



## Aphex Systems 1100MkII Mic Preamp

FIELD TEST

by [Barry Rudolph](#)

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Since introduced in 1999, Aphex's 1100MkI, with its great sound and super-low noise, quickly reached a unique orbit in the vast universe of high-quality microphone preamplifiers. The single-rackspace, 2-channel tube MkII adds several new features, but is otherwise unchanged from the original--good news, as the 1100's elegant and remarkably prescient design looks to become a modern classic.

### LOOKING GOOD

The MkII is a glamorous standout in the control room with chrome rack-frame rails and a sculpted blue-anodized front panel with carved-out windows for the backlit control panels. The two identical channels have metal knobs for gain in 4dB steps and for the LoCaf feature. Line output is a 0dB to -12dB screwdriver-adjust trim pot and there is a built-in -20dB/700Hz test oscillator source to match the 1100's dynamic range to your connected gear.

There are also buttons for -20dB pad, polarity, phantom power on/off that slowly ramps up and down to avoid pops, MicLim on/off, noiseless mute on/off with rear panel jack and the A/D controls (sync clock source and internal sample rate). The new AKM AK5394A A/D converter chip supports 44.1 through 192kHz sample rates and will transmit and accept external clock via rear panel BNC jacks. There are also rear panel AES/EBU, S/PDIF and Toslink optical digital audio output connectors.

The 1100 is a transformerless hybrid design comprising a Class-A variable gain (-3dB to 41dB) PNP transistor differential input amplifier followed by a dual-triode (12AT7) differential tube stage (21 dB) that uses Aphex's Reflected Plate Amplifier circuit. This two-stage front end is followed, after the dual-optocoupler noiseless muting circuit and unbalanced insert loop path, by another RPA output amp (3dB gain) for a total system gain range of 21 to 65 dB.

## **NEW FEATURES**

What sets the 1100 apart are the RPA, MicLim and LoCaf features. RPA operates a vacuum tube amplifier at a constant and very low plate voltage to maintain electron migration and transconductance (the ratio of the small change in the plate's current to a change in grid voltage). That small plate current change is "read" or reflected via an external solid-state circuit to derive audio output and gain.

MicLim uses a specially designed, optically coupled attenuator as a dynamic load resistor across the 1100's input. A very fast peak limiter looking at the output of the first RPA stage controls this attenuator. As the input stage is about to clip, MicLim instantly lowers the input impedance and, therefore, the microphone's output level, avoiding preamp overload. To make MicLim more effective when using low-impedance mics (50 ohms or less), the MkII now comes with Z-Comp--impedance compensation switches on the rear panel. Z-Comp adds 150-ohms resistance in series with the mic's impedance. The 1100 has a 2k-ohm input impedance.

LoCaf is a very effective highpass filtering system with 11 corner frequency choices from 30 to 195 Hz. LoCaf is actually a servo-cancellation circuit with a second-order Butterworth response characteristic that applies an out-of-phase signal component to cancel out all frequencies below the selected frequency.

Using MicLim and LoCaf is like a dream come true for a compulsive, full-level maximizer like myself. On top of LoCaf, with MicLim, you can add up to 16 dB more level before preamp clipping. (The whole idea is to prevent ugly preamp clip by accidental overload from unpredictable sound sources.) If you are willing to accept an occasional MicLim "clamp", then you can record much hotter and still never clip the 1100 or your DAW's input.

## **IN THE STUDIO**

My first tests were analog comparisons of vocals using a Soundelux e250 large-diaphragm condenser mic between the 1100, Neve 1272, API 512 and the transformerless GML 8302 mic pre's. I did not use LoCaf or MicLim nor attenuation or anything else on the units. After carefully aligning all units with an oscillator to achieve matching 0dBm output at 40 dB of gain from each, the 1100 had a higher apparent loudness with increased low frequencies, a more open top end and no noise compared to the Neve and API. The difference was most striking against the Neve, while the API held its own in the low frequencies. The GML produced an exact sonic match.

I tried out MicLim and the digital output on a vocal recording and used one more 'click' (4 dB) of gain when accepting a few unnoticeable MicLim clamps. I never once clipped my Pro Tools|HD3 rig running at 24/96 kHz. On close-miked acoustic guitars or big and loud guitar cabs, LoCaf was the most precise filter I've ever used to carve out boomy low frequencies for hotter levels into the compressor.

## IS IT A STAR?

The Aphex 1100MkII scores hits with its wide open "fat" sound, precision control of peaks for maximum level, low-frequency shaping ability and superquiet noise floor. The 1100 is especially useful in situations where unpredictable incoming audio levels are the norm, such as live sound remotes. MicLim ensures usable audio when you're working on-the-fly, adjusting levels quickly while LoCaf clears out as much low-end rumble as necessary. If you consider the fully transformerless Class-A signal path, built-in 24/192kHz A/D converter, the unique and modern features, RPA, MicLim and LoCaf, then it's worth more than the \$2,495 MSRP.

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