

VAMP



MANUAL V1.0

APOLLO VIEW 

TABLE of CoNTENTS

LIMITED WARRANTY.....	3
INTRODUCTION	4
WHAT IS IT?.....	4
FEATURES	4
TECH SPECS.....	4
SPECIAL THANKS.....	4
VAMP TECHNICAL BACKGROUND	5
TUBES: WARMTH WHERE IT MATTERS	6
FEEDING THE BEAST.....	6
BARE THE FANGS (OUTPUT CLIPPING)	6
PRECISION MEETS PRIMAL HUNGER.....	7
RAISING THE DEAD.....	7
INSTALLATION VAMP.....	8
POWER	8
BLOCK DIAGRAM	9
VAMP FUNCTIONALITY	10
KEY	10
FILTER MODE SWITCH.....	11
FREAK KNOB	11
VACUUM TUBE (12AU7/ECC82).....	11
GAIN KNOB	12
REZ KNOB.....	12
1V/OCT CALIBRATION TRIMMER	13
CV INPUT ATTENUVERTERS.....	14
CV INPUTS.....	14
1V/OCT INPUT	15
AUDIO INPUT	16
AUDIO OUTPUT.....	16
FLOW VCA SWITCH	16
FANGS CLIPPER SWITCH.....	17

LIMITED WARRANTY

Apollo View Modular Ltd warrants this product to be free from defects in materials or construction for a period of one year from the date of purchase (proof of purchase/invoice required).

This warranty does not cover any damage caused by misuse of the product, or any unauthorised modification of the product.

Apollo View Modular Ltd reserves the right to determine what qualifies as misuse at their discretion. Examples of misuse include, but are not limited to:

1. Exposure to extreme heat or moisture
2. Malfunction resulting from wrong power supply voltages, backwards or reversed Eurorack bus board cable
3. Issues related to third party products
4. Any condition resulting from incorrect or inadequate maintenance or care.
5. Damage resulting from misuse, abuse, negligence, accidents or shipping damage.
6. Dissatisfaction due to buyer's remorse
7. Normal wear and tear
8. Damage to the product caused by excessive physical force or abuse of the product, removing knobs, changing faceplates

This warranty does not cover any other causes determined by Apollo View Modular Ltd to be the fault of the user, and standard service rates will apply.

Apollo View Modular Ltd agrees, at its option during the warranty period, to repair any defect in material or quality or to furnish a repaired or refurbished product of equal value in exchange without charge (except for a fee for shipping, handling, packing, return postage, and insurance which will be incurred by the customer). Such repair or replacement is subject to verification of the defect or malfunction and proof of purchase as confirmed by showing the model number on the original dated sales receipt.

Apollo View Modular Ltd implies and accepts no responsibility for harm to persons or apparatus caused through the operation of this product.

Please contact info@apolloviewmodular.com with any questions, requests for a return to the manufacturer, or any needs & comments.

<https://www.apolloviewmodular.com/>

INTRODUCTION

WHAT IS IT?

8HP Multi-Mode TUBE Filter with Bite

VAMP is a multi-mode analogue filter that gives you low-pass, band-pass, and high-pass responses in a compact 8HP design. At its heart lies a classic Sallen-Key topology supercharged with real vacuum TUBE (12AU7) saturation and multiple stages of clipping, letting you move seamlessly from smooth, hi-fi filtering to snarling, overdriven character.

One half of the TUBE saturates the input, while the other half provides MS-20-inspired resonance limiting (TUBE, not diodes). With FLOW placing the VCA pre-TUBE or post-filter, and FANGS selecting Off / Soft / Hard output clipping, VAMP ranges from subtle warmth to ferocious harmonic destruction.

FEATURES

- **Three filter modes:** low-pass, band-pass, and high-pass
 - **Classic Sallen-Key topology** with TUBE saturation and clipping
 - **12AU7 vacuum TUBE:** one half for input drive, one half for resonance distortion
 - **MS-20-style resonance limiting/clipping** for aggressive tones
 - **FLOW switch:** Integrated VCA pre-TUBE or post-filter
 - **FANGS: output clipping:** off / soft clipping / hard clipping
 - **1V/Oct cutoff tracking:** use VAMP as a VCO in self-oscillation
 - **Extensive CV control:** **GAIN**, **FREAK (cutoff)**, **REZ (resonance)** (all with attenuverters)
 - **Self-oscillation** for screaming tones
-

TECH SPECS

- 8HP
- 30mm Depth
- 40mm Max TUBE Height from panel
- Reverse polarity protected
- +12V 230mA
- -12V 70mA

SPECIAL THANKS

Ben Wilson
Thomaas Banks

[DivKid](#)
[Thomaas Banks](#)

VAMP TECHNICAL BACKGROUND

VAMP is a voltage-controlled multimode filter with bite — a TUBE-driven reimagining of the legendary MS-20 topology, redesigned for modern Eurorack with precise control and serious fangs. Under the hood, there are up to five places where the signal can be driven or clipped — including a two-stage resonance loop (OTA → triode) — so character can be dialled in or stacked without external drive. Full explanations for each control set and features can be found later in this manual in the VAMP FUNCTIONALITY section.

VAMP contains up to five internal non-linear stages (input VCA, pre-core triode, resonance VCA, resonance triode, output clipping). Keep it clean — or stack them.

BLOODLINE

When the MS-20 first arrived (1978), its aggressive reputation came from a dual-filter chain — high-pass to low-pass — with a deliberately non-linear resonance loop. The early MS-10 and MS-20 Mk1 used Korg's resin-sealed KORG-35 hybrid filter module — an epoxy-potted assembly (not a monolithic chip) containing transistor stages and passive parts. Korg later revealed that its low-pass core is Sallen–Key, with internal transistors biased as current-controlled resistors to provide cutoff control. This approach, together with diode limiting in the resonance loop, produces the asymmetric distortion and lively instability that players love. Later revisions (the OTA-based MS-20 Mk2) moved to LM13600/CA3080-class OTAs, improving tracking and stability while smoothing some of the raw grit.

THE TURNING

Vamp takes a different path: a single SSI2164-based Sallen–Key core that produces low-pass, band-pass and high-pass from one unified 2-pole (12 dB/octave) architecture. The 2164 VCAs provide precise voltage control and excellent tracking across temperature and supply variance — supporting confident 1V/Oct behaviour and stable self-oscillation (with calibration).

Where the MS-20 Mk2 favoured control over character, Vamp delivers both: the surgical tracking of a modern VCA core, together with TUBE-driven non-linearity and switchable output clipping for genuine, playable aggression.

TUBES: WARMTH WHERE IT MATTERS

A 12AU7 / ECC82 dual triode, adapted to Eurorack voltages, provides two stages of glowing triodes for thermionic saturation: one colours at the input, the other reins in the resonance — until you unleash it by pushing it to the extreme.

1. Pre-core triode — before the filter core, adding harmonic warmth, soft compression and pleasing even-order content to the input.
2. Resonance path (OTA → triode) — the resonance loop is CV-controlled by an OTA stage that then feeds the resonance triode. Together, they create cascading saturation that can be gentle or feral, depending on REZ and drive.

Replacing the MS-20's diode limiter with a TUBE in the feedback loop yields softer, more musical distortion that breathes and reacts to playing dynamics — the kind of behaviour that turns aggressive resonance into a voice.

Note: This OTA → triode cascade in the feedback path is why Vamp's resonance can be pushed far beyond mere self-oscillation into complex, animated textures without losing control.

FEEDING THE BEAST

Vamp's **FLOW** switch relocates the VCA in the signal path, changing how saturation accumulates:

- **Pre-tube (UP):** VCA → Tube → Filter
GAIN controls tube drive directly. Envelopes on GAIN CV create dynamic saturation—quiet notes stay clean, peaks bite. Perfect for expressive, amp-like response where playing dynamics shape tone.
- **Post-filter (DOWN):** Tube → Filter → VCA
The tube sees fixed input levels (≈ 10 Vpp grazes threshold; ≈ 7 Vpp stays clean). GAIN becomes clean output control. Use upstream boost/attenuation to set tube drive. Classic VCF→VCA voice architecture with consistent tube colouration.

In short: Pre-tube = per-note drive following your envelope. Post-filter = steady tube character with clean VCA control.

BARE THE FANGS (OUTPUT CLIPPING)

- Bypass: The signal passes through unprocessed by the clipping circuits
- Soft Clip: four-stage progressive diode ladder for gentle, musical saturation and compression, allowing rounded peaks beyond ± 5 V (≈ 10 Vpp).
- Hard Clip: a precision limiter designed to clamp at ± 5 V (≈ 10 Vpp), producing immediate, assertive edges and rich high-order harmonics.

PRECISION MEETS PRIMAL HUNGER

All the essentials are under voltage control (panel jacks, left → right):

- GAIN — VCA level; CV with attenuverter
- 1V/Oct — dedicated cutoff tracking (unattenuated)
- FREAK — cutoff modulation; CV with attenuverter
- REZ — resonance amount; CV with attenuverter

Normalising: The CV inputs for GAIN → FREAK → REZ are normalised in series, each with an attenuverter. This lets a single envelope or modulation source be scaled or inverted to move amplitude, brightness and resonance together for pseudo-LPG behaviour.

For an LPG-style response, use a longer envelope on GAIN (amplitude) and a shorter decay on FREAK (brightness). For natural acoustic behaviour (and LPG), brightness fades faster than volume. Patch any CV into a jack to break the normalising and take independent control.

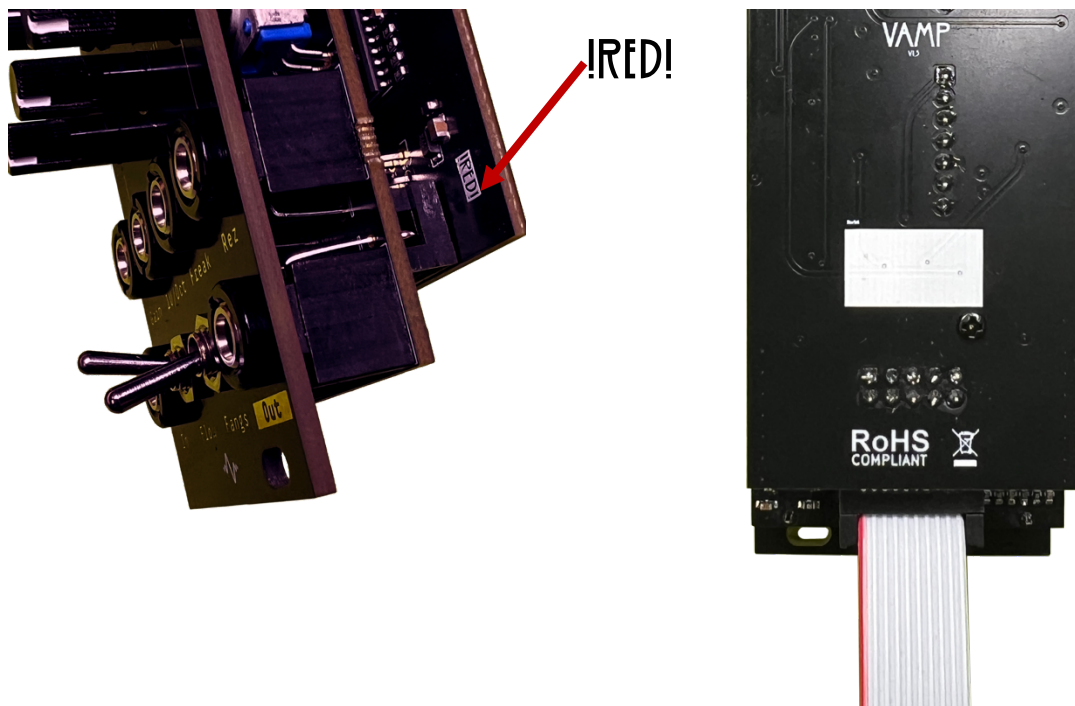
RAISING THE DEAD

Vamp honours the MS-20's bloodline, then steps beyond it: precise and stable for modern demands; unruly enough to bite when provoked. Where the MS-20 screams, Vamp sinks its teeth in — howling through valves, tempered by FANGS, turning resonance into a voice that rises eternal.

INSTALLATION VAMP

POWER

Before installing VAMP, ensure your Eurorack system is powered off. VAMP is supplied with a 10-pin to 16-pin power cable. Carefully align the 10-pin end with the 2x5 pin header on the module. The shrouded power header is on the inside of the bottom of the rear PCB, for space saving, making the module skiff-friendly.

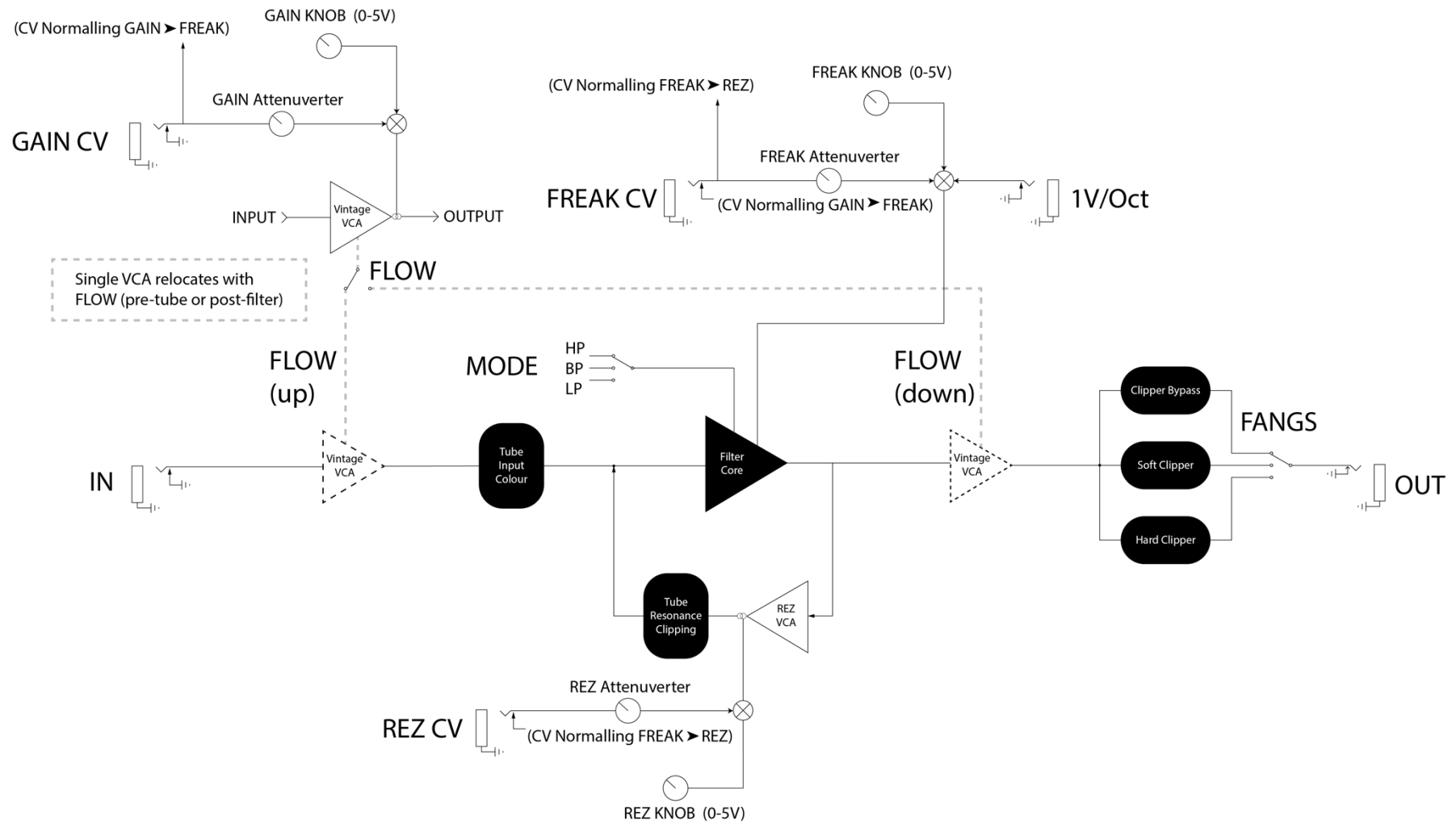


Align the power cable such that it fits into the shrouded header with the key fitting the lock. When looking at the module from the rear, the red stripe of the power cable should be on the left.

Next, find an 8 HP slot in your Eurorack case for VAMP. Connect the other end of the power cable to your Eurorack power supply, ensuring the red stripe aligns with the -12V rail. With the power connection established, mount the module into your case using the appropriate screws and power on your Eurorack system.

The module has reverse protection diodes, which will divert the reverse current to ground in case of incorrect installation.

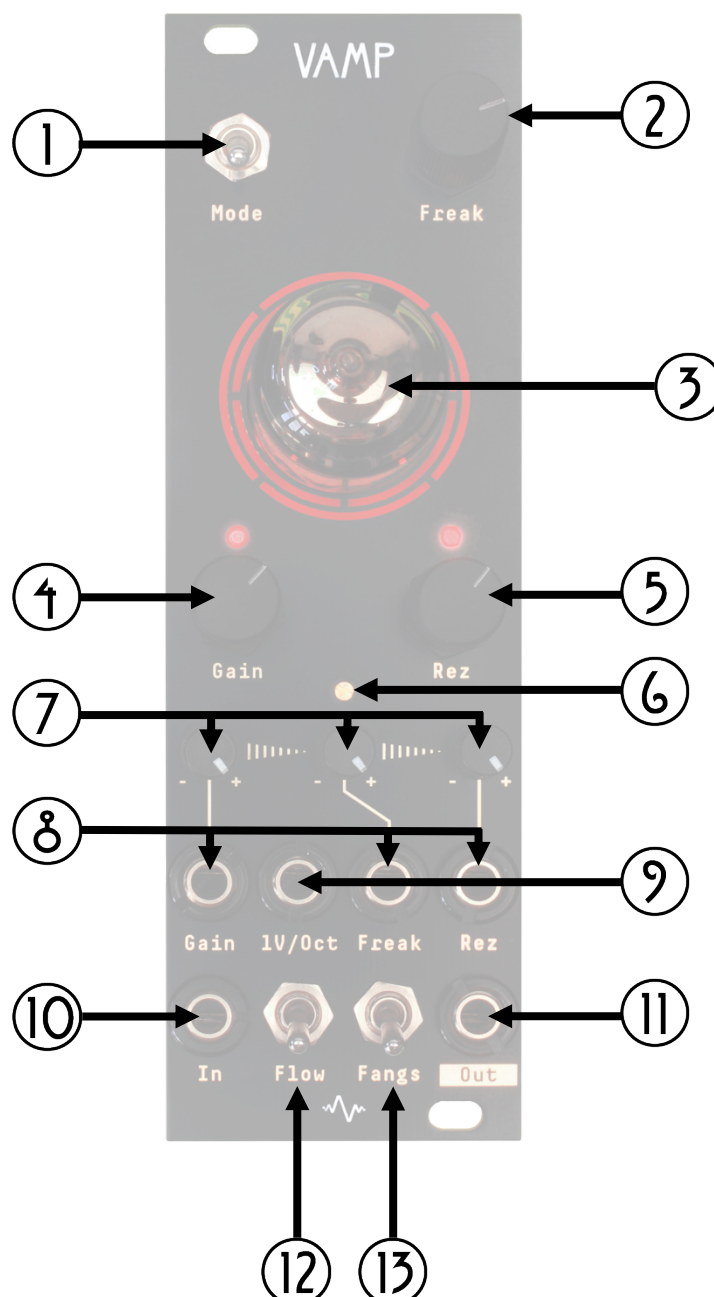
BLOCK DIAGRAM



VAMP FUNCTIONALITY

KEY

- | | |
|-------------------------------|--------------------------|
| 1. Filter Mode Switch | 8. CV Inputs |
| 2. Freak Knob | 9. 1V/Oct Input |
| 3. Vacuum TUBE (Valve) | 10. Audio Input |
| 4. Gain Knob | 11. Audio Output |
| 5. Rez Knob | 12. Flow VCA Switch |
| 6. 1V/Oct Calibration Trimmer | 13. Fangs Clipper Switch |
| 7. CV Input Attenuverters | |



FILTER MODE SWITCH

MODE switches the response of the Sallen–Key Filter core:

- **UP — HP:** One-pole high-pass (6 dB/oct) — progressively attenuates frequencies below the cutoff
- **MIDDLE — BP:** Two-pole band-pass (12 dB/oct on each side) — emphasizes frequencies around the cutoff while rolling off above and below
- **DOWN — LP:** Two-pole low-pass (12 dB/oct) — progressively attenuates frequencies above the cutoff

All three modes track the same centre/cutoff frequency set by the FREAK knob and CV inputs.

FREAK KNOB

Sets the filter cutoff frequency. With no CV present, the sweep range spans approximately 10 Hz → 21 kHz (subsonic to ultrasonic).

FREAK CV and 1V/Oct inputs sum with the knob position—positive or negative offsets shift the entire operating range up or down. The **LED ring** around the TUBE reflects the combined cutoff control (knob + CV + 1V/Oct), so it always mirrors what you hear.

VACUUM TUBE (12AU7/ECC82)

A dual triode ideally suited for low-voltage saturation in Eurorack's ± 12 V environment. The 12AU7 exhibits the lowest grid current and most consistent behaviour among dual triodes when starved, making it stable and predictable for musical distortion. Its relatively low μ (amplification factor) generates predominantly even-order harmonics (2nd and 4th) with soft, progressive compression.

The TUBE is socketed and can be swapped if desired.

Two triodes, two roles:

- **First triode (pre-core):** Placed before the filter core, adding level-dependent saturation that enriches harmonics feeding the filter. Drive intensity depends on input signal level and **FLOW** switch position (see FLOW VCA SWITCH)
- **Second triode (resonance path):** Sits in the feedback loop as a TUBE-based resonance limiter—an MS-20-inspired approach, but using thermionic compression instead of diodes. It dynamically compresses peaks, allowing high REZ settings to remain musical and breathing rather than harsh or brittle

The LED ring around the TUBE indicates filter cutoff frequency (see FREAK KNOB).

GAIN KNOB

Controls the vintage VCA gain—a stage with its own deliberate character and saturation. GAIN's effect depends on **FLOW** switch position (see FLOW VCA SWITCH):

- **FLOW = Pre-TUBE (UP):** GAIN sets how hard the input triode is driven. An incoming signal at ≈ 10 Vpp will begin saturating the TUBE; ≈ 7 Vpp typically stays clean. Use static settings or dynamic envelopes to control TUBE bite
- **FLOW = Post-filter (DOWN):** The TUBE sees consistent input levels, and GAIN becomes an output control—determining how hard you hit FANGS (if engaged)

Range and behaviour:

The GAIN knob spans 0–5 V internally, reaching unity gain near maximum. The GAIN CV input is optimized for 0–5 V, but accepts higher voltages—pushing beyond unity for intentional overdrive. The **GAIN LED** brightness reflects the combined knob + CV amount.

Critical to tone:

It's tempting to max GAIN and forget it—resist that urge. Because both the TUBE stages and FANGS respond dynamically to signal level, GAIN is central to Vamp's voice. Treat it as a drive control, not just volume. Experiment with lower GAIN settings combined with increased REZ or FANGS to find sweet spots where saturation lives in different parts of the circuit.

PRO TIP: When FLOW is set to post-filter mode (DOWN), input saturation is fixed—determined solely by your incoming signal level. To avoid TUBE clipping at the input, attenuate sources to ≈ 7 Vpp before Vamp. For heavy input saturation, amplify or overdrive signals before patching in.

REZ KNOB

Sets resonance intensity, from subtle emphasis to screaming self-oscillation. Under the hood, a vintage OTA VCA raises loop gain, then feeds the resonance triode for dynamic compression and limiting.

Character and behaviour:

The resonance path's two-stage cascade (OTA → TUBE) creates organic, breathing behaviour. The TUBE softly compresses peaks while allowing transients through—at extreme settings, occasional peaks can slip past the limiter. This is intentional TUBE behaviour and contributes to Vamp's unruly analogue character.

Self-oscillation begins around **3 o'clock** and can be pushed well beyond. Unlike many filters that produce mathematically pure sine waves in self-oscillation, Vamp's output is distinctly musical—shaped by TUBE saturation and further sculpted by FANGS. Pushing REZ harder drives the TUBE into richer timbral territory, creating a broad palette of self-oscillating waveshapes.

Range:

The REZ knob spans 0–5 V internally. Combined with REZ CV, you can easily drive into extreme resonance territory—which the TUBE will temper, but won't completely tame. The **REZ LED** reflects the combined knob + CV amount.

Important: Extreme resonance can push output levels well above 10 Vpp, approaching rail-to-rail (± 12 V). Use **FANGS** (Soft or Hard Clip) to manage these hot signals and shape the character of the peaks.

1V/OCT CALIBRATION TRIMMER

VAMP is factory-calibrated, but at some stage in its lifetime, the 1V/Oct tracking might require recalibration.

Proper calibration ensures Vamp's filter cutoff follows standard keyboard pitch across its full range—critical for using the filter as a tuned voice or for musical frequency sweeps.

Quick calibration procedure:

Requires: accurate voltage source (CV keyboard or sequencer) and tuner

1. Ensure VAMP has been on for at least 30 minutes
2. **Setup:**
 - a. MODE DOWN = LP
 - b. FANGS UP = Bypass
 - c. FLOW UP = VCA pre-filter
3. **Self-oscillate:** Turn REZ to full self-oscillation; adjust FREAK to a comfortable mid-range pitch
4. **Set reference:** Apply 0 V to 1V/Oct and tune the oscillation to any reference note using FREAK (e.g., C3, A4—the specific note doesn't matter, as long as it's stable and readable on your tuner)
5. **Adjust span:** Apply +2 V, then switch back to 0 V repeatedly while adjusting both the trimmer and FREAK. Your goal: exactly two octaves of pitch difference between 0 V and +2 V.

NOTE: *Adjusting the trimmer will shift your 0 V reference pitch, so you'll need to re-tune the reference with FREAK each time.*
6. **Verify and iterate:** Check tracking at 0 V / +1 V / +2 V / +3 V / +4 V. Small adjustments may be necessary to achieve accurate tracking across the full range. Repeat steps 3–4 until all octaves track correctly.

Tip: If you can't achieve accurate tracking across the full span, ensure your voltage source is precise and that Vamp has warmed up for at least 30 minutes. TUBE circuits are temperature-sensitive, and tracking improves as they stabilise.

CV INPUT ATTENUVERTERS

Three miniature potentiometers provide bipolar control over incoming CV for GAIN, FREAK, and REZ.

Operation:

- **12 o'clock $\approx$ 0:** No scaling (CV passes through unchanged)
- **Clockwise from centre:** Positive scaling (0–100%)
- **Counterclockwise from centre:** Inverted scaling (0 to –100%)

A small **deadband** around 12 o'clock makes the scaling effect gradual, preventing jumpy behaviour when finding zero.

The normalised chain:

CV inputs are normalised in series: **GAIN $\rightarrow$ FREAK $\rightarrow$ REZ**

This means:

- Patch a single CV source into GAIN CV, and it flows through to control all three parameters (scaled independently by each attenuverter)
- Patching into FREAK CV breaks the chain from GAIN, giving FREAK and REZ their own independent source
- Patching into REZ CV gives REZ its own independent source

To nullify CV control:

If you want to stop CV from affecting a parameter further down the chain without breaking the normalising:

- Set that parameter's attenuverter to 12 o'clock (zero scaling), OR
- Patch a dummy cable into that CV input (breaks the chain at that point)

Example: Patch an envelope into GAIN CV. Set GAIN attenuverter clockwise for normal amplitude control. Set FREAK attenuverter clockwise for filter sweep. Set REZ attenuverter to 12 o'clock—now the envelope controls only GAIN and FREAK, while REZ remains static.

CV INPUTS

Three jacks for voltage control of Vamp's core parameters:

- **GAIN CV** — Controls VCA level (and TUBE drive when FLOW = pre-TUBE and FANGS clipping when FLOW = post-filter)
- **FREAK CV** — Modulates filter cutoff frequency
- **REZ CV** — Controls resonance intensity

Normalled chain: GAIN → FREAK → REZ (see CV INPUT ATTENUVERTERS for details). Patching any jack breaks the normalled from that point forward.

Voltage range and behaviour:

Optimised for **0–5 V** envelopes and LFOs, but higher voltages are tolerated—and encouraged. Pushing beyond 5 V drives the VCAs above unity gain, increasing saturation at the input TUBE stage, resonance feedback, and FANGS clipping. This is where Vamp's unruly character lives.

Use the attenuverters to scale and invert incoming CV, finding sweet spots where modulation hits different saturation stages at different intensities. Dynamic, evolving timbres come from stacking these interactions.

Patching ideas:

- Envelope into GAIN CV: classic VCF dynamics
- Same envelope normalled to FREAK and REZ: pseudo-LPG behaviour (see FREAK KNOB for envelope shaping tips)
- Audio-rate into FREAK CV with high depth: aggressive FM-style timbres
- Slow envelope into REZ CV: swelling resonance blooms

1V/OCT INPUT

Dedicated, unattenuated cutoff tracking input following the 1 volt per octave standard—the most common pitch control voltage in Eurorack. Sums with FREAK knob and FREAK CV for precise pitch control.

What is 1V/Oct?

Every 1V increase at this input raises the filter cutoff by exactly one octave; every -1V decrease lowers it by one octave. This predictable, musical scaling allows you to sweep filter cutoff across specific intervals—octaves, fifths, or entire melodic sequences - with precision.

Why unattenuated?

Designed for direct keyboard/sequencer connection where accurate tracking matters. The lack of an attenuverter ensures pitch CV arrives unaltered, maintaining tuning integrity. Use the **1V/Oct Calibration Trimmer** to recalibrate if needed.

Tuned voice: Drive REZ into self-oscillation and patch keyboard CV here—Vamp becomes a playable sine-ish oscillator with TUBE-sculpted harmonics. Ideal for leads, bass, or melodic textures.

Key-tracked filtering: Patch the same pitch CV feeding your VCO into 1V/Oct so filter cutoff follows keyboard pitch. As your melody moves up and down, the filter's cutoff moves in parallel, maintaining consistent brightness and timbre across the range. For partial tracking (where the filter moves less than the pitch), use FREAK CV with its attenuverter instead.

Quick patch: Keyboard CV → 1V/Oct. Audio in from VCO. REZ up to self-oscillation. Now you have a tuned resonance peak singing alongside your oscillator.

AUDIO INPUT

Main audio input. Signal level determines how hard the input TUBE stage is driven:

- **≈7 Vpp:** Generally clean through the input triode
- **≈10 Vpp:** Brushing the saturation threshold
- **Hotter:** Increasing TUBE saturation and harmonic content

Driving the TUBE harder generates richer harmonics for the filter to feed on, adding complexity and character to the filtered output.

Controlling the input TUBE drive depends on FLOW:

FLOW = Pre-TUBE (UP): The VCA sits before the TUBE, so **GAIN** knob and **GAIN CV** directly control how hard the TUBE is driven. Max both for extreme saturation, or use envelopes on GAIN CV for dynamic TUBE bite that responds to your playing.

FLOW = Post-filter (DOWN): The TUBE sees the raw input signal directly—GAIN has no effect on TUBE saturation.

To control the TUBE drive:

- **Less saturation:** Attenuate your source before patching into Vamp (≈7 Vpp or lower)
- **More saturation:** Boost your signal upstream with a VCA, utility amplifier, or gain stage before Vamp's input. Some modules offer 2× gain (+6 dB) or more, perfect for pushing the TUBE into rich overdrive territory

The input TUBE stage is always before the filter core, so any saturation applied here shapes what additional harmonics the filter can feed on.

AUDIO OUTPUT

Main filtered output. Final stage in the signal chain after FANGS.

Output level depends on the cumulative effect of input level, GAIN, REZ, and FANGS setting. Expect standard Eurorack levels (≈10 Vpp) with moderate settings, but extreme REZ can push significantly hotter—use FANGS to manage (see FANGS CLIPPER SWITCH).

FLOW VCA SWITCH

Relocates the VCA in the signal path:

- **UP (Pre-TUBE):** VCA → TUBE → Filter
GAIN controls how hard the TUBE is driven. Use envelopes on GAIN CV for dynamic TUBE saturation—quiet notes stay clean, loud notes bite. Perfect for expressive playing where articulation affects tone.

- **DOWN (Post-filter):** TUBE → Filter → VCA

The TUBE receives a consistent signal level and applies uniform colouration. GAIN becomes a clean output control. Classic VCF→VCA voice architecture—ideal when you want the TUBE's character without dynamic drive variation.

Musical difference: Pre-TUBE makes Vamp respond like a guitar amp (playing dynamics affect distortion). Post-filter makes it respond like a traditional synth voice (clean VCA control after fixed TUBE colouration).

FANGS CLIPPER SWITCH

Three-position output clipping selector:

- **UP (Bypass):** No output clipping—direct from filter core. Maximum dynamic range; extreme REZ can push output levels significantly beyond 10 Vpp
- **MIDDLE (Soft Clip):** Four-stage progressive diode ladder providing musical compression. Rounds peaks gently, allowing signal excursions beyond ± 5 V (>10 Vpp) while softening transients. Velvet saturation
- **DOWN (Hard Clip):** Precision limiter clamping output to ± 5 V (≈ 10 Vpp). Creates immediate, assertive edges with rich high-order harmonics. The bite

Interaction with REZ: High resonance pushes FANGS harder. Soft Clip tames wild resonance into singing, vocal-like tones. Hard Clip turns aggressive resonance into razor-sharp leads and bass. Bypass lets extreme resonance run free—manage levels downstream.

Pro tip: Combine Pre-TUBE FLOW with envelopes on GAIN CV, then use FANGS to shape the final character. You're stacking three saturation stages (VCA → TUBE → FANGS) for complex, evolving timbres.

TUBE INSTALLATION & CARE

The 12AU7/ECC82 tube comes pre-installed and tested, but can be replaced if needed. Any standard 12AU7 or ECC82 tube will work—they're electrically identical (12AU7 = American naming, ECC82 = European).

To remove/replace the tube:

1. **Power off** your Eurorack system completely and disconnect Vamp from power
2. **Remove the module** from your case—tube replacement requires PCB separation
3. **Allow cooling time** if recently powered—the glass envelope and pins may be hot to the touch
4. **Unscrew the M2 screws** on the back of the module and carefully separate the two PCBs. Take note of the interconnecting pin alignment for reassembly
5. **Remove the tube:** Grasp the base of the tube (not the glass) and pull straight up with gentle, even pressure
6. **Inspect the socket** for any debris before installing the new tube
7. **Install new tube:** Align replacement tube pins carefully with socket holes and press firmly and evenly until the tube seats completely in the socket
8. **Reassemble:** Place the PCBs back together, taking care to align the interconnecting pins correctly. Avoid forcing—pins should mate smoothly
9. **Secure PCBs:** Replace and tighten the M2 screws evenly
10. **Reinstall** Vamp in your case and reconnect the power
11. **Recalibrate** 1V/Oct tracking after tube replacement (see 1V/OCT CALIBRATION TRIMMER)

CAUTION:

- Tube pins are delicate and bend easily. If pins become misaligned, carefully straighten them with needle-nose pliers before insertion
- The interconnecting pins between PCBs are fragile—ensure proper alignment during reassembly to avoid damage
- Never force components—if resistance is felt, stop and check alignment

Tube life: With normal use, a 12AU7 tube can last thousands of hours. If you notice decreased output, increased noise, or tracking drift that calibration won't fix, the tube may need replacement.

Pro tip: The tube glows orange during operation—this is normal and part of its sonic character. No glow usually indicates a dead tube or poor socket connection.

TUBE EXPERIMENTATION

While Vamp is designed around the 12AU7, other tubes in the same 9-pin format can be tried for different timbral characteristics, such as 12AX7 (ECC83) or 12AT7 (ECC81). These tubes have different gain structures (μ factors) and will affect saturation behaviour, harmonic content, and overall character. Recalibration will likely be needed, and some combinations may be more aggressive or subtle than others—experimentation encouraged!

VAMP
MANUAL V1.0

APOLLO VIEW 

info@apolloviewmodular.com
<https://apolloviewmodular.com>