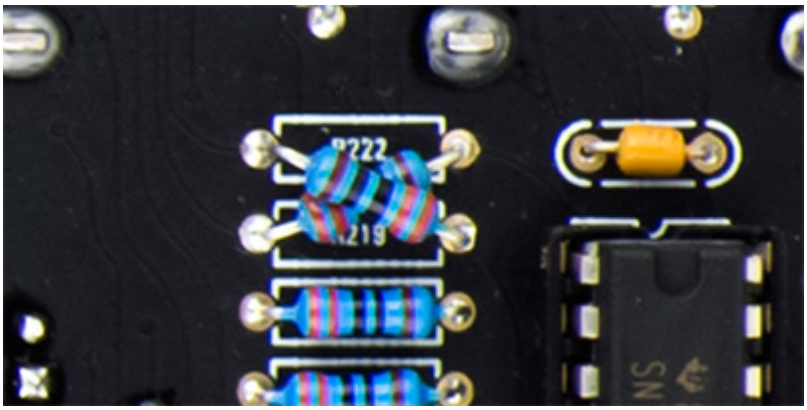
6.e. 248r V2 (THROUGH HOLE VERSION) RELEASE V2.5 ENHANCEMENTS

Release V2.5 improves CV Output “jitter”, fixes numerous bugs, and provides several enhancements. This software is *not* compatible with the V1 SMT version of the 248r.

1) OUTPUT PULSE LEDS

The Output Pulse LEDs are swapped. The hardware fix is a simple modification to cross resistors R219 and R222.



The software addresses this issue but to be compatible with boards built with and without these resistors crossed, a power-up sequence saves the correct configuration in eeprom.

- Power on the 248r while holding both Output Pulse 1 and 2 switches in the off/down position.
- Output Pulse LED 1 will start to blink but this could be either LED based on whether the above modification has been done.
- If Output Pulse LED 1 is blinking (resistors crossed) then press Output Pulse switch 1 to the on/up position to save this configuration.
- If instead Output Pulse LED 2 is blinking (resistors not crossed) then press Output Pulse switch 2 to the on/up position. This will save the configuration to reverse these LEDs in software.

2) EXTERNAL CLOCKING

External clocking is now enabled by driving both the Start and Stop jacks together. Advance will clock to the next stage.

The input impedance of each input is 6.9K through a diode. The pulse to the Start jack needs to be ~6.5V or greater. The driving module with a 10V pulse to both jacks needs to have an output impedance less than 2K2. If it is driving all four inputs then it needs to be less than 1K. Remember patching to other modules will reduce this even further.

The Start and Stop inputs are attenuated digital inputs to the processor and requires a low signal at the banana jack be < 3.4V and a high signal > 6.0V. Between 3.4V and 6.0V is not allowed / undefined. An issue arises with combination trigger/gate pulses. A 15/7.5V trigger/gate is seen as a single high input but a 10/5V pulse is seen as a high with the gate in the not allowed region. Resistors can be modified to raise this input impedance and lower the voltage thresholds. See modularsynthesis.com/roman/buchla248/248_mods.htm for details.

3) EXTERNAL CLOCKING SWING MODE

When driving the 248r with an external clock, the Time Range switches, Time Multiplier, and Interval Time sliders have no function. The Cont / Strobe switch is repurposed as a Swing Mode enable / disable switch. Pressing it down momentarily while externally clocking enables Swing Mode and pressing it up momentarily while clocking disables Swing Mode. Note this is a global, not a per-stage, setting.

When enabled, it will cause a second pulse to be output on the All Pulses jack. The time between pulses is controlled by the Time Range switches, Time Multiplier, and Interval Time sliders. If you want to "disable" swing mode on a particular stage, set the Time Range switch to 0.002 and the Interval Time slider to minimum for this stage. There are still two pulses but they are now very close together.

4) HARDWARE UPGRADES

There are several optional hardware modifications that will improve the performance of the V2 248r. See modularsynthesis.com/roman/buchla248/248_mods.htm for descriptions and details.