



OSCAR TRIA²



INTRODUCTION

Oscar Tria² has, at its core, 25 multi-waveform oscillators. These oscillators can be used in three ways.

- Yellow Mode:

Super-saw! And super-square! And super-triangle! Yellow mode uses all 25 oscillators to form a 24 oscillator swarm and a square wave sub. You get the usual three waveforms – saw, triangle and square (with variable pulse width, of course) and you can continuously vary the waveform between the three. Being stereo you get up to 12 oscillators in one channel and 12 in the other, or sum them to mono if that's the signal path you want to use. Adding the sub makes a HUGE sound.

- Green Mode:

A stereo 'traditional' oscillator. Four oscillators are used – two main oscillators (one for each stereo channel) and two square wave sub oscillators – one an octave below the main oscillators – and a sub sub, two octaves below.

You can detune one oscillator for a rich stereo image – or sum the two outputs to mono and you have two oscillators with two subs, for a BIG mono sound.

Green mode also features through zero FM, hard sync and a wave folder.

- Orange Mode:

This is a chord engine, with 20 selectable chords. There are controls to select which chord you want and how many notes are played, as well as the octave span of the chord (up to five octaves). CV control allows you to set pitch and chord independently, so you can use Oscar Tria² for pads, for instance. Again, the output is stereo with detune control of one output.

So let's get into the details...

INSTALLATION

Be sure to turn off rack power before starting installation. Please observe precautions for static sensitive devices when handling the module.

Oscar Tria² uses a 16-pin Doepfer standard power cable. Please take care to ensure that the cable is fitted the correct way round.

If using the supplied power cable, the plastic lug on the top of the cable connector should fit into the slot in the plastic shroud around the PCB connector.

BASIC OPERATION

The mode switch selects between the three types of oscillators. The modes are colour coded and the colours correspond to the Page 2 controls shown on the front panel.

To keep Oscar Tria² as small as possible, each of the three larger front panel knobs has two functions for each type of oscillator. You switch between the two sets of functions using the PG (Page) toggle switch. A big, rude, red light tells you when you are in Page 2 (with the switch down).

As long as power is applied, Tria² remembers the knob settings from mode to mode, so you can set up a sound in one mode and switch to another, without losing the first settings.

Obviously, if you set a knob position in one mode, then switch to another mode and change that same knob, when you switch back there needs to be a way to re-synchronise the knob position.

Oscar Tria² uses the 'catch' method to do this. Simply turn the knob until it 'catches' the old value and you are back in control of that parameter.

Page 1 is always the same set of controls, whether you are using Tria² in Green, Yellow or Orange modes. The front panel shows these functions in white.

- The Waveform knob controls the oscillator's wave shape.
- The Pitch knob controls the overall tuning of the module.
- The Pulse Width knob controls the square wave pulse width.

The AUX1 and AUX2 CV input jacks do different things depending on Oscar Tria²'s mode, but the rest are single function.

The V/Oct input jack does what you would expect – it's the main pitch CV input for the module. There is no input attenuator for V/Oct.

The FM input can be used for vibrato etc., as well as linear, through-zero FM. The GAIN FM pot is the attenuator for this input.

The WAVE CV input jack controls the wave shape of the oscillators. The CV is added to the position of the waveform knob, so setting the knob to the triangle wave shape and inputting a bi-polar CV to WAVE CV will swing the waveform from saw, through triangle to square. The GAIN WAV pot is the attenuator for this input.

The other two toggle switches on the front panel are the Octave Select Switch and the Stereo/Mono switch.

TUNING

A quick note about tuning the Oscar Tria². The Pitch knob has a centre detent for 'normal' tuning and there is a 'dead zone' around the detent, so that you turn the knob away from centre for a little while before the pitch changes.

The Pitch control is also non-linear, so close to the centre position the tuning changes slowly, but you still get the full range of ± 1 octave as you turn further from centre.

The Detune control works the same way.

GREEN MODE

This is the mode for those traditional synth sounds. Green mode provides two main oscillators – one for each output channel – making a stereo pair. Switching the Stereo/Mono switch to Mono sums the two oscillators and feeds the result to both output jacks. This is great for those fat, detuned, two oscillator sounds.

There are also two sub oscillators, one an octave below the main pair and a second (sub sub) an octave below that. The waveforms of these two subs are square waves.

As well as the usual Page 1 controls, switching to Page 2 maps the knobs as follows:

- The Waveform knob becomes the level control for the sub oscillator.
- The Pulse Width knob becomes the level control for the sub sub oscillator.
- The Pitch knob controls the Detune of the second oscillator.

In Green Mode, Oscar Tria² adds a wave folder to the two main oscillator outputs (the subs aren't folded – wave folding a square wave is pretty dull experience). The FOLD DETN SPRD knob controls the amount of folding, with CV

control provided by the AUX2 CV input (with its associated GAIN A2 attenuator knob).

AUX CV1 input is used to provide hard sync. Each rising edge on the signal applied to this input (with the GAIN A1 attenuator turned up, of course) resets the phase of the oscillators to the beginning, for those classic 'ripping' sync sounds.

YELLOW MODE

Yellow mode transforms Oscar Tria² into a massive oscillator swarm.

Once again, Page 2 remaps the knobs as follows:

- The Waveform knob sets the number of oscillators used in the swarm. Around about the 10 o'clock position replicates the 6-8 oscillators used in sounds like the Roland Super-Saw. Fully clockwise unleashes all 24 main oscillators, 12 in each output channel. Switching to mono sums all 24 main oscillators (and the sub) to both outputs.
- The Pulse Width knob controls the level of the additional square wave sub oscillator.
- The Pitch knob pans the outputs. There is CV control of pan using the AUX 2 jack and attenuator.

Note that the oscillator swarm is not limited to super-saw waveforms. The Waveform knob will continue to vary the wave shape, so you can get a super-square (which sounds even bigger with some slowly modulating PWM CV), or even a super-triangle, which is more subtle than the other extremes.

In Yellow mode, the FOLD DETN SPRD knob controls the amount each oscillator is detuned from the centre frequency. This is also CV control of this function using the AUX 1 jack and attenuator.

ORANGE MODE

Oscar Tria² does polyphony. Orange mode uses Tria²'s multiple oscillators to play chords. Each note of the chord is still played by two oscillators – one for each of the stereo outputs.

The Page 2 controls in Orange mode are as follows:

- The Waveform knob selects which chord Tria² plays. There are 20 chords available – they are listed in Appendix 1. AUX 1 also controls the chord selection. This allows, for instance, a channel of a sequencer to be used to control pitch, and a second channel to control the chord selection.
- The Pulse Width knob controls how many notes of the selected chord are played. Fully anti-clockwise reduces the chord to a single note. Turning the knob clockwise adds more and more notes. The AUX 2 CV input can also control this function.
- The Pitch knob controls the detune of the second oscillators.

The FOLD DETN SPRD knob controls the maximum number of octaves over which the chord is spread, from two to five.

APPENDIX 1 - CHORDS

The chord engine in Orange mode produces these chords:

Chord Position	Chord Type	Notes
1	Major Triad	Root, major third, perfect fifth
2	Minor Triad	Root, minor third, perfect fifth
3	Diminished	Root, minor third, diminished fifth
4	Augmented	Root, major third, augmented fifth
5	Major 7	Major triad + major seventh
6	Minor 7	Minor triad + minor seventh
7	Dominant 7	Major triad + minor seventh
8	Half Diminished 7	Diminished triad + minor seventh
9	Diminished 7	Diminished triad + diminished seventh
10	Major 6	Major triad + major sixth
11	Minor 6	Minor triad + major sixth
12	Suspended 2	Root, second, perfect fifth
13	Suspended 4	Root, fourth, perfect fifth
14	Major 9	Major7 + major ninth
15	Minor 9	Minor7 + major ninth
16	Dominant 9	Dominant7 + major ninth
17	Add 9	Major triad + major ninth
18	Minor Add 9	Minor triad + major ninth
19	Augmented 7	Major third, augmented 5th and 7th
20	Suspended 2 Add 6	Suspended2 + major sixth

APPENDIX 2 – SPECIFICATIONS

Width: 10HP

Power Consumption:

+12v: 180mA

-12v: 50mA

+5v: 0mA

Inputs:

V/Oct CV: Volt per Octave pitch CV

FM CV: Linear through zero FM CV $\pm 12V$ max

WAV CV: $\pm 5V$ nominal, $\pm 12V$ max

AUX CV1: $\pm 5V$ nominal, $\pm 12V$ max

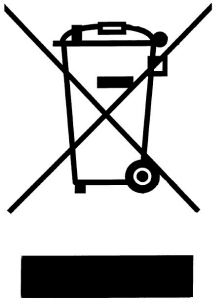
AUX CV2: $\pm 5V$ nominal, $\pm 12V$ max

PWM CV: $\pm 5V$ nominal, $\pm 12V$ max

Outputs:

Dual/Stereo: $\pm 5V$ nominal, $\pm 12V$ max

IMPORTANT SAFETY INSTRUCTIONS



Correct disposal of this product:

This symbol indicates that this product must not be disposed of with household waste according to WEEE Directive (2012/19/EU) and your national law. This product should be taken to a collection centre licensed for the recycling of waste electrical and electronic equipment (EEE).

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