



OSCAR TRIA



INTRODUCTION

Oscar Tria packs a lot of VCO into 10HP. There are three main modes described below – though we'll go into more detail on each later in the manual.

1) Green Mode:

A stereo 'traditional' oscillator. In Green Mode you get the usual three waveforms – saw, triangle and square (with variable pulse width, of course) but you can continuously vary the waveform between the three. For instance, by turning the waveform knob to be just to the saw side of triangle, you get a sound very much like the Minimoog's 'shark tooth'.

Green mode also gives you a square wave sub oscillator – one octave below the main oscillators – and a sub sub, two octaves below.

Oscar Tria is stereo, of course, so 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 sound.

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

2) Yellow Mode:

Super-saw! And super-square! And super-triangle! With a sub (of course). Yellow mode allows you to control the number of oscillators making up the super-whatever, from one (not really super) to 24! Again, being stereo you get up to 12 oscillators in one channel and 12 in the other. Add the sub for a HUGE sound. It's fun to set up a super-square with pulse width modulation from a VCO.

3) 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 (over two octaves). CV control allows you to set pitch and chord independently, so you can set up a polyphonic sequence, 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.

AlphaPro 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

To keep Oscar Tria as small as possible, each of the three larger front panel knobs has two functions in each mode. So long as power is applied, Tria 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 Tria 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.

You switch between the two sets of functions using the PAGE toggle switch. A big, rude, red light tells you when you are in Page 2.

Page 1 is always the same set of controls, whether you are using Tria 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.

We'll describe Page 2 controls in each of the Mode sections below.

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.

The other two toggle switches on the front panel are the Octave Select Switch and the CV Select Switch (again – we'll describe the CV inputs in the Mode sections), though the PWM CV input always controls the square wave pulse width.

TUNING

A quick note about tuning the Oscar Tria. 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.

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 stereo channel oscillator.

With the CV MODE toggle switch in the up position, the two VPO (Volt Per Octave) CV inputs are summed. This allows, for instance, an overall pitch CV and a vibrato LFO to be connected without an external sub-mixer. Each CV has an attenuator. Note that, unless you are into micro-tonal scales, the main pitch CV attenuator should be fully clockwise to accurately track volt per octave.

Switching the CV MODE toggle switch to the down position, changes the right hand VPO input to be a linear, through-zero FM CV. This is a true FM input rather than the Phase Modulation you usually get with a digital oscillator.

AUX CV1 controls the wave shape from 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 AUX CV1 will swing the waveform from saw, through triangle to square. There is an attenuator for this CV input.

In Green Mode, the AUX CV2 input is used to provide hard sync. Each rising edge on the signal applied to this input (with the attenuator turned up, of course) resets the phase of the oscillators to the beginning, for those classic 'ripping' sync sounds.

YELLOW MODE

Not for the faint of heart, Yellow mode transforms Oscar Tria into a massive oscillator swarm.

Once again, the Page 2 controls remap the knobs as follows:

- The Waveform knob sets the number of oscillators used in the swarm. Fully anti-clockwise reduces the oscillators to one per channel. Around about the 10 o'clock position replicates the 6-8 oscillators used in sounds like the Roland Super-Saw. Fully clockwise unleashes 24 oscillators, 12 in each output channel.
- The Pulse Width knob controls the level of an additional square wave sub oscillator.
- The Pitch knob controls the Pan of the stereo outputs. This is a true, stereo pan rather than a 'balance' control so, for instance, if you are working in mono and want all 24 oscillators, just set the pan to be fully (for example) left and just use the left output.

Note that the oscillator swarm is not limit 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 two VPO (volt per octave) CV inputs are summed – FM is not available. The AUX CV1 controls wave shape, as with Green mode, and AUX CV2 controls the pan.

ORANGE MODE

Oscar Tria does polyphony. Orange mode uses Tria's multiple oscillators to play chords. The Page 2 controls in Orange mode are as follows:

- The Waveform knob selects which chord Tria plays. There are 20 curated chords available – they are listed in Appendix 1.
- 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, spread over two octaves.
- The Pitch knob controls the detune of the stereo oscillators.

The VPD CV inputs are, once again, summed in Orange mode.

With the CV MODE toggle switch in the up position, AUX CV1 controls the wave shape as usual. However, switching CV MODE down allows AUX CV1 to control the number of notes in the chord.

AUX CV2 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.

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: 200mA

-12v: 50mA

+5v: 0mA

Inputs:

VPO CV [Zero attenuation]: Volt per Octave

VPO/FM CV [Zero attenuation]: Volt per Octave or linear FM

AUX CV1 [Zero attenuation]: $\pm 5V$

AUX CV2 [Zero attenuation]: $\pm 5V$

PWM CV [Zero attenuation]: $\pm 5V$

Outputs:

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