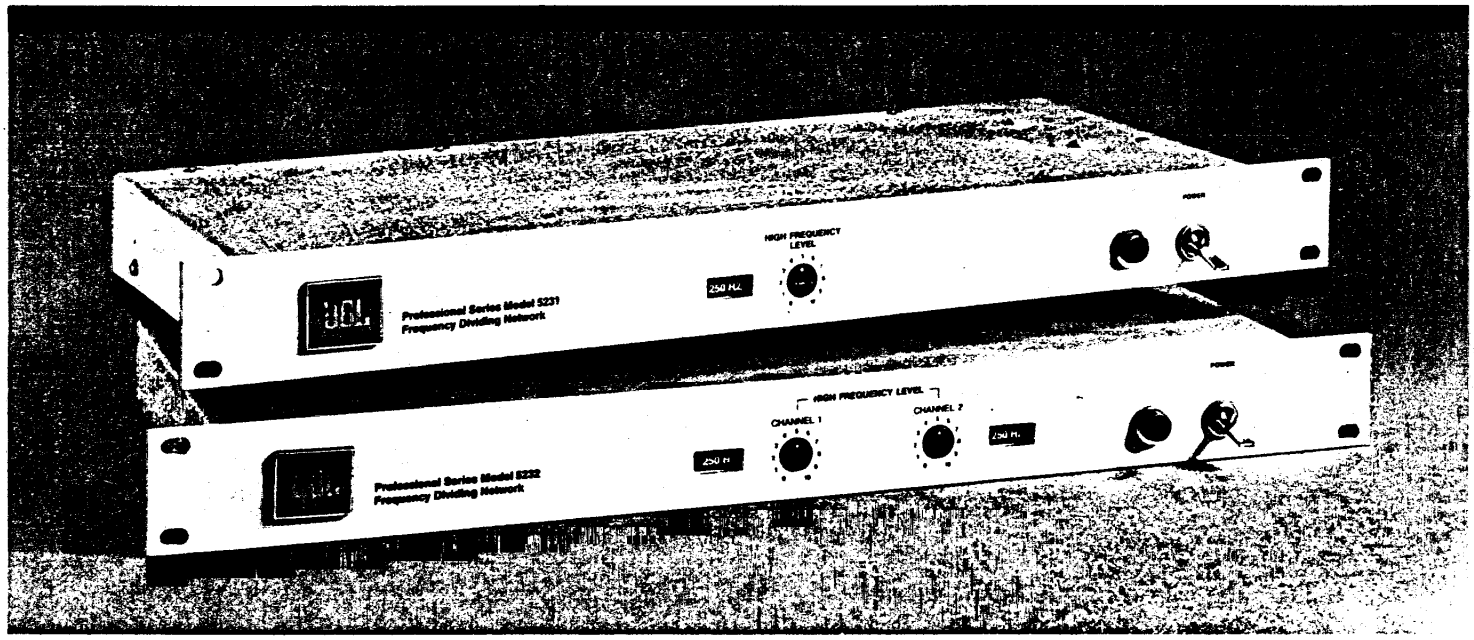
Professional Series Electronic Frequency Dividing Networks

5231 SINGLE CHANNEL
5232 DUAL CHANNEL



The 5231 and 5232 Electronic Frequency Dividing Networks are designed for use with studio monitor or sound reinforcement loudspeaker systems where bi-amplification or tri-amplification is desirable. The use of electronic frequency dividing networks and multiple amplifiers results in a cleaner signal being fed from the power source directly to the individual loudspeakers of the system. By dividing the audio spectrum before power amplification, treble tones are separated from, and unaffected by, bass frequencies. The result is more efficient utilization of available amplifier power. For example, a system consisting of 100-Watt low frequency and 50-Watt high frequency amplifiers will provide the same low distortion performance as would a single 300-Watt amplifier driving the loudspeaker system through a conventional passive frequency dividing network. Direct coupling to the loudspeakers eliminates the insertion loss typical of most passive networks and also permits realization of the maximum damping factor available from a given amplifier.

Model 5231, single channel, provides the electronic transition for one bi-amplified loudspeaker system. The 5232, a dual-channel unit, can be used for bi-amplification of two loudspeaker systems or to control both transition points in a tri-amplified system. The latter can be accomplished by utilizing one channel for the lower crossover frequency and the other channel for the high frequency transition.

Performance and operational characteristics of the two models are identical; they are maximally flat second-order electronic crossover networks utilizing active filters. They exhibit unity gain in the pass band, provide adequate output to drive any quality amplifier and operate at extremely low distortion levels at full rated output. The crossover frequency is determined by inserting the proper printed circuit card into each channel's circuitry. Inserts are available for the following crossover frequencies: 250 Hz, 500 Hz, 800 Hz, 1200 Hz and 5 kHz. A blank card is also available for construction of circuitry to provide alternate crossover points. Each channel is provided with a level control for high frequency shelving.

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Architectural Specifications

The sound system described herein shall be equipped with separate power amplifiers for low (midrange) and high frequency program material. A single (or dual) channel low-level active network shall be provided to filter program material at the designated crossover point(s) and direct the signal to the power amplifier designated for that particular band segment.

The active dividing network shall include an amplifier providing unity gain in the pass band at zero attenuation. Active or passive devices with less than unity gain shall be unacceptable.

Crossover frequency selection shall be accomplished by internally mounted, plug-in circuit module. The module shall be designated with the crossover frequency in such a position as to be easily read through a window in the front panel of the electronic frequency dividing network. The designated crossover frequency shall be the point at which the slopes of the two pass band curves cross and where each is 3 dB down from its averaged output levels. The point shall be within ±10% of the designated frequency. The filter slope shall be 12 dB per octave.

The frequency response of the crossover network shall be 20-20,000 Hz, ±0.5% equivalent bandwidth. Distortion shall be less than 0.5% THD, 20-20,000 Hz at +18 dB at rated output (2000 ohms) and less than 0.2% THD at +10 dB output. Signal-to-noise ratio shall be greater than 90 dB at rated output, 20-20,000 Hz. (Note–For model 5232 insert the following: Isolation between channels shall be greater than 60 dB.)

The front panel of the crossover network shall be provided with window(s) through which the crossover frequency printed on the insert module shall be visible, a power switch with an indicator light, and recessed high frequency attenuator control(s).

The electronic crossover network shall be JBL Model 5231 (5232). Other units will be considered for equivalency provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

Input and output terminals for the 5231 and 5232 are as shown. The dual channels of the 5232 can be utilized for tri-amplifications of a single loudspeaker system by connecting the high frequency output of one channel to the input terminals of the other channel.

Specifications	
Gain	0 dB in the pass band
Rated Output	6.2 volts (+18 dB), 2000 ohms
Distortion	Less than 0.5% THD, 20-20,000 Hz at rated output.
	Less than 0.2% THD, 20-20,000 Hz at +10 dB output
Frequency Response	±0.5 dB, 20-20,000 Hz equivalent bandwidth
Crossover Frequency	Selectable by plug-in module, 3 dB crossover point ±10%
Filter Slope	12 dB per octave
Input Impedance	Greater than 50,000 ohms
Load Impedance	2,000 ohms
Output Impedance	
Low	Less than 70 ohms
High	Less than 40 ohms with level control at maximum (full clockwise); typically 940 ohms with level control at 50% rotation (20 dB attenuation)
Channel Isolation	Greater than 60 dB
Signal/Noise Ratio	Greater than 90 dB, 20-20,000 Hz
Controls	One high frequency level per channel; one on/off switch
Power Requirement	5 Watts, 120 VAC, 50/60 Hz
Operating Temperature	Up to 55°C (132°F)
Dimensions	1¾"x19"x7⅞" deep 4.4x48.3x19.4 cm deep
Mounting	1 EIA standard rack space
Panel Finish	Non-glare baked enamel, light gray
Net Weight	4 lbs. (1.8 kg) either unit with accessory crossover card(s) installed.
Shipping Weight	6.5 lbs. (3.0 kg) either unit
Warranty	Two years
Accessories	
Crossover Cards (one required per channel)	5120–Blank 5121–250 Hz 5122–500 Hz 5123–800 Hz 5124–1200 Hz 5125–5000 Hz

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Professional Division

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