



## General Information

This is the 2nd of a two part set. Here we have a set of band-pass and notch filters that were 'based on' a unique, vintage filter unit that was heavily used in forensic audio work, due to its extremely sharp notch filters which can precisely remove unwanted frequency specific noises, without adversely affecting the kept audio. Some users found more creative uses for the super-sharp notches and peaks, which could make unique phaser/flanger-like effects when swept around, and that ability has been improved here, using Nebula's built in LFO to modulate the effect. There is also a pass-through program that samples the unit's character with all filters disabled. Everything was sampled with a Lynx Aurora 8 using high-end Mogami cables.

This 2<sup>nd</sup> part of the set includes:

- ◆ One program with only the band-pass filters. Another program with only the notch filters. These are 1k programs because of the huge amount of samples in them (particularly the notch program). The bp and notch programs are fully variable from around 26hz up to somewhere around 26khz. You surely have no other program in your collection with this much precision in the adjustable band. The band-pass program can be used as a peak filter too. These programs are optimized for EQ/filtering purposes. The notches are incredibly sharp and can be used for some serious forensic work.
- ◆ A set of programs that have the bp/notch filters combined in one program, and set up to be modulated by Nebula's internal LFO. There are different programs for several different LFO shapes. Lots of controls allow for many different types of creative effects here, from extreme to subtle. These use a custom LFO control system I developed myself which took quite a bit of work to get it just right. It gives a great amount of control over the effect.
- ◆ A set of 6 programs that use Nebula's internal envelope followers to modulate the band frequency. 3 of these move upwards in freq when triggered by an input, and the other 3 go downwards. They react differently to the incoming signal too, so try them all because they sound very different. Then there are another 6 duplicates of these which use a 2<sup>nd</sup> stereo input to trigger the filter (external sidechain programs)
- ◆ A program with the bp/notch filters combined, but still optimized for FX use, but without an LFO or envelope follower set up. These are the 'manual' programs and they are designed for you to automate filter sweeps or use modulation controllers provided by your DAW.
- ◆ A pass-through program with all the filters disabled. The unit that was

sampled was the 565T which is more sought after by some (than the standard 565) due to it having a transformer on the output which adds extra coloration.

### **Installation**

Copy the .n2p files to your Nebula 'Programs' folder, and the .n2v files to the 'Vectors' folder.

### **Organization**

The programs will all be found in the 'FLT' category in Nebula. From there, the 44.1khz set will be found in 'YR\*', and the 96khz set in the 'YR' sub-category. There are also duplicates of both pass-through programs found in the 'PRE' and then 'CW' or 'CW\*' categories. Inside the main YR category, there is an 'HQ' sub-category with high quality versions of some of the programs. Not all are included in here because it's more about having better sounding sweeping/modulation abilities. Lastly there is another sub-category called 'XSC' which is for the external side-chain programs. These also have HQ versions but they are together with the other XSC programs. The 2<sup>nd</sup> pass-through program also has an SHQ (super high-quality) version which takes a ton of CPU and can only be used on render, but should sound a bit better.

One main thing to keep in mind- if you want to use one of these programs for any kind of equalizing or forensic artifact removal, use the 'bp/peak' or 'notch' programs. If you want sweeping/modulation effects, use one of the 'FX' programs.

## **Program Specific Details and Controls**

### **Band-pass/Peak:**

This program functions as both a band-pass filter, or a peak filter, which is switchable. So you can use it just as you would an equalizer, to boost a freq area by a few dbs (up to around 12). In either bp or peak mode, the width is variable from fairly sharp to wide. The filter can be placed anywhere from around 26hz to 26khz, making this surely one of the more precise peak/bp filter programs for Nebula. Following are descriptions of the controls and their functions.

**Freq-** Places the bp/peak filter wherever you want it between 26hz and 26khz.

**Width-** Adjusts the width of the filter, from narrow to wide.

**Gain-** If in peak mode, setting this at 0% will give you a flat response (no boost anywhere). At 100% you will get a boost at your chosen frequency of about 11

to 12 db. In bp mode, setting it to 0% results in silence, and at 100% the spot the freq dial is set at will be about 10db over it's level on input. So this really just adjusts the gain of the selected band.

**BP/PK-** Selects between band-pass or peak filter mode. In band-pass mode, only the band you select with the freq and width controls remains- everything else is filtered out. In peak mode, it works just as a peak band in an EQ does, allowing you to boost areas by several dbs.

### **Notch:**

This program is huge, because it contains almost 3 thousand sampled notches! The reason it takes so many is because the notch filters in this unit are so incredibly sharp, so it takes many many samples to recreate a smooth transition across the frequency range of the filter. This program may become your first choice if you have any troublesome artifacts or other unwanted frequency-specific noises in your audio that you want to get rid of. You can also use it as you would a typical EQ to some extent, to lower a freq area by a few dbs only.

**Freq-** Selects where you want the notch at.

**Width-** Width of the notch filter. 0% is VERY sharp. 100% is wider, but not as wide as with the bp filter.

**Depth-** How far down do you want the notch to cut? 100% gives deepest cut, which can go down lower than -60db. The depth of the notch depends on the width, and on the freq, just like with the hardware. 0% takes away the notch so you have a flat response.

### **FX LFO (various shapes/types):**

All programs labeled 'FX' are optimized for use as an effects, or more specifically, having the filter sweep around in some way or another. The previous programs (the standard bp and notch ones) are not meant to be used this way. For one thing, they are 'stepped' which means you can never position them 'between' samples, which makes them better for EQ purposes. The FX programs have their program rates and smoothing types set up to allow smooth sweeping without artifacts. These FX programs use Nebula's internal LFO to modulate the filter frequency.

**BaseF-** Stands for Base Frequency. This is the lowest frequency that the LFO will allow the filter to go down to. So if you set it to 100hz, it can reach that point, but will never go below it. The higher you set this, the more you are reducing the distance the LFO can travel. If you set it all the way to the max frequency, the LFO will not move at all.

**LFO width-** This is not for the width of the filter! This determines how far the filter can go from the 'base frequency'. So, if you set this to 0%, again, you will

have no motion from the LFO. This control is measuring width relative to the entire frequency spectrum, so 100% means it can travel from a base freq at 26hz up to 26khz. At 50% it would only go about halfway across, according to a log scale (so from 26hz to about 1khz). If you set this to a wider distance than what is left between your base freq and the opposite end of the spectrum, the LFO won't stop when it hits the max freq, instead it automatically re-adjusts its width.

**LFO Rate-** In Hz, the rate of the LFO.

**Filter Width-** This adjusts the width of the filter, whether you are using a notch or bp/peak.

**Filter N/P-** This smoothly transitions between a notch filter (fully counterclockwise) and a bp filter (clockwise). At mid point you have no filtering, just a flat response (and no effect). From midpoint as you move towards the notch side, you get a notch that gets deeper and deeper. Going from midpoint towards the bp side, everything outside of the bp filter starts lowering in level, resulting in a peak filter, until you go far enough where the bp band is all that's left. If you want a modulating peak effect, you will probably want to boost the output a bit to compensate for the loss in gain to everything outside of the bp/peak band.

**Feedback-** Adds some feedback to the effect. I shouldn't have to tell you to be careful with this control. It can go up to 100% at which point you will probably have a very loud, shrill sound. If you want to go overboard with this for some reason, you should have a limiter following Nebula. Lower values should be ok though.

**Smooth-** This may be useful in some cases. It smooths the movement of the LFO. It can produce interesting results with any of the lfo types that have instant value changes (square, random, the ramps, or any of the steps) if used at high levels.

### **FX EnvFollower Forward/Reverse A/B/C:**

These programs are just like the LFO ones, except that the filter frequency is modulated by an envelope follower instead of LFOs. The control scheme is very similar. Instead of 'LFO width' you have an 'ENV width' control, which behaves in the same way- it dictates the distance that the filter can travel away from the base frequency. The way it works is that when there is sound sent into the program, the envelope follower detects its level and moves the filter around. The 'forward' programs have the filter moving upward in frequency when it detects input. The 'reverse' do the opposite, going downward in frequency. The louder the level, the further the filter goes. The A, B, and C programs are variations using different combinations of some of the behind-the-scenes

parameters involved, which results in each of them sounding and acting a little differently. Try them all out. Most controls mirror those found in the LFO programs so refer to that section if you need an explanation for the controls not described below.

**Attack/Release-** These modify the motion of the filter when there is input. They work just like with a compressor. Slower attack time causes the reaction of the filter to input audio to be slower.

**Hipass-** This is a high-pass filter on the detector sidechain. It can go up to 3khz. Use this if you don't want lower frequencies to trigger the filter motion. This control also works with the external sidechain programs, where it filters the 2<sup>nd</sup> input before it triggers the envelope.

### **FX Manual:**

This is like the LFO/ENV programs, but without the LFO or envelope follower. This allows you to modulate it or automate the freq yourself, however your host program will allow you to. There are 2 versions of this program. One is for use with any kind of modulation/automation you might throw at it that will include instant jumps from one value to another with some distance between the two values. Examples of this are things like square wave and random LFOs. So if you are going to be doing something like that, use that program. If your modulation/automation is going to be smooth, fluid motions that flow into each other (more like a sine wave), without abrupt changes, use the other. This program's controls have already been covered in the other program detail sections, and are pretty self-explanatory.

### **Pass-through 1&2:**

Two dynamic effects that were sampled from the unit with all filters disabled. Well, actually the 1<sup>st</sup> one was sampled with all filters bypassed (via the bypass switch), and the 2<sup>nd</sup> one left the HP/LP filters (which were sampled for the other YouRei set) and notches on, but had them set at their furthest 'outward' positions, which places them mostly out of audible range, but it should sound a bit different from the 1<sup>st</sup> program (it also used different settings for the output transformer and input sensitivity from the 1<sup>st</sup> one). The 1<sup>st</sup> one is a 'stereo' program, but this was achieved by sampling the unit two separate times (for each) and combining those to make the stereo effects. The 2<sup>nd</sup> one also has a special SHQ (super high quality) version, which is very CPU intensive and can only be used for rendering, but should sound a bit better.

**Dist-** Known as drive in most other Nebula programs, but I always rename it to dist. Level control for the harmonics.

**Trim-** Adjusts input level, and automatically compensates the output level, so

you can quickly find the 'sweet spot'. If you want more harmonics/saturation, try increasing this slowly until the point where the sound starts breaking up in a bad way, then back off a bit until it sounds ok again. Then, if you still want more grit, try raising the 'dist' up a bit from it's default position. Raising trim keeps the ratio/relation between the fundamental and the harmonics more authentic to the hardware, so it should probably usually be adjusted first with dist just being used as more of a last resort.

## **General Usage Tips/Ideas:**

- Remember to use the correct programs for whatever you are doing! Don't use the FX programs for EQ or forensic filtering type purposes, and don't use the programs that are intended for EQ to get sweeping effects. Don't do it!
- The envelope follower programs can produce artifacts in certain situations. It seems kind of rare and it seems to happen with types of input that you probably wouldn't want to use with an envelope follower effect anyway, such as very very resonant sounds or super low bass signals without any higher frequencies. If these artifacts are generated, you will most likely hear them pretty easily, so it's not something you should really worry about, as if there will be bad things creeping into your audio without you knowing it. It's just a byproduct of Nebula's input level tracking stuff being thrown off by certain types of signals. There may be odd cases where sounds you want to process with the effects produce those artifacts, and you will just have to accept that you can't, unfortunately. Hopefully it is a rare thing.
- If you want the most authentic effect, you should use a pass-through program after one of the filter programs. If you have both YouRei sets, you shouldn't need to place a pass-through program after the HP/LP filters, if you use one of the dynamic versions. If you use one of those dynamic HP/LP filters in conjunction with one of the notch/peak/bp filters from this set, you shouldn't need a pass-through either. Of course, you can use the programs however you want to get different results.

V1.07 – use this version number to keep track of updates. If the manual posted at my site has a higher version number than the one you have, your set probably isn't up to date.

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## **Thanks:**

Giancarlo, Enrique, the rest of Acustica, and everyone (other 'devs', and even the end users sharing knowledge in the forums) who has helped the advancement of Nebula.  
[www.acustica-audio.com](http://www.acustica-audio.com)

All of my supporters! Especially those who help me out a little further by telling others about

my stuff (which helps me to be able to continue putting out new things). Cupwise FX is a small operation and I need all the help I can get, in terms of financial support, in order to continue doing this. I think my prices are set relatively low. So if you like my stuff and get some good use out of it, consider giving it an honest review somewhere, or just let your friends know about it. I don't want to ever include any form of copy protection with my stuff either, so please, before you share these programs with others, consider how you would feel if the fruits of your labor were shared freely rather than you being compensated for them. Contrary to what some people seem to think, making Nebula programs is NOT just a simple matter of 'running some tones through some hardware', especially not for things that are more complex, such as this filter set. With thousands of samples in the main program, it was an insane task to sample, with several false starts and plenty of frustration. Also, the LFO control system (not the actual LFO) is something I developed myself and that alone took around a week. Altogether, countless hours went into this set.