



Gated automatic gain control for broadcast and recording.

Now in one package, a definitive automatic level controller incorporating the functions previously necessitating a Compressor, a Peak Limiter and a "De-esser" – extraordinarily flexible, yet straightforward to use.

The Model 220 *Audio Level Optimizer* provides both a substantial increase in average program level, and protection from program peaks. Adjustable gating eliminates "breathing" or "pumping" effects by holding gain constant during short pauses in the program.

FEATURES

Gated operation with choice of GAIN HOLD, HOLD AND RELEASE, or HOLD AND FADE modes.

Selection of Peak or Peak + Average limiting functions.

Separate frequency-selective limiting option for FM, TV Audio, or recording pre-emphasis characteristics.

Adjustable limiting symmetry for full AM carrier modulation.

Distortion reduced by unique ripple-cancelling circuits.

Compression displayed by panel meter and peak-responding indicators. Optional remote Compression Meter may be console-mounted.

MODEL 220 SPECIFICATIONS

Frequency Response (1)

±0.5dB 20Hz – 20kHz

Noise Level

Better than 70dB below output program level.

Distortion (2)

	50Hz-200Hz	200Hz-20kHz
Peak Limiter		
SLOW Release:	<0.5%	<0.3%
FAST Release:	<0.8%	<0.4%
Averaging Function:	(no contribution)	
Freq. Selective Limiter:	—	<0.5%
Below Limiting Threshold:	<0.15%, 20Hz - 20kHz at +23dBm	
Output Clipping Level:	>+24dBm	

Limiter Timing (3)

Peak Limiter

Attack: <1μs / dB-limiting

Release: continuously variable between 30ms / dB-limiting (SLOW) and 6ms / dB-limiting (FAST).

Averaging Function

Attack and Release approx. 50ms / dB-limiting.

Frequency Selective Limiter

Attack: <1μs / dB-limiting

Release: 50ms (max) for any degree of reduction.

Gating Circuit

Operation: circuit serves to hold gain at level of prior compression when input signal falls below Gating Threshold. If input signal remains below threshold in excess of 10 seconds, at the user's option the circuit will (1) continue to HOLD GAIN at the level of prior compression; (2) slowly increase gain reduction to a maximum of 20dB (DELAY & FADE); or (3) slowly restore gain to the uncompressed value (DELAY & RELEASE).

Threshold Level: continuously variable; adjusts to open Gate on input signals of -40dBm at maximum sensitivity.

Threshold Weighting: -3dB points at 300Hz and 3kHz to restrict gating operation to legitimate program material.

Peak Limiting Symmetry

A series of straps on the circuit board permits setting the value of positive peaks to 100% (symmetrical), 105%, 110%, 115%, 120%, or 125% of the negative peak value.

Stereo Coupling

Two or more units may be interconnected for ganged gain reduction.

Input

Sensitivity: adjusts to accommodate input program levels between -20 and +15dBm.

Impedance: 20k – bridging, with transformer isolation.

Output

Transformer-coupled Line Output feeds 600-ohm line or bridging input at program levels between 0 and +15dBm.

Frequency Selective Limiting Characteristic

Optional plug-in insert complements 75μs (FM broadcast – TV Audio) pre-emphasis characteristics to prevent overmodulation from high frequency program energy. Circuit provides independent limiting for high frequencies.

Panel Controls

INPUT GAIN (COMPRESSION)

OUTPUT LEVEL

GATING THRESHOLD

PEAK LIMIT RELEASE

FUNCTION A: GATING OFF – HOLD GAIN – DELAY & FADE – DELAY & RELEASE

FUNCTION B: POWER OFF – PEAK LIMIT – PEAK LIMIT & AVG. COMPRESSION

Panel Indicators

Peak-Responding Indicators: GATE OPEN – PEAK REDUCTION – AVERAGE LEVEL COMPRESSION

Meter: displays Compression in dB. Connection provided for optional, remote-mounting Compression Meter.

Power Requirement

105 – 130VAC (230V available), 50/60Hz, 10 watts

Size and Weight

3½" x 19" x 6"; 12 lbs.

(1) Response below threshold of Frequency Selective Limiter.

(2) Total Harmonic Distortion at +10dBm output program level with 15dB Peak Limiting or High Frequency Gain Reduction.

(3) Attack and Release are not linear time-per-dB-of-limiting characteristics. The specified figures represent Best Straight Line approximations of these characteristics over the greatest portion of their operating values.