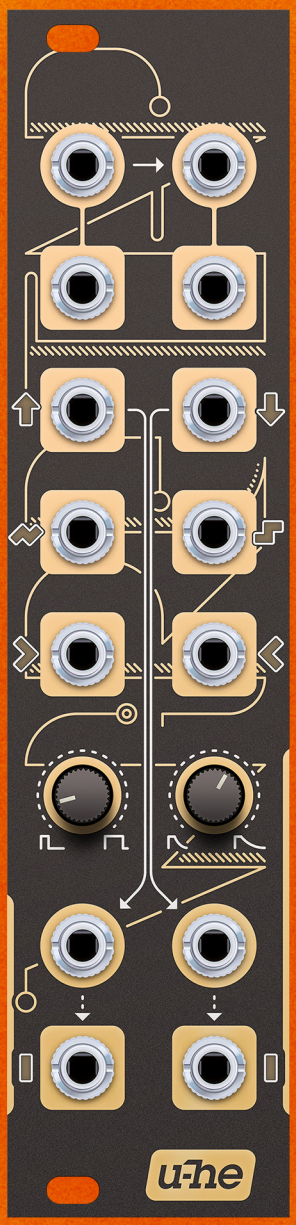
WIRETAP



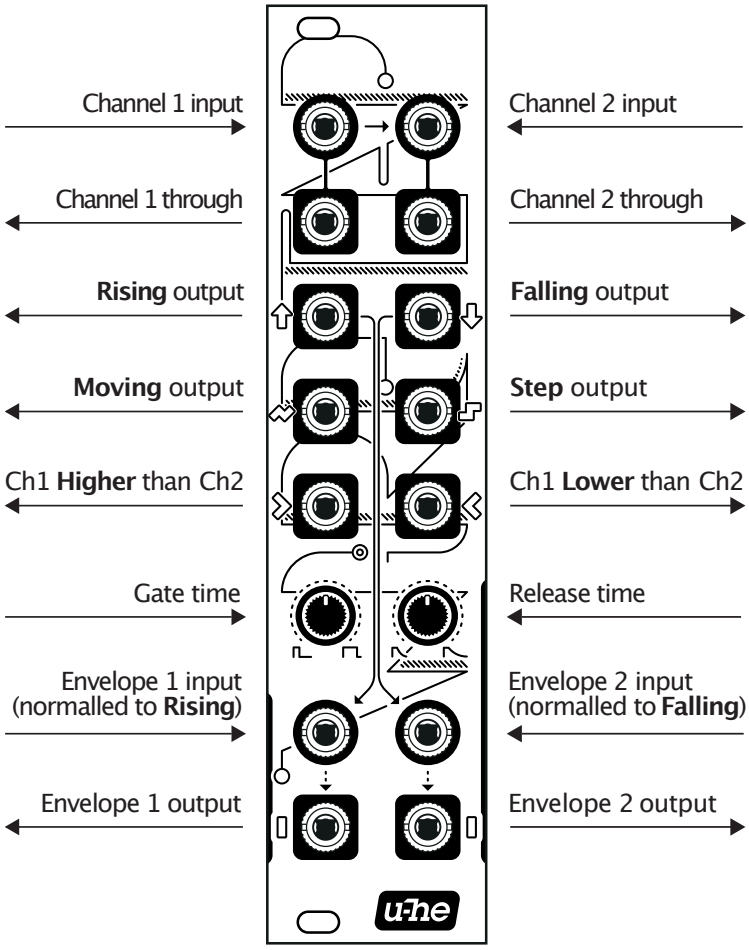
by u-he

Wiretap is a dual channel slope detector and trigger/gate generator which continuously monitors the input signal for any 'significant' changes and generates gates/triggers in response.

Channels 1 and 2 can function independently, each with its own input signal. If nothing is connected to channel 2's input jack, channel 2 will process the same signal as channel 1.

1. Panel overview

Input jack sockets appear in a **circle** while output sockets appear in a **square**:



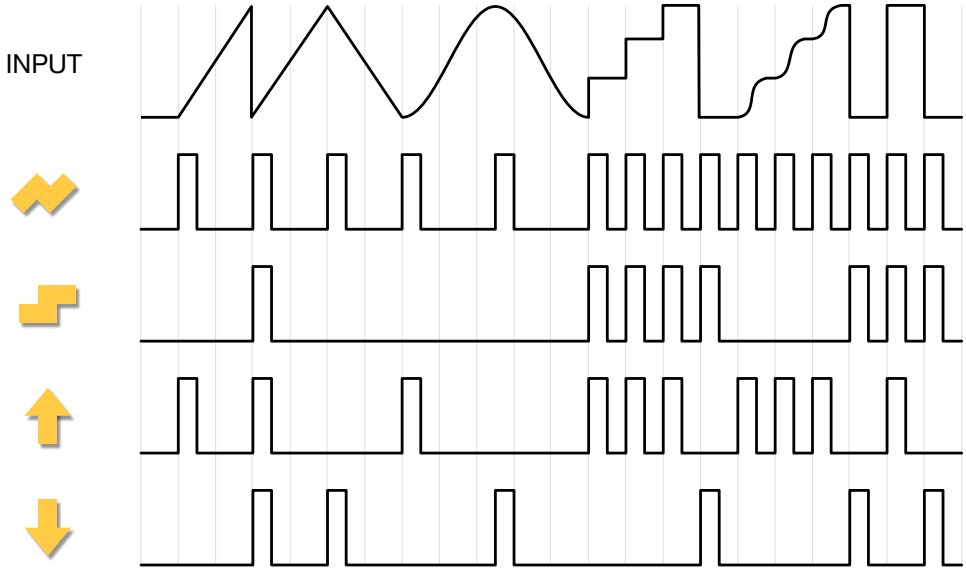
2. Basic functionality

The six main outputs (CV = "control voltage")

- *Rising* when the input CV starts to rise
- *Falling* when the input CV starts to fall
- *Moving* whenever there is a significant change (even gradual) in the input CV
- *Step* whenever the input CV jumps at least one semitone (1/12 Volt) up or down
- *Higher* whenever channel 1 input CV becomes greater than channel 2 input CV (or 0 Volt)
- *Lower* whenever channel 1 input CV drops below channel 2 input CV (or 0 Volt)

Gate time sets the length of the trigger / gate. If a gate output is already high, further incoming events will be disregarded. You can use this feature creatively to produce an effect similar to a clock divider for cyclic events.

The complex input CV here generates the following triggers for *Moving*, *Step*, *Rising* and *Falling:*



Below the main outputs is the **Envelope section**:

- *Release time* sets the duration of the envelope release
- *Envelope 1 in* trigger input for envelope 1, normalled to Rising output
- *Envelope 2 in* trigger input for envelope 2, normalled to Falling output
- *Envelope 1 out* envelope 1 output signal
- *Envelope 2 out* envelope 2 output signal

Note: Envelope output levels are directly proportional to the trigger amplitudes i.e. Wiretap's envelopes can be used dynamically.

3. Typical use case for Wiretap

Pitch CV generated by a step sequencer is fed into Wiretap's channel 1 input and sent via the channel 1 'through' jack to control the pitch of an oscillator. Whenever the CV rises, Wiretap's Rising output resets an LFO, and when the pitch CV falls, the Falling output triggers a bass drum.

Additionally, the Moving and Step outputs can be used to advance a sequential switch and another step sequencer, for example. The Higher and Lower outputs (which naturally alternate), could trigger two envelopes routed to different modulation destinations. In this scenario, Wiretap's own pair of envelope generators still remain unused!

4. Caveats

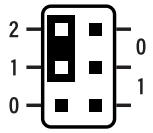
Wiretap works most effectively using CVs with distinct edges / well-defined shapes. Gradually varying voltages such as manually adjusted CV or slow sine LFOs can lead to erratic trigger behavior: Wiretap needs to distinguish between static and dynamic signal components, and the distinction easily becomes ambiguous when transitions are too gradual.

Imperfect input signals can cause unexpected (though technically correct) triggers. Also, notes with slew might be interpreted as steps, depending on the intervals and the portamento time. Higher level input signals make it easier for Wiretap to detect 'significant' events as the transitions are more pronounced. Amplifying signals before sending them to Wiretap can improve precision, but you should watch out for clipping.

Although Wiretap was not designed to process audio signals, please feel free to experiment!

5. Special modes: Jumper settings

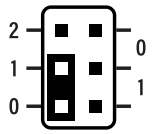
Clocked Operation Mode



This jumper A setting enables *clocked operation mode*, with input 2 being clock input: The outputs are active only in the presence of a clock or trigger signal at Input 2.

As Input 2 is now dedicated to trigger signals, CH2 will draw its input from CH1. Use this mode to rhythmically “gate” Wiretap’s operation.

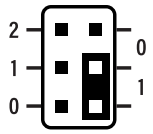
Bus Gate Mode



This jumper A setting enables *bus gate mode*. This is basically the same as the clocked operation mode except that Wiretap will draw its input triggers from the Eurorack System Bus, freeing up Input 2 to receive any other signal.

For example, modules such as the Malekko Varigate 4+/8+ can provide clock pulses over the Bus Gate rail.

Hold Mode (jumper B)



This jumper B setting enables *hold mode*. By default, Wiretap will generate a trigger every time there's a significant change in the input signal. Trigger duration is normally determined by the Gate Time control. In Hold mode however, the outputs remain high as long as the specified condition is met:

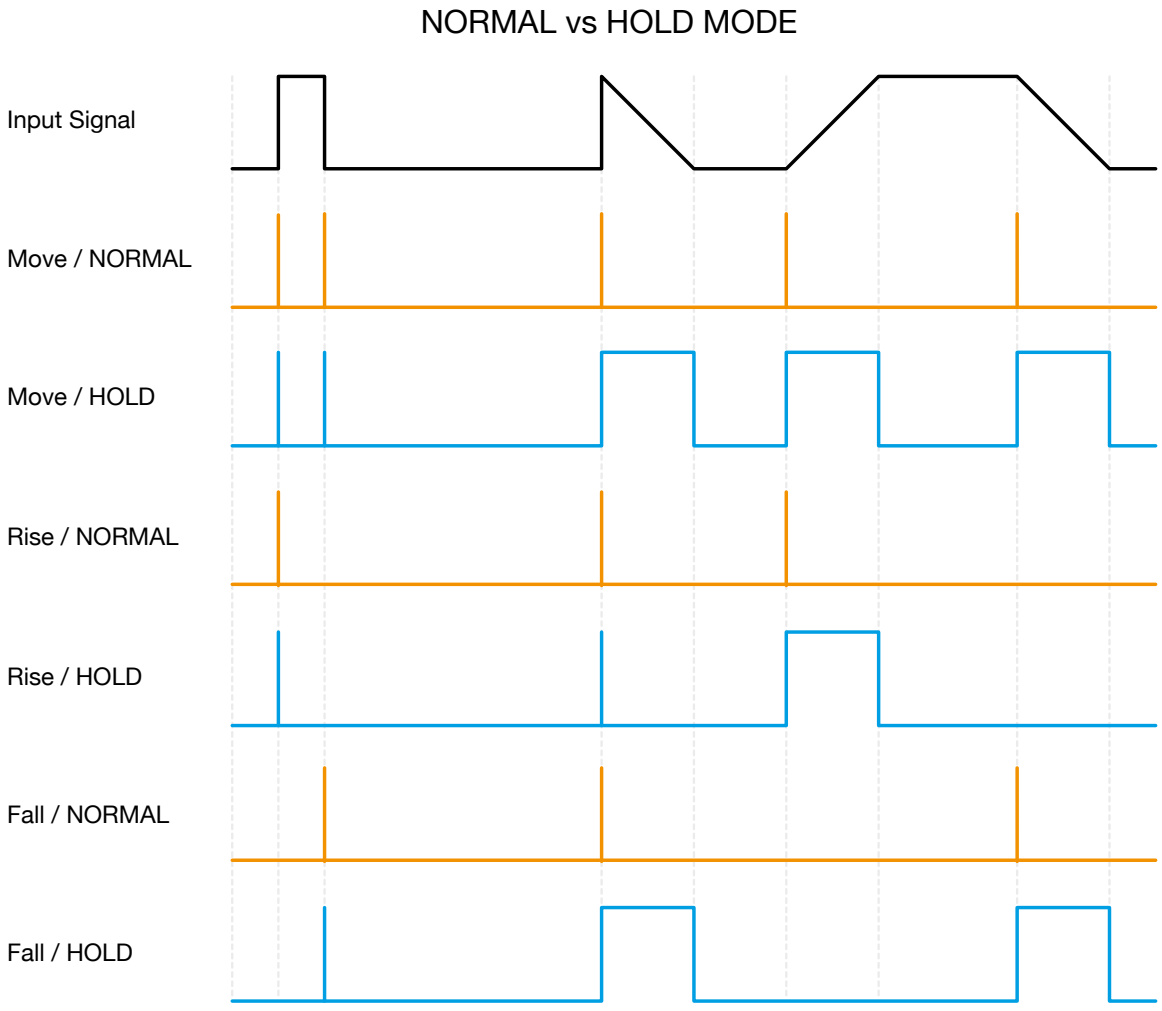
The Rising output will remain high as long as the input voltage is rising. Likewise the Falling and the Moving outputs when those are active. The Step output continues to work normally, with a fixed trigger length.

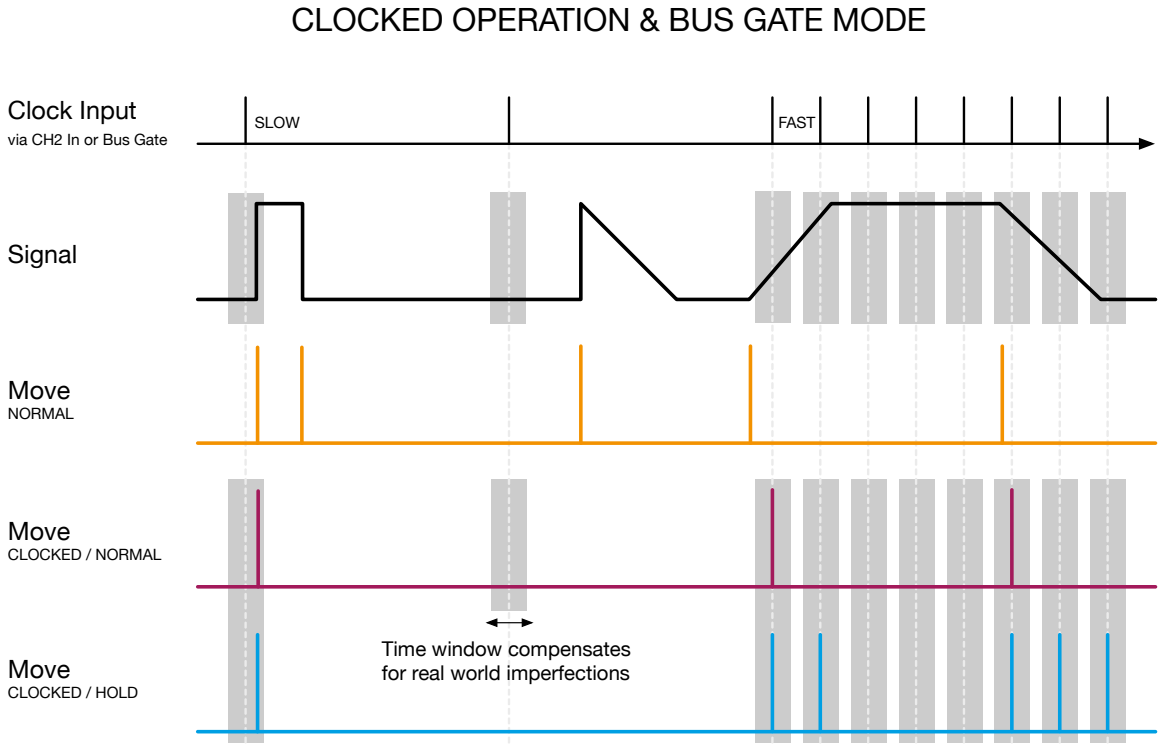
As gate length is determined by the input signal In *hold mode*, the left knob is free to control envelope 1 release time.

Notes

1. While the default mode (jumper B to “0”) is optimized for best results with rapidly changing pitch CVs, hold mode is usually better at handling slowly changing input signals (although this will never be Wiretap's strong point). As a rule: if the frequency of your signal is below 1Hz, try switching to hold mode.
2. Clocked operation mode and hold mode can be enabled at the same time. You can think of the combination of these two modes as Wiretap running in hold mode, but with the outputs gated by clock signals arriving at input 2 and the Gate Bus, respectively.

Examples of special modes





6. Troubleshooting

Your Wiretap module is only repeating a continuous pattern of ascending LEDs? Congratulations! You found the **secret bootloader mode**. Please check your jumper positions.

7. Specifications

Width: 6TE
Depth: 31 mm
Power consumption: 120 mA (+12 V) / 40 mA (-12 V)
Input sensitivity: +/-9 V
Trigger output level: 8 V
Envelope 1/2 level: 8 V

8. Tutorial Videos

Wiretap Tutorial Pt. 1/3: https://youtu.be/NPLVc6fmyRU
Wiretap Tutorial Pt. 2/3: https://youtu.be/PxABxI-B5rQ
Wiretap Tutorial Pt. 3/3: https://youtu.be/o8YLIHEBEJk