OSIRIS

BI-FIDELITY™ WAVETABLE OSC

mod
bap.
MODULAR
BY BEATPPL

Modbap Modular by Beatppl : Osiris

Contents

About Us

MODBAP MODULAR BY BEATPPL

Modbap Modular is a line of eurorack modular synthesizers and electronic music instruments by Beatppl. Founded by Corry Banks (Bboytech), Modbap Modular was born of the Modbap Movement with a simple mission to dev tools for beat driven hiphop leaning modular artists. It is our goal to develop eurorack modules from the beatmaker's perspective while adding value for music makers of all genres.

It's almost impossible to explain Modbap Modular without answering the questions; "So, what is ModBap?" MODBAP is the fusion of modular synthesis and boom-bap (or any form of hiphop) music production. The term was created by BBoyTech as a denotation of his experiments with modular synthesis and boombap music production. From that point forward, a movement was born where like minded creatives built a community around idea of Modbap. Modbap Modular is in effect, the result of that movement in a space where we'd previously not existed.

BUILT FOR EURORACK
DOPE ENOUGH FOR BOOMBAP!

www.modbap.com

Modbap Modular by Beatppl : Osiris

Overview

OSIRIS

Osiris is a Bi-Fidelity™ Wavetable Oscillator eurorack module, packing a huge feature set into a 12hp form factor and uses 4 banks of onboard wavetables. A sub oscillator is also provided with a dedicated mono audio output and mix control. The oscillators can be reset and synchronised and each has a CV input for individual or combined control over pitch. The main audio is based around user selectable wave shapes. Wavetables formatted and configured for Osiris are called WavPaks and user wavetables can be placed onto a Micro SD card (not supplied) which is inserted into the Osiris SD slot. This allows your own or third party WavPaks to be developed and used with Osiris. The accompanying OSIRISedit app makes the creation and development of wavetables and WavPaks easier and can be downloaded from Modbap Modular.

Osiris is a feature rich device bringing wavetable and FM synthesis to the fore alongside the Bi-Fidelity features. Add the Sub oscillator and timbre and the built in VCA and Decay and this synth offers a whole new creative journey in sound design. Given by the nature of wave transitions and shaping it can bring out a gnarly and crazy harmonic sounds. Adding the sub under the main sound does more than layer up, with wave interaction and modulation. But smooth and simple sounds are also possible. FM1 being the more moderate option. The real question is, do you want to tame the beast or just let it loose?

WHAT'S IN THE BOX?

The Osiris package comes with the following items included:-

• Osiris Bi-Fidelity™ Wavetable Oscillator module.

• Eurorack IDC power ribbon cable

• 4 x 3m mounting screws.

• Quick Start Guide

OPTIONAL ACCESSORIES?

The following items are not included with Osiris.

• Osiris manual - available as a free download

• OSIRISedit - Open source wavetable creator available as a free download

• SD Card not supplied.

• A range of accessories such as patch cables, cable ties etc are available from Modbap Modular

WAVPAKS?

• The factory WavPaks are preloaded, onboard the Osiris device. Modbap Modular would like to thank the following people for their fantastic support and contribution to the Factory WavPak.

    • Bank A - Ess Mattisson

    • Bank B - Sonic Xpansion

    • Bank C - Bogdan Raczynski

    • Bank D - Beatppl

• Additional WavPaks - Available from Modbap Modular

Downloads are available from www.modbap.com
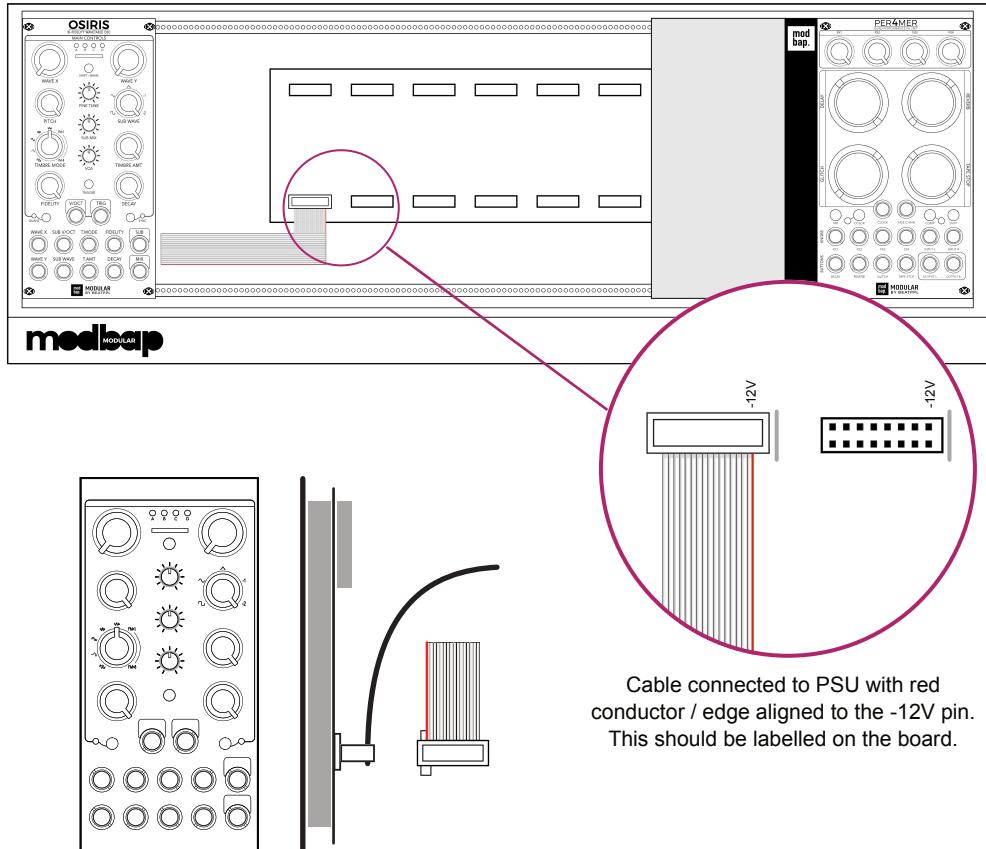
SPECIFICATION AND CORE FEATURES

- Module size. 3U, 12 HP, Depth 28mm

- +12V current demand 50mA. (64mA Peak on Power Up)

- -12V current demand 50mA (64mA Peak on Power Up)

- +5V current demand 0mA

- Micro SD Card slot for user wavetables. Card not supplied.

- In-built factory WavPak - 4 banks each with 32x32 wavetables

- 96kHz performance with fidelity control

- Pitch rotary and mini control fine tune

- Sub wave selection and sub amount

- Timbre selection and amount for character

- On board VCA and decay control.

- V/Oct pitch control plus 8 CV inputs for parameter control

- Trigger input

- Mix mono audio output plus dedicated mono sub oscillator output.

- Oscillator quantize on pitch and reset of wave synchronisation.

- Reverse polarity protection on the power input.

- Auto save / power up restore.

INSTALLATION

Follow the installation instructions carefully to avoid module or rack damage.

1. Ensure the power connection is disconnected before installing the device.

2. Identify a location in the rack to install the module. This needs 12HP of free space.

3. Connect the 10 pin connector from the IDC ribbon power cable to the header on the rear side of the module. Ensure that the pins are aligned correctly with the red stripe on the ribbon conductor closest to the -12V pin indicator on the header.

4. Insert the cable through the rack and connect the 16 pin side of the IDC ribbon cable to the rack power supply header. Ensure that the pins are aligned correctly with the red stripe on the ribbon conductor closest to the -12V pin on the header.

5. Mount and position the module into the dedicated rack position.

6. Attach the 4 x M3 screws by screwing into the 4 locator holes and the rack mount. Do not over tighten.

7. Power up the rack and observe the module start up.

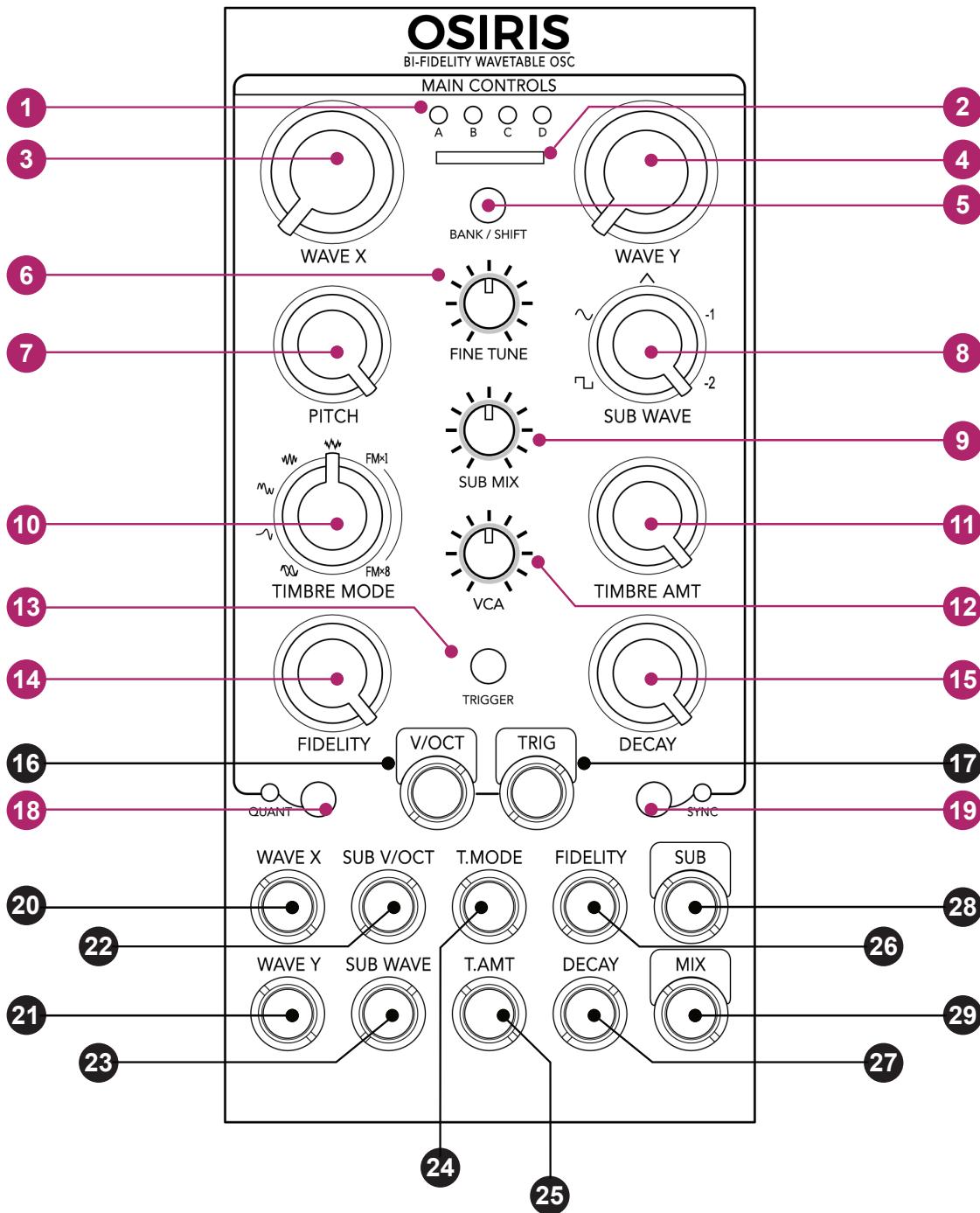8. The device should now be ready to use.

Eurorack Installation.

Cable connected to PSU with red conductor / edge aligned to the -12V pin. This should be labelled on the board.
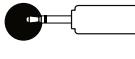
Cable connected to module with correct orientation with red conductor / edge aligned to the -12V pin. This should be labelled on the module board with a white dash..

Ensure the following conditions are correct for trouble free installation.

• Rack power supply can accommodate all the installed modules total current ratings and the rack earth / grounding is correct.

• Module power cable orientation is correct at both the rack and module side. Use the module or rack supplied IDC ribbon cable.
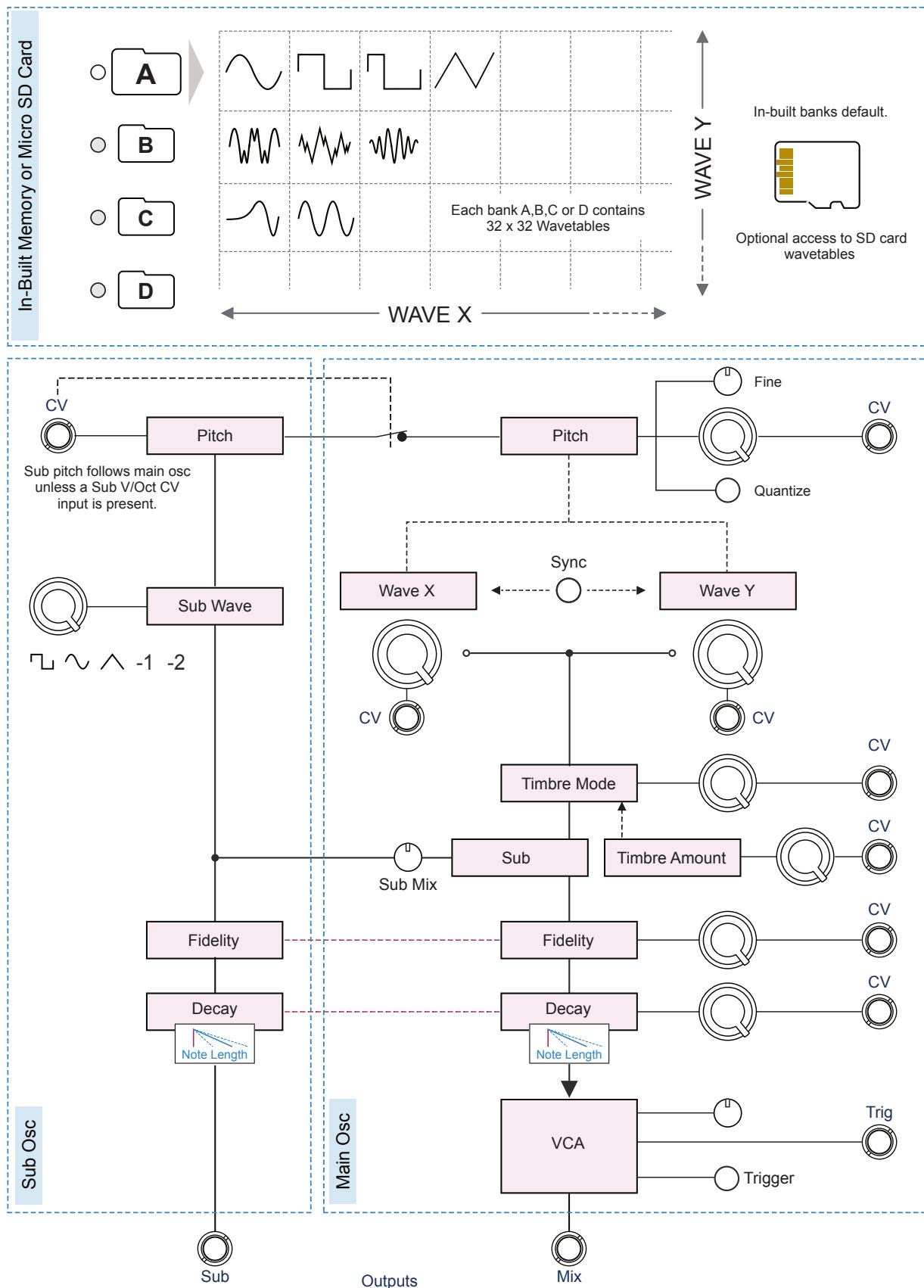
OSIRIS
BI-FIDELITY WAVETABLE OSC

MAIN CONTROLS

A B C D

1
3
WAVE X

2
4
5
BANK / SHIFT
WAVE Y

6
FINE TUNE

7
PITCH

8
SUB WAVE
-1
-2

9
SUB MIX

10
TIMBRE MODE
FM×1
FM×8

11
TIMBRE AMT

13
VCA

14
FIDELITY

12

15
DECAY

TRIGGER

16 V/OCT   TRIG   17

18 QUANT   SYNC 19

WAVE X SUB V/OCT T.MODE FIDELITY SUB

20   28
22
26

WAVE Y SUB WAVE T.AMT DECAY MIX

21   29
23
27

24
25

Press or Turn   Plug and Patch

1. Wavetable bank A - D selection indicator LED's. White for factory / Blue for user banks.

2. Micro SD Card slot available for user WavPak wavetables.

3. Wave X Control. Navigation through selected wavetable bank along the X axis.

4. Wave Y Control. Navigation through selected wavetable bank along the Y axis.

5. Bank / Shift. Press, changes bank. Hold, changes from factory to user banks.

6. Fine tune. Frequency of oscillator in semitones.

7. Frequency. Pitch of oscillator in octaves.

8. Sub wave. Selection of the sub oscillator waveform.

9. Sub mix. Amount of sub oscillator level in the mix.

10. Timbre mode. Wave morph / phase shaping to create tonal character and texture.

11. Timbre amount. Amount of timbre applied. Used in conjunction with Timbre mode.

12. VCA. Internal voltage controlled amp, used in conjunction with Trig input.

13. Trigger button to manually activate the VCA envelope.

14. Fidelity. Bi-fidelity™ (Hi & Low). Adds character through the amount of effect applied.

15. Decay. Controls the VCA envelope to adjust note length (eg pluck to drone sound)

16. Main wavetable oscillator pitch CV Input. Frequency V/Octave

17. Trig Input to activate the VCA envelope.

18. Quantize and associated quantize LED. Stepped real time pitch and octave control.

19. Sync and associated sync LED. Resets the wave synchronisation.

20. Wave X CV Input for navigation control of wavetable.

21. Wave Y CV Input for navigation control of wavetable.

22. Sub oscillator pitch CV Input. Frequency V/Octave

23. Sub oscillator wave CV input selection.

24. Timbre mode CV Input.

25. Timbre amount CV Input.

26. Fidelity CV Input control.

27. Decay CV Input control.

28. Sub oscillator dedicated audio output.

29. Mix audio output. Main plus sub (only when sub output is not connected).

In-Built Memory or Micro SD Card

A

B

C

D

Each bank A,B,C or D contains
32 x 32 Wavetables

WAVE X

WAVE Y

In-built banks default.

Optional access to SD card
wavetables

Sub Osc

CV

Pitch

Sub pitch follows main osc
unless a Sub V/Oct CV
input is present.

Sub Wave

-1 -2

Fidelity

Decay

Note Length

Main Osc

Fine

Pitch

CV

Quantize

Sync

Wave X

Wave Y

CV

CV

Timbre Mode

CV

Sub

Sub Mix

Timbre Amount

CV

Fidelity

CV

Decay

CV

Note Length

VCA

Trig

Trigger

Outputs

Sub

Mix

INPUT / OUTPUT ASSIGNMENT

CV and Trig inputs can be applied to the Osiris controls. Mono audio outputs for mix and sub oscillator are provided.

	V/Oct Pitch	Wave X	Wave Y
CV	0 - 5V	+/- 5V	+/- 5V
	Sub V/Oct Pitch	Sub Wave	Fidelity
CV	0 - 5V	+/- 5V	+/- 5V
	Timbre	Timbre Amount	Decay
CV	+/- 5V	+/- 5V	+/- 5V

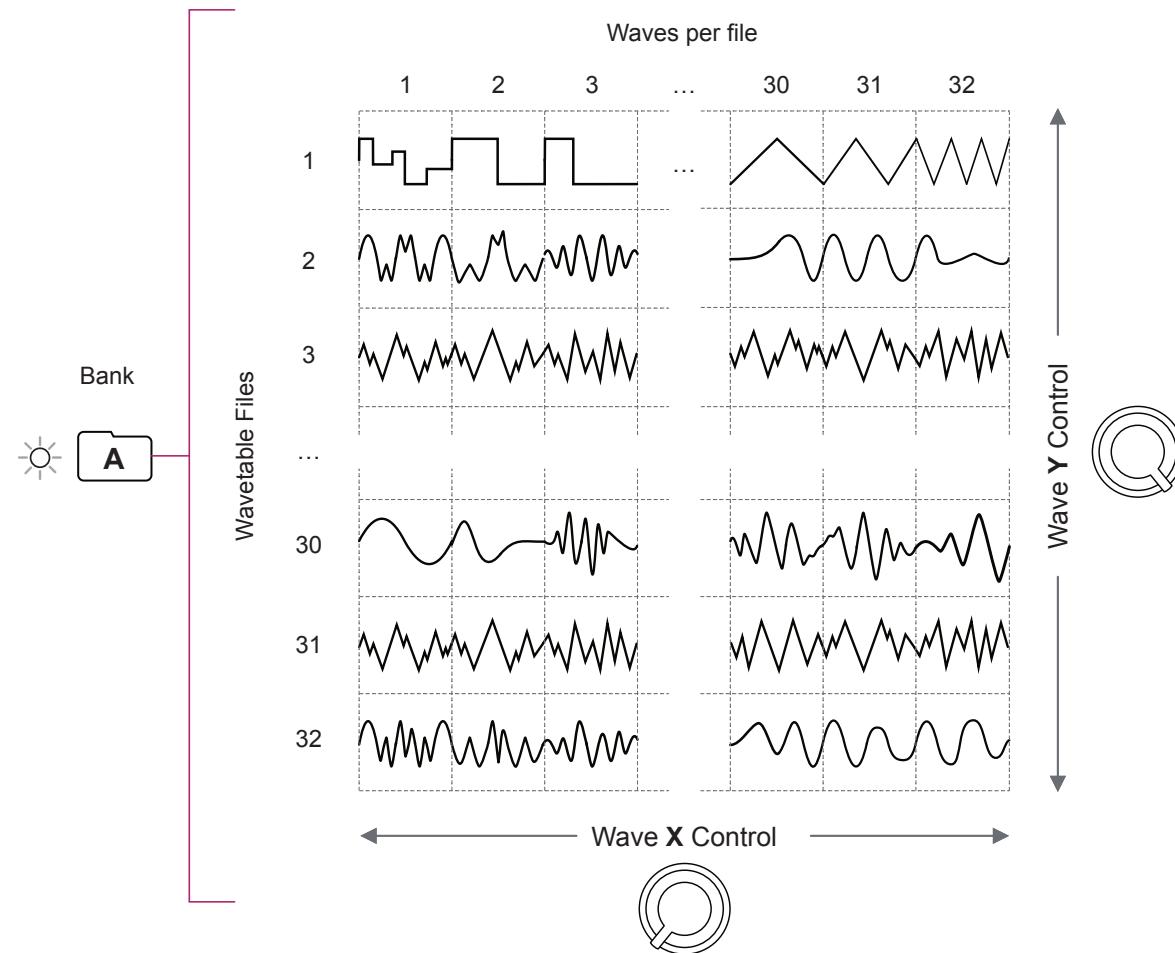|	Audio	Description
Mix Out	Mono	Both main wavetable oscillator and sub oscillator mix. Sub mix will control the amount of sub applied into the overall mix.
Sub Out	Mono	Sub oscillator output with a dedicated sub mix control knob. Sub wave, sub amount, fidelity and decay affect the sub audio output.

Wavetables

OSIRISedit and WavPaks

Osiris main 'oscillator' uses wavetables as its sound source. Wavetables are a collection of single waves configured together. Think of this as being a collection of assembled 32 wav files, each containing 32 discrete waves. This provides 1024 (32 x 32) accessible waves per bank which are navigated by the Osiris X and Y controls. Modulating these parameters allows morphing of sound across the wavetables. Wavetables are contained in 4 banks, A, B, C and D, each of which is selected by the Bank / Shift button. The wavetable file format is 16bit, 44.1kHz. Wavetables structured in the desired bank and file format for Osiris are called WavPaks making it easy to install and use third party and user created wavetables. The default factory WavPaks are located in the Osiris internal memory but other optional wavetables are also available which can be read from an installed SD card. User files must follow the Osiris bank and naming convention. A wavetable editing app called OSIRISedit is also available for Mac devices with OS 10.15 or above. OSIRISedit is based on the open source WaveEdit application and makes conversion to WavPaks simple and easy. Check out the Modbap Modular site for additional free and downloadable resources.

WAVPAK OVERVIEW

4 Banks, each with 32 wavetable files, each with 32 waves (1024 waves per bank). The selected bank is indicated by the relevant lit LED. Wavetable Files are 16 Bit, 44.1kHz Audio format. Osiris wavetable sets configured in this format are called WavPaks. The X and Y control navigates the 'playhead' through the 2 dimensional grid of waves.
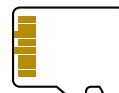
WavPak

Waves per file

Bank

A

Wavetable Files

Wave **Y** Control

Wave **X** Control

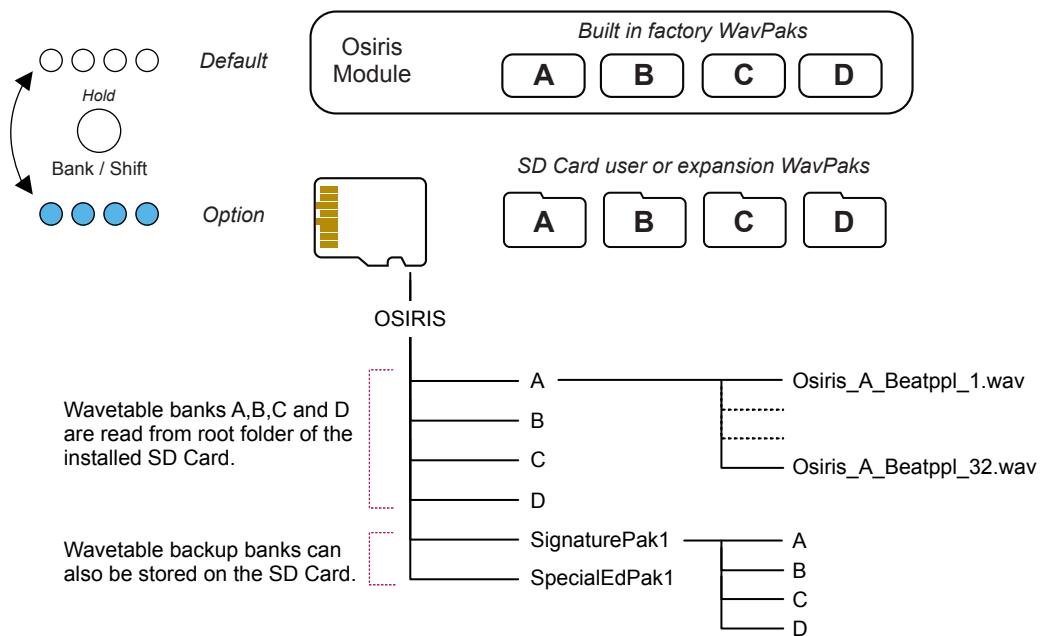Sync On/Off will synchronise the X & Y wave starts on a trigger

B

C

D

Osiris on board memory contains the 4 Banks for the default factory WavPak (White LED's). Optionally an SD card can host user and third party WavPak wavetables (Blue LED's). Press Bank / Save to cycle through banks A,B,C,D and Hold Bank / Save to switch between factory or user banks.
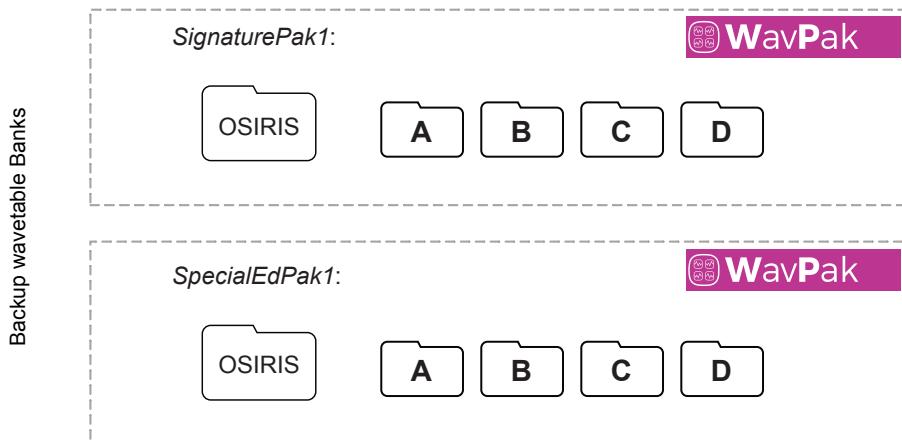
Wave shapes shown are for illustration purposes only.

Osiris Module by default will read the in-built factory WavPak. If WavPaks are detected on an installed SD Card then these will be used. These should therefore be setup with the correct A,B,C,D folder formats and wavetables named 1-32.wav on the SD Card. It is good practice to keep other user or signature WavPaks also on the SD card. These can be stored in a separate folder and then moved to the default A,B,C and D locations when needed. It is also advised to keep a backup of your SD card.

Osiris WavPaks. If detected by Osiris, the SD wavetables from A,B,C & D, located in the OSIRIS folder are used instead of the inbuilt default factory WavPak.
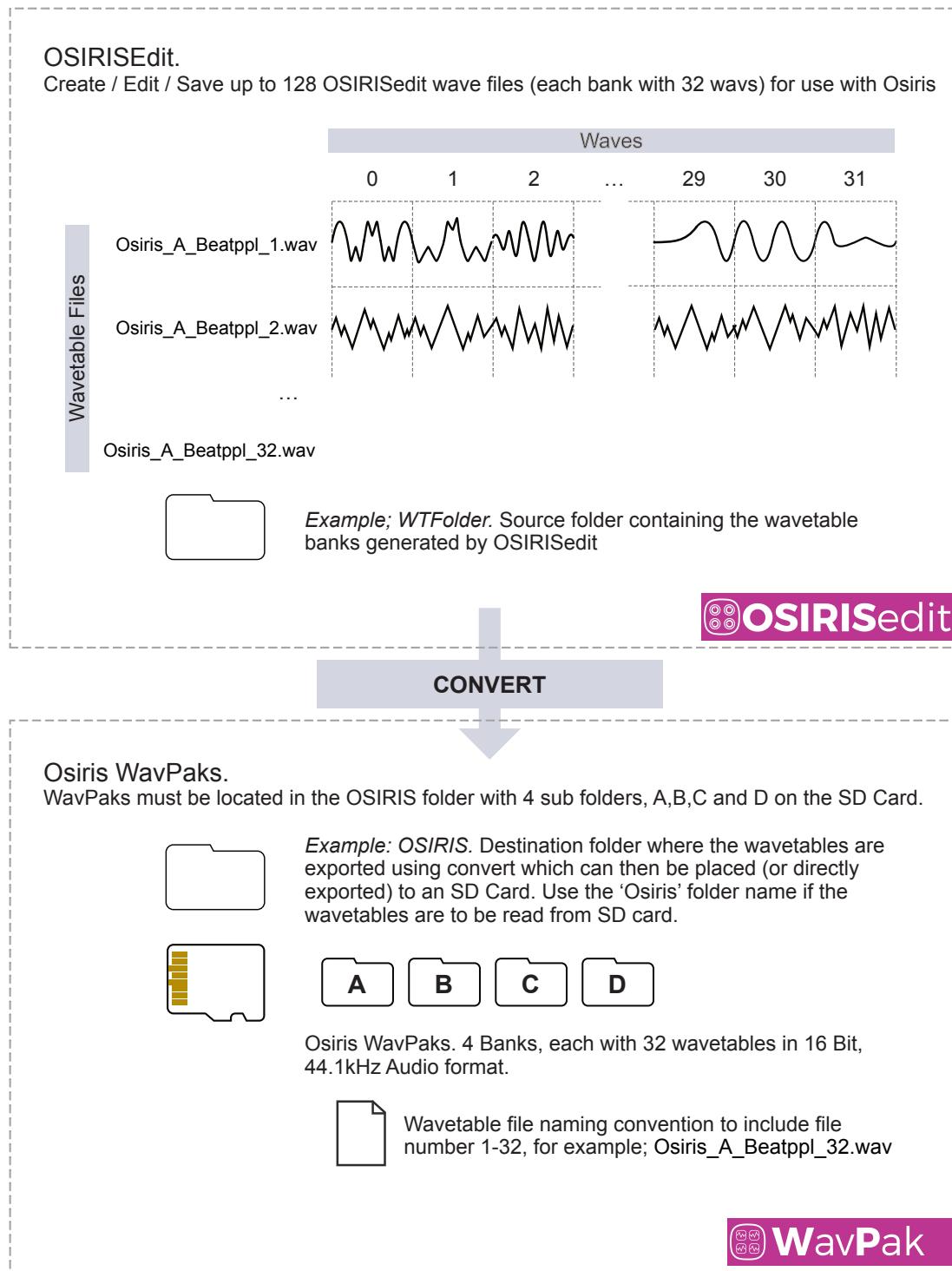

The WavPak to be used should be located in the SD card root within the 'OSIRIS' folder. If required, additional WavPaks may be held on the SD card located in backup folders for storage. Any backup wavetable that are then required to be used can be copied from the backup to the SD Card root folder with a PC or Mac.

OSIRISedit Overview

OSIRISedit is a Mac tool based on the open source WaveEdit application. This allows user development and editing of wavetables and also their conversion to Osiris WavPak format. For full details refer to the OSIRISedit manual.

OSIRISEdit.
Create / Edit / Save up to 128 OSIRISedit wave files (each bank with 32 wavs) for use with Osiris

Waves

| 0 | 1 | 2 | … | 29 | 30 | 31 |

Osiris_A_Beatppl_1.wav

Osiris_A_Beatppl_2.wav

…

Osiris_A_Beatppl_32.wav

Wavetable Files

Example; WTFolder. Source folder containing the wavetable banks generated by OSIRISedit

OSIRISedit

CONVERT

Osiris WavPaks.
WavPaks must be located in the OSIRIS folder with 4 sub folders, A,B,C and D on the SD Card.

Example: OSIRIS. Destination folder where the wavetables are exported using convert which can then be placed (or directly exported) to an SD Card. Use the 'Osiris' folder name if the wavetables are to be read from SD card.

| A | B | C | D |

Osiris WavPaks. 4 Banks, each with 32 wavetables in 16 Bit, 44.1kHz Audio format.

Wavetable file naming convention to include file number 1-32, for example; Osiris_A_Beatppl_32.wav

Wav**P**ak

OSIRIS WAVETABLE SUMMARY

Osiris comes with a factory set of wavetables as the default and located within the on board the Osiris memory. This allows a quick start in using Osiris and with the factory WavPak being a high quality and integral part of Osiris this may be the only set of wavetables you may ever need.
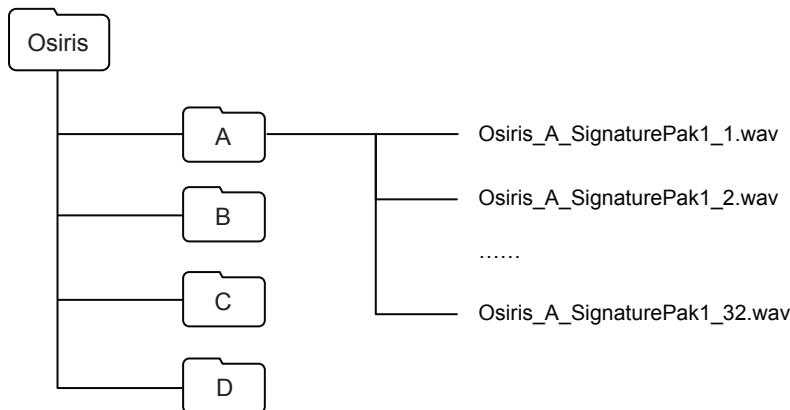
Options to install third party or user wavetables and even to create your own expand the creative options available when using Osiris but aren't essential in getting started and up and running with wavetable syntheses in Eurorack.

Think of WavPaks as expansions and OSIRISedit a more advanced option to create your own wavetables and expand your creative options when using Osiris even further. Maybe to distribute your own WavPaks or just to develop your own signature Osiris sound.

User wavetables must be located in the four bank folders A, B, C, D. Each bank to hold 32 wave files named with the file number 1-32.wav. Each of the 32 wav files will have 32 wavetables contained within.

When creating user WavPaks please remember these essential points:-

•   A SD Card must be formatted to FAT32. (User supplied)

•   A single user folder that will be accessed by Osiris should be located in the root of the SD card and named 'Osiris'.

•   The four banks must be located as subfolders under the Osiris folder and named A,B,C and D respectively.

•   Filenames for the wavetables must be appended with _1.wav to _32.wav in each bank. So essentially numbered 1-32 in A, also 1-32 in B, C and D.

•   It is good practice to include bank names in the WavPak filename especially given that the identical numbering is 1-32 in each bank, i.e. Osiris_A_SignaturePak1_1.wav.

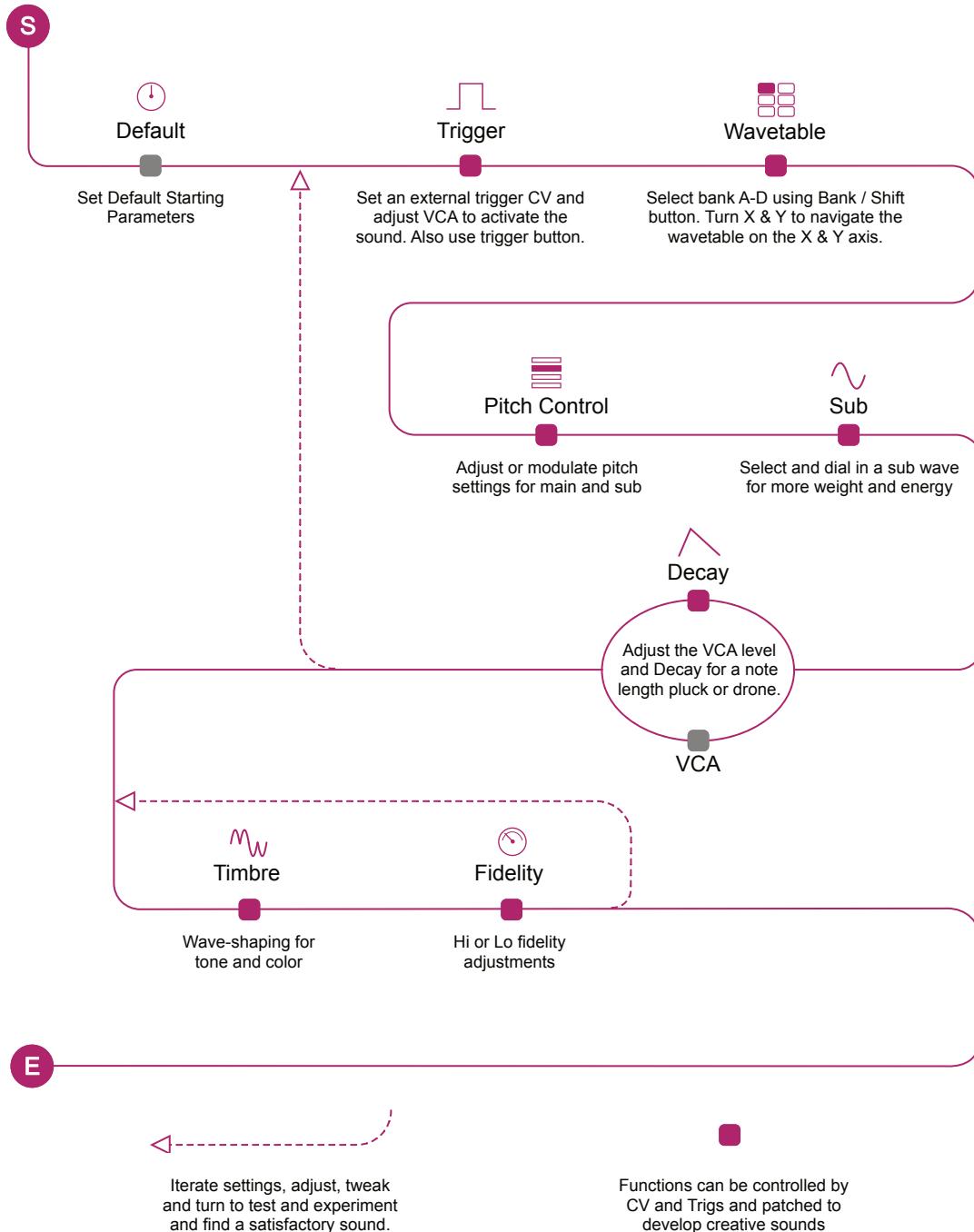Modbap Modular by Beatppl : Osiris

Controls

OSIRIS

Osiris consists of selectable main 'oscillator' wavetables as well as a separate sub oscillator. Manual control of the wave selection for the main oscillator is possible by navigating the on board factory WavPak wavetables as the oscillator sound source. These can be manually triggered with the trig button. Using an SD card loaded with WavPak wavetables is also an option which introduces user WavPaks. Pitch frequency course control (octave) and fine tuning (semitone) are available functions as well as quantization and synchronisation of wave cycles. The sub oscillator is synchronised with the main oscillator pitch unless the sub is externally controlled by CV in which case the sub pitch is independent. The main wavetable oscillator has a timbre mode which applies various phase shaping algorithms to morph the selected waves with also a timbre amount parameter controlling the depth of morphing applied. The sub oscillator level can also be adjusted on the front panel. A fidelity effect can be manually dialled into the audio path. A decay envelope provides control alongside an internal voltage controlled amplifier to shape the output sound. Typically this can affect note lengths giving more creative control over sound shaping inside Osiris and create a range of sound design possibilities from pluck like sounds to longer note drones. A shift option button is also provided which will allow context sensitive selections including saving of Osiris states and doubles up as the bank change button.
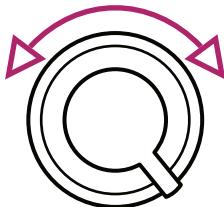
GETTING STARTED

The basic principle of Osiris is to generate sound and the on board parameters enable the sound shaping and creative options. While users will find their own workflow a good starting point is shown in this example.

Basic Operation Workflow

S

Default
Set Default Starting Parameters

Trigger
Set an external trigger CV and adjust VCA to activate the sound. Also use trigger button.

Wavetable
Select bank A-D using Bank / Shift button. Turn X & Y to navigate the wavetable on the X & Y axis.

Pitch Control
Adjust or modulate pitch settings for main and sub

Sub
Select and dial in a sub wave for more weight and energy

Decay
Adjust the VCA level and Decay for a note length pluck or drone.

VCA

Timbre
Wave-shaping for tone and color

Fidelity
Hi or Lo fidelity adjustments

E

Iterate settings, adjust, tweak and turn to test and experiment and find a satisfactory sound.

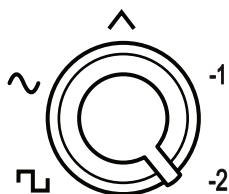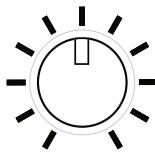Functions can be controlled by CV and Trigs and patched to develop creative sounds

BASIC CONTROLS.

Osiris controls are simple to use. Turing rotaries affects parameters or selects functions and buttons trigger or select modes on or off. While symbols and values are assigned it is normal practice in modular to adjust and tweak by ear.

Rotary controls with labels but no symbols allow an amount to be adjusted or the wave x to navigate along the x axis and wave y to navigate along the y axis. Turn the control to adjust the amount or navigate the wave position.

Rotary controls with symbols allow a selection from a range of options or modes, for example sub wave shapes or timbre. Turn the control to the option required based on the symbol.

The quantize and sync buttons are selected as on or off as indicated by the associated LED.

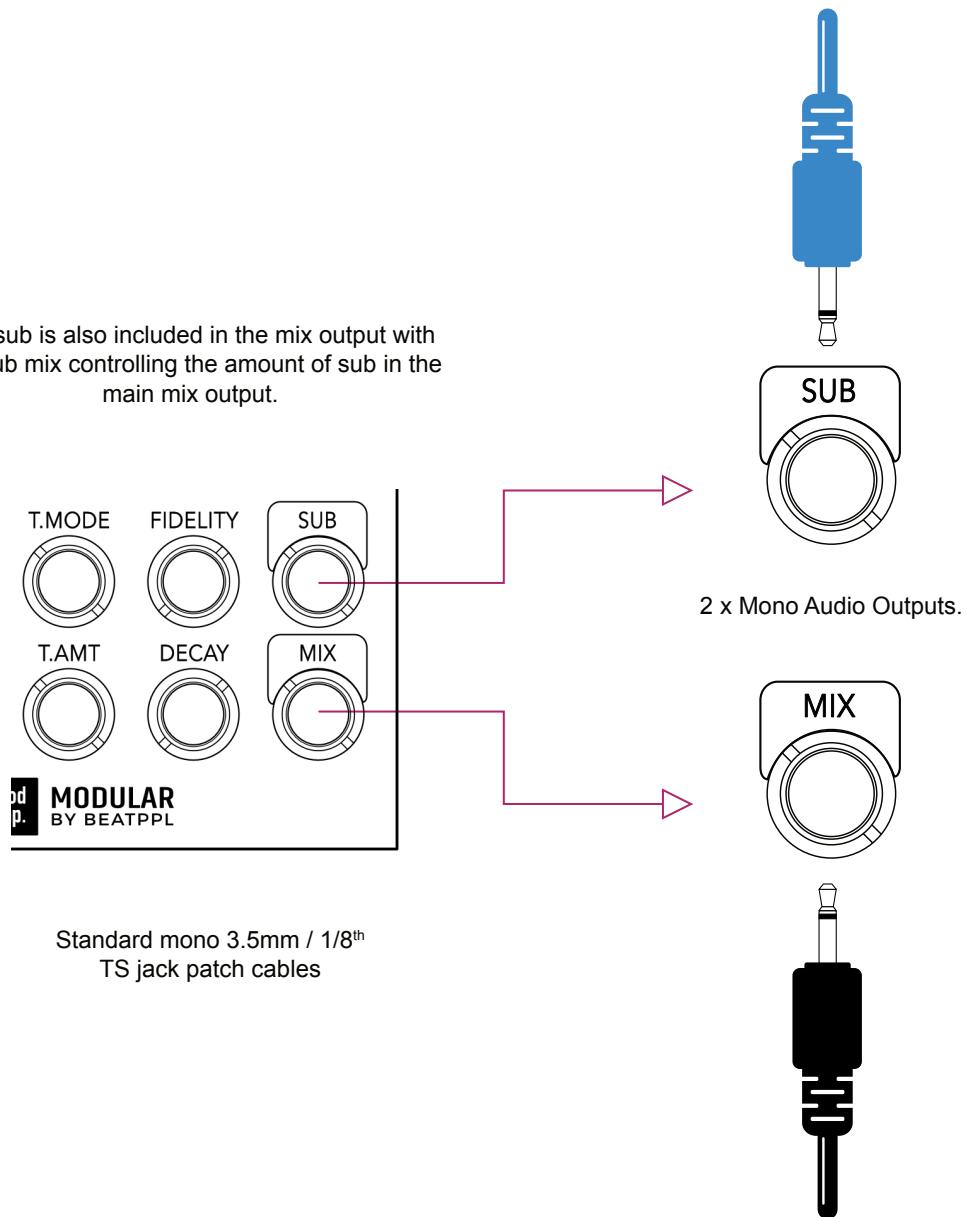Trigger button manually activates the VCA envelope to hear the audio without an external trigger patch.

Bank/Shift cycles through the A,B,C or D wavetable bank when quickly pressed. When held the banks toggle between the on board factory wavetables (LED's lit white) and any SD card user wavetables (LED's lit blue). Shift function currently not used.

AUDIO OUTPUTS

Osiris has 2 mono outputs, one for the sub wave oscillator and the audio mix of both the sub and wavetable audio. The sub is blended in the main mix and is adjusted by the sub mix control and the sub out is fixed at full volume. Sub pitch follows the main oscillator pitch unless a connection is made in the sub V/Oct, in which case sub pitch is then controlled independently. Output connections take 3.5mm / 1/8th Inch TS (Tip & Sleeve) audio jack plugs.
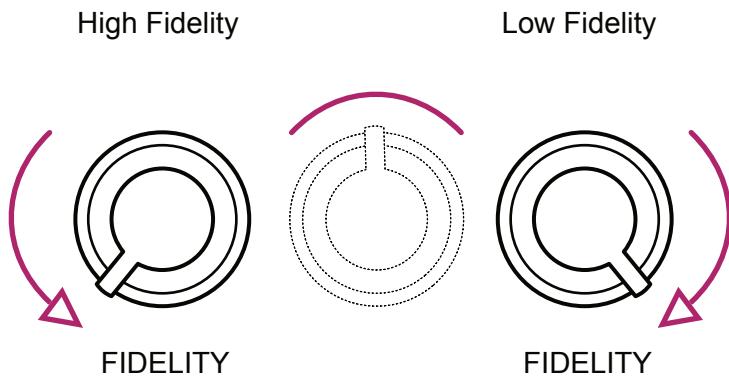
The sub is also included in the mix output with the sub mix controlling the amount of sub in the main mix output.

SUB

2 x Mono Audio Outputs.

T.MODE   FIDELITY   SUB

T.AMT   DECAY   MIX

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MIX

Standard mono 3.5mm / 1/8th
TS jack patch cables

ABOUT FIDELITY

Technically speaking fidelity refers to the accuracy of sound reproduction. Musical genres over the years have adopted the distinct character that comes with this quality into music production.
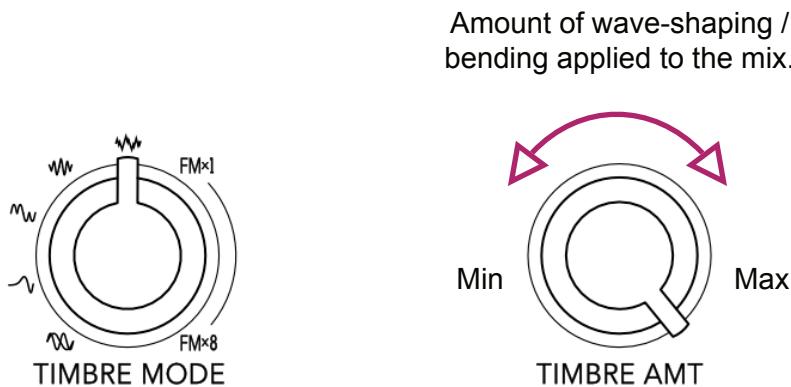
Osiris is a Bi-Fidelity™ Wavetable Oscillator which brings a ranged fidelity dimension into it's audio palette reminiscent of classic Amiga computers. Fidelity is applied to both the wavetable and the sub oscillator. Running at a pristine 96kHz the option to dial in high and low fidelity control greatly expands the creative options by offering subtle degradation textures or full on destruction or somewhere in between.

High Fidelity   Low Fidelity

FIDELITY   FIDELITY

Fidelity setting can be manually adjusted across the range between the high to low settings using the rotary control or modulated with a connected CV into the fidelity input

ABOUT TIMBRE

The Osiris enhanced feature set includes a timbre control. This goes beyond traditional sound coloring and tone control and introduces a series of wave-shaping options that brings a unique character to the Osiris sound. The timbre amount offers control from subtle to aggressive wave-shaping levels into the main mix.

Amount of wave-shaping / bending applied to the mix.

TIMBRE MODE

Min   Max

TIMBRE AMT

Symbol	Mode	Description
	Unison	Layers a second oscillator into the mix that detunes from 'slight beatings' to +1 octave.
	Bend	Compresses the waveform to a thinner shape.
	Fold	Introduces symmetric 2-stage wave folding by first mirroring the waveform and then folding it.
	Sync	Repeats the cycle count of the waveform within a Hanning window*. Makes the wave edges soft.
	Noise	Adds window-synced noise to the waveform phase.
FMx1	FM x 1	Applies phase modulation to the oscillator by using the same waveform as its source. Tip, FM1 is the most moderate.
FMx8	FM x…8	The FM scans through a ratio of 1 up to a ratio of 8 smoothly, with mixed stages in between. Tip, FM2 is the most moderate.

* Hanning window is a tapered wave shape that crosses zero at the start and end offering a smoother cycle and sound.
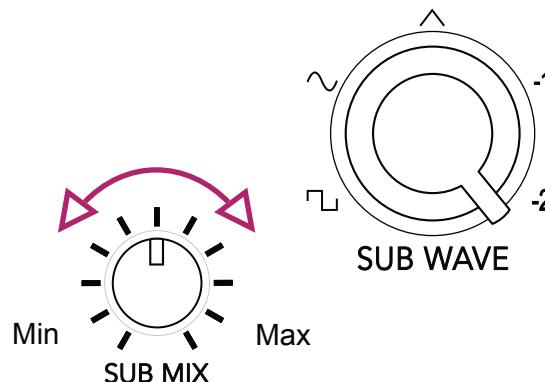
ABOUT SUB WAVE

An additional sub wave oscillator can be layered under the main wavetable oscillator for extra thickness and to boost the bass region. This gives more depth and elevates the wavetable sound. Wave selection is manual or via external CV.

Osiris also has a dedicated sub output fixed at full volume, as well as being available in the main mix. The amount of sub can be dialled into the mix using the sub mix control as the VCA is only applied to the main wavetable oscillator.

The sub pitch will track the main oscillator pitch and controls unless an external sub V/Oct pitch input is connected in which case the external CV will take control.

Sub wave shape options.

SUB WAVE

Min   Max
SUB MIX

Symbol	Wave	Description
⊓⊔	Square	A more aggressive and buzz like sounding wave.
∿	Sine	Classic wave for sub oscillators with a pure sound.
∧	Triangle	Softer more subtle shape for sub oscillators with a more brass like tone.
-1	-1	Main oscillator duplicated and layered one octave below the main osc.
-2	-2	Main oscillator duplicated and layered two octave below the main osc.

Modbap Modular by Beatppl : Osiris
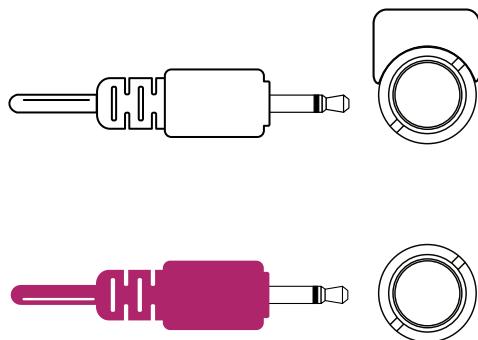
External Control

OSIRIS

The real creative power of Osiris comes from the external modulation options. Most of the on board manual controls with the exception of fine tune and sub amount are available for modulation control, patchable via the CV control inputs. V/Oct sets the overall pitch as well as the sub V/Oct pitch. The VCA can be triggered externally as well as the on board manual trigger. Patching possibilities are almost endless and its being creative and experimental in this area that really unlocks the power and unique sounds of Osiris.
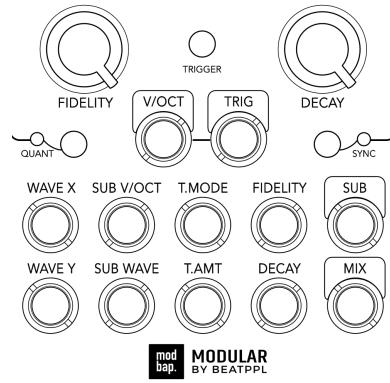
CONTROL INPUTS

Osiris provides voltage control over the onboard controls using the CV inputs. These will control the defined parameters. Gate inputs allow triggering the VCA and control voltages for parameter modulation Input connections are 3.5mm / 1/8th Inch TS (Tip & Sleeve) jack plugs.
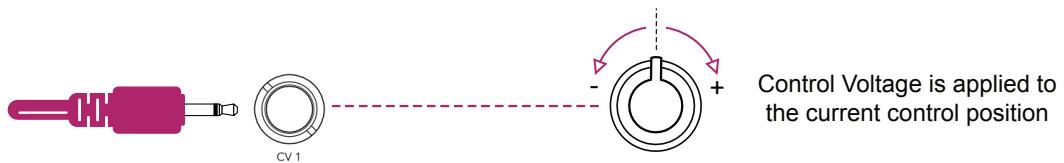
TRIG >1v activates the VCA envelope
and hence triggers the audio

9 x CV Inputs including the V/Oct pitch control
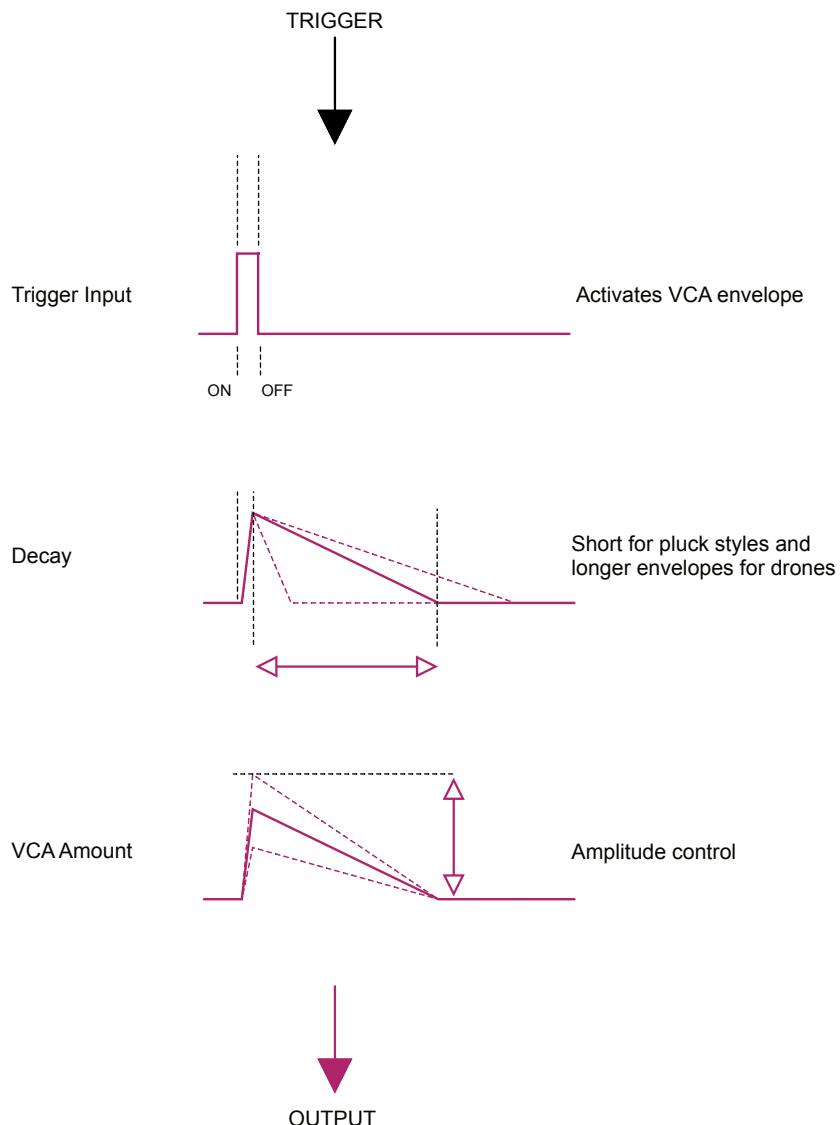are available using a +/-5V control signal

Standard mono 3.5mm / 1/8th
TS jack patch cables

CV 1

Control Voltage is applied to
the current control position
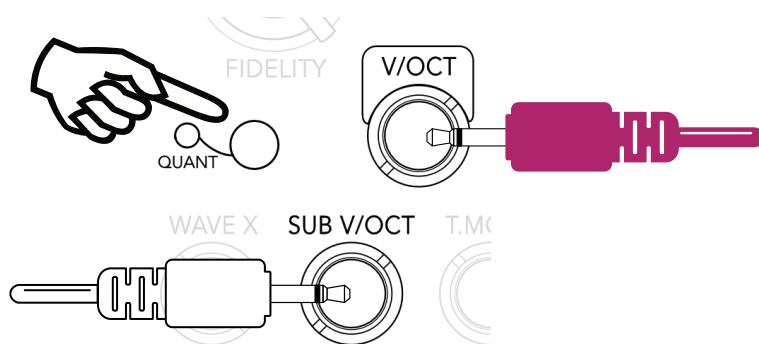
TRIGGERING THE VCA & DECAY

Connect a gate input to trigger the associated performance effect. This can be triggered by another modulation device such as a clock or sequencer with a threshold of >1V to trigger. The VCA has an amplitude control that can be manually adjusted or via CV inputs and a decay for creating drones or plucks through the note length.

TRIGGER

Trigger Input   Activates VCA envelope

ON   OFF

Decay   Short for pluck styles and longer envelopes for drones

VCA Amount   Amplitude control

OUTPUT

PITCH CONTROL

Pitch controls are provided on board with a pitch and quantize controls for octave adjustments and a fine tune control over semitones. Patching options follow the eurorack convention with V/Oct input control over pitch. A separate V/Oct input is also provided for the sub oscillator. The sub pitch tracks the main oscillator unless an external V/Oct is connected to the Sub V/Oct input. In this case the pitch control is independent for the sub oscillator.

Osiris also has an onboard quantize option. Selectable as on (LED On) or off (LED Off) with the dedicated quantize button

V/Octave pitch control is available for the main wavetable and the sub oscillators.
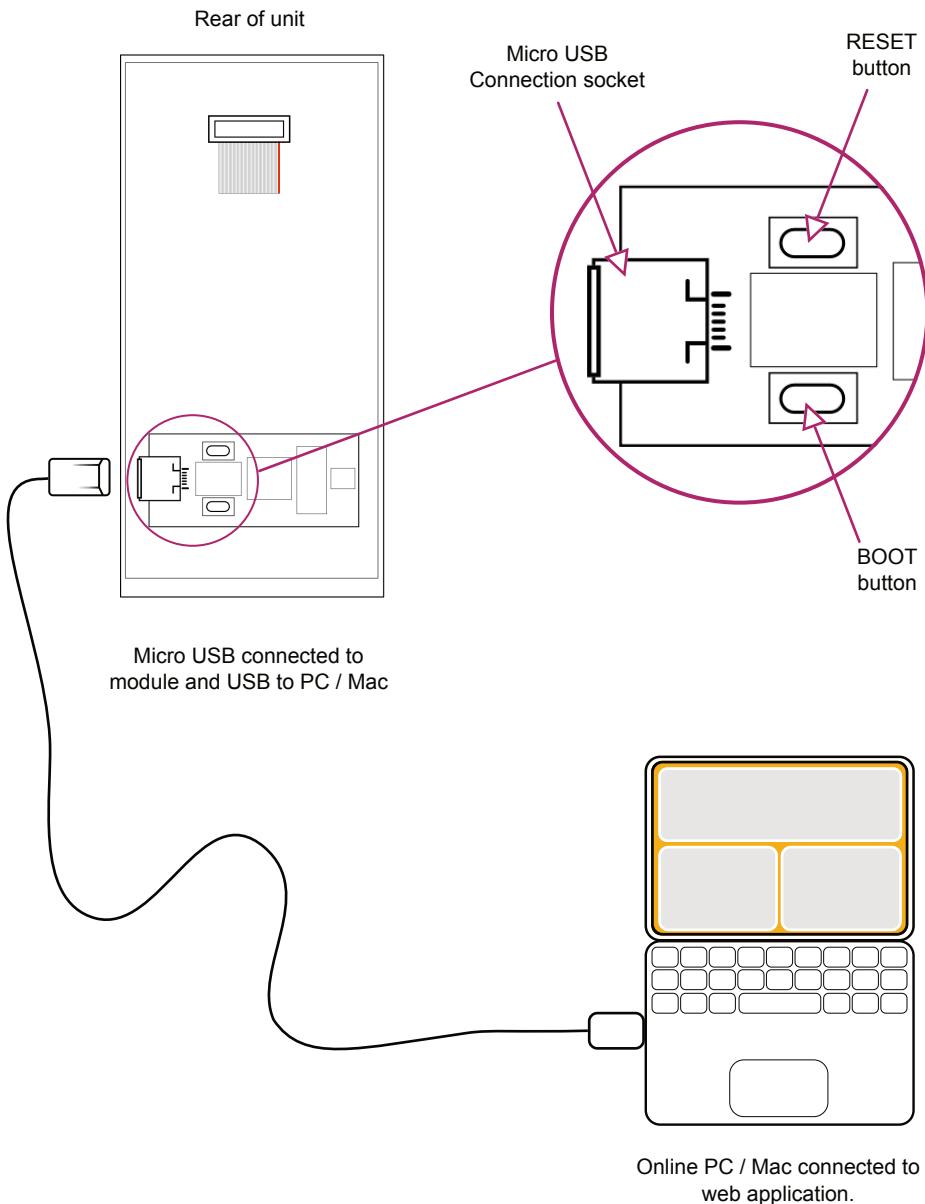Connections are standard mono 3.5mm / 1/8th TS jack patch cables

Modbap Modular by Beatppl : Osiris

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System

OSIRIS

Firmware updates occasionally are made available as the module feature set develops and also to introduce system improvements. The general update process is described here but it is important to read and follow the instructions issued with each firmware update. The process described here is for general information and may be subject to change. Check out modbap modular online for latest versions and updates.

FIRMWARE UPDATES

Occasionally firmware updates are available. This maybe to provide improvements to the functionality, fix bugs or add new features. Updates are applied using the micro USB connector on the rear of the unit and connecting to a PC or Mac.

Rear of unit

Micro USB
Connection socket

RESET
button

BOOT
button

Micro USB connected to
module and USB to PC / Mac

Online PC / Mac connected to
web application.
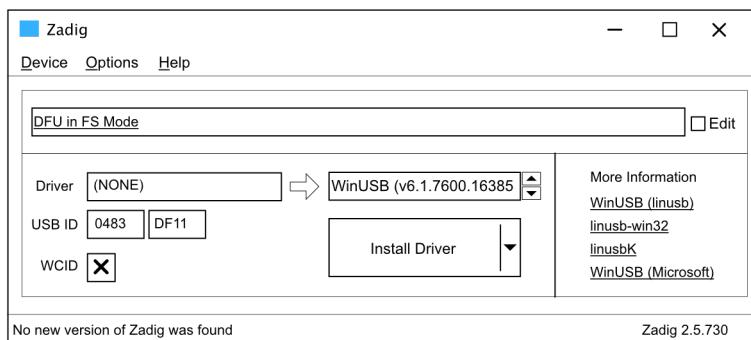
UPDATING THE FIRMWARE

The instructions below are a guide. Always follow the instructions that are provided with each update.

1. Download the firmware update.

2. Remove the device from the rack and ensure power is disconnected.

3. Connect device using a micro usb connection to the module and USB to a mac or PC. The module LED will illuminate. Power for the programming function is provided by the USB connection to the PC / Mac.

4. Open the programming utility at [electro-smith github](#) within the PC / Mac browser. It is recommended to use Chrome browser to ensure scripting compatibility.

5. On the module, firstly hold the boot button and then press the reset button. The module will enter boot mode and the single LED may appear slightly brighter.

6. On the programming page, press 'Connect'.

7. The option pop up box will open and select 'DFU in FS Mode'.

8. Click the bottom left option to select a file using the browser. Select the .bin firmware update file from the PC / Mac.

9. Click 'program' in the bottom programming section window. The status bar indicators will show erase status followed by upload status.

10. When complete disconnect the usb connection and reinstall into the rack.

11. Power on the rack and module.

UPDATING THE FIRMWARE - PC WINDOWS

The instructions below are a guide, follow the instructions provided with each update.

1. Windows PC's may need the original WinUSB drivers installed. It is recommended to install Zadig, a utility which reinstalls windows drivers, before updating. This can be downloaded from www.zadig.akeo.ie.

```
┌────────────────────────────────────────────────────────────┐
│ ■ Zadig                                    ─   □   ✕         │
│ Device   Options   Help                                     │
│ ┌────────────────────────────────────────────────────────┐ │
│ │ DFU in FS Mode                                   □ Edit │ │
│ └────────────────────────────────────────────────────────┘ │
│                                                             │
│  Driver  (NONE)      ⇨  WinUSB (v6.1.7600.16385 ▲  More Information │
│                                                 ▼  WinUSB (linusb)  │
│  USB ID  0483  DF11                                linusb-win32     │
│                         Install Driver       ▼    linusbK          │
│  WCID  ✕                                          WinUSB (Microsoft)│
│                                                             │
│ No new version of Zadig was found              Zadig 2.5.730 │
└────────────────────────────────────────────────────────────┘
```

1. Download the firmware update.

2. Remove the device from the rack and ensure power is disconnected.

3. Connect device using a micro usb connection to the module and USB to a PC. The module LED will illuminate. Power for the programming function is provided by the USB connection to the PC.

4. Open the programming utility at electro-smith github within the PC browser. It is recommended to use Chrome browser.

5. On the module, firstly hold the boot button and then press the reset button. The module will enter boot mode and the LED may appear slightly brighter.

6. On the programming page, press 'Connect'.

7. The option pop up box will open and select 'DFU in FS Mode'.

8. Click the bottom left option to select a file using the browser. Select the .bin firmware update file from the PC.

9. Click 'program' in the bottom programming section window. The status bar indicators will show erase status followed by upload status.

10. When complete disconnect the usb connection and reinstall into the rack.

11. Power on the rack and module.

SUPPORT AND FIRMWARE TIPS

SD Cards: Osiris has been tested with Sandisk Ultra 32GB, MicroHD, A1, HC 1 SD Cards formatted to FAT32. Its is well known that SD cards and their interfaces are not always identical in spec. Modbap Modular cannot provide technical support on the huge range of SD cards and their performance nor can we recommend any individual brands and types other than those tested and stated here. Choice of SD card is entirely at the users discretion.

Power Specs: Osiris is tested at a normal operating current of 50mA but may peak around 64mA during power up. This is normal with most Eurorack devices and isn't generally an issue unless the rack devices is on the limits of the PSU specification.

Firmware: There are several things to consider when updating the firmware from a PC or Mac. These tips will help to avoid any problems when updating.

1. PC users may need WinUSB driver installed to use the electro-smith utility. A PC application called Zadig may help install generic windows drivers. This is available from www.zadig.akeo.ie.

2. Ensure the USB is the correct type for data use. Some devices such as mobile phones are supplied with a Micro USB cable for charging purposes. The USB cable needs to be a fully featured USB cable. Any connected device may not be recognised by the web app if the cable is incompatible.

3. Use a browser that is compatible with running scripts. Chrome is a robust browser recommended for this purposes. Safari and Explorer are less reliable for script based web applications.

4. Ensure that the PC or Mac USB supplies power. Most modern devices have USB powered connections but some older PC/Mac's may not supply power. Use a USB connection that can supply power to Osiris.

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Limited Warranty

Modbap Modular warrants all products to be free of manufacturing defects related to materials and/or construction for a period of one (1) year following the product's purchase date by the original owner as certified by proof of purchase (i.e. receipt or invoice).
This non-transferrable warranty does not cover any damage caused by misuse of the product, or any unauthorized modification of the product's hardware or firmware.
Modbap Modular reserves the right to determine what qualifies as misuse at their discretion and may include but is not limited to damage to the product caused by 3rd party related issues, negligence, modifications, improper handling, exposure to extreme temperatures, moisture, and excessive force.

OS Version 1.0 December 2021

Manual designed by Synthdawg

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