

QUICK-START – Cube-Tec DeBuZZ for Pro Tools™



When you first load **DeBuZZ**, the graphic display shows a high-resolution image of the hum fundamental (or first harmonic (the meter range is from 20 cycles to 130 cycles). This is enough for you to determine the "dominant" tone that your hum problem originates.

You tell **DeBuZZ** what that frequency is by moving the horizontal slider (**Fundamental Frequency**) to position the cursor on top of that frequency. A numeric read-out (**Select**), tells you where your cursor position is. When you release the slider, **DeBuZZ** automatically starts tracking the actual frequency (to 1/100 of a cycle). For example, if the line is drifting then **DeBuZZ** will follow.

The **Complexity** slider creates the filter set that will work on your program. By default, the filter set is created in the order of the harmonic series (fundamental, 1st harmonic, 2nd harmonics, 3rd, etc.) The range of filters it creates is from 1 to 150. The **Threshold** slider works in a similar fashion to a threshold in a noise reduction system -- the higher you move this slider up, the more harmonics will get removed (even the ones with lower amplitude). Both of these sliders have numeric read-outs and numeric entry can be facilitated by clicking on the actual number field.

The attenuation is actually defined by a masking threshold that is calculated at each harmonic. This means that using human psycho-acoustic knowledge, the attenuation is set to effectively remove enough of the harmonic to not "hear" the problem. This optimizes the buzz removal while maintaining maximum program integrity. **DeBuZZ** gets real interesting when you use the **Learn** button. **Learn** will calculate two functions: the fundamental frequency and the spectral shape of the hum/buzz.

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Apart from not having to set the fundamental frequency manually, the greatest aspect of learning the spectral shape is that the filters are no longer added by the harmonics series (i.e.: they are not ordered by 1st, 2nd, 3rd, 4th, etc.) The filters are now added (ordered), based on the amplitude of the loudest harmonic. (This could be 2nd, 6th, 4th, 9th, whatever...) So, as you increase the **Complexity** slider, the filter set it creates is perfectly optimized to remove the worst problems first, the next worst second, etc. This serves to conserve DSP and also minimize the effects of filtering your program -- resulting in a natural smooth sound retaining all of its character. (No nasty ringing or comb-filter effects.)

To begin learning simply start audio playback, and press the **Learn** button. The **Learn** LED will turn yellow, indicating that the learning process has begun. This will take approximately 5 to 8 seconds. When it is complete the **Learn** LED turns green, indicating that the fundamental and spectrum shape have been captured.

The **L** and **R** buttons allows you to analyze the Left or Right channels respectively. The VPI defaults to the left channel and this is indicated by the **L** button lit yellow. This is only important if the hum is different between channels -- but usually it is not.

Normally you want the **DeBUZZ** VPI to auto-track a shifting fundamental, but in some instances you may want to freeze it. For example: you may get the tool to "drift" to other frequencies because of other non-related tones, or beating caused by tones in close proximity to each other. The **Freeze** button stops the automatic estimation and the de-buzzing is fixed to the currently estimated or selected fundamental.

The **Reset** button kills the "learned" spectral shape and will put the **DeBUZZ** back into the initial operating mode. **Preset** can be used to store the **DeBUZZ** parameters – and the entire learned spectrum is stored as well.

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DEBUZZ FOR PRO TOOLS™



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