SERGE 4-Step Sequencer+ (SQP4+)

The Serge 4-Step Sequencer+ (SEQ4+) combines an **enhanced version of the classic Serge Sequencer** with a special Serge CV-Processor module (comprising a linear X-Fader a.k.a **Active Processor** and a **precision CV-Processor**) as well as a brand new Serge module, the **Metronomic Clock**. The module is in our new **8x4** format, i.e. half a panel wide (8") and 4U high.

Sequencer

The SQP4+ sequencer is a classic SQP4 analog sequencer / programmer with a number of added functions and features.

CV Processor

The CV Processor section combines 2 classic Serge modules: the new **Active Processor** on the left, a precision linear X-fader suited both for CV and a (non-linear) **CV Pro** with 2 attenuverting inputs, an offset knob and an additional **AUX** input. It is worth noting that IN 1 and IN 2 have the Serge-typical "wave compression" behavior: the sum of the incoming signals is soft limited

and to a threshold of about +8V/-8V. The AUX IN, however, is not affected by this: a 1.0V step at the AUX IN give you exactly a 1.0V step at the OUT so that the AUX in can be used for inserting keyboard voltages (1V/Oct), e.g. from a TKB to transpose the IN 1 + IN 2 (+ Offset) mix. The **MIX** output in the middle combines the Active Pro output and the CV Pro output.

Metronomic Clock

The metronomic clock is a new 2022(!) Serge design that provides a simple, temperature-stabalized clock source - a chain of very short trigger pulses. The frequency is set using the FREQ knob and the FINE knob. The latter deliberately covers a very small range so that tiny adjustments are possible.

SQP4 classic features

The SQP4 can be used as a push-button, manual programmer and/or as a multii-versatile sequencer. As to the Touch keyboard, the length of sequences can be programmed interractively via the pushbuttons: thus sequence lengths can be changed in performance while a sequence is running. Other sequencing capabilities include RESET, UP/DOWN, HOLD pulse inputs. PULSE STAGE SELECT inputs allow triggers from other modules to turn specific stages on. The stages A B C D each have a CV output and a GATE output that is high as long as the stage is active.

SQP4+ features

- A number of additional functions and modules has been added to the SQP4+ for advanced sequencing, including a **matrix mode** to get up to 16 steps, a fixed pulse divider (**/4** and **/8**) and a CV controlled pulse divider (**DELAY**):

- **ABCD OUT** (white): corresponds to the knob at the active position (stage A to D and row 1 to 4).

- **ABCD OUT** (red): provides a **pulse** for the active step **if the knob at the active position is above the minimum** (i.e. not fully counterclockwise). The pulse length corresponds to the incling clock signal. This output can be used to control an envelope generator (e.g. ExtendedADSR) and allows to easily turn off steps in a sequence (=down).

- **SWAP** input: can be used to simultaneously swap A and B outputs and have D (also) on output C (while D stays D). Useful to alter sequences at the ABCD output and for infinite melodies.

Clock Sources and Processing

The SQP4+ has 2 main clock inputs: the classical (horizontal) **CLOCK** (to jump from A to B) and a vertical **VCLOCK** to jump one row down. Now a couple of routing options come in:
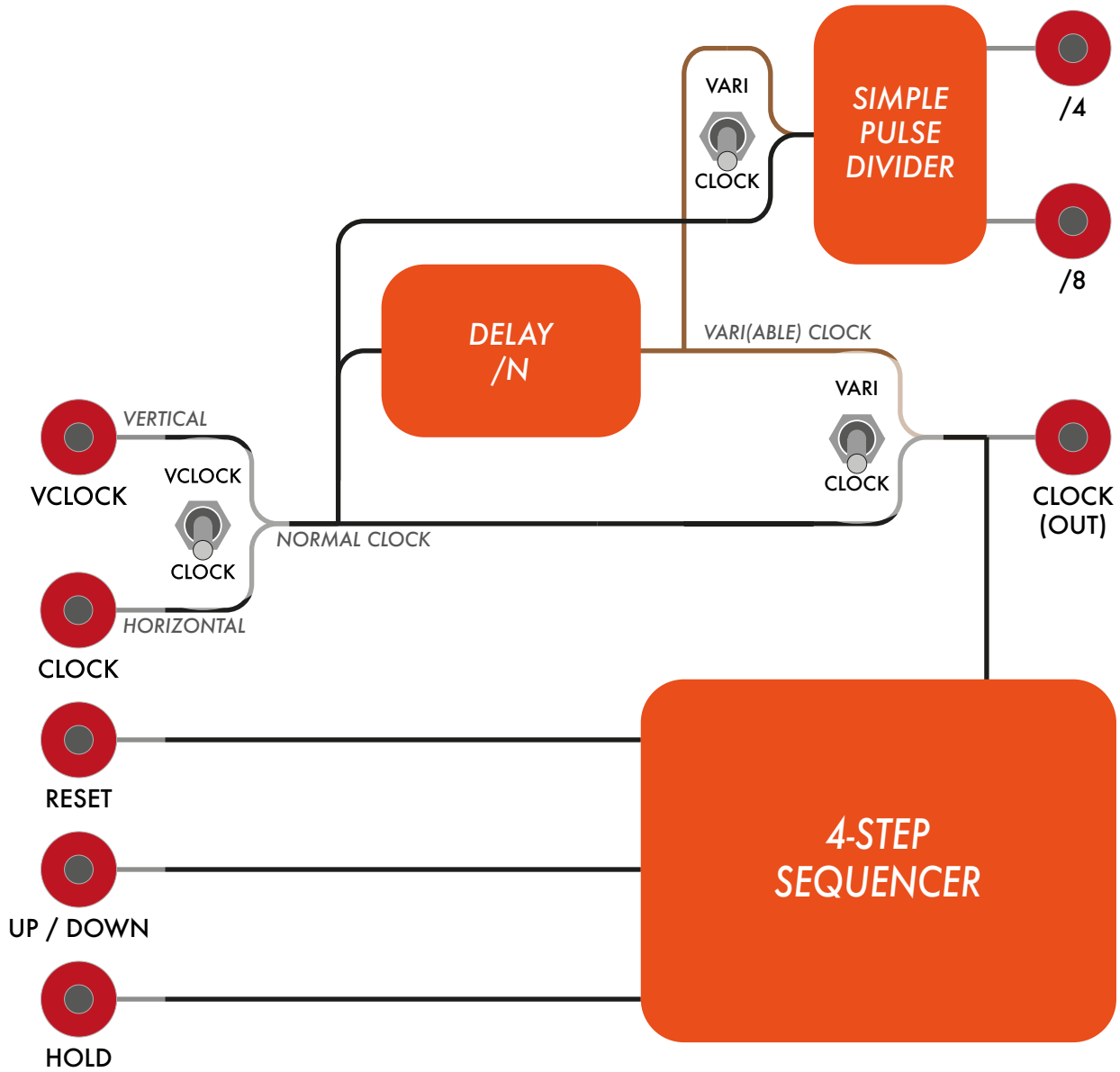
- The **middle switch** (**CLOCK / VCLOCK**) determines, whether the horizontal or vertical clock is used as the "NORMAL" clock, i.e. the source for the DELAY section and the main sequencer.

- The **bottom switch** (**VARI / OFF / NORMAL**) determines what actually drives the sequencer: the NOR-MAL clock (as selected by the middle switch or the (normal) clock after being processed by the DELAY section ("**VARICLOCK**"). In center position, the sequencer get no clock signal and is turned OFF (manual / programmer mode).

- The **top switch** (**VARI / NORMAL**) determines whether the fixed pulse dividers for the **/4** and **/8 out-puts** use the normal (pre-DELAY) or the clock processed by the DELAY section ("**VARICLOCK**").

- **CLOCK OUT** provides the main clock) after processing. See clock handling below. Again the pulse length corresponds to the incling clock signal

Sounds complicated? To start, simply turn each switch down for the default setting and then start experiment-ing. Remember that the bottom switch only decides whether the DELAY section should be brought in and relies on the middle switch to decide which clock input to use.

- **VRESET** resets the vertical position (makes the top row the active row).

DELAY Section

The DELAY section is a voltage-controlled pulse divider that allows to skip up to 8 steps (effectively making the last step longer) for rhythmic variation.

- The **DELAY knob** is an attenuator for the white CV input.

- The **DRESET** input resets the DELAY section, i.e. stops any current waiting period.

Patch Ideas

Magic Melodies: run a pulse signal at audio rate (e.g. the END OUT of a DSG patched to CYCLE) into the CLOCK input. Set the lowest switch (next to the CLOCK input) to center position to turn off the clock from running into the Sequencer. Send the normal output from another (slower) cycling DSG (e.g. triangle wave or a sawtooth) into the DELAY input and set the DELAY (attenuator) knob to somewhere in the middle. This will make the delay section thin out the pulse train (audio signal coming in) by only letting every 2nd, 3rd or 4th etc. pulse through, thereby creating subharmonics of the audio signal at the CLOCK OUT ("variclock"). Now send this (audio) signal to a VCFQ into TRIG IN or IN and play with Q and frequency to get nice melody lines. Now you can let one of the sequencer outputs (say A) control the speed of the audio source (DSG) and use the pushbuttons for different starting points / base frequencies. The sequencer will be static so far (and step only when you press a button or send a signal to the corresponding trigger IN above the button). If you then turn the lower switch UP or DOWN, the sequencer will be (also) driven by the audio clock, running within the range you selected with your finger.

Power Consumption

Power consumption: <=80mA @ +12V and <=70mA @ -12V

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