EREBUS
ANALOG SYNTHESIZER

OWNER'S MANUAL

dre:adbox

1. Quick Start

1.1 Box Contents

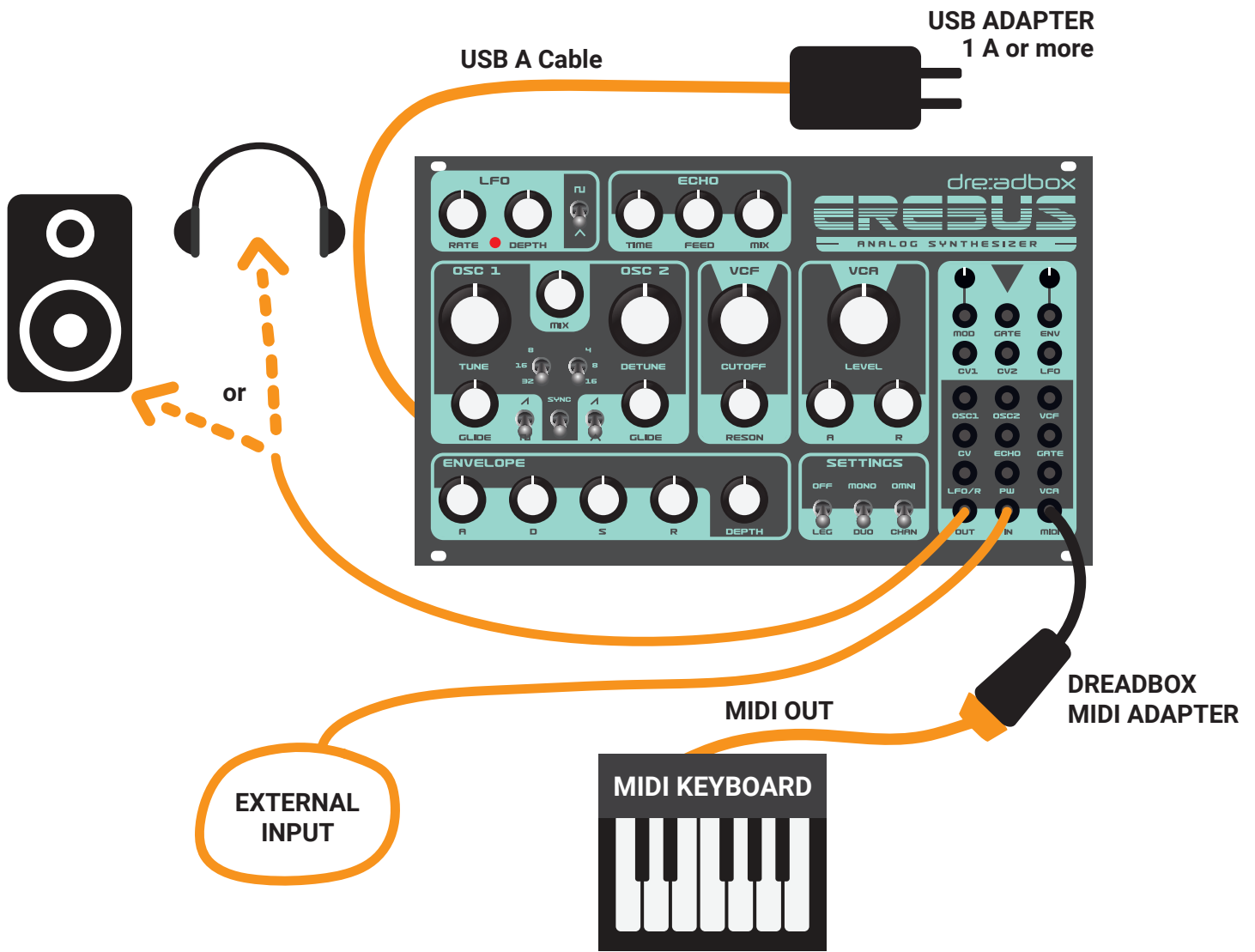Erebus Analog Synthesizer, 42HP case, 1x Midi DIN5 to 3.5mm adapter type A, 1x Ribbon cable for Eurorack Connection.

1.2 Schematic Diagram

1.3 Connections

USB ADAPTER
1 A or more

USB A Cable

LFO
RATE DEPTH

ECHO
TIME FEED MIX

dreadbox
EREBUS
ANALOG SYNTHESIZER

OSC 1
MIX
TUNE
8
16 4
32 8
16
SYNC
GLIDE

OSC 2
DETUNE
GLIDE

VCF
CUTOFF
RESON

VCA
LEVEL
A R

MOD GATE ENV
CV1 CV2 LFO
OSC1 OSC2 VCF
CV ECHO GATE
LFO/R PW VCA
OUT IN MIDI

ENVELOPE
A D S R DEPTH

SETTINGS
OFF MONO OMNI
LEG DUO CHAN

or

EXTERNAL INPUT

MIDI OUT

MIDI KEYBOARD

DREADBOX MIDI ADAPTER
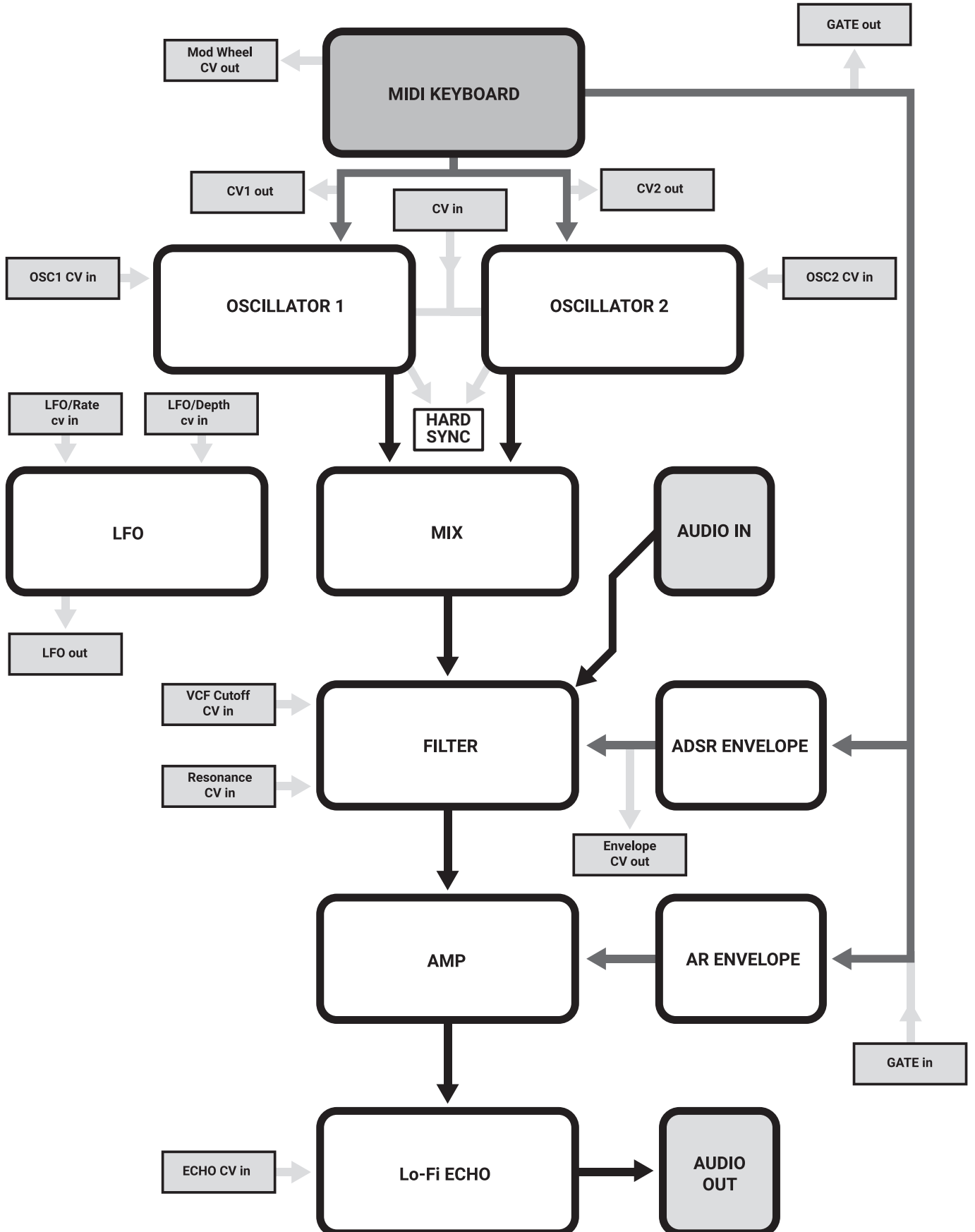
1.4 Powering up the Erebus

In order to power the Erebus 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

We call Paraphonic Synthesis, when the Oscillators can work in polyphony but the signal path is the same for all voices. In EREBUS we have 2 oscillators sharing the same Filter and VCA. But to be more specific :

- 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

Erebus 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.
- 2 Voice Polyphony or Unison mode.
- Keyboard re-trigger on the ADSR Envelope.
- Pitch wheel for 3 semitones up/down. This is also transmitted by the CV1-CV2 outputs.
- Modulation wheel (accessible only via patch) 0- 5v
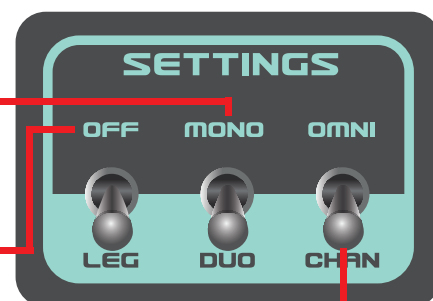
MIDI Channel Selection

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

For example, in order to set Hades 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

The EREBUS 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 controllers or a Midi source. By default the tune knobs should point at about 12.00 o'clock for a precise tuning. Always keep in mind that the Osc2 triangle waveshape will have the feeling of a lower volume in low frequencies.

1. Both Oscillators Master Tune.

2. Oscillator 1 Wave selection.
   Center position sets the Osc1 OFF

3. Oscillator 2 Detune.

4. Oscillator 2 Wave selection.
   Center position sets the Osc2 OFF

5. Oscillator 1 Octave selector.

6. Oscillator 2 Octave selector.

IMPORTANT! Erebus has been designed as a Midi synthesizer with the addition of CV/Gate control. If you are controlling Erebus with CV/Gate only, you will need to send a Midi reference note in order to make use of Octave switches. Send through Midi the lowest possible C note that Erebus will track. This will make Octave switches to work when you are controlling it through CV/Gate.

7. Sets the Glide's Rate for the Osc1 (portamento)

8. Sets the Glide's Rate for the Osc2 (portamento)

9. Sets the Mix level between Osc1 and Osc2.

10. Hard syncs the Osc2 to Osc1.

When one of the Oscillators is Off (when its dedicated wave switch is in the center position), the MIX knob will not have any effect and the Oscillator that is ON will always be added to the Filter.

2.4 Filter

The filter of the EREBUS is a 2-pole 12db/octave pre-fed resonating Low Pass Filter. Pre-fed means that it has a build in pre-resonant accent that it is always active on the 1/6th of the filter's total input gain and completely independent from the normal resonance control, thus making the EREBUS a much more aggressive and edgy synth. Resonating means that with the resonance control at 100% you get a self-oscillation.

1. Sets the Cutoff frequency of the filter.

2. Sets the Post Resonance amount.

Adding Resonance will drastically increase the synth's output volume, due to the nature of the Filter.
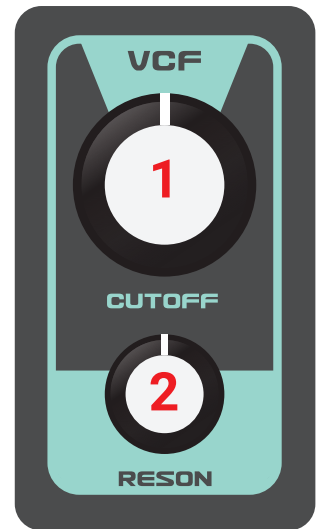
2.5 Amplifier

EREBUS's amplifier has a build-in AR envelope generator. Notice that when the output Level is at max you get 8V/pp, so be careful not to hurt your ears or damage your speakers.
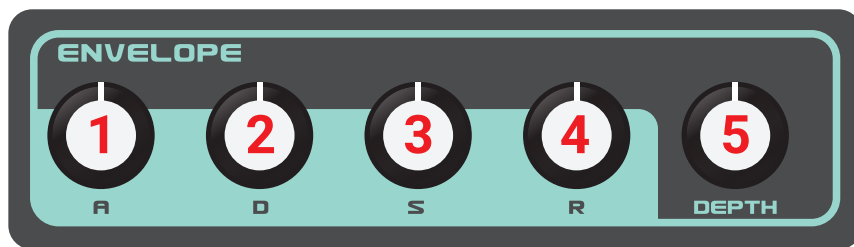
1. Master volume

2. Attack speed

3. Release speed

2.6 Envelope

EREBUS's ADSR is dedicated to the Filter at all times. It may deliver up to 5V of envelope (also accessible on a patch).
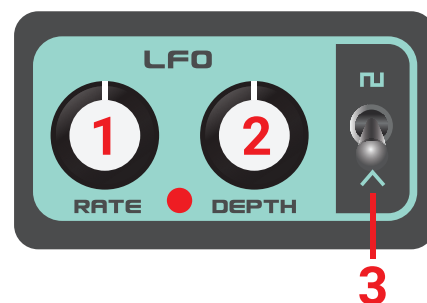
1. Attack speed
2. Decay speed
3. Sustain point
4. Release speed
5. Envelope's amount to Filter

2.7 LFO

The LFO can be accessed only via its patch. It has a wide range of frequencies, from 10 minutes up to 3kHz (3000Hz).

1. Sets the initial Rate of the LFO
2. Sets the initial Depth of the LFO
3. Selects the output waveform

2.8 Lo-Fi Echo

EREBUS is equipped with an all analog signal path CV controlled echo module. The mix knob allows you to go from a dry to a completely wet mode of sound. Setting the feed pot at max, it will start the self oscillation process. Note that the time knob allows you to get long echo times with a very Lo-Fi sound. This module serves also as a chorus (modulation with the LFO on very low time settings), Lo-Fi machine, tape sounds , pitch shifting modulations or a standard delay.

1. Sets the time of the Echo
2. Sets the depth of the Feedback
3. Sets the Mix between Dry and Wet signal

Please note that when setting the Mix knob at 50%, a slight volume drop is expected.

2.9 Patching

EREBUS's right side is dedicated to patching. Learning to patch needs lots of experimentation. We strongly suggest spending lots of time and trying 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 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 much more voltage than indicated (see specs or chap. 9B) but it won't always have results.

MIDI INTERFACE - those patches are for MIDI and Audio handling.

A. OUTPUTS

MOD: Modulation Wheel. Sends 0-5V and it can be controlled by the Midi Keyboard's modulation wheel. The small depth knob above, acts as an attenuator, it limits the maximum voltage to be delivered.

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

ENV: Sends 0-5V from the ADSR envelope generator. Again the small knob above acts as an attenuator.

CV1: Sends the 1V/Oct that Oscillator 1 is currently using.

CV2: Sends the 1V/oct that Oscillator 2 is currently using. When in Unison mode, this is exactly the same amount of voltage as CV1.

LFO: Sends the LFO output to a +/-5V form. This is the only way to use the LFO, as it is not hard-wired.
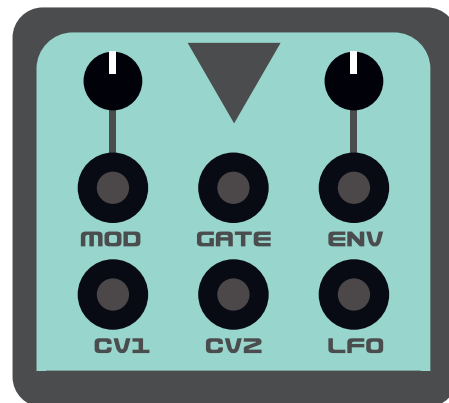
NEVER CONNECT AN OUTPUT WITH ANOTHER OUTPUT
This might cause serious damage to the unit and Dreadbox will not take any responsibility.

TIP:
CV1, CV2 and gate are great to use with other cv/gate controlled devices to achieve paraphony. You may also multiply the gate to control two different devices at a time. Sending CV1 at one and CV2 to the other will make them work in a paraphonic way between them.

B. INPUTS

OSC1: Controls Oscillator 1. Best operated at 1V/Oct. Max +/-12V

OSC2: Controls Oscillator 2. Best operated at 1V/Oct. Max +/-12V

VCF: Controls the filter's Cutoff. Best operated at +/-5V. Max +/-12V

CV: Controls both oscillators at the same time.
 Best operated at 1V/Oct. Max +/-12V

ECHO: Controls the echo's time. Best operated at 0-2,5V. Max +/-5V

GATE: Controls the envelope's on-off. The EREBUS gate is different from common gate controls because the ADSR envelope works in an on/off function but the amp's envelope has a logarithmic opening function.

LFO/R: Controls the rate of the LFO.
 Works best at +/-5V and accepts +/-10V

PW: Controls the pulse width of the Osc1 square wave.
 Works best at +/-5V and accepts +/-10V

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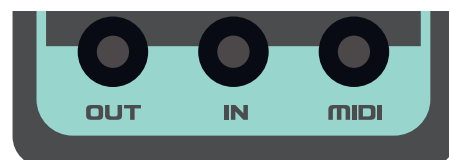 Works best at +/-5V and accepts max +/-10V

B. MIDI INTERFACE

OUT: Master Output of the synthesizer.
 It can also be connected with headphones.

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

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

2.10 Eurorack

In order to use the Hades 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.

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