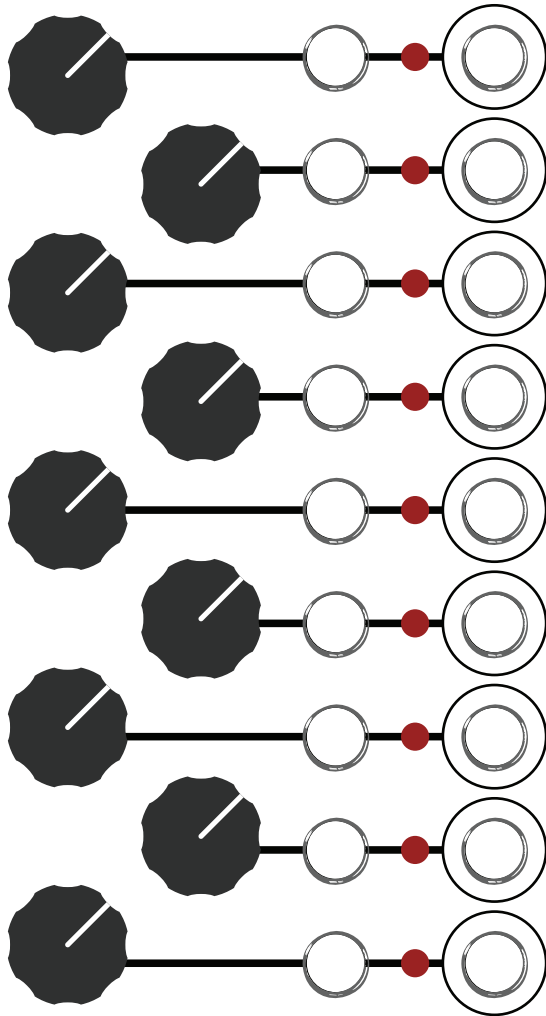
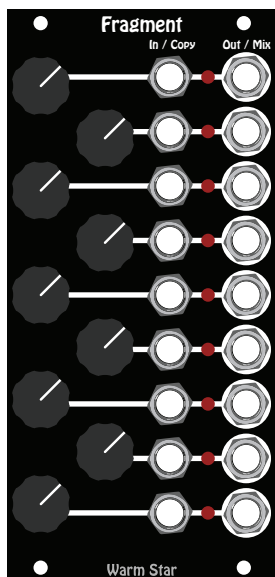


Fragment



by
**Warm Star
Electronics**

Welcome to Fragment



The way signals flow through your system is about to change.

Fragment is a nine channel utility module, designed to provide the features you need, as you need them. It has four functions:

- **Mixer**

Any number of channels can be mixed together, in groups of adjustable size.

- **Buffered Multiple**

Signals can be sent to several destinations, with a different level adjustment for each.

- **Attenuator**

A single channel can be used to provide level adjustment of a throughput signal.

- **Signal Amplifier**

Multiple channels can be summed to provide amplitude multiplication of a throughput signal.

The application of these different functions is determined by how the module is patched - and how it is not patched.

- An empty **In** jack copies the signal from the jack above it.
- An empty **Out** jack mixes its signal into the jack below it.

In both cases, signals move down in a cascade until interrupted by a patch cable.

- Patch several inputs and one output to form a **Mixer**.
- Patch one input and several outputs to form a **Buffered Multiple**.
- Patch in and out of a single row to **Attenuate**.
- To **Amplify**, mult to several rows, turn their knobs up, and mix them to a single output.


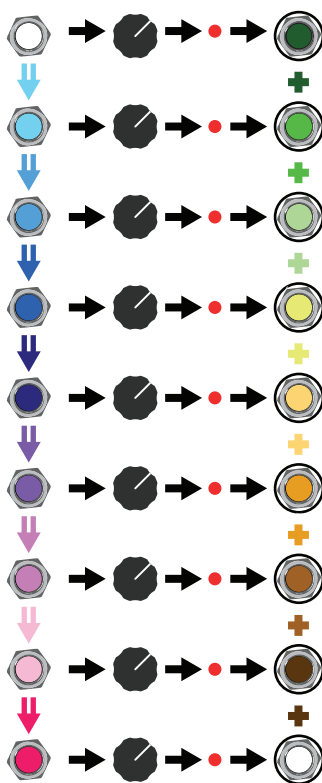

The Flow

The colored action icons occur when the same-color jack does not have a cable patched into it.

- ➔ is the flow of a signal (which can be audio or CV).
- ⇓ means that a signal is copied to the next jack.
- ⊕ means a signal is mixed (added) into the next jack.
- is an attenuator knob, which can be used to reduce the level of a signal.
- is an indicator LED, showing the channel's signal level. (Positive voltages are shown with red illumination, and negative voltages are shown with yellow.)

An empty input jack copies the input of the jack above it. This effect cascades downward.

Leave some input jacks empty to use a portion of Fragment as a buffered multiple.

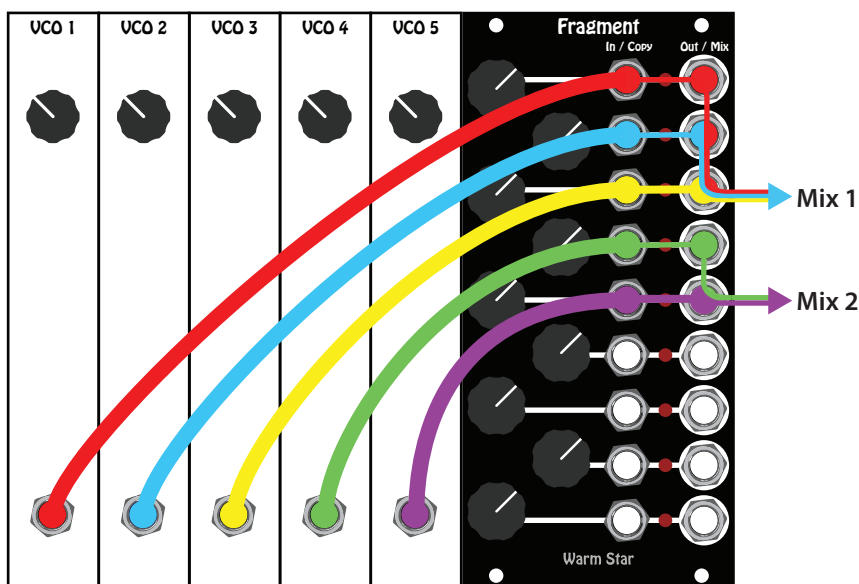
An empty output jack adds its signal into the jack below it.

Leave some output jacks empty to use a portion of Fragment as a mixer.

It Mixes

It's easy to mix signals with Fragment!

- Patch inputs to multiple consecutive channels (*VCOs 1, 2, 3, 4, & 5 have been patched to In 1, In 2, In 3, In 4, & In 5*). You don't have to start with channel one.
- Leave one or more Out jacks empty. The empty jacks mix their signals downward in a cascade. Patch a cable to the Out jack of the last row of your desired mix (*Outputs have been patched to Out 3 and Out 5, creating two separate mixes: Mix 1 is VCOs 1, 2, & 3, and Mix 2 is VCOs 4 & 5*).
- A patched output breaks the Mix cascade of the outputs (*This is why Mix 2 doesn't have VCO 1, VCO 2, and VCO 3 in it. If the Mix 1 output cable was removed, all five signals would be in Mix 2*).

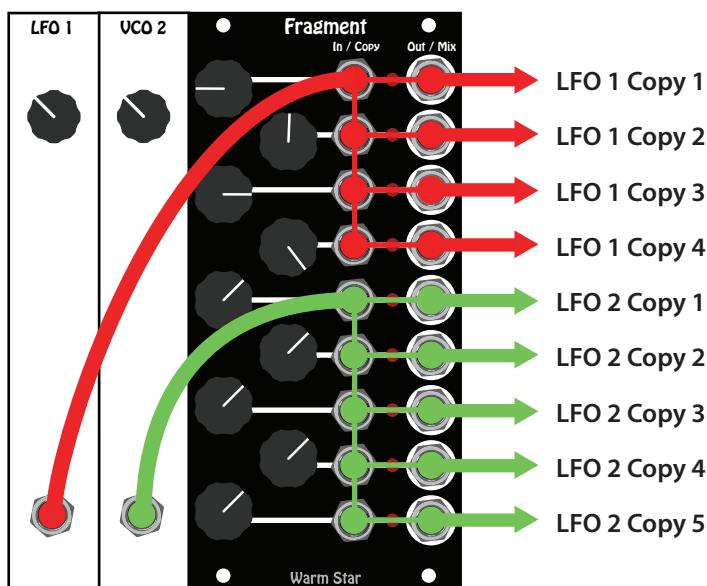


The arrows on the right are patched outputs. The labels in bold indicate their contents, not their destination.

It Mults

Fragment can also be used to send one signal to multiple destinations, each with their own adjustable signal level.

- Patch an input to any channel (*LFO 1 has been patched to In 1*).
- Leave one or more consecutive In jacks empty, beginning with the one below the patched input (*Inputs 2, 3, & 4 are left empty*). Input signals are copied downward into all empty jacks below them, until the cascade is broken by an input cable.
- Patch one or more consecutive Fragment Out jacks to signal destinations, beginning with the same row as the input.
- Adjust the level for each row accordingly (*LFO 1 Copy 1 is LFO 1 at about 20% amplitude, LFO 1 Copy 2 is LFO 1 at 50% amplitude, etc.*)



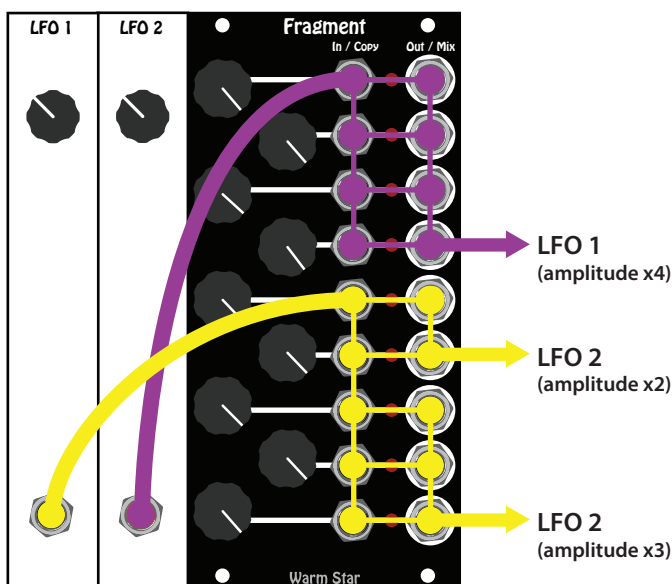
To attenuate (reduce the level of) a signal, just patch in and out of a single row. Also, a signal being a buffered copy doesn't mean it's an identical copy. Don't use this for v/oct!



It Amplifies

Sometimes it's necessary to amplify a signal (to raise its amplitude, or signal level). Usually, this is done to bring a signal from an external instrument or sound source up to a higher level for use in a modular system. To amplify a signal with Fragment:

- Patch an input to any channel (*LFO 1 has been patched to In 1*)
- Leave one or more consecutive In jacks empty. Leave the associated Out jacks also empty, except for the last one in the group. Turn the knobs for all rows fully clockwise (*In 2, In 3, and In 4 have been left empty, as have Out 1, Out 2, and Out 3*).
- The output for the last row in the group contains a signal which is a copy of the input, with amplitude multiplied by the number of rows used (*Out 4 is LFO 1 with its amplitude multiplied by 4*).

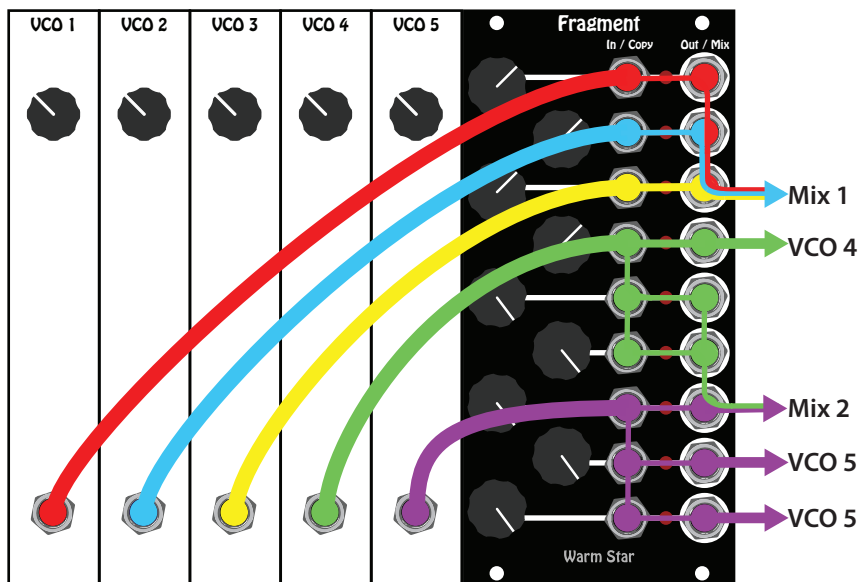


This works because the signals are being copied down the column of inputs, and then summed down the column of outputs.

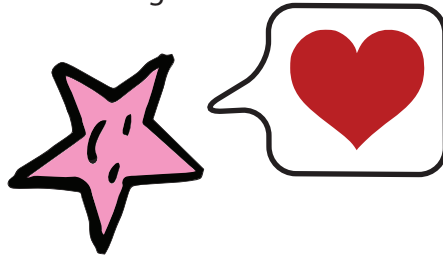
Mix & Match

Fragment isn't limited to one function at a time. All the functions described in this manual can be performed multiple times each, performed in combination, or combined into compound functionality. For example, it's possible to:

- Include a signal in a mix while also sending copies to one or more additional destinations (*while VCO 4 and VCO 5 are both included in Mix 2, both are also sent to other destinations*).
- Mix an amplified copy of a signal with one or more other signals (*Mix 2 contains a double-amplitude copy of VCO 4*).
- Use self-patching to make many buffered or amplified copies of a mix.
- Include a signal in multiple different mixes simultaneously.



This manual by Bradford Kinney
with help from Ben Scheffler
& several other friends.
Thanks for reading it.



Limited Warranty:

Warm Star Electronics warrants this product to be free of defects in materials or construction for a period of five years from the date of purchase (proof of purchase/invoice required).

Malfunction resulting from wrong power supply voltages, abuse of the product, removing knobs, changing face plates, or any other causes determined by Warm Star Electronics to be the fault of the user are not covered by this warranty, and normal service rates will apply. During the warranty period, any defective products will be repaired or replaced, at the option of Warm Star Electronics, on a return-to-us basis with the customer paying the transit cost. Warm Star Electronics implies and accepts no responsibility for harm to person or apparatus caused through operation of this product.

Please contact Bradford@warmstarelectronics.com with any questions, Return To Manufacturer Authorization, needs, wants, comments, or stories. Or neat module ideas. Or pictures of your modular. Or pictures of your cat. Or lists of what modules you like and don't like. Or recordings of tracks you made using this module (we love those).

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