Chaser

What is it?

This is my take on a sequential switch. Some houses in my neighborhood have LED lights at the roof line where patterns move around the string and seem to be chasing each other. I wanted to reproduce a bit of that.

Specifically, Chaser is a 1x8 switch that is designed to be strung together with other instances of Chaser. Different events and state are signaled, enabling a variety of different configurations. One or more lit LEDs move through the chain, indicating that the associated output is active.

Audio/CV Input

The In jack is where you plug in the signal to be distributed to the active output jacks.

Audio/CV Output

The eight purplish jacks in the purplish section are the outputs. An output is active when the associated LED is lit.

Output Mode

Fade

When an output becomes active, it does a quick (4ms) fade in to avoid clicks. When an output goes inactive, it quickly fades out for the same reason. This may be useful for audio. It may not be useful for other things. It's there if you want it.

Last

The last value before an active output is deactivated sticks around as long as the output is inactive. This could be useful when the input is used for modulation. Or not. Again, your choice. The last values are cleared when the output mode changes.

None

No fades. No remembering last value. Just as it comes. When the output is active, it matches the input. When inactive, it is 0.

Setting the Current and/or Stored LED Pattern

Clicking an LED toggles it on and off. Pressing the Set button remembers the current LED configuration that will be recalled when reset occurs. Both the current LED state and the stored state are saved in a patch.

Moving the Pattern

Only outputs with connected jacks are considered valid movement targets. This allows Chaser to act as anything from a 1x1 to a 1x8 switch. If you want empty outputs to be considered, connect them to a module that has no effect.

Start – A +5 trigger or button push introduces a new lit LED at the beginning of the pattern. The beginning is defined by the current direction (see Dir below). If there is already a lit LED at that position, nothing happens.

Next – A +5 trigger or button push moves all lit LEDs one step in the current direction. Depending on how Bounce, Wrap, and Dir are set, the pattern after movement could be different. Experimenting with one lit LED should make things clear.

Reset – A +5 trigger or button push resets the pattern to the pattern stored when the Set button was last pressed or an empty pattern if no pattern has been set.

Controlling the Pattern

Each of the following sets how the pattern operates via a trigger input jack and/or manual button. The button both manually toggles the associated function on or off and indicates the current state as on (lit) or off (not lit). The input trigger jack also toggles the state of the associated function but does so by detecting a +5 pulse instead of a button press.

Bounce – When an active LED hits the end of the module, the whole pattern direction is reversed. This means that the more active LEDs in a pattern, the less movement will occur before the next bounce. If the first and last LEDs are lit, the pattern has nowhere to bounce to and sits down to rest.

Wrap – When an active LED hits the end of the module, it wraps to the beginning. The current direction determines what beginning and end mean. Only Wrap or Bounce can be active at the same time, but both can be inactive.

Dir – This determines the movement direction. The button also indicates the current direction with an arrow.

Events

Bounce – A pulse is emitted when an active LED hits the end of the pattern and bounces back. This can only occur if Bounce is active.

Wrap – A pulse is emitted when an active LED wraps around from the end of the pattern to the beginning. This can only occur if Wrap is active.

Over – A pulse is emitted when an active LED falls off the end of the pattern. This cannot occur if Wrap or Bounce are active.

All pulses are +5 with a duration of 2ms.

State

Dir – Constant 0 when direction is forward (top to bottom movement/down arrow) and +5 when state is reversed (bottom to top movement/up arrow).

Processing Notes

When triggers occur at the same moment, the order of processing is as follows:

Set direction/bounce/wrap -> advance the lights (Next trigger) -> add a new lit LED (Start trigger) -> reset (Reset trigger)

The order may be configurable in a later update if there is interest.

Final thoughts

After experimenting with different events/state and ways to chain instances, I eventually settled on the current design because it seemed both straightforward and (relatively) easy to use. Are there other bits of functionality that would make Chaser easier/better/stronger/faster for you? Let me know! There could be future updates or maybe even a whole module (Chaser+ ?) waiting to be born. My Cherry Audio forum is a good place to share ideas, report problems, ask questions, or leave any other comments. I hope to make all my modules as functional and fun as possible, so all feedback is appreciated.

Thank you!

borkman