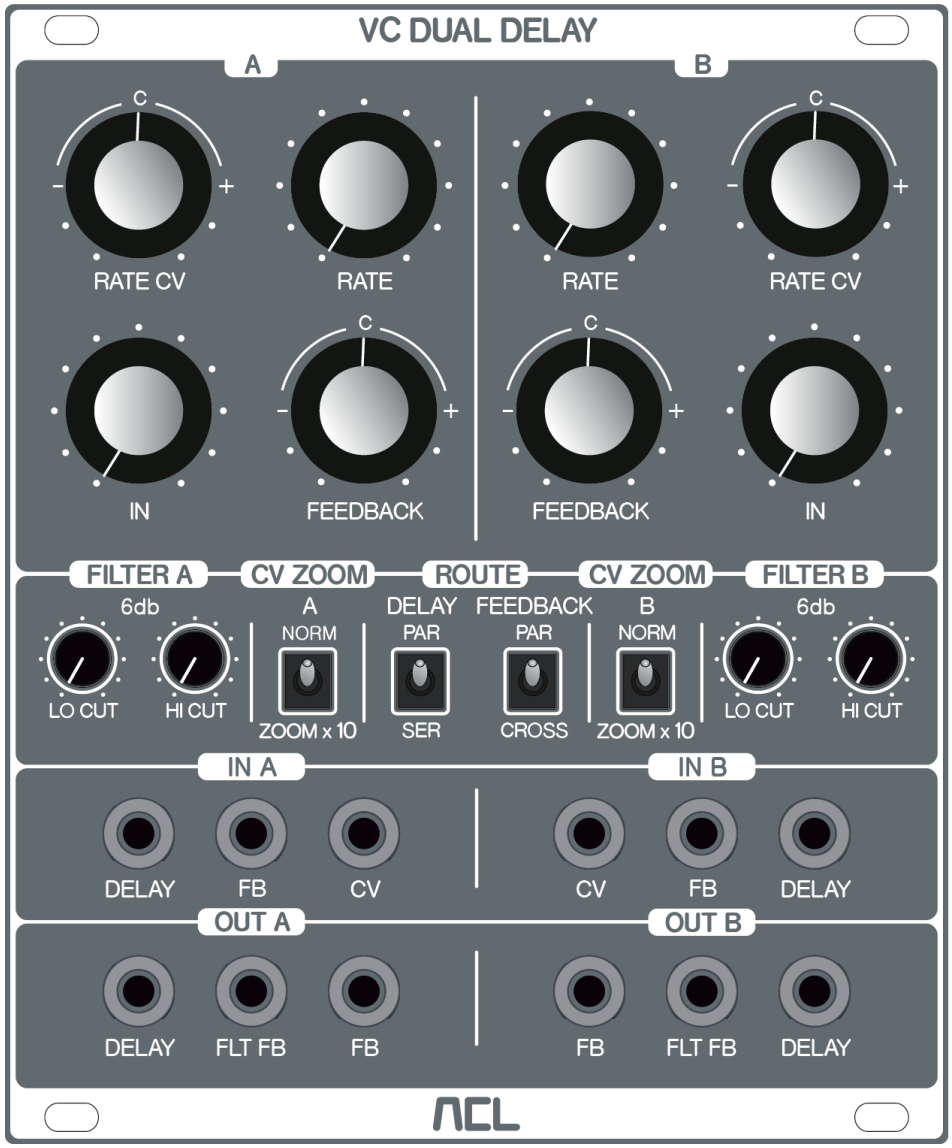
Audiophile Circuits League
Musical Instruments Manufacture

VC Dual Delay

User´s Manual

Eurorack Synthesizer Modules



21 HP

TABLE OF CONTENTS

1.INTRODUCTION

2.WARRANTY

3.INSTALLATION

4.FUNCTION OF PANEL COMPONENTS

5.CHARACTERISTICS

6.FEEDBACK ROUTING

7.SPECIFICATIONS

1. INTRODUCTION

Audiophile Circuits League. -VC Dual Delay consists of 2 equal, independent delays A and B, each with its own feedback loop, each contains a 6dB HP and a 6dB LP filter (not VC), but the internal feedback loop can be opened by patching a cable into the "IN FB" - jacks to route other signal-processing modules into the feedback-loop. Please note that there is no "Dry-Signal"-path. By designing the module, we thought, it would be mostly used in combination with other modules to achieve some echoes and reverberated ambience, one could put one delay in the feedback-path of another delay for example – there are many different routing configurations, achieving strange modulated reverberated space by combining several Dual VC Delay-modules in various manner.

Due to its vast flexibility, the module offers load´s of possibilities for hours-longing sessions of mangling signals, pitch modulation and the generation of fantastic ethereal outer galactic spaces.

Used in parallel / stereo-mode, it generates voltage controlled modulated spatial effects with its own special character. The sound of the Princeton PT2399 delay chip often reminds for BBD-circuit´s which principle in fact shares similarities with the function of the PT2399 chip. Because the audio - and CV - input´s are normalized in the scheme of A→B, the module is following your needs for many different patching situations easily. The sonic possibilities of using several module together can be mind blowing, especially when the almost endless possibilities of different feedback-routings are explored.
(For details about normalization, see section 5. CHARACTERISTICS)

2. WARRANTY

In the event of a fault in use, we will repair or replace it free of charge under the warranty terms stated below. The warranty period is valid for one year from the day of purchase. If repair is necessary, please ask the dealer you purchased it from.

We can not guarantee the incidental damage caused by the breakdown or damage that occurred during use of this product. In addition, warranty will expire in the following cases:

· Failure / damage caused by use of unspecified power supply / accessories.
· Failure / damage caused by incorrect connection or use of power cable.
· Failure / damage caused by improper handling method.
· Failure / damage caused by natural disasters (fire, flooding etc.) and pollution.
· When the cause of breakdown or damage lies in equipment other than this product.
· Failure / damage caused by improper modification, adjustment, parts replacement.
· Failure / damage when used under particularly severe conditions, when loaned/rental/hired out to 3rd party.

Is it a malfunction?

Please read the user's manual carefully and check again. If you think that there is still a problem, please consult the dealer you purchased from or contact us (English) .

support@audiophilecircuitsleague.com

3. INSTALLATION

⚠WARNING

*Always turn the Eurorack unit off and unplug the power cord before pluging the Eurorack power cable.

*When attaching the Eurorack power cable, please be careful not to touch the terminal part.

Connect to the Eurorack's system power supply (+ 12V) using the supplied Eurorack power cable.

Connect the 16-pin connector to the Eurorack power connector. Connect the red mark on the power cable so that it matches the pin on the (- 12 V) side of the power connector.

Connect the 10 pin connector to the shrouded header on the back of the module. The header is protected against reverse-plugging.

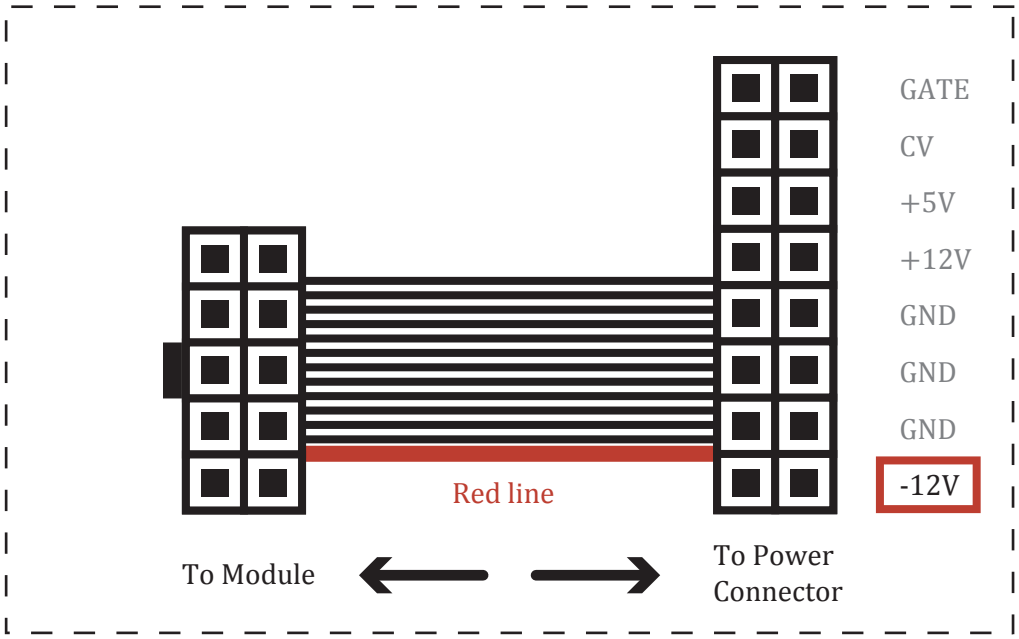


FIG.1：Eurorack power cable

4. FUNCTION OF PANEL COMPONENTS

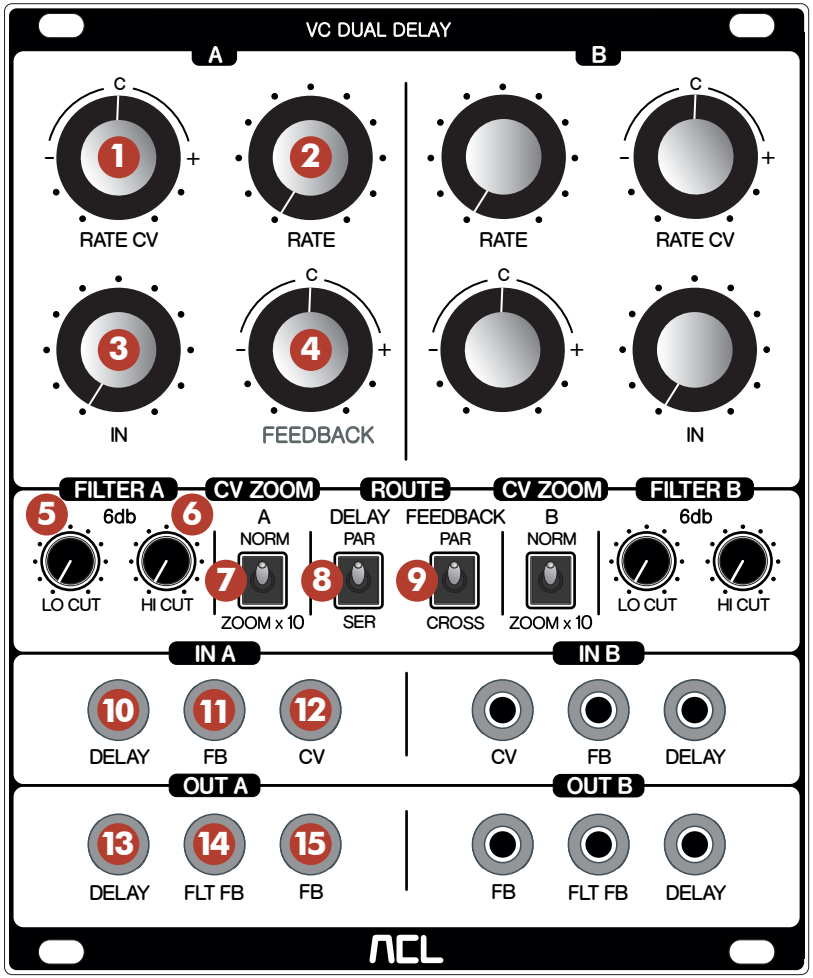


FIG.2：Front Panel

① "RATE CV" knob

This is the Attenuverter for the CV signal input from the ⑫ "IN CV" jack.

② "RATE" knob

This knob is adjusting the internal sampling rate of the internal delay circuit. Knob turned clockwise means higher sampling rate and therefore a shorter delay time and higher audio fidelity and vice versa.

③ "IN" knob

Adjust the amount of the audio signal from the ⑩"IN" input jack for delay processing. Audio input is not performed when knob is completely closed. As a result, the sound output from the delay will also be muted. Please take care of the level of the input signal in order to avoid distortion due to overdriving the delay circuit.

④ "FEEDBACK" knob

If a patch cable plugged in to the ⑪ "IN FB" input jack, the internal feedback-loop will be opened so you can build your own feedback-loop using either the ⑭ "FILT FB OUT" output jack or the ⑮ "FB OUT" output jack, including patching other modules inside of it, I.E. phase-shifters, filters, other delays, VCA´s (to be able to control the depth of the feedback by a control voltage) and so on. The amount of the feedback can still be controlled by the ④ "FEEDBACK" knob (negative or positive).

⑤ "LO CUT" knob

This knob controls the cutoff frequency of the built-in -6 dB/Oct-sloped low cut filter, which is – along with the HI CUT in series - filtering the output signal of Delay A before it´s fed back into the input of Delay circuit A (independent feedback loop for each delay circuit) or Delay B (crossfeedback mode) dependent from the position of the feedback switch, and also routed to the ⑭ "FLT FB OUT" output jack.

Independent LO CUT and HICUT filters are both prepared for Delay A and B.

⑥ "HI CUT" knob

This is a -6 dB / oct high cut filter internally routed in series with the LO CUT filter (as described above).

⑦ "CV ZOOM" switch

Select the CV resolution of ① "RATE CV" knob with this switch. By setting it to X 10, the resolution becomes ten times finer.

⑧ "PARALLEL/SERIAL" switch

Switch between parallel mode and serial mode. Select whether to use Delay A and B separately in parallel mode or continuously in serial mode.

⑨ "FEEDBACK PARALLEL / CROSS" switch

The feedback outputs of Delays A and B can be switched in parallel mode (Delay A and B have it´s own independent internal feedback path) or cross mode(Delay A is internally fed back into and B vice versa). (See FIG. 3)

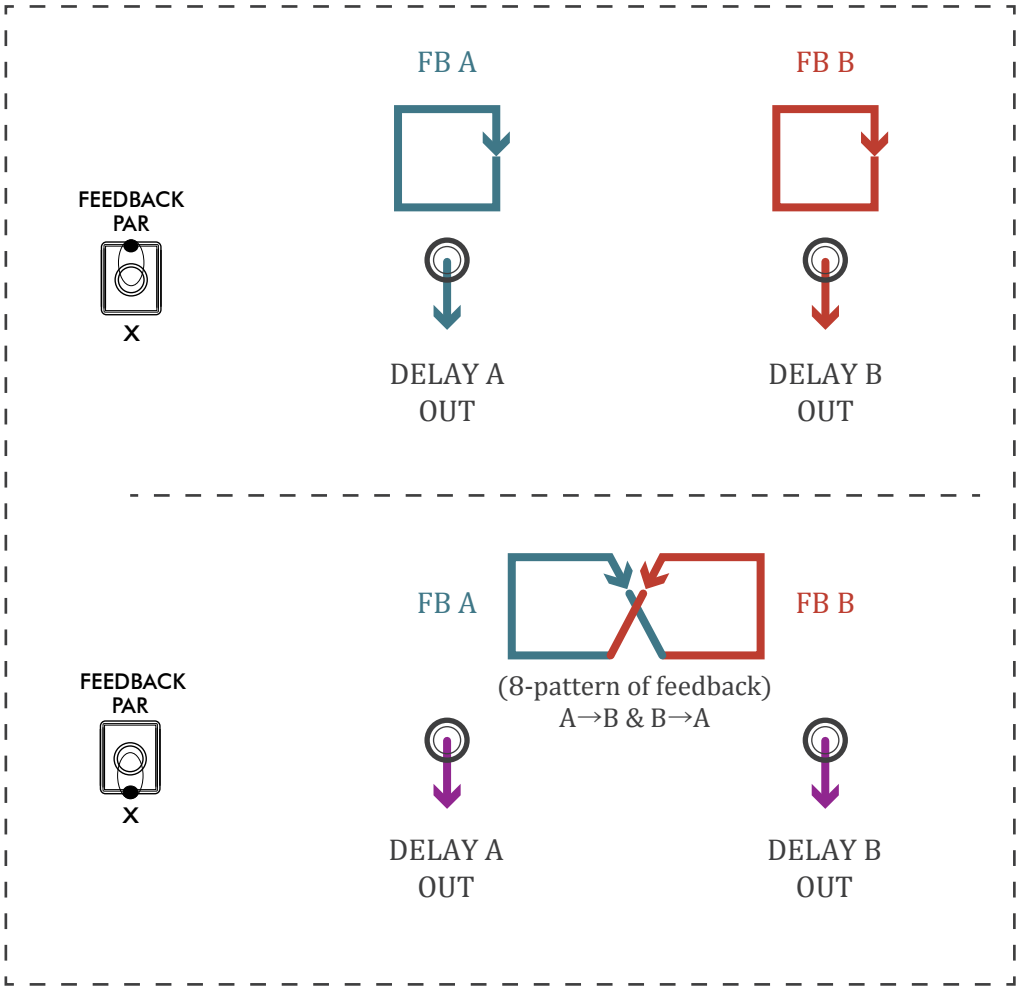


FIG.3：Variety of feedback output by switching FEEDBACK PAR / CROSS switch

⑩ "DELAY" input jack

Input the audio signal for delay processing.

⑪ "FB" input jack

If a cable is inserted into this jack, the internal feedback-loop will be opened and the signal coming will be added to with the signal coming into ⑩ "IN", internally, before routed into the input of the delay circuit.
(please refer to: ④ "FEEDBACK" knob)

⑫ "CV" input jack

Input to control the delay time with the CV signal. ① "RATE CV" knob functions as an attenuverter.

⑬ "DELAY" output jack

It outputs the delayed signal.

⑭ "FLT FB " output jack

It outputs the filterd delay signal, but behind the following HI CUT and LO CUT filters (refer to the description about the HI CUT and LO CUT filters).

⑮ "FB " output jack

It outputs only the feedback after the delay processing. It is common to mix with the original sound by an external mixer.

5. CHARACTERISTIC

All audio · CV input signals are normalized (interconnected) from delay A to B. "Normalization" means that audio / CV signals are automatically duplicated from delay A to delay B when no cable is inserted on the delay B side. In other words, it is possible to control and process both A and B delays from one cable input (See FIG.4). This feature economizes the need to duplicate signals using external multiple modules.

Conversely, when inputs A and B are performed using two cables, it is possible to independently control and process Delay A and B (See FIG. 5).

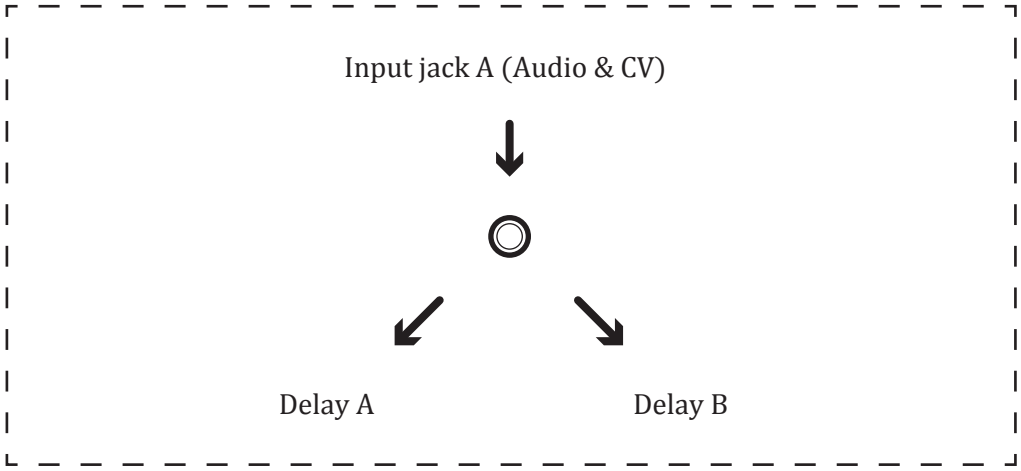


FIG.4: When only input A is plugged in (Normalized)

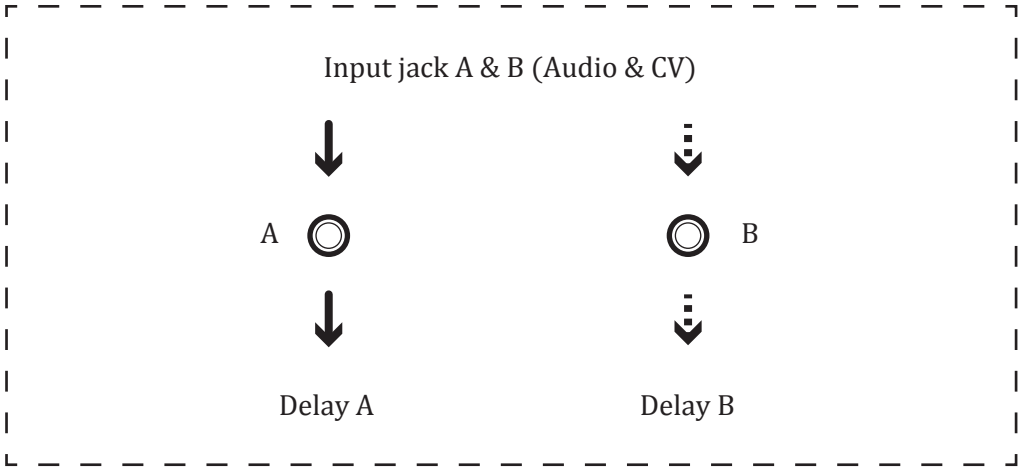


FIG.5: When inputs A and B are plugged in (not Normalized)

6. FEEDBACK ROUTING

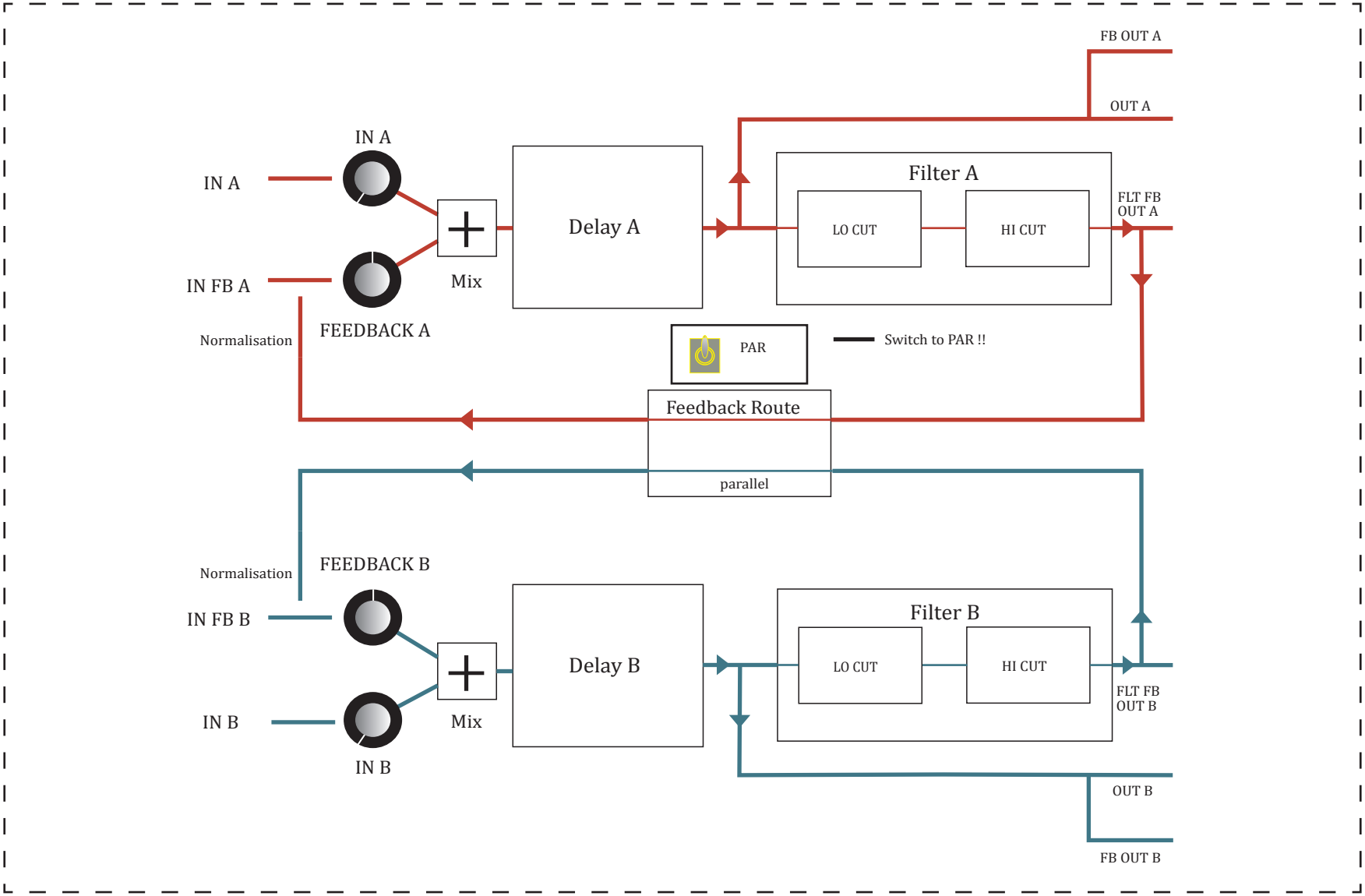


FIG.6: Feedback routing (Parallel routing)

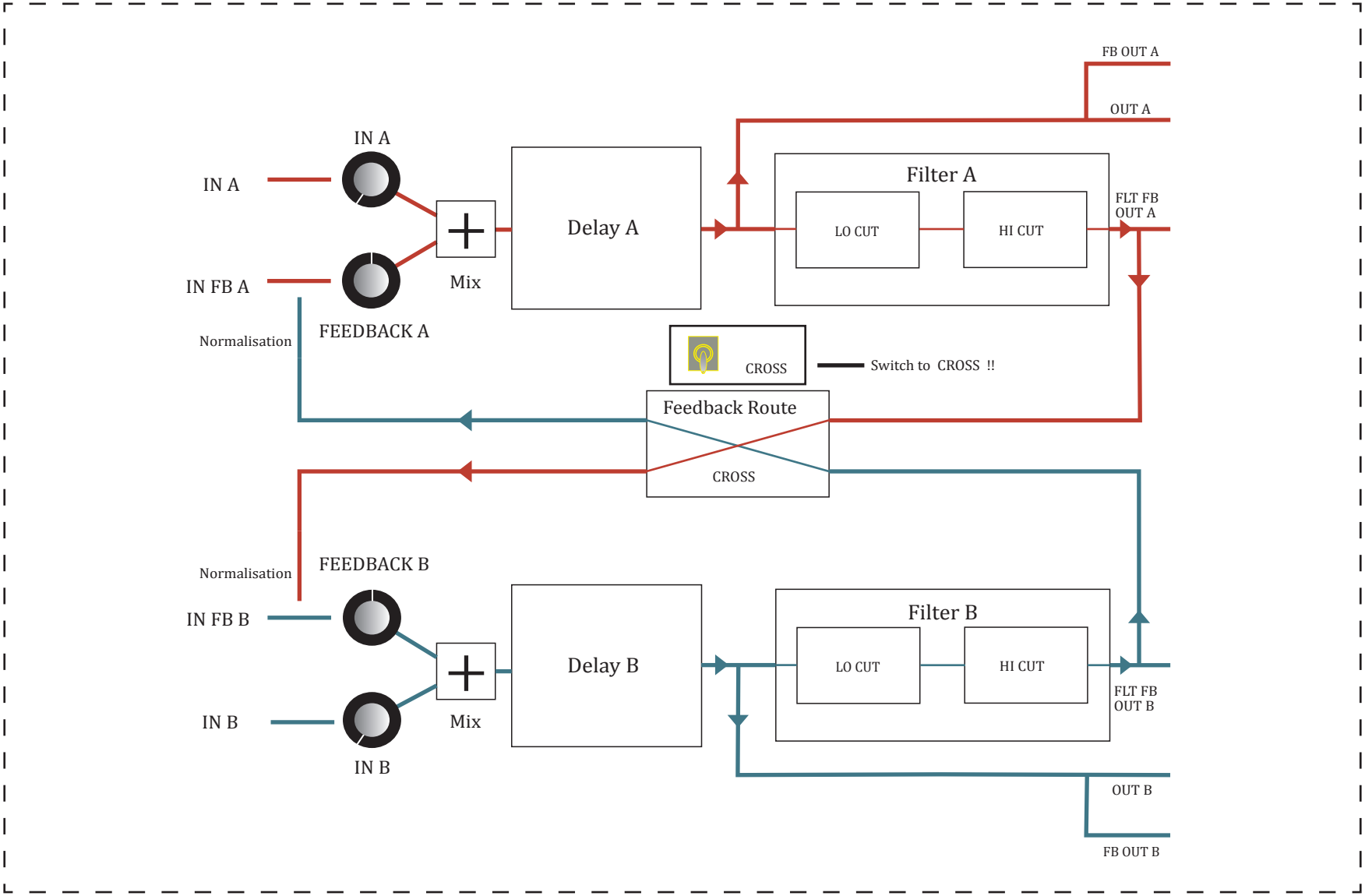


FIG.7: Feedback routing (Cross routing)

7. SPECIFICATIONS

Power

Eurorack system power supply

Width

21 HP

Depth

22 mm

Power consumption

Ca. 40mA on -12V / ca. 85mA on +12V

Accessories

· Eurorack power cable x1

· Mounting screws x4