TYPHON

Analog Synthesizer

USER'S MANUAL

dre:adbox

Firmware version 3 31/Dec/2020

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Introduction

I never read manuals.

So, first of all, let me just say that if you get bored reading manuals, feel free to skip to page 5 on the quick start guide.

Now if you do keep reading,

- you're probably just waiting for the synth to arrive, or

- you like to read (though this should really not be your first choice), or

- you just need to find out more about a certain feature
(but I guess you just went to the **"Table of Contents"** and already skipped all this mumbo jumbo), or

- you thought that the author of this manual (who is Yiannis) is a super cool guy and you want to check out what this Typhon stuff is all about (very unlikely).

In any case, thank you for reading this manual.
And in the case that you purchased Typhon, double thanks.

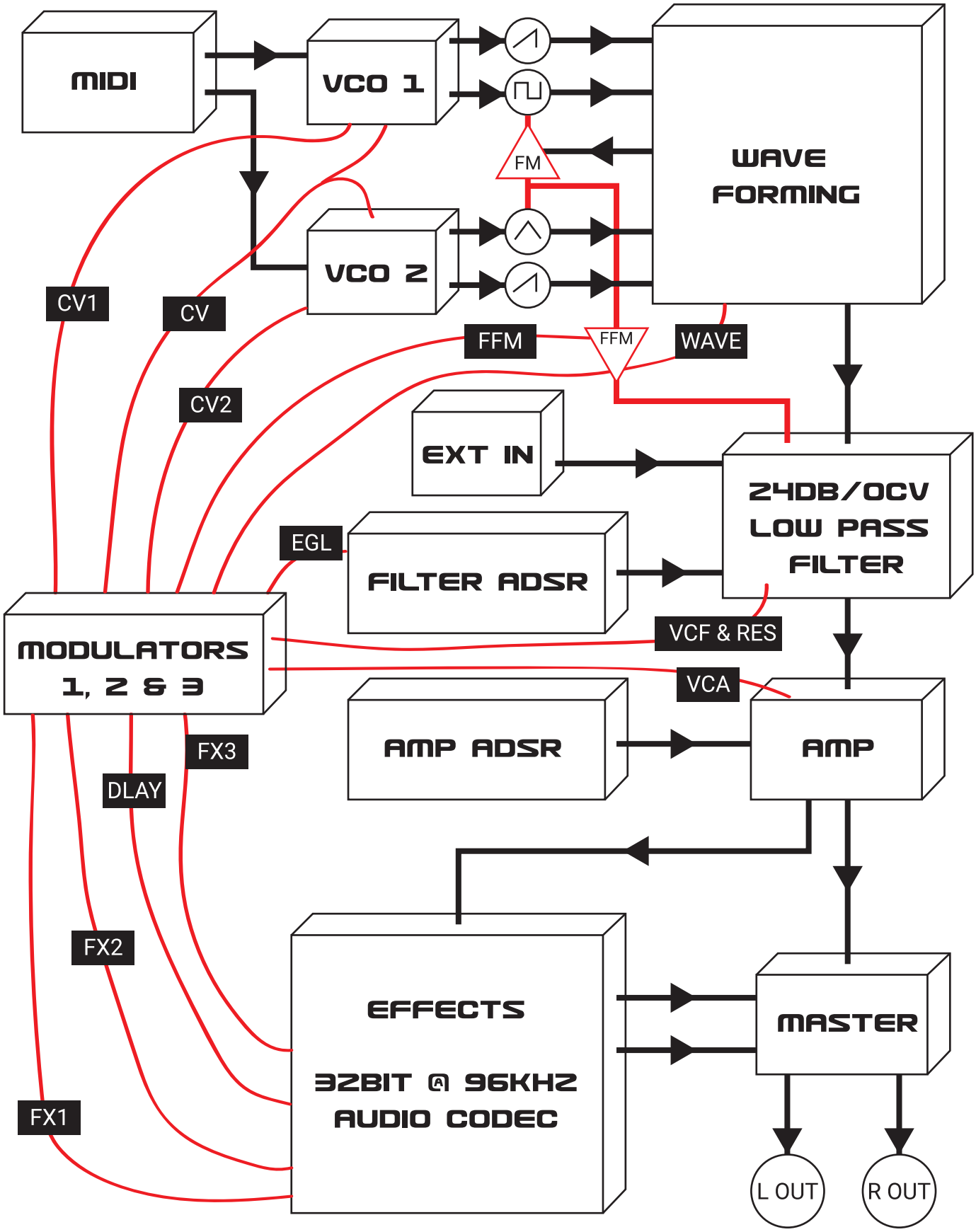
1.1 Key features

- 2 analog VCO's
- An analog 24db/octave resonating Low pass filter
- Analog VCA's
- 2 x Envelope generators dedicated to the filter and the amp respectively
- 3 x Modulators that can be either a LFO, envelope, random or step sequencer
- 32 bit @ 96kHz (depending on the effect type) Stereo DSP effects coded by Sinevibes including:
    - 5 Different distortions
    - A bit crusher
    - 5 x Enhancer effects (chorus, ensemble, flanger, phaser, pitch shifter)
    - 2 different delay types
    - 3 different reverb types
- 32 note sequencer
- 256 presets (Bank A and half the Bank B only contain factory presets)
- Extended Midi implementation (via DIN5)
- External audio input can turn this box into the ultimate effects unit
- Manage and exchange presets with the freely provided software (download from our website)
- Powered via USB, you can get 60 hours of continuous play with a 20.000 mAh power bank
- All aluminium enclosure - product made in Greece / EU

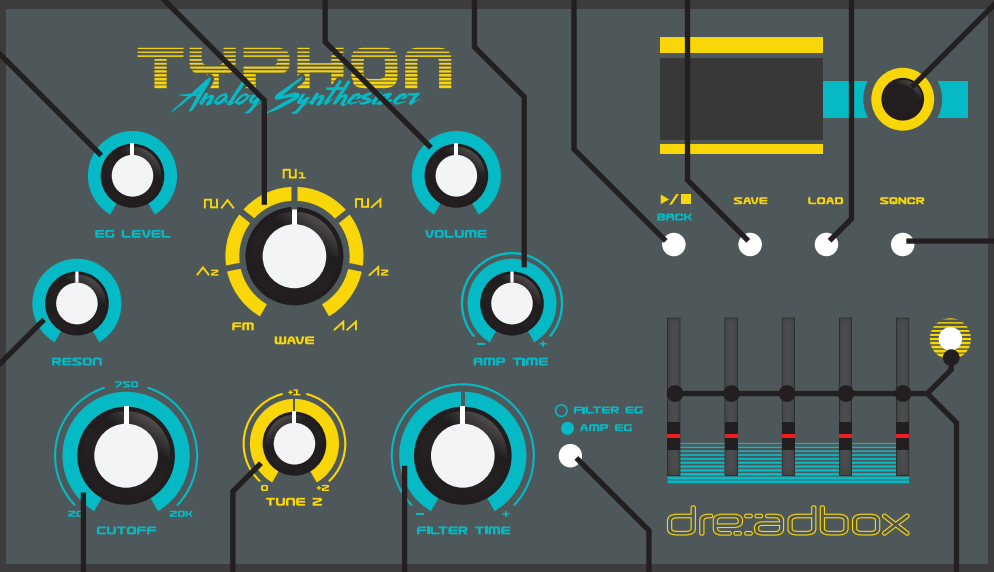
1.2 In the Box

You will find a Typhon synthesizer and a USB cable. Please note that a USB mains adapter or power supply is not included, as nowadays we all usually have few lying around the house. Almost any USB adapter will work with the Typhon, but there are some power considerations, so please check the **"Connections"** section of the manual before plugging in your Typhon.

1.3 Block Diagram



TYPHON Analog Synthesizer QUICK START GUIDE



Sequencer play/stop or when in the menu "BACK"

Change page (on main) or selected values and scroll through menus.
Push down to access the MENU.
Push down also works as an ENTER.

VCO 1 and VCO 2 setup

Amp ADSR time scale

Save your current sound

Master volume

Load a preset sound

Filter ADSR amount

Sequencer mode

Filter ADSR time scale

Sliders 1 to 5 are used to control parameters on the screen

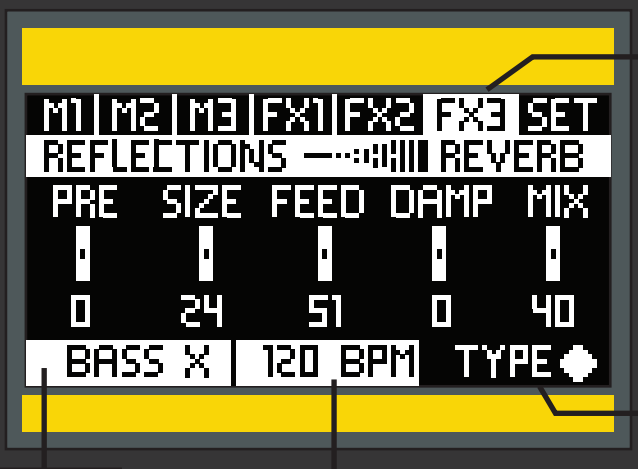
Button used to control screen features or to shift between diferent options for each page.

Filter resonance

Tune VCO 2

Access filter and amp ADSR

FIlter Cut off



Active page

Parameter that slider governs

These are corresponding on sliders 1 to 5

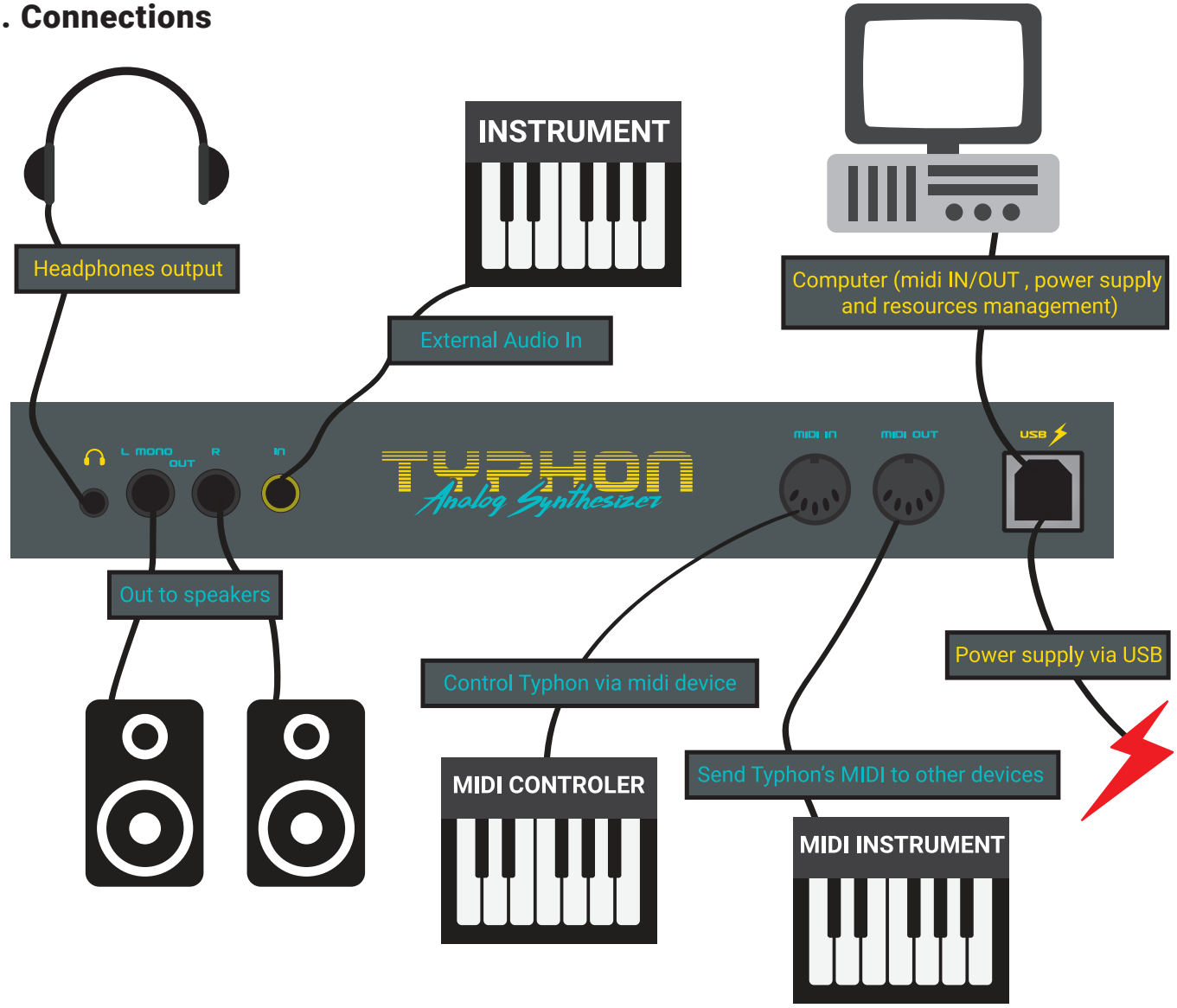
Parameter value

Screen Button Function

Active preset

Current tempo. To change it, access the sequencer and turn the encoder

2. Connections



2.1 Powering considerations

Even though the Typhon is an analog synthesizer, it can be powered with a simple USB cable. Giving the unit some extra mobility, you can just use a power bank and play anywhere (with a 20.000 mAh power bank you could power and play the unit for up to 60 hours).

Most homes nowadays have at least a dozen or so USB cables and power adapters lying around (from smartphones, computers, printers, and other devices), so we didn't think there was a point including one with the Typhon and adding to the environmental waste.

So, you're thinking, "Can I use any USB power supply?"
Yes, but there are some things you need to consider. Not having a dedicated power adapter means that depending on the USB power supply quality or your connection, could result in a dirty synth or noise floor. You can easily avoid those situations though, by following these simple rules:

- When you turn the Typhon on, there is a burst of noise occurring. This is normal and to encounter it, make sure you have the level of your monitor/amp turned off.

- Power the Typhon and all the devices connected to it, from the same mains power line. You should especially avoid using different mains (for example a mains line for Typhon and a different one for your amp/monitor) that have internal protection circuit. This can produce a constant noise generation from the output of the synthesizer, which can only be eliminated by reseting the unit.

- When powering the Typhon from a computer, if you use a DAW to process the unit's audio, a ground loop can be created, causing a noticeable hum. In that case, you should power the Typhon from a different power

supply, and not from the same computer that you're running the DAW on.

- Using a very long USB cable can also cause line noise. For cleaner sounding performance it's also better to use a USB cable that has a ferrite bead installed.

- Make sure your USB power adapter is rated for at least 500mA

- Poor quality USB power adapters should be avoided.

- And as mentioned above, when using a power bank, make sure it's a good quality one. You can also power a keyboard controller with the same power bank.

2.1.1 Bad power supply (or cable) side effects:
- May only boot the logo's screens and never enter the main page
- Lots of noise, abnormal sound elements
- Firmware updater may not work
- Preset handler may not be able to connect properly
- Screen may flicker or freeze

If you have any of the above effects, replace your adapter and/or cable asap.

You should also **avoid leaving the synth on power** when you are not going to use it for a long period of time (and that should be a rule for every electrical/electronic device) for various reasons. Most important is:
- Expanded life circle
- Protection of the environment

2.2 External Audio Input - Using the device as an effects box

Typhon's extended effects make it ideal for a use as an effects box.
There are some things to consider, though before doing this:

On page 4, note that EXT IN (external input) runs through the analog filter and the Amp, so:
- The internal oscillator must be muted
- The VCA must be kept constantly open
- The filter can affect the sound, so if the Cut off is fully closed, no sound will pass through
- Fretted instruments (or lower level output devices) may require extra pre- amplification

"So how do i get my input working? "

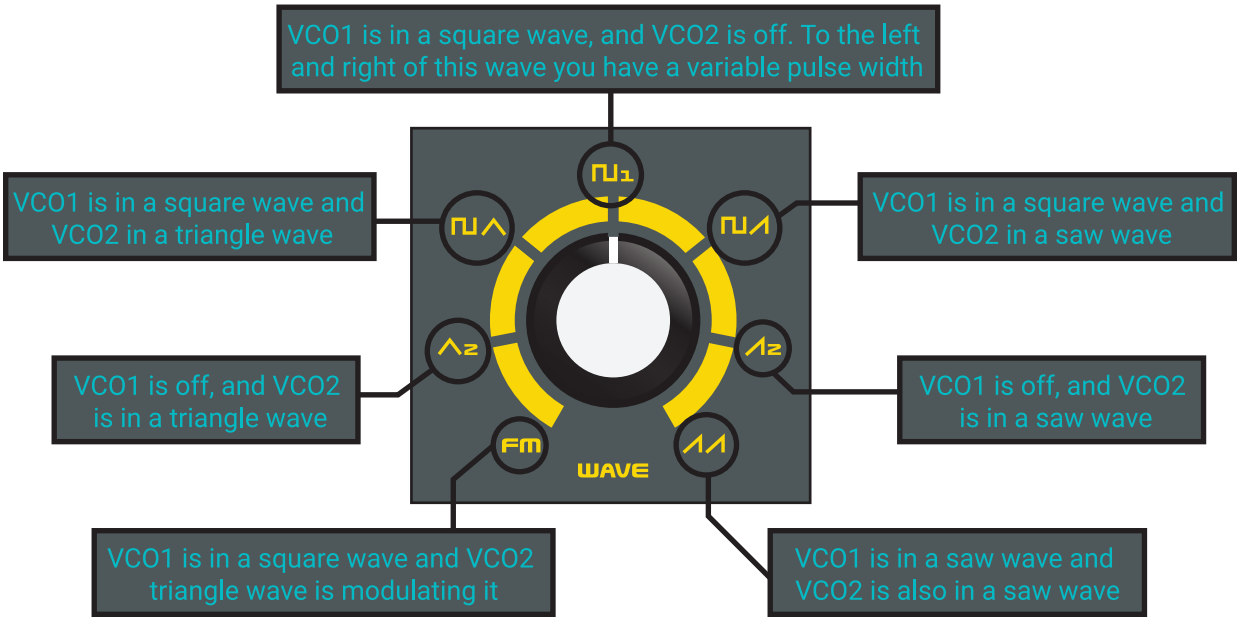
Two ways:
1. Use the factory preset Bank C-1 or
2. Make your own setting:
    - Make sure on Global Settings you have the MASTER CLOCK on internal
    - On SET page, adjust every parameter to 0 exept of VCA LVL at 100
    - Set Cut off from the left side at max, and reson to min
    - Now we need to keep the VCA constantly open. Go to any modulator (I prefer the use of M3) and set it at "STEP" mode. Then setup:

        # - 1
        Step - 1
        LVL - 100
        DEST - VCA
        LVL - 100

This last adjustment will set a step modulator at 1 step (so constantly active) to the VCA and always at max, meaning the VCA is constantly on.

3.Direct analog engine controls (left side)

Typhon's left side is dedicated to a set of 8 controls for quick and easy sound sculpting.



Wave: This controls the waveform, amplitude, and routing of the two oscillators. With just a single knob, you can get the most interesting and useful combinations that these oscillators can offer. While rotating the knob, the selected waves fade into the adjacent wave and oscillator settings, instead of just switching abruptly.

Tune 2: Controls the tuning of the second oscillator

Cut off: Controls the filter's initial cut off frequency

Reson: Controls the amount of filter feedback (Q or resonance)

EG level: Sets how much the filter ADSR envelope modulates the filter's Cutoff

Filter Time: Scales the initial filter ADSR envelope settings from 10 times as slow, up to 6 times as fast.

Amp Time: Scales the initial amp ADSR envelope settings from 10 times as slow, up to 6 times as fast.

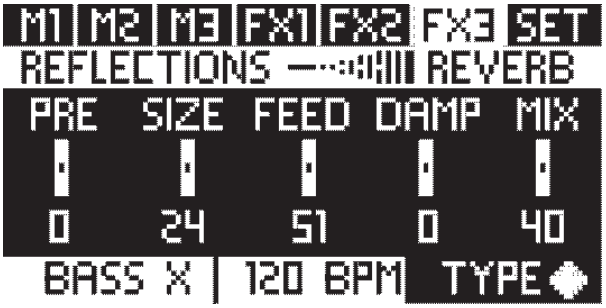
Volume: Sets the master level. Important to note, that this is a global setting and the only control that cannot be stored in a preset.

Filter EG and Amp EG button: Lets you enter the ADSR edit mode. Select the filter or the amp ADSR by pressing the "shift" button. Use the sliders to edit the envelope. By pressing it again, will exit the ADSR edit mode.

4. Screen general manual

Typhon, is built to be portable, compact sized and affordable, but offering substantial features and build quality. What we came up with, was a small, 128x64 OLED screen, controlled with a few buttons, a rotary encoder, and 5 sliders.

The general idea, is that each digital feature has a dedicated page. For example, there are 3 modulators, so there is a page for each of them (M1, M2, M3). Each of the 5 sliders is represented with a vertical line on the screen, where the top of this vertical line shows the function of the slider and the bottom of the line shows the current value for the slider.



While on the main page, rotating the encoder, will make a swap between the pages, but while in a menu, where you have lists, it will scroll the list. For a better view over that, you can also check the image located on the quick start guide.

To press enter, just push the encoder down. On the main page, this will access the menu. The back button, in the sound editing pages (modulators, effects, sequencer and envelopes) is used as the sequencer play/stop action. But when in a list or in a menu, where back is needed, this will not control the sequencer's play/stop but it will act as a "go back" action.

5. Presets

The Typhon has a 256 patch storage locations, divided into 4 banks for easy access. On start-up, Typhon will load Bank A , preset 1.
Upon loading a preset, you can start editing and sculpting its sound. Note that your changes will not be stored unless you "SAVE" the patch.
You can also backup, rename, rearrange, exchange and download presets online with the DREADBOX SOFTWARE, provided for free on our web-page at www.dreadbox-fx.com/downloads

5.1 Loading presets:

- Press "LOAD".
- Turn the encoder to choose a Bank from A to D and select it by pressing "LOAD" or pushing down the encoder
- Turn the encoder to choose a preset from 1 to 64 and select it by pressing "LOAD" or pushing down the encoder

5.2 Saving presets:

- Press "SAVE".
- Choose a Bank from A to D and select it by pressing "SAVE" or pushing down the encoder
- Choose a preset to replace from 1 to 64 and select it by pressing "SAVE" or pushing down the encoder
- A name editing field will appear. You can have up to 7 letters as a name for your preset. Available characters are: "A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 1 2 3 4 5 6 7 8 9 / - + % * . ? _ and the SPACE.
- To change a character, rotate the encoder; to move to the next character, push the encoder; to go back, just press "BACK".
- When you are done press "SAVE"
- SHORTCUTS: You can hold down "shift" button (the button next to the sliders) to delete all characters. You can click once the "shift"button to delete the selected character

6. Modulators

6.1 General

There are 3 available modulators, M1, M2, M3, that can be used on the Typhon. These 3 modulators can work at the same time and have multiple destinations for each modulator with different modulation amounts. Each modulator can be set to one of the following 4 modulation sources:

LFO | Envelope | Random generator | Step sequencer

Even though each modulator (M1, M2, or M3) can have multiple destinations, each modulator can only have one modulation source. So for example, M1 can have an LFO that modulates CV, Filter Cutoff, and Amp, but M1 can only have ONE of the 4 modulation sources operating at a time.

Each of the modulation sources has 3 dedicated controls to shape its motion. These are always the first 3 sliders. The last 2 sliders always control the destination (target of the modulator) and the level (amount of modulation). Those settings are preserved no matter which of the 4 modulation sources is selected for the modulator.

For example: You set a LFO, with DEST being CV, set at LVL being +10. If you switch the modulation source to an envelope, DEST CV will still have a value of +10.
Note that for CV-related destinations (DEST values of CV, CV1, or CV2), LVL values run from 0 to 0.9 and then 1 to 24, with the values representing semitones, but with all the other possible destination values (DEST), LVL values are scaled +/100.

6.2 Modulator destinations (DEST) and Custom targets :

CV	Pitch of both VCO
CV1	Pitch of VCO 1
CV2	Pitch of VCO 2
WAVE	Waveform of oscillators (as shown on the WAVE knob)
CUT	Filter cut off
VCA	AMP level
FX1	FX1 MIX amount
FFM	Filter FM amount
FX2	FX2 MIX amount
FX3	FX3 MIX amount
1._ _ _	Custom target 1
2._ _ _	Custom target 2
3._ _ _	Custom target 3

The last three targets are called Custom targets, as they are chosen from a list.
There are two ways to access this list:
1. while you are on the custom target that you want to change you press and hold the shift button (that is the button next to the sliders). That will pop up a menu , where you have to choose the parameter you want to affect.
2. Go to MENU (encoder down) -- 1. CUSTOM TARGETS -- then choose the modulator you want to alter -- and the custom target number.

List of Modulation Targets

	PARAMETER	SORT	NOTES
1	VCO PITCH	CV	
2	VCO 1 PITCH	CV1	
3	VCO 2 PITCH	CV2	
4	VCO WAVE	WAV	WAVE AS SHOWN ON THE LEFT SIDE
5	VCO LEVEL	VCO	FOR BOTH OSCILLATORS
6	VCF LOW PASS CUT OFF	CUT	
7	VCF HIGH PASS CUT OFF	HPF	As found on the FX1 page
8	VCF LOW PASS RESON	RES	
9	VCF EG LEVEL	EGL	
10	VCF EG TIME	VFT	
11	VCF FFM LEVEL	FFM	
12	VCA LEVEL	VCA	CONTROLS THE INITIAL LEVEL
13	AMP EG TIME	AET	
14	M1 CUSTOM 1 LEVEL	M11	NOT AVAILABLE ON M1 AND M2
15	M1 CUSTOM 2 LEVEL	M12	NOT AVAILABLE ON M1 AND M2
16	M1 CUSTOM 3 LEVEL	M13	NOT AVAILABLE ON M1 AND M2
17	M2 CUSTOM 1 LEVEL	M21	NOT AVAILABLE ON M2 AND M3
18	M2 CUSTOM 2 LEVEL	M22	NOT AVAILABLE ON M2 AND M3
19	M2 CUSTOM 3 LEVEL	M23	NOT AVAILABLE ON M2 AND M3
20	M3 CUSTOM 1 LEVEL	M31	NOT AVAILABLE ON M1 AND M3
21	M3 CUSTOM 2 LEVEL	M32	NOT AVAILABLE ON M1 AND M3
22	M3 CUSTOM 3 LEVEL	M33	NOT AVAILABLE ON M1 AND M3
23	M1 RATE	M1R	NOT AVAILABLE ON M1 AND M2
24	M2 RATE	M2R	NOT AVAILABLE ON M2 AND M3
25	M3 RATE	M3R	NOT AVAILABLE ON M1 AND M3
26	FX1 PARAMETER 1	F11	
27	FX1 PARAMETER 2	F12	
28	FX1 MIX	FX1	
29	FX2 PARAMER 1	F21	
30	FX2 PARAMER 2	F22	
31	FX2 PARAMER 3	F23	
32	FX2 PARAMER 4	F24	
33	FX2 MIX	FX2	
34	FX3 PARAMER 1	F31	
35	FX3 PARAMER 2	F32	
36	FX3 PARAMER 3	F33	
37	FX3 PARAMER 4	F34	
38	FX3 MIX	FX3	
39	SEQUENCER DIVISIONS	SDV	THIS WILL MODULATE THE DIVISION SLIDER, SO IT DEPENDS ON WERE THE SLIDER WAS LAST LEFT TO. Range is 32 to 1
40	SEQUENCER TEMPO	TEM	+/- 500 BPM RANGE. CAPS AT 0 BPM AND 1000BPM

6.3 LFO

The LFO or low frequency oscillator modulation source, is the simplest and the most common form of modulation that can be found in analog synthesis. A set of values are produced based on the selected waveform, and when that waveform ends, it just starts again. Your controls are:

RATE: The rate at which the cycle of the selected waveform is completed, or simply, the speed of the modulation.

WAVE: The LFO waveform . You can choose between Triangle, Square, 25% Pulse, Trapezoid, and Chaos Saw. In each cycle, the Chaos Saw randomly generates Saw waves at a different amplitude or level.

FADE: Dynamic control over the LVL of the LFO. When set to positive values, a fade in will occur. With negative values, the LFO fades out, until it reaches 0 LVL. A value of -100 means a one shot LFO. For no fade, just set this value to 0.

DEST: Modulation destination or target

LVL: Modulation level for the selected destination. You can have negative values. This lets you change the waveform by 180 degrees. For example the Saw is falling with positive (+) values, but rising with negative () values.

6.4 Envelope

With the envelope modulation source, a set of values are produced based on a user-defined envelope. Unlike the LFO (which repeats), the envelope only executes once (single shot) when triggered. It's also a common feature found in analog synthesis, mostly used for amplitude and filter expression.

Your controls are:

A: Attack, sets the rate the values rise for the first step of the envelope.

D/R: Decay / release, determines the rate the values fall for both the decay and release steps of the envelope.

S: Sustain, sets the level at which the values hold or stay when a key is pressed.

DEST: Modulation destination or target

LVL: Modulation level for the selected destination. You can have negative values. This allows you to shape the envelope in the opposite direction.

6.5 Random

The random modulation source, is exactly what the title describes: A random value generator, or as frequently (but not correctly) described a sample and hold.

Your controls are:

RATE: Speed at which the different values are randomly produced. When the LFO is synced to the unit BPM, this will also be governed by BPM divisions

LAG: Time at which different values slide

PROB: Chances that a new value will be produced

DEST: Modulation destination or target

LVL: Modulation level for the selected destination. You can have negative values. This allows you to have the random moving into inverted values.

6.6 Step sequencer

Like the note sequencer, the step sequencer is synchronized to the Typhon's BPM setting, but the two should not be confused as both provide different functions. While the note sequencer acts like a controller playing notes, the step sequencer is just another way to modulate parameters like the Filter Cutoff or the waveforms of the Oscillators.

The step sequencer always runs at the BPM rate, and it will also take advance of the note sequencer parameter "DIVISIONS" (for more info about this go to the "Note sequencer" section). The step sequencer continuously runs in the background, but restarts with every new note trigger, or every time you press the play button (when play is already engaged, it must first be stopped before it can take action again).

Your controls are:

#: Number of active steps

Step: Chosen step to edit

->LVL: Selected step value

DEST: Modulation destination or target

LVL: Modulation level for the selected destination. You can also have negative values. This lets the step sequencer modulation subtract from the destination's values.

Create a step sequencer pattern:

Let's make a simple pattern that modulates the filter cut off.

1. Push down the encoder and from the menu choose option 1. INITIAL PRESET
2. Set the CUTOFF knob at about 50%, and the RESON knob at about 70% so that the sound gets dark.
3. Select M1 and then hit the MODE (or shift) button until "STEP" is armed
4. Set the first slider (#) at 4
5. Select "CUT" as destination (slider 4) and set its level at + 50 (slider 5)
6. Select STEP 1 (slider 2) and set its LVL at 0 (slider 3)
7. Select STEP 2 (slider 2) and set its LVL at 15 (slider 3)
8. Select STEP 3 (slider 2) and set its LVL at 35 (slider 3)
9. Select STEP 4 (slider 2) and set its LVL at 55 (slider 3)

Now hit a note with your keyboard and you will notice that the filter is being modulated at the same BPM rate as the recorded pattern you just made. To change the pattern rate, hit SQNCR and rotate the encoder.
For more info about BPM check "9. NOTE SEQUENCER"

7. The Sinevibes Effects

Typhon is equipped with a set of powerful DSP effects developed by Sinevibes.
For more info about Sinevibes, please visit www.sinevibes.com

A high-quality, 32bit codec, running at 96kHz, is used to produce these effects, providing unparalleled sound quality. The chain of effects are ordered exactly the way they are named. FX1, then FX2, and finally FX3. Only one FX type can be active for each of the 3 categories. For example, you cannot have both the delay and reverb algorithms running at the same time, because they are both located on FX3.

When modulating an FX parameter (using any of the modulators), the algorithm that is modulated will be the one that is currently selected or armed for either FX1, FX2, or FX3.

All of the effects are stereo, but only some of them will produce a stereo element. The rest of the effects are still able to process a stereo signal.

7.1 FX1: High pass filter Distortion and Bit crush

High pass filter

This is a digital 2 pole high pass filter, which is placed in series after the VCA and before the effects chain. Although it's a resonant one, it cannot produce self oscillations. To fully by-pass the filter, set CUT to 0. Its cut off
range goes from 20HZ up to 20.000HZ

The rest of FX1 is dedicated to **distortion algorithms**. The Bit Crusher is also located here, as we consider it to be a distortion effect.

You can choose between 6 different algorithms:

Hard Clipping | Foldback | S-curve | Triangle Clipping | Shred | Bit Crusher

Your control values are global for all algorithms and they are:

GAIN: Distortion pre-gain

LVL: Distortion level (0 = no sound)

MIX: Effect mix

When using the Bit Crusher algorithm, GAIN becomes the sampling rate, and LVL the Bit depth.

7.2 FX2: Enhancers (Chorus, Ensemble, Flanger)

FX2 is dedicated to three different time-based delay effects and these are:

Chorus | Ensemble (a polyphonic chorus) | Flanger | Phaser | Pitch shifter

Chorus, Ensemble and Flanger:

DEPTH: Modulation amount

SPD: Modulation speed

WIDTH: When at 0, the effect is MONO. As you advance to 100 the left and right channels are split and a stereo effect is produced. At 100, both left and right channels have a 180 degree inverted modulation.

FEED: Feedback of the effect

MIX: Dry/wet balance. This parameter is global for all 3 algorithms

Barber pole phase shifter:

Based on the Bode frequency shifter algorithm configured with a positive feedback loop, which allows it to produce an audible illusion of endlessly morphing resonant spectrum sweeps. These sweeps are going "upwards" with negative phaser frequencies, or "downwards" with positive frequencies, and it's possible to seamlessly transition between these states.

SPD : moving speed

WIDTH : stereo spread

FEED : phaser feedback

MIX: dry/wet mix

Granular pitch shifter:

Granular pitch shifter uses real-time buffer recording and dual variable playback heads to speed the incoming audio up, or slow it down, changing its pitch. This algorithm features high-quality spline interpolation for ultrasmooth pitch adjustment within the range of two octaves. Its built-in feedback line also applies the pitch shift recursively – enabling creation of truly ethereal, spacey sounds.

SEMI L : sets how many semitones (up or down) the pitch changes for the left channel

SEMI R : sets how many semitones (up or down) the pitch changes for the right channel

DAMP : this is a filter (high pass at 1 to 100, and low pass at -1 to -100) on the total effect

FEED : feedback control

MIX : dry/wet mix

7.3 FX3: Reflections (Delay, Ping pong, Large Reverb, Soft Reverb, Cloud Reverb)

FX3 is dedicated to delay and reverb effects and include:

- Delay (a stereo delay that can have different delay times on each channel)
- Ping pong delay
- Large Reverb (a huge, lush reverb)
- Soft Reverb (a lite verion of teh large reverb)
- Cloud reverb (granular type reverb)

The first four effects share two common controls, that are governed from slider 4 to 5:

DAMP: A filter is added to the feedback loop of the effect. Minus values set a low pass filter and positive a High Pass one

MIX: Dry/wet balance. This parameter is global for all 3 algorithms

The 3 first controls for the Delay are:

L: Left channel delay time

R: Right channel delay time

FEED: Amount of repeats

For the Ping Pong:

TIME: Delay time

EMPTY: This control does nothing

FEED: Amount of repeats

For the Large and Soft Reverb:

PRE: Pre Delay time. A faint buzzing noise may be heard when changing values while the reverb is active

SIZE: Room size

FEED: Decay time

Cloud Reverb

This effect, continuously records audio into a buffer, and at the same time plays up to 12 separate grains from it – with each grain having its own randomised size and position within the buffer. Together with feedback and additional psychoacoustic stereo widening, this creates a lush “cloud of sound” reverb effect. Controls are:

TUNE : Detuning of each grain

SIZE : grain length

FEED : feedback

GRAIN : amount of active grains. From -12 to 12. Negative values set the playback in reverse

MIX : dry/wet mix

8. Other settings (SET page)

The right-most page “SET” allows access to the following settings:

VCO GLIDE: Portamento rate

VCO LVL: Vco1 and Vco2 level

VCF TRACK: Filter cutoff key track

VCF FFM: Filter frequency modulation (VCO2 triangle into filter cut off)

VCA LVL: Preset level

LEGATO button: Legato On or Off (will affect portamento and envelope re-trigger)

9. Note Sequencer

9.1 Controls

The note sequencer is a module that tells the Typhon what notes to play, when to play them, and how to play them. You can have from 1 to 32 steps in a sequence, covering a 6-octave range of notes.

To access the sequencer, press the SQNCR button. When in sequencer edit mode, the button will be lit. To exit the sequencer edit mode, just hit the SQNCR button again.

When in sequencer edit mode, the ENCODER now changes functions:
Rotate the encoder to change the BPM rate, or Press it Down to copy/paste a step's settings to another step.

Your sequencer controls are:

STEP: Choose the step you want to edit

OCV: Set the step's octave

NOTE: Set the step's note

GATE: Gate length. Use a value of 0 to get a note REST (no trigger) and a value of 100 to get a note TIE (which ties the current step to the next step in the sequence)

VEL: Step's velocity value. You must setup a Velocity target from the menu in order for this to work. For more info check 10.4 "Velocity"

And with shift ON (the button to the right of the sliders), you get access to these controls:

LENG: Sequence length. This also defines the max STEP value you can edit

DVS: BPM divisions

PROB: Chances that a step will be played. If a step isn't played, a rest will be produced instead.

SWI: Swing amount. For more info about swing, check this awesome article https://www.attackmagazine.com/technique/passing-notes/daw-drum-machine-swing/

9.2 Edit a sequence

Let's try to create a simple sequence of 4 steps playing C, E, G, B.

1. Push down the encoder and from the menu, choose option 1. INITIAL PRESET
2. Hit SQNCR, then press SHIFT (button 1) and set:
   LENG = 4 (this will have 4 active steps)
   DVS = 8 (produces 8 triggers/ BPM)
   PROB = 75 (this allows a 75% chances that a note will be played)
   SWI = 50 (this is no swing)
3. Exit SHIFT mode and select the first step to edit: With slider 1 (STEP) choose 1.
4. Set :
   OCV = +2
   NOTE = C
   GATE = 50
   VEL = 0
5. Then push down the encoder. A message "COPIED" will appear at the bottom right of the screen. Select STEP = 2. Then push the encoder down again. This process should paste the STEP 1 settings into STEP 2.
6. At this step (2) change NOTE to E and VEL to 25
7. Push the encoder again and select STEP 3. Push again to paste step's 2 settings.
8. At this step (3) change the NOTE to G and VEL to 60
9. Push the encoder one more time and select STEP 4. Push again to paste step's 3 settings
10. Now on this step (4) change the NOTE to B and VEL to 100

Press Play. A very simple sequence will be played.

9.3 Advanced note sequencer tactics

To follow up with this tutorial, please first complete chapter 9.2 “Edit a sequence”.

So, we have a sequence playing. Now let’s put the VELOCITY in use:

1. Exit the sequencer edit mode by pressing the SQNCR button.
2. Press the encoder and from the menu, choose option 4. VELOCITY
3. Choose option 5. CUT
4. Set to 50
5. Press “BACK” to exit the menu.
6. Adjust the CUTOFF at about 10 o’clock. You can also set the RESON to max for the result to be more dramatic.

And finally let’s add a step sequencer to this:

1. On the MAIN page, select M1
2. Push MODE (button 1) until you have the step sequencer armed.
3. Set:
   #: 5
   Step: Chosen step to edit - see below
   ->LVL: Selected step value - see below
   DEST: FX1
   LVL: +100
4. Choose :
   STEP 1 and set -> LVL 0
   STEP 2 and set -> LVL 40
   STEP 3 and set -> LVL 10
   STEP 4 and set -> LVL 100
   STEP 5 and set -> LVL 20

9.4 Note sequencer transpose

This is a constantly active feature, that allows you to transpose the notes of a note sequencer with an external midi controller.

To use it, a sequencer must be active (Play button on). By default, the base of the transpose is the middle C note found on a keyboard controller (C3). Hitting C3 will have no effect on the played notes. Anything below C3 will transpose the sequence down, and above C3 will transpose it up.
For example, if you hit D3 while a sequence is playing, the whole sequence will be transposed 2 semitones up.

Useful notes:
- The transposed note will be taken in consideration on the next available step, not on the one currently running
- Hitting many keys while on the same step will have no effect. It will only transpose to the last one played.
- Transposing a note below or above on the note range that the synth can reproduce (A0 to C8) will play the lowest or highest note available.
- Transpose will be reset to its default value (C3) each time the sequencer is stopped.

9.5 Note sequencer Record

This feature allows you to record sequences with the use of an external keyboard controller.
You can record note value and velocity amount. Gate will always be set at 50%.

Recording a new sequence:
- Press the SQNCR button to enter the sequencer edit page.
- To start recording a new sequence, press SHIFT and set STEPS # at 1
- Press SHIFT again. Now press and hold the encoder for 2 seconds. The word RECORD will appear on the lower right of the screen.
- Hit a key. Now the RECORD is changed to APPEND and the played note values are recorded to the selected step.

- Continue hitting keys. After 32 keys are pressed, the sequencer reaches its step limit and record mode automatically ends.
- If you want to stop recording at any other time, just hit down the encoder once, or exit the sequencer page

TIP:
RECORD = on key press , overwrite current step
APPEND = on key press record a new step after the one you have currently selected

Editing while recording , set REST and TIE:

To edit the last recorded step, you can normally use the sliders , so as to change note, octave, gate and velocity manually. This is also the way to set a step at REST or TIE.

To edit a previously recorded step (let's say you have just recorded step #8 and you want to edit step #2), just use the step slider to select step #2.
By doing this, the indication on the bottom right should be RECORD, meaning that your next key press will record step #2. Then, with the step slider , you can go back to step#8 APPEND and continue recording your sequence from the point you left it, or you can continue to record from step #3.

TIP:
You can have the sequencer playing while recording, so that you can listen to what you have edited so far.

10. Menu

To access the MENU, from the main page, push the encoder.
This will let you edit and manage some of the most useful parameters for controlling Typhon.

1. Custom Targets -->	M1-->	Custom1 to 3 --> Target selection
	M2-->	Custom1 to 3 --> Target selection
	M3-->	Custom1 to 3 --> Target selection
2. Sync options -->	M1 (free, key, bpm, bpm key)	
	M2 (free, key, bpm, bpm key)	
	M3 (free, key, bpm, bpm key)	
	FX3 (free, bpm)	
3. Mod wheel -->	(targets.. 0-100)	
3. Velocity -->	(targets.. 0-100)	
4. Aftertouch -->	(targets.. 0-100)	
5. Key track -->	(targets.. 0-100)	
6. Pitch wheel -->	(1-12)	
7. MIDI CC-->	CC (enable or disable)	
	CC2 target (targets.. 0-100)	
	CC handling (overriding or additive)	
	CC list (shows the full CC documentation)	
8. Global settings-->	Midi channels-->	Input (1-16 or All)
		Output (through or 1-16)
	Master clock sync mode (internal or external)	
	Control Handling-->	Knobs (catch or jump)
		Sliders (catch or jump) NOTE: Some slider controls will always be on Jump mode!
	Firmware version	
	Hardware check (performs a hardware check)	
	Screen saver (never , 1min, 2min, 5min, 10min)	

10.1 Custom Targets

From this menu, you can change the destination of the custom targets located at M1,2,3. For more info check on paragraph 6.2

10.2 Sync options

You can choose how your modulators sync, with respect to the internal BPM clock or with each keyboard/ sequencer trigger. This option only works for the LFO and RANDOM modulator sources.
You can also setup the delay times to be set according to the BPM. Note that max delay time is 1 sec, so trying to set anything above this, will just cap the time to 1 sec.
Entering this option will get you to the following list:

1. M1
2. M2
3. M3
4. FX3 (only FREE and BPM available - and only for the DELAY and PING PONG algorithms)

Choosing any of these will ask you to choose one of the following options:

1. FREE (the modulators will run freely according to the set RATE)
2. KEY (each time a new note is pressed, the modulator circles will start over)
3. BPM (all rates are now a div/mult of the BPM rate)
4. BPM KEY (as above combined with KEY)

10.3 Mod Wheel

This will set one or more destinations for your controller's modulation wheel.
Upon entering this option, you will be asked to choose a destination, and then the amount for that destination. You can hit the "shift"button (the one next to the sliders) to set the selected parameter, or all the parameters to 0(if you are in the list page)

10.4 Velocity

This will set one or more destinations for the Velocity parameter.
Upon entering this option, you will be asked to choose a destination, and then the amount for that destination. Velocity orders can be sent either by an external midi controller, or by velocity values in the note sequencer. You can hit the "shift"button (the one next to the sliders) to set the selected parameter, or all the parameters to 0(if you are in the list page)

10.5 Aftertouch

This will assign aftertouch to one or more destinations.
Aftertouch is controlled by the amount of pressure applied to a key, and can be found on many synths.
After entering this option, you will be asked to choose a destination, and then the amount for that destination.
You can hit the "shift"button (the one next to the sliders) to set the selected parameter, or all the parameters to 0(if you are in the list page)

10.6 Key Track

This will set one or more destinations for the key track parameter. Key tracking will add an offset, according to what note the synth plays.
Entering this option, you will be asked to choose a destination, and then the amount for that destination.
Key track can be input either by an external midi controller, or by note values in the note sequencer.
You can hit the "shift"button (the one next to the sliders) to set the selected parameter, or all the parameters to 0(if you are in the list page)

10.7 Pitch Wheel

The pitch wheel is an essential tool used while playing a keyboard, letting the player bend the pitch up or down a set number of semi-tones. Here you can choose the maximum number of semitones the pitch will bend up or down.

10.8 MIDI CC

Here you can setup MIDI CC behaviour of Typhon.

Entering this setting you have the following sub menu:

1. CC - ENABLED / DISABLED.
   This will also include the program change messeges. Better to turn these off when not used, as some controllers send CC orders by default

2. CC2 TARGET

   This will set one or more targets for the CC2 parameter.
   CC2 is a midi order originally associated with breath controllers, that can be used by an external con troller or by a DAW. Upon entering this option, you will be asked to choose a destination, and then the amount for that destination. You can hit the “shift”button (the one next to the sliders) to set the selected parameter, or all the parameters to 0(if you are in the list page)
3. CC HANDLING- OVERRIDING / ADDITIVE
   This indicated what will the incoming CC value will do: Override and completely ignore previous value, or add its value to the current one.
4. CC LIST

   This is just a list of midi CCs for reference, which can’t be edited.

10.9 Global settings

1. MIDI CHANNELS --> INPUT (1-16 or ALL)
   OUTPUT (1-16 or THROUGH)

   Here you can sellect at what channel your synth responds to.
2. MASTER CLOCK - INTERNAL / EXTERNAL

   This is a choise of whether the synth will have its internal BPM setting, or respond to an external MIDI clock, send by other MIDI devices
3. CONTROL HANDLING

   Here you can choose if your sliders / knobs respond directly to changes (JUMP), or if the user must pass over the current stored value before chnges start to apply(GRAB).
4. FIRMWARE VESRION

   Just a number indicating your current firmware version
5. HARDWARE CHECK

   This is mostly used on our workshop to check the synth. Feel free to try it out.
6. SCREEN SAVER

   This is used to set the screen in an OFF state, when it’s not in use so as to extend its life. We strongly suggest to have it engaged, even on the 10 minute circle. Time starts counting from the moment the screen (NOT the synth) is left inactive. When the set time passes with no changes, the screen will turn black and you can exit this mode with one of the following ways:

- Turn or push the encoder
- Hit the SHIFT button
- Apply any change to the screen. Note that if you have the sliders on grab mode, the screen will not go ON until a change to the values is applied.

11. MIDI implementation

Typhon can accept the following MIDI messages:

- Note ON/OFF
- Note Number
- Aftertouch
- Velocity
- Modulation Wheel
- Pitch Bend
- MIDI CC
- Programm changes
- Clock
- Transport messeges

Here is a list of the currently open CC orders

1. MOD WHEEL	...	63. M2 CUT LEVEL
2. CC2	33. VCF EG LEVEL	...
3. RESONANCE	34. VCA EG ATTACK	65. M2 VCA LEVEL
4. CUTOFF	35. VCA EG DECAY	66. M2 FX1 LEVEL
5. WAVE	36. VCA EG SUSTAIN	67. M2 FFM LEVEL
6. OSC 2 TUNE	37. VCA EG RELEASE	68. M2 FX2 LEVEL
7. GLIDE AMOUNT	38. VCA EG TIME	69. M2 FX3 LEVEL
8. VCO'S LEVEL	...	70. M2 CUSTOM 1 LEVEL
9. FILTER TRACKING	40. M1 PARAMETER 1	71. M2 CUSTOM 2 LEVEL
...	41. M1 PARAMETER 2	72. M2 CUSTOM 3 LEVEL
11. FILTER FM AMOUNT	42. M1 PARAMETER 3	73. M3 PARAMETER 1
12. HP CUT OFF	43. M1 CV LEVEL	74. M3 PARAMETER 2
13. HP RESONANCE	44. M1 CV1 LEVEL	75. M3 PARAMETER 3
14. FX1 PARAMETER 1	45. M1 CV2 LEVEL	76. M3 CV LEVEL
15. FX1 PARAMETER 2	46. M1 WAVE LEVEL	77. M3 CV1 LEVEL
16. FX1 MIX	47. M1 CUT LEVEL	78. M3 CV2 LEVEL
17. FX2 PARAMETER 1	48. M1 VCA LEVEL	79. M3 WAVE LEVEL
18. FX2 PARAMETER 2	49. M1 FX1 LEVEL	80. M3 CUT LEVEL
19. FX2 PARAMETER 3	50. M1 FFM LEVEL	81. M3 VCA LEVEL
20. FX2 PARAMETER 4	51. M1 FX2 LEVEL	82. M3 FX1 LEVEL
21. FX2 MIX	52. M1 FX3 LEVEL	83. M3 FFM LEVEL
22. FX3 PARAMETER 1	53. M1 CUSTOM 1 LEVEL	84. M3 FX2 LEVEL
23. FX3 PARAMETER 2	54. M1 CUSTOM 2 LEVEL	85. M3 FX3 LEVEL
24. FX3 PARAMETER 3	55. M1 CUSTOM 3 LEVEL	86. M3 CUSTOM 1 LEVEL
25. FX3 PARAMETER 4	56. M2 PARAMETER 1	87. M3 CUSTOM 2 LEVEL
26. FX3 MIX	57. M2 PARAMETER 2	88. M3 CUSTOM 3 LEVEL
27. VCF EG ATTACK	58. M2 PARAMETER 3	89. SEQ LENGTH
28. VCF EG DECAY	59. M2 CV LEVEL	90. SEQ DIVISION
29. VCF EG SUSTAIN	60. M2 CV1 LEVEL	91. SEQ PROBABILITY
30. VCF EG RELEASE	61. M2 CV2 LEVEL	92. SEQ SWING
31. VCF EG TIME	62. M2 WAVE LEVEL	

12. Shortcuts and hidden functions

1. **On preset save** : You can hold down “shift” button (the button next to the sliders) to delete all characters. You can click once the “shift”button to delete the selected character

2. **Modulators custom target selection** : while you are on the custom target that you want to change you press and hold the shift button. That will pop up a menu , where you have to choose the parameter you want to affect.

3. Menu modulations (Mod wheel, Velocity, Aftertouch, Key track, CC2) You can hit the SHIFT button to set the selected parameter, or all the parameters to 0 (if you are in the list page)

4. Note Sequencer record: Press the SQNCR button to enter the sequencer edit page. Now press and hold the encoder for 2 seconds. The word RECORD will appear on the lower right of the screen.

5. Note Sequencer step copy: Press the SQNCR button to enter the sequencer edit page. Hit down the encoder. A message “COPIED” will appear at the bottom right of the screen. Select another step. Then push the encoder down again. The original step is now copied to the selected one.

13. Specifications

USB powered (at least 1000mA)
60 Playing hours with 20,000mA portable power bank
MIDI Din5 IN and OUT
¼ inch unbalanced Stereo Out
⅛ inch balanced Headphone Out
⅛ inch unbalanced Mono Audio In (for routing via Typhon FX)

Dimensions: 23 x 13 x 6 cm
Weight: 1kg