

Pure Mu

Time constants

The **release times** are:

1. 33 ms
2. 47 ms
3. 68 ms
4. 100 ms
5. 150 ms
6. 220 ms
7. 330 ms
8. 470 ms
9. 680 ms
10. 1000 ms
11. 1500 ms

The **secondary releases** are ca. 1 and 2 seconds as marked. Try them for highly dynamic stuff that needs some kind of primitive "volume automation" Attack behaves in dual release with two slopes, as does release, depending on the primary release time.

Attack is always proportional to primary release. The slowest is 50% of chosen release time and the fastest is super fast. Each position is always 2 times faster than the next one.

Dual release mimics the memory effects in opto compression or the multiple release modes in Fairchild. You can add a second, slower (nominally 1 or 2 seconds) slope to a faster release (any of the main release positions). This second slope needs some time to "charge" therefore it sort of has a memory of the music: The longer and deeper compression events have been, the more the second slow slope is activated. It is sort of primitive volume automation.

Partial positions in the **link** are just that, partial linkage, but with a time dependent performance: attack periods will be linked a bit less than the release periods. Experiment, you may tweak stereo field with it if there are very loud panned transients.

Load switch makes it possible to get a bit more distortion if wanted. It may be useful or then not, but since Pure mu is such a low distortion design some people may get kick out of it. About 3,5dB input gain is needed to compensate the level drop.

Trimming procedures

There are gain trimmers inside the compressor. There are also compression trimmers (“compression balance”) and two trimmers without labels, which affect the meter scalings. These should normally not need adjusting.

Gain trimming is simple.

Compression balance trimming is done with link fully on, after first trimming the gain balance. Check balance at a couple of points, for example at 3dB and 6 dBs of GR, and adjust one trimmer only to bring the compression to a good balance. Perfection is not possible, but well matched tube sets will achieve matching within 0,05dB down to 5dB GR and within 0,2dB to 10dB GR. (My limits when choosing tubes and calibrating new units)

Tube balance is adjusted if there is side chain feedthrough, ”thumping”. Switch on the balance adjustment lever from the back panel. Then minimize the 100Hz hum that can be heard (or measured at DAW) by adjusting the front panel balance trimmers. The level will be around -20dBu probably (About -40 dB DFS), sometimes much lower if tubes are in very good balance. And finally switch of the balance adj from back panel.

Meter zeros adjustment is simple.

Fine adjustment of the **needle scalings**:

First turn the scaling trimmers totally CCW. These are inside the compressor. Then zero the meters from ”meter zero”

Compress 5-6dB. Then balance the needles from ”meter zero”, not from scaling. Adjust the needle which is showing more GR to agree with the another.

Release compression, and the same needle will go past zero. Now adjust ”scaling” for it. It takes quite a lot of turns to make it affect the needle.

Tubes etc

8 pieces of ECC189 or CV5331 for the audio and 2 pieces 12AL5 for side chain. Tubes should be a matched set. From 2018 the side chain tubes are 6AL5.

Input impedance	4k
Output impedance	250 Ohms
Noise floor	-100dBu A-weighted
Frequency response	-1dB @ 20Hz, +0,15dB @20kHz ref 1kHz
Maximum output level	25dBu

It is difficult to know when exactly tubes will be too old. Keep adjusting the tube balance every now and then, perhaps twice a year, and check how the gain of the unit changes. When good balance is no more possible (the test signal remains higher than about -35 dBFS) or the gain of the unit starts to go lower and lower and impossible to match or the sound is clearly muddy and distorted, then it is time to change. Tubes can also become noisy or microphonic. So, in order to know when tubes start to be at the end of their life or perform badly, you should get to know how the unit behaves now and perhaps even write down the values of test signal and gains.