



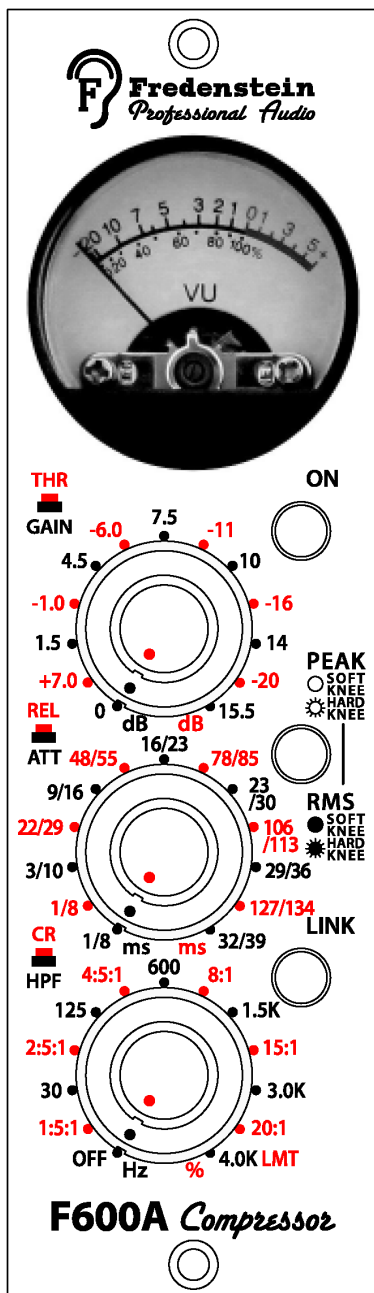
Fredenstein
Professional Audio

F600A
COMPRESSOR

Operating Manual

Fredenstein F600A Compressor

The F600A Compressor is a high performance tool for professional recording and mastering engineers. The F600A features a fully externally and internally balanced signal path with much lower distortion than conventional compressors. It comprises of an analog gain control circuit and a digital side-chain based on two DSPs. This technology can achieve more than 20 dB of gain reduction while maintaining very low distortion. Up to ten units can be linked together to form a true multi-channel compressor. The engineer can easily change the compression characteristics by tuning threshold level, attack and release times as well as selecting RMS or PEAK signal inputs to the side-chain. An additional tunable high pass filter preserves low frequencies. Since this high pass filter can be tuned up to 4 kHz, the F600A can be used as De-Esser, or on a lathe, as a cutting speed limiter. The extreme low output impedance with its high current design allows even the most difficult and complex loads to be driven without sonic impact. As all Fredenstein products, the F600A is designed by a German-American team and manufactured in Taiwan.



Overview:

Gain Reduction Indicator
(not active in Bypass Mode)

Rotary Controls:

- GAIN** : Make-up Gain Control
- THR** : Threshold Control
- ATT** : Attack Time Control
- REL** : Release Time Control
- HPF** : Side-chain Low-Cut Filter
- CR** : Compression Ratio

Switches:

- ON** : if lit the compressor is active, if not a hard bypass is switched on
- PEAK-RMS** : Side-chain input RMS or Peak and selects Hard- or Soft-Knee mode
- LINK** : Enables Multi-Channel Link capability

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Installation:

Please power down your rack or box first, before inserting the F600A. Since the F600A uses the link interconnect in the box or rack, it cannot coexist with any other third-party modules using the same link interconnect (PIN 6 on the edge connector). If you are using a Fredenstein Bento box, please turn off the the compressor link switches to any third party module(s), only turn the link switches on between F600/F600A modules.

Other third party equipment not using the link interconnect, such as most Mic-Pres and EQs etc, can be used simultaneously with the F600 in any enclosure. The power requirements are maximum +/-16V, +/-200mA. Please make sure, in case you don't use a Fredenstein Bento, that your box or rack can support the current. Please consult your third party documentation in case of any doubt.

To understand the function of the F600A, let's discuss first some terms:

Hard-Knee characteristics means the compressor will evenly compress all signal above the Threshold as set by the Compression Ratio control. Soft-Knee means that the compressor will start softly when the Threshold is almost reached with a reduced Compression Ratio. Then it will increase the Compression Ratio until the Gain Reduction reaches 3 dB and the full Compression Ratio is applied.

RMS (Root-Mean-Square) level detection measures the power (energy) of an audio signal, this means in audio the loudness. Setting the compressor Side-Chain input to RMS, will result in a more constant volume of the signal, but will allow short peaks to go through without compression. The traditional Peak level detection measures the highest signal independent of its energy. This will prevent short peaks to go through and overload the connected equipment such as Tape-Recorders or A/D-Converters.

User Controls:

Gain Control:

Make-up gain can be applied in the range of 0 to + 15.5dB to compensate for the gain reduction.

Threshold Control:

Determines the input level at which the compressor is activated.

Attack Control:

Determines how fast the compressor reacts to signals above threshold.

Release Control:

If the signal drops below threshold, the release time determines how fast the compressor falls back to 0 dB gain reduction.

Compression Ratio:

The amount of increase in output level relatively to the input signal. Minimum is 1.5:1, maximum is 100:1 (limiting)

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High Pass Filter:

To avoid compression of low frequencies, the side-chain has a built-in variable high pass filter. Minimum is a flat frequency response (fully CCW), maximum is 4000Hz (fully CW). Since this high pass filter can be tuned up to 4 kHz for example, the F600A can be used as De-Esser or on a lathe as a cutting speed limiter.

ON Switch:

Switches the the unit on and the VU meter displays the gain reduction (0 VU without gain reduction). If off, the unit provides a real hard bypass function, nothing is in the signal path, just a relay bridges the input to output. Very useful feature to compare the compressed and uncompressed signals. The engineer can keep the F600A always in its recording chain without fearing any negative impact on sound if the F600A not used at the moment.

PEAK-RMS Switch:

In normal operations (PEAK-RMS switch not lit) the PEAK signal is fed to the side-chain and Soft-Knee characteristics is selected.

After pressing the PEAK-RMS switch, the LED shows short flashes and indicates the Peak plus Hard-Knee mode.

Again pressing the PEAK-RMS switch, the LED turns on solid and the RMS plus Soft-Knee mode is activated.

And again pressing the PEAK-RMS switch, the LED emits short off periods and the RMS plus Hard Knee Mode is selected.

The PEAK-RMS switch cycles through the four modes.

LINK Switch:

In stereo or multi-channel applications, up to ten F660s can be link together to synchronize the gain reduction and prevent jitter in the acoustical position of sources. The F600A with the highest gain reduction takes the lead and all others follow.

Note: In Fredenstein Bento enclosures it is possible to set different compressor bus segments and therefore operate several stereo or multi-channel logical units simultaneously.

All operating parameters are stored automatically and will be recalled next time the F600A is powered up.

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Technical Data:

Reference Level	:	0 db = +4 dBu (American Studio Standard)
Make-up Gain	:	0 to +15.5 dB
Threshold	:	-24 dB to +7db (-20 dBu - +11 dBu)
Attack Time Range	:	1 ms/dB to 31 ms/dB
Release Time Range	:	2 ms/dB to 129 ms/dB
Compressions Ratio	:	1:2 to 1:100
High Pass Filter	:	flat to 4000 Hz
Frequency Response	:	20Hz – 20,000Hz, +/- 0.2dB
Distortion	:	< 0.01%
S/N Ratio	:	> 90dB at 0dB gain
Input Impedance	:	> 10KOhm
Max. Input Level	:	+ 24 dBu
Output Impedance	:	20 Ohm
Max. Output Current	:	+/- 200 mA
Max. Output Level	:	+ 26 dBu
Power Consumption	:	+/- 16V, +/- 200mA

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