



# ASVF-212

## ANALOG STATE VARIABLE FILTER

### [RACK EXTENSION]

## MANUAL

2019



FX device by Turn2on Software



A State-Variable Filter is an active filter that uses multiple feedback techniques to produce filter responses (LowPass, BandPass and HighPass) from a single filter with user selection.

Classical SVF filters include controls for Filter Frequency, Filter Q and Gain.

With the ASVF-212, we included deep LFO control for the device's parameters. A variety of textures and horizons of modulation morphing can be created by routing destinations such as Filter Freq, Filter Q, Low-High Filter Response, and Notch-Peak Filter Response.

The **ASVF-212** has an additional Notch Filter (Band Stop filter) and Peak Filter (BandPass filter).

The device can also take advantage of Envelope Follower tricks with modulation destinations for Filter Freq, Filter Q, Low-High Filter Response, and Notch-

Peak Filter Response with a few Envelope Follower detection modes.

What makes the **SVF-212** different from a typical SVF filter? It is a Stereo filter-bank (LP, HP, BP, Notch, Peak filters) with deep LFO and Env. Follower modulation. The ASVF-212 includes a Blend knob (Dry/Wet mixture of incoming and processed signals) to create more interesting and creative effects. The user can use the included hard clipped Limiter to control the final signal by adjusting the necessary Gain and Pre-Gain (unprocessed) levels.

The **ASVF-212** is a modern stereo SVF filter with advanced features and classical analog SVF possibilities. It allows for a lot of variations of active filtering, resulting in a unique sound.



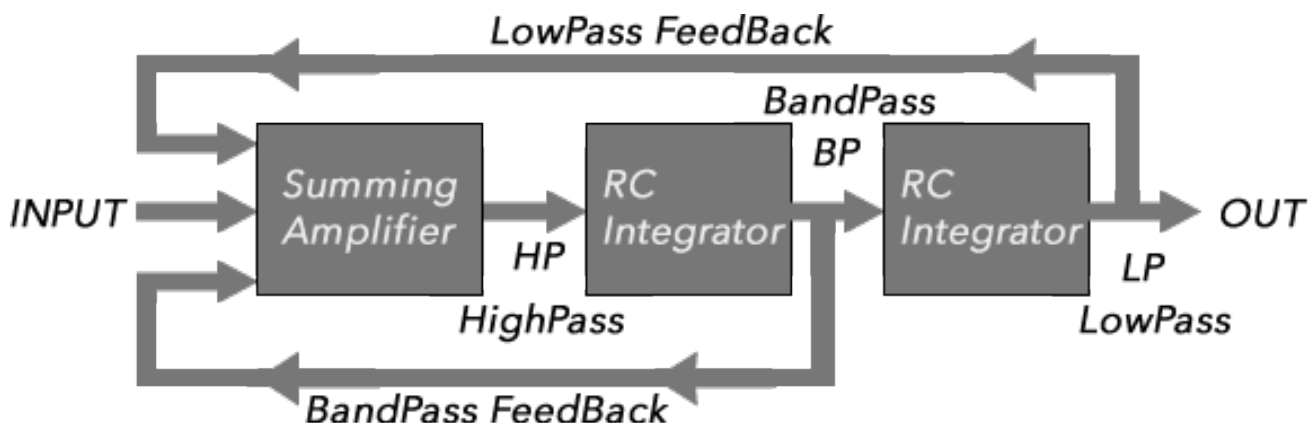
# STATE-VARIABLE FILTER BASICS

A State-Variable Filter is an active filter design that uses multiple feedback techniques to produce filter responses (LowPass, BandPass and HighPass) from a single filter.

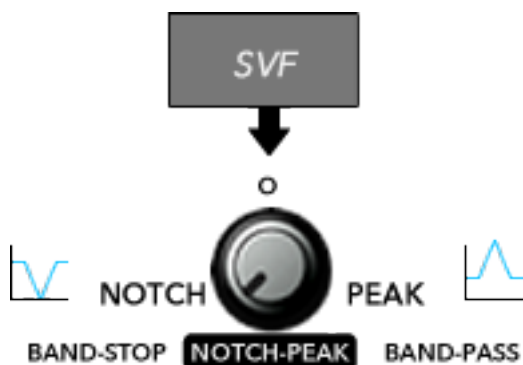
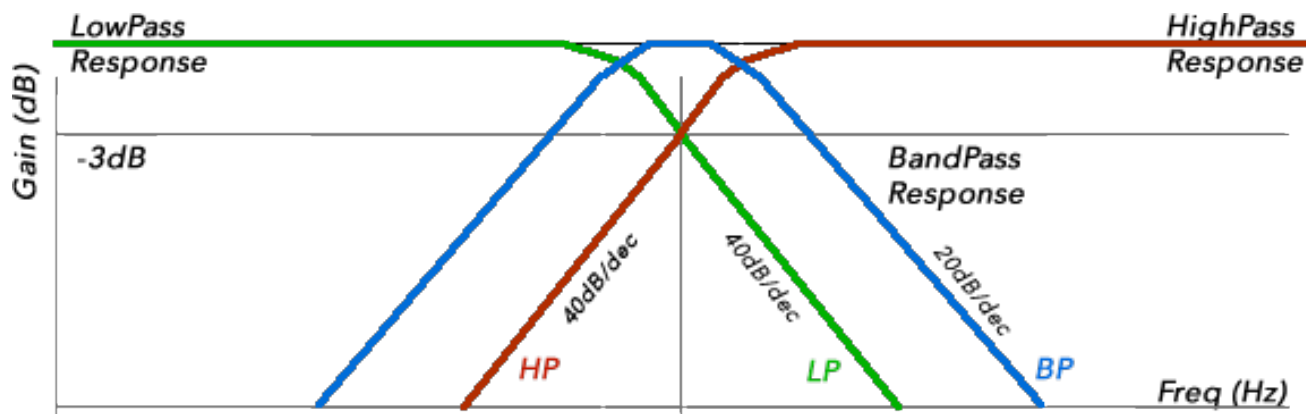
A State Variable filter has three internal outputs (HP, BP, LP) with three op-amps.

Output from the Summing Amplifier produces a HighPass response (coming to the input of first RC Integrator). Output from this integrator produces a BandPass response (coming to the input of second RC integrator).

The Second RC Integrator produces a LowPass response. The feedback of the LP and BP is generated by coming back into the Summing Amplifier.



A State Variable Filter has three basic parameters: Gain, Frequency, and Filter Q. A SVF filter can sometimes be unstable over other basic filters at higher frequencies and damping factors, so it is best used with low Q at lower frequencies.



## Notch Filter (Band Stop)

A notch filter is basically the opposite of a BandPass filter, it rejects, or stops, a specific band of frequencies. A Notch filter is also known as a "Band Stop Filter". It works as summing of HighPass and LowPass output responses.

## Peak Filter (Band Pass)

A Peak filter is a frequency filter that passes a narrow band of frequencies and stops all other frequencies. This is a very narrow bandPass filter and the opposite of a Notch filter. For example, peak filters are used in WahWah effects.



# FRONT PANEL



# Analog SVF

## ASVF / Main parameters

<b>Filter Frequency</b>	Cutoff Frequency of HighPass, BandPass and LowPass filters
<b>Filter Q</b>	Strength of resonant peak at cutoff frequency
<b>Low-High Freq Response</b>	Fade between LowPass and HighPass response
<b>Notch-Peak Freq Response</b>	Fade between Notch/BandStop and Peak/BandPass response



# LFO

## LFO / Parameters

<b>Wave</b>	LFO Waveforms: Sqr, Sine, Tri, Saw, Uniform, FlatMid, EarlyComb, Essence
<b>Destination</b>	LFO destination: Filter Freq, Filter Q, Low/High Filter Response, Notch/Peak Filter Response
<b>Modulation Way</b>	Increase / Reduce the destination mod parameter
<b>Mod Index</b>	Ramping LFO steps. 0% switches from one value to the next
<b>Rate</b>	LFO Rate (mode in sync with Step grid or Time in seconds)
<b>Random Amt</b>	Scale each step of LFO by a random amount
<b>Sync Mode</b>	Set the LFO rate in steps per beat or steps per second
<b>LFO Amt</b>	Amount of the LFO modulation
<b>Retrigger</b>	Restart LFO steps after pauses (sync = Sec), and when Bar beat changed (sync = Beats).
<b>Rate Affect</b>	How much the value affects the LFO Rate (if Env.Foll. is enabled - how it affects the LFO Rate)
<b>Drift Contour</b>	How much the value affects the LFO Wave (if Env.Follower is enabled - how it affects the LFO Wave). Change the waveform from hard to soft curve.



# Envelope Follower

## Env. Follower / Parameter

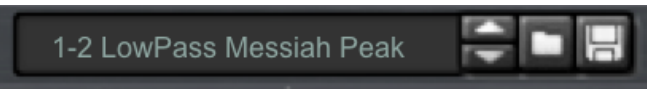
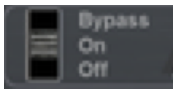
Mode	Envelope detection modes: LIN: Linear voltage measurement up to the threshold level; LOG: Logarithmic dB measurement above the threshold level; GATE: Switch off and on as the signal level passes the threshold
Threshold	LIN: Audio level for full modulation; LOG: Audio level for no modulation; GATE: switching Threshold.
Attack	Rise time when the audio level increases, or the gate opens
Release	Fall time when the audio level decreases, or the gate closes
Destination	Off, Filter Frequency, Filter Q, Low/High and Notch/Peak frequency response



# Limiter / Gain

## Limiter / Gain

Clip Limiter	Limiter on/off. CPU safety hard clipping limiter
Release	Recovery time
Pre-Gain	Gain of incoming signal
Gain	Output Level Gain



# Other



## Bypass / Patch Browser / Blend

Bypass / On / Off	Standard fader with 3 modes: Bypass effect, On Effect, Off Effect
Patch Browser	Open, Browse and Save your own patches
Blend	Blend Dry/Wet functional of incoming and processed signals
Soft Bypass	Bypass with fades of effect activity (without glitches)



## BACK SIDE PANEL



### AUDIO INPUT / OUTPUT

Mono/Stereo connections for Input and Output audio signals



### CV INPUTS

Use these CV inputs to control the main parameters of Filter, LFO, Envelope Follower, and Output

### CONNECTIONS:

Device is a True-Stereo effect.

For Mono input, the device produces stereo output (Spreading).

For Stereo input, the device sums the Left and Right channels before applying the effect.

The output is in Stereo.



## ASVF-212

### Analog State-Variable Filter



## Turn2on

### Rack Extension Developer

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