2hp — EG

- Manual PDF

Manual PDF

Using the 2hp EG to Create Melodic Components

The attached manual describes the **2hp EG**, a compact **two-stage envelope generator**. On its own, EG does not generate pitch or sound, but in a Eurorack system it is very useful for shaping melodic events by controlling:

- **VCA amplitude** for note articulation
- **filter cutoff** for timbral melody movement
- **oscillator pitch** for pitch envelopes
- **wavefolder / FM depth / effect parameters** for animated melodic phrasing

Because this module has: - **trigger/gate input** - **attack and decay CV** - **linear/exponential response switching** - **output attenuation** - **0–10V envelope output** - **very wide time range: 3 ms to 11 minutes per stage**

it can be used as a highly flexible modulation source for melodic patching.

Manual Summary

Main functions

- **TRIG input**: accepts trigger or gate signals, threshold **2.5V**
- **ATTACK CV input**: 0–5V control over attack time

- **ATTACK knob**: sets rise time
- **DECAY CV input**: 0–5V control over decay time
- **DECAY knob**: sets fall time
- **RESPONSE toggle**:
- **Up = Linear**
- **Down = Exponential**
- **AMP knob**: attenuates output from **0V to 10V**
- **OUT**: envelope output
- **LED**: visual indication of envelope activity

Specs

- **2hp**
- **45 mm deep**
- **+12V: 26mA**
- **-12V: 7mA**

What This Module Contributes to Melody

A melodic part usually needs a few things:

1. **Pitch information**
2. **Timing / note triggers**
3. **Articulation / dynamics**
4. **Timbre movement**

The **EG** covers items **3 and 4** directly, and can also contribute to **1** indirectly by modulating pitch-sensitive inputs.

So when used with: - a **sequencer** - a **quantizer** - an **oscillator** - a **VCA** - optionally a **filter**

the EG becomes the part of the system that makes notes feel musical rather than mechanical.

Best Ways to Use EG for Melodic Patches

1. Classic note envelope for a melodic voice

This is the most direct use.

Patch

- Sequencer/gate output → **EG TRIG**
- Oscillator audio → **VCA input**
- **EG OUT → VCA CV input**
- Sequencer pitch CV → oscillator 1V/oct

Result

Each trigger creates an attack-decay contour controlling note volume. This gives every note a defined beginning and end.

Musical use

- **Fast attack, medium decay**: plucky synth lines
- **Fast attack, long decay**: ringing melodic notes
- **Slow attack, medium decay**: swelling lead lines

Tips

- Use **exponential mode** for more natural, punchy note shapes
- Use **linear mode** for more even, synthetic-sounding articulation
- Use the **AMP knob** to match your VCA's preferred CV range

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2. Create plucks and percussive melodies

EG is especially strong for short attack/decay envelopes.

Patch

- Trigger sequencer → **TRIG**
- **EG OUT** → VCA CV
- Optional: mult **EG OUT** to filter cutoff CV

Settings

- **Attack**: near minimum
- **Decay**: short to medium
- **Response**: exponential
- **AMP**: to taste

Result

A plucked synth voice with strong transient definition.

Why it works

The manual states each stage can go as short as **3 ms**, which is ideal for: - acid-like plucks - marimba-like synth tones - arpeggios - short bass melodies

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3. Use the same envelope for both loudness and brightness

A very musical approach is to send the same envelope to both VCA and filter.

Patch

- **EG OUT** → VCA CV
- Mult **EG OUT** → filter cutoff CV attenuator/input

Result

Every note opens in both amplitude and timbre at once, making simple pitch sequences sound expressive.

Musical effect

- Short decay = tight, muted notes
- Longer decay = brighter, singing phrases
- Exponential response = more acoustic-like contour
- Linear response = more electronic/precise movement

This is one of the best ways to turn a plain sequence into a melodic phrase.

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4. Add pitch envelopes for melodic accent

Because **EG outputs 0–10V**, it can be used carefully to modulate oscillator pitch.

Patch

- **EG OUT** → attenuator or pitch modulation input on oscillator
- Trigger source → **TRIG**

Result

At note onset, pitch briefly rises or falls depending on modulation polarity and routing.

Uses

- subtle attack bend on lead notes
- kick-drum-like pitch drops
- expressive acid-style accents
- ornamentation at the beginning of notes

Important note

The raw envelope range is large, so for pitch modulation you usually want **heavy attenuation** before the oscillator pitch input unless the oscillator has a very small-depth FM/mod input.

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5. Animate melodic phrasing with CV over attack and decay

A standout feature of EG is **CV over both attack and decay**.

This means another modulation source can vary articulation over time, so your melody breathes and evolves.

Patch ideas

- Slow LFO → **ATTACK CV**
- Random stepped CV → **DECAY CV**
- Sequencer row / modulation lane → **ATTACK CV** or **DECAY CV**

Result

Different notes can have: - different lengths - different sharpness - different emotional character

Musical examples

- ascending notes with longer attack
- accented notes with longer decay
- randomized phrasing in generative melodies
- evolving ambient melody contours

Why this is powerful

Even with a fixed pitch sequence, changing envelope shape creates the perception of a more composed, expressive melody.

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6. Turn gates into dynamic note lengths

Since EG responds to **trigger or gate signals**, you can use rhythmic gate streams to articulate melodic lines.

Patch

- Gate sequencer / keyboard gate → **TRIG**
- **EG OUT** → VCA CV

Result

The EG converts timing information into shaped note gestures.

If your sequencer produces different rhythmic patterns, the envelope can turn them into: - short stabs - swelling notes - legato-like overlaps, depending on settings downstream

This is especially useful when melodic interest comes from rhythm more than pitch complexity.

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7. Make melodic accents in a sequence

Use EG on only part of a patch to create dynamic note emphasis.

Patch

- Main sequence runs normally
- Accent trigger pattern → **EG TRIG**
- **EG OUT** → filter cutoff CV or wavefolder amount

Result

Only accented steps receive extra brightness or harmonic intensity.

Musical use

This is excellent for: - techno sequences - acid lines - bass melodies - repeating ostinatos that need variation

Instead of changing the pitch, you change the **expression** of selected notes.

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8. Use long envelopes for slow melodic motion

The manual gives a maximum stage length of **11 minutes per stage**, which is unusually long.

Patch

- Occasional trigger source → **TRIG**
- **EG OUT** → oscillator FM depth, filter cutoff, or wave shaping amount

Result

Extremely slow rises and falls can shape an ambient melodic texture over long time spans.

Musical uses

- evolving drones with slow pitch color changes
- gradual opening of harmonics during a melodic layer
- long-form phrasing in ambient or generative pieces

This makes EG useful not only for note-level articulation, but also for macro-level melodic development.

Linear vs Exponential: Which to Use for Melody

The response toggle is one of the most musically significant controls.

Linear

Best for: - precise, synthetic shapes - even modulation sweeps - patching to pitch or parameter CV where you want predictable movement

Sound

More neutral, straight, and controlled.

Exponential

Best for: - plucks - natural-feeling note articulation - punchy melodic accents - VCA and filter shaping

Sound

More lively and “acoustic” in feel, with stronger perceived transients.

Practical advice

For most melodic voice articulation: - start with **exponential** - switch to **linear** if you want a cleaner or less punchy contour

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Example Melodic Patches

Patch 1: Basic synth lead

- Pitch sequencer → oscillator 1V/oct
- Gate sequencer → **EG TRIG**
- Oscillator → filter → VCA
- **EG OUT** → VCA CV
- Optional mult of **EG OUT** → filter CV

Suggested settings - Attack: low - Decay: medium - Response: exponential - AMP: around 50–75%

Result Playable, expressive mono lead voice.

Patch 2: Plucked sequence

- Sequencer pitch CV → oscillator
- Clocked trigger pattern → **EG TRIG**
- Oscillator → LPG or VCA
- **EG OUT** → LPG/VCA CV

Suggested settings - Attack: minimum - Decay: short - Response: exponential

Result Tight, melodic plucks ideal for arps and basslines.

Patch 3: Evolving ambient melody

- Quantized random CV → oscillator pitch
- Sparse trigger stream → **EG TRIG**
- **EG OUT** → VCA CV
- Slow LFO → **DECAY CV**
- Optional second slow CV → **ATTACK CV**

Suggested settings - Attack: medium to long - Decay: long - Response: linear for smoothness

Result Melodic notes with constantly shifting articulation, ideal for ambient or generative music.

Patch 4: Acid-style melodic accenting

- Pitch sequencer → VCO
- Main gate sequence → VCA envelope elsewhere or same EG
- Accent trigger pattern → **EG TRIG**
- **EG OUT** → filter cutoff CV and slight pitch mod

Suggested settings - Attack: very short - Decay: short-medium - Response: exponential

Result Selected notes snap brighter and slightly bend, creating animated acid-like phrasing.

Strengths of This Module in a Melodic System

1. Tiny footprint

At **2hp**, it adds expressive control without consuming valuable rack space.

2. Extremely wide timing range

From **very fast transient shaping** to **ultra-slow phrase development**.

3. CV control over both attack and decay

This is especially helpful for melodic variation and generative patching.

4. Useful output attenuation

The built-in **AMP** control makes it easier to dial modulation depth without needing another attenuator in some patches.

5. Switchable contour type

Linear/exponential switching gives you two very different articulation feels from one compact module.

Limitations to Keep in Mind

Based on the manual, this is a **two-stage attack-decay envelope**, so:

- there is **no sustain stage**
- it is not a full ADSR
- it is best for:
- plucks
- simple note articulation
- triggered or gated shapes
- modulation gestures

For sustained keyboard-style melodic phrasing, another envelope type might be better, but for sequenced melodic lines this AD design is often perfect.

Best Companion Modules

To build full melodic functionality around EG, pair it with:

- **oscillator** for pitch generation
- **sequencer** or **keyboard controller** for notes
- **quantizer** if using random CV melodically
- **VCA** for amplitude shaping

- **filter** for timbral shaping
- **mixer/attenuator** for controlling modulation depth
- **clocked trigger source** for rhythmic articulation

Bottom Line

The **2hp EG** is a compact but powerful tool for making melodic patches feel alive. It does not create melody by itself, but it is excellent for shaping the expressive side of melody:

- **how notes start**
- **how long they bloom**
- **how bright they feel**
- **how accents behave**
- **how phrases evolve over time**

If used with a sequencer, oscillator, VCA, and optionally a filter, it can produce: - plucked melodies - expressive leads - accented basslines - evolving ambient phrases - generative articulation changes

Its biggest melodic strengths are the **wide time range**, **CV over attack/decay**, and **linear/exponential switch**, all of which help transform simple note sequences into more musical performances.