P914 FFB

User Guide



Pulsar Modular[®]

Copyright 2021, Pulsar Novation Ltd. P/N: 12821, Rev. 1.5 Pulsar Modular is a registered trademark of Pulsar Novation Ltd. AAX and Pro Tools are trademarks of Avid Technology. Names and logos are used with permission. Audio Units is a trademark of Apple, Inc. VST is a trademark of Steinberg Media Technologies GmbH. All other trademarks contained herein are the property of their respective owners.

Pulsar Novation Ltd.

Demircikara District, 1419 Street, Ocean City Block B, Floor 4 Muratpaşa, ANTALYA 07100 +90-530-111-4907

www.pulsarmodular.com

Pulsar 914 FFB

User Guide

Version 1.5 May 2021

Pulsar 914 FFB is an emulation of the Moog 914 Fixed Filter Bank. The plugin-in can be utilized on Mac OSX (AU, VST3, AAX) and Windows (VST3, AAX) and soon to be released for iOS (Standalone, AUv3).

Pulsar 914 FFB has 14 separate passband controls: High-pass, Low Pass and 12 center frequency knobs. Each passband range has an attenuation slope of 12dB/oct above or below the designated frequency. The steep passband attenuation of each pot creates the characteristic peaks and troughs of this formant filter.



Moog 914 graph with all pots open (from original manual)



P914 FFB with all knobs open (in S mode-Model A)



P914 FFB with all knobs open (in S mode-Model B)

Pulsar 914FFB can be used to better simulate instruments on a synthesizer by emphasizing or attenuating certain frequency bands, hence altering the timbre of the tone. Another creative use when used as a fader for full textured sounds or noise. While the frequency knobs are attenuated, bring up different frequency bands into the mix. Pulsar 914 FFB is a product of Pulsar Modular, a division of Pulsar Novation. **The sound is unbelievable!**



History

At a time when Bob Moog and others were pioneering the concept of voltage control for oscillators, filters, amplifiers, and more, Bob Moog again broke the mold and conceived a fixed filter bank; no voltage control! This was not an equalizer although it had certain visual characteristics of one. No, the intent of the FFB was to enhance the primary signal, adding harmonics at specific frequencies or removing them at others. This was a time when musicians and engineers were struggling to come to terms with the new synthesizers charging across the music industry and how to employ them in the composing and performing world. Some wanted completely new and never before heard sonic landscapes to push themselves and their audiences into new worlds of musical experience. Others wanted to create more traditional and familiar sounds, while still pushing the boundaries and making use of the new voltage controls, features, and character not available in a traditional "unplugged" instrument. Some wanted both. Enter the Moog Fixed Filter Bank. A filter which helped composers and performers by allowing them to add subtle or not so subtle resonances to the signal or removing frequency bands altogether. This process, when mixed in with the unaltered, "dry" signal, can mimic the actual behavior of a traditional instrument which has inherent natural, resonant modes due to construction and design. It can also act on its own as a unique and creative source of sound shaping possibilities not available in other filter structures. It's a wonderful module and addition to any musical composition whether traditional or on the edge.

Of course, musicians are not going to confine their creativity to an intended use! This filter opens up amazing sonic vistas by adding a unique emphasis and bite to a signal. This results in an effect that goes beyond a basic equalizer by adding or subtracting harmonic content to a signal at specific points in the frequency spectrum. With 14 knobs to tweak, the 914 offers a lot of control as it stands. While the attenuators don't alter the Q, they do offer the ability to control how much of that frequency band is added to the signal.

This plug-in of course started with the genius and vision of Bob Moog. The next stage came with the resurgence of analog modular synthesizers and those who were resurrecting the great modules of the past and developing new modules for the future. Several clones of the 914 were being introduced primarily based on active filter design structures. The original structure of the 914, using simple inductors, capacitors, and resistors for the filter cells, has subtle interactions which become lost in the sterile world of semiconductors. These recent efforts were valiant and produced clones worthy of admiration. However, a design based on The original structure was begging

to be pursued. A source for inductors was found, the schematics were scrutinized, errors in the schematics from copying were weeded out, circuit boards were designed, and the result was an extremely accurate and faithful copy of the original response as published by Moog in their original owner's manual, see _the 914 FFB page at http://moogarchives.com/.

With a solid hardware version in hand, a software model could begin. Careful characterization and measurement of the hardware, along with a software model keeping the unique structure of the Moog FFB with its two stage design, has resulted in a software model that faithfully matches and follows that of the original. Adding some extra features, such as being able to direct the output of each cell to either the left or right channel, opens up additional possibilities that add to the charm, utility, and character of the filter.

The Pulsar 914 is simply put, a meticulous, spot-on implementation of the Inductor 914 Fixed Filter Bank.

Pulsar 914 FFB Specifications

- Features fourteen vintage style fixed frequency, inductor based filters.
- 1 LP resonant filter with stopband roll off at -40 dB/decade.
- 1 HP resonant filter with stopband roll off at -40 dB/decade.
- 12 Band-pass filters are set at half octave interval spacings, which range from 125 Hz through to 5.8kHz.
- Option to split into two six band filters (175Hz, 350Hz, 700Hz, 1.4kHz, 2.8Khz and 5.6 kHz for the Left channel), and the alternate six bands (125 Hz, 250 Hz, 500 Hz, 1kHz, 2 kHz, 4kHz) for the Right channel. This is a very musical split, as it can perform as two separate Fixed Filter Banks with Octave spacing between filters, and the Right channel is offset against the Left channel by a half octave. LP & HP shelving filters are sent to both channels.
- Option to switch from S (Source) to LR (Left & Right) as your band frequencies are split as two teams. You have delay on each channel independently ranging from zero to 99ms for some creative soundscaping; especially when blended with the original signal (always at 0ms).
- Wet-Dry cross fader mixes between the treated signal and the dry or external signal , again with manual and Voltage Controlled panning between banks.
- 4 different settings to emulate slight variation in Q setting (i.e. resonance) for each of the band pass filters, to simulate true analog component tolerance.
- Output gain ranging from -12 to +12dB to balance your signal when mixed with the source signal.
- Morph: One slider that can move all knobs from current preset to target preset.

Operation

The 914 FFB attenuates 12 frequency bands.



- 1) LP Filter
- 2) HP filter
- 3) 12 Band Pass filters.

Automation

All parameters in principle can be automated, however, we noticed some discrepancies between different DAWs- so we wanted to point them out. In future updates, we will try to find a workaround.

Morph

You can use the morph slider to move all the knobs simultaneously from the current preset to the target preset. Switch knobs like Bypass or S-LR can not be automated, as such, you need to manually switch it when morphing.

Uninstall 914FFB

FOR WINDOWS

Check two different directories and make sure that you deleted both of them .

- The first directory is where "P914 FFB.vst3" is located C:\Program Files\Common Files\VST3 In the VST3 folder, you will see all of your vst3 plugins. Simply locate the "P914 FFB.vst3 " file and delete it.
- 2) The second one is where the "P914 FFB" folder is located. C:\Users\Public\Documents\Pulsar Modular

In the Pulsar Modular folder, you need to find the "P914 FFB" folder and delete it. FOR MAC OS $\rm X$

There will be three directories that you need to check

- The first directory is where P914 FFB.component is located /Library/Audio/Plug-Ins/Components In the Component folder, you will see all of your au components . Locate the "P914 FFB.component " file and delete it.
- 2) The second one is where the "P914 FFB.vst3" is located. /Library/Audio/Plug-Ins/VST3

Again locate the "P914 FFB.vst3" file and delete it.

- 3) The third one is where the "P914 FFB" folder is located.
 - /Users/Shared/Pulsar Modular

In the Pulsar Modular folder, you need to find the P914 FFB folder and delete it.

Fine Tuning Mode

You can use modifier keys for fine tuning. To activate the fine tuning, you need to press and hold the modifier key (in Mac: "control, option or command ", in Windows: CTRL or ALT) while controlling the knobs.

Frequency Charts of 914 Hardware Clones

Special thanks goes to David Ingebretsen who was instrumental in designing the P914. David worked with 6 different hardware models of 914 while fine tuning the P914. We would like to share those charts with you without going into details of brands.









