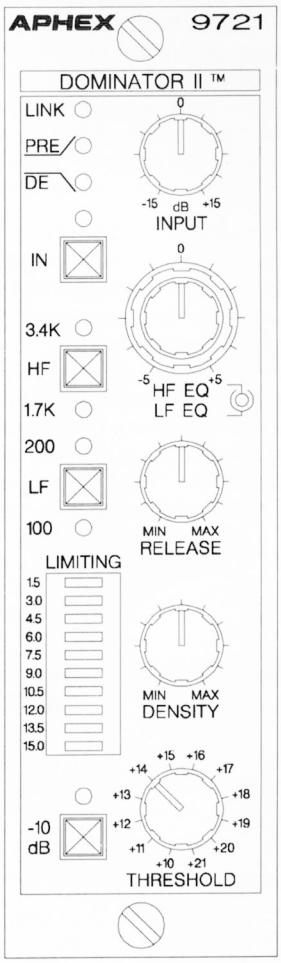
APHEX SYSTEMS

Dominator™ II Multiband Peak Limiter Module Model 9721



The Dominator II is a single channel multiband peak limiter with zero overshoot, a "brick wall". Once the PEAK CEILING is set, there is no higher amplitude in the output. Awareness of headroom limitations and the price of exceeding those limitations is important for any audio application and critical for most (especially digital). The Dominator II allows the user to work confidently, creatively and quickly by freeing the user from the fear of peak overload.

In addition to providing peak protection, the Dominator II may be used to gain greater loudness. Compared to conventional limiters, the Dominator II will provide at least 3 to 6dB greater loudness with higher sound quality.

Providing this "brick wall" and loudness, while retaining complete fidelity, is the art and science of the Dominator II.

Features/Controls

- Absolute "brick wall" peak protection without pumping or spectral gain intermodulation
- Peak Ceiling adjustable in 1dB steps over 22dB range
- 102dB Dynamic Range (5 times better than 16 bit digital)
- Linkable for stereo operation
- On board switchable pre- and de-emphasis
- Detented controls
- Relay bypass - remote controllable

Applications

- Recording — analog, digital tape and disk based systems
- Mixing
- Mastering — CD, film, analog disk
- Sound reinforcement
- Broadcasting — AM, FM, TV
- Satellite and STL uplink
- Tape duplication
- Sampling

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Multiband vs. Wideband Processing

A very significant problem with **wideband** processing is **"spectral gain intermodulation"** which occurs when one part of the spectrum controls the level of another part. A typical situation is a vocalist being "sucked down" every time the kick drum hits. Since most energy is contained in the lower frequencies, they tend to control the level of the entire spectrum. When the lower frequencies are above the limit threshold the higher frequencies are attenuated thus causing the output to be dull.

Multiband processing solves these problems by splitting the audio into two or more frequency bands and processing each band separately. However, more bands often result in many more parameters to control including a method of summing the bands together again. While giving the user flexibility, it also requires different settings for almost every different source.

The Dominator II uses **program dependent, intelligent circuits** to reduce the number of controls. The user, therefore, has flexibility to shape the sound while quickly and easily achieving the goal of consistent, effective limiting.

ALT™ (Automatic Limit Threshold)

The Dominator II uses a patented method to produce a predictable peak output while maintaining maximum loudness without audible distortion- the **Automatic Limit Threshold (ALT)**. The outputs of the three bands are summed and sent to the ALT detector circuit. If the sum exceeds a reference value, the ALT reduces the thresholds of the individual limiters. When the summed output falls below the reference value the limit thresholds return to their original setting.

The ALT circuit has a self-adjusting finite attack time. The amount of time it takes to lower the thresholds of the limiters is the length of time the limiters' overshoot may be in the clipper. The reference value of the ALT in relation to the clipper determines the depth of clipping. Both parameters are set by the **DENSITY** control. When the DENSITY control is set higher, the ALT reference gets closer to clipping, and the attack time is slower, producing more clipping. The opposite occurs when DENSITY is set lower. The **"0 RCH"** position for the DENSITY control emulates the standard parameters of the original Studio Dominator Model 700, and is recommended for general use.

Specifications

RANGE SETTINGS	**0dB (+4dBu)**	**-10dB (-6dBu)**
Nominal Gain	0dB ±15dB	Same
Output Noise	-81dBu	-89dBu
THD	0.008%	0.008%
SMPTE IMD	0.008%	0.008%
Frequency Response	±0.2dB 20Hz-75kHz	Same
Max Input	+27dBu	+23dBu
Max Output	+21dB peak	+11dB peak
Dynamic Range	102dB	100dB

CONTROLS	
Input Gain	±15dB
LF EQ	±5dB
LF Crossover	100Hz/200Hz
HF EQ	±5dB
HF Crossover	1.7kHz/3.4kHz
Release Time	150mSec to 7Sec
Density	-5 to +5 RCH
Output Ceiling	0dB to +21dB (PK)

INPUT/OUTPUT	
Input Circuit	Servo Balanced Transformerless
Output Circuit	Servo Balanced Transformerless
Input Impedance	19.5kΩ Unterminated; 600Ω termination by jumper on card
Output Impedance	65Ω
Input CMRR	Better than 60dB 20Hz to 20kHz

OTHER SPECIFICATIONS	
Power Requirements	±15 Volts DC
Power Consumption (maximum)	330mA Worst Case
Dimensions	Board: 4.5" H x 9.5" D; Front Panel: 5.25" H x 1.5" W
Shipping Weight	1 lbs.
Net Weight	<1 lbs.

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