

The **ODDITY**

Virtual Analogue Synthesiser



Manual

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The Oddity odyssey.

Synthesiser mythology tells it that back at the dawn of time, (well, at least the 1970's), any self-respecting keyboard player proudly displayed one of two synthesisers when called upon to fulfil the demands any synth duties. Those two synthesisers were the MiniMoog and the ARP Odyssey and as you would expect, the debate as to which was the better instrument raged equally as hard back then as the analogue vs digital and Mac vs PC debates rage today.

Fortunately, to those more enlightened musicians of that period, and those who've revisited these instruments in recent years, while it was clear there were distinct differences between the tones and timbres of each, it's impossible to claim an outright winner as each excelled at specific sounds. They were, quite simply, wonderfully different.

So why was the Odyssey occasionally considered the poorer relation of the two? Well, as self-certified Odyssey addicts we have our own theories:

Firstly and significantly, the name Moog is as synonymous with synthesisers as the name Hoover is with vacuum cleaners.

Secondly there was cost. It's easy to forget in these days of cost effective plug-ins that synth technology was very expensive and in the majority of cases a keyboard player was limited to one synth simply by budget constraints: a new Odyssey cost \$1500 in 1972!

Thirdly, there were the operational differences between each synth, which surely, must have been influenced by both Pearlman and Moogs' backgrounds. Bob Moog had a firm grounding in electronic musical applications such as his Theremin kits, whereas ARP founder Alan R Pearlman, despite playing piano from the age of three, came from a background that included designing amplifiers for the Apollo and Gemini space programs. He is also on record as saying that the world of musicians was alien to him, so perhaps that's why the MiniMoog had a musician-friendly feel about it, while the Odyssey appeared on the surface to be much more 'techie'.

Certainly the Odyssey's strangely calibrated, colour coded 'tic-tac' like sliders were not as conducive to quick and accurate tweaking in the same way the MiniMoog's rotary knobs were. And with this control method, the techie

looking front panel and the obvious lack of patch storage, it's been mooted more than once that it was almost impossible to get the same sound twice - even with the aid of front panel overlays. Compounding the issue, the oscillator tunings were marked in hertz and there was no A=440 tone for tuning reference, which ultimately meant that using an Odyssey live and changing sounds while keeping it in tune was not for the fainthearted.

Finally, there was the much debated tonal differences. Popular myth has it that Moog's were warm and mellow whereas ARPs were thin and bright, and whilst there's an element of truth in this, only the terminally idiotic would malign these differences. After all, surely it's these tonal distinctions and contrasts which account for why sounds from an ARP, Moog, Sequential or Oberheim are as welcome and recognisable now as they were in those halcyon days?

Opinions and speculation notwithstanding, the ARP sound combined with all its unique and quirky attributes added such enormous character to the instrument that it quickly became a classic in its own right with artists as diverse as Joe Zawinul, Herbie Hancock, Stevie Wonder, Jean-Michel Jarre, Ultravox, Pete Townsend, Jimmy Page, George Duke, Tom Costa and countless others embracing it wholeheartedly. Similarly, if you watched TV or saw any films in the 70's you'll also have heard the famous ARP sound on Planet of the Apes, McCloud, Enter the Dragon, The Taking of Pelham 1-2-3, as well as Columbo, Kojak and Cannon, courtesy of West Coast synth wizards Clark Spangler and Jerry Goldsmith.

So what exactly was that sound? Well, anyone claiming it was exclusively thin must have had heavily retarded programming skills - edgy is perhaps a more suitable adjective. But with minimal effort it's easy to extract warm, fat tones too. However, one area where the Odyssey stood head and shoulders over its rivals was when creating sound effects. Wind, seashores, bombs, sirens and 'sample and hold' rhythms simply fall out of this machine and those with the patience to tinker and experiment were richly rewarded with all manner of unique soundscapes that couldn't have been achieved by any of Tom or Bob's babies. In short, the Odyssey had balls, bite and an aggressive quality, lacking in all the majority of its contemporaries - not dissimilar to a lot of plug-in synths really!

Continued on page 6

But why isn't the Odyssey seen as regularly as its arch-rival on and in today's stages and studios?

Well, as a performance synth it's problematic: Those sliders have a habit of breaking and it's very difficult to find replacements. For live use its lack of memories is a real drawback and as we mentioned earlier changing sounds in real-time is fairly traumatic, even though ARP's oscillator stability was considered superior to its rivals. Plus, despite the fact that in the mid 70's ARP held a phenomenal 40% share of the US synthesiser market, there were reportedly only about 3,000 Odyssey's made, (as opposed to the MiniMoog's 13,000), and as such, good examples are becoming increasingly difficult to find. Finally, to add further confusion to prospective Odyssey hunters, there were several filter revisions across three marques, distinctive by either their white face, black face with gold lettering or black face with orange lettering.

Purists argue to this day as to which version is the best but we won't go into here as there are a host of web resources dedicated to this question and more. However, we at GMEDIA Music fell in love with the Odyssey several years ago after buying a MkII (a black one with gold lettering, 2813 with PPC and a 4075 filter) in perfect condition. Sure, the calibration of the sliders was an interesting contrast to most modern synthesisers and the keyboard action was flabby – but it had... that sound! That sharp, searing, yet funky tone which was once described (admittedly by ARP) as taking the ultimate musical trip. And the more we used it, the more we thought about how, in much the same way as with the M-Tron, we would love to introduce this sound to a whole new audience and a whole new working environment.

Enter Ohm Force, one of the premier plug-in developers with similar attitudes to those early synth pioneers – namely inventive, adventurous and not afraid to deliver something different, so long as it's inspiring. And at Frankfurt 2002 the Oddity was born (at least on paper anyway) as a joint venture between GMEDIA Music and Ohm Force under our GForce banner.

The Oddity name was coined because of its unique character, tonal possibilities and operational slant. This synth, revisited as a plug-in, is truly singular, one of a kind. And while we have done everything within our grasp to faithfully recreate the essence of the original, naturally we have added new features that we hope will help turn a vintage classic into a modern master as well as enhance the creative process.

The creation of the Oddity has been a true labour of love and we hope

anyone who purchases it will understand and appreciate just how unique the original was, and why, in these enlightened times of plug-in technology, all of those comparisons of old are finally redundant.

Odyssey web resources:

www.overacker.com/ody/directory.html

www.keyboardmuseum.org/ar/a/arp/arp.html

www.synthmuseum.com/arp/index.html

www.synthfool.com

www.vintagesynth.com/

www.physicsenterprises.andrews.edu/diy_archive/manuals/arp/index.html#Ody

www.sonicstate.com/synth/arpodyssey.cfm

Odyssey book resources:

A-Z of Analogue Synthesisers (Part One. A – M) – Pete Forrest

Vintage Synthesisers – Mark Vail.

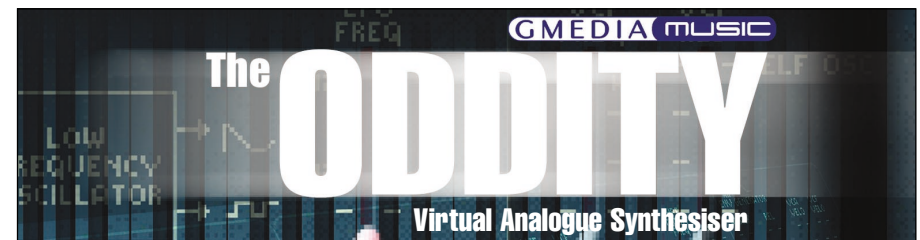
Without whom dept:

Alan R Pearlman and all those responsible for the Odyssey.

The magnificent Ohm Force team: Laurent de Soras, Jérôme Noël, Raphaël Dingé, Franck Bacquet, Vincent Frison, Eric Cestari, Gregory Makles, Vincent Birebent and Ian Finney.

Angus Hewlett, Jim Wintermyre, Nick Thompson and Jason Field.

Sound Design: Dave Spiers and Dave Blakely



This Manual: Dave Spiers, Ian Legge and Chris Macleod.

Overview

Polyphony	Monophonic: VCO1 and VCO2 – High and Low note priority. Duophonic: VCO1 – Low note priority. VCO2 – High note priority.
Oscillators	2 VCO's: saw, square, pulse, PWM (can be modulated by: sine LFO or ADSR envelope), white/pink noise; oscillator-sync modulated by: ADSR, square/saw LFO, Sample-and-Hold.
LFO	Sine/Square; Sample-and-Hold.
VCF	Four-pole resonant 24dB lowpass filter, highpass filter; can be modulated by: kybd track, Sample-and-Hold, sine LFO, ADSR, AR, ring modulator.
VCA	EG 1: AR. EG 2: ADSR

Flying sliders and mouse movements.

Although we've endeavoured to stay true to the original instrument, obviously it made sense to add some additional features. Most of these are self-evident and are covered at the appropriate points within this manual. However, one of the functions that you should be aware of at this stage is the ability to 'throw' the sliders via the mouse.

If you want to throw the slider from bottom to top, first position your mouse pointer about half a centimetre above the slider, directly over the slider recess. Then, while holding the mouse button down, drag the arrow along the slider recess releasing the mouse button as you throw the slider. You'll see that the slider moves until it reaches the very top. To throw a slider from top to bottom, repeat the process only this time start about half a centimetre below the slider and click and throw downwards. The quicker you move the mouse, the faster the slider will move. All movements can be recorded within your host application.

The Oddity's sliders respond to horizontal mouse movements. Placing the mouse pointer next to a slider and moving it horizontally allows very accurate changes in parameter values, the exact value being shown in the Current Parameter window.



Understanding the Oddity

Although the Oddity is not a true modular synth, the key to understanding it is to consider each section as a module into which you feed another 'source' or 'signal'. The colour-coded sliders are also crucial to understanding much of the internal routing and relationship between many of the parameters.

For example, the Coarse and Fine tune sliders on VCO1 are coloured blue, so too is the slider that determines the amount of VCO1 fed into the Audio Mixer. Additionally, provided the waveform of VCO1 is switched to square wave, (set using the switch underneath the blue VCO1 Audio Mixer slider), the blue Pulse Width slider back in the VCO1 module becomes the controller to change the Pulse Width.

To avoid confusion with the second oscillator you'll notice that the VCO2 Coarse and Fine tune sliders are coloured green, as are the appropriate matching Audio Mixer Level and Pulse Width sliders. Once you get your head around these relationships, operating the Oddity becomes very intuitive.

WARNINGS:

The Oddity is a wild beast and capable of extreme sounds. Occasionally, you'll also find that it not only requires all the audio headroom on your sound card, it may exceed it too. Please be mindful of this and always keep an eye on your sequencer's audio instrument level.

We've tried to keep the CPU load of the Oddity to a minimum and in normal use it shouldn't take up too much host processing power. Because of the way the Sample and Hold Mixer module operates, whenever a modulation using the Sample and Hold Mixer output is enabled there can be a marked increase in CPU load. This is due to the fact that in order to make it work as per the original instrument, we've had to bypass several optimizations. When programming your own sounds try to be mindful of this, if you don't need to use it optimise performance by turning it off.

Installing the Oddity

Included on the Master CD are multiple versions of the Oddity.

The Oddity installer allows you to install any or all versions via a single installer; one for Mac and one for PC. Insert the Oddity Master CD into your CD ROM drive and select the Oddity installer applicable to your machine type, PC or Mac.

Please follow the on-screen instructions carefully entering your unique User Name and Registration codes EXACTLY as you find them printed within your "Getting Started" guide or from the email you received after purchase.

Finally, launch the plug-in host and load the Oddity into an instrument channel.



Mac Installer Shown

Registration

Please take time to register your Oddity on-line at:
<http://www.gforcesoftware.com>
is required to receive free technical support.

Quick Guide

Having installed the Oddity, select it as an instrument within your host application and open the Oddity's edit window, its main screen. The Oddity uses two specific file types; Presets, individual sounds, and Preset Banks (.pbk), groups of up to 64 Presets. Preset Banks can be used within the Oddity on either PC or Mac platforms. If a .pbk file is created within a Windows host these files can be utilised by an Oddity operating on a Mac host, and vice versa. For specific details of each module parameter please refer to their section within this manual.

Continued on page 11

Loading Preset Banks.

When an Oddity is first opened the default sound "80's Bass" will be loaded but initially you will see "<<Click Here>>" in the 'Current Preset' window.

Clicking on this text will open a drop-down menu from where

you can select any one of the 64 Presets from the default set, 'OddityBank01.pbk'. Having opened the drop-down menu, a tick will appear next to the selected Preset.

Loading Preset Banks.

To load a Preset Bank (.pbk) simply click on the 'Load' button and navigate to your host application's VstPlugIns/GMEDIAMusic/Oddity folder where you will find the six installed Preset Bank files. Select the bank you wish to load and then audition the Presets using the method shown above.

Understanding and saving edited Presets and Preset Banks.

The Oddity uses two file types, Presets and Preset Banks (.pbk files). Presets are individual sounds and Preset Banks are groups of up to 64 Presets. Presets must be saved as part of a Preset Bank to hard-disk.

Saving an edited Preset in a new Preset Bank:

1. Click on the 'Load' button and select the 'Template.pbk'. This loads the 'Template.pbk' into the Oddity's background memory, your edited Preset remains the active Preset and still appears in the 'Current Preset' window.
2. Move the 'Memorise' switch to its upper position.
3. Click on the Preset name in the 'Current Preset' window to open the Preset drop-down menu. Now select the position you wish to save your Preset in.
4. Click on the 'Rename' button to rename your new Preset. The new name will now appear in the drop-down menu in the position you saved your new Preset and in the 'Current Preset' window.
5. **VERY IMPORTANT.** Presets are only saved to volatile RAM and must be saved as part of a Preset Bank (pbk) to hard-disk. Click on the 'Save' button to save your current set of Presets as a Preset Bank. **If you do not save edited Presets in a Preset Bank to hard-disk they will be lost when you quit your host application.** Name your new set with a name of your choice and then use this as the basis for any new Presets you create. Using this method you can create various Preset Banks, basses, effects, leads etc.



The Oddity Modules

1 Common Controls

A=440Hz tone switch.

A useful guide for tuning the oscillators – not included on the original instrument.

A440
TONE
ON
OFF

Pink/White Noise switch.

White noise contains all the frequencies in the audio spectrum in equal amounts. Pink noise is more useful in musical terms because it contains equal energies of each frequency and as a result doesn't sound too low and rumbling nor too high and hissy. Useful for creating wind and thunder noises or adding 'grit' to drum sounds.

NOISE
GENERATOR
WHITE
PINK

Mono/Duo switch

Use this to change between monophonic and duophonic modes. Using mono mode can help speed up the tracking of notes and allow for cleaner note triggering. However, the duo mode, particularly when used with the ring modulator, is great for playing monophonic parts where adding a second note can introduce some wonderful harmonic overtones.

MONO
DUO

Pitch-Bend Range selector.

Selects the amount of semitones that the pitch-bend wheel works across (switchable between +2, +12 or +24 semitones).

BEND
RANGE
+2
+12
+24

Pitch-Bend knob.

Frequency shift. Responds to external pitch-bend controller information.

FLAT
SHARP
PITCH BEND

Portamento slider.

Determines the amount of 'glide' between one note and the next played. Ranges between 0 and 1500 milliseconds.

PORTAMENTO
MAX
MIN

2 Voltage Controlled Oscillator 1 (VCO1)

Low Frequency or Keyboard Trigger switch.

Normally set to AUDIO KYBD ON to allow you to trigger VCO1 via the keyboard. However, selecting LF KYBD OFF lowers the frequency of VCO1 to below the human hearing range. When a note is played you'll hear a clicking sound instead of a tone, the speed of which can be changed by adjusting the (blue) Coarse and Fine tuning sliders. With LF KYBD OFF, VCO1 can be used as a second LFO via the S/H module.



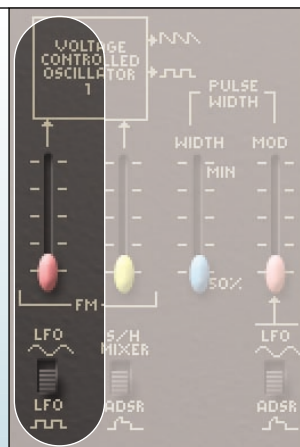
VCO1 pitch control (blue) Coarse and Fine tune sliders.

Unlike many synths which used knobs with fixed increments from which to select pre-defined octaves, the Oddity has two variable sliders. The first slider controls the Coarse tuning and covers a range of six octaves. The second determines the Fine tuning amount which has a range of + or - one semitone. The best way to deal with tuning issues is to use the Coarse tune slider to find the approximate range before using the Fine tune for more precision.



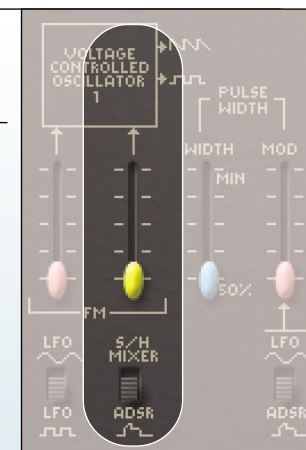
Frequency Modulation (FM) slider (pink) and LFO Modulation source switch.

The pink FM slider governs the depth of modulation introduced by either of the two waveforms selected by the switch underneath. With the switch set to the upper position the LFO is set to a sine wave and altering the pink FM slider introduces a greater or lesser vibrato depth. With the switch set to the square wave, moving the slider will modulate VCO1 between the note played on the keyboard and a second note. Moving the slider will alter the pitch of the second note up to a maximum of one octave. Using this, it's easy to create an effect similar to that of a trill. Use the LFO Freq slider (pink) to change the speed of the trill.



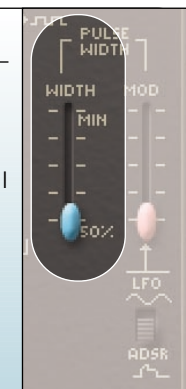
Frequency Modulation slider (yellow) and S/H Mixer (Sample and Hold) or ADSR modulation source switch.

The yellow FM slider governs the depth of modulation introduced by one of two sources selected by the switch underneath. With the switch set to the upper position, the pitch of VCO1 is modulated by the output of the S/H Mixer (or Sample and Hold Mixer). For an example of how this works, first raise the blue slider in the S/H Mixer to the top. Then select VCO1 square wave with the switch underneath. Finally, open the yellow slider in the VCO1 module making sure you've selected S/H on the switch underneath. What you should hear now is a series of different random pitches, the speed of which is determined by the pink LFO Freq slider. Try changing the S/H Mixer source underneath the blue slider from VCO1 Square Wave to VCO1 Sawtooth and listen to the difference. Changing the switch position from S/H to ADSR allows the ADSR envelope generator to modulate the pitch of VCO1. The depth of this modulation is determined by the yellow slider. One of the secrets to making the Oddity sound 'fat' is by opening this slider by a few percent and compensating for the resultant change in pitch by re-tuning VCO1. This way it's possible to introduce very subtle pitch modulation.



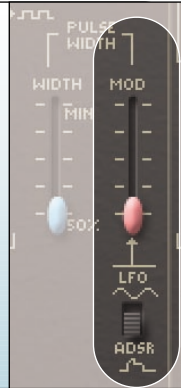
Pulse Width slider (blue)

The square wave on the Oddity can also be turned into a variable pulse wave with the help of the Pulse Width slider. You'll notice that this slider is marked between 50% and minimum. The normal square wave at 50% has a 'hollow' sound to it. However, when you move the slider towards the minimum mark, as the pulse becomes thinner, the sound becomes more buzzy. Play a note and move the Pulse Width slider up and down and you'll hear the difference.



Pulse Width Modulation slider (pink) and LFO sine wave or ADSR modulation source switch.

You can also modulate the pulse width with either an LFO generated sine wave, or by the Envelope Generator. With the switch set to ADSR it's possible to sweep the pulse width in much the same way you would sweep the filter. Alternatively, if you select the sine wave, the pulse width will modulate according to the depth set by the Pulse Width Modulation slider and the speed governed by the LFO Frequency slider.



3 Voltage Controlled Oscillator 2 (VC02)

Sync On/Off switch

With this switch in the OFF position VC02 behaves in the same manner as VC01 and contains largely the same controls and functions. However, when this switch is changed to ON this phase synchronises VC02 to VC01. Regardless of whether the selected waveform shape is sawtooth or square, sync causes the waveform of VC02 to restart whenever VC01 is triggered. The resulting effect is that the harmonic sound of VC02 will change as the Coarse and Fine tune sliders for this oscillator are altered.

For further explanation of phase synchronisation see the tutorial on page 30.



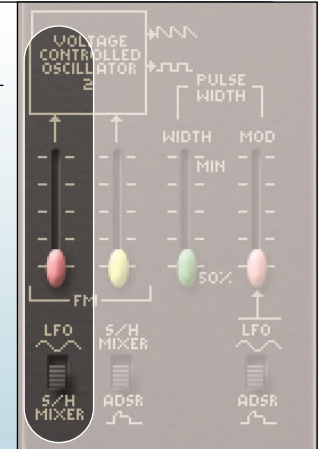
VC02 pitch control (green) Coarse and Fine tune sliders.

The VC02 Frequency sliders behave in exactly the same way as the VC01 Frequency sliders. The first slider controls the Coarse tuning and covers a range of six octaves. The second determines the Fine tuning amount which has a range of about one tone. If you want to 'fatten' up a sound using two oscillators, try tuning the first one slightly sharp and the second one slightly flat.



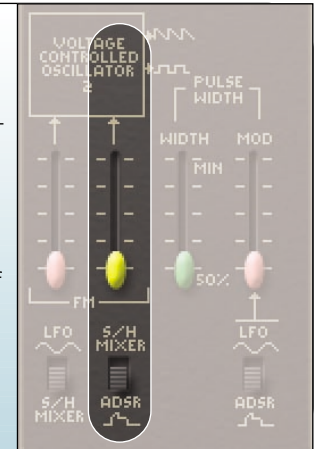
Frequency Modulation slider (pink) and LFO or S/H Mixer switch.

As per VC01 the pink FM slider governs the depth of modulation introduced by either of two waveforms selected by the switch underneath. With the switch set to the upper position the LFO is set to a sine wave and altering the pink FM slider introduces a greater or lesser vibrato depth. With the switch set to S/H Mixer you can use the slider to introduce the settings as specified in the S/H Mixer Module (see S/H Mixer on page 19).



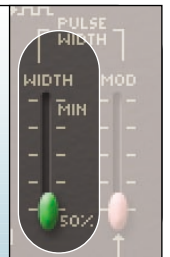
Frequency Modulation slider (yellow) and Sample/Hold or ADSR modulation source switch.

In the same way as with VC01, the yellow FM slider governs the depth of modulation introduced by one of two sources determined by the switch underneath. With the switch set to the upper position the pitch of VC02 is modulated by a source in accordance with the S/H Mixer. With the switch in ADSR position, the ADSR Envelope Generator now modulates the pitch of VC02.



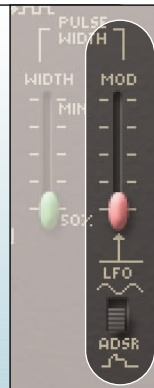
Pulse Width slider (green)

Again, as per VC01, the square wave of VC02 can be turned into variable pulse waves via the Pulse Width slider. Try tuning both oscillators to the same octaves and then setting different pulse widths for VC01 and VC02.



Pulse Width modulation slider (pink) and LFO sine wave or ADSR Modulation source switch.

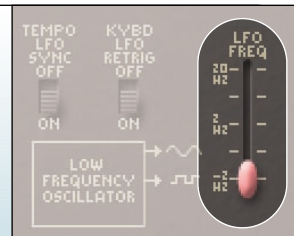
You can modulate the pulse width of VCO2 with either an LFO generated sine wave, or by the ADSR Envelope Generator as per VCO1.



4 Low Frequency Oscillator (LFO)

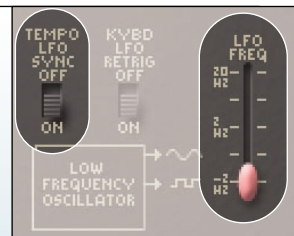
LFO Frequency slider (pink)

This slider controls the rate or speed of the LFO. The LFO outputs a sinewave and a squarewave. The sinewave helps produce vibrato effects while the squarewave is useful for things such as trills. The LFO can also be routed to the Envelope Generators via the ADSR and AR repeat switches.



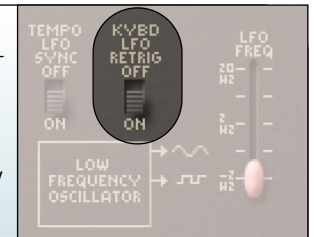
Tempo LFO Sync On/Off switch

The LFO can be synchronised to the host tempo by switching this ON. With it ON, moving the pink LFO slider allows you to choose one of several LFO templates including: 1/4 beat, 1/3 beat, 1/2 beat, 1 beat, 10 beat etc... The value of your LFO template is indicated in the blue Current Parameter display box. If a different value to the ones given by the slider are required, use horizontal mouse movements or enter them manually in the Current Parameter window. In the OFF position the LFO rate is set using the pink LFO slider and its value can be seen in the Current Parameter display window in Hz. **NB.** It's important to note that not all VST host application's transmit tempo information to plug-in instruments. If Tempo LFO Sync doesn't work please check your host application's manual.



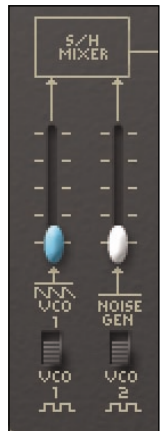
KYBD LFO Retrig On/Off switch

When set to the ON position, the Oddity LFO is retriggered each time a key is pressed. Although this is the same as on the original instrument, occasionally its useful to switch this function OFF, particularly when the LFO is intended to slowly modulate the sound over a long musical passage. Changing the position to OFF allows the LFO to continue without being retriggered by a note-on event.



5 S/H Mixer (Sample and Hold)

The only two sliders on the Oddity that don't have dedicated names are the blue and white sliders within the S/H Mixer module. However, underneath each slider is a switch that gives us an indication as to what's being fed into this module. Underneath the blue slider is the switch marked VCO1 and indicates a Sawtooth in the upper position and a Squarewave in the Lower position. Underneath the white slider is a switch that indicates Noise Generator at the top (Pink or White as selected in the Noise Generator) and VCO2 Squarewave at the bottom. As with similar functions on the Oddity, these switches essentially govern what is fed into the S/H Mixer and the sliders apply the relative amount. This section is one of the Oddity's more complex. Spending time experimenting with this can lead to some unexpected and inspiring sounds; from grainy through to metallic, to full-on syncopated funk grooves. In basic technical terms, the signals from the blue and white sliders are mixed together to produce the "S/H Mixer" output. This is an audio signal which then enters the S/H module. This module samples a value from the S/H Mixer output at LFO rate, (or keyboard events if this is selected by the switch marked LFO Trig at the top and KYBD Trig at the bottom). It gives random steps, which are smoothed by the Lag Parameter (yellow slider) acting a bit like portamento or 'glide'. This becomes the 'S/H' output.



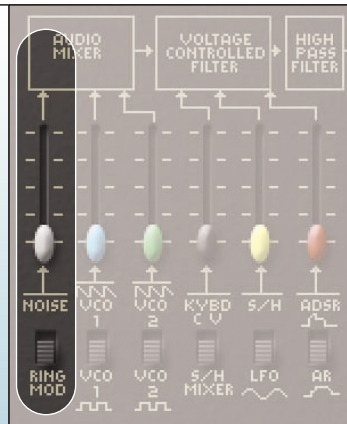
Continued on page 20

The difference between S/H and S/H Mixer is the rate of the changes. S/H is a slow modulation, whereas S/H Mixer modulates signal at audio rate. Applied to the Oscillator Frequency, it produces analogue based FM sounds, not dissimilar to a Yamaha DX-7 operator (although the DX-7 is digital and uses Phase Modulation, not Frequency Modulation). Applied to the Filter Cutoff the result is less obvious but interesting nonetheless.

6 Audio Mixer

Noise Generator or Ring Modulation source switch and Audio Mixer slider (white).

This switch selects either Noise (white or pink) or Ring Modulation with the white slider being used to feed the appropriate level into the Audio Mixer.



Ring Modulation

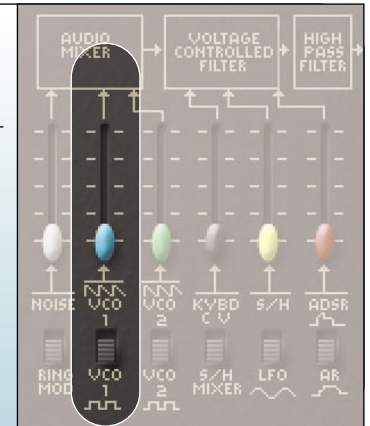
Along with the S/H Modules, the Ring Modulator is one of the Oddity's more esoteric features. Essentially, the Ring Modulator intermodulates VCO1 and VCO2 and produces a single complex waveform that contains the sums and differences of the two oscillator frequencies. Experiment with applying different VCO tunings, pulse width and sync settings to create a host of tones such as bells, chimes, gongs, metallic and percussive sounds.

A favourite musical use of the Ring Modulator is to set up a straightforward lead or bass sound with the ring mod slider also opened. Make sure the sound is set to duophonic mode but when playing, use it monophonically. Now, by adding an occasional second note (fifth's work well) you'll get some neat harmonic overtones and distorted textures.

For more info on Ring Modulation see the tutorial on page 31.

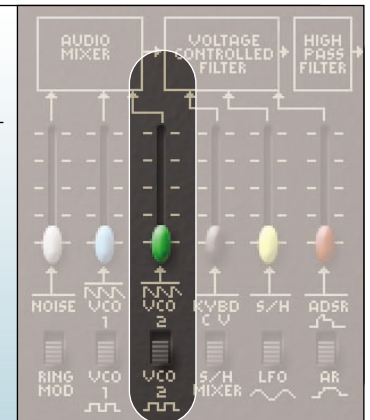
VC01 Sawtooth or Square Waveform switch and Volume slider for VC01 Level (blue).

Using this switch you select the basic waveform for VC01 before using the blue slider to apply the level of VC01 sent into the Audio Mixer.



VC02 Sawtooth or Square Waveform switch and Volume slider for VC02 Level (green).

In the same way as with VC01, use this switch to select the basic waveform for VC02 and using the green slider apply the required level of VC02 into the Audio Mixer.

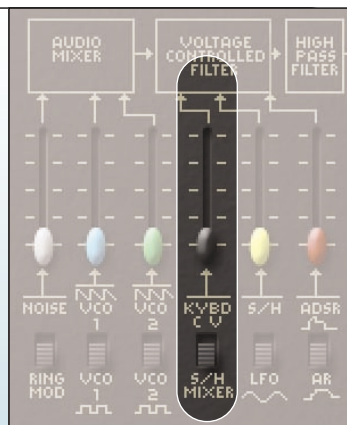


7 Voltage Control Filter (VCF)

KYBD CV or S/H Mixer switch and Amount slider of selected VCF source (black)

This switch selects between Keyboard Tracking and the S/H Mixer. Selecting Keyboard Tracking and feeding this signal into the VCF, via the black slider, allows you vary the keyboard tracking as it relates to the filter. Choosing a slider position towards the bottom of the scale opens the filter more on the lower keys of your keyboard and decreases this effect as you play up the keyboard. Setting a slider position towards the top of the scale has the opposite effect.

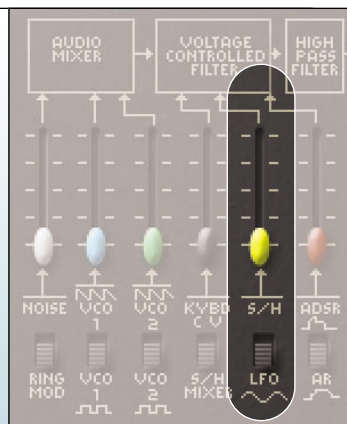
Selecting S/H Mixer and feeding this signal into the VCF in conjunction with the S/H Mixer module sliders, allows for various effects as outlined in the Sample and Hold section on page 19.



S/H or LFO Sine Wave switch and Amount slider of selected VCF source (yellow)

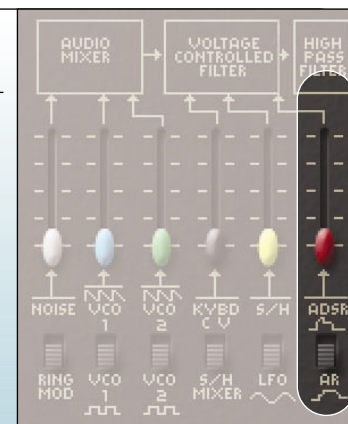
This switch selects between Sample and Hold and a Sinewave LFO source. Selecting S/H and feeding this signal into the VCF allows you to apply the sample and hold effect, as governed by the waveform shapes selected and applied in the S/H Mixer, to the VCF.

Selecting LFO allows you to apply a sinewave to the filter and modulate it at a speed determined by the LFO Frequency.



ADSR or AR switch and slider to control amount of either ADSR or AR (Red)

The Oddity has two Envelope Generators which can be used to shape either the VCF or VCA. Here it's possible to assign either to the VCF and use the red slider to feed varying amounts of the selected envelope generator to the VCF.



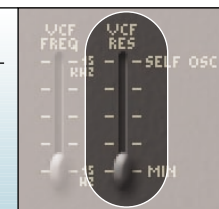
VCF Frequency slider (black)

Arguably the most commonly used parameter on any synth, this changes timbre by subtracting harmonics or frequencies by moving the slider down from its top position. The Oddity filter is modelled on the famous 4075 low pass filter which, for the techies amongst you, had a frequency range of between 16Hz to 16Khz.



VCF Resonance slider (black)

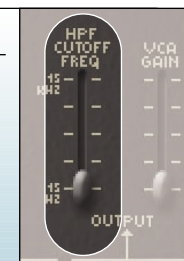
Adds emphasis at the cutoff point and causes the filter to 'self-oscillate' when pushed towards the top of its range.



8 High Pass Filter

HPF Cutoff Frequency slider (black)

Use this slider to remove low frequencies thus creating thinner sounding textures. When used in conjunction with the VCF Freq slider its possible to create band pass filter effects.



9 Voltage Controlled Amplifier (VCA)

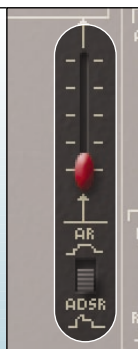
VCA Gain slider (black)

Used to add additional gain to the signal path and particularly useful for boosting level after over zealous use of the High Pass Filter. It's also worth noting that with the Low Pass Filter open, or partially open, increasing the VCA gain can cause a sound to sustain continuously.



ADSR or AR switch and slider to control amount of ADSR or AR to VCA (Red)

As explained in the VCF section, the Oddity has two envelope generators either of which can be assigned to the VCF or VCA. Here we select one for the VCA and use the red slider to adjust the amount.



10 Envelope Generators (AR and ADSR)

AR Envelope Generator Attack slider (Red)

Used to alter the Attack time of the AR Envelope Generator



AR Envelope Generator Release slider (Red)

Used to alter the Release time of the AR Envelope Generator



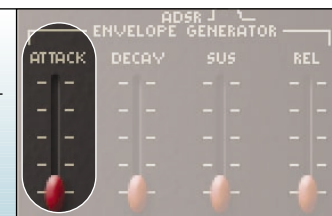
Keyboard Gate Triggering or LFO Repeat switch for AR generator.

When set to KYBD Gate this allows a keyboard event to trigger the AR Envelope Generator. When set to Repeat the AR Envelope Generator is triggered by the LFO. As you would expect, the speed of the LFO triggering can be altered by the pink LFO Frequency slider.



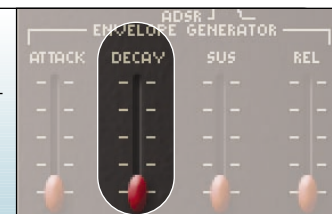
ADSR Envelope Generator Attack slider (Red)

Used to alter the Attack time of the ADSR Envelope Generator.



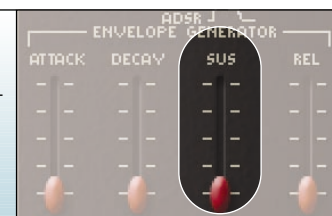
ADSR Envelope Generator Decay slider (Red)

Used to alter the Decay time of the ADSR Envelope Generator.



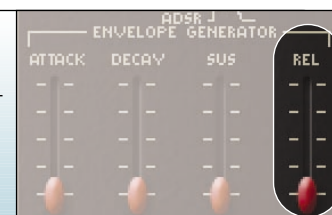
ADSR Envelope Generator Sustain slider (Red)

Used to alter the Sustain level of the ADSR Envelope Generator.



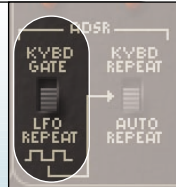
ADSR Envelope Generator Release slider (Red)

Used to alter the Release time of the ADSR Envelope Generator.



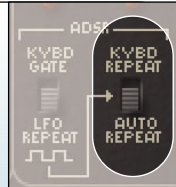
Keyboard Gate Triggering or LFO Repeat switch for ADSR generator.

When set to KYBD Gate a keyboard event will trigger the ADSR Envelope Generator. When set to LFO Repeat the ADSR Envelope Generator is triggered by the LFO. The speed of the LFO triggering can be altered by the pink LFO Frequency slider.



Keyboard Repeat or Auto Repeat switch

When LFO Repeat is selected on the adjacent switch, selecting KYBD Repeat allows the sound to be continuously re-triggered for the duration the note is pressed. However when set to AUTO Repeat, it will sound continuously regardless of whether a key is pressed. Again the speed of the re-triggering depends on the LFO frequency slider.



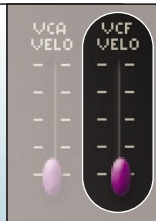
VCA Velocity slider (Purple)

Use this slider to add varying degrees of keyboard touch-sensitivity to VCA dynamics.



VCF Velocity slider (Purple)

Use this slider to add varying degrees of keyboard touch-sensitivity to VCF dynamics.



11 Preset and Morph section

This section enables you to manage your sound settings. A Preset Bank (.pbk) contains up to 64 presets and in this section you can memorise your settings and save them to your hard disk. These Preset Banks are cross-platform, allowing their use with either PC or Mac systems.

Current Preset and Current Parameter display

The red lettering of the display indicates the name of the currently selected Preset. Clicking on this part of the display opens the Preset list drop-down menu.

The blue section of the display indicates the value of the slider or switch currently being edited. Clicking on this part of the display allows you to type in a value for the currently selected parameter.



Morph Time knob and Morph Time display

A unique feature of the Oddity, is its ability to 'Morph' between two Presets. Morph Time is the transition-time it takes the sliders to move from their current position to the ones appropriate to the next Preset.

The Morph Time knob enables you to vary the time taken, in seconds, to go from the Current Preset to the next selected from the Preset drop-down menu. The time is measured in seconds and displayed in the adjacent box. This defaults to 0 seconds but you can change the transition length up to 99 seconds.

The sonic possibilities of this section are endless. For example you can Morph between mellow and aggressive versions of the same sound. Or Morph between radically different sounds and create extreme transitions, Morphing is activated as soon as the new Preset is selected in the Preset drop-down menu.

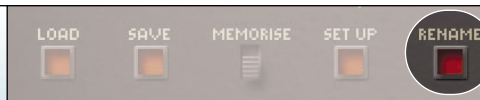


Memorise



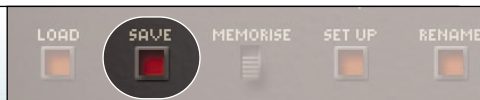
To memorise a Preset, move the Memorise button to its upper position. Click on the top line of the display and navigate to one of the 64 Preset allocations to temporarily store it. **NB.** To permanently store a Preset it must be saved as part of a Preset Bank. To recall a Preset, make sure the Memorise button is off (or in the lower position). Now, click on the top line of the display and click on one of the 64 Presets you want to recall.

Rename



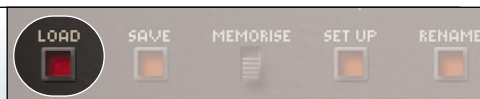
This relates to the currently selected Preset and allows you to rename it.

Save



Allows you to save your Presets permanently within a Preset Bank (.pbk) to your hard-disk.

Load



Used to load your Preset Banks (.pbk) from your hard-disk.

Set Up



Selecting MIDI devices.
Depending on your host, your MIDI devices and your system settings, you may have one or more available MIDI ports for input and for output. It is possible to select the virtual ports for receiving and sending MIDI events.

To choose the input port (the one on which MIDI data is received by the plug-in), go to the MIDI>Input device menu and select the one you want. Similarly, to select the output port simply go to MIDI>Output device and select the one you want. The selected MIDI ports will now have a tick against them.

NB. It is possible to choose only one MIDI port for input and one for output.

Binding parameters to MIDI continuous control messages. (MIDI CC's)

Although each parameter of the Oddity has its own pre-assigned MIDI CC number (see page 32), the easiest way to link a parameter to a specific MIDI CC (knob, slider etc) is to use the Auto-Bind feature.

To use this, click on the Set Up button and enter the Auto-Bind mode by checking MIDI > Auto-bind in the Setup menu, a tick will appear next to the Auto-Bind text. Now move the required slider or switch on the Oddity, and follow this by turning or moving the physical controller you wish to control that slider or switch. This sends the MIDI CC to the Oddity and as soon as the CC event is received, the connection is made and this will remain associated with the parameter. As a useful aid, if you have already selected a parameter before, its name will be displayed in the menu, between brackets, for example:
Auto-bind [target: Cutoff Freq].

Each of the Oddity's parameters can be bound to different MIDI CC messages, and you can also save various configurations in Set Up using the 'Save' option. Saved configurations can be recalled using the Set Up 'Load' option. To leave the Auto-Bind mode simply un-check it in the Set Up menu and all your previously bound MIDI CC's will control the relevant parameters.

Enhanced Mouse Mode

Selecting this mode makes the mouse cursor disappear when a slider is moved. It's more comfortable for editing because it allows you to move the sliders accurately despite their small size. There is an option to deactivate this mode because it may not work correctly with some trackballs and graphic tablets on Mac.

Phase Synchronisation

Please start this tutorial by loading the default Oddity Preset Bank, OddityBank01.pbk, and selecting the first sound in the Preset list "80's Bass".

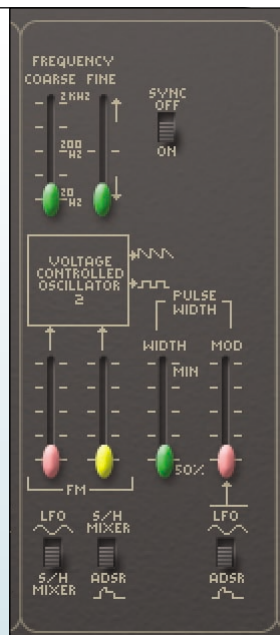
Look at the part of the panel marked VOLTAGE CONTROLLED OSCILLATOR 2. As mentioned previously this is exactly like VCO1 except for the Low-Frequency switch has been replaced by a SYNC ON/OFF switch.

When this switch is ON, the audio signal from VCO2 is forced to conform to the frequency of VCO1. This is done by causing the waveform of VCO2 to begin again, or restart whenever VCO1 is triggered.

Because of this synchronisation the harmonic sound of VCO2 will change as the COARSE and FINE frequency sliders for VCO2 are changed, although the basic frequency of the waveform remains the same as VCO1.

You can hear this effect in its raw form by setting VCO1 to around the 100Hz mark and slowly moving the coarse tuning control of VCO2 through its entire tuning range while playing the keyboard. The result is one of the classic Oddity sounds.

In the FM section of VCO2, and with the S/H and ADSR switch set to ADSR, it's possible to alter the position of yellow FM slider (located above the switch) and use the ADSR to sweep the sync. Experiment with different envelope settings (slow attack, long release) and the VCF ADSR slider (red) set about 75% open to achieve some interesting results.

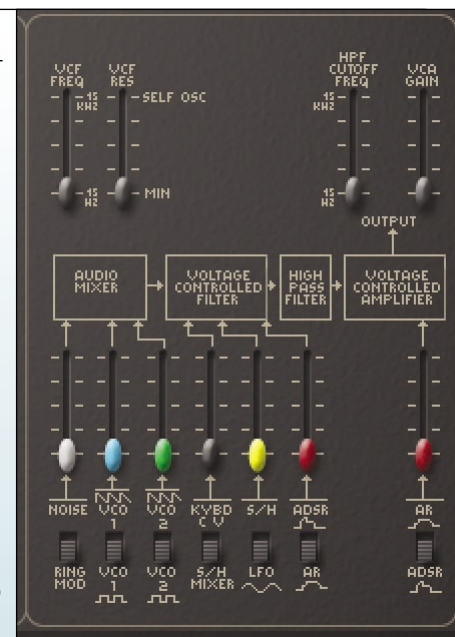


Ring Modulation

Please start this tutorial by loading the default Oddity Preset Bank, OddityBank01.pbk, and selecting the first sound in the Preset list "80's Bass".

Lower the blue and green sliders under the AUDIO MIXER box, and raise the white slider. Make sure the position of the switch under the VOLTAGE CONTROLLED FILTER is set to RING MOD. Also ensure that the PHASE SYNC switch for VCO2 is off. Play a few notes on the keyboard and listen to the Ring Modulator. While you are listening to it move the sliders of VCO1 Coarse tune and VCO2 Coarse tune. The raw

sound produced from the Ring Modulator depends entirely on the tuning of VCO1 and VCO2; and to a lesser extent on the Pulse Width settings for each one. You'll notice that sounds from the Ring Modulator do not necessarily have to relate to the standard musical pitch produced by either oscillator, (Unless they are synchronised by the SYNC switch on VCO2). Similarly, the overtones of the Ring Modulator signal do not necessarily conform to the standard harmonic series and as mentioned previously are like those of a bell, chimes, gongs, and other metallic or percussive sounds.



13 MIDI Continuous Control Messages

Each of the Oddity's parameters responds to a standard MIDI Continuous Control message (MIDI CC's) as listed below.

MIDI CC	Parameter	MIDI CC	Parameter
1	VCF Mod 2 Amount	73	AR Attack
2	Mixer Source 1 Level	74	VCF Cutoff Frequency
3	Mixer Source 2 Level	75	ADSR Attack
4	Mixer Source 3 Level	76	ADSR Decay
5	Portamento	77	ADSR Sustain
7	VCA Mod Source	78	ADSR Release
8	LFO Freq Q	80	ADSR LFO Repeat
9	HPF Cutoff Freq Q	81	ADSR Auto Repeat
11	VCF Mod 3 Amount	82	AR LFO Repeat
12	VC01 PW Mod Source	83	VC02 Sync
13	VC02 PW Mod Source	84	VC01 Source
14	VC01 PW Mod Level	85	Noise Type
15	VC02 PW Mod Level	86	VC01 Coarse Tune
16	VC01 FM1 Source	87	VC02 Coarse Tune
17	VC02 FM1 Source	88	VC01 Fine Tune
18	VC01 FM2 Source	89	VC02 Fine Tune
19	VC02 FM2 Source	90	VC01 Pulse Width
20	VC01 FM1 Level	91	VC02 Pulse Width
21	VC02 FM1 Level	102	S/H Lag
22	VC01 FM2 Level	103	S/H Mixer Source1
23	VC02 FM2 Level	104	S/H Mixer Source1 Level
24	VCF Mod 1 Amount	105	S/H Mixer Source 2
25	VCF Mod 1 Source	106	S/H Mixer Source 2 Level
26	VCF Mod 2 Source	107	Mixer Source 1
27	VCF Mod 3 Source	108	Mixer Source 2
28	S/H Trig	109	Mixer Source 3
29	Mono/Duo Mode	110	VCA Level
30	Velocity to VCA	111	VCA Mod Level
31	Velocity to VCF Cutoff	112	A440
71	VCF Resonance	113	LFO Sync
72	AR Release	114	LFO Trig