

produce .001% or less, and, in the STASIS 1, the characteristic is equivalent to a cascode/class A amplifier operated under a no-load condition.

The STASIS 1 is a one-of-a-kind component conceived for those applications where the highest attainable accuracy is required. It continues Threshold's position at the leading edge of audio technology, and firmly establishes the commitment to products that embody the most advanced concepts.

The Threshold model SL-10 preamplifier is the vanguard for a new generation of low-level signal processing units whose performance margins lie substantially beyond those required by the new, high technology, recording systems. As an exercise in highly advanced engineering the SL-10 represents fresh design concepts and empirical performance levels that establish new accuracy domains in the transfer of signal from source to amplifier. Several unique operating configurations are employed in the comprehensive SL-10 system, allowing it to process at extremely high levels of information integrity.

Input transistors of the phono and high level circuits are operated in the cascode mode, which increases bandwidth through a reduction of Miller capacitances and provides additional isolation between the source, the power supply, and the gain circuitry. In addition, the active input devices are biased to current levels an order of magnitude beyond those normally applied to solid-state preamplifiers.

These very large bias currents substantially reduce the distortions in the gain transistors, yielding a "super class A" operating mode where the idling currents are many times larger than the current called for in actual operation. Not only does the high

bias assure extreme linearity but also increases the phono input transistor overload to approximately 2 volts, at 20 kHz for the high level magnetic cartridge input, and greater than 70 millivolts peak, at any frequency, for the low level "moving coil" cartridge input.

The phono equalization circuitry of the SL-10 employs an advanced approach to the handling of RIAA equalization in the feedback loop. Threshold's investigations into transient distortion phenomena have shown the desirability of maintaining a constant amount of feedback across the audio band. Unfortunately, in an RIAA phono stage, a flat open loop characteristic results in a feedback variation of 100 to 1 across the audio band resulting in high feedback at high frequencies and low feedback at low frequencies. This causes lack of control for bass information and stability problems at high frequencies.

The SL-10 incorporates a unique approach to this problem whereby the open loop curve of the phono stage is shaped to complement the RIAA characteristic, resulting in a virtually constant amount of feedback. This technique not only allows constant feedback but, unlike passive RIAA equalization designs, achieves a phono overload characteristic that increases with frequency thereby

reducing susceptibility to high frequency overload from the pre-emphasis inherent in disc equalization.

The Threshold SL-10 is designed to accept all velocity characteristic cartridges and includes a highly advanced pre-preamp section. Not a transformer, this preliminary gain circuitry circumvents the reactance effects that compromise transformer performance to attain very low noise, extraordinary definition, and high rejection of RF interference. Consisting of eight transistors per channel, *directly coupled to the input and operated without feedback*, the circuit maintains an extremely high level of phase integrity that extends far beyond the broadest definition of "audio range."

As a component evolving from the most advanced engineering concepts, the Threshold SL-10 will provide uncompromised performance when coupled with associated equipment of the highest calibre. The audio path is so simple, so distortion free, and so extraordinarily fast that transient and phase anomalies can be considered simply nonexistent. No expense has been spared in design or construction to assure that the SL-10 fully justifies the Threshold claim to design concepts that constitute the leading edge of audio technology.

Availability of the STASIS 1 is scheduled for the first quarter of 1980 on a limited production basis.

## SL-10

## pre-amplifier

