

router

user manual



Overview

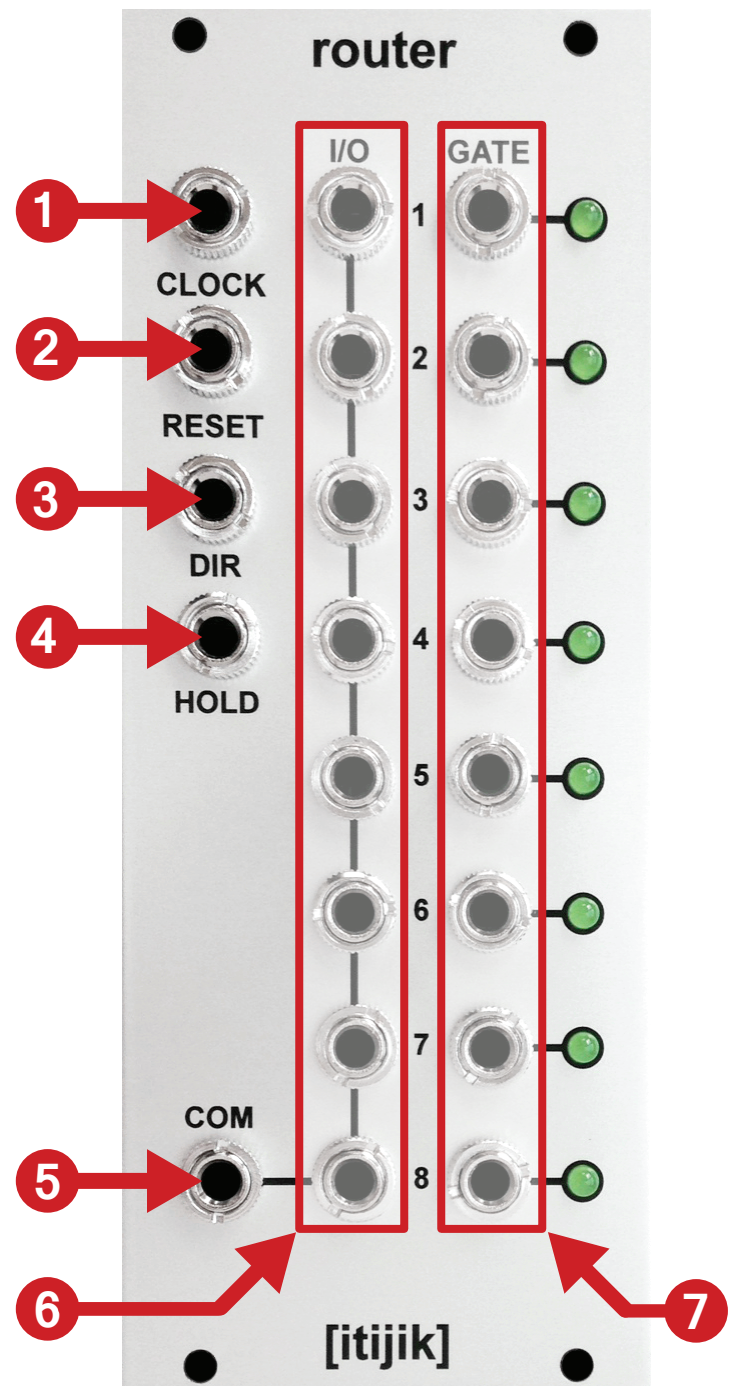
The router is an 8-step sequential switch for euro format systems. It features 8 bipolar input/outputs and one common bipolar input/output. The clock, reset, direction and hold inputs are used to drive the movement and direction of the sequence. There is also a gate output section for triggering the router's functions as well as any other gate duties in your system.

Installation

Verify power is not active during installation. Power requirements are 20mA of the +12V supply and 10mA of the -12V supply. The 10-pin side of power cable provided should be attached with the red stripe towards the bottom of the module (marked -12V). The 16-pin side of the cable should be attached with the red stripe on the negative side of the power distribution board (this is usually at the bottom). If the connector is offset or backwards on either side of the cable, **this could damage the unit**. Verify the pcb(s) are not in contact with any other module, then apply power.

Panel Layout

- 1. CLOCK** input: A gate or pulse received at this input will make the sequence move in the direction set by the DIR input, as long as the HOLD input is in a LOW state.
- 2. RESET** input: A gate or pulse received at this input will reset the sequence to step 1. The input must be brought to 0V before a new reset trigger will be recognized.
- 3. DIR** (direction) input: A normalized HIGH state on this input causes the sequence to advance one step when the CLOCK input is triggered. When another source is plugged in, a HIGH state (~1.2V or higher) will have the same effect, while a LOW state (~1.1V or lower) during a CLOCK trigger will cause the sequence to move one step backwards instead.
- 4. HOLD** input: A HIGH state on this input will prevent the sequence from moving during a CLOCK trigger.
- 5. COM** (Common) input/output: This can be used as an input to route any control voltage or audio signal through the 8 I/O channels. This can also be used as an output to route the 8 I/O channels through it. The current step number determines which I/O is routed to COM.
- 6. I/O 1-8** (Input/Output): These are input/output channels which can be routed to the COM input/output one at a time. The current step number determines which I/O is routed to COM.
- 7. GATE 1-8** outputs: Each GATE output will remain in a HIGH state while the corresponding step is selected. The voltage for these outputs are around 11 Volts when in a HIGH state. An LED indicator next to each output is illuminated when that step is active.



Basic Sequencing Ideas

The following are very basic sequencing ideas using the router, but when they are dynamically patched or played live they can create more variation to the rhythm of your patch.

- Connect one of the GATE outputs to RESET input to limit the router to the desired number of steps.
- Connect one of the GATE outputs to the HOLD input to create a "one-shot" sequence.
- Connect one of the GATE outputs to the DIR input to bounce between that step and the next.
- Add a clock divider and drive it from the same clock used for the router. Then use the divider's outputs to trigger the router's various functions. You can also use one of the router's GATE outputs to drive the divider instead.
- Add a flip flop and connect the "Q" output to the DIR input of the router. Then connect a GATE output of the router to the "Set" input of the flip flop, and another GATE output of the router to the "Reset" input of the flip flop. This will create a ping pong type sequence between the two steps selected.

Patch Ideas

Patching with sequential switches can go anywhere your set of modules and your imagination can go! I have included a few of my ideas here, but I know the synth community will come up with some amazing stuff. If you have such a patch and would like it included, please contact me at itijik.com.

Quick LFO wiggle - Connect the square output of a multi-wave LFO into the CLOCK input. Connect various waveforms from the same LFO into different I/O steps of the router. Connect the COM output to your CV destination. This creates a quick tempo synced modulation source.

Sequencer expander - Combine multiple analog sequencer channels to make a large programmable sequence! This is a common use for smaller sequential switches, but the router does it bigger. Connect the COM output of the router to your CV destination. Connect the outputs of your sequencers to the I/Os of the router. If you have open I/Os, try throwing an LFO or other CV source to mix up the fixed sequence voltages. You could also just leave them open for rests, or limit the number of steps with the RESET input connected to one of the GATE outputs.

Envelope routing - Multiple envelopes can be routed and sequenced to one CV input! This can produce some interesting results, since the envelopes are cut off when the next step is active. Connect envelope outputs into the router's I/Os and connect the corresponding GATE outputs to the envelope trigger or gate inputs. Connect the COM output of the router to your CV destination. You can also multi the envelope outputs to various I/Os without retriggering to get stutter or gated envelope effects. Or even mix some envelopes with the output while still routing the rest of them, for multiple layers of envelope action.

Audio rate waveform sequencing - Connect a square wave from a VCO to the CLOCK input. Connect various waveforms from the VCO into the I/O steps of the router. Connect the COM output to a mixer. Try using VCAs or filters to adjust these waveforms dynamically to get some timbre movement!

FSU, Audio Slicer - If necessary, amplify an incoming audio signal and multi it to each I/O of the router. Connect the COM output to a mixer. Now clock the router at audio rates. Sound nice?...Now remove some steps from the I/Os and you have a dirty bit reducer with the clock speed being the "sample rate" (tested to 30kHz with a 50% duty cycle square wave). Choosing different steps will produce different results. Try just four steps, then swap them around and wiggle that clock! At LFO clock speeds you have an audio slicer. Keep in mind you may hear some clicking between steps, but it can still be a lot of fun. Try running a bunch of different audio sources on different steps for a sound collage. Try running a kick drum with a long decay in and make it stutter for a pseudo delay effect.