, Pulse Width Module, Width Module, Module