



# PLUM AUDIO ADVA 3U Smart Multimode Filter Module User Manual

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**PLUM AUDIO ADVA 3U Smart Multimode Filter Module**

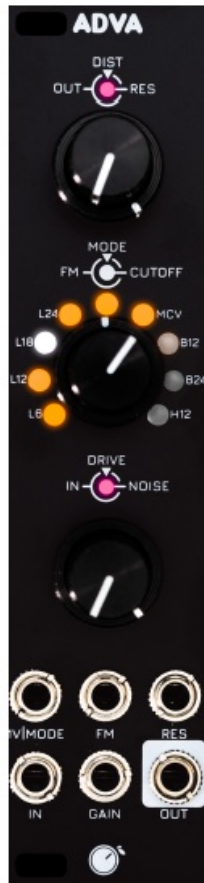


## Specifications

- **Product Name:** ADVA
- **Type:** Analog Multimode Filter
- **Filter Modes:** 7
- **Resonance:** Yes
- Phase Keeper Circuit: Yes
- **VCA:** Yes
- **White Noise Generator:** Yes
- **Pre-Distortion Circuit:** Yes
- **Post-Distortion Circuit:** Yes
- **Smart Digital Interface:** Yes
- **Size:** Small (6HP)
- **Power Supply Requirements:** -12V/+12V (2×5 pin connector)
- **Power Consumption:** +12V rail – 110mA, -12V rail – 50mA

**Thanks for purchasing ADVA from Plum Audio!**

- ADVA is a fat-sounding 24dB ANALOG MULTIMODE FILTER packed with features including a VCA, white noise generator, pre and post-distortion circuits and a smart digital interface that makes it a versatile beast in a surprisingly small package.
- With 7 filter modes, ADVA provides high richness and a wide variety of tones; it can filter gently like an LPG or it can be pushed up to the edges of hot acid tones.
- Unlike many other multimode filters, a phase keeper circuit ensures that ADVA never inverts the input's phase in any of its filter modes.
- Self-Oscillation is available for all modes, producing a range of waves from clean sine waves up to soft square waves when activating the post-distortion circuit. Together with V/OCT tracking, ADVA works
- brilliantly as an oscillator or as a percussive sound generator.
- A resonance loudness compensation circuit ensures that ADVA does not compromise on volume when the resonance is increased.
- An Internal analog white noise generator is the little bit of spice that can make the world of difference. Blend it together with the input signal by rotating the dedicated knob to add more richness to your sound and further emphasize cutoff movements, or use it as an FM source to achieve the different flavors of dirty tones.
- ADVA is packed with two separate distortion circuits. First, the soft-clipping overdrive is located in the sound path after the white noise blend knob and the input gain knob, a circuit which can push the incoming signal to thicken any waveform. If you blend the input with the noise generator it can compress the noise and exaggerate it to achieve more aggressive levels.
- The second (post) distortion circuit is located after the VCA, just before the output. This is a more aggressive distortion and can be used for acid and other dirty hot tones.
- Although the sound path is completely analog, ADVA has a digital support circuit that enables a smart routing system with the option to modulate filter modes via CV, and a very intuitive interface that includes 3 CLICKKNOBS and an RGB LED ring that provides visual feedback for whatever state the filter is in.



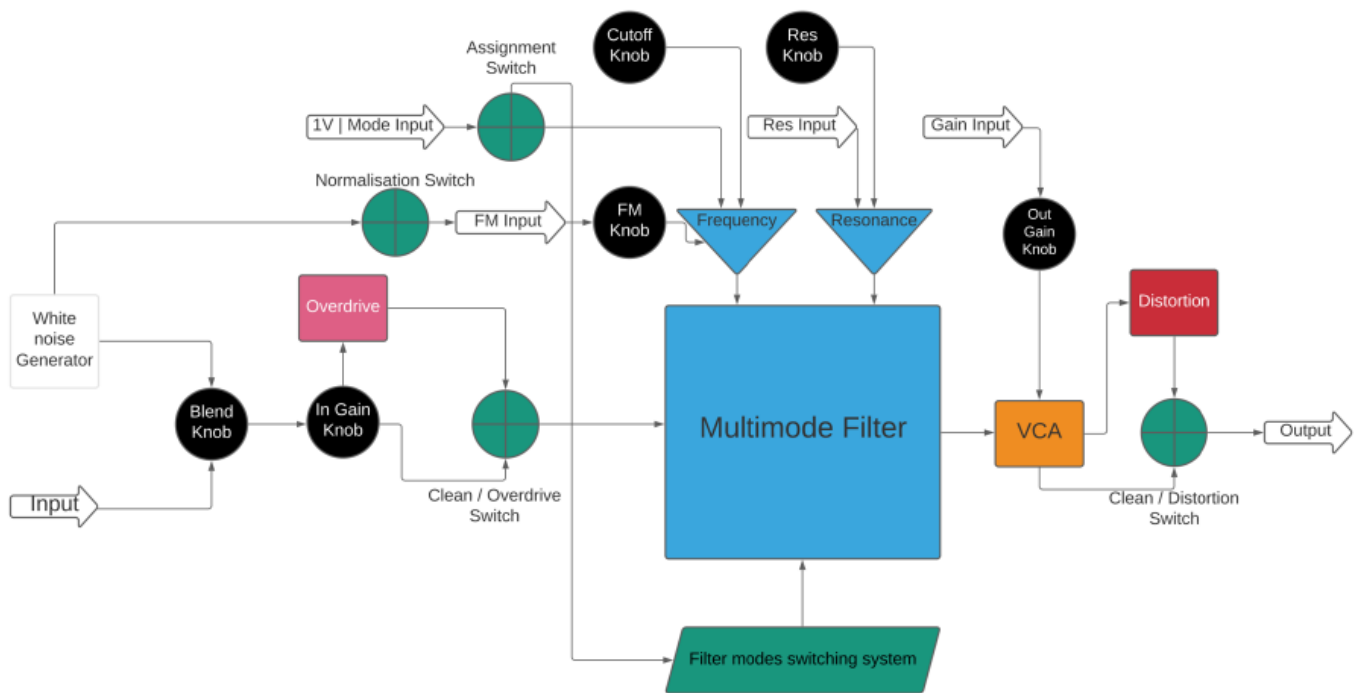
## Installation Instructions

- Before connecting ADVA, make sure to turn off and disconnect your case from its power supply.
- Connect one end of the ribbon cable provided to the power header of ADVA, and the other end to your case's power busboard.
- **NB:** Ensure the red stripe on the ribbon cable (-12V side) is facing the same way as the "Red Stripe" marking on the header.
- Use the 2 screws provided to mount ADVA to an available 6HP space your Eurorack case.

## Power Supply Requirements

- ADVA requires a -12V/+12V power supply (2x5 pin connector).
- ADVA draws 110mA from the +12V rail and 50mA from the -12V rail.

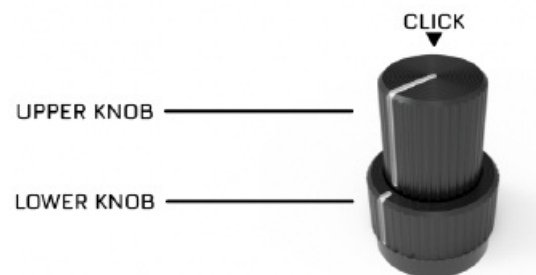
## ADVA – SOUND PATH CHART



## ADVA – INTERFACE

The ADVA Interface includes 3 “CLICKKNOBS” — Plum Audio’s custom dual concentric knobs with push buttons. This special interface component allows us to keep the module size small whilst at the same time ensuring a convenient and intuitive interface.

### Physical “CLICKKNOB” options



### Panel graphics



## INPUTS AND OUTPUTS

1. Audio Input.
2. Gain Input – This is the CV input for the Internal VCA. When nothing is patched to this input, the VCA is fully open.
3. Output.
4. 1V | Mode – By default, this input is used as a second cutoff modulation. This input is not affected by the FM attenuverter and allows tracking using the V/OCT scale.

You can reassign this input to change the filter modes. To understand how this works, please see the “Advanced Topics” section in this manual.

5. FM Input – CV Input for cutoff modulation. The signal from this input is processed by the FM attenuverter (Lower B Knob). When the FM attenuverter knob is turned fully clockwise, the cutoff will be tracked using the V/OCT scale.

This input is normalized to the internal white noise generator, meaning that when nothing is patched in, the FM attenuverter will be used to modulate the cutoff with white noise.

NB: If you wish to disconnect this normalization, please see the “Advanced Topics” section in this manual.

6. Resonance CV Input.



## CONTROLS

- **A. Click: Activate / Deactivate the drive circuit.**
  - Upper Knob: Noise Blend – Allows blending of the input signal with the internal white noise generator.
  - When turning this knob clockwise, the input signal will be attenuated on a non-linear scale. The non-linear response of this knob allows for a sweet spot of around 50% where there is relative equality between the incoming signal and the noise while maintaining an almost full gain of the incoming signal.
  - When this knob is fully open (turned clockwise) only noise will pass through the filter. When it is fully closed (turned counterclockwise) only the incoming signal will pass through the filter. Lower Knob: Input Gain
  - in the audio path this knob is located after the noise blend knob and is used to attenuate the signal passing to the filter. When the drive circuit is active, this knob will be used as the drive amount.
- **B. Click: Filter mode – Each click will cycle through the filter modes – LP6dB, LP12dB, LP18dB,**

### **LP24dB, BP12dB, BP24dB, and HP12dB.**

- The corresponding LED in the LED ring will light up in white, All other LEDs in the ring will give visual feedback on the filter Cutoff position, and each filter mode has its own color code. Upper Knob: Cutoff frequency – This is the main cutoff knob.
- **Lower Knob:** FM Attenuverter – this knob is used to scale and invert the FM input signal. At the midpoint, the modulation is fully attenuated, rotating the knob clockwise will increase the amount of modulation and rotating counterclockwise from the mid-point will increase the amount of inverted modulation.
- **C. Click: Activate / Deactivate the distortion circuit.**
  - **Upper Knob:** Resonance.
  - **Lower Knob:** Output gain – This knob is used as the attenuator of the VCA gain input. When nothing is patched to the gain input, this knob will act as the filter's output volume.
- When the distortion circuit is activated the VCA can increase or decrease the amount of distortion using this knob.

## **ADVANCED TOPICS**

### **MCV – MODE CHANGE VIA CV**

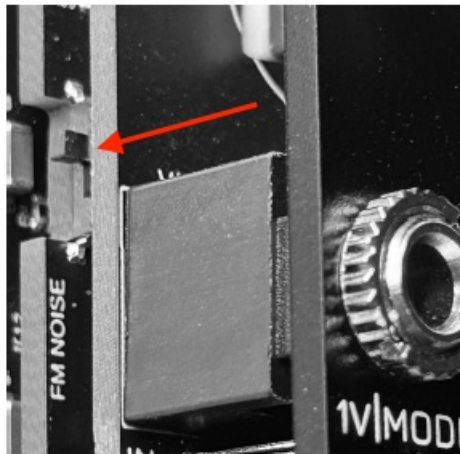
- 1V | Mode input (4) can be reassigned to control the mode of the filter. To reassign this input press knobs A and C and release them simultaneously.
- When this input is assigned to MCV, the corresponding LED in the ring will light up white and the small LED inside the 1V | Mode jack will light up.
- The MCV mode accepts CV in the range of 0-5V, and you can 'offset' it by changing between modes manually.
- To reassign the 1V | Mode input back to V/OCT, repeat this process and the corresponding LEDs will turn off when complete.
- Note about MCV – ADVA uses fast switches to change between filter modes immediately, and as such, there is no crossfade between modes and there may be a "click" sound that appears at the output whilst changing modes.
- It is more likely that this "click" will appear at lower frequencies.

### **ADVA offers various tools to mask this 'click'. Here are some tips as a general guide to filter it out**

- Use a sequencer to synchronize mode transitions to your rhythm.
- Modulate the VCA with an envelope and open the 'Attack' a little bit.
- Use the internal white noise generator; it will work similarly to dither, and can filter out the click.
- Modulate the filter – when the filter parameters are in motion the click will disappear.
- Use distortion – clipping the distortion circuit will make the click disappear.

### **DISABLE / ENABLE NOISE NORMALIZATION TO THE FM INPUT**

- Release the mounting screws and take off the module from your case to access the small slide switch, located on the left side of the module, on the central circuit board.
- This switch will disconnect the noise normalization.



## **ADJUST LED BRIGHTNESS / TURN OFF THE LED METER**

- Disconnect all cutoff modulation signals (FM and V/OCT) and set the FM attenuverter to the mid-point position.
- Press and hold the Cutoff knob for about 4 seconds to access the LED settings.
- Use the cutoff knob to change the brightness:
- To increase brightness, rotate the cutoff clockwise
- To decrease brightness, rotate the cutoff counterclockwise.
- NB: At the first 20% of the knob's rotation (fully counterclockwise) the cutoff meter will turn off and the LED ring will only show the current filter mode.

## **V/OCT CALIBRATION PROCEDURE**


The filter is designed to track effectively over 4 octaves but is not temperature-stabilized, Before calibration, it is recommended to let the module warm up for about 20 minutes.

1. Set the cutoff knob to about 10 o'clock (the exact position does not matter).
2. Set the resonance knob to its maximum position. Disconnect any input signal or FM modulation CV and set the FM attenuverter to the midpoint (or disable noise normalization).
3. Make sure the MCV mode is turned off and connect the note CV output of a well-calibrated keyboard interface or MIDI-CV converter to the 1V | MODE input.
4. Listen to the tone from the output (the filter mode doesn't matter) or use a tuner.
5. Adjust the V/OCT trimmer on the back of the circuit board until the musical intervals played on the keyboard are correctly reproduced (actual note values do not matter, but when playing an octave, it must sound like an octave).

**ADVA IS AVAILABLE IN 3U/6HP AND 1U/22HP FORMATS WITH BLACK OR SILVER FRONT PANELS**



## Documents / Resources

	<p><a href="#">PLUM AUDIO ADVA 3U Smart Multimode Filter Module</a> [pdf] User Manual</p> <p>ADVA 3U Smart Multimode Filter Module, ADVA 3U, Smart Multimode Filter Module, Multimode Filter Module, Filter Module, Module</p>
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## References

- [User Manual](#)