



User Manual

Quick Start

AFX F-35 is a module that works as a plug-in inside VCV Rack. To start using AFX F-35, open up VCV Rack. Click Update Plugins if you have not already done so. AFX F-35 can be created from the right click menu under Blamsoft.

Overview

AFX F-35 is a high-quality 35 mode filter in the VCV Rack format. The filter algorithms feature 4x windowed sinc oversampling for pristine quality drive and true cutoff slope. The filter algorithms are Zero Delay Feedback for true cutoff frequency and resonance across the spectrum. All of this quality still remains CPU efficient with careful optimization and heavy use of SIMD instructions to process the two channels in parallel. You get tons of modes to explore and patch points for every parameter for endless tweaking.

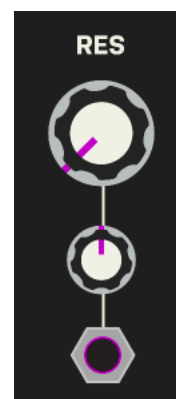
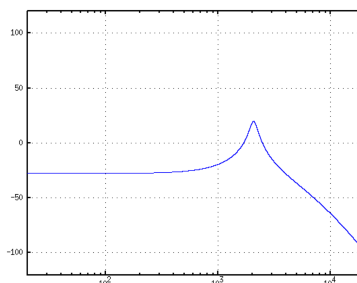
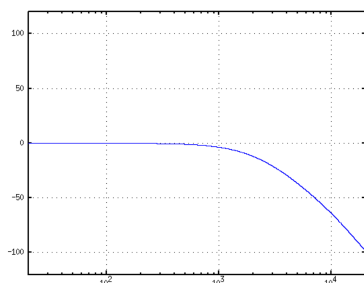
Frequency

The frequency control is the most important control on any filter module. You can think of the cutoff frequency as how much highs or lows pass through the filter. In a lowpass filter, if you turn this knob down, only low frequencies pass through the filter. Conversely, in a highpass filter, when you turn this knob up, only the highest frequencies pass through the filter.



Resonance

The resonance control is the second most important control on a filter. Resonance causes a peak in the filter magnitude response at the cutoff frequency. A picture is worth a thousand words. This left image shows the magnitude response of a lowpass filter with zero resonance. The right image is with resonance turned up.

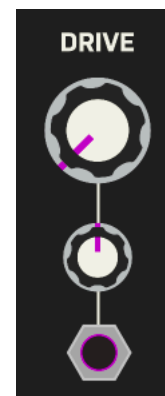
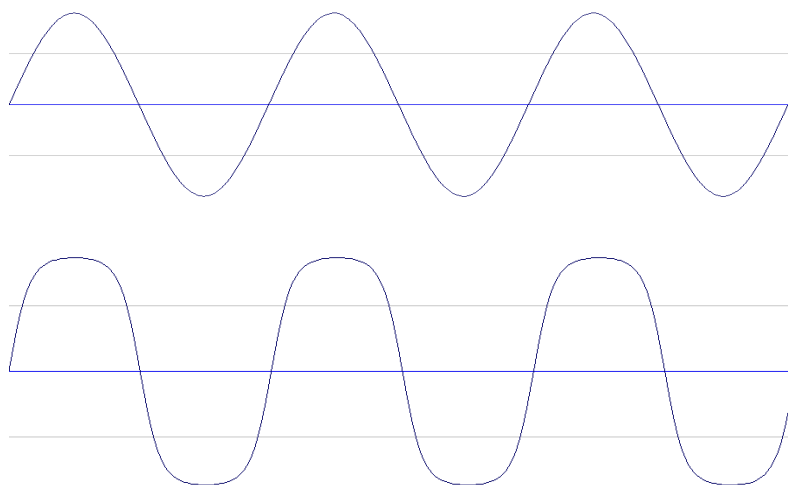


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Drive

More realistic analog-modeled filters have non-linearities that saturate with loud signals. Instead of just continuing to get louder as the input gets louder, soft-clipping occurs creating a warm distorted sound. Once again, a picture helps a lot to see what is happening. A sine wave with drive results in a soft-clipped waveform. Note, when there is more drive, resonance decreases.



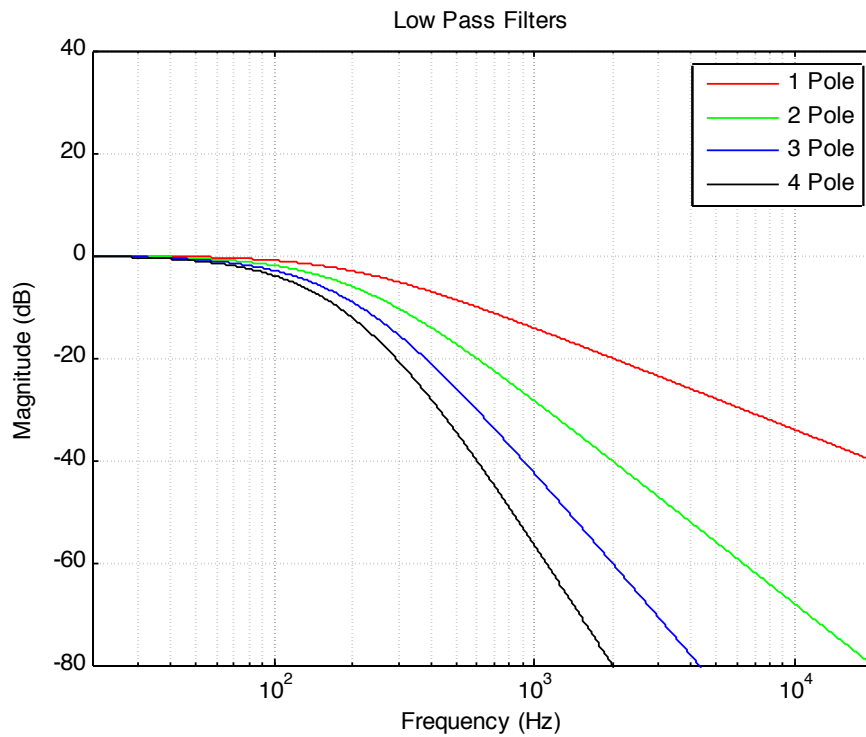
<http://folk.ntnu.no/oyvinbra/gdsp/Lesson4tanh.html>

Mode

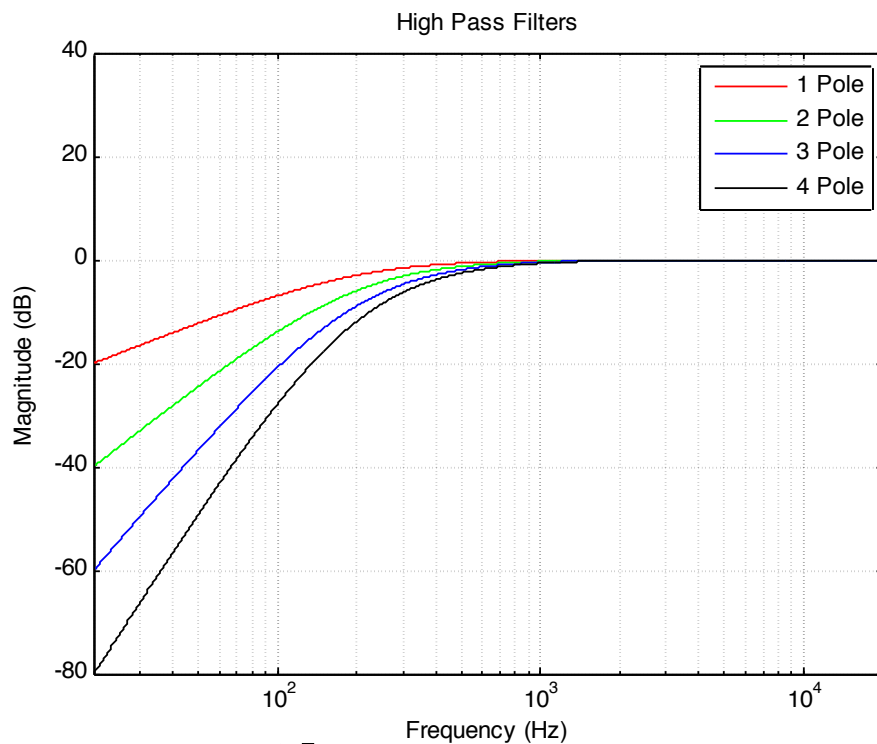
There are 35 modes in F-35. We won't cover them all here, but you can get a general idea of what they do from their magnitude response plots. A pole has a 6 dB per octave slope. So if you see 2 poles in the plot, it means a 12 dB slope. The slope in dB per octave is given in the mode menu when selecting the mode. The different types of filters with the same slope sound difference as the resonance is turned up. Note, there won't be an audible difference between these modes with no resonance. You can find more information about the various topologies online.



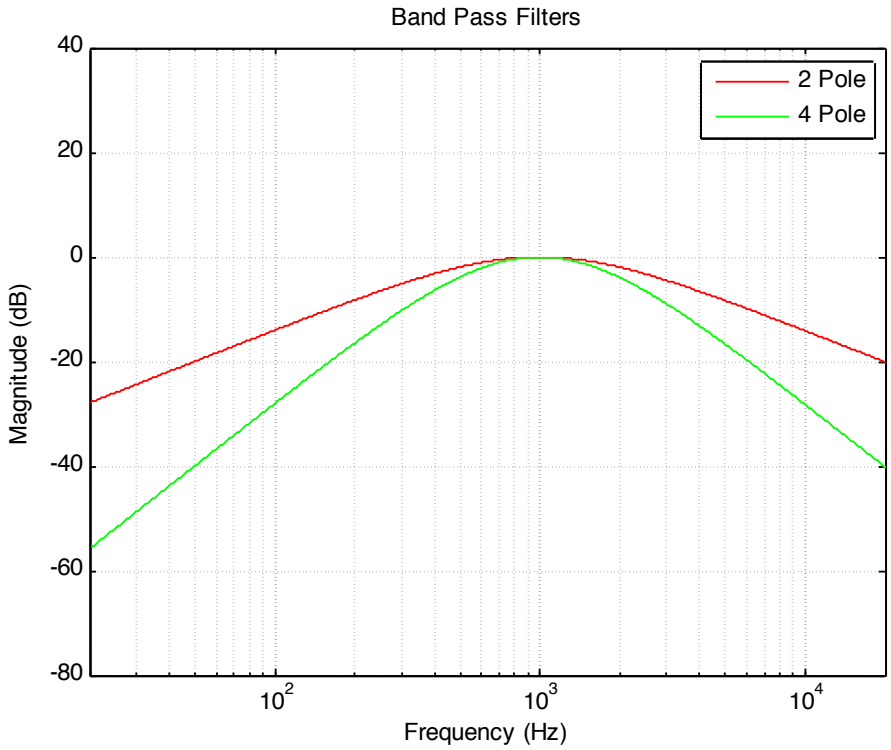
6, 12, 18, and 24 dB Lowpass



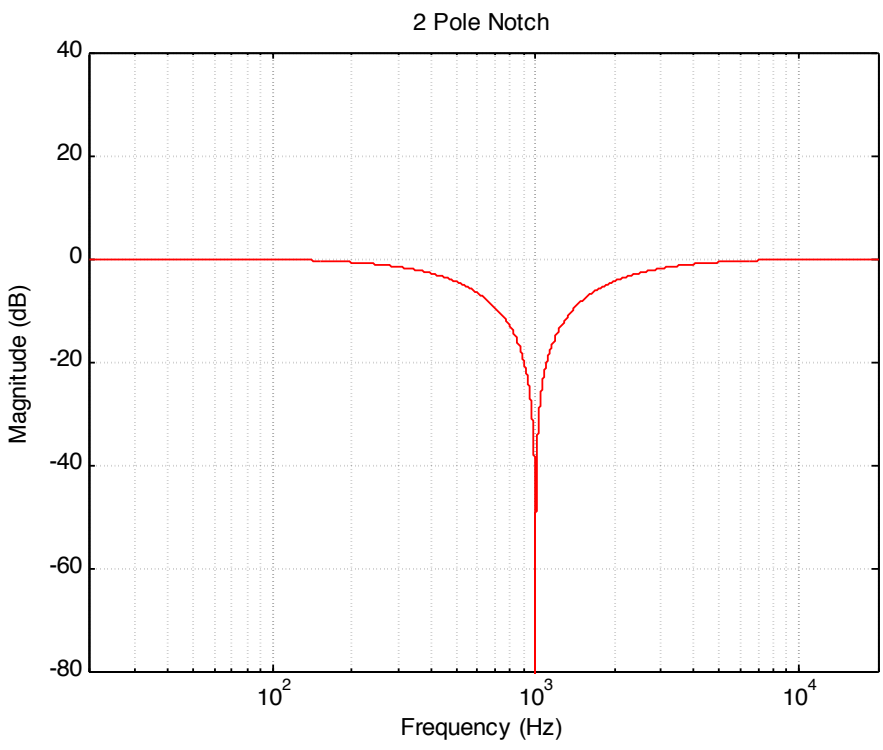
6, 12, 18, and 24 dB Highpass



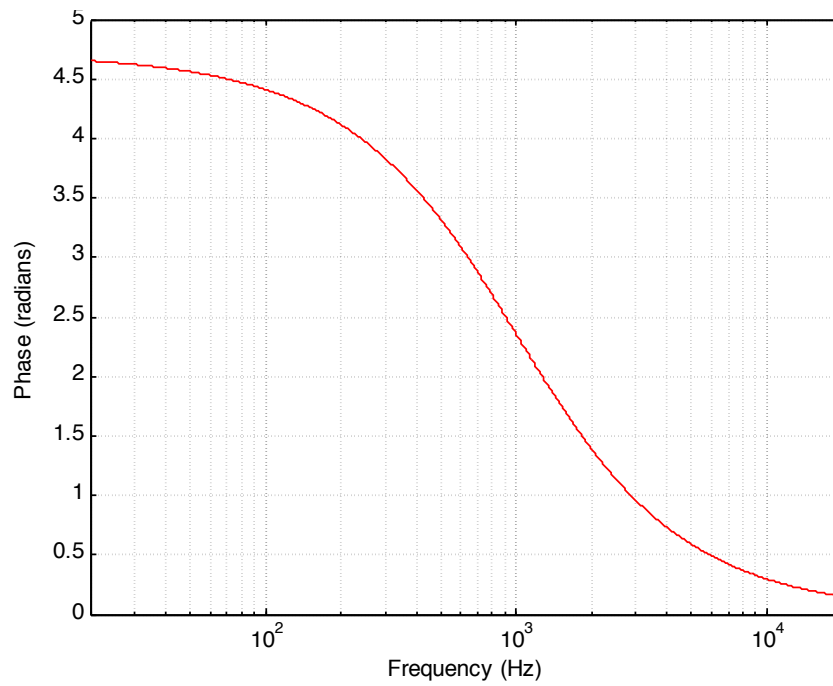
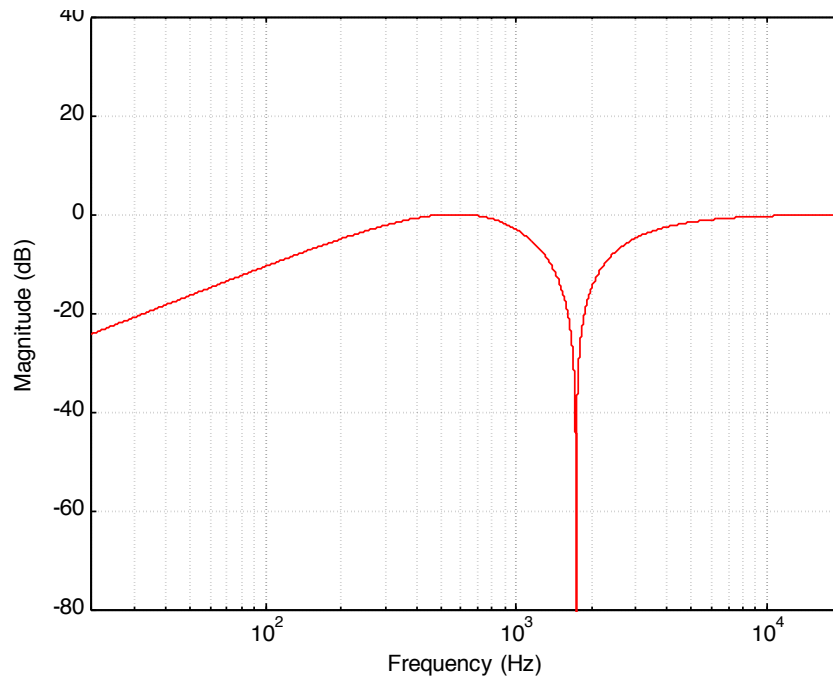
6 and 12 dB Bandpass

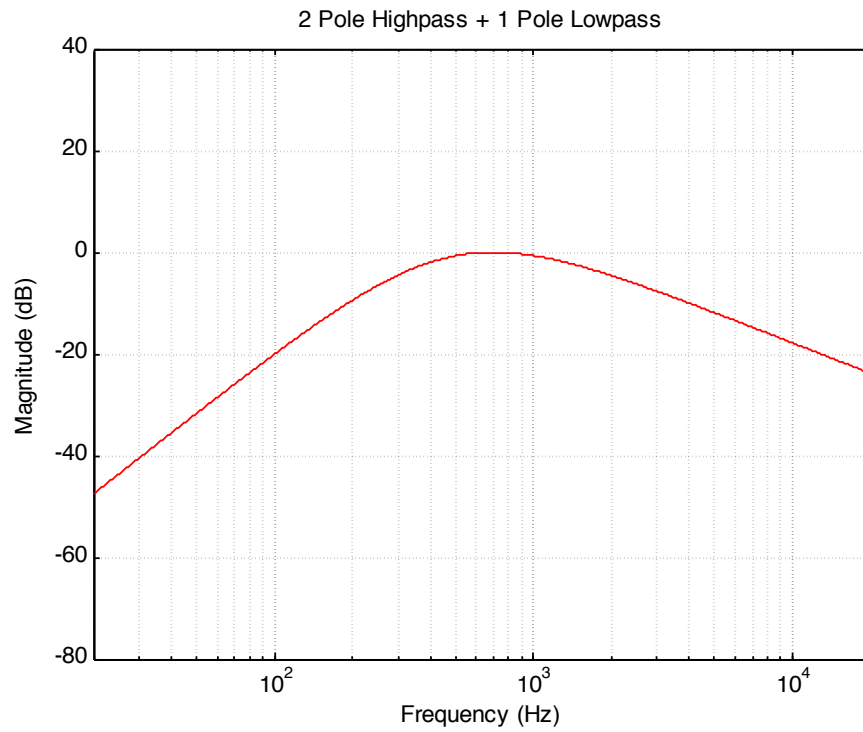
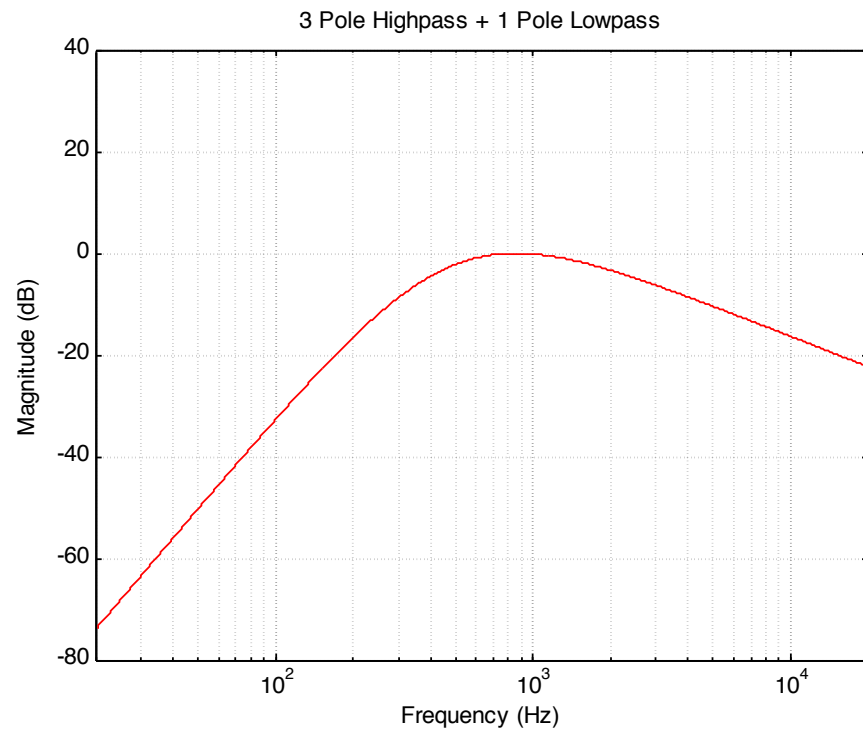


Notch

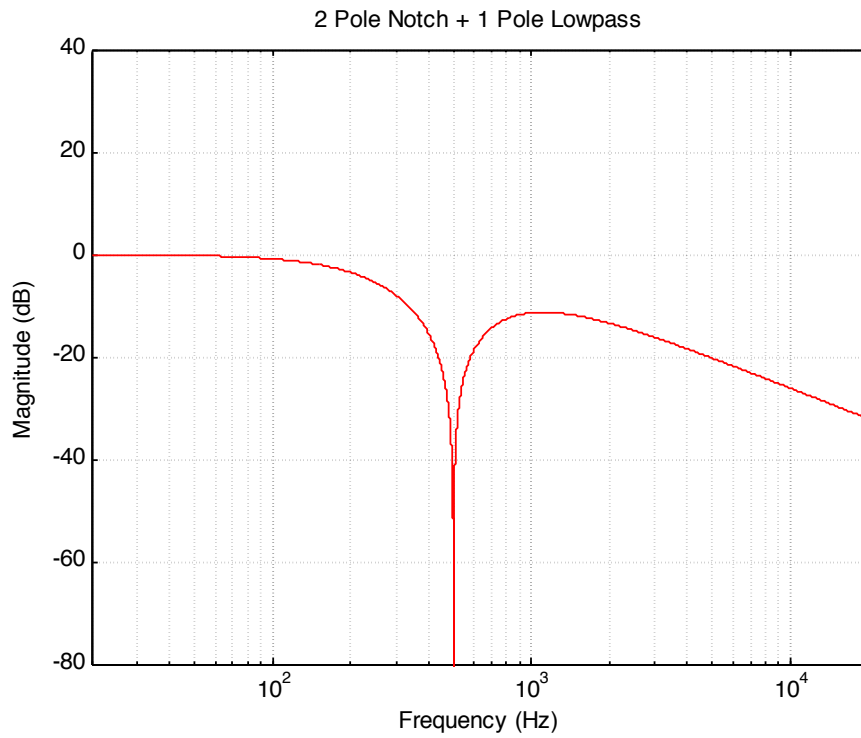


Phase

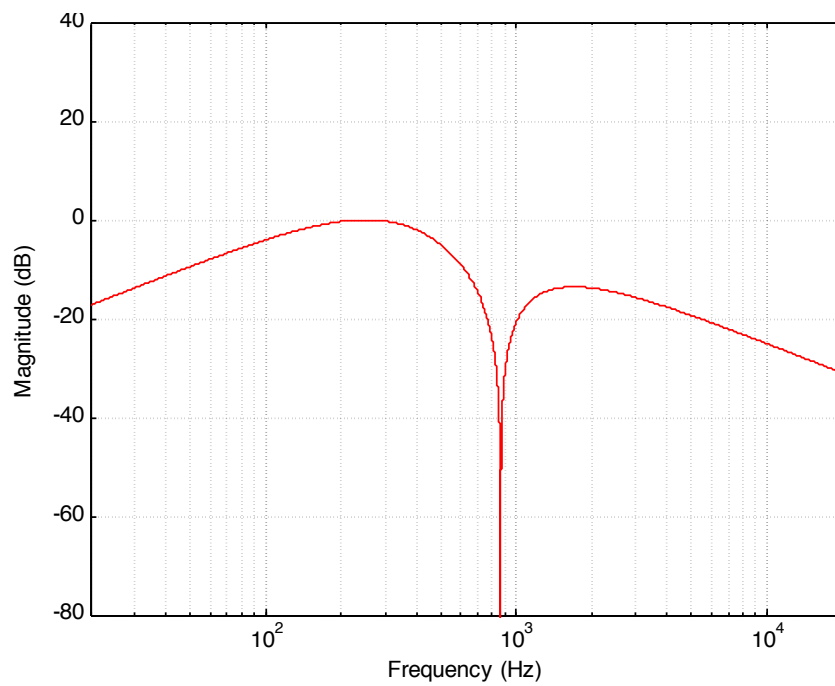


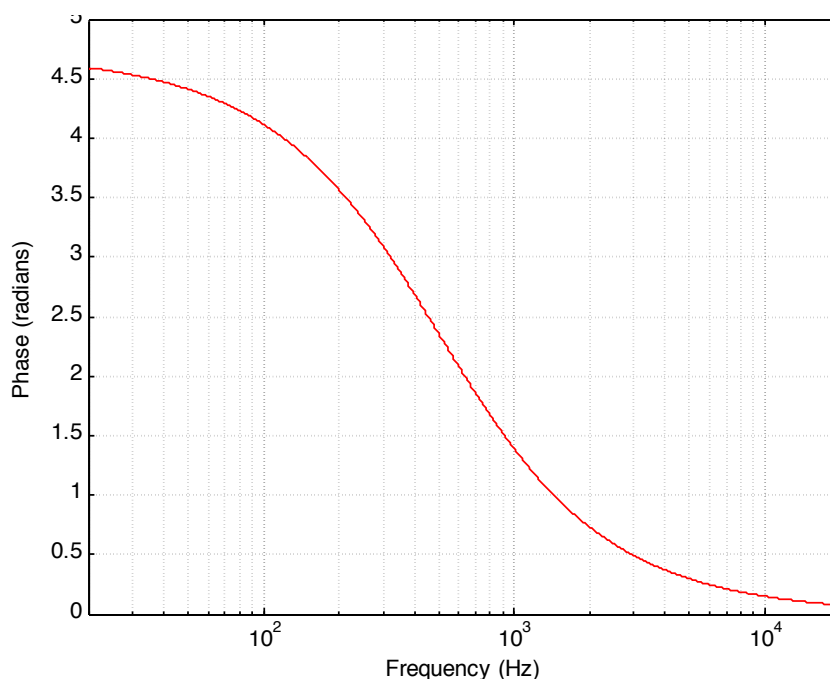
12 dB High + 6 dB Low**18 dB High + 6 dB Low**

Notch + 6 dB Low



Phase + 6 dB Low





Non-traditional Modes

Comb: Comb filters are like chorus, phasers, and flangers in that they have feedback from a delayed signal.

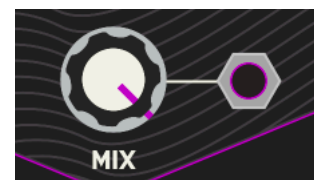
FM: Frequency modulation is when the frequency of the input is varied by another signal, in this case a sine wave.

RM: Ring modulation is when the amplitude of the input is varied by another signal, in this case a sine wave.

Bitcrusher: A bit crusher reduces the same rate and bit depth of the input

Mix

An LFO modulates the decay times of the reverb to produce a more lively character. The rate is set using this knob.



Inputs and Outputs

F-35 has two inputs and outputs for stereo processing.

