



F765 500 Series Compressor/Limiter

Operation Procedure: Quick Start

This is the ADR recommended set-up procedure to get the audio levels set up properly.

- a). Set the COMPRESSOR 'RATIO' switch to 1:1 (non-operative) and the PEAK LIMIT switch to 'ON' (or 'PRE.EMPH' if your application will require de-essing) and the channel OUTPUT control turned down.
- b). With the SYSTEM bypass switch to 'OUT' (i.e. by-passing the F765 vari-loss amp section) the audio levels to/from the F765 should be established in the usual way as though the F765 were not in the signal path. The audio level feeding the F765 should be peaking to at least -10dBm, but preferably to 0dBm in order to obtain maximum compression possibilities.
- c). Having established the normal level, switch the F765 SYSTEM bypass to 'IN' and adjust the channel INPUT control until the overall amount of gain reduction likely to be required is indicating on the meter (example: 8dB). At this stage the Peak Limit section is working and red indicator will be flashing.
- d). Turn up the channel OUTPUT attenuator and adjust so that the level is peaking to the same level as the direct (dry) signal. This is best done under dynamic signal conditions rather than with a tone if monitoring with VU meters. A relevant direct comparison is now available between direct and compressed signal at the flick of the SYSTEM 'IN' / 'OUT' switch at closely approximating peak levels.
- e). With the COMPRESSOR 'RATIO' control select the ratio required (e.g. 2:1) and adjust the COMPRESSOR 'THRESHOLD' control until the red LIMIT LED only indicates on peaks above the amount of compression required (move the threshold down from '0' towards the -20 point until the red LIMIT LED goes out, then come back one position. The PEAK LIMIT section will then operate on any further unexpected increase in level. The amount of compression may be changed by increasing/decreasing the channel INPUT control and adjusting the compressor threshold to adjust the relationship between compression and peak limiting. Once set-up it will not be necessary to alter the channel OUTPUT level (as per step 'd'). It is important to note that the THRESHOLD control is based off of the *output* of the Vari-Loss Amp (preamp), not the input level as in modern VCA type compressors.
- f). The 'RELEASE' time in the compressor section will be adjusted for effect as well as the 'ATTACK' time.
- g). In adjusting the compressor section always reference it to the PEAK LIMIT even if the PEAK LIMIT is then switched out during operation. This maintains the optimum signal-to-

noise level in the system. When using the tighter slopes in the compressor the threshold will lie just under the PEAK LIMIT in position -2 to -8 (3:1 to 20:1 ratios).

h). The compression slopes are calculated on a 15dB range of gain reduction. (i.e. the 2:1 ratio is established in the set-up procedure as 30:15). It will be found in practice that the initial ratio in that position is more akin to 1:1.5 becoming slightly tighter as gain reduction increases. Thus, if only 6dB of compression were required this will be softer than the ratio indicated and the next position higher could be selected. In practice this will not be of great importance but it is useful to know of.

Compressor Side-Chain Access:

The F765 has a mix bus output as well as side chain access as specified by Radial Engineering for their Workhorse™ racks. To allow 'Vocal Stressor' or 'ducking' type effects, the input to the compressor side-chain may be accessed via the 1/4" TRS Omniport™ jack on the rear panel of the Workhorse™. A 1/4" TRS cable will need to be made or purchased with your preferred terminations on the send and return, this could be XLR, TR/TRS, etc., depending on your connection needs. The side chain send must not see a lower impedance than 10K ohms (minimum load of 10K ohms). To utilize the side chain access, there is a two pin jumper on "CN4" that must be pulled to allow the return to operate (the send is always active). It is located under the top cover at the rear of the F765. Store the jumper plug on one pin of the 2-pin header so it will not be lost.

If you are not using the Omniport™ it is recommended to not have anything plugged into it that could load or otherwise cause problems with the active send which is the Vari-Loss amplifier output. The send and return are unbalanced.

The Omniport™ contacts are assigned as follows:

Tip=send

Ring=return

Sleeve=ground

Specifications (the need-to-know stuff):

Power: requires +/-16V DC at 70mA per rail.

Input impedance: 10K ohms unbalanced

Maximum output level: Balanced, 20dBu, 18.5dBm

Attack:

Peak Limiter: < 250uS for 100% control of overshoot – without any over limiting. (measured at 1KHz for 10dB gain reduction).

Compressor: 250uS, 2.5mS, 25mS.

Release:

Peak Limiter: 250mS

Compressor: 25mS, 50mS, 100mS, 200mS, 400mS, 800mS, 1.6 secs, 3.2 secs + Auto release function.

Stereo Linking: The F765 must be ordered as a matched stereo pair to guarantee accurate stereo linking. The peak limiter side chains are not linked, only the compression side-chains. When linking for stereo, set BOTH channels the same (threshold, ratio, release, etc.) so each channel will contribute equally to compression.

Connector Pinout:

- 1) Chassis/Earth
- 2) Output +
- 3) N/C
- 4) Output -
- 5) Audio Ground
- 6) Stereo Link
- 7) "Omniport"™ Side Chain Return
- 8) Input -
- 9) "Omniport"™ Side Chain Send (min 10K loading)
- 10) Input +
- 11) Bus output (per Radial Workhorse™ specs)
- 12) +16V
- 13) 0V (Audio Ground)
- 14) -16V
- 15) N/C