NYX

ANALOG SYNTHESIZER

OWNER'S MANUAL

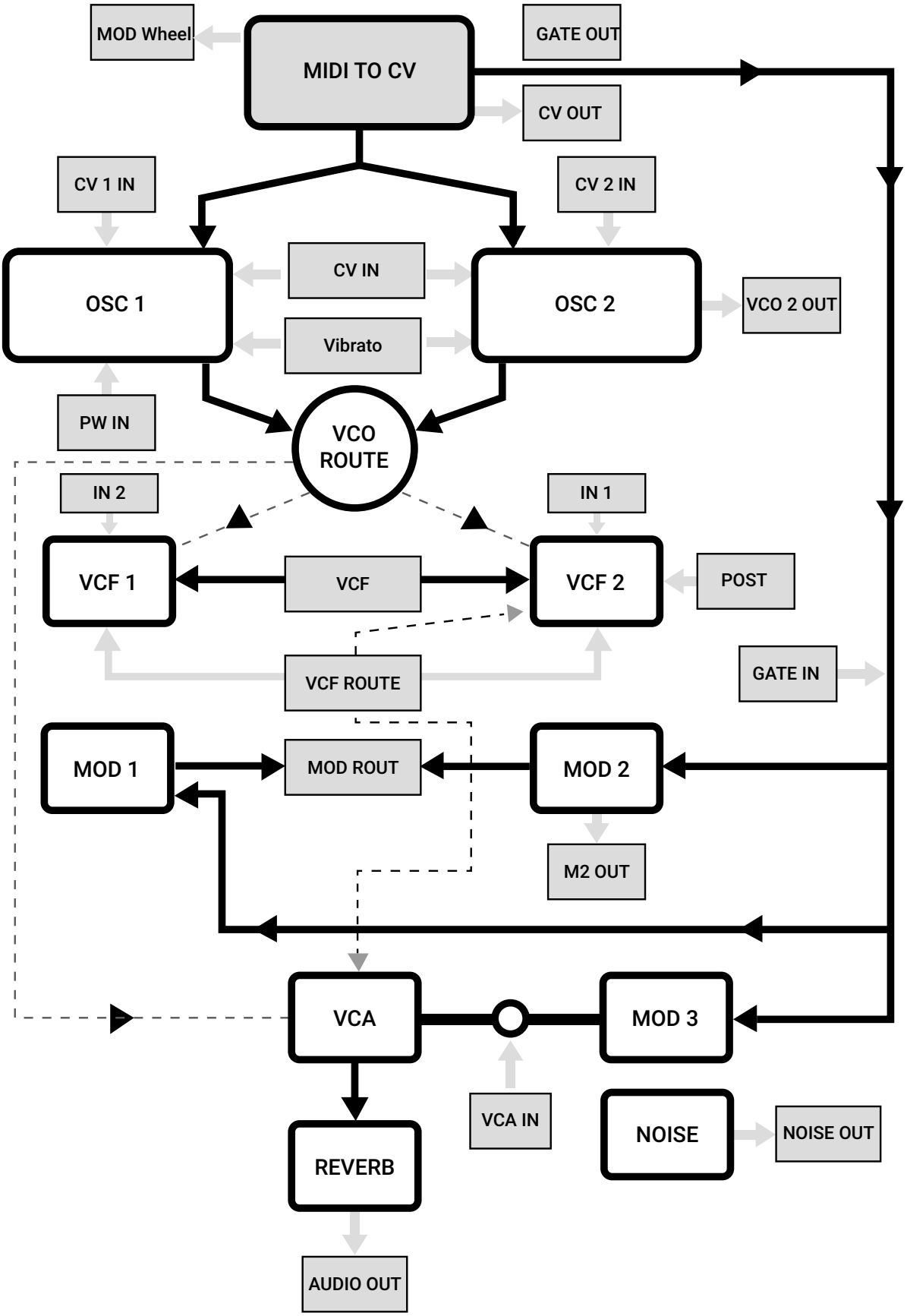
dre::adbox

1. Quick Start

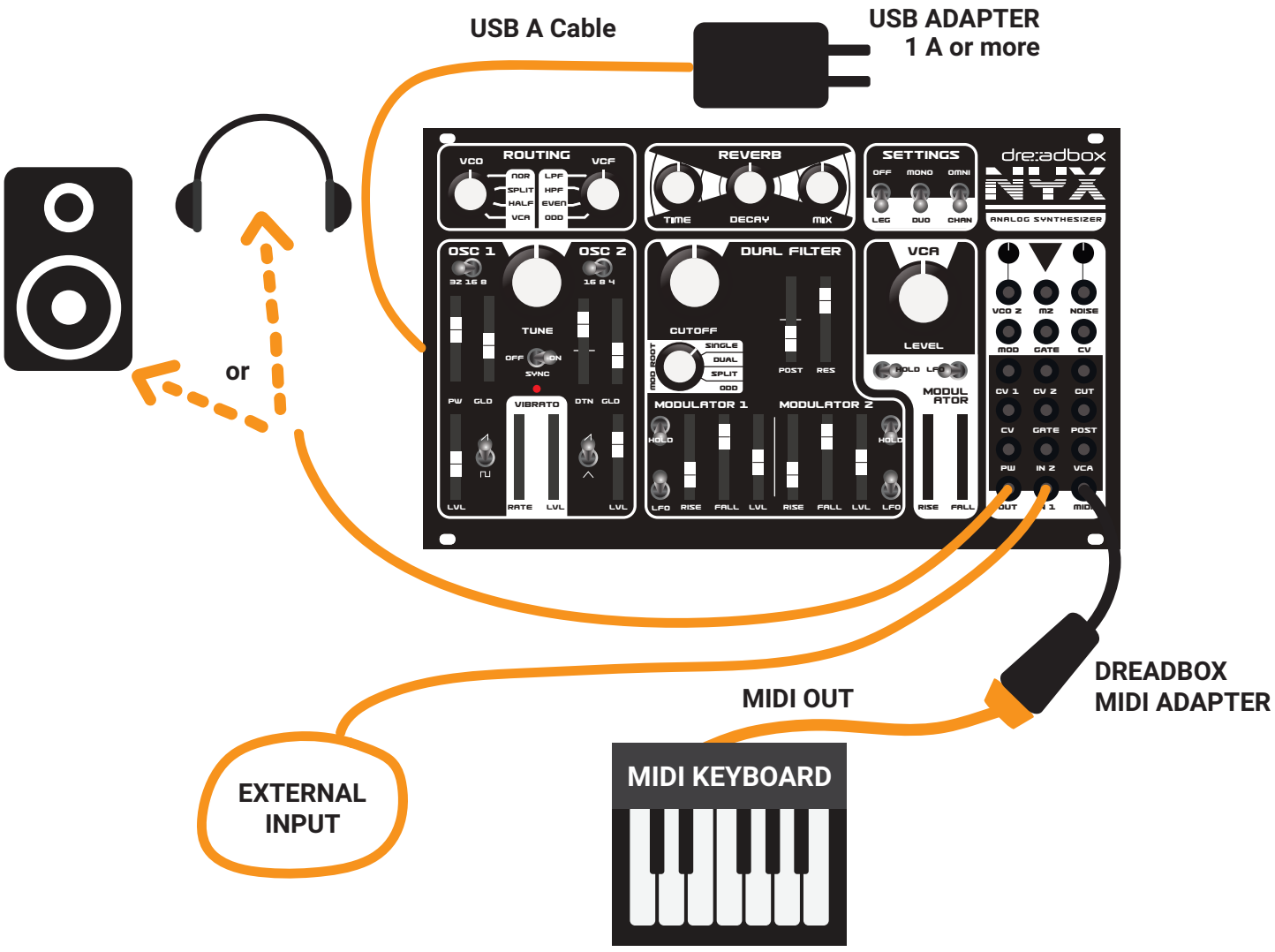
1.1 Box Contents

NYX Analog Synthesizer, 42HP case, 1x Midi DIN5 to 3.5mm adapter type A, 1x Ribbon cable for Eurorack Connection.

1.2 Schematic Diagram



1.3 Connections



1.4 Powering up the Nyx

In order to power the Nyx sufficiently, use a good quality USB power adapter with minimum 1A and a good quality USB A cable. The USB adapter nor the USB A cable are included in the box.

2. Operation

2.1 Paraphony

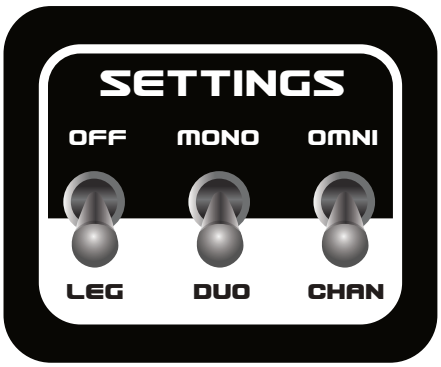
A paraphonic synth can play multiple notes at a time, but only has one voice architecture. In NYX there are 2 oscillators that can work as paraphonic, sharing the same signal path:

- 1 key pressed : both oscillators will play the pressed note
- 2 keys pressed : Oscillator 1 will play the low note, Oscillator 2 will play the high note
- 3 or more keys pressed: Oscillator 1 will play the low note, Oscillator 2 will play the last played note, as long as its higher than Oscillator 1.

2.2 MIDI Interface

The Nyx Midi interface will allow the following actions:

- Note(s) **ON/OFF**. Gate out patch converts Midi ON/OFF note to analog Gate.
- Pitch tracking up to 7 octaves (C -1 up to C 8). The pitch is converted to 1V/Oct, which can be accessed via the CV1&CV2 OUTPUT patches.
- **MONO** mode (Monophonic) or Duo mode (Paraphony).
- **LEGATO** mode. Keyboard retrigger on the VCA Modulator.
- Pitch wheel for 3 semitones up/down. This is also transmitted by the CV1 & CV2 outputs.
- Modulation wheel (accessible only via patch, MOD output) 0-5v



MIDI Channel Selection

When the switch is set to **OMNI**, all channels are active. When it is set to **CHA**N, it will play the last channel received when the switch was in the OMNI mode.

For example, in order to set Nyx to channel 2:
- Set the switch to OMNI mode
- Set your MIDI keyboard to Channel 2
- Play any note
- Then switch to CHAN

2.3 Oscillators

NYX oscillators need about 2 to 3 minutes to warm up. You can just turn on the synth and play, but the tuning will change during that time. They work with the classic 1V/Oct CV or Midi controllers. Keep in mind that the Osc2 triangle wave will have the feeling of a lower volume due to less harmonics.

OSCILLATOR 1

1. **Oscillator 1 Wave** selection switch (Sawtooth/Square).
2. **LVL:** Oscillator 1 Volume control.
3. **Pulse Width:** Sets the width of the pulse wave, creating a Square wave (50% duty) in zero position.
4. **Glide:** Sets the Glide Rate (portamento) of Oscillator 1 .
5. **Octave Selection** switch over 3 octaves.

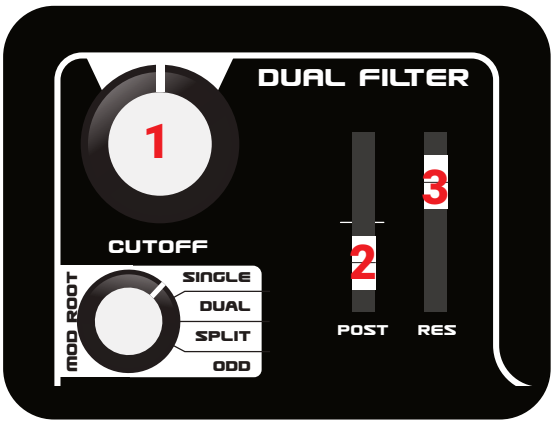
OSCILLATOR 2

6. **Oscillator 2** Wave selection switch (Sawtooth/Triangle).
7. **LVL:** Oscillator 2 Volume control.
8. **Detune** control for Oscillator 2 only.
   Detunes one octave above in mid position.
9. **Glide:** Sets the Glide Rate (portamento) of Oscillator 2.
10. **Octave Selection** switch over 3 octaves.

11. **Master Tune** for both oscillators.
    Set it around mid position for a precise tuning.
12. **Sync switch:** Hard syncs Oscillator 2 to Oscillator 1.
13. Vibrato* **Rate**.
14. Vibrato* **Level**.

2.4 Filters

NYX uses two filters, in order to achieve various timbres. Both of the filters are 2-pole (12dB/oct), but combined in series can achieve 24dB/oct filtering.

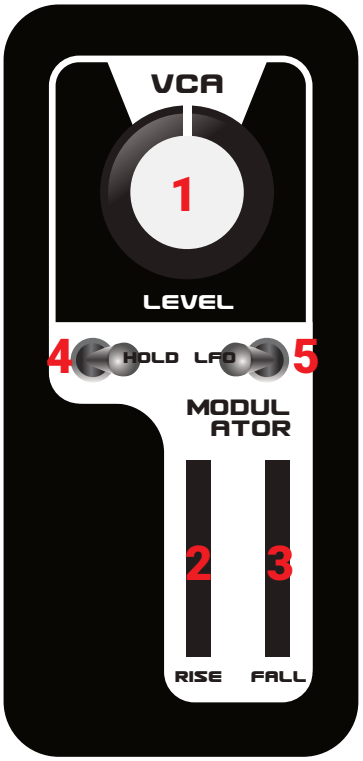


For more info please refer to the "Routing" section (page 7).

1. **CUT OFF**: Sets the Cutoff frequency of both filters.
2. **POST**: Sets the Cutoff frequency of Filter 2.
   As CUTOFF knob also sets the cutoff frequency of Filter 2, Post works essentially as an offset to cutoff of Filter 2. In some routing combinations, it may work best around mid position.
3. **RES**: Resonance control for both filters.

2.5 Amplifier

The NYX VCA has a modulator with identical functions to the 2 filter modulators (modulator 1 & 2). For more info on how to use this one, please refer to the "modulators" section (page 4).



1. **Master Volume** of the Synthesizer
2. **Rise:** Sets the Attack Time
3. **Fall:** Sets the Decay or Release Time, depending on the position of the Hold switch.
4. **Hold switch:** When Hold is On, the Fall functions as a Release instead of a Decay.
5. **LFO switch:** When selecting LFO, the envelope cycles (retriggers) and acts as an LFO instead of a standard envelope. Rise and Fall settings affect the rate and wave shape of the LFO.

2.6 Modulators

The Nyx three modulators have identical controls and range times:

Rise: 1ms to 5sec

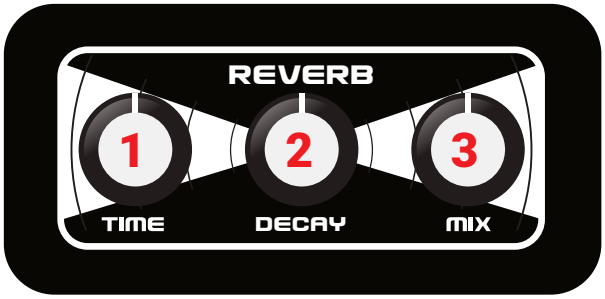
Fall:10ms to 15sec

GATE	HOLD	LFO	RESULT
Don't care	OFF	OFF	ATTACK/DECAY
Don't care	ON	OFF	ATTACK/DECAY
Don't care	OFF	ON	LFO
LOW	ON	ON	LFO
HIGH	ON	ON	MAX STATE

When the Modulators are into LFO state,
their speed and wave shape depend on the RISE and FALL settings

2.7 REVERB

NYX is equipped with a digital Reverb algorithm.



1. **TIME:** Sets the Pre-delay Time. This will also affect the brightness of the Reverb. The higher the Time the brighter the Reverb sound.

2. **DECAY:** Reverb's decay time. At max it's infinite.

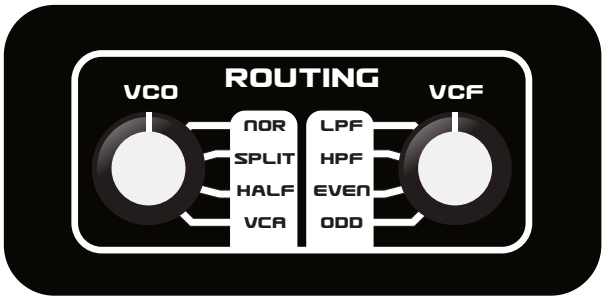
3. **MIX:** Blends between dry and wet Reverb sound.

2.8 Routing

There are 3 rotary switches that will determine how NYX will sound and behave.

⚠ *WARNING!*
In some cases and combinations,
you might not get sound at all or the required result.

1. VCO ROUTING



NOR: Both Oscillators are being routed to Filter 1.

SPLIT: Oscillator 1 is routed to Filter 1 and Oscillator 2 is routed to Filter 2.

HALF: Both Oscillators are being routed to Filter 2.

VCA: Both Oscillators are being routed directly to VCA, bypassing the Filters.

2. VCF ROUTING

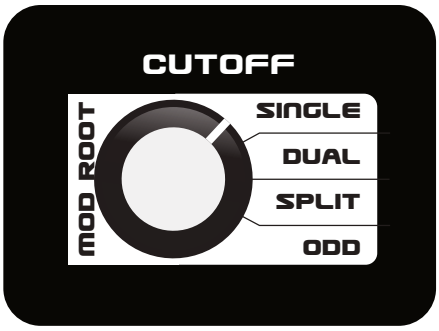
LPF: Filter 1 is set to LOW PASS and in series with Filter 2 which is also set to LOW PASS.

HPF: Filter 1 is set to HIGH PASS and in series with Filter 2 which is also set to HIGH PASS.

EVEN: Both Filters are set to LOW PASS and are set in Parallel.

ODD: Filter 1 is set to LOW PASS and Filter 2 is set to HIGH PASS and they are set in Parallel.

3. MOD ROUTING



SINGLE: Modulator 1 controls both Filters.

DUAL: Both Modulators 1 and 2 routed to both Filters.

SPLIT: Modulator 1 controls Filter 1 and Modulator 2 controls Filter 2.

ODD: Modulator 1 controls both Filters and Modulator 2 controls Filter 2 only.

EXAMPLES

A.Standard setting with a 24dB/oct VCF

VCO R: NOR*

VCF R: LPF or HPF v

MOD R: SINGLE

Set Post Cut at 12 o'clock

B.Split Oscillators into each Filter (control each filter individually)

VCO R: SPLIT

VCF R: EVEN or ODD

MOD R: SPLIT

Use POST CUT to adjust an Offset between filters

C. Four Sound Sources

VCO R: VCA

VCF R: EVEN

MOD R: Doesn't matter (SPLIT would be nice though)

Resonance at max
Patch CV out to VCF input
Use POST CUT to place an offset between Resonance
Use Cut Off to tune resonance

2.9 Patching

The NYX right section is dedicated to patching. Learning to patch needs lots of experimentation. We strongly suggest spending lots of time and trying to make as much connections as possible. You will find out that half the possibilities of the synth comes from it.

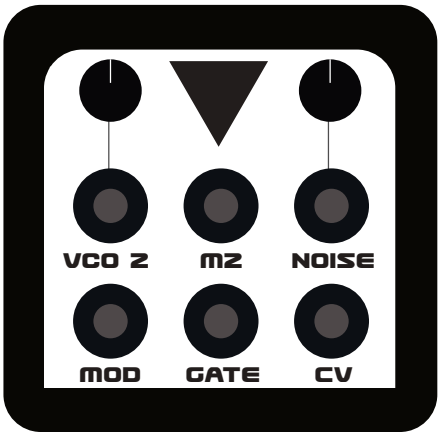
Patching is divided in 3 areas:

OUTPUTS: Those patches only send voltage. You can send their CV to CV inputs or other devices, but first be sure that the receiver can accept such a voltage.

INPUTS: Those patches can only receive voltage. It's safe to send more than the recommended voltage but it won't always have results.

MIDI/AUDIO INTERFACE: Those patches are for MIDI and Audio handling.

OUTPUTS:



VCO 2: Outputs the pure Oscillator 2 selected wave. Max Level (+/-5V), can be adjusted through the attenuator knob above.

M2: Modulator 2 Output (0-8V).

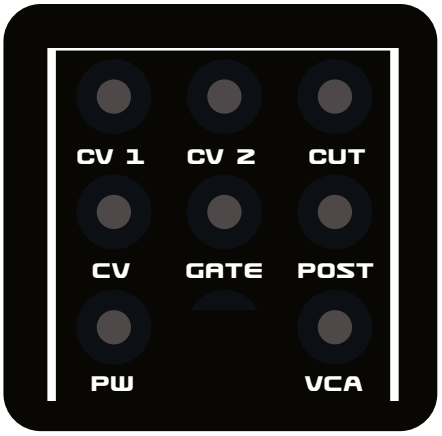
NOISE: White Noise output with level attenuator knob.

MOD: Modulation Wheel. Sends 0-5V and it can be controlled by a Midi Keyboard's modulation wheel.

GATE: Sends note on/off from a midi keyboard in the analog form of 0V (off) or 5V (on).

CV: Sends midi notes as CV (1V/oct).

INPUTS:



CV 1: Controls Oscillator 1 Pitch at 1V/Oct. Max +/-12V.

CV 2: Controls Oscillator 2 Pitch at 1V/Oct. Max +/-12V.

CUT: Controls Cutoff frequency of both Filters. Best operated at +/-5V. Max +/-12V

CV: Controls both Oscillators Pitch at 1V/Oct. Max +/-12V.

GATE: Triggers the Modulators.

POST: Controls Cutoff frequency of Filter 2 only. Best operated at +/-5V. Max +/-12V

PW: Controls Pulse Width of the Oscillator 1 square wave. Works best at +/-5V and accepts +/-10V

VCA: Controls the amplitude modulation of the Amp. Works best at +/-5V and accepts max +/-10V.

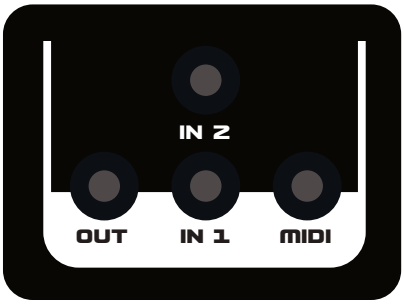
MIDI/AUDIO INTERFACE:

OUT: Master Output of NYX. It can also be connected to headphones.

IN 1: Mono input to the Filter 2. If the synth is not triggered, the sound will not pass through.

IN 2: Mono input to the Filter 1. If the synth is not triggered, the sound will not pass through.

MIDI: Midi input. Use only the type-A dedicated Midi adapter included in the box.



2.10 Eurorack

In order to use the Nyx Reissue in a eurorack case, do the following:

A. Unscrew the 4 corner bolts, which keep the module attached to the case

B. Remove the module from the case. Afterwards, unscrew the 2 bolts that connect the small PCB to the USB adapter and detach them.

C. Plug the provided ribbon cable and connect it to the power bus board of a eurorack case whilst it is OFF.