5235 ELECTRONIC FREQUENCY DIVIDING NETWORK

FEATURES:

Dual channel

Crossover frequency selectable by plug-in circuit board

12 dB or 18 dB per octave filter slope

Switchable subsonic high-pass functions

THD: 0.01%, 20 Hz-20 kHz

Signal/Noise ratio greater than 90 dB

The 5235 Electronic Frequency Dividing Network is designed for use with studio monitor or sound reinforcement loudspeaker systems to provide a cleaner signal 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. Direct coupling to the loudspeakers also eliminates the insertion loss typical of most passive networks and permits realization of the maximum damping factor available from a given amplifier.

The 5235, a dual-channel unit, can be used for biamplification of two loudspeaker systems or to control both transition points in a triamplified system. The latter can be accomplished by utilizing one channel for the lower crossover frequency and the other channel for the high frequency transition.

The 5235 is an electronic crossover network utilizing active filters. It exhibits unity gain in the low-pass output, and a maximum gain of 2 (+6 dB) in the high-pass output, with a continuous level control for high-frequency shelving. It provides adequate output to drive any quality amplifier, and operates at extremely low distortion levels at full rated output. A programmable high pass filter removes subsonic energy below the lowest usable speaker frequency.

The crossover frequency is determined by inserting the proper printed circuit card into each channel's circuitry. Cards with filter slopes of 18 dB per octave are available for cross-

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over frequencies of 80 Hz, 500 Hz, and 800 Hz. Cards with filter slopes of 12 dB per octave are available for the following frequencies: 250 Hz, 500 Hz, 800 Hz, 1200 Hz, 5 kHz, and 7 kHz. In addition, cards are available with specific crossover characteristics for large JBL studio monitors. Blank cards are also available to allow construction of circuitry for other crossover frequencies.

Input and output terminals for the 5235. The dual channels can be utilized for triamplification of a single loudspeaker system by connecting the low frequency output of one channel to the input terminals of the other channel. This allows separate, completely independent adjustment of the midrange and high frequencies.

ARCHITECTS SPECIFICATIONS:

The sound system described herein shall be equipped with separate power amplifiers for low (midrange! and high frequency program material. A dual-channel low-level active network shall be provided to filter program material at the designated crossover poinds). The inputs shall be transformerless and symmetrica'. Dual-in-line switching shall provide selectable low frequency equalization and subsonic filtering. The frequency dividing network shall be equipped with separate output buffer amplifiers for low and high frequency program material.

Crossover frequency selection shall be accomplished by internally mounted plug-in circuit modules. Each module shall be designed with the crossover frequency printed 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 pass band curves cross and where each is 3 dB down from the average output level. This point shall be within ± 10% of the designated frequency. The filter slope shall be 12 dB or 18 dB per octave.

The unmodified frequency response of the dividing network shall be 20 Hz-20 kHz, ± 0.5 dB. Distortion shall be less than 0.03%THDat + 18dB, and 0.01% THD, + 18 dBv into a 100 kfl load. Signal-to-noise ratio shall be greater than 90 dB at rated output, 20 Hz-20 kHz equivalent bandwidth.

Internal provision shall be made for switch selection of parallel monaural low frequency outputs. A high-pass filter with 12 dB per octave slope shall remove subsonic energy below the lowest usable speaker frequency. A dual-in-line switch shall provide the following programmable options for the subsonic filter:

a. Flat frequency response
b. 20 Hz high pass filter, 12 dB/octave slope, Q = 0.707 IButterworth]
c. 20 Hz high pass filter, 12 dB/octave slope, Q = 2 16 dB boost @ 20 Hzl
d. 30 Hz high pass filter, 12 dB/octave slope, Q = 0.54
e. 30 Hz high pass filter, 12 dB/octave slope, Q = 0.84
f. 30 Hz high pass filter, 12 dB/octave slope, Q = 2 16 dB boost @ 30 Hzl
g. 40 Hz high pass filter, 12 dB/octave slope, Q = 0.707 IButterworthl
h. 40 Hz high pass filter, 12 dB/octave slope, Q = 2 16 dB boost @ 40 Hzl

Isolation between channels shall be greater than 70 dB. The electronic crossover network shall be a |BL 5235.

SPECIFICATIONS:

Gain: 0 dB, low-pass output; + 6 dB, high-pass output

Rated Output: Maximum 6.2 V (+ 18dBu)

Distortion: 0.01% THD, 20 Hz-20kHz @ + 18dBu into > 100 kn load

Frequency Response: ±0.5 dB. 20 Hz-20 kHz

Crossover Frequency: Selectable by plug-in module, - 3 dB crossover point ± 10%

Filter Slope: 12 dB/octave or 18 dB/octave

High Pass Filtering:

Filter Frequency	Level at Filter Frequency	Filter Q
20 Hz	- 3 dB	0.707
20 Hz	+ 6 dB	2
30 Hz	- 5.5 dB	0.54
30 Hz	- 1.5 dB	0.84
30 Hz	+ 6 dB	2
40 Hz	- 3 dB	0707
40 Hz	+ 6 dB	2

Input Impedance: 40 kn, balanced; 20 kft. unbalanced

Load Impedance: 600 ft or greater

Output Impedance: 50 ft. unbalanced

Channel Isolation: > 70 dB, 20 Hz-20 kHz

Signal/Noise Ratio: > 90 dB, 20 kHz equivalent bandwidth

Controls: High frequency level; Power; Supply voltage select

Connections: Inputs and outputs on rear panel barrier strips and XLR/QG connectors. Power through 3-wire IEC style connector.

Power Requirements: 6 W, 100-120/200-240 V AC 50/60 Hz

Operating Temperature: 5°C (4PF) to 55°C (132°F)

Dimensions: 483 mm x 44 mm x 194 mm deep (19 in x P/, in x 7:/» in deep)

Net Weight: 1.8 kg (4 lb)

Shipping Weight: 3 kg (6'/2 lb)

Crossover Cards (one required per channel)

18 dB/octave:
51-5130-Blank Card, unloaded 18 dB/Octave
51-5232-500 Hz, 18 dB/Octave
51-5133-800 Hz, !8dB/Octave
51-5138-80 Hz, 18 dB/Octave
51-5232-500 Hz, 18 dB/Octave, with Power Response Correction for 2360-Series Constant-Coverage Bi-Radial™ Horns
51-5233-800 Hz, 18 dB/Octave, with Power Response Correction for 2360-Series Constant-Coverage Bi-Radial™ Horns
51-5332-500 Hz, 18 dB/Octave, with Power Response Correction for 2380-Series Flat-Front Bi-Radial"' Horns
51-5333-800 Hz, 18 dB/Octave, with Power Response Correction for 2380-Series Flat-Front Bi-Radial'" Horns
51-5334-1200 Hz, 18 dB/Octave, with Power Response Correction for 2380-Series Flat-Front Bi-Radial™ Horns
51-5336-1600 Hz, 18 dB/Octave, with Power Response Correction for 2380-Series Flat-Front Bi-Radial™ Horns

12 dB/octave:
52-5120-Blank Card, Unloaded 12 dB/Octave
52-5121-250 Hz, 12 dB/Octave
52-5122-500 Hz, 12 dB/Octave
52-5123-800 Hz, 12 dB/Octave
52-5124-1200 Hz, 12 dB/Octave
52-5125-5000 Hz, 12 dB/Octave
52-5127-7000 Hz, 12 dB/Octave
52-5130-For 4430 and 4435 Studio Monitor
52-5222-500 Hz. 12 dB/Octave with Power Response Correction for 2360-Series Constant-Coverage Bi-Radial™ Horns
52-5223-800 Hz, 12 dB/Octave with Power Response Correction for 2360-Series Constant-Coverage Bi-Radial™ Horns
52-5322-500 Hz, 12 dB/Octave with Power Response Correction for 2380-Series Flat-Front Bi-Radial™ Horns
52-5323-800 Hz, 12 dB/Octave with Power Response Correction for 2380-Series Flat-Front Bi-Radial™ Horns

Note: 0 dBm = 1 mW; 0 dBu = 0.775 V

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JBL Professional, 8500 Balboa Boulevard, P.O. Box 2200, Northridge, California 91329 U.S.A.

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