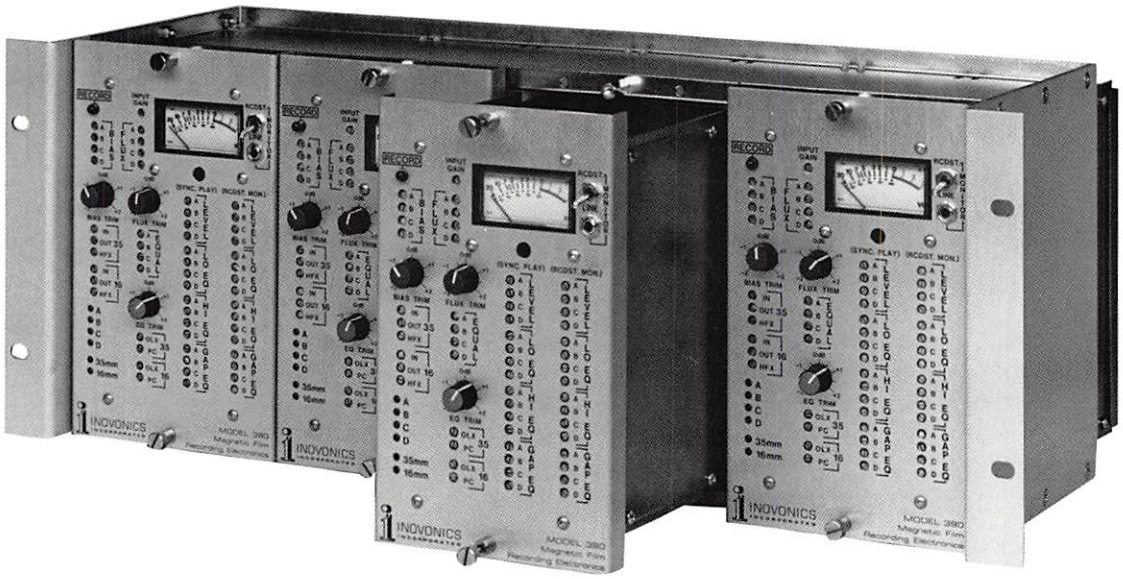
Magnetic Film Recording Electronics

Model 390



The Inovonics Model 390 is an audio electronics package specifically intended for motion picture sound recording on sprocketed magnetic film. It was engineered to meet the needs of top-quality original equipment manufacturers, and to retrofit existing recording systems for a substantial improvement in performance.

Throughout the design of the 390, full consideration was given to motion picture production practices, as well as to the critical noise, headroom and other technical parameters unique to the film industry. Developed with the cooperation of a film industry leader in magnetic head technology, the 390 is *system*-engineered for the highest film-sound quality.

FEATURES	BENEFITS
Modular design with complete Erase, Bias, Record, Reproduce and "Recordist Monitor" functions	Ideal package for "insert" ("pick-up") recording in single, 2, 3, 4, 6, 8-track, and multiple-format systems
Automatic Bias, Level and EQ Switching	Four independent groups of adjustment presets are automatically selected during format changeover
OLX™ (Oxide Linearity eXtension) predicts, cancels and eliminates THD and IM distortions	Ensures measurably and audibly cleaner recordings, even after multiple generations
HFX™ (High Frequency eXpansion) program-adaptive biasing	Reduces "self-erasure" effect to maintain full signal headroom, even at highest audio frequencies
Two sets of non-interactive IN/OUT timing adjustments	Precise inserts in both 35mm and 16mm formats
LINEUP mode with front-panel "trim" adjustments for Bias, Record Level and Record EQ	Permits quick off-line optimization of the system for reel-to-reel variations in film stock

Specifications — Model 390

Overall system specifications will, of course, depend largely on the heads and film stock used. The following data were derived using representative coated materials, and Sendust alloy heads supplied by Teccon Corp. Track width was 200-mils, and nominal Operating Level approximately 185nW/m.

Overall Frequency Response:

35mm: ±1.5dB, 25Hz-20kHz
16mm: ±2dB, 20Hz-12kHz

Signal-to-Noise:

(in dB, referred to a "peak" flux level of 370nW/m, or 6dB above Operation Level):

	OVERALL		STANDBY	
	u'twd.	A-wtd.	u'wtd.	A-wtd.
35mm:	-67	-75	-74	-82
16mm:	-63	-70	-70	-77

Distortion: (OLX™ - OFF)

Oxide-induced distortion will reach approximately 1% THD at a flux level of 290nW/m, or approximately 4dB above Operating Level. (This depends on oxide formulation.) Distortion in the electronics is >0.1% at any level up to signal clipping. The electronics internal clipping points are at least 20dB above typical operating levels.

Equalization:

35µ-sec for 35mm tests, 70µ-sec for 16mm, and a "flat" low frequency characteristic per the SMPTE Specification. Equalization presets are automatically switched with jumpers in plug-in head assemblies.

Line Input:

Transformerless, electronically-balanced/bridging; appears at the back-panel "XLR" female connector. Differential input impedance >10k-ohms; accepts nominal program line levels between -5dBu and +15dBu, +4dBu nominal. (0dBu = 0.775V r.m.s.). Common Mode Rejection >40dB.

Line and Recordist Monitor Outputs:

Transformerless, electronically-balanced; appear at back-panel "XLR" male connectors. Output impedance: 200-ohms, resistive. Output line level: +4dBm, corresponding to 0-VU. Output clipping level: >+24dBm into 600-ohm or higher impedance load.

Erase Frequency: 125kHz.

Erasure:

>75dB erasure of 500Hz signal recorded at or below oxide saturation.

Bias Frequency: 250kHz.

IN/OUT Timing:

Separate, non-interactive adjustments for 35mm and 16mm film speeds. IN and OUT timing delays are each independently variable between 40 and 500ms.

Head Requirements:

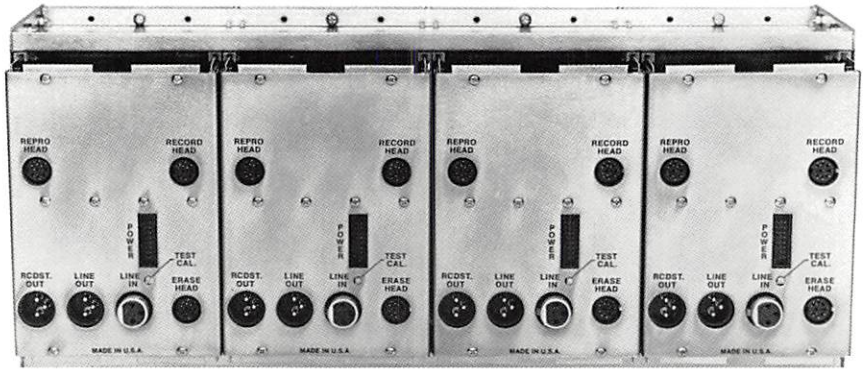
ERASE: 2mH, ±10%, with >90% magnetic efficiency at 125kHz; dual-gap construction.
RECORD: 5mH, ±20%, with >80% magnetic efficiency at 250kHz; recommended gap spacer, 500µ-inches.
REPRODUCE: (Recordist Monitor) 5mH, ±20%; recommended gap spacer, 200µ-inches.

Power Requirements:

The Model 390 Channel Modules each require a preregulated bipolar supply of ±18vdc at 350ma, and a 500kHz Erase/Bias "pilot" signal of 15 volts p-p. The Inovonics Model 990 Power Supply, which satisfies these requirements for a system of 8 channels or less, operates from 115/230-volt AC mains, 50/60Hz, and draws about 120 Watts fully-loaded.

Size and Shipping Weight:

390 Channel Modules: 7"H x 4.3"W x 8"D; 4 lbs.
990 Power Supply: 3.5"H x 19"W x 10"D (2U); 17 lbs.
999 Rack Frame: 7"H x 19"W x 8"D (4U); 3 lbs.



Rear View

Inovonics, Inc. 1305 Fair Avenue, Santa Cruz, CA 95060 408/458-0552 FAX 408/458-0554