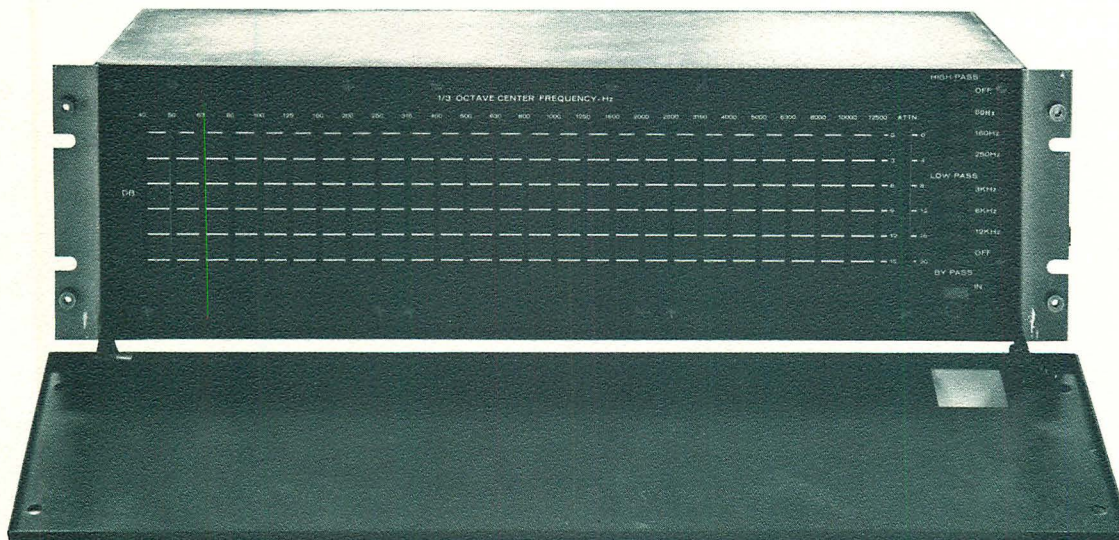


9860A Active Equalizer

9860A



ACTIVE ACOUSTA-VOICING®*

The ALTEC 9860A Active Equalizer is the newest Acousta-Voicing filter set specially designed to provide accurate equalization of the entire audio spectrum for commercial and industrial applications.

Features

Lightweight, Compact and Reliable; No Warmup Time Required

Offers the Widest Range of Equalization of Any System Available Today

Additional Band Smoothing; Elimination of Floor/House Vibrations and Air Conditioning Noises

Instantaneous Before and After Comparisons Can Be Made

Virtually Fail Safe Operation Assured Under All Conditions

Easy Installation and Maintenance

- Solid-state construction guarantees long life and low power consumption. The 9860A needs only 5¼" of vertical space in a standard 19-inch equipment rack.
- 26 active band-rejection filters (ISO 1/3-octave center frequencies from 40 Hz to 12.5 kHz) provide up to 15 dB attenuation at center frequencies. Each filter section is skirted to cross over with adjacent sections at -7 dB, combining to give ripple-free response over 85% of their range. Fewer filters would be insufficient for smooth equalization; more filters would not increase equalization flexibility enough to justify the added cost. A front-panel detented slide attenuator restores equalization losses, eliminating the need for an external booster.
- High- and low-pass filters (18 dB/octave) with selectable 3 dB down points of OFF/40 Hz/80 Hz/160 and OFF/6 kHz/12.5 kHz/16 kHz respectively. Two interlocked four-position pushbutton switches make operation easy.
- A push/push bypass switch, allows the filters to be conveniently switched in and out of the circuit. When the filters are bypassed, the pilot light flashes on and off as a reminder to the operator.
- A hinged panel cover is securely fastened by four screws, eliminating accidental movement of the gain or filter controls. When the panel is in place, only the bypass switch and pilot light are accessible. If the primary ac power source (120/240V, 50/60 Hz, 35 watts) should be interrupted, an external 24/28V dc battery is instantaneously, automatically and silently applied with no interruption in the program.
- Balanced operation with 150-ohm or 600-ohm input and output impedances allow the 9860A to be quickly put into service in the widest variety of installations. Modular PCB construction allows quick replacement of any plug-in module if a failure occurs.

*The exclusive Altec Acousta-Voicing process is patented under Pat. No. 3,624, 298.

ALTEC®

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ALTEC 9860A

SPECIFICATIONS

Type:	Active 1/3-octave equalizer set with 26 band-rejection filters (see Figures 1-7)
Operating Gain:	-3 dB
Available Gain:	20 dB (to restore equalization loss)
Input Level:	+18 dBm maximum
Power Output:	+15 dBm
Frequency Response:	± 1 dB from 20 Hz to 20 kHz
Distortion:	Less than 0.5% THD (at full rated output and fully restored gain)
Input Impedance:	150 Ω or 600 Ω , balanced
Load Impedance:	150 Ω or 600 Ω , balanced
Noise Level:	82 dB below rated output = 87 dB
Operating Temperature Range:	Up to 50°C (122°F)
Controls:	<ul style="list-style-type: none">26 – Detented slide filter controls on 1/3-octave ISO centers 40 Hz through 12.5 kHz. 15 dB depth each center, combining with adjacent filters at -7 dB.1 – Detented slide gain restoring control2 – 4-position interlocked pushbutton switches.<ul style="list-style-type: none">HI PASS; 18 dB/octave at OFF/40 Hz/80 Hz/160 Hz.LO PASS; 18 dB/octave at OFF/6 kHz/12.5 kHz/16 kHz.1 – PUSH/PUSH Bypass Switch
Pilot Indicator:	Light-emitting diode (million-hour life) continuously lit during operation; flashes at a periodic rate when Bypass Switch is pressed.
Power Supply:	120/240V, 50/60 Hz, 35W or 24/28V dc at 1A. Battery negative is ground.
Dimensions:	5¼" H x 19" W x 8" D
Weight:	17 pounds
Color:	ALTEC Green on cover panel, black matte finish on inner panel.

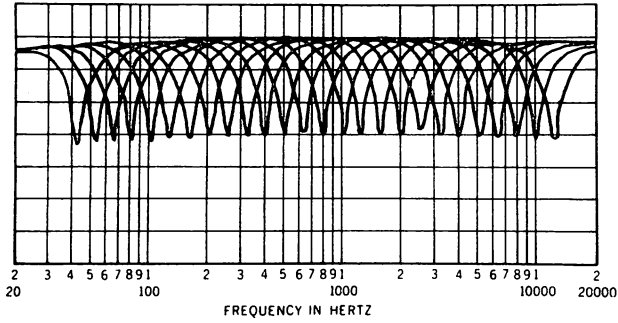


Figure 1. 26 1/3 Octave-Centered Filters at Maximum Attenuation (-14 dB). Each Section Plotted Independently

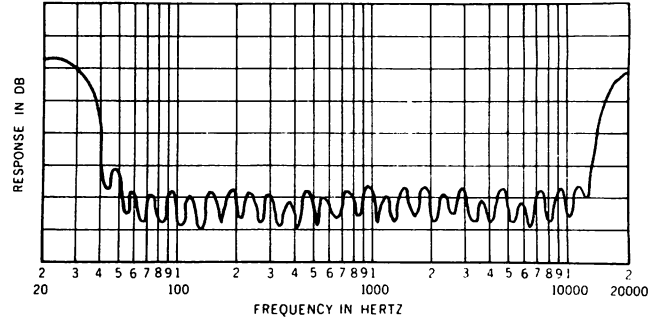


Figure 5. All Filter Sections Set for Full Attenuation

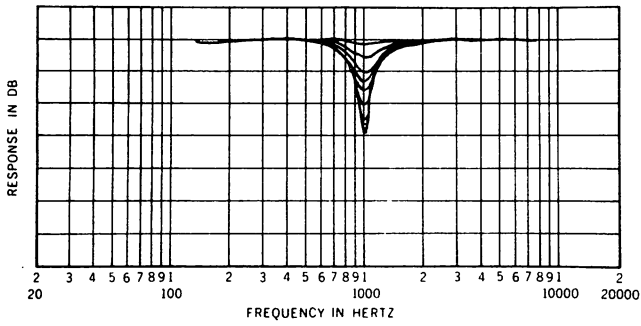


Figure 2. Single Filter, 1 kHz, Shown in Each Detented Position of Attenuation

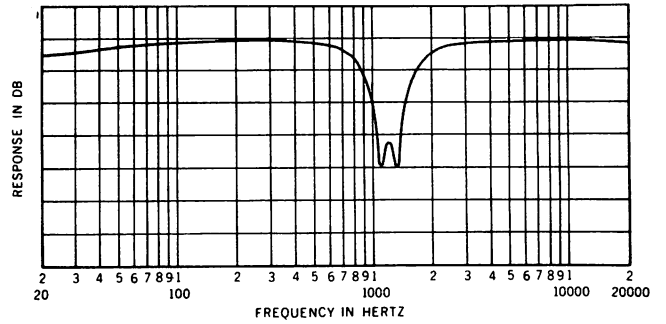


Figure 6. Two Adjacent Filters, 1 kHz and 1250 Hz, Set for Full Attenuation

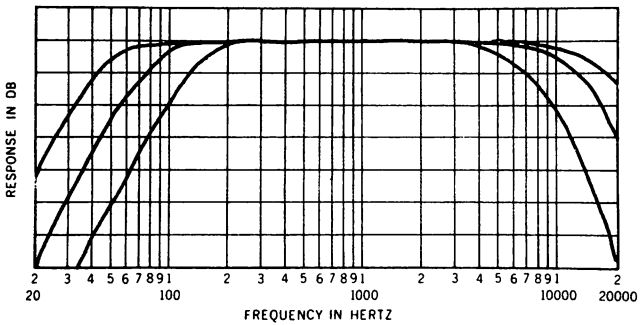


Figure 3. High-Pass and Low-Pass Functions (18 dB/oct) Plotted Independently

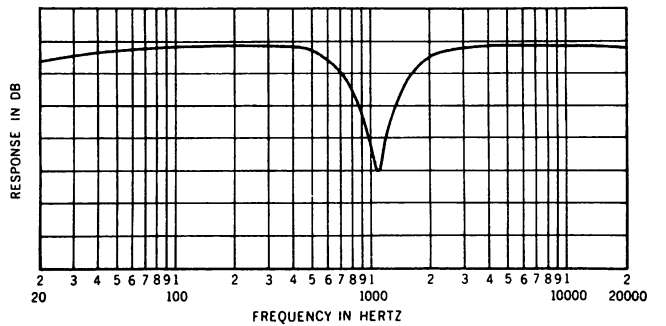


Figure 7. 1 kHz Filter Set at -14 dB, 800 and 1250 Hz Filters Set at -8 dB

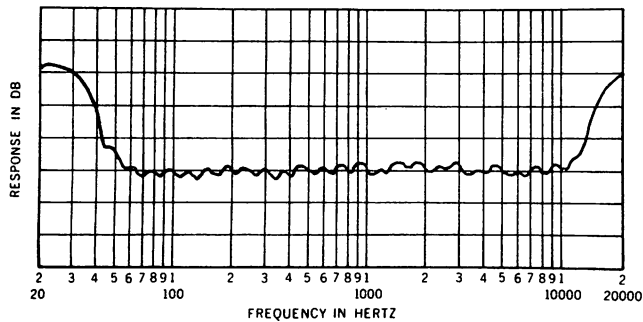


Figure 4. All Filter Sections Set at -7 dB Attenuation Illustrating Slight Degree of "Ripple" ($\pm 1/2$ dB) Characteristic of Proper Interaction Between Sections

ALTEC 9860A

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The active equalizer shall be a solid-state device with all transistors and diodes, except the pilot indicator light, of the silicon type. It shall contain a power supply that shall be capable of operation from a 120/240V, 50/60 Hz line or from a 24/28V dc battery. A 2-terminal barrier-type terminal board shall be provided on the rear panel for connection of battery power. The terminals shall be identified for ground and positive (+) connections. The power supply shall instantaneously, silently and automatically transfer the power to dc operation if ac power fails. During ac operation, the primary power requirement shall not exceed 35W. During dc operation, battery current drain shall be not greater than 1A. The active equalizer shall be mountable in a standard 19" equipment rack and shall occupy not more than 5 1/4" of vertical rack space. The active equalizer shall provide barrier-type terminal boards on the rear panel for input and output connections. The input and outputs shall be transformer-coupled for 150-ohm or 600-ohm balanced operation. The front panel of the active equalizer shall contain all operating controls.

The active equalizer shall contain 26 single-channel active band-rejection filters on 1/3-octave ISO center frequencies ranging from 40 Hz through 12.5 kHz. Each filter shall provide up to 15 dB attenuation at center frequency. The filter sections shall be skirted to cross over with adjacent filter sections at -7 dB, and they shall combine to provide ripple-free summation through approximately 85 percent of their adjustable range. A gain control shall be provided for restoration of program level after equalizing. The gain control and all filter controls shall be of the linear-slide, detented-position type.

The active equalizer shall provide high-pass and low-pass filters for further band smoothing at 18 dB/octave. These filters shall have four interlocked pushbutton switches with 3 dB down points of OFF/40 Hz/80 Hz/160 Hz and OFF/6 kHz/12.5 kHz/16 kHz respectively.

The active equalizer shall include a bypass switch for making A/B comparison after equalization is complete and the program level is restored. This switch shall be capable of connecting the input transformer of the active equalizer directly to the output transformer, bypassing all internal electronics but maintaining system operation less equalization. The bypass switch shall have a removable locking pin that shall allow the switch to be operated as either a momentary action or push-on/push-off type.

The active equalizer shall include a pilot indicator light. The light shall be continuously lit when the unit is operating but it shall flash at a periodic rate when the bypass switch is pressed. The light shall be a light-emitting, gallium-arsenide diode.

The front panel shall have a hinged cover, securable with four retaining screws. When secured in place, the cover shall provide access only to the bypass switch and pilot indicator light.

The active equalizer shall be capable of meeting the following performance criteria. The operating gain of the active equalizer shall be -3 dB. The available gain (to restore equalization loss) shall be not less than 20 dB. The input level shall be not greater than +18 dBm and the power output shall be not less than +15 dBm. The frequency response shall be ± 1 dB from 20 Hz to 20 kHz with distortion less than 0.5 percent THD at full rated output and fully restored gain. Input and load impedance shall each be balanced for 150-ohm or 600-ohm operation. Noise level shall be at least 82 dB below full rated output. The active equalizer shall be capable of operation in ambient temperatures ranging up to 50°C (122°F).

The active equalizer shall be of modular printed circuit board construction for ease of maintenance. It shall be 5 1/4" H x 19" W x 8" D, its weight shall be 17-pounds, the front panel cover shall be dark green and the front panel finish shall be matte black.

The active equalizer shall be the ALTEC Model 9860A Active Equalizer.

NOTICE
We recommend that you obtain your Altec products from factory trained authorized Altec Sound Contractors and Distributors. This will assure you of proper installation, a continuing source of knowledgeable advice, service, and quick warranty protection.