

# Universal Audio PEAK LIMITER

MODEL  
1176LN



The Universal Audio 1176 was a major breakthrough in limiter technology. It brought to the professional audio industry for the first time a true peak limiter with all transistor circuitry and superior performance on all types of program material. The 1176LN retains all of the features of the 1176, but generates 6 dB less noise. In addition, a redistribution of noise spectrum leaves even less noise in the sensitive 500 Hz to 3 kHz range.

Since its introduction in 1968, the 1176 has become the industry leader. The 1176LN will carry on that tradition with the following plus features:

- FET Gain Reduction ahead of first stage. No tricky balancing required, ever. No distortion adding active element in gain reduction circuit.
- Pushbutton selection of four different compression ratios, to satisfy every program requirement.
- ULTRA FAST attack time . . . independent of peak duration or frequency. Adjustable from front panel during operation.
- Release time adjustable from front panel . . . independent of the degree of limiting.
- Extremely stable operation . . . no costly maintenance . . . no tubes to select or replace.
- Stereo operation of two units easily accommodated, so peak in one channel causes equal limiting in both.
- Contemporary styling . . . eye pleasing industrial design.

Limiting is accomplished in the 1176LN by utilizing an FET as a voltage variable resistor, ahead of the first stage of amplification. Unique circuitry permits severe limiting without added distortion, and no balancing is ever required. Attack time is adjustable from less than 20 microseconds to 800 microseconds. (This is the time in which complete recovery to the limited level is accomplished . . . there is no undershoot). Using the tone burst method, a 50 kHz peak is fully stabilized at the limited level within one cycle. Release time is also adjustable on the front panel from 50 ms to 1.1 seconds.

A feature of the 1176LN is the use of pushbutton switches to select compression ratios of 20:1, 12:1, 8:1 or 4:1. Another pushbutton switch assembly selects meter functions and applies power to the unit. Provision is made for remote metering.

The compact 1176LN requires only 3½" of vertical space in a 19" rack, with self-contained regulated power supplies, operable from either 110-125 VAC or 220-240 VAC, 50/60 Hz.



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# TECHNICAL SPECIFICATIONS

## ELECTRICAL:

<b>INPUT IMPEDANCE</b>	:	600 ohms, bridged-T control (floating).
<b>OUTPUT LOAD IMPEDANCE</b>	:	600 ohms, floating.
<b>EXTERNAL CONNECTIONS</b>	:	Jones barrier terminals at rear.
<b>FREQUENCY RESPONSE</b>	:	20 Hz to 20 kHz, $\pm 1$ dB.
<b>GAIN</b>	:	45 dB $\pm 1$ dB.
<b>DISTORTION</b>	:	Less than 0.5% THD from 50 Hz to 15 kHz with limiting, at 1.1 seconds release setting (as with all limiting devices, distortion of low-frequency peaks increases as release time is shortened). Output capability is +24 dBm.
<b>SIGNAL-TO-NOISE RATIO</b>	:	Greater than 81 dB at threshold of limiting 30 Hz to 18 kHz.
<b>ATTACK TIME</b>	:	Less than 20 microseconds for 100% recovery. Adjustable to 800 microseconds with front panel control.
<b>RELEASE TIME</b>	:	50 ms minimum, 1.1 seconds maximum (for 63% recovery). Adjustable with front panel control.
<b>THRESHOLD VS. OUTPUT LEVEL</b>	:	(Sinewave signal).

<u>Compression Ratio Setting</u>	<u>Input Level at Minimum Limiting Threshold <math>\pm 2</math> dB</u>	<u>*Relative Output at Threshold</u>
20 to 1	-19 dBm	+12 dBm
12 to 1	-20 dBm	+11 dBm
8 to 1	-21 dBm	+10 dBm
4 to 1	-26 dBm	+9 dBm

\*with output level interstage gain control set to provide a reserve of approximately 10 dB.

<b>STEREO INTERCONNECTION</b>	:	Pin jacks at rear of chassis. Requires 1176 SA Network Accessory to couple two units.
<b>POWER REQUIREMENTS</b>	:	110-130 VAC 50/60 Hz, 6W. Strapping provided for 220-260 VAC, 50/60 Hz.
<b>ENVIRONMENTAL</b>	:	Max. ambient operating temperature 160°F (70°C).

## PHYSICAL:

<b>DIMENSIONS</b>	:	3½ vertical, for mounting in standard 19" rack. Depth behind panel 8". (89 x 483 x 203 mm).
<b>WEIGHT</b>	:	11 pounds, 5.0 kg.
<b>SHIPPING WEIGHT</b>	:	14½ pounds, 6.6 kg.