Input module

This document describes the final assembly and use of the input module. There are two variants, the "complete" module with A/B and Pgm/Util/Aud send buttons, and the "basic" module without them.

Specifications

Connectors:

    Input: RJ-45 (Order is ABABABAB)

        Compatible with "Studiohub+" cables and accessories.

1. L in +
2. L in -
3. R in +
4. Ground
5. Control (A only)
6. R in -
7. Power out -15V
8. Power out +15V

    Output / Mix bus: 16 pin rectangular connector

1. Power in +15V
2. Mix-bus Cue
3. Power Ground
4. Mix-bus Talk-back
5. Power in -15V
6. Mix-bus Audition Left
7. Mix-bus Ground
8. Mix-bus Audition Right
9. Unused
10. Mix-bus Utility Left
11. Cue control, pulldown when Cue is active
12. Mix-bus Utility Right
13. Talkback control, pulldown when Talkback is active
14. Mix-bus Program Left
15. Monitor mute, pulldown when CR mic is on
16. Mix-bus Program Right

Input:

    Type: Two op-amp instrumentation balanced.

    Nominal level: adjustable from -9 dbu (-11 dbv) to +7 dbu

    Input impedance: 40k differential, 20k single-ended.

    Headroom: 28 db above nominal level.

        (+20 dbu when set for -8 dbu, +32 dbu when set for +4 dbu)

    Common mode range: +/- 70 volts (140 v p-p)

    Connection: RJ-45, industry standard, with power

Output:

    Mix bus, -8 dBu, 20k resistor to virtual ground summing node

IC's

    All audio: LF353 dual op-amp

        TL072 is an equivalent substitute

        NE5532 is an acceptable alternative with higher power consumption

        LM4562 is a high cost alternative

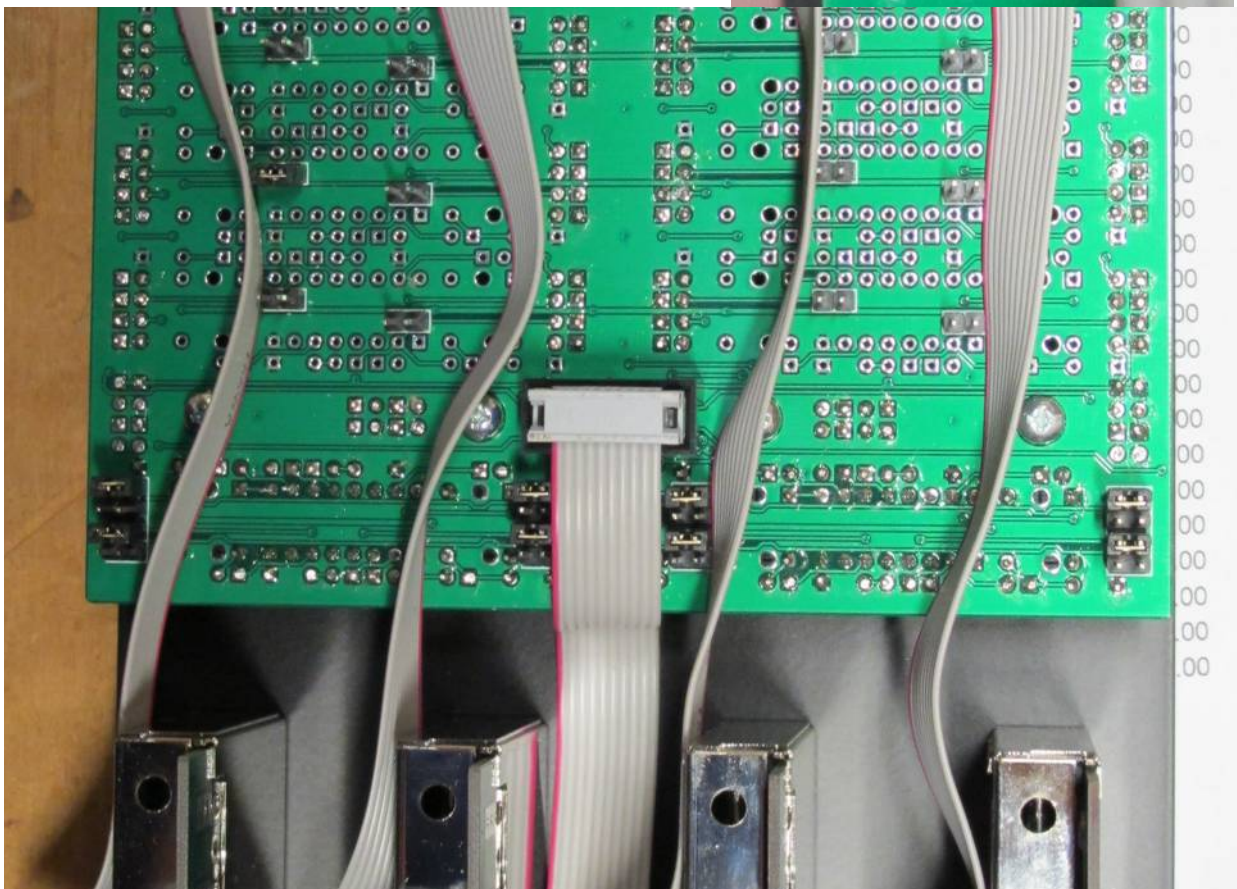   Logic: CD4053 analog switch

        CD4049 hex-inverter

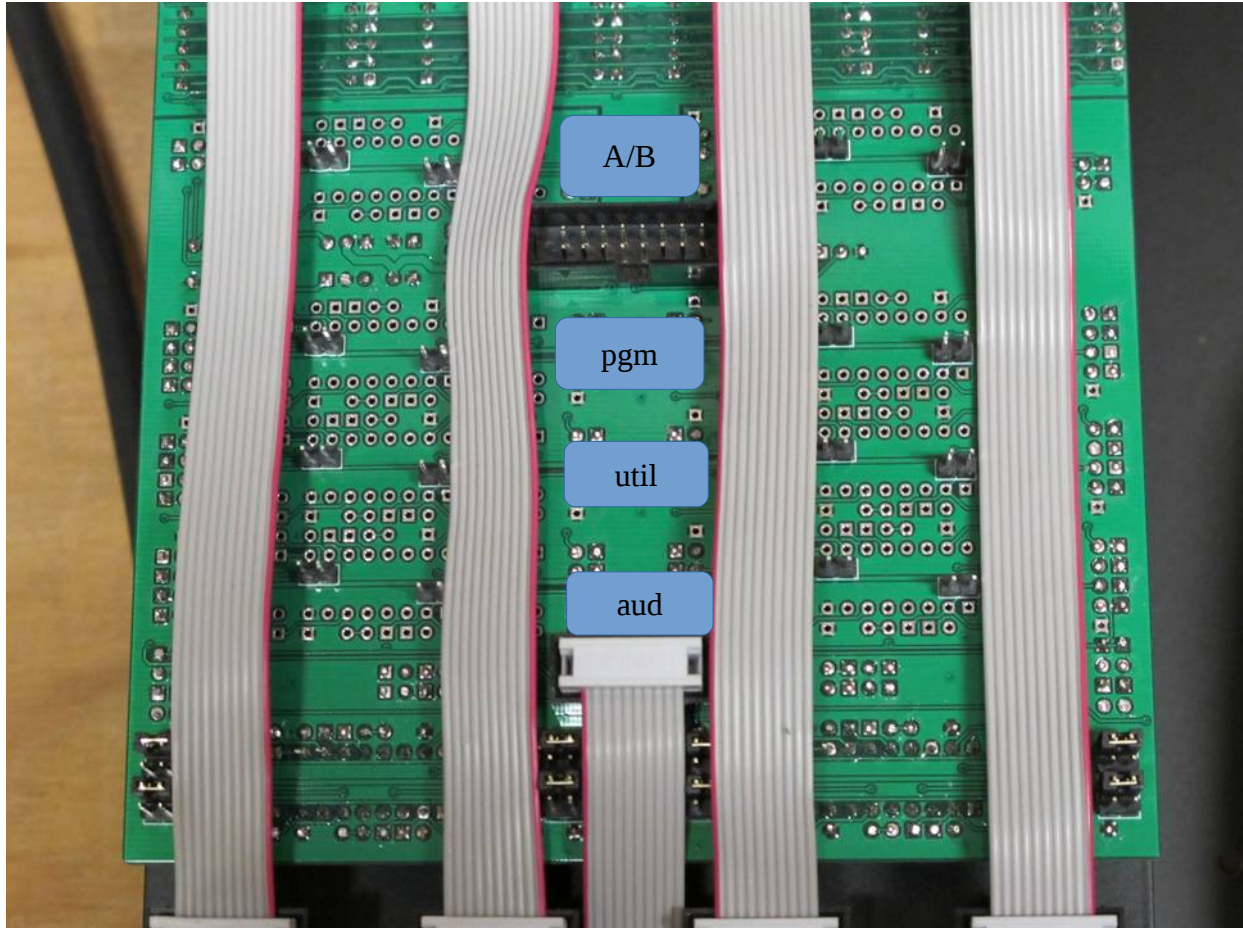   CD4044 quad RS latch

Configuration

Jumpers

There are 4 jumpers on each channel associated with cue, talkback, and muting.

1. The cue button is cue.
   Use this for most inputs.

2. The cue button is talkback.
   Use this for the control room microphone.

3. Cue mutes the main signal.
   A way to avoid cue-on-the-air mishaps.

4. Channel on mutes main monitor.
   Use this for the control room microphone.

The "basic" module has 4 additional jumpers on each channel

1. A/B. Defaults to B, jumper to select A.
2. Program: Defaults to ON. Jumper to select OFF.
3. Utility: Defaults to ON. Jumper to select OFF.
4. Audition: Defaults to ON. Jumper to select OFF.

Calibration

Gain trims

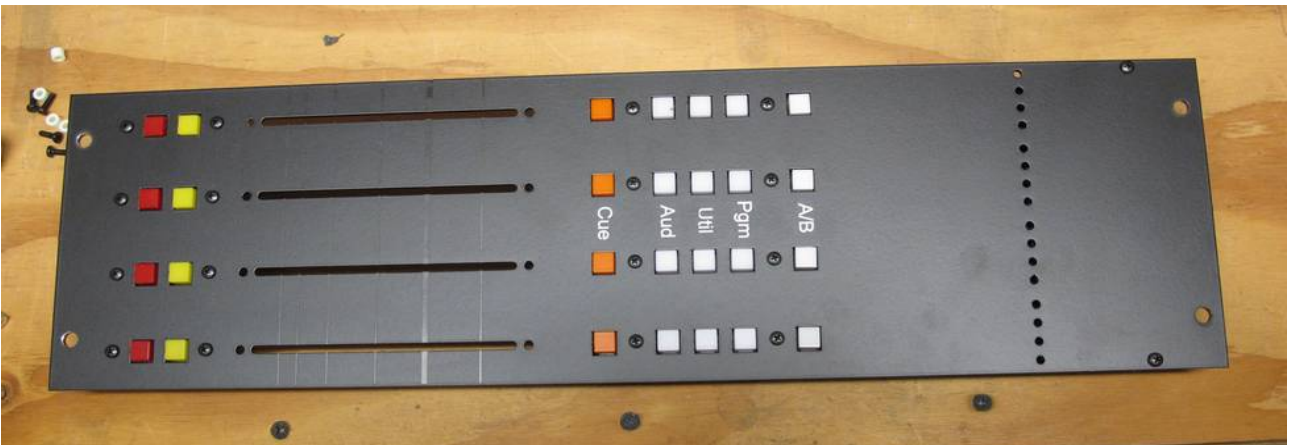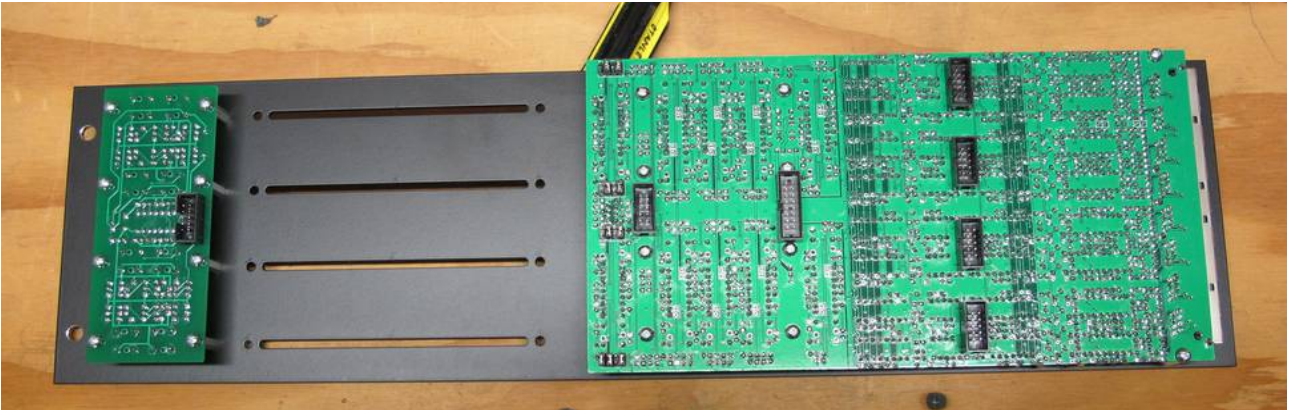Each input has a gain trim, accessible from the top when the meter panel is open.

The order is: A-Left, B-Left, A-Right, B-Right

The trims should be set so that normal input sources produce the correct mix level when the fader is set to the heavy line, which represents 12 dB setting loss. Panel markings are in increments of 10 dB, so they represent +10, 0, -10, -20, -30, -40.

It is expected that low level consumer sources (1/8" TRS connectors) will require the trim to be set to nearly maximum, true professional balanced sources to nearly minimum, high quality "pro-sumer" (RCA connectors) sources near the middle.
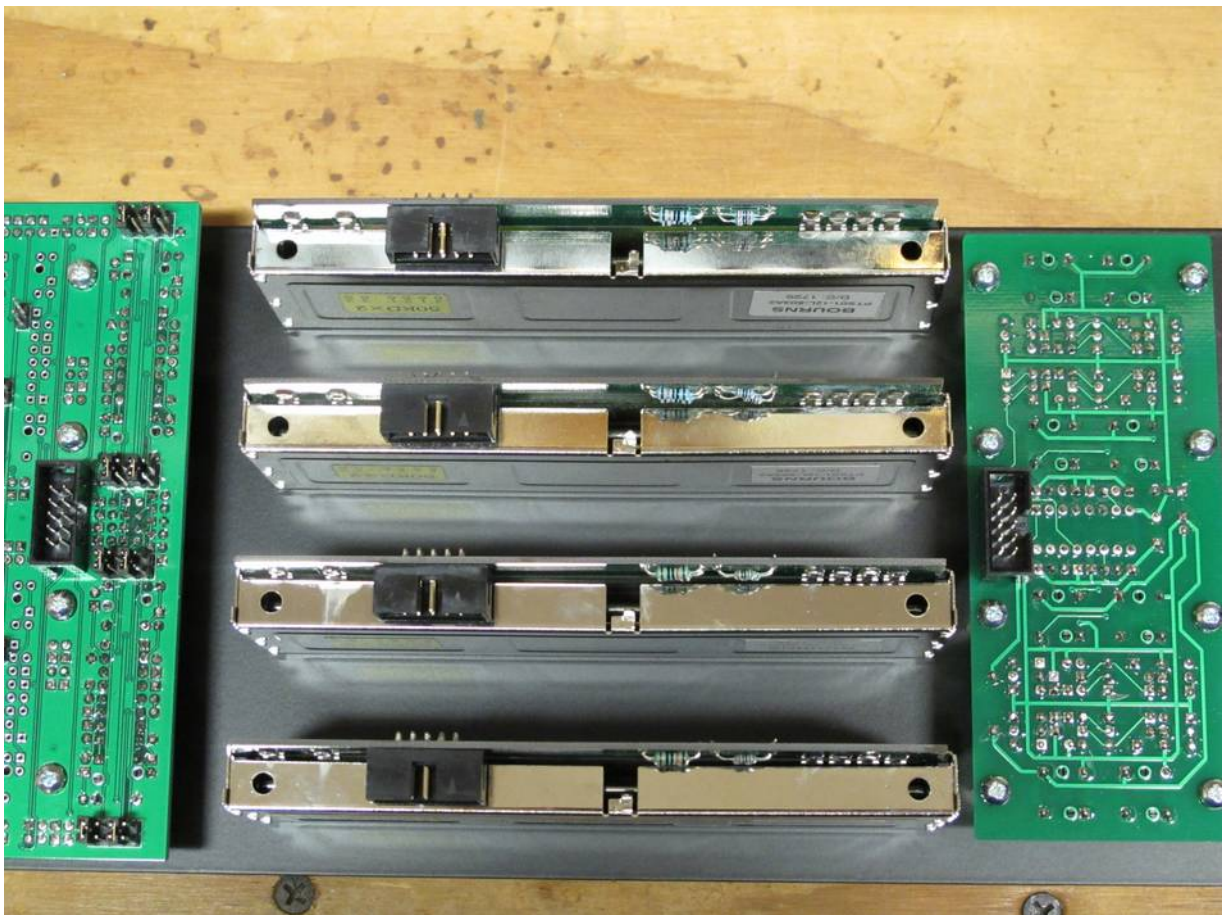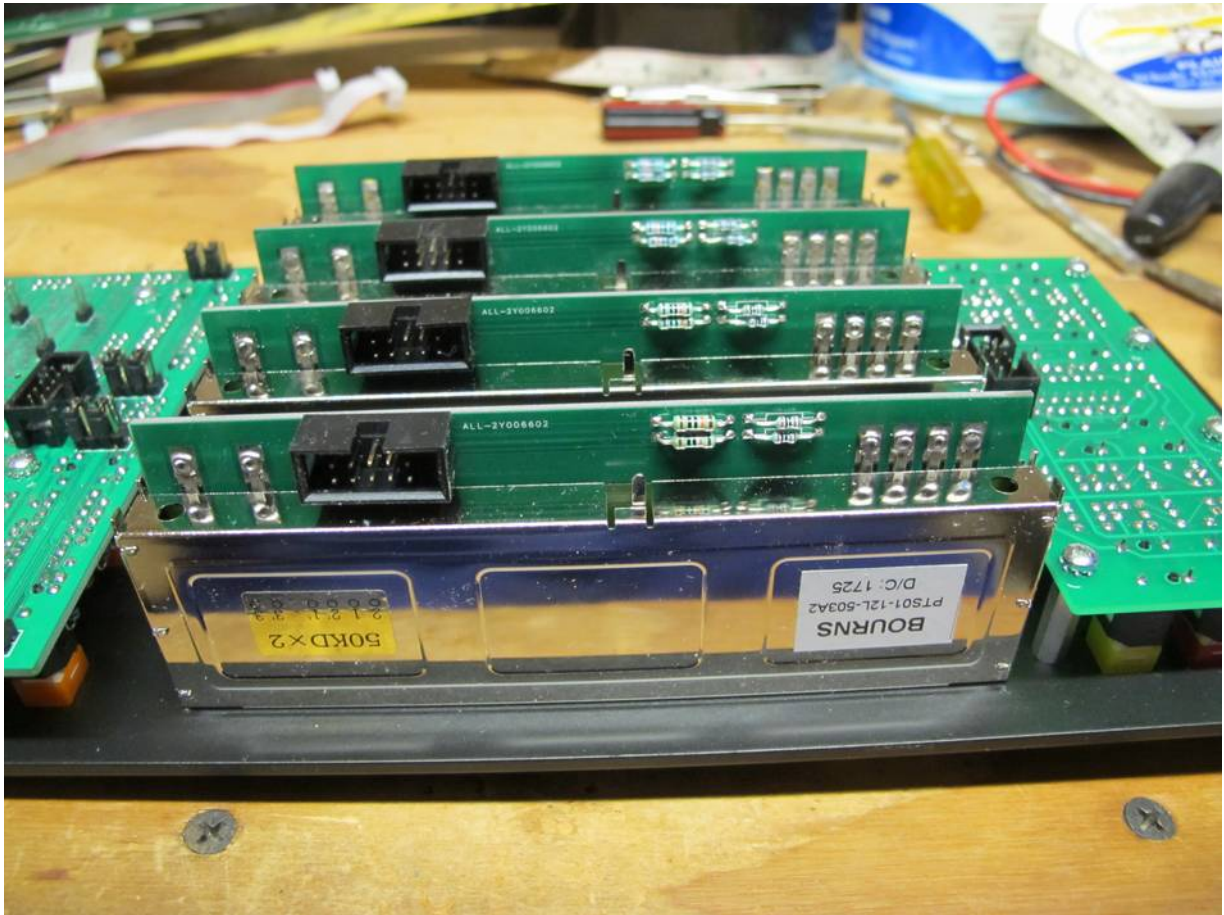
Assembly

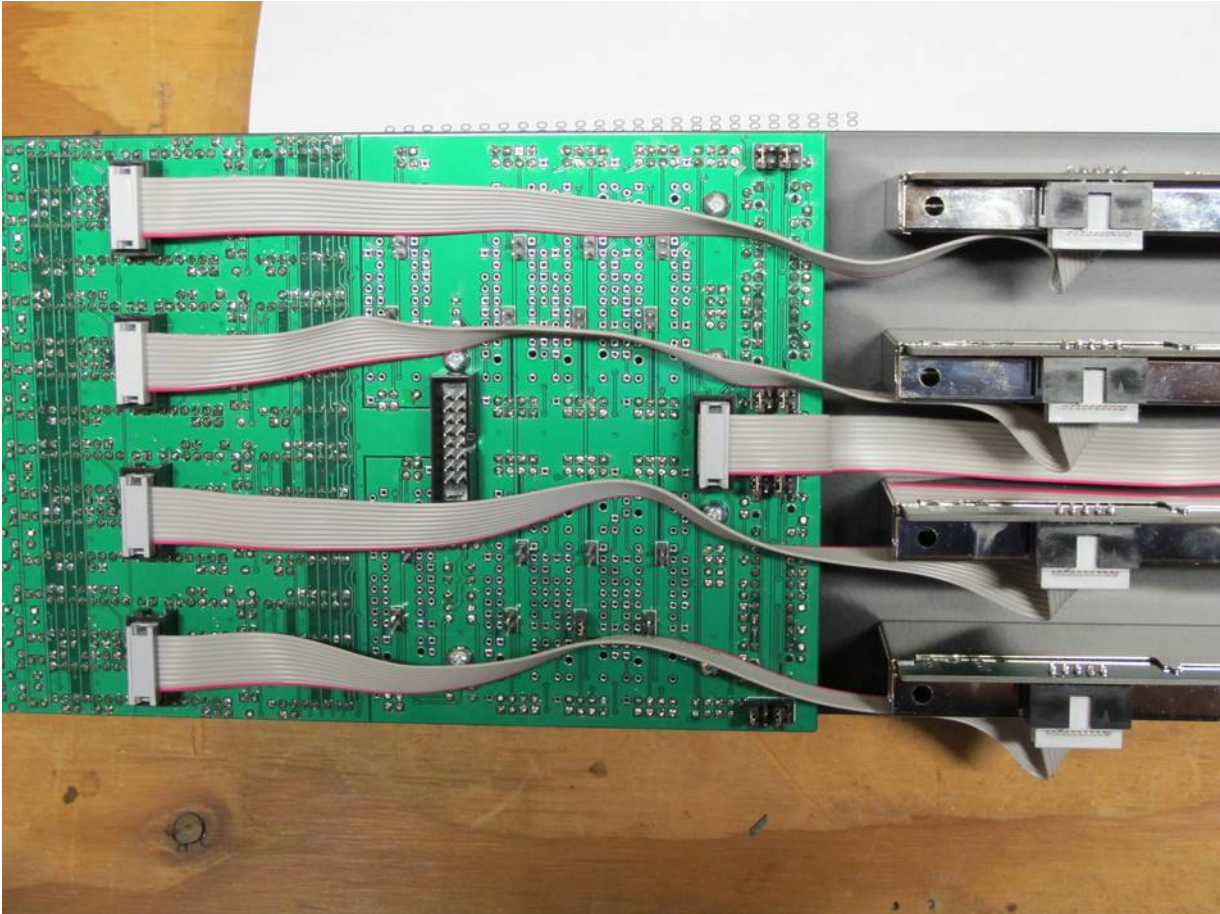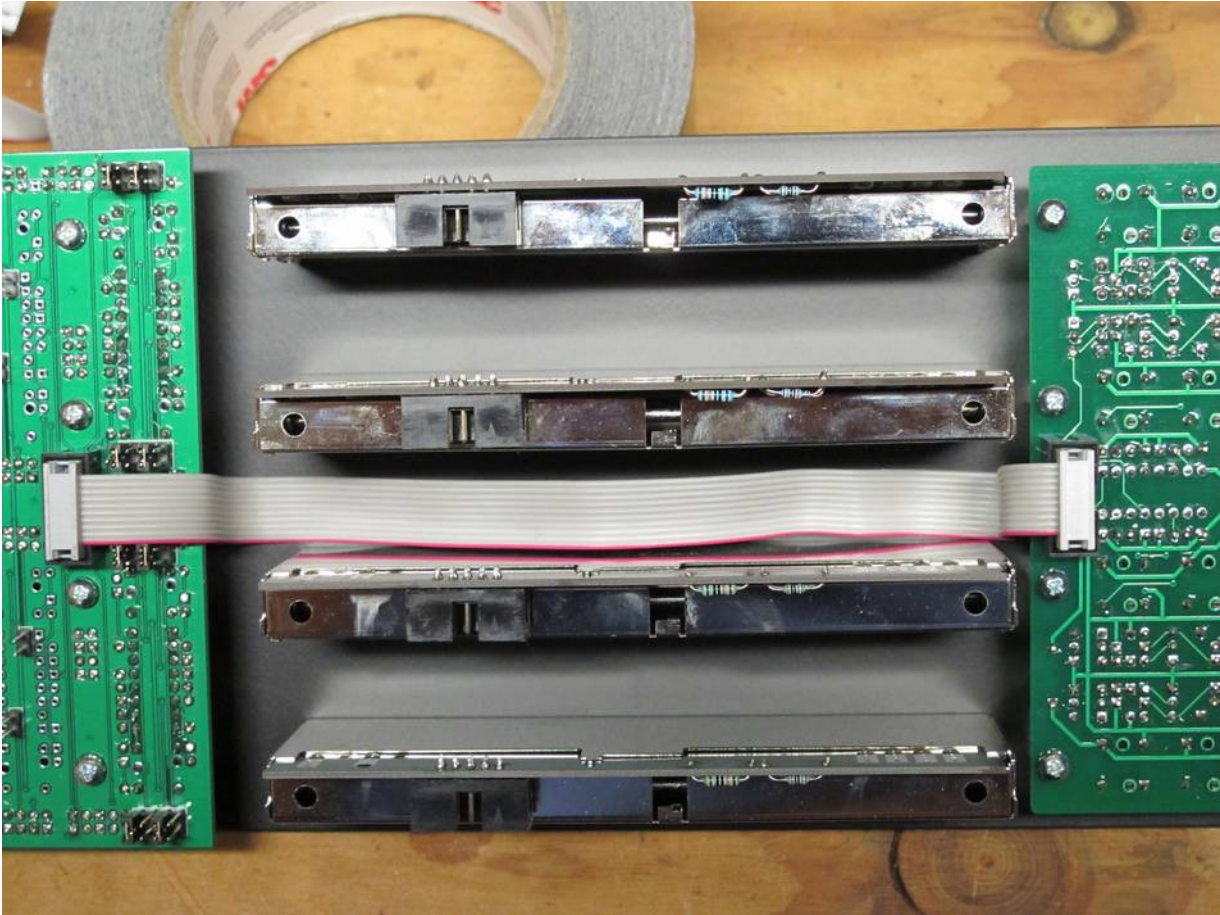First mount the PC boards to the panel. After mounting, make sure the buttons don't rub.

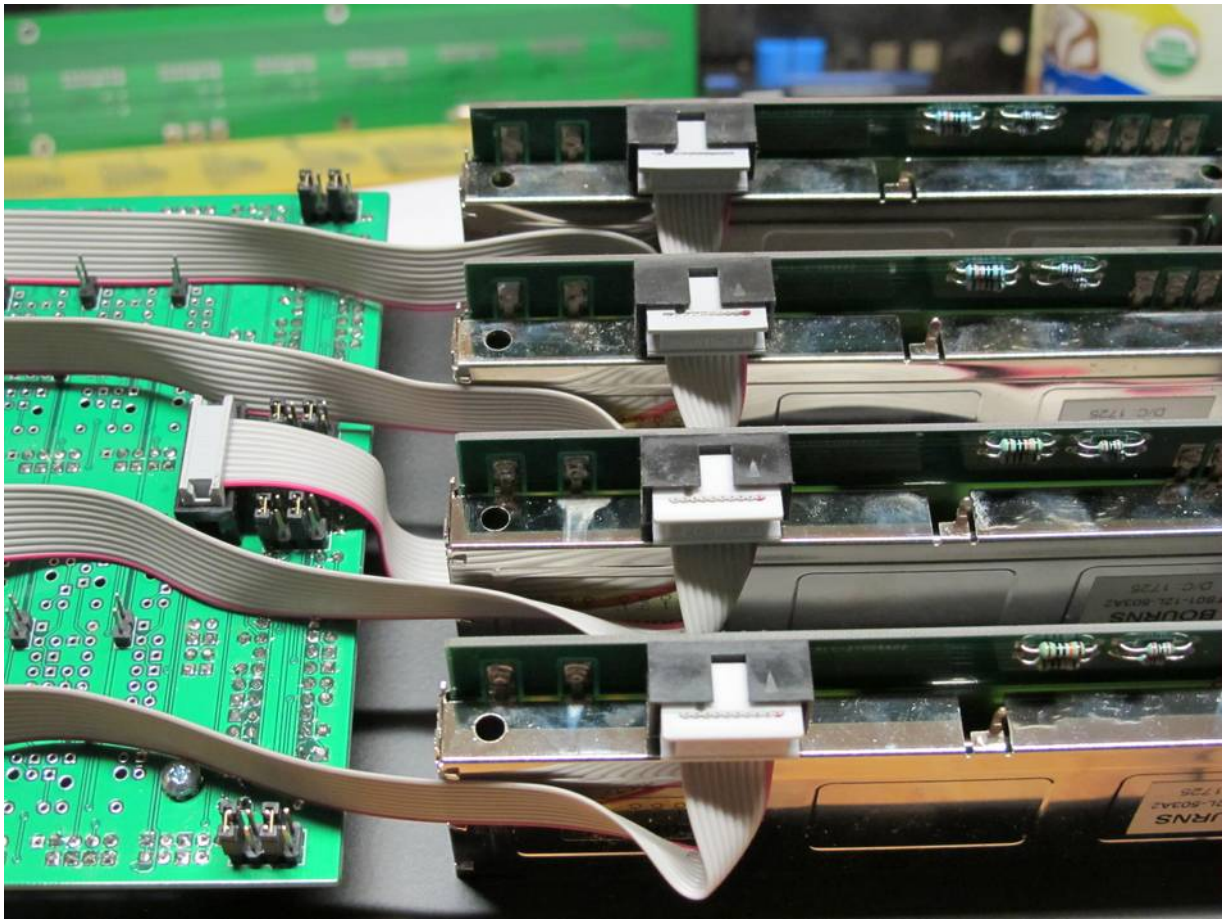To mount the faders, first place the module on its side.

Mount the faders.

Install the ribbon cables.

Install the knobs.

They push on. They fit tight. It works best to position the fader to one end, and support it from the back while pushing. Otherwise it is possible to damage the fader.

The input module is now complete, ready to test and install.