Specifications

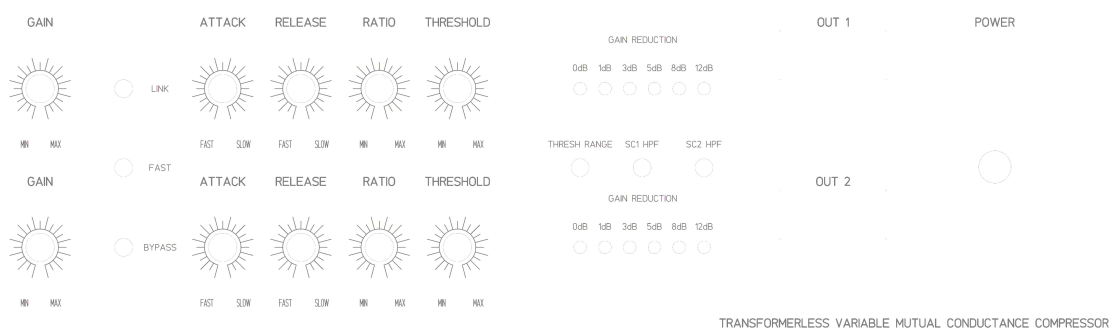
Input impedance ≈ 12k ohms, balanced line-to-line, *
THD < 0.25%, +20 dBu, 20-20 kHz, unity gain, no compression, **
S/N = 80 dB re +4 dBu, 22 kHz BW, unity gain, ***
Crosstalk = -60 dB, 20kHz, +4 dBu, channel-to-channel
Frequency response = 20 - 20 kHz, ±0.25 dB
Maximum gain ≈ +14 dB
Output impedance 50 ohms, balanced line-to-line
Maximum output level +26 dBu

* INA2137 Internal resistors are ratio matched but have ±25% absolute value
** Will heavily depend on the tubes used
*** Should be better than 80 dB unless the tubes are very noisy

Gain, Attack & Release Rotary Switches

ROTARY SW	GAIN	ATTACK	RELEASE	ATTACK fast	RELEASE fast
1	-8 dB	2 ms	44 ms	1 ms	22 ms
2	-6 dB	4 ms	88 ms	2 ms	44 ms
3	-4 dB	6 ms	132 ms	3 ms	66 ms
4	-2 dB	10 ms	176 ms	5 ms	88 ms
5	0 dB	20 ms	220 ms	10 ms	110 ms
6	+2 dB	30 ms	264 ms	15 ms	132 ms
7	+4 dB	50 ms	308 ms	25 ms	154 ms
8	+6 dB	70 ms	352 ms	35 ms	176 ms
9	+8 dB	90 ms	396 ms	45 ms	198 ms
10	+10 dB	110 ms	440 ms	55 ms	220 ms
11	+12 dB	130 ms	484 ms	65 ms	242 ms
12	+14 dB	150 ms	924 ms	75 ms	462 ms

Real release time is attack + release.



CONTROLS

2 Gain Controls
2 dB steps

Link Switch
Link switch combines the CV voltages by connecting ratio rotary switches parallel. Attack, release and threshold controls still operate independently on both channels.

Fast Switch
Attack and release times are halved

Bypass Switch
Inputs are still being fed while in bypass

2 Attack Conrols
12 positions

2 Release Contorols
12 positons.

2 Ratio Controls
12 positions. Soft knee.

2 Threshold Controls
12 positions

Threshold Range
Changes range for threshold switches

Sidechain 1 High-pass filter
140Hz sidechain high-pass filter

Sidechain 2 High-pass filter
140Hz sidechain high-pass filter

Calibration

Sidechain trimmer RV1
RV1 on the sidechain board adjusts the minimum threshold of the compressor. Adjust trimmer RV1 on sidechain board until the voltage across D1 is 0V. Adjustment range is between 0.5V and 0V DC.

Sidechain trimmers RV2 & RV3
RV2 on the sidechain board adjusts CH1 tube bias.
RV3 on the sidechain board adjusts CH2 tube bias.

RV2 sidechain
Measure voltage between CV1 and CV0
Adjust trimmer RV2 on sidechain board until the lowest voltage where CV1 – CV0 will adjust to is found. Typically around 4V DC. If the lowest voltage is 4V then adjust trimmer RV2 until voltage between CV1 and CV0 is 4.1V DC

RV3 sidechain
Measure voltage between CV2 and CV0
Adjust trimmer RV3 on sidechain board until the lowest voltage where CV2 – CV0 will adjust to is found. Typically around 4V DC. If the lowest voltage is 4V then adjust trimmer RV3 until voltage between CV2 and CV0 is 4.1V DC

Sidechain trimmers RV4 & RV5
RV4 adjusts CH1 1dB gain reduction LED
RV5 adjusts CH2 1dB gain reduction LED

Adjust the trimmers until there is only very light glow on the 1dB LED when not compressing.

Tube balance

For checking tube balance audio interface and software like ARTA or Room Eq Wizard are needed. Or use your DAW with signal generator plugin.

Main board trimmers RV1 & RV2

RV1 adjusts CH1 balance
RV2 adjusts CH2 balance

Channel 1
- Switch link on.
- Turn threshold to max on both channels.
- Turn attack and release on both channels to fast position.
- Turn ratio on both channels to max.

Feed channel 2 input with 50Hz signal. Do NOT feed any signal to channel 1 input!

- Turn channel 2 threshold down until 8dB led lights up on both channels.

Measure output voltage from channel 1. Adjust balance trimmer RV1 on main board until lowest output voltage is found. Output level should be -40 dBu or even much less if the tubes are in good balance.

Channel 2

- Switch link on.
- Turn threshold to max on both channels.
- Turn attack and release on both channels to fast position.
- Turn ratio on both channels to max.

Feed channel 1 input with 50Hz signal. Do NOT feed any signal to channel 2 input!

- Turn channel 1 threshold down until 8dB led lights up on both channels.

Measure output voltage from channel 2. Adjust balance trimmer RV2 on main board until lowest output voltage is found. Output level should be -40 dBu or even much less if the tubes are in good balance.

Another method of testing tube balance

https://www.ghr.fi/varimu2/20k.wav

Turn attack and release to fast position. Turn ratio to max. Play the audio file and and adjust the volume and threshold until 3 dB led lights up and listen for audible "thumps". Adjust balance trimmer for minimal "thump".

Channel Gain balance

Sidechain trimmers RV2 & RV3
Small differences in gain between channels can be adjusted with sidechain trimmers RV2 & RV3

RV2 adjusts CH1 gain
RV3 adjusts CH2 gain

Feed both channels +4 dBu 1kHz signal

- Turn gain switches to same position on both channels
- Turn threshold on both channels to max to make sure no gain reduction is happening

Monitor the outputs and if there is a difference in output levels adjust trimmer on the channel which has higher output level.