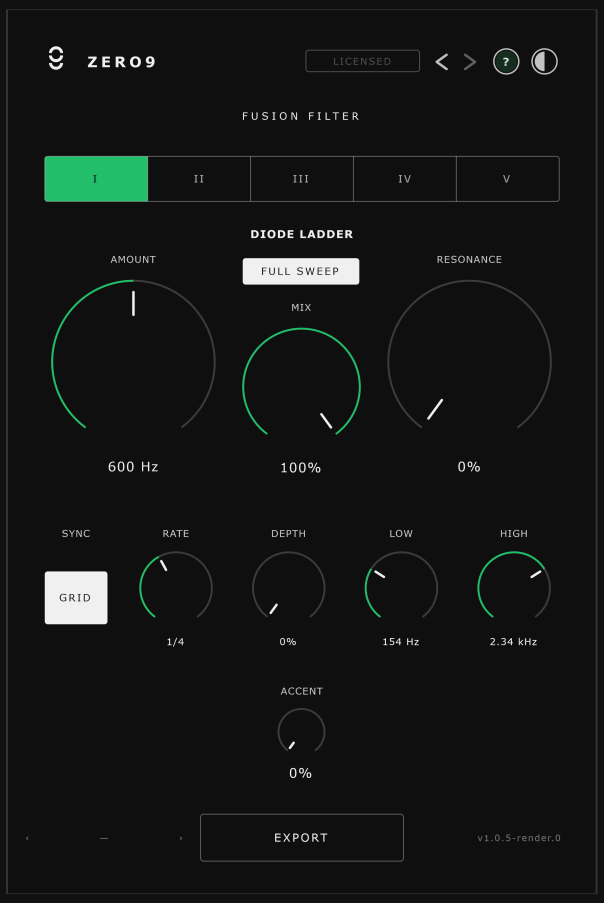
Fusion Filter

Five distinct filter architectures behind one control surface, with synced or free-running cutoff movement.



Shape tone. Push resonance. Put the cutoff in motion.

VERSION 1

Five engines. One workflow.

Fusion Filter puts five different filter characters behind the same AMOUNT, RESONANCE and MIX controls. Change engines, then animate the cutoff with an LFO that can run from the host grid or in free Hz mode.

QUICK START

1 **Choose an engine**

Select I-V. Each engine has a distinct response and character.

2 **Set the cutoff**

Turn AMOUNT. The readout is frequency from 20 Hz to 18 kHz.

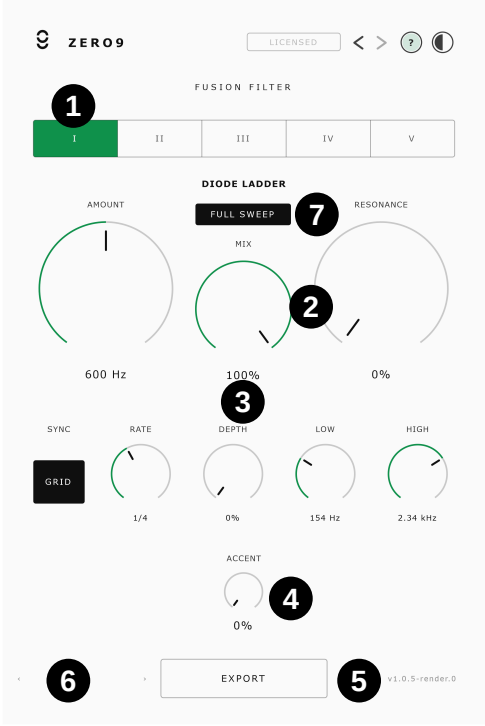
3 **Add resonance**

RESONANCE reacts differently in each engine, from controlled emphasis to self-oscillating territory.

4 **Add movement**

Use the LFO in GRID or FREE mode. Switch FULL SWEEP off to constrain motion with LOW/HIGH.

INTERFACE MAP



1 **Engine**
I-V filter selector.

2 **Core**
Amount, Mix, Resonance.

3 **LFO**
Sync, Rate, Depth, Low/High.

4 **Engine control**
Changes with the selected engine.

5 **Export**
Global 4x Export Mode.

6 **Presets**
Name, previous/next and menu.

7 **Full Sweep**
Full range / corridor.

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FUSION FILTER

Character starts with the engine.

The main controls stay in the same place while the filter character underneath them changes.

> **Resonance is engine-dependent**
> RESONANCE is one shared control, but each engine responds differently. Treat each engine as its own instrument.

I · DIODE LADDER

Dense, driven ladder character with a controlled resonance range.

ACCENT

ACCENT

Makes cutoff respond to the incoming level, adding source-reactive movement without needing the LFO.

INPUT-REACTIVE CUTOFF

II · TRANSISTOR LADDER

A feedback-heavy ladder that can move into self-oscillation as resonance rises.

RESONANT / AGGRESSIVE

OSC / EXTEND

Opens up the more extreme end of Engine II's resonance behaviour.

EXTENDED RANGE

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FUSION FILTER

Three more ways to shape the spectrum.

The remaining engines cover multimode filtering, continuous morphing and a nonlinear dual-OTA character.

> **Engine changes**
> Switching engines is smoothed to avoid clicks during normal use.

III · DIGITAL MULTIMODE

Clean, stable LP, BP and HP filtering for precise tone shaping.

LP / BP / HP

IV · STATE-VARIABLE

Continuously morphs from low-pass through notch towards high-pass.

CONTINUOUS MORPH

V · DUAL OTA

A more nonlinear, feedback-rich filter with OSC Extend plus HARD and SOFT circuit characters.

OSC EXTEND + HARD/SOFT

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Control reference.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Engine	I / II / III / IV / V	I	Selects the filter character.
Amount	20 Hz-18 kHz	50% position	Cutoff frequency. The on-screen readout is Hz/kHz.
Resonance	0-100%	0%	Resonance / feedback into the selected engine.
Mix	0-100%	100%	Dry/wet balance.
Accent (I)	0-100%	0%	Input-reactive cutoff movement for Engine I.
Osc Extend (II)	On / Off	Off	Extends Engine II into more extreme resonance.
Mode (III)	LP / BP / HP	LP	Selects the Engine III response.
Morph (IV)	0-100%	0%	Continuously morphs Engine IV response.
Osc Extend (V)	On / Off	Off	Extends Engine V resonance behaviour.
Circuit (V)	HARD / SOFT	HARD	Changes Engine V colour and feedback character.
Full Sweep	On / Off	On (new)	Full-range sweep with automatic loudness compensation.

Readout note

AMOUNT, LFO LOW and LFO HIGH display actual frequency in Hz/kHz rather than percentage values.

Automation note

All audio parameters listed here, including Full Sweep, are automatable except Export Mode and Dark Mode.

FULL SWEEP defaults to On for new instances; sessions and presets saved before v1.0.5 load with it Off.

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Keep the cutoff moving - and contained.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Sync	GRID / FREE	GRID	GRID locks to host tempo. FREE uses Rate in Hz.
Rate / Grid	1/1, 1/2, 1/4, 1/8, 1/16, 1/32	1/4	Tempo division when Sync is GRID.
Rate / Free	0.02-20 Hz	1.00 Hz	Free-running modulation rate when Sync is FREE.
Depth	0-100%	0%	How strongly the LFO moves cutoff.
Low	20 Hz-18 kHz mapping	~154 Hz	Lower frequency limit of the LFO excursion.
High	20 Hz-18 kHz mapping	~2.34 kHz	Upper frequency limit of the LFO excursion.

Cutoff corridor

With FULL SWEEP off, LOW and HIGH define the LFO cutoff corridor. With it on, AMOUNT and the LFO span the full 20 Hz-18 kHz range with automatic loudness compensation. LOW/HIGH dials stay live, but their stored values are not applied until FULL SWEEP is off again. Switching is click-free.

Starting point

Set the static filter sound, then raise DEPTH for movement. Leave FULL SWEEP on for the full range, or switch it off and set LOW/HIGH for a contained sweep.

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Export Mode and interface.

EXPORT MODE

4x

Global Export runs the complete processing chain at 4x. Engines II, III and IV therefore run at 4x with Export on and at the host rate with it off. Engines I and V also use always-on internal 4x oversampling; with Export enabled, their filter cores run effectively at 16x the host rate.

Latency / host behaviour

Global Export adds host-reported processing latency. Engines I and V also introduce a small internal delay that is not reported to the host, whether Export is on or off. Export Mode is not automatable.

Window resizing

The UI is freely resizable in width and height rather than aspect-locked.

Dark Mode

The half-filled header circle changes the interface theme only. Dark Mode is not an audio parameter.

The ? button toggles hover tips, on by default. This choice is saved per instance with the project and is not included in presets.

CPU use

Export Mode increases CPU use. Engines I and V already run an internal 4x stage; with Export enabled, their filter cores run effectively at 16x the host rate.

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Preset system.

Every ZERO9 plugin includes the same built-in preset system. Load Factory or User presets, step through them with the arrow controls, and save or manage your own sounds directly in the plugin.

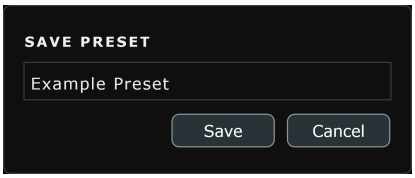
Shared preset controls shown in Signal Switch. Factory preset names vary by plugin.

Load / Browse



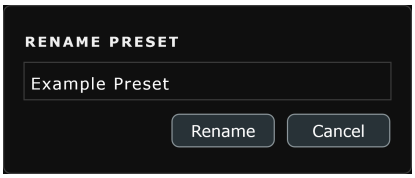
Click the preset name to open the menu. Factory and User presets are separated. Default restores the shipped settings; the arrows step through the combined list.

Save



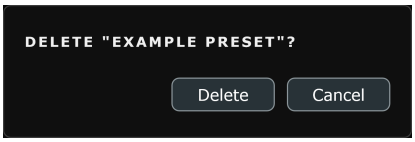
Choose Save... to create a User preset. When a User preset is active, Save over updates it. Factory presets are read-only, so saving from one creates a new User preset.

Rename



Rename changes the name of a User preset. Factory presets remain protected.

Delete



Delete removes a User preset after confirmation. Show presets folder opens the User preset location.

Modified

An asterisk (*) after the preset name means the current settings differ from the loaded preset.

What presets store

Presets capture the plugin sound state. Window size, Dark Mode and other UI preferences are not included.

Factory / User

Factory presets are installed with ZERO9 and are read-only. User presets are stored separately and survive plugin updates.

Host presets

The ZERO9 system works the same in every compatible VST3 host. Cubase may also show its own preset strip; the two stores are separate in Version 1.

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Licence and compatibility.

Fusion Filter installs as a fully working VST3 plugin with no account required.

> **Demo mode**
> Without a licence file loaded, the plugin periodically bypasses its processing so you can evaluate it before purchase.

LOAD A LICENCE

Drag your **.zero9lic** file onto the licence panel in the plugin UI, or click the panel to browse for the file.

Licenses do not require online activation.

Manage licences: **zero9.uk/plugins**

SYSTEM REQUIREMENTS

Format
VST3

Platforms
64-bit Windows or macOS

Host
Works with any compatible VST3 host.

Installers
Use the current ZERO9 installer for your platform.

SUPPORT / CURRENT INFORMATION

For installation, licence or technical support: **support@zero9.uk**
Current plugin information and licence management: **zero9.uk/plugins**

ZERO9 plugins are designed and developed by electronic music artist and producer James Harcourt.

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Signal flow.

The diagram below shows the signal path and the order of the main processing stages.

AUDIO PATH



With FULL SWEEP off, LOW and HIGH constrain the LFO; on uses the full range with automatic loudness compensation.

Export Mode runs the complete processing chain at 4x for higher-quality rendering.

> **Extreme resonance**
> Some engines can produce substantial level changes at aggressive resonance settings. Keep an eye on output level when pushing them hard.

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