



# dreadbox Nyx V2 Analog Synthesizer Owner's Manual

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## dreadbox Nyx V2 Analog Synthesizer



After the warm embrace of the Nyx V1 synthesizer, it was time to follow the idea hiding behind the Erebus V3. The new version of Nyx synthesizer has adapted to the format of the Erebus V3 and more features have been added to its arsenal, including:

- 2 Voltage Controlled Oscillators
- White Noise Generator
- extremely Flexible Dual Filter from simple 12dB/oct Low Pass, up to 24dB variable width Band Pass
- Multiple Routing Options
- 3 Loopable Envelope Generators
- Drone mode
- Modulated Reverb, ideal for Ambient sounds (new algorithm)
- 30 patch Points
- Auto-Tuning Function

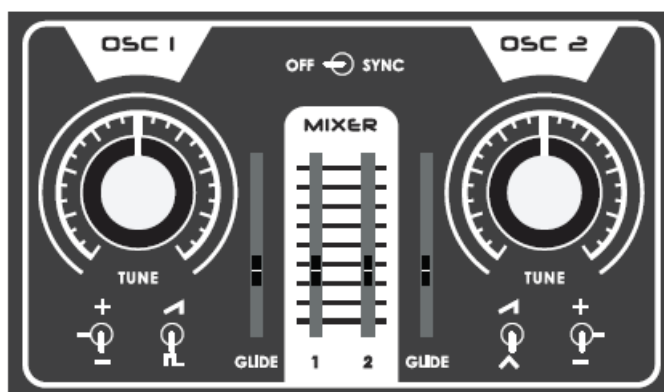
## The Oscillators

The Nyx v2 is equipped with 2 voltage-controlled, analog oscillators (VCOs). Both OSC 1 and OSC 2 offer identical controls and features, except OSC 2 offers a triangle wave instead of a pulse wave.

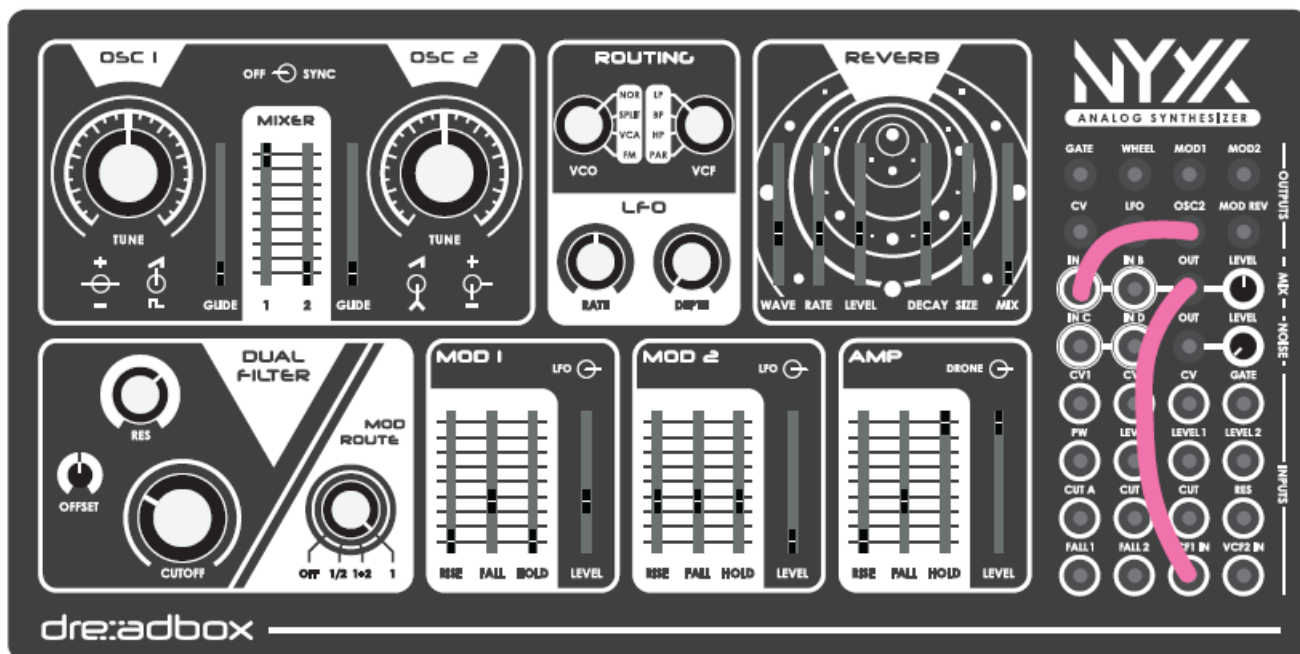
We suggest you to use the Nyx v2 with a MIDI interface, as its paraphony and oscillators' tuning precision heavily relies on MIDI.

### OSC 1 and OSC 2 Controls:

1. TUNE knob – allows for precise tuning of each VCO at  $\pm 12$  semi tones.
2. Octave Switch – transpose the VCO pitch over 3 octaves. When using the synth via CV, this should be left to the middle position, as it is MIDI based and calculates the autotuning correction.
3. Wave Select Switch – to select either the saw wave or pulse wave for OSC 1 or the saw wave or triangle wave for OSC 2.
4. GLIDE slider – allows independent control of the glide amount for each VCO. This will only work via MIDI, CV inputs ignore the GLIDE amount
5. MIXER – controls the level of each VCO. Please note that some “negative” amount is allowed, so as to assist a better CV via the patch points.
6. SYNC – Hard syncs VCO2 to VCO1 pulse. Please note that if VCO2 is at a lower frequency than VCO1, the effect can often have no result.



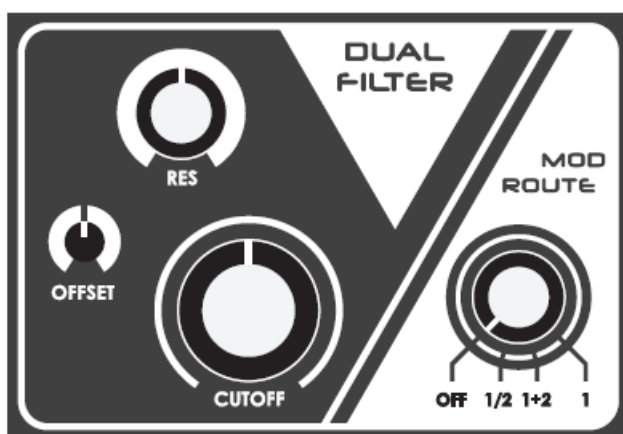
How to make an EXTREME DEEP BASS sound. Here is an example you MUST try. Make sure that the Oscillators are tuned with precision.



## The Dual Filter

### Filter Controls:

1. CUTOFF knob – sets the Cutoff frequency of both filters
2. RES knob – controls the amount of resonance (sometimes referred as Q) to the filter cutoff frequency
3. OFFSET knob – sets the Cutoff difference of the second filter. Normally is set at 50%
4. MOD ROUTE: No Modulator (MOD) controls the Filter
5. : MOD1 controls Filter1 MOD2 controls Filter2 1+2 : Both Modulators control both Filters 1 : Only MOD1 controls the Filter

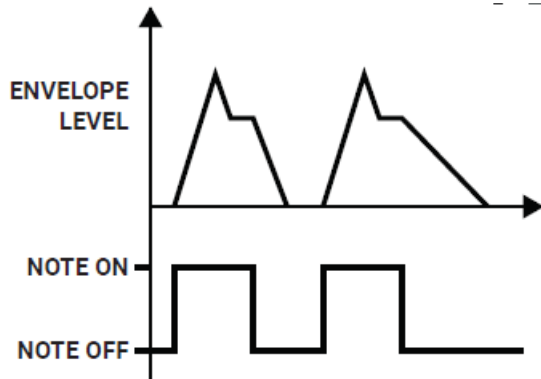
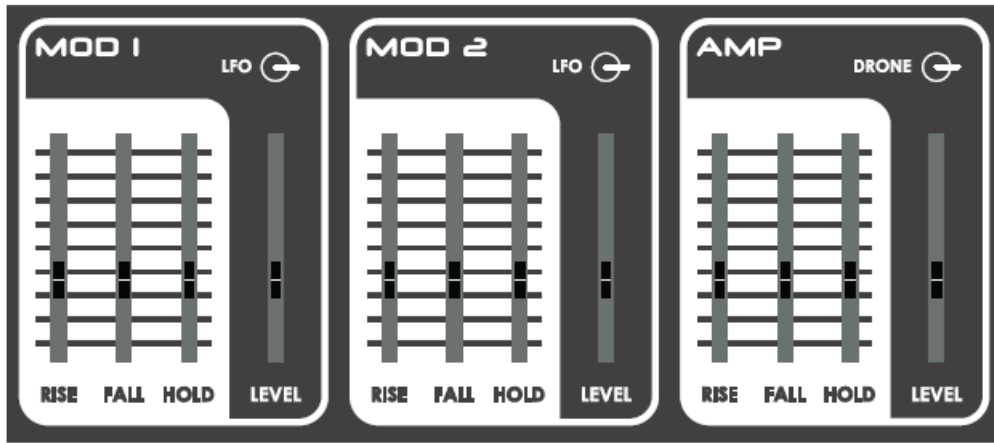


### About the Dual Filter

The Nyx V2 Synthesizer, is equipped with 2 pre-fed Filters, each at 12dB/oct. You can achieve various Filter combinations, from a Classic 24dB/oct Low Pass or even a variable width Band Pass. Please refer to the “ROUTING” for more info.

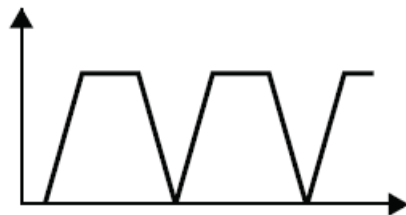
### The Modulators

Nyx V2 offers 3 Digital Modulators/ Envelopes. MOD1, MOD2 and the AMP modulator. When on Envelope mode, each time a MIDI note is ON or a Gate is triggered, the Envelopes will start doing their cycle.



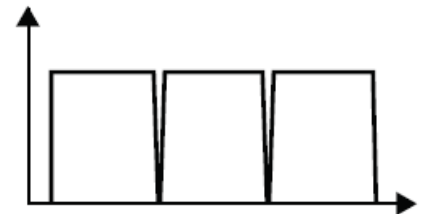
**Rise** stands for the Attack time  
**Fall** is the Decay and Realease time  
**Hold** is the Sustain Level

When on LFO or Drone (for the AMP) Mode, the Modulators function as Cycling Envelopes.



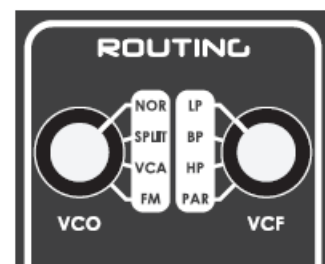
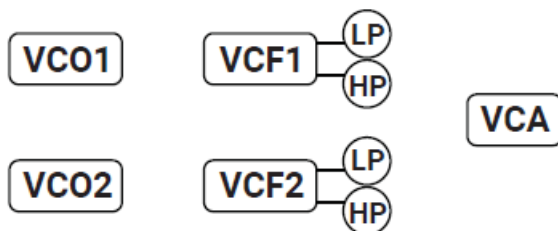
**Rise** is the rise time  
**Fall** is the fall time  
**Hold** is the time that is left on a high state

Having both Rise and Fall at 0% and Hold at a decent amount, will result in a constant high, but with short "off" bursts.



## The Routing

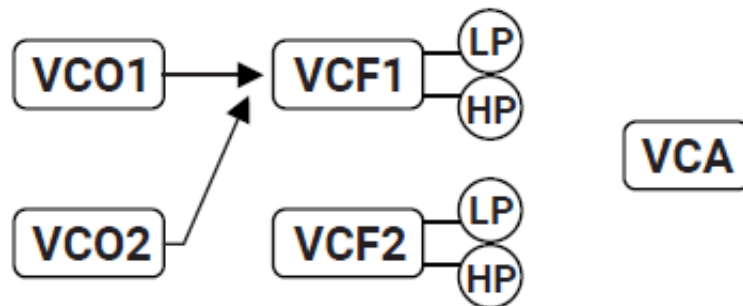
The routing section is the most important part of the Nyx v2 synthesizer. Understanding how it works, is the key to create complex sounds. There are 2 routing controls (+ the MOD Routing, which is explained on the Filter section), VCO and VCF. Let's have a look at the following scheme :



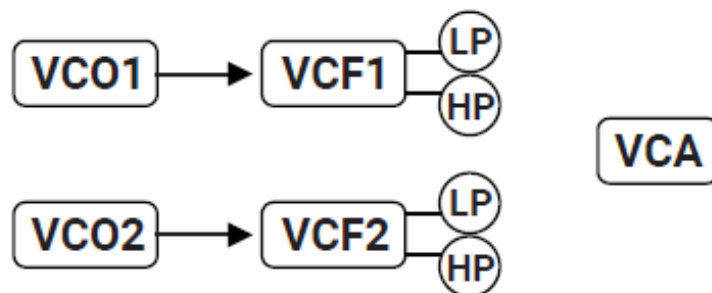
You can see the main parts of the synth. These will be routed now via the routing controls

## VCO ROUTE

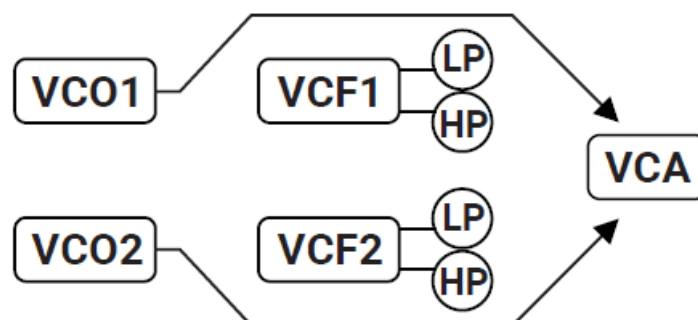
**NOR:** Stands for NORMAL. Both VCOs are sent to VCF1



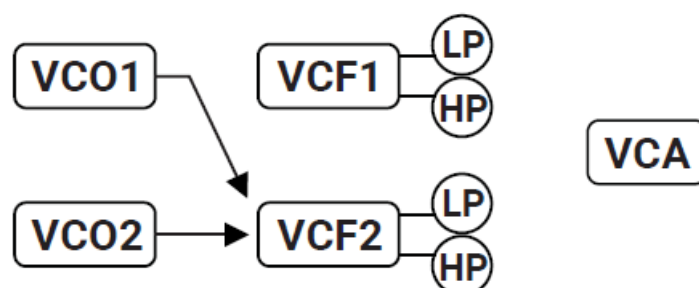
**SPLIT:** VCO1 is being sent to VCF1 and VCO2 is being sent to VCF2.



**VCA:** Both VCOs are being sent directly to the VCA.

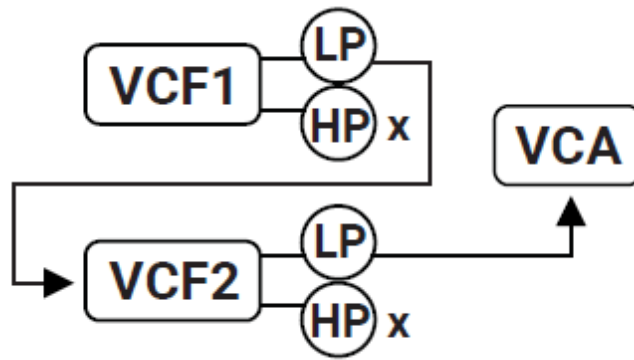


**HALF:** Both VCOs are being sent to VCF2.

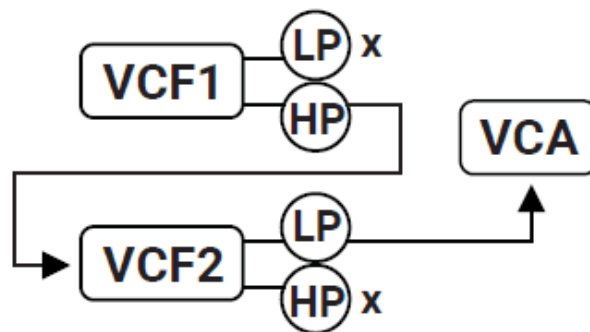


## VCF ROUTE

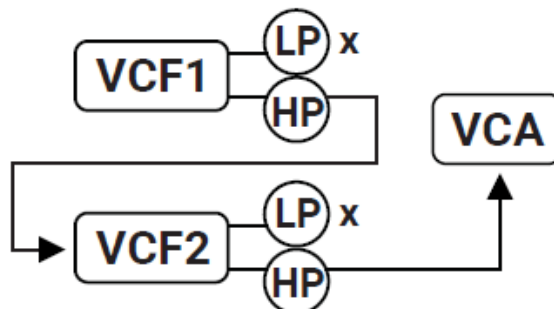
**LP:** Stands for LOW PASS. Both filters are set to a Low Pass mode and in series.



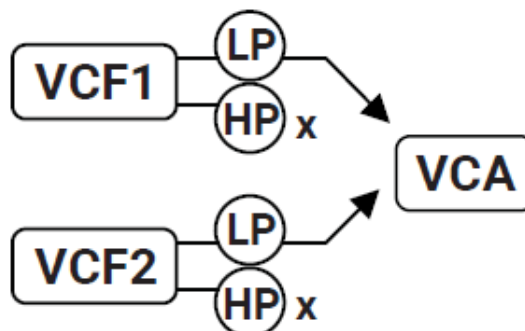
**BP:** Stands for BAND PASS. The filters are in series, but VCF1 is on HP mode and VCF2 is on LP mode.



**HP:** Stands for HIGH PASS. The filters are in series and both are in High Pass mode.



**PAR:** Stands for PARALLEL. The filters are in Low Pass mode, but they are independant from each other.



Now combining all the Routing information, we have created a table with the following options.

	<b>LP</b>	<b>BP</b>	<b>HP</b>	<b>PAR</b>
<b>NOR</b>	24dB/oct Low Pass	12dB/oct Band Pass	24dB/oct High Pass	12dB/oct Low Pass VCF2 is free
<b>SPLIT</b>	VCO1 24dB/oct Low Pass	VCO1 12dB/oct Band Pass	VCO1 24dB/oct High Pass	VCO1 12dB/oct Low Pass
	VCO2 12dB/oct Low Pass	VCO2 12dB/oct Low Pass	VCO2 12dB/oct High Pass	VCO2 12dB/oct Low Pass
<b>VCA</b>	pure VCOs free filters 24dB/oct Low Pass	pure VCOs free filters 12dB/oct Band Pass	pure VCOs free filters 24dB/oct High Pass	pure VCOs 2x free filters 12dB/oct Low Pass
<b>HALF</b>	Free resonant Low Pass and 12dB/oct Low Pass	Free resonant High Pass and 12dB/oct Low Pass	Free resonant High Pass and 12dB/oct High Pass	Free resonant Low Pass and 12dB/oct Low Pass

If you combine all the above with the Modulation Routing options, you can have a wide range of combinations. For example:

- VCO -> SPLIT
- VCF -> PAR
- MOD -> 1/2

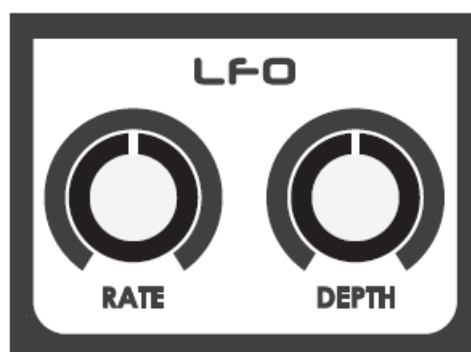
You have each VCO with its own filter and independent modulator.

## The LFO

Nyx V2 has a simple but effective LFO, which was designed mostly for pitch vibrato sounds.

LFO Controls:

1. RATE knob – sets the LFO cycle rate
2. DEPTH knob – sets the LFO amount



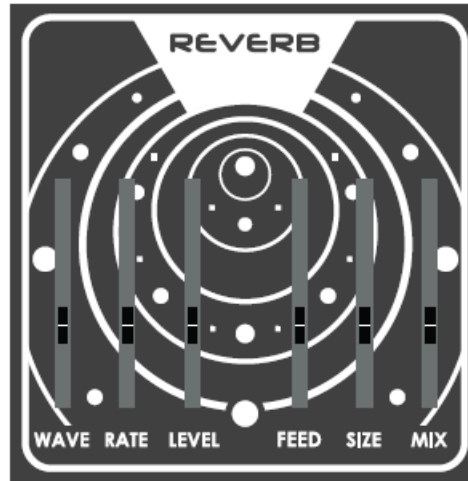
## The Reverb

We have developed a new algorithm for the Reverb of the Nyx V2, to accompany drones so as to create haunted and aetherial soundscapes. The first three slider controls consist the modulation of the effect and the last three

are the actual reverb controls. The Modulation of the Reverb, is a random voltage generator, which will actually create a “movement” on the sound.

### **Modulation Controls:**

1. WAVE slider – smooths the waveform of the modulation
2. RATE slider – sets the frequency of the modulation event
3. LEVEL slider – sets the amount of the modulation



### **Reverb Controls:**

1. FEED slider – sets the decay of the reverb
2. SIZE slider – sets the room size
3. IX slider – blends between completely dry to wet sound

Please note that overdriving the signal, especially when the FEED is high, will cause the effect to distort. Also when setting the mix of the oscillators above 70% or applying too much resonance, self oscillation can distort the signal.

### **The Amp**

In order to control the Nyx V2 VCA, we use the Amp Modulator, which is described in the Modulator section (p. 5). The Amp Modulator is functioning exactly the same as the others. The difference is that instead of the LFO mode, we have a DRONE mode, which is exactly the same but named differently for clarity, as when this is engaged the synthesizer produces sound without having to trigger it via MIDI or Gate.

### **Drone Mode**

There is another Drone Mode available through setting switches 3,4,5 to the ON position that enables you to have pitch control over the Oscillators without the use of an external device. Now the GLIDE sliders of each oscillator transforms to the Coarse Tuning, but the Octave switches and the MIDI note messages are deactivated. You can still send all the other available MIDI messages.

### **The Patch Bay**

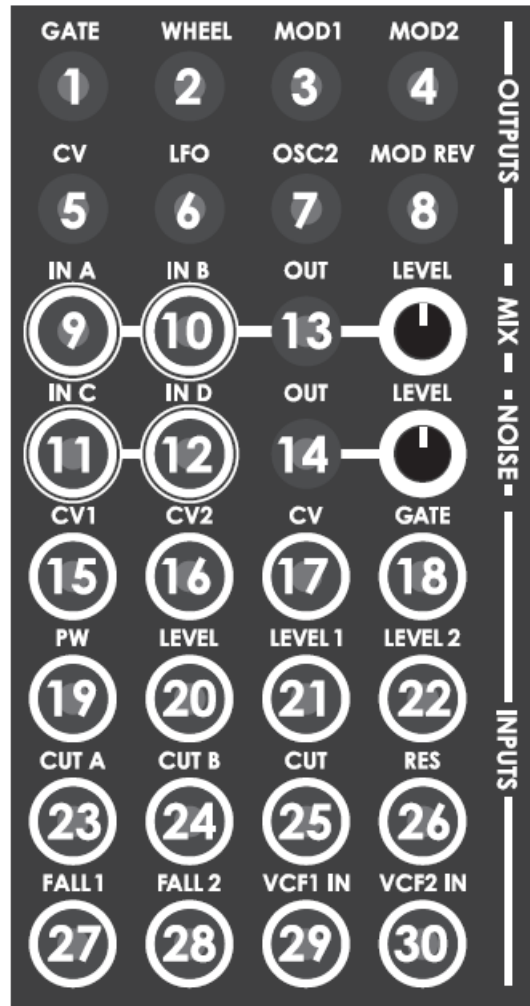
The Nyx V2 has 30 patch points, offering endless routing and modulation possibilities. The Patch Bay is consisted of 4 major parts:

#### **GENERAL OUTPUTS**

1. GATE : outputs the gate CV (0-6.5V pulse)



2. WHEEL : outputs the modulation wheel CV (0-5V)
3. MOD1 : outputs the Modulator 1 CV (0-5V)
4. MOD2 : outputs the Modulator 2 CV (0-5V)
5. CV : outputs the MIDI notes to CV (0-10V) over 10 octaves
6. LFO : Direct output of the LFO. When patching this, the effect on the pitch of the oscillators will be cancelled.  
(+/- 3V)
7. OSC2 : outputs the selected wave of the OSC2 (+/- 5V)
8. MOD REV : outputs Reverb Modulation CV. Always at max level (+/- 5V)



## MIX

9-12. IN A, IN B, IN C, IN D : mixer inputs (+/- 10V max)

- OUT: outputs the sum of IN A, IN B, IN C, IN D  
LEVEL : sets the level of the mixer's output (+/- 10V max)
- OUT : white noise (+/- 5V max)  
LEVEL : sets the level of the White Noise

## INPUTS

1. CV1 : OSC1 CV input 1V/oct (+/- 2% off to precision) (+/-10V)
2. CV2 : OSC2 CV input 1V/oct (+/- 2% off to precision) (+/-10V)
3. CV : OSC1 and OSC2 CV input 1V/oct (+/- 2% off to precision) (+/-10V)

4. ATE : expects a 0 to 5V pulse so as to handle as a Gate signal. (can accept from 3.3V up to 10V)
5. PW : pulse width control over the square wave of OSC1
6. LEVEL : controls the amplitude of both OSC1 and OSC2 (+/-5V)
7. LEVEL1 : controls the amplitude of OSC1 (+/-5V)
8. LEVEL2 : controls the amplitude of OSC2 (+/-5V)
9. CUT A : controls the Cutoff frequency of Filter1 (+/-5V)
10. CUT B : controls the Cutoff frequency of Filter2 (+/-5V)
11. CUT : controls the Cutoff frequency of both Filter1 and Filter2 (+/-5V)
12. RES : controls the amount of the resonance (+/-5V)
13. FALL1 : controls the fall rate of the MOD1(+/-5V)
14. FALL2 : controls the fall rate of the MOD2(+/-5V)
15. VCF1 IN : audio input on VCF1
16. VCF2 IN : audio input on VCF2

## **The MIDI Interface and DIP Switch**

The Nyx V2 has a relatively simple MIDI interface, as it is an improvisation synthesizer, patch bay use is needed so as to get the most out of it. Both MIDI IN and MIDI THRU jacks can translate MIDI input as described in the table below. Please note that MIDI THRU will not transfer the MIDI ground. This is needed for some gear in order to work properly. If that is the case, avoid using the MIDI THRU. Also, the MIDI THRU can be used to send a second MIDI device to control the Nyx V2 at the same time. Here is the complete list that the MIDI interface will handle:

- Note tracking
- Gate on/off
- Pitch wheel
- Mod wheel
- Channels from OMNI up to 6th.

## **MIDI CHANNELS**

In order to change the MIDI channel, just use the DIP switch located on the back panel of the Nyx V2. For the MIDI selection, we use DIP 3,4, and 5.

OMNI 3,4,5 off

- CH1 5 on  
CH2 4 on
- CH3 4,5 on
- CH4 3 on
- CH5 3,5 on
- CH6 3,4 on

## **UNISON / PARAPHONIC MODE**

Nyx V2 is a Paraphonic synthesizer, but it can also be used in standard Unison (mono) mode. In order to change between the 2 modes, use the DIP switch 2 on the back panel. By default when 2 is off, Para-phonic mode is enabled.

When in paraphonic mode, by hitting a single key all VCOs will follow this note, but by hitting a second at the same time, it will have OSC 1 playing the low note (Low note priority), and OSC 2 playing the last note (Last note priority). In paraphonic mode, envelopes are always on retrigger mode. Normally, when releasing 2 pressed

notes, all sources will follow the note last pressed.

In Unison mode, only one note will follow. Every time a new note is pressed, the oscillators will track this one (Last note priority). Envelopes on this mode are always without retrigger.

## **AUTOTUNING**

When DIP 1 is On, the background autotuning is active. This means that whenever the AMP envelope is at a rest, (the release stage must have ended!) the autotuning will kick in, after 1 second. This will calibrate the scaling of the oscillators, so as they are constantly in tune. Each calibration takes about 10-15 seconds and it will run in an endless loop. After just 1 calibration, the unit is ready to play, but it is strongly suggested that you allow the synth to warm up for at least 5 minutes before playing. When powering up the unit an auto tune calibration will start and this will "lock" your synthesizer from all Gate and MIDI signals for about 30 seconds.

You can deactivate this by setting DIP 1 to off position. This will force the unit to make a single auto-tune – regardless the AMP state. For example, have OSC 1 on, set the filter to a wide open state and the sustain and release of the AMP at max. Press a key and immediately turn the DIP 1 off. This will do a single audible autotuning process. The only reason to set the DIP 1 to the off position, is the need to use the synthesizer for modular purposes with other gear, as when the AMP is low, the OSCs will be calibrated and they will shift in octaves. This might be a rare occasion and most of the times you will want the DIP 1 set to on. Nonetheless, if you have to do it, let the unit warm up for 20 minutes, and then you can turn the DIP 1 off, with confidence that the Oscillators are in tune.

## **AUTOTUNING TROUBLESHOOT**

The Oscillators cannot stay in tune:

Make sure that the synthesizer is not affected by any heating elements (a/c, radiator, etc.) and that it is generally in a temperature stable environment. Have in mind that the Nyx V2 is an analog synthesizer with the pros and cons that comes with it. Also check that the DIP1 is ON or that before setting it to the OFF position, the unit has been warmed up, as described above. I can hear the Autotuning on the background:

It has been observed that the Nyx V2, sometimes, when it is connected to other devices that add a gain element to its output and not directly to a monitor, may create a ground loop. This will cause the Auto-tuning procedure to be audible at about -70dB. You can negate this, by setting the Nyx V2 AMP level at max and control the volume of the synthesizer from the connected device. Additionally, you can allow the unit to warm up for 20 minutes and then set the DIP1 to the OFF position.

### **DIP switch / Pin's description**

1. Auto- tuning ON/OFF
2. Paraphonic / Unison
3. Midi Channel
4. Midi Channel
5. Midi Channel
6. Service Mode 3+4+5 : Drone Mode

### **Service Mode / Fine Tuning Procedure**

In order to tune the Nyx V2 synthesizer, a MIDI keyboard, a pair of speakers and a tuner is needed. Connect everything and turn the unit on for at least 30 minutes on Autotune Mode (DIP1 ON).

1. Set both Tune potentiometers to center position (50%)
2. Set VCO routing at VCA
3. Set all modulations, modulators, filter and effects at 0%.
4. Set VCA HOLD and LEVEL to 100%.
5. Turn on the DIP 6 and restart the synth by toggling the power switch. A LED will start blinking under OSC2

Tune.

6. Toggle 5 times the Drone switch of the AMP and the LED will make a fast flashing sequence and then becomes stable. Toggle 5 times more this switch and the LED will start flashing fast. After 30 seconds or more the flashing speed will be decreased. The synth now is ready to start the auto-tune procedure. On this mode Glide sliders are repurposed as finetune controls.
7. Turn OSC1 level to 100% from the mixer.
8. On the MIDI keyboard press and hold A0 and with the Glide slider set the tune to match that note.
9. Set OSC2 level to 100% and set the glide slider to that note so no beating occurs.
10. Set OSC2 level to 0% and let the key.
11. Repeat steps (8,9,10) for A1, A2, A3, A4, A5 and A6 respectively.
12. When A6 is tuned turn DIP6 to off position and restart the synth.

### **ATTENTION!**

Each time you release a key, for example if you press A2 and then release it, it will automatically store your current Glide (FineTune) settings for both oscillators for the octave C0-C7. Be careful so as not to accidentally hit any other key than the ones noted in the procedure above. If you do so you must repeat the whole process from the beginning. Be sure to follow it exactly as described.

## **Firmware Update V2.0**

Nyx's Firmware was reconstructed from scratch, so as to provide the best possible user experience.

### **Improvements**

- Modulator's minimum time is now 3ms per stage, down from 12ms per stage, with a maximum of 15 sec per stage. The sampling rate has been also drastically improved.
- The Autotuning time is now reduced to 8 sec down from 30 seconds.
- The Autotuning precision is managed at about 0,3% (down from 1,5%)
- The Midi interface is now reconstructed, so as to offer a more stable and reliable response.
- The Gate output will now transmit the retrigger Order (a short pause between high Gates).
- A settings Mode has been added.
- Velocity and Aftertouch MIDI Orders have been added (Selectable via the settings mode).
- You can now change the range of the pitch wheel, from 0 to +/-12 semitones (selectable via the Settings mode).
- A shortcut for deep Drone mode has been added (selectable via the Settings mode).
- A fine tuning setting for the TUNE knobs has been added.
- Midi channel 7 is now available.
- Modulators retrigger ON/OFF is now selectable.

### **Bug fixes**

- Midi stuck notes are now eliminated.
- Fixed a bug where external gate would not trigger the synth.
- MOD1 and MOD2 level outputs are now 0- 5v (up from 0- 4v).
- Fixed a bug where on power up, the synth needed up to 1 minute to start reacting.
- Fixed a bug where fine tune would not work.

- Fixed the autotune issue where the synth would not occasionally be tuned correctly.

## Quick Start Manual for Firmware V2.0

DIP switches on the back are now as following:

(It is suggested to set all switches to OFF as a default)

**DIP 1:** Modulator retrigger (when the switch is ON = retrigger, otherwise modulators are in legato) **DIP 2 :** DUOPHONIC / MONO. OFF= DUO, ON= MONO

**DIP 3 :** MIDI channel 1 (for more info about MIDI channels check the manual)

**DIP 4 :** MIDI channel 2

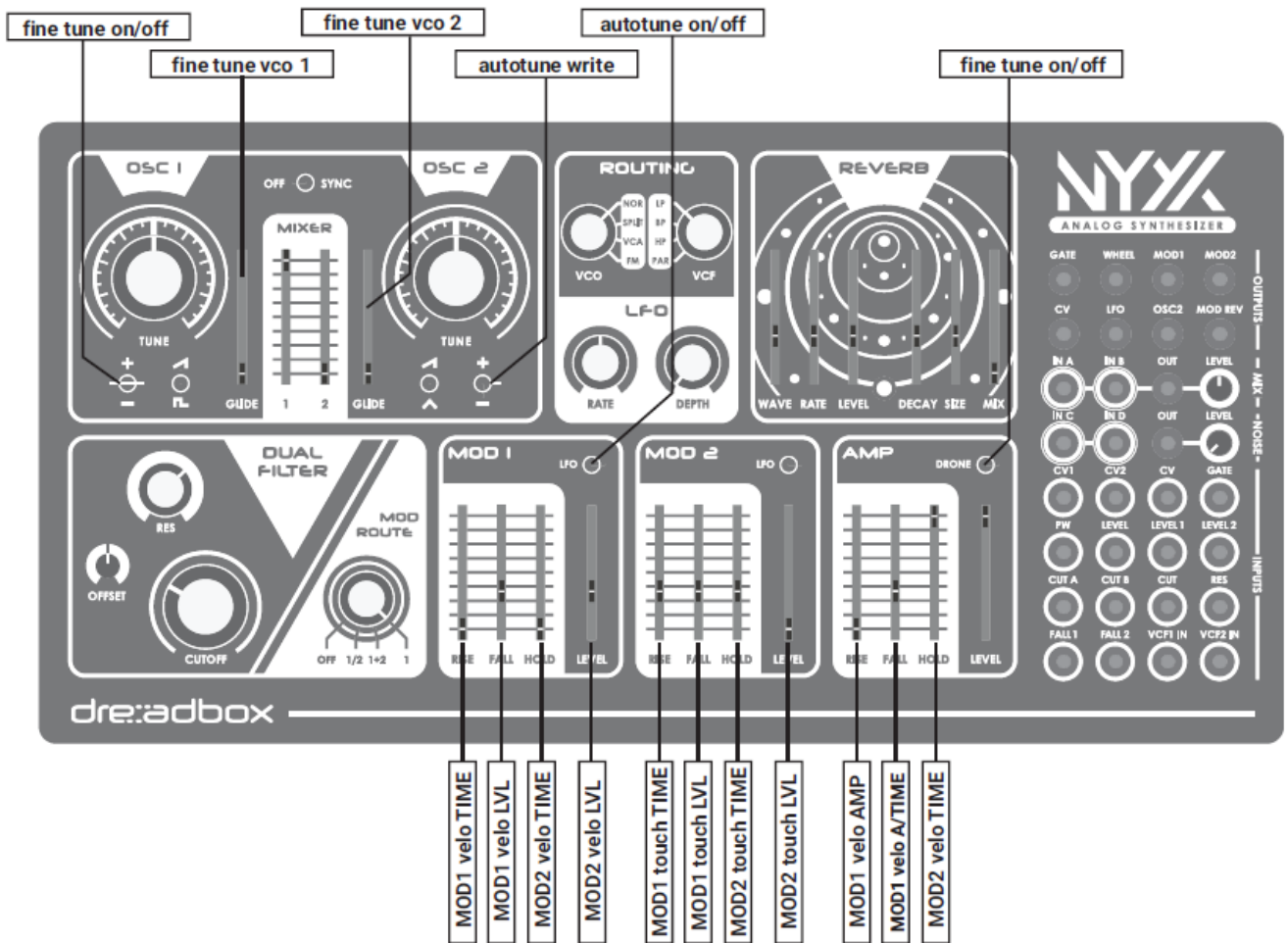
**DIP 5 :** MIDI channel 4

**DIP 6 :** Firmware update or ENTER settings. When powering up the Nyx, if DIP 6 is at ON position, you will enter the firmware update state. Make sure that DIP 6 is always OFF when powering up the synth. Once the NYX is powered and working, when you set the DIP 6 to the ON position, you will enter the Settings Mode. Even though the synth continues to function normally, some of the switches and slid-ers are now set to a different parameter. How does the Settings Mode work? Well simply, change the parameters you want, and when you exit this mode (by setting the DIP 6 to OFF) they are stored. If you do not do any change while you are in this mode, it will keep its previous values. You can cancel any changes by turning the synth OFF without setting DIP 6 to OFF. Be careful to lift it again before powering NYX V2 up, as then you will enter the firmware update mode.

**GLIDE 2 :** when on Fine Tuning mode, this will set the tuning of OSC2

Once the Fine Tuning is done, set the OSC1 OCTV to OFF so as to exit this mode and temporarily store these settings. OSC2 OCTV SWITCH(+ or -): Enter the Autotune Write mode. An autotuning (audible this time) will be performed and will be stored so as to be used as a default. This is useful, when the autotuning is turned off (for modular use), so as to have a relatively precise tuning, even without having the autotuning ON. NYX V2 will also use this as the first autotuning setting on power up.

- **LFO SWITCH:** When is set to LFO (left), autotuning is ON. When is set to right, autotuning is OFF **MOD1 RISE:** Sets the velocity amount for Modulator 1 Time Scale
- **MOD1 FALL:** Sets the velocity amount for Modulator 1 Level
- **MOD1 HOLD:** Sets the velocity amount for Modulator 2 Time Scale
- **MOD1 LEVEL:** Sets the velocity amount for Modulator 2 Level
- **MOD2 RISE:** Sets the aftertouch amount for Modulator 1 Time Scale
- **MOD2 FALL:** Sets the aftertouch amount for Modulator 1 Level
- **MOD2 HOLD:** Sets the aftertouch amount for Modulator 2 Time Scale
- **MOD2 LEVEL:** Sets the aftertouch amount for Modulator 2 Level
- **AMP RISE:** Sets the velocity amount for the AMP Level
- **AMP FALL:** Sets the velocity amount for the AMP Time Scale
- **AMP HOLD:** Sets the Pitch wheel's range from 0 to 12 semitones
- **AMP DRONE SWITCH:** Sets the type of "Drone": When on Drone (left), the Deep Drone mode is en-gaged. When on the right, the AMP modulator will act like an LFO. On Deep Drone mode, glide controls are converted into coarse tuning, and the AMP is constantly ON.



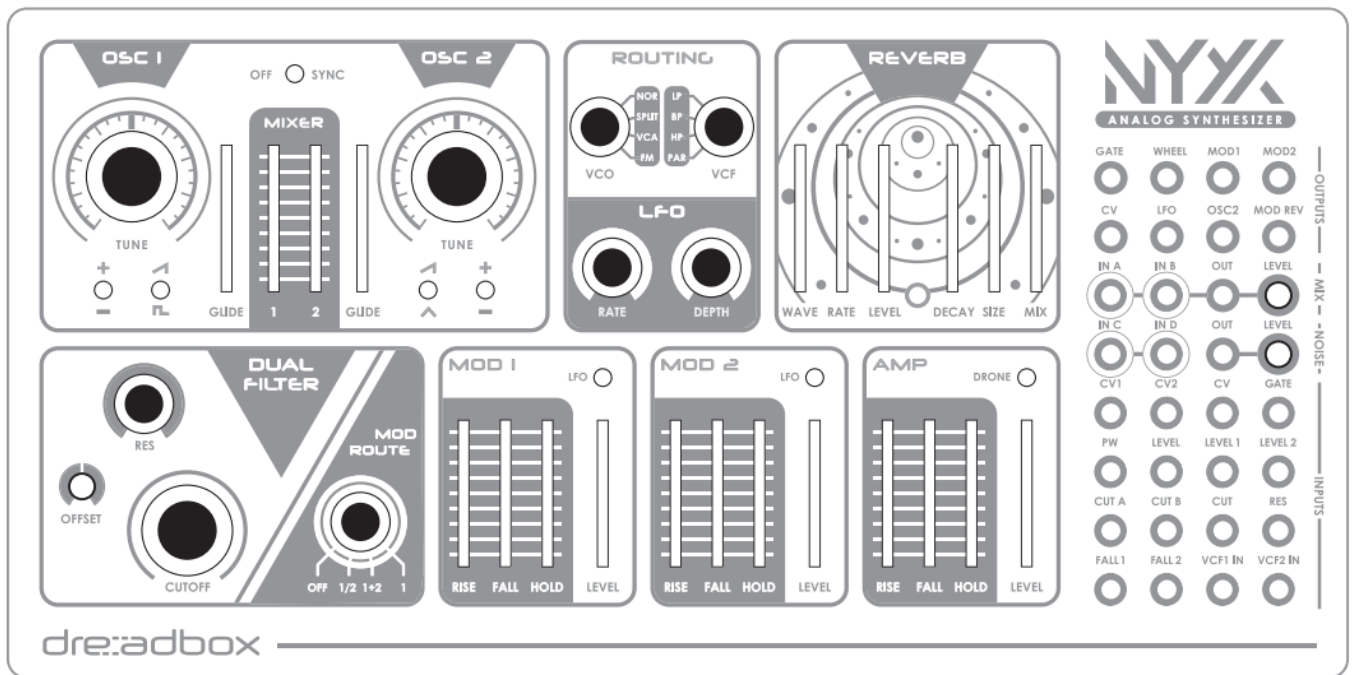
## Limited Warranty

Dreadbox warrants this product to be free of defects in materials or construction for one year from the date of purchase. Proof of purchase is necessary when the warranty claim is made. Malfunctions resulting from improper power supply voltages, backward or faulty cable connection, abuse of the product or any other causes determined by Dreadbox to be the fault of the user, are not covered by its warranty (normal service rates will be applied). All defective products will be replaced or repaired at the discretion of Dreadbox. Products must be returned directly to Dreadbox with the customer paying the shipping costs. Dreadbox implies and accepts no responsibility for harm to a person or apparatus through the operation of this product. Please contact [support@dreadbox-fx.com](mailto:support@dreadbox-fx.com) for the return to manufacturer authorization, or for any other technical questions or concerns. Kindly note that the wooden sides and the screen printing are done by hand, which means that natural differences or imperfections are normal and expected.

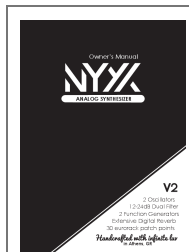
### WARNING!

Do not open the unit Use a Dust cover Turn off the synthesizer when you are not using it keep the original packaging

## PRESET



## Documents / Resources



[dreadbox Nyx V2 Analog Synthesizer \[pdf\]](#) Owner's Manual

V2, 2 Oscillators 12-24dB Dual Filter 2 Function Generators, V2 2 Oscillators 12-24dB Dual Filter 2 Function Generators, 2 Function Generators, Nyx V2 Analog Synthesizer, Generators, V2 Analog Synthesizer