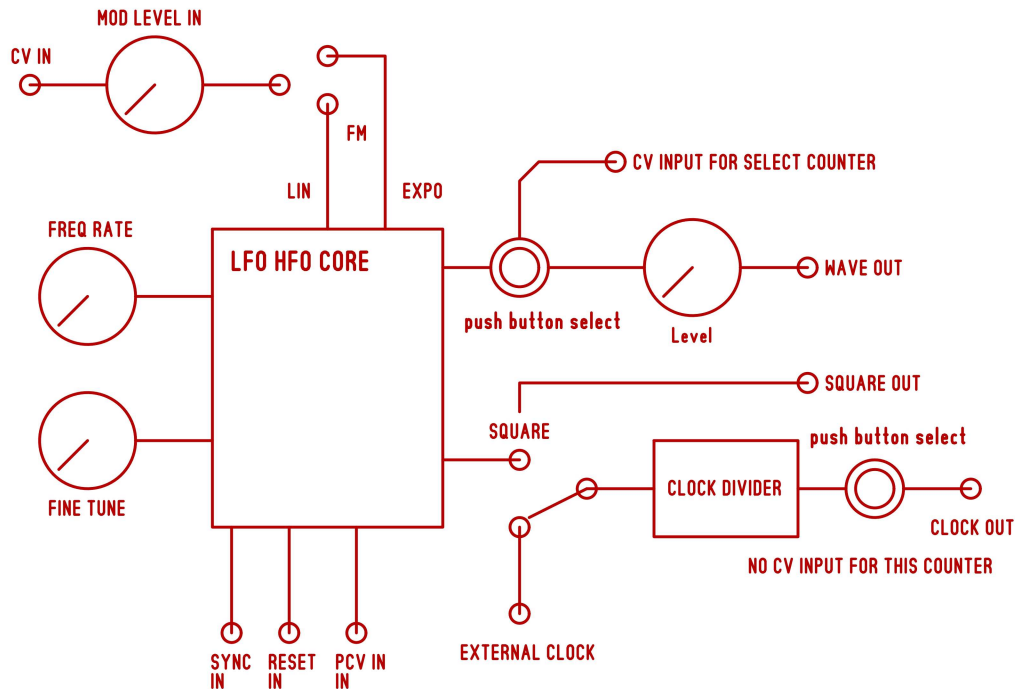




1. Frequency Control Knob: manual sweep control of the lfo frequency
2. Fine Control Knob: fine, manual control of the lfo frequency. At middle position is default.
3. PCV jack: 'Pitch Control Voltage'. This label is found on all Blue Lantern Products. This is an exponential 1v/octave input. In this particular product, it is for the lfo circuit.
4. Mod input Jack: This is used in conjunction with Mod Level Knob #6, and switch #5. This is an additional control voltage input for the lfo.
5. Linear or Expo Switch: This is used in conjunction with the Mod Level Knob #6 and Jack input #4. You select linear or exponential control voltage type for FM modulation of the LFO.
6. Mod Level Knob: This is an input attenuator for the MOD jack, and Linear/Expo Switch #5
7. Sync Jack Input: This is a direct hard sync input for the LFO circuit.
8. Pulse Width Knob: This is only used for the LFO pulse wave circuit. It has no effect on the other waves. The Pulse wave and Square wave are two separate waves and do not effect each other, so pulse width would not effect the Square Wave output.
9. Master LFO Level Knob: This is the wave output level control knob, this is used in conjunction with jack #10.
10. Wave LFO Output jack: This is the LFO output. This is used in conjunction with the #9 Level Knob, and wave select push button #11.
11. Wave Select Push Button: manual push button used to select the LFO wave. This can be trigger controlled with Jack #12 located on the top. You can use a pulse wave for perfect sequence count, or use other waves for semi-random/odd sequence counting. Counting refers to the LED sequence—top to bottom direction.
12. Trigger input jack for the Wave select counter/push button for the LFO circuit.

13. LFO or HFO Switch: this is used to select Low Frequency Oscillation or High Frequency Oscillation Ranges.
14. Clock Sq or EXT switch: This is used to select the clock input for the internal Divider circuit. When Sq is selected you are routing the internal LFO Square wave as the clock. When EXT is selected you are routing an external clock which would be patched into jack #15. It is normal behavior for the divider to keep doing it's thing if nothing is patched into the external input jack and the switch is set on 'EXT'. It will still use the internal clock. As soon as you patch the EXT-Clock jack it will use the independent clock.
15. EXT CLOCK jack: this is where you patch your own external clock signal for the divider circuit.
16. BEATS on or off Switch: this toggle switch refers to the output for the divider circuit. This controls what type of pulse you would like. On beat would be a digital pulse like so: 1010101010101010....., OFF beat would be the logic inversion pattern like this: 0101010101010101..... Now all of this has to do with the synchronizing of multiple other modules you own and how they interact with each other. Think of it like this: division would start on pulse #1 or start on Pulse #2. The Reset jack input also plays a role on the division circuit. If you reset and the toggle switch is set to on beat you get: restart--- 1010101010101010.....If you reset and the toggle switch is set off beat you get: restart-- 0101010101010101..... Hope this helps.
17. Select Division Push Button: this manually selects what division you want to use. Use the Leds to guide you which selection is currently activated. The Rotate Jack #18 is used to Trigger and control voltage the Push Button.
18. Rotate Trigger Input Jack: This is used to control voltage trigger the Divider Push Button. You can use a pulse wave for perfect sequence count, or use other waves for semi-random/odd sequence counting. Counting refers to the LED sequence—top to bottom direction.
19. RESET input jack: This is used to restart the divider. First logic pulse can be 0 or 1. This is dependent on the Beats On or OFF switch. Beats ON=1, Beats OFF=0.
20. Internal Divider Circuit Output Jack
21. LFO SQ output jack: This is a static Square wave. This is a positive only wave, roughly 0-5v output. This is good for using as a clock source.

The internal LFO circuit is using a Phase Lock Loop setup to oscillate. The various wave shapers are analog, and there is no digital emulation what so ever on this product. That is why there are so many parts on this thing.



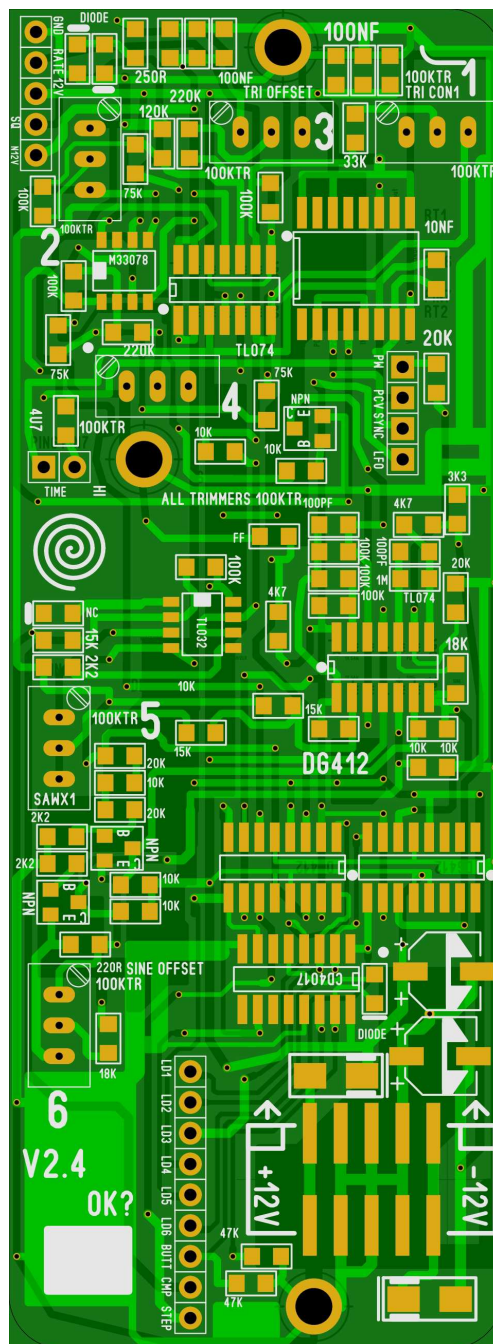
It is normal behavior for a PPL based oscillator to jitter in certain situations. Especially in FM modulation or SYNC. It gives it a Chip Tune type of flavor, as opposed to a perfect oscillator. This has 'sharp' edges as oppose to 'Super Smooth' like the Lunar Modulation Center VCO. This is all a good thing as you can get very interesting results with this product.

The internal Clock Divider circuit locks up on very high frequency rates. This is normal behavior. So if you use the Phobos Lunar LFO in 'HFO' mode, the clock divider will stop at very high frequency. This is using CMOS chips.

This product is an LFO. You can use this in audio rates (HFO mode), but this is not a precision tracking product like my other VCO's. However, you do get a very usable range (about 4 octaves on average).

The front panel LO and HI trimmers are used for 1v/octave adjusting.

The trimmers on the back of this product are used to adjust the wave shapes.



Trimmer 1 and 2 are used to adjust the triangle wave. Trimmer 3 is the Triangle Offset.

Trimmer 6 is used to adjust the sine wave.

Trimmer 5 is used to adjust the saw wave. Trimmer 4 adjusts the saw offset.