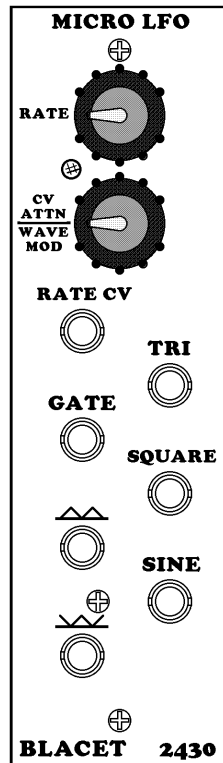


LFO2430

BLACET RESEARCH MODEL LFO2430 VCLFO Module

User Manual



Blacet Research 15210 Orchard Rd Guerneville CA 95446
blacet@blacet.com <http://www.blacet.com> 707-869-9164

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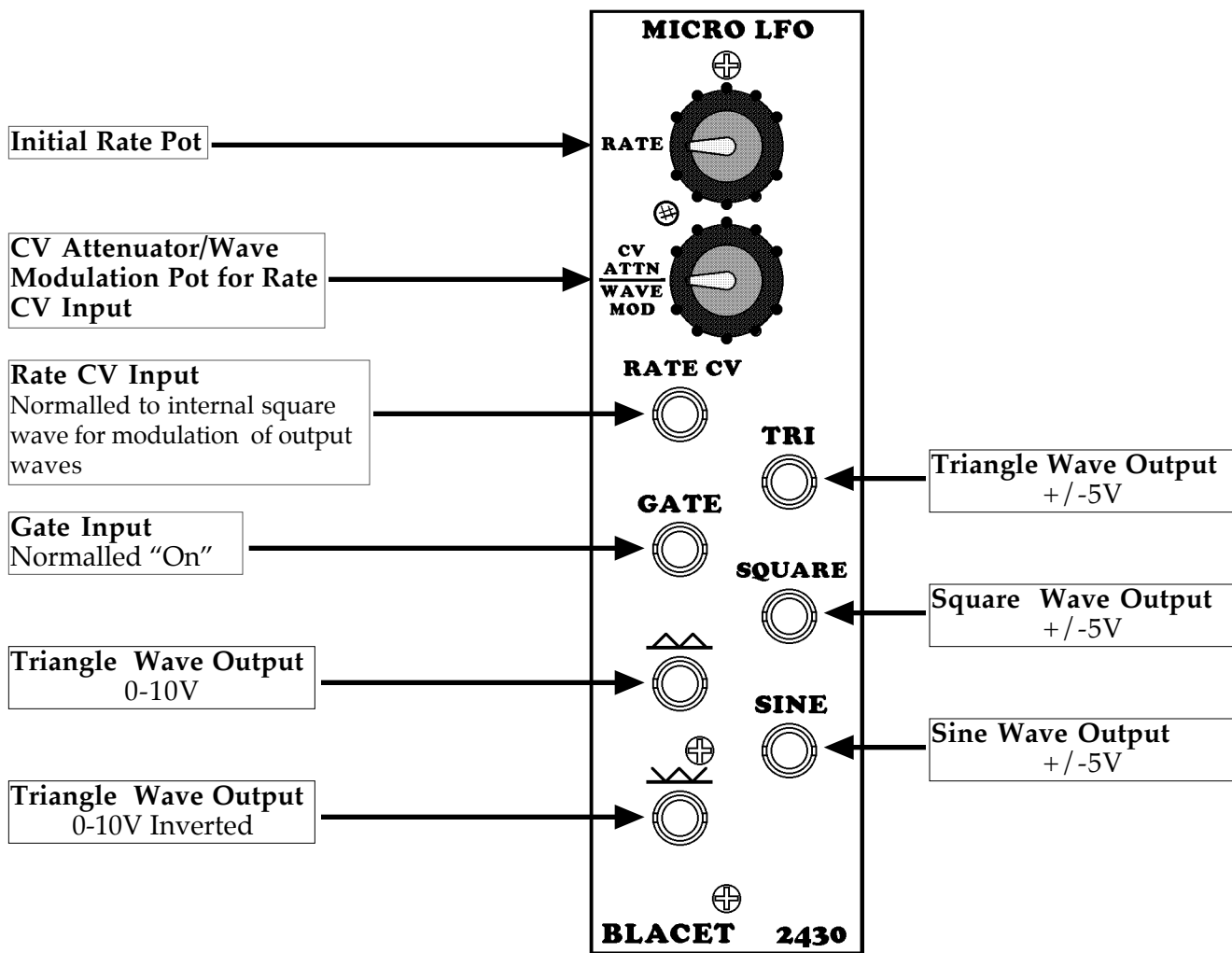
Introduction

The LFO2430 is a “basic”, voltage controlled low frequency oscillator (LFO). This type of module is great for adding low frequency modulation to any VC controlled module. For instance, vibrato when used with an oscillator.

Waveforms available include triangle, square, sine and two “above zero” waveforms especially useful for panning with our VCA2410.

The Rate CV input is normalled to an internal square wave. This allows you to modify the standard waveforms just by turning the CV Attn/Wave Mod pot. For instance, the square wave out will become a narrow pulse, and the triangle waves become ramps. Feeding any of the output waveforms back into this input will also result in many unusual waves.

A PCB DIP switch allows selecting LFO rates of 80S to 350 Hz or 15M to 32 Hz.



Controls and Operation

Rate Pot: Sets the initial frequency of the LFO.

Range DIP switch: (located on PCB) Select short or long LFO ranges. 80S to 350 Hz or 15M to 32 Hz

Rate CV Jack, CV Attn/Wave Mod Pot: External CVs can be scaled using this pot. Note that external waves or waves from the LFO itself can be used here. Note that any external input will also effect the LFO frequency so that adjustment of the Rate pot may be necessary.

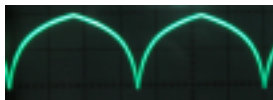
With no input, an internal square wave is normalled to the jack for wave modulation. This will result in narrowing pulses on the Square output and increasing sawtooth shape to the triangle waves. The Sine output will become a "curvy" saw. The screen shots below show maximum modulation:

Triangles, Inverted Triangle, Square, Sine

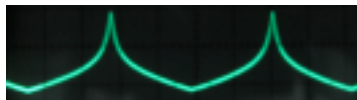


Plugging LFO waveforms into the Rate CV jack will result in the following waveforms.

Inverted Triangle Out with Triangle Modulation



Triangle Out with Sine Modulation



Sine Out with Triangle Modulation



You can also use any external waveform or mix of waveforms. For example, use a MX module to mix the Square and Triangle outputs back into the LFO. Observe the Sine or 0-10V Triangle waves on a 'scope. The MX "Square" channel will control the slew of the wave, while the "Triangle" channel will control the wave ramp from linear to log/antilog!

Gate Jack: This input is normalled to allow free running. When an input is desired, use a positive voltage to turn on the waveforms and ground to reset and turn off the waves. Note that some waves reset to mid levels, not to ground. See below.

Tri Jack: Outputs a triangle wave of +/-5V. Resets to ground.

Square Jack: Outputs a square wave of +/-5V. Resets to ground.

Sine Jack: Outputs a sine wave of +/-5V. Resets to ground.

Two "above ground" Tri Jacks: Outputs two out of phase 0-10V triangle waves. Resets to +5.

Note that at the highest frequencies, this circuit design may result in some significant offset voltages above ground or +5V when the LFO is reset.

Power Input Connector J8: This PCB connector requires a source of regulated +15Vdc and -15Vdc power to run the module. Use a Blacet PS500 supply or the equivalent.

Connections to J8 should be made only when the power supply is OFF and the connector must be positioned correctly on the pins. As using the wrong supply can cause damage to the unit, please contact us if you have any questions! Do not attempt to use "wall warts" to power the module.

Safety Information

The use of any audio equipment requires some care to avoid potential damage to the hearing of the operator or their audience. Even short term exposure to high audio levels can lead to temporary hearing loss and ringing in the ears. Repeated exposure can eventually lead to permanent hearing problems.

Your ears have to last you all your life; take a few precautions to keep them happy so that you can enjoy music even when you are older!

- When using mid to high volume levels, be aware that the ear will loose sensitivity at some point, causing you to turn up the volume to compensate. In an extended session, this can happen repeatedly, until the volume is quite high and potentially dangerous.

- Break up sessions into half hour segments; avoid “all night” jams.
- Take breaks often and choose a maximum volume setting for “mandatory” breaks.
- Try using very, very low volumes as a break.
- Music can sound quite different at low levels; use low volumes for initial setup and routine practice, saving high levels for final mixes.
- If your music starts to sound “painful”, it’s most likely causing hearing damage as well!

Specifications

Front Panel Size: 5.25 x 1.5" W

Module Depth: 3.5"

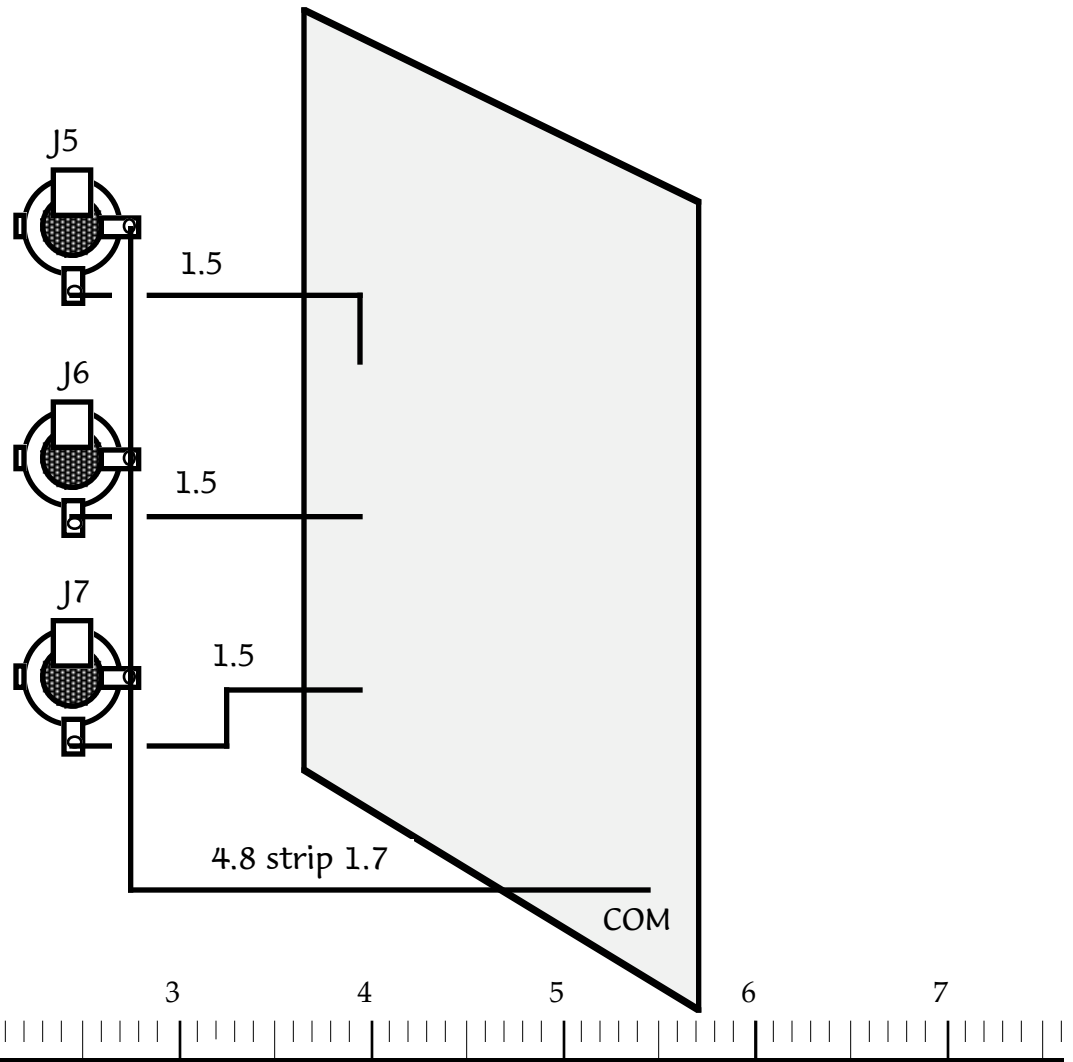
Waveforms: triangle, square, sine, ramp, pulse

CV Range: 0-10V

Frequency Range: 80S to 350 Hz or 15M to 32 Hz

Signal Level: 10V p-p,

Power: +/-15 Vdc @+40/-35 mA



Calibration

RT1 may be used to fine tune the sine wave for minimum distortion. This is best done by “ear”. Place the LFO range DIP switch in the “Short” position and turn up the Rate knob to maximum. Monitor the sine wave output at your mixer or amplifier. Adjust RT1 for fewest harmonics.

Troubleshooting, Repair, Warranty

If you encounter problems that you can't solve, contact us, preferably via e-mail with a description of the problem. Let us know what does and does not work. We can then help you get your module working. We can fix modules for a minimum fee of \$25.

The parts contained in this unit have been carefully selected and tested. They are guaranteed for 90 days from the date of purchase.

