

# 2hp – Div

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## Using the 2hp Div to Create Melodic Components

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The **2hp Div** is a **dual clock divider/multiplier**. On its own, it does **not generate pitch CV**, quantized notes, or melodies directly. What it *does* do extremely well is create the **timing structure** that melodic material can ride on. In a Eurorack patch, that makes it a powerful **melody rhythm engine**.

Because both channels derive from the same input clock but can run at different multiplied/divided rates, Div is especially useful for:

- creating **independent rhythmic streams**
  - generating **polyrhythmic note triggers**
  - driving **sequencers, quantizers, sample-and-holds, and envelopes**
  - making one melodic line feel related to another while still being rhythmically distinct
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## What the module does

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From the manual:

- **1 clock input**
- **2 independent outputs**
- Each output can be set to:
- divide the clock by: **/16, /8, /7, /6, /5, /4, /3, /2**
- pass the original clock

- multiply by: **x2, x3, x4, x5, x6, x7, x8, x16**
- Each channel has:
  - a **RATE knob**
  - a **RATE CV input** (0–5V)
  - an LED showing output activity

This means a single master pulse can become two related but different pulse streams.

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## Best role in a melodic patch

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Think of **Div** as the module that determines **when notes happen**, not **what notes happen**.

To create melody, pair Div with modules such as:

- **step sequencers**
  - **quantizers**
  - **sample & hold**
  - **Turing machine / random CV source**
  - **envelope generators**
  - **logic modules**
  - **switches**
  - **sequential switches**
  - **oscillators and VCAs**
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## How it contributes to melody

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### 1. Clocking a pitch sequencer at different rates

Patch: - master clock → **Div IN - OUT 1** → sequencer clock - sequencer CV  
→ quantizer → oscillator 1V/oct

Result: - The RATE 1 setting determines how quickly the sequence advances. - At slower divisions, you get sparse, deliberate melodic

movement. - At multiplications, the sequence becomes more active and ornamented.

This is one of the simplest ways to reshape a melody without changing its notes.

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## 2. Creating two related melodic voices

Patch: - master clock → **Div IN** - **OUT 1** → sequencer A clock - **OUT 2** → sequencer B clock - sequencer A CV → oscillator A - sequencer B CV → oscillator B

Result: - Both voices are locked to the same source clock, so they feel connected. - But because each output can have a different divide/multiply ratio, the two melodies unfold at different rhythmic densities.

Example: - OUT 1 = /2 - OUT 2 = ×3

This gives one slower, grounding phrase and one busy, animated counterline.

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## 3. Driving a sample & hold for generative melodies

Patch: - random CV source → sample & hold input - master clock → **Div IN** - **OUT 1** → sample & hold trigger - sample & hold output → quantizer → oscillator

Result: - Div controls how often a new note is sampled. - Change RATE 1 to make the melody update slowly or rapidly. - CV over RATE 1 can make the melodic rhythm evolve over time.

This is especially effective for generative or ambient patches.

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## 4. Creating melodic accents and variation

Patch: - master clock → **Div IN** - **OUT 1** → sequencer clock - **OUT 2** → envelope trigger or VCA accent trigger

Result: - One output advances notes. - The other adds accents at a different rhythmic interval.

Example: - OUT 1 = original clock - OUT 2 = /4

Now every fourth note may be louder, brighter, or longer, which gives the melody phrasing and structure.

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## 5. Using multiplication for ratchets and fast ornamentation

Clock multiplication is especially useful melodically.

Patch: - main sequence clock → **Div IN** - **OUT 1** = normal or slower sequencer advance - **OUT 2** = multiplied trigger stream to envelope/VCA, burst input, or switch

Result: - The melody can have fast repeated notes or subdivisions while the underlying harmonic movement remains slower. - This creates: - ratchets - trills - repeated note fills - arpeggiated embellishments

Example: - sequencer advances at /2 - envelope retriggers at ×4

This can turn one step of pitch into a cluster of repeated articulated notes.

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## 6. Dynamic melodic rhythm via CV control

Each channel has a **0–5V CV input** for rate control.

Patch: - slow LFO / random stepped CV / sequencer row → **RATE 1 CV** - master clock → **IN** - **OUT 1** → melodic sequencer or sample & hold trigger

Result: - The rhythm controlling your melody changes over time. - This can create: - phrase expansion/contraction - unpredictable note density - evolving generative structures

Important musical effect: - The *pitch source* can remain stable while the *rhythmic trigger pattern* becomes animated.

This often sounds more musical than randomizing pitch alone.

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# Practical melodic patch ideas

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## Patch 1: Slow melody + fast ornament voice

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**Goal:** one main melodic line and one decorative high voice

Patch: - master clock → Div IN - OUT 1 set to  $/2$  → sequencer clock - sequencer CV → quantizer → VCO 1 - OUT 2 set to  $\times 4$  → trigger input of envelope for VCO 2 - same pitch CV muted to VCO 2, or use a second sequencer

What happens: - Voice 1 plays a measured melody - Voice 2 plays rapid subdivisions, making the patch feel alive - If VCO 2 is tuned an octave up, it becomes a nice melodic shimmer

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## Patch 2: Polymetric counterpoint

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**Goal:** two melodies that phase against each other

Patch: - master clock → Div IN - OUT 1 =  $/5$  → sequencer A - OUT 2 =  $/7$  → sequencer B - both sequencers → separate quantizers/oscillators or a shared scale

What happens: - Because 5 and 7 cycle differently, the melodies interlock in a long repeating pattern - Great for minimalist, generative, or Berlin-school style music

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## Patch 3: Quantized random melody with evolving note density

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**Goal:** controlled random melodic line

Patch: - noise/random stepped CV → sample & hold input - Div IN ← master clock - OUT 1 → sample & hold trigger - sample & hold output → quantizer → oscillator - slow LFO → RATE 1 CV

What happens: - New pitches are sampled at changing rhythmic intervals -  
The melody remains tonal if quantized - Very strong for ambient,  
experimental, and generative patches

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## Patch 4: Phrase and accent separation

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**Goal:** make a sequence feel musical and phrased

Patch: - OUT 1 = original clock → sequencer clock - OUT 2 = /4 or /8 →  
envelope controlling filter cutoff or VCA boost

What happens: - The main melody proceeds steadily - Every 4th or 8th  
trigger adds emphasis - This creates bar-like structure from a simple  
repeating line

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## Patch 5: Clocked switch for melodic rearrangement

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If you have a sequential switch:

Patch: - master clock → Div IN - OUT 1 → main sequencer clock - OUT 2 →  
sequential switch advance - multiple pitch CV sources into switch - switch  
output → quantizer → oscillator

What happens: - One rhythm advances notes - The other rhythm chooses  
which melodic source is active - Very effective for creating evolving  
phrases from simple material

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## Musical strengths of this module

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### Tight related timing

Since both outputs come from one input clock, they stay musically related.  
This is ideal for layered melodic systems where you want complexity  
without total chaos.

## Easy creation of rhythmic contrast

The divide/multiply options let you move between: - sparse notes - normal pulse - rapid subdivisions

That's exactly the kind of contrast that makes melodies feel expressive.

## Excellent for generative patches

A lot of generative melody comes from combining: - one pitch source - one trigger source - variation in timing

Div gives you that timing variation in a compact format.

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## Limitations to keep in mind

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Based on the manual, Div is **not**:

- a pitch sequencer
- a quantizer
- a melodic CV generator
- a logic module
- a probability trigger source
- a reset-based phrase manager

So by itself it won't produce "notes." It needs companion modules for that.

Its melodic usefulness comes from controlling the **rhythmic architecture** around note generation.

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## Best pairings for melodic use

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Div works especially well with:

- **quantizers** for tonal melodic output
- **sample & hold** for random note generation
- **sequencers** for defined melodic phrases
- **switches** for phrase variation

- **envelopes and VCAs** for articulation
  - **logic** for more complex trigger combinations
  - **LFOs/random CV** into RATE CV for evolving rhythms
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## Summary

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The **2hp Div** is best thought of as a **melodic timing processor**. It helps create melody by:

- clocking sequencers at different speeds
- triggering sample & hold for note generation
- creating counter-rhythmic melodic voices
- producing accents and phrasing
- generating fast subdivisions for ratchets and ornamentation
- modulating note density through RATE CV

If you combine it with even a basic sequencer or quantized random source, it becomes a very strong tool for building melodies that feel **alive, structured, and rhythmically rich**.

[Generated With Eurorack Processor](#)