

# SERGE 8-Step Sequencer/Programmer



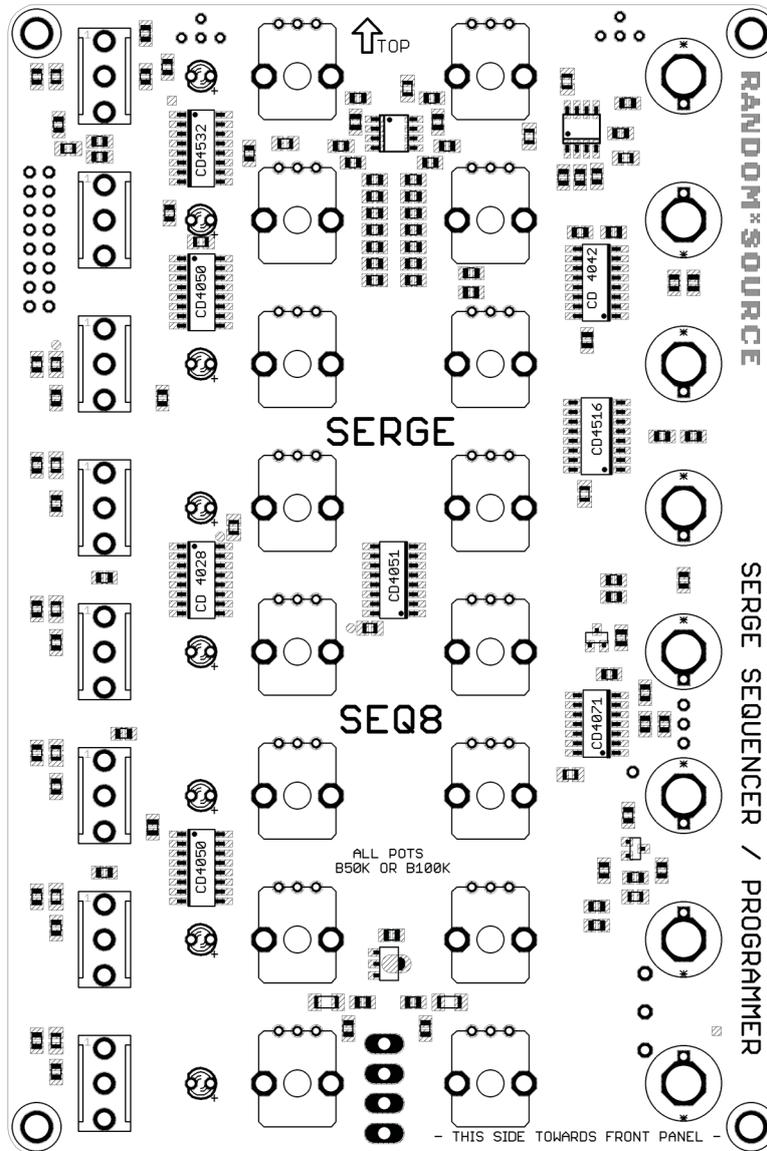
The SEQ8 is a modern yet faithful incarnation of Serge's analog sequencer / programmer. 8 stages. 2 rows of CV output. A - B (A minus B) outputs the difference between A and B (-5 to 5V range). The length of sequences can be set via the pushbuttons - while a sequence is running. RESET, UP/DOWN, HOLD inputs. Switch to start / stop the sequencer. great at audio rates. ALL GATE output goes high when any button is pressed and allows the use of the SEQ8 as a simple mini-keyboard. The SEQ8 covers a wide range of uses from sequencing / storing presets ("programming") to wavetable-like sounds in the audio range.

The Serge Sequencer 8 covers a wide range of uses from sequencing / storing presets ("programming") to wavetable-like sounds in the audio range. The Sequencer 8 by Random\*Source is a licensed and authorized adaptation of the original Serge design. Compared to previous versions, the R\*S version features:

- Improved speed / accuracy - clean stepped waveform output up to clock frequencies of 10kHz and above.
- Gate Output allows the Sequencer's pushbuttons to be used as a mini keyboard.
- Very shallow design - fits in a super slim boat.

## DIY - Build your own SEQ8

The R\*S module consists of a 4" pcb that also serves as interface to the front panel:



### Please note:

- Board is designed to be powered by a +/-12V stabilized PSU only.
- The original version required a trimmer (TR1) for the A - B output. The R\*S version has precision resistors preinstalled that do not require trimming - **do not install trimmer TR1**.
- **Pay attention to the orientation of the momentary switches (pushbuttons)!** Pin NC should be towards the bottom. However, if you mix this up, it should still work with this version of the pcb.
- Add a jumper or link to configure the (P)RESET input to RESET or PRESET mode - connect the middle pin with either the one above or below. This determines if a high signal at the input will reset the sequencer to stage 1 (and low signal means free running) or the other way around. The input will not work unless you have connected either.

- You might consider using a black (bipolar) or gray banana jack for A-B out as the result can be negative. Traditionally the color seems to be blue (white), though.

## Bill of Materials

### Trimmers

1	5k*	Single-Turn for LED brightness - pick to match LEDs	e.g. Bourns 3362P-1-502LF (or whatever fits)
1	(25K*)	TR1 - OMIT!	Trimpot (Bourns 3362P or Vishay T73YP202KT20 or anything that matches the footprint). <b>Simply ignore!</b>

### Misc

1	MTA-156		MTA-156 power connector
8	LED lenses 3mm		e.g. SMB_200 RTP (Mouser: 593-2000R)
8	LED 3mm	low current	pick color to suit LED lens - panel pcb contains a 1k LED resistors (in addition to the trimmer), so pick brightness of LED to reflect that (i.e. not too bright)
8	Momentary Pushbuttons	OFF - (ON) <b>mind the direction when mounting!</b>	C&K Pushbutton: Mouser: 611-8125-222 Dress Nut: 611-702501201 Red switch Cap: 611-801803000
1	SPDT Switch	ON - OFF / ON - ON	NKK M2012SS1W01 (no cap) or NKK M2012SS1W01-BB (white cap) or similar
16	Potentionmeter 50k or 100k	linear (B50K or B100K)	Alpha 9mm vertical pcb mount available from Thonk, Tayda
16	Knobs		Davies or similar matching the pots
5	Banana Jacks	(red)	Emerson-Johnson Mouser: 530-108-0902-1 (red) or Thonk
3	Banana Jacks	CV / unipolar (blue or white)	Emerson-Johnson
or		or	Thonk / Mouser: 530-108-0910-1 (blue), 530-108-0901-1 (white)
2 + 1		2 white, 1 gray (A - B)	

## Building

This is simply a suggestion - you might find a different workflow more practical:

1. Install the power-header and the LED trimmer on the pcb.
2. Mount the banana jacks, the pushbuttons (top 2 pins are used, **NC pin should face towards the bottom!**), the LED lenses and the SPDT switch onto the front panel.
3. Mount the pots and the LEDs onto the pcb. **Pay attention to the orientation of the LEDs (long leg = +)**! Also, make sure, all legs of the pots found their way through the pcb. Don't solder them in yet.
4. Carefully mount the pcb onto the front panel. You may then have to wiggle each pot a bit to get the pots through. Make sure the threads of the pots go through completely and the pots sit right at the front panel. Screw the pots to the panel to make sure of that.
5. Push the LEDs into the LED lenses (they should snap in). Once everything is nicely in place and you didn't forget anything, solder pots and LEDs.
6. Solder the banana jacks in. You can either solder them directly to the surrounding vias (i.e. the ring around) or - which makes removing easier should you ever need to do that - by inserting a stiff (bare) wire into the little hole (via) and solder that wire to the top of the banana jack:



7. Connect a power cord supplying +12V, GND, GND, -12V to the MTA-header on the main board, (check that you didn't mix up the orientation!) and you should be ready to go :-)

## Calibration

No calibration required.

## Basic Use

- Pressing a button selects the stage and also sets the start point (and length) for sequences.
- While you push that button, the ALL GATE output is high, so you can use it to generate envelopes and have the SEQ8 act like a simple keyboard.
- Feed a pulse or other signal into CLOCK and turn the sequencer (switch) ON to get it running through the stages. A and B output the voltage (CV) set by the knobs of the active stage. A - B (A minus B) outputs the voltage difference.
- HOLD and (P)RESET (depending on the jumper setting) allow you to control the sequence. PRESET acts like RESET, just the other way round - one lets the sequencer run when the control signal is high, the other when it's low.
- UP/DOWN changes the direction, please note that in order to go down, a stage higher than 1 has to be selected.

## Tips and Tricks

- The CV outputs A, B and A-B generate quite precise output steps (sharp edges) and can be used at audio rates for wavetable-like or bitcrushing sounds by e.g. using a Serge NTO as a clock.
- Two sequencers are more fun than one - try combining the SEQ8 with a TKB or another SEQ8 or an NCOM for rhythmic effects and complex sequences.
- Let us know if you find a great patch or post a video!
- Have fun!

Last edited on 19. May 2018, 12:45 AM

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