LDVCF1 Ladder Voltage Controlled Filter

Version 1.0
User Manual

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1. Introduction

Thank you for choosing the **LDVCF1 Ladder Voltage Controlled Filter** for your modular synthesizer system. Inspired by classic analog filter designs, this module provides warm, musical filtering with a flexible set of controls for modern sound design. This manual will guide you through setup, operation, and usage.

2. Safety Information

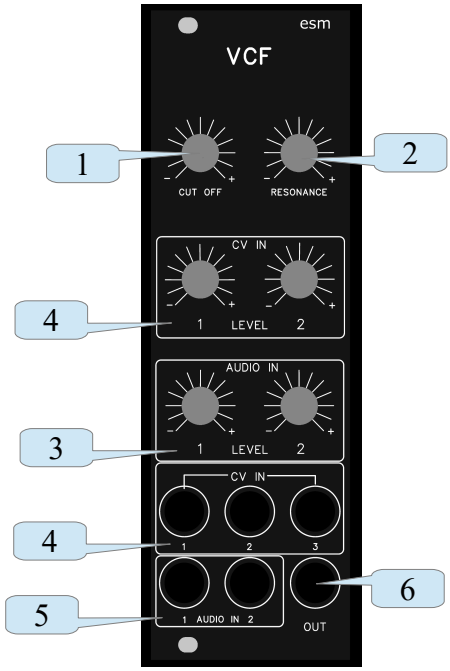
- Always power off your modular system before connecting or disconnecting the module.
- Use only with standard Eurorack ±12V power supplies.
- Do not expose the module to moisture or extreme heat.
- Handle with care to avoid damage to internal components.
- Keep out of reach of children.

3. Package Contents

- LDVCF1 Filter Module
- Eurorack Power Cable (10–16 pin IDC)
- Mounting Screws
- User Manual

If any items are missing or damaged, contact us immediately.

4. Device Overview



Front Panel Controls and Inputs/Outputs

- **1-Cutoff Knob**
  Adjusts the filter's cutoff frequency, determining the point at which frequencies are attenuated.
- **2-Resonance Knob**
  Increases feedback at the cutoff frequency. At higher settings, the filter can self-oscillate.
- **3-Audio In Knob(s)**
  Controls the input level of the audio signal(s) going into the filter. Higher settings can add drive or saturation.
- **4-CV In Knob(s)**
  Attenuates the modulation depth of control voltage sources affecting parameters like cutoff and resonance.
- **5-Audio In**
  Main audio input. Accepts line or modular level signals.
- **6-Audio Out**
  Filtered signal output.
- **7-CV In (Cutoff)**
  External control voltage input for modulating the cutoff frequency using LFOs, envelopes, sequencers, etc.

5. Setup Instructions

1. Power off your modular system.
2. Connect the included power cable to the 10 pin power header on the rear of the module.
3. Mount the module securely into your Eurorack case using the included screws.
4. Double-check the ribbon cable orientation (**red stripe = -12V**) before powering on.
5. Power on your system and the module will be ready for use.

6. Operating Instructions

1. Patch an audio signal into **Audio In**.
2. Connect the **Audio Out** to a mixer, VCA, or output module.
3. Use the **Cutoff Knob** to sweep the frequency spectrum and remove or emphasize certain harmonics.
4. Increase the **Resonance Knob** to boost the cutoff frequency, and reach self-oscillation if desired.
5. Patch CV sources (LFOs, envelopes, sequencers) into **CV In (Cutoff)**
6. Use the **Audio In Knob** to set the desired input gain

7. Patch Tips

- **Dynamic Sweeps**: Use an envelope generator into the **CV In (Cutoff)** for classic synth filter sweeps.
- **Basslines**: Moderate resonance with a low cutoff frequency creates warm, round bass sounds.
- **Percussive Snares**: Combine noise sources and modulate resonance with fast envelopes.
- **Self-Oscillation**: With resonance maxed, the module can act as a sine wave oscillator controlled by the cutoff.
- **Modulated Textures**: Use an LFO into **CV In (Resonance)** for evolving, shifting timbres.
- **Drive for Character**: Push the input gain and engage **Drive** for distorted, vintage-style filter tones.
- **8. Maintenance and Cleaning**
- Wipe the panel gently with a soft, dry cloth.
- Do not use solvents, alcohol, or abrasive cleaners.
- Periodically check the rear power connector for dust or loose connections.
- Store in a cool, dry location when not in use.
- **9. Troubleshooting**

Issue	Possible Cause	Solution
No sound	Incorrect patching	Check that Audio In and Out are connected properly
Distorted signal	Input level too high	Reduce Audio In knob
No response to CV	CV source not active or cable faulty	Try different CV source and cable
Self-oscillation not achieved	Resonance too low	Increase resonance knob fully

10. Technical Specifications

- **Filter Type**: 4-Pole Ladder Low Pass
- **Frequency Range**: 20Hz – 20kHz

- **Resonance**: Self-oscillating
- **Input Impedance**: ~100kΩ
- **CV Range (Cutoff / Resonance)**: 0–10V
- **Output Level**: Modular level
- **Power Consumption**: +12V: 45mA / -12V: 40mA
- **Width**: 8HP
- **Depth**: 95mm

11. Warranty and Support

Visit our web site. Www.esmeurosoundmodules.com