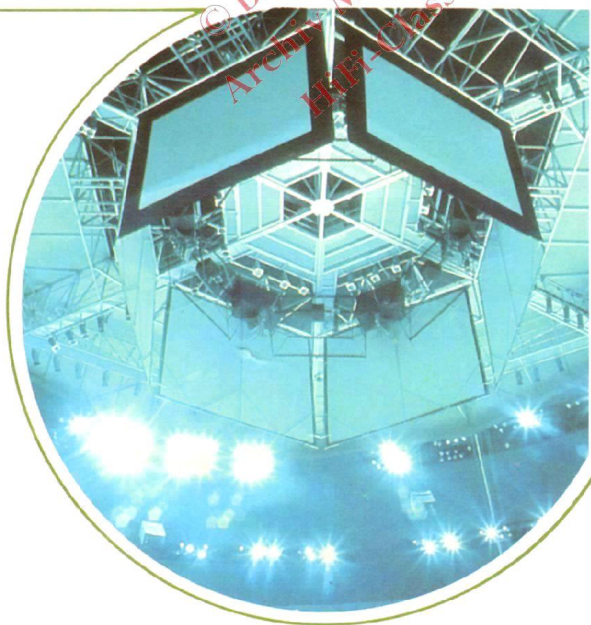


Industrial/Professional Sound Products



ALTEC
SOUND PRODUCTS DIVISION

1980



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41 Years in Sound

most people would agree that a quality reputation in manufacturing takes effort: effort in building a reliable name in the industry, in persevering to maintain quality when one could settle for compromise, and in determining to stay ahead as a forerunner in the industry.

Altec Lansing takes a justifiable pride in its extra efforts. For the theatre, Altec designed and manufactured the first high-powered amplifier specifically geared for the theatre's special requirements. The innovative multicellular horn evolutionized high-frequency sound and is still in use today. During World War II Altec adapted its resources to respond to U.S. armed forces needs with submarine detection equipment, and specialized horns and speakers.

When the post-war economy stabilized, Altec expanded its strength in motion picture sound and home hi fi, exploring the frontiers of a new era in sound. Altec's achievements, considered radical innovations at the time they were introduced, remain standards for the commercial and musical sound industry: Voice of The Theatre systems solid-state amplifiers, studio monitors.

Today, Altec Lansing is the only manufacturer of professional sound equipment with complete in-plant product design, manufacturing and distribution capabilities. Coexisting at the California facilities are various production departments: precision hand assembly, automated production, traditional handcraftsmanship, strictest quality control—all backed by skilled professionals in every phase of product development. In modern sound laboratories, creative engineering minds test the practicality of advanced theory and state-of-the-art technology.

SOUND OF EXPERIENCE

At Altec Lansing, "sound of experience" is more than just a slogan; it is a philosophy. Forty-one years of experience solely in sound is responsible for reliable, time-proven equipment installed around the world in major recording studios, motion picture theatres, auditoriums, churches, stadiums, arenas, nightclubs and outdoor high-level voice warning systems.

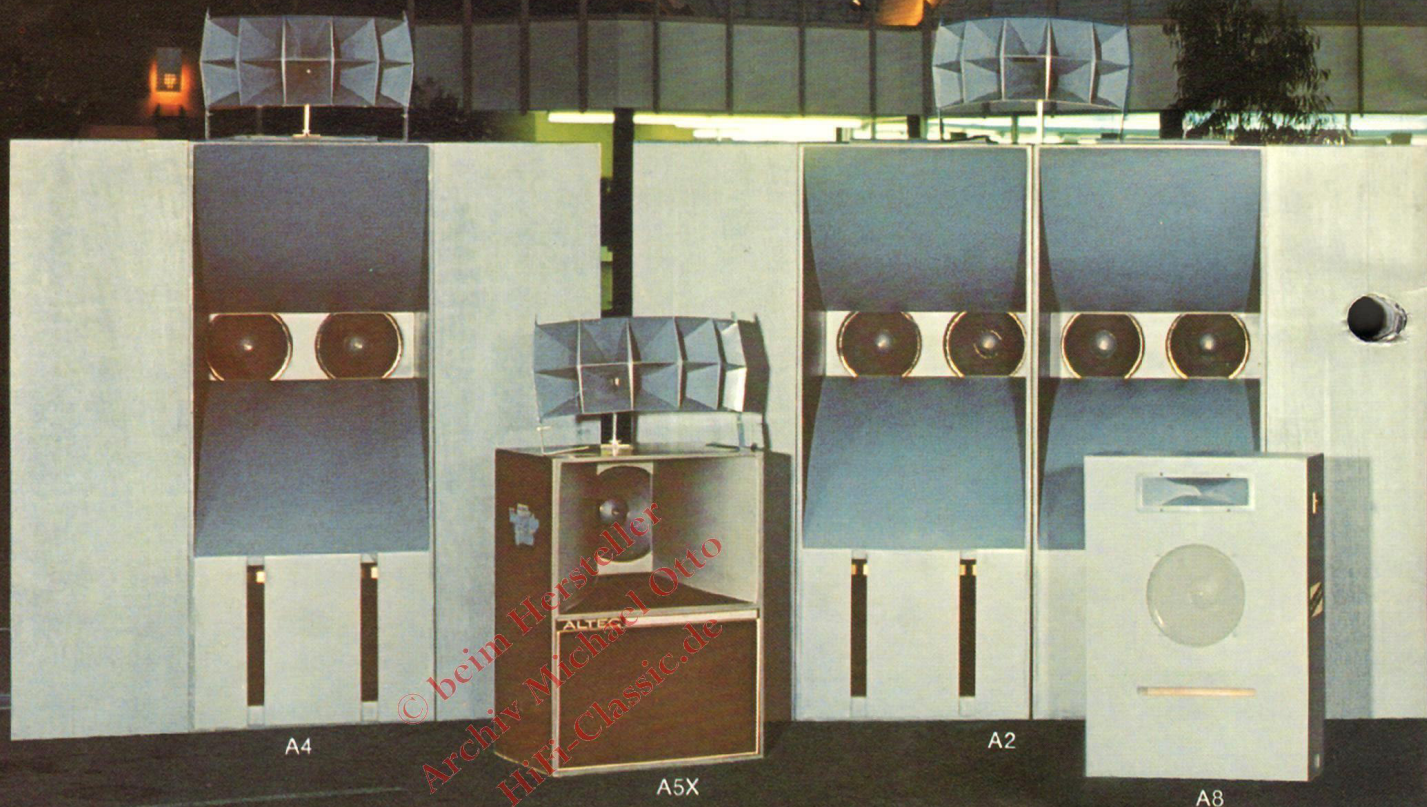
In the following pages, you will find Altec Lansing products that are representative of our modern approach to audiology—sound that is high-powered, clean and portable. In selecting an Altec sound system, tailored to your needs and capably installed by an Altec sound contractor, you can expect the finest system for the requirements of today's sophisticated sound for which Altec Lansing is known the world over.

We invite you to examine this catalog, consult with your area sound contractor, *and enjoy the world of difference.*

CONTENTS

	Page
Voice-of-The-Theatre Systems	4
Low-Frequency Loudspeaker Enclosures	5
Utility Loudspeaker Systems and Enclosures	6
Monitor Loudspeaker Systems	6, 7
Musical Sound Loudspeaker Systems	8, 9
Voice-of-The-Theatre Components	10, 11
High-Frequency Horns and Drivers	12, 13
Bass Drivers and Full-Range Loudspeakers	14, 15
Musical Instrument Loudspeakers	14, 15
Ceiling Loudspeakers	16
Transformers	17
Networks	17, 22, 26
1628A Microphone Mixer	18, 19
Mixers and Accessories	20
9477B Power Amplifier and 1220 A/C Control Console	21
Power Amplifiers and Accessories	22
Power Amplifiers, Mixers and Biampifiers	23, 24
Incremental Power System	25
Special-Purpose Electronics and Accessories	25, 26
Accessory Panels	27
Microphones	28, 29
Microphone Stands and Accessories	30

Voice-of-The-Theatre Systems



Altec. The unquestioned leader in cinema sound.

In the 1920's, Altec's ancestor, Western Electric, pioneered and launched cinema sound technology with the first talking motion picture, "The Jazz Singer" starring Al Jolson. By the mid '50's, Altec's Voice of The Theatre system had been chosen by the Academy of Motion Picture Arts and Sciences as the industry's standard for sound track production. Today, the standard remains Altec's Voice of The Theatre.

A2 The A2 provides supremely accurate cinema sound reproduction with excellent efficiency, acoustic output and low frequency response.

While inheriting a tradition of leadership in theatre sound, the A2 performs with the same vivid realism in amusement parks, halls, churches — anywhere high quality sound levels must be dependable. A selection of compatible high-frequency horns are available to suit each application.

A4/A4X Where space limitations are a concern, the A4 capably serves a large enclosed environment. The A4X, while having the same dimensions as the A4, utilizes two compression drivers for increased high frequency energy. Various high-frequency horns can be selected to complement these models.

	Amplifier Power (watts)	Pressure Sensitivity* (db SPL)	Distribution Pattern	LF Drivers	HF Drivers	HF Horn	Throat	Network	LF Cabinet	Dimensions	Weight
A2	100	108	60°V x 105°H	(4) 515B	(2) 288-16G	1505B	(1) 30172	N500F	(1) 210	108½"H x 113"W x 39½"D 276cmH x 287cmW x 100cmD	1263 lbs 572.9 kg
			40°V x 100°H			or 1005B	(1) 30170	(1) 15067	(1) 210A	102½"H x 113"W x 39½"D 260cmH x 287cmW x 100cmD	1250 lbs 567.0 kg
A4	60	107	60°V x 105°H	(2) 515B	(1) 288-16G	1505B	(1) 30166	N500F	(1) 210	108½"H x 80½"W x 39½"D 276cmH x 205cmW x 100cmD	763 lbs 346.1 kg
			40°V x 100°H			or 1005B	(1) 30210	(1) 15067	102½"H x 80½"W x 39½"D 260cmH x 205cmW x 100cmD	750 lbs 340.2 kg	
			40°V x 80°H			or 805B	(1) 30162		102½"H x 80½"W x 39½"D 260cmH x 205cmW x 100cmD	745 lbs 337.9 kg	
A5X	60	104	60°V x 105°H	(1) 515B	(1) 288-16G	1505B	(1) 30166	N500F	(1) 828B	64"H x 30½"W x 30"D 163cmH x 78cmW x 76cmD	293 lbs 132.9 kg
			40°V x 100°H			or 1005B	(1) 30210		59"H x 30"W x 27"D 150cmH x 76cmW x 69cmD	280 lbs 127.0 kg	
			40°V x 80°H			or 805B	(1) 30162		59"H x 30"W x 27"D 150cmH x 76cmW x 69cmD	275 lbs 124.7 kg	
A8	50	97	60°V x 90°H	(1) 416A	(1) 806A	32B	None	N800E	39624	42"H x 30"W x 12"D 107cmH x 76cmW x 31cmD	112 lbs 50.8 kg

*Measured at 4' on axis with 1 watt input of pink noise, band-limited from 500-3000 Hz. NOTE: A2, A4 and A5X systems are shipped as components.

Low-Frequency Loudspeaker Enclosures



A5X Perfectly suited for medium-sized theatres, clubs and halls, the A5X utilizes the same active components as larger models, but with one bass driver and one high-frequency driver. Several high-frequency horns are available for the A5X.

A8 Designed for limited spacial areas such as small theatres, lecture halls and auditoriums, the slim A8 performs with dependable Voice of The Theatre quality. A high-frequency compression driver (loaded with an exponential sectoral horn) and a 15-inch low-frequency loudspeaker reproduce exceptionally clean and articulate sound. The A8 promises even response and excellent linearity across its 35 Hz to 20 kHz audio spectrum.

210, 211A The 210 is engineered for excellent dispersion pattern control. This low-frequency horn enclosure houses two 15-inch speakers and

features wings to enhance bass projection. The 211A, designed for horizontal mounting, also delivers impressive bass characteristics in auditoriums and stadiums.

815A Solving the problem of too broad low-frequency directivity, the 815A low-frequency horn insures controlled directivity throughout its frequency response range of 100 Hz to 1000 Hz. The 815A accepts two 15" low-frequency speakers. Decreased distortion and controlled dispersion are primary advantages credited to the 815A's careful design.

816A The more compact 816A, a combination front-loaded horn and bass reflex enclosure, functions ideally in array positioning. The front-loading horn element loads the bass driver down to 200 Hz, while the bass reflex porting extends the useful response to 50 Hz and below.

	Speaker Size	Pressure Sensitivity‡ (dB SPL)	Dimensions	Weight	Finish
210	15" (2 each)	107.0*	84"H x 60½"W x 39½"D-213 cmH x 204 cmW x 100 cmD	433 lbs-194 kg	Gray lacquer
211A	15" (2 each)	106.0*	32½"H x 84"W x 39½"D-83 cmH x 213 cmW x 100 cmD	342 lbs-155 kg	Gray lacquer
815A	15" (2 each)	105.0*	33½"H x 44½"W x 32½"D-113 cmH x 85 cmW x 83 cmD	139 lbs-63 kg	Gray lacquer
816A	15"	101.5**	21¾"H x 30"W x 26"D-55 cmH x 76 cmW x 66 cmD	95 lbs-43 kg	Gray lacquer

**Mounted with 1-515B's.

‡1 watt input of pink noise, band-limited from 100-1000 Hz.

Utility Loudspeaker Systems and Enclosures



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to accommodate the demands of your particular listening and space requirements, Altec designs and manufactures a variety of utility speaker systems. In addition to successful performance in professional studios, these systems are often found in nightclubs, amusement parks, schools and churches.

9844A The 9844A monitor speaker system serves as a recording and broadcasting monitor as well as a sound reinforcer/reproducer in small theatres, halls and churches. Dual bass drivers, reaching a flat bass response down to 35 Hz, and a combination high frequency horn and compression driver, with a high frequency response up to 20,000 Hz, capably effect levels of sensitivity and power capacity rarely found in systems of this size.

9845A The 9845A monitor/playback system features extended frequency response, low distortion, maximum sensitivity and wide dynamic range. The Altec 416-8B 15-inch bass speaker in this system achieves excellent low-frequency response with minimal input power. Frequencies above 500 Hz are handled by a compression driver mounted on a sectoral

horn. 9845A's are often found in recording, mixing and broadcast studios, auditoriums, nightclubs, conference rooms and church sound reinforcement systems.

814A The 814A directional low-frequency loudspeaker is designed to overcome the problems associated with a too-broad dispersion pattern in reverberant atmospheres. Vertical dispersion control is achieved by stacking multiple 814A elements to narrow the distribution pattern.

849A The compact 849A column speaker's small size and controlled vertical distribution pattern make it a perfect choice for small room reinforcement installations.

612C, 614D The compact 612C bass reflex enclosure designed for mounting a 15-inch loudspeaker furnishes correct baffling and mounting for high-quality installations affording optimum performance in a minimum of space. The cabinet may be permanently mounted or used as a portable unit. The 614D bass reflex enclosure mounts a 12-inch loudspeaker.

	Power Rating* (watts)	Frequency Response	Pressure Sensitivity† (dB SPL)	Nominal Impedance (ohms)	Distribution Pattern	Crossover Frequency	Dimensions	Weight	Finish
9844A	60	35-20,000 Hz	99	8	40°V x 90°H	800 Hz	31"W x 24"H x 16"D-79 cmW x 61 cmH x 41 cmD	90 lbs-40.8 kg	Gray lacquer
9845A	50	35-20,000 Hz	97	16	60°V x 90°H	500 Hz	40"W x 28"H x 24½"D-102 cmW x 71 cmH x 62 cmD	130 lbs-59.0 kg	Gray lacquer
814A	100	100-1500 Hz	99	8	Cardioid		20"W x 20"H x 12"D-51 cmW x 51 cmH x 31 cmD	40 lbs-18.1 kg	Gray enamel
849A	40	150-15,000 Hz	100	16 or 125	20°V x 120°H		7"W x 28"H x 6¼"D-18 cmW x 71 cmH x 16 cmD	18.3 lbs-8.3 kg	Gray enamel

*Measured with 1 watt input of pink noise at 4' on axis.

	Speaker Size	(dB SPL) Pressure Sensitivity‡	Dimensions	Weight	Finish
612C	15"	99.0†	29½"H x 25½"W x 20"D-75 cmH x 65.2cmW x 51 cmD	75 lbs-34 kg	Gray lacquer
614D	12"	94.0‡	24"H x 20½"W x 15¼"D-61 cmH x 52 cmW x 39 cmD	35 lbs-16 kg	Gray lacquer

†Measured with 1 watt input of pink noise at 4' on axis.

‡1 watt input of pink noise, band-limited from 100-1000 Hz.

Monitor Loudspeaker Systems



At Altec, we make finely designed and precisioned monitors—instruments to ensure that the studio engineer gets a flawless reproduction of the original track in the mix-down process. This reputation for precision has also placed Altec monitoring systems in churches, theatres, homes and anywhere accurately reproduced sound is desired.

604-8G/620A For more than a quarter-century, the 604-series of duplex coaxial loudspeaker systems have served as a standard in the recording industry. Altec's latest version, the 604-8G, provides excellent full-range sound and high sensitivity. Its low distortion advantage remedies listening fatigue. The asymmetrical dividing network design results in improved response and low distortion in mid frequencies, and increased system power capacity. By constructing the high-frequency horn with an aluminum diaphragm, the result was extended treble response and greater linearity. Complementing the 604-series speaker is the 620A bass reflex vented enclosure, complete with oiled rift-cut oak cabinet, and brown knit grille. The vent is critically tuned for tight, crisp low bass response.

9849-8A, 9849-8D Where extended frequency response, low distortion and wide dynamic range are required, the 9849 bears the famous Altec heritage of quality. This compact, sturdy and attractive 9849 solves

multipurpose applications. The bass speaker produces extended low-frequency response with ultra-low distortion even when driven at high power levels. Frequencies above 1500 Hz are handled by a compression driver mounted on a sectoral horn. Exteriors may be chosen in either a gray utility cabinet/black cloth grille (9849-8A), or oiled oak cabinet/brown knit grille (9849-8D).

9846-8A A recognized master in monitoring, playback and sound reinforcement, the 9846-8A monitor speaker system offers pro-dependability. This medium-sized monitor utilizes a 15-inch bass driver in a sealed enclosure combined with a high-frequency compression driver and sectoral horn. Professionals depend upon Altec performance capabilities to hear the subtlety of sound often never experienced in lesser quality systems.

A7X Historically, the A7 series began as a cinema playback unit. But soon it was demanded as a studio monitor and home hi-fi unit. The new A7X excels in frequency response, bandwidth, power range and acoustic output. The powerful 802-8G high-frequency driver contains Altec's Tangerine™* radial phase plug; a new equalizer/dividing network provides smooth, gradual crossover in the mid and high frequencies.

*Reg. U.S. Patent No. 4,050,541; Foreign Patents Pending

	Power Rating* (watts)	Frequency Response	Pressure Sensitivity† (dB SPL)	Nominal Impedance (ohms)	Distribution Pattern	Crossover Frequency	Dimensions	Weight	Finish
604-8G/620-A	65	20-20,000 Hz	100	8	40°V x 90°H	1500 Hz	40"H x 26"W x 18"D 102 cmH x 66 cmW x 46 cmD	138 lbs- 62.6 kg	Oiled oak
9846-8A	100	25-20,000 Hz	93	8	40°V x 90°H	500 Hz	31"H x 26½"W x 23¼"D 79 cmH x 67 cmW x 60 cmD	105 lbs- 47.6 kg	Light gray
9849-8A/ 9849-8D	60	40-15,000 Hz	94	8	40°V x 90°H	1500 Hz	24"H x 20½"W x 15¼"D 61 cmH x 52 cmW x 89 cmD	60 lbs- 27.2 kg	9849-8A Gray lacquer 9849-8D, Oiled oak
A7X	65	45-20,000 Hz	101	8	40°V x 90°H	1200 Hz	54¼"H x 30"W x 24"D 138 cmH x 76 cmW x 61 cmD	142 lbs- 64.5 kg	Metallic gray

*Measured with pink noise band-limited to the frequency response of the system. †Measured with 1 watt input of pink noise at 4' on axis.

Musical Sound Loudspeaker Systems

1230 MULTI-PURPOSE SYSTEM Portable, roadworthy and highly efficient, Altec's new 1230 is a professional problem-solver. This sturdy performer features an 8-sided configuration that makes positioning an easy and creative process, especially for positioning in corners in p.a. applications and for stage monitoring.

1231 MULTI-PURPOSE SYSTEM The 1231 multi-purpose unit has proven to be a star performer in on-stage monitoring as well as in limited sound reinforcement as a main speaker. Compact in size, the 1231 features a functional tilt-back design. The system's high-frequency driver features Altec's patented Tangerine™* radial phase plug, and the cabinet has been designed to take biampification installation.

1233 WIDE-RANGE, PORTABLE SYSTEM Professionals can appreciate the 1233's 120-watt power capacity, its wide angle of coverage, and biamp-readiness. Spectacular overall performance is the result of recent Altec improvements: a high-efficiency compression driver with Tangerine™* radial phase plug for expanded high-frequency bandwidth; a specially-designed crossover network; and a new bass speaker featuring smooth low end response.

1234 WIDE-RANGE, PORTABLE SYSTEM Designed to be used, and used hard, the 1234 presents impressive specifications which include high power handling and low distortion. Components include the high-frequency compression driver with Tangerine™* radial phase plug, a new musical sound bass speaker, and a network designed for the system. The high efficiency and power handling design satisfies the most demanding requirements of clubs, auditoriums, ballrooms and most large environments.

1235 MUSICAL SOUND SYSTEM The versatile and compact 1235 unit, featuring Voice-of-The-Theatre projection and performance, is a favorite

for nightclubs and discos. Physical handling is made easy with recessed handles, corner guards and metal cups that interlock two or more units safely for stacking. By introducing the dual-band equalizer/crossover network and Tangerine™* radial phase plug in the compression driver, distortion is reduced, bandwidth expanded. Overall performance is impressive.

1236 MUSICAL SOUND SYSTEM The metallic-finished 1236, shipped in kit form (assembled enclosure plus components), can be assembled with the high-frequency horn mounted on top of the cabinet, or inside and behind the black grille. Biamp ready, the 1236 serves large clubs, halls and rock concerts with reliable, powerful 125-watt sound.

*Reg. U.S. Patent No. 4,050,541; Foreign Patents Pending



Model	Frequency Response	Power* Rating	Impedance	Dimensions	Weight	Speaker Components	Enclosure Type	Cabinet Style
1230	80-15,000 Hz	60 watts	8 ohms	19.5"H x 22"W x 14"D (49.5 cmH x 55.9 cmW x 35.5 cmD)	64 lb 23.6 kg	12" 617-8A duplex coaxial speaker, Dividing network	Infinite baffle	Black leather-grained vinyl covered; knit grille; vinyl edge protectors
1231	70-15,000 Hz	100 watts	8 ohms	22½"H x 28"W x 22¾"D (57.2 cmH x 71.1 cmW x 37.8 cmD)	64 lb 29 kg	12" 417-8H II LF speaker 32B type HF horn 808-8B HF compression driver 34002 dividing network	Vented bass reflex	Black leather-grained vinyl covered; reversible knit grille; recessed handles; edge protectors
1233	50-20,000 Hz	120 watts	8 ohms	33"H x 28"W x 19"D (83.8 cmH x 71.1 cmW x 48.3 cmD)	112 lb 50.8 kg	15" 421-8LF speaker 811B HF sectoral horn 808-8B HF driver Dividing network	Vented bass reflex	Black leather-grained vinyl covered; removable black knit grille; corner guards, recessed handles
1234	50-20,000 Hz	120 watts	8 ohms	45"H x 28"W x 27½"D (114.3 cmH x 71.1 cmW x 69.9 cmD)	147 lb 54.3 kg	15" 421-8LF LF speaker 511B HF sectoral horn 808-8B HF driver Dividing network	Vented bass reflex	Black leather-grained vinyl covered; steel front legs; rear casters; tow bar; edge guards; knit grille
1235	35-20,000 Hz	125 watts	8 ohms	34"H x 30"W x 26"D (86.4 cmH x 76.2 cmW x 66 cmD)	190 lb 86.2 kg	15" 421-8LF LF speaker, 511B sectoral horn, 808-8B driver 1209-8A network (816V enclosure)	Horn-loaded vented bass reflex	Black leather-grained vinyl covered; recessed discs; corner guards; recessed handle; knit grille
1236	50-20,000 Hz	125 watts	8 ohms	HF horn externally mounted; 54¼"H x 30"W x 24"D (137.8 cmH x 76.2 cmW x 61 cmD)	142 lb 64.4 kg	15" 421-8LF LF speaker 511B sectoral horn 808-8A HF driver N809-8A network	Horn-loaded vented bass reflex	Gray lacquer finish; knit grille



1233

1231

1230

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1236

1234

1235

Voice-of-the-Theatre Components

Originally an innovative forerunner, Voice of The Theatre has emerged as a standard of excellence in cinema sound. While Voice of The Theatre low-frequency enclosures have retained their basic design, the components reflect Altec's continuing lead in advanced acoustic and electronic technology.

Low-Frequency Enclosures

816V The bass reflex design of the Altec 816V low-frequency horn effectively controls rear-radiated sound waves and extends low-end response. Its compact size makes it outstanding for multiple arrays, or it may be incorporated into a two-way system by externally mounting a separate high-frequency horn, driver and dividing network.

828C Live performance sound systems require a great deal of their components: efficiency, projection and full bass response. The 828C's front loading horn and precisely tuned bass reflex port increase the sensitivity of the woofer nearly 4 dB across its entire frequency range. We've also included vertical bars to stiffen the back panel and protect the passive network or biampifier.

High-Frequency Sectoral Horns

511B, 811B Designed specifically for two-way sound systems, the 511B and 811B differ only in cutoff frequency (500 Hz and 800 Hz, respectively), and size. High frequencies are distributed in a horizontal plane with little beaming; distortion is virtually nonexistent. Cast of lightweight aluminum, and featuring a front-mounting flange, these models are favorites for easy installation in high-level sound applications.

High-Frequency Driver

808-8B Where maximum efficiency is required for reproducing speech and music at high sound pressure levels, the 808-8B high-frequency driver is preferred. Capable of delivering smooth response from 500 Hz to 20 kHz, the highly efficient 808-8B meets demands of broadcasting and recording studios, theatres, auditoriums and music halls.

Network

N1209-8A The new N1209-8A precision crossover network is designed to optimally match Altec compression drivers and horns to Altec woofers. The dual band variable equalizer provides smooth, gradual equalization balancing in the mid- and high-frequency audio spectrums.

Bass Woofer

421-8LF Altec's new "8LF" loudspeakers add solid, well-defined bass characteristics. (Refer to speaker specifications, page 14.)



ENCLOSURES

	Speaker Size	Pressure Sensitivity† (dB SPL)	Dimensions	Weight	Finish
816V	15"	101.5*	21 3/4"H x 30"W x 26"D-55 cmH x 76 cmW x 66 cmD	95 lbs-43 kg	Gray lacquer
817	15" (2 each)	103.5**	33 3/4"H x 37 1/2"W x 27 3/4"D-85.7 cmH x 95.3 cmW x 70.5 cmD	176 lbs-79.8 kg	Theatre gray enamel
828C	15"	101.5*	42"H x 30"W x 24"D-107 cmH x 76 cmW x 61 cmD	180 lbs-82 kg	Gray lacquer

*Mounted with 1-515B. **Mounted with 2-515B's. †1 watt input of pink noise, band-limited from 100-1000 Hz

HIGH-FREQUENCY HORNS

	Distribution Pattern	Low-Frequency Limit	Dimensions	Weight
511B	40°V x 90°H	500 Hz	10 5/8"H x 23 3/8"W x 18 1/2"D-27 cmH x 59 cmW x 48 cmD	12.25 lb-5.6 kg
811B	40°V x 90°H	800 Hz	8 5/8"H x 18 3/4"W x 13 1/2"D-22 cmH x 48 cmW x 34 cmD	9 lb.-4.1 kg

HIGH-FREQUENCY DRIVER

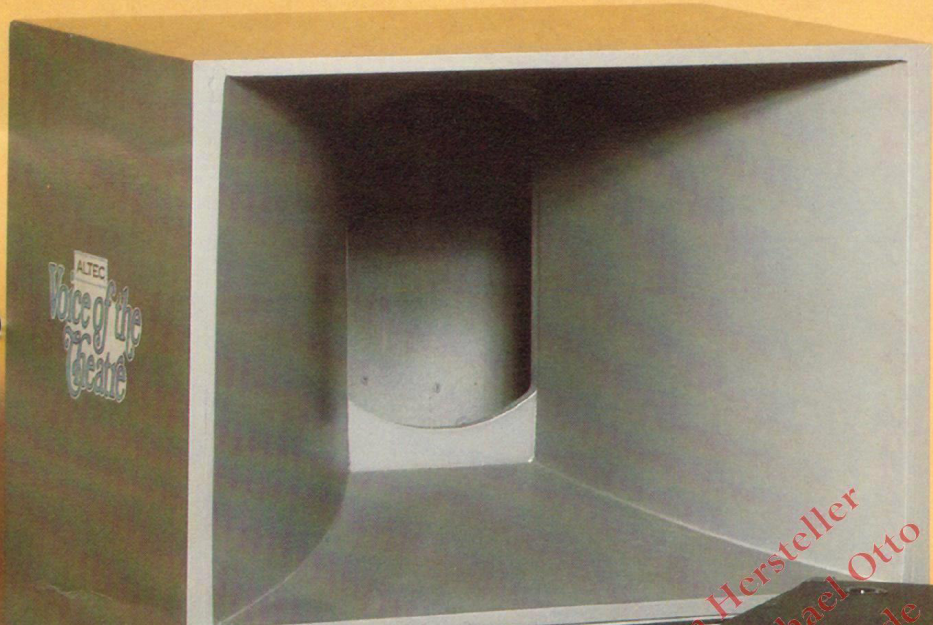
	Power Capacity* (watts)			Frequency Response	Pressure Sensitivity** (dB SPL)	Nominal Impedance (ohms)	Diaphragm Material	Voice-Coil Diameter	Weight
	1	2	3						
808-8B	100	200	30	500-15,000 Hz	104	8	Symbiotik	1 3/4"-4.5 cm	7.25 lbs-3.3 kg

*High-frequency driver power capacity is rated three ways for comparison purposes: Column 1 reflects measurement with continuous musical program material. Column 2 with instantaneous peak power capacity, and Column 3 with continuous pink noise (500-20,000 Hz). All power measurements are made with driver mounted to Altec 500 Hz horn.

**Measured at 4' on axis from mouth of Altec 90° sectoral horn with 1 watt input of pink noise, band-limited from 500-3000 Hz.

DIVIDING NETWORK

	Impedance	Nominal Crossover Frequency	Dimensions	Weight	Complementary Components
1209-8A	8 ohms	1200 Hz	7 1/2"H x 4 1/2"W x 8 7/8"D-19 cmH x 11.4 cmW x 22.5 cmD	3 lb-1.4 kg	511B, 811B, 808-8B, 417-8H, 418-8LF, 421-8LF, 421-8H



ALTEC

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816V

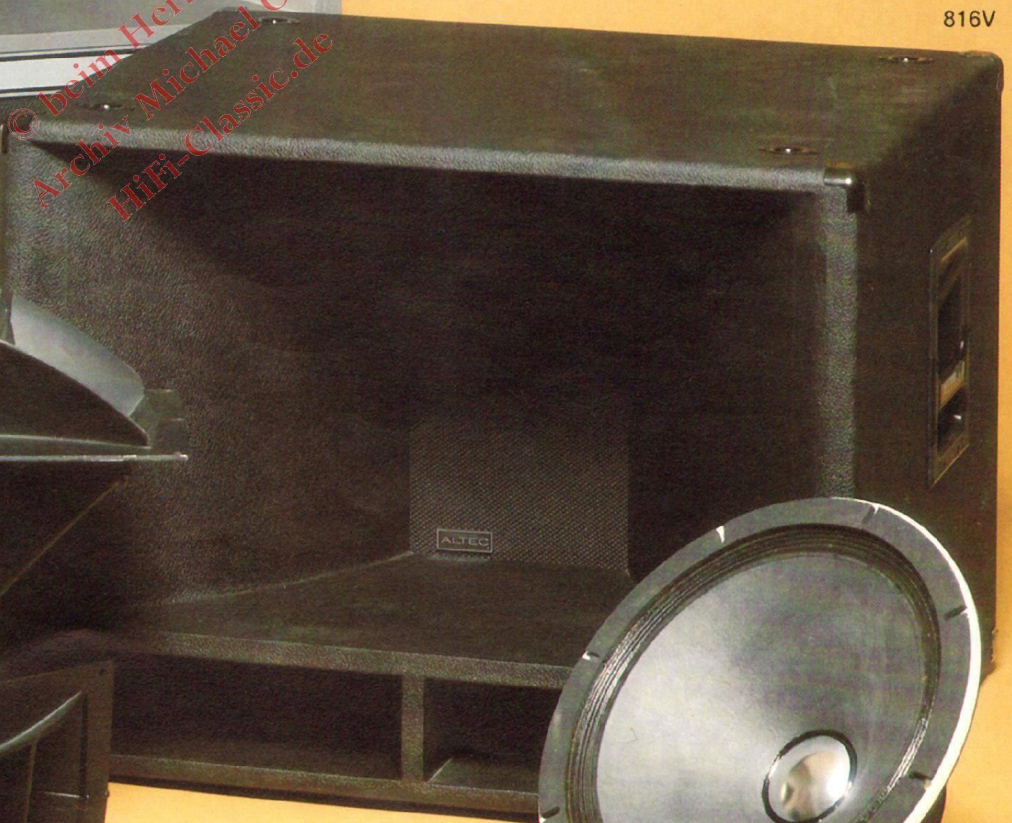
828C

511B



MODEL 511B
HORN
ALTEC

811B



ALTEC

421-8LF



1209-8A



808-8B

High-Frequency Horns and Drivers



Professional sound contractors nation- and world-wide have been recommending Altec components for complex, highly demanding projects found in airports, stadiums, convention halls and similar facilities around the world. An energetic line of multicellular and sectoral horns and corresponding throat adaptors are available for a variety of applications.

Multicellular Horns

Altec multicell horns, constructed of steel and finished by handcraftsmanship at our own manufacturing facilities, are expertly suited to withstand a variety of contrasting weather conditions. Where maximum control and penetration of acoustic energy are critical factors, as in public address systems, Altec multicells are dependable. Excellent directivity characteristics are also features of the multicells.

Sectoral Horns

Designed for long life and durability, Altec sectoral horns are precision-manufactured from cast aluminum. Controlled dispersion, uniformity and high-frequency energy projection are important features of these models. They are often the choice for wide-range, two-way systems that require background music or speech-carrying sound reinforcement.

290-8G/-16G The Altec 290-8G compression driver loudspeaker exhibits exceptionally high power-handling capacity and efficiency. For outdoor use in public address speech reinforcement, the 290-8G results in considerable intelligibility when coupled with multicell or sectoral horns. Sound contractors have found Altec compression driver/horn systems to be successful in ball parks, stadiums, race tracks and in voice-warning systems. Also available as a 16 ohm unit.

Wherever messages must reach a large number of people, Altec has the experience to offer definite advantages. When installed in stadiums, convention centers, and churches for maximum articulation, or in factories and airports where the message may mean quick critical response, Altec specialized equipment performs with minimal distortion and extended high-frequency response.

311-60, 311-90 Altec 311-60 and 311-90 sectoral horns are ideal for use in two-way systems crossing over at 300 Hz or higher, or each may be used alone with a phenolic diaphragm driver in speech-only systems.

32B, 511E Utilizing a high-frequency driver in two-way musical systems, the 32B sectoral horn provides exceptionally broad horizontal distribution of high-frequency energy. The 511E sectoral horn's 1.4" throat adapts it to the larger Altec drivers.

33710, 21216 The 33710 throat adapter is a transition piece allowing 1.4" drivers to be added to a 2-inch throat horn or vice versa. The 21216 adapter allows mounting of Altec 731 or 800 series one-inch-throat drivers.

288-8G/-16G, 291-16B Altec compression drivers are the finest available for commercial and professional purposes. The 288 series drivers are used with multicell or sectoral horns, providing a smooth response from 500 Hz to beyond 15 kHz. When used in tandem with low-frequency speakers, the 288's will provide faithful reproduction of sound for the largest theatre or auditorium. Limitless in application, the 291-16B has an improved diaphragm, voice coil assembly and magnetic structure, for a smoother and extended response over the 500 Hz-13 kHz band and 2 dB greater pressure sensitivity than earlier versions.

802-8G/-16G, 808-8B The 802-8G/-16G drivers are ideal for use in medium-efficiency music reproduction applications where frequency response, low distortion and reproduction accuracy are paramount. They are designed to be used with Altec 811B or 511B horns, and a variety of networks, biamps and bass drivers. The 808-8B compression driver performs as an excellent mid-range and high-frequency driver in systems where high power handling is needed. Mounted to a 511B or 811B horn, it will function beautifully in wide-range, high-level musical sound reinforcement applications. Both the 802 and 808 feature a specially-designed radial phase plug, the Tangerine™, which allows more high-frequency energy to enter the horn.

*Reg. U.S. Patent No. 4,050,541; Foreign Patents Pending



HIGH-FREQUENCY HORNS

	203B	311-60	311-90	803B	805B	1003B	1005B	1505B	32B	511A	511E	31A	511B	811B
Type	Multicell	Sectoral	Sectoral	Multicell	Multicell	Multicell 2 x 5	Multicell 2 x 5	Multicell 3 x 5	Sectoral	Sectoral	Sectoral	Sectoral	Sectoral	Sectoral
Distribution Pattern	20°V x 40°H	40°V x 60°H	40°V x 90°H	35°V x 70°H	40°V x 80°H	35°V x 90°H	40°V x 100°H	60°V x 105°H	40°V x 90°H	40°V x 90°H	40°V x 90°H	40°V x 120°H	40°V x 90°H	40°V x 90°H
Low-Frequency Limit	300 Hz	300 Hz	300 Hz	300 Hz	500 Hz	300 Hz	500 Hz	500 Hz	800 Hz	500 Hz	500 Hz	300 Hz	500 Hz	800 Hz
Throat Required	None	None	None	30162	30162	*30210 †30170	*30210 †30170	*30166 †30172	None	None	None	27A	None	None
Dimensions	32"W x 17"H x 31"D	19½"W x 10"H x 21"D	29½"W x 12½"H x 16½"D	32"W x 26½"H x 16½"D	24½"W x 17½"H x 13"D	38"W x 16½"H x 25½"D	30"W x 17¼"H x 13"D	30½"W x 16¾"H x 18½"D	16"W x 8"H x 8¾"D	23¾"W x 18½"H x 17¾"D	25¾"W x 16¾"H x 17¾"D	23"W x 14"D	23½"W x 10¾"H x 11½"D	18½"W x 8¾"H x 13½"D
Metric	81 cmW x 43 cmH x 79 cmD	50 cmW x 25 cmH x 53 cmD	74 cmW x 31 cmH x 42 cmD	81 cmW x 67 cmH x 42 cmD	62 cmW x 45 cmH x 33 cmD	97 cmW x 65 cmH x 41 cmD	76 cmW x 44 cmH x 33 cmD	78 cmW x 41 cmH x 47 cmD	41 cmW x 20 cmH x 22 cmD	59 cmW x 47 cmH x 45 cmD	65 cmW x 42 cmH x 45 cmD	58 cmW x 43 cmH x 36 cmD	60 cmW x 27 cmH x 29 cmD	47 cmW x 22 cmH x 34 cmD
Weight	22 lbs- 10.0 kg	21 lbs- 9.5 kg	35 lbs- 15.9 kg	27 lbs- 12.2 kg	17 lbs- 7.7 kg	32 lbs- 14.5 kg	20 lbs- 9.1 kg	22 lbs- 10.0 kg	10 lbs- 4.5 kg	20 lbs- 9.1 kg	20 lbs- 9.1 kg	15 lbs- 6.8 kg	17.7 lbs- 8.05 kg	9 lbs- 4.1 kg

*For use with one driver †For use with two drivers

HIGH-FREQUENCY DRIVERS

	Power Capacity* (watts)			Frequency Response	Pressure Sensitivity** (dB SPL)	Nominal Impedance (ohms)	Diaphragm Material	Voice Coil Diameter	Weight
	1	2	3						
288-8G	60	150	15	500-15,000 Hz	109	8	Aluminum	2.8"-7.1 cm	29.25 lbs-13.3 kg
288-16G									
290-8G			120	300-7000 Hz	106.5	8	Phenolic	2.8"-7.1 cm	32 lbs-14.5 kg
290-16B									
291-16B	120	300	50	500-13,000 Hz	108	16	Symbiotik	2.8"-7.1 cm	29 lbs-13.3 kg
802-8G	40	100	10	500-20,000 Hz	104	8	Aluminum	1¾"-4.5 cm	7.25 lbs-3.3 kg
808-8B	100	200	30	500-15,000 Hz	104	8	Symbiotik	1¾"-4.5 cm	7.25 lbs-3.3 kg

*High-frequency driver power capacity is rated three ways for comparison purposes: Column 1 reflects measurement with continuous musical program material. Column 2 with instantaneous peak power capacity, and Column 3 with continuous pink noise (500-20,000 Hz). All power measurements are made with driver mounted to Altec 500 Hz horn.

**Measured at 4' on axis from mouth of Altec 90° sectoral horn with 1 watt input of pink noise, band-limited from 500-3000 Hz.

Bass Drivers and Full-Range Loudspeakers

Altec is confident that you will, if you haven't already, find dramatic differences in the performance of Altec loudspeakers when compared with other brands. One critical component is the voice coil, edge-wound of copper ribbon. Since more turns of wire can be placed in the magnetic gap, sensitivity and power-handling are increased.

755E The 755E full-range loudspeaker offers a rare combination of desirable factors: true high fidelity reproduction, small size, plus slim profile. Quite versatile in application, the 755E works well in low-level

755E	
Type	Wide-range cone radiator
Power Rating (watts) Measured with pink noise, band limited from 20 Hz-20 kHz	20
Frequency Response	40-15,000 Hz
Pressure Sensitivity (dB SPL) Measured at 4' on axis with 1 watt input of pink noise, band-limited from 500-3000 Hz	92
Nominal Impedance (ohms)	8
Nominal Free-Air Cone Resonance	64 Hz
Flux Density (gauss)	9000
Dimensions	
Diameter	8 $\frac{3}{8}$ "-21.3 cm
Depth	2 $\frac{1}{4}$ "-5.7 cm
Weight	4.3 lbs-2.0 kg

distribution systems for wired music, paging, or public address. Its unique configuration provides very smooth distribution over a wide 90° angle without low-frequency loss. Compare the 755E to other speakers of similar size, and you'll find this model outstanding for audio quality and convenience of installation.

515B Where maximum efficiency and acoustic output are a requisite, the 515B 15" speaker is a logical choice. This Voice-of-The-Theatre component is known for its tremendous bass response and clarity. The powerful magnetic structure and light cone assembly make the 515B exceptional for use as a bass horn driver or in arrays of multiple low-frequency units.

416-8B Where enclosure size is a limitation, but high efficiency and acoustic output must be maintained, the 416-8B 15" speaker is the answer. It is similar to the 515B except for a slightly lower sensitivity and maximum acoustic output, and its voice coil impedance is 8 ohms compared to the 515B's 16-ohm coil. The 416-8B is the bass driver used in the A7 series Voice of The Theatre systems.

411-8A A distinct advantage of the 411-8A low-frequency speaker is its ability to produce excellent bass response in sealed cabinets of medium size. A 4-inch diameter voice coil of edge-wound copper ribbon allows more turns of the coil wire in turn greatly controlling the motion of the cone. Our 411-8A delivers an extended low-frequency response with very low distortion even at levels in excess of normal hearing demands.

414-8C An exceptionally fine-crafted speaker, the 414-8C 12" bass driver captures the qualities needed in medium-sized reinforcement and hi-fi systems. Structurally reinforced and rigidly built, the 414-8C maintains its high sensitivity and maximum acoustic output.

	Power Rating* (watts)	Frequency Response	Pressure Sensitivity† (dB SPL)	Nominal Impedance (ohms)	Diameter	Weight
411-8A	100	20-1000 Hz	93	8	15 $\frac{3}{8}$ "-38.9 cm	20.5 lbs-9.3 kg
414-8C	50	30-4000 Hz	96	8	12 $\frac{1}{4}$ "-31.1 cm	15 lbs-6.8 kg
416-8B	75	20-1600 Hz	97	8	15 $\frac{3}{8}$ "-38.9 cm	17.5 lbs-7.9 kg
515B	75	20-1000 Hz	99	16	15 $\frac{3}{8}$ "-38.9 cm	26 lbs-11.8 kg

*Measured with pink noise (20-1000 Hz) in recommended enclosure

†Measured at 4' on axis with 1 watt input of pink noise, band-limited from 100-1000 Hz in 5 cu. ft. laboratory enclosure.

Musical Instrument Loudspeakers

Who would question that music is a major element in today's lifestyles? Hardly anyone.

But there are valid questions to be asked about the technology and design of the musical instrument loudspeakers you buy. Speaking for the Altec name is our expanding technology as a result of constant electronic and acoustic research, increased precision requirements and reliable performance standards.

The "H-II" series, consisting of a 10", 12" and two 15" speakers, are high-powered guitar speakers. They feature heat-dissipating aluminum coil supports and rugged copper voice coils permitting you to play louder

rock for longer periods of time with minimal chance of burnout.

The new Altec 421-8LF low-frequency guitar speaker has been tailored specially for steel string, country-western and classical guitars. Its special cone-material design produces a clean low-end sound that needs to be heard to be fully appreciated.

When used with Altec horns, drivers and crossover networks, these musical sound loudspeakers become extremely reliable systems for public address, theatre and auditorium sound.

Whatever your needs, we're confident you will find an Altec system designed to perform exactly—for the future as well as the moment.

Model	417-8H II	418-8LF, 418-8H II	421-8LF, 421-8H II	425-8H II
Size:	12" (30.5 cm)	15" (38.1 cm)	15" (38.1 cm)	10" (25.9 cm)
Power Rating:	100 watts	150 watts	150 watts	75 watts
Pressure Sensitivity 1 watt at 3 ft.:	100 dB SPL	103 dB SPL	102 dB SPL	98 dB SPL
Frequency Response:	60-8000 Hz	45-8000 Hz	35-3500 Hz	60-10,000 Hz
Application:	Full range	Full Range	Bass	Full range
Impedance:	8 ohms	8 ohms	8 ohms	8 ohms
Magnet Structure Weight:	11 $\frac{1}{2}$ lbs. (5.2 kg)	11 $\frac{1}{2}$ lbs. (5.2 kg)	17 $\frac{1}{2}$ lbs. (7.9 kg)	11 $\frac{1}{2}$ lbs. (5.2 kg)
Weight:	17 lbs. (7.7 kg)	20 lbs. (9.0 kg)	22 lbs. (10 kg)	16 lbs. (7.3 kg)

416-8B



414-8C



411-8A



515B



755E

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421-8H II



418-8LF



418-8H II

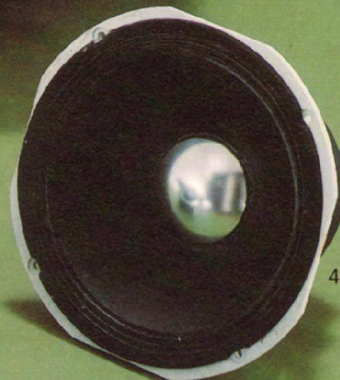


421-8LF

417-8H II



425-8H II



Ceiling Loudspeakers



flames appear on a floor of a highrise building . . . an explosion necessitates quick evacuation. Such emergency situations, as well as those routine paging requirements found in hotels and conference/meeting rooms, depend on *instantaneous*, and highly articulate communications.

619-8A, 617-8A Where uniform frequency response and wide-angle distribution patterns are of critical concern, the 15" 619-8A and 12" 617-8A ceiling speakers are recommended. High- and low-frequency speakers are coaxially mounted on a single plane. A dual full-section dividing network is prewired to the high- and low-frequency elements and a mounting plate accommodates accessory Altec line-matching transformers. They can be either front or rear mounted and provide unparalleled efficiency for wide-range musical reproduction in distributed sound systems.

403-A, 405-8G, 409-8D These moderately-priced, wide-range loudspeakers are ruggedly constructed and carefully designed to assure a long life of trouble-free performance. A tapped backplate provides ease in mounting an Altec accessory line-matching transformer.

403T Incorporated into the 403T speaker is an Altec 15132 70-volt transformer. Specific applications are P.A. and music reproduction systems utilizing multiple speakers.

405T The 405T consists of a compact 4" speaker with a 15132 70-volt transformer. While ideal for intelligible speech and predictably good music reproduction, the added transformer adapts the speaker well for distributed sound systems.

409T The 409T with 15132 70-volt transformer affords economy as well as versatility. The wide distribution angle of this full-range coaxial transducer enables coverage with fewer units while sustaining response uniformity and voice clarity.

2459A The new and versatile 2459A 8" loudspeaker with a 25- and 70-volt line transformer is designed for use with programmed music and intercom systems. Its extremely high efficiency and smooth, wide frequency response make the 2459A suitable also for general purpose public address applications. The built-in line-matching transformer provides distortion-free matching of these speakers to 25- or 70-volt distributed systems. The secondary impedance is selectable by push-on connectors to 1/2, 1, 2 or 4 watts.

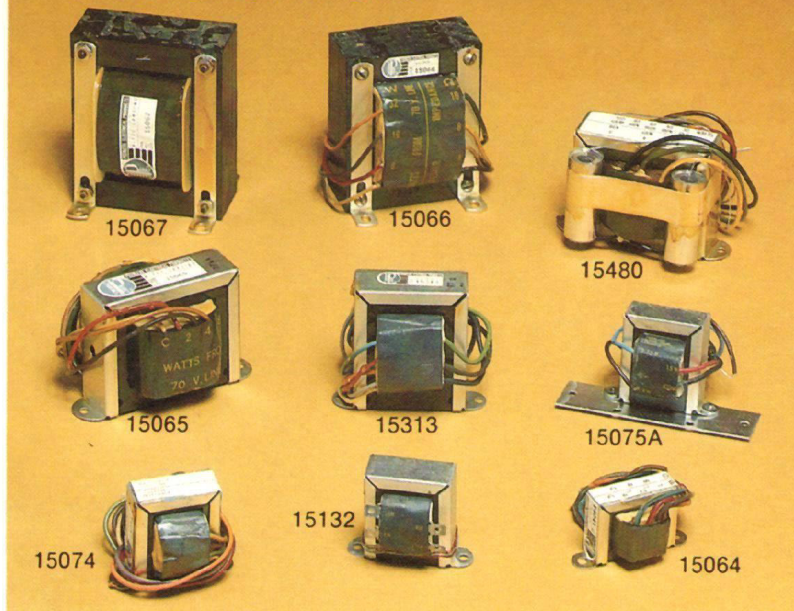
	403A	405-8G	409-8D	617-8A	619-8A	2459A
Type	Wide-range cone radiator	Wide-range cone radiator	Two-way coaxial	Two-way coaxial	Two-way coaxial	Wide-range cone radiator with transformer
Power Rating (watts)*	12	10	16	60	75	10
Frequency Response	70-11,000 Hz	60-15,000 Hz	50-14,000 Hz	50-15,000 Hz	40-50,000 Hz	80-13,000 Hz
Pressure Sensitivity** (dB SPL)	95	91	96	98***	100***	96
Nominal Impedance (ohms)	8	8	8	8	8	8
Nominal Free-Air Cone Resonance	80 Hz	120 Hz	84 Hz	30 Hz	28 Hz	95 Hz
Crossover Frequency	— —	— —	2500 Hz	1500 Hz	1500 Hz	— —
Flux Density (gauss)	9000	10,500	7500	12,000	12,000	8500
HF section			8500			
LF section						
Dimensions						
Diameter	8 3/16"-21.1 cm	4 3/8"-11.1 cm	8 3/8"-20.6 cm	12 1/4"-31.1 cm	16"-40.6 cm	8 1/2"-21.6 cm
Depth	4"-10.2 cm	2 1/8"-5.4 cm	3 1/4"-8.3 cm	7 3/4"-19.7 cm	9"-22.9 cm	2 1/16"-6.8 cm
Weight	3 lbs-1.4 kg	2 lbs-0.9 kg	3 lbs-1.4 kg	25.5 lbs-11.6 kg	28.3 lbs-12.8 kg	1 7/8 lb-0.9 kg

*Measured with pink noise, band-limited from 20 Hz-20 kHz

**Measured at 4' on axis with 1 watt input of pink noise, band-limited from 500-3000 Hz.

***Measured at 4' on axis from mouth of Altec 90° sectoral horn with 1 watt input of pink noise, band-limited from 500-3000 Hz.

Transformers



Transformers Altec manufactures a wide variety of line-matching transformers for use in 70- or 200-volt distributed systems. Altec transformers are highly accurate, low-loss devices, and are available in several physical and electrical sizes.

Networks



Networks Altec dividing networks are precision designed and manufactured to perfectly match Altec bass drivers with Altec high-frequency compression drivers and horns. They are available with 500, 800 and 1200 Hz crossover frequencies and various power ratings.

TRANSFORMERS

Model	Frequency Response (Hz)	Audio Watts Primary	Load Impedance (Ohms) Secondary	*Maximum Insertion Loss (dB)	Weight (lbs.)
15480	±1 dB from selected LF cutoff to 10,000	150, 100, 80, 60, 40 and 30	4, 8 and 16	0.5	2-1/2
15064	±1 dB, 60-15,000	1, 0.5 and 0.25	4 and 8	0.7	3/8
15065	±1 dB, 30-15,000	8, 4 and 2	16, 8 and 4	0.5	2-1/4
15066	±1 dB, 30-15,000	32, 16 and 8	16, 8 and 4	0.5	5
15067	±1 dB, 30-15,000 For impedance matching at other than 70V:	160 or 80, 80 or 40	16 and 8, or 32 and 16 16, 8 and 4, or 8, 4 and 2	0.3 or 0.2 0.5 or 1.0	5-3/5
15074	±1 dB, 60-15,000 Twice nominal impedance: Four times nominal impedance:	4, 2 and 1, or 2, 1 and 0.5, or 1, 0.5 and 0.25	8, 4 and 2, or 16, 8 and 4, or 32, 16 and 8	1.2 or 0.8 or 0.5	5/8
15075A	±2 dB, 200-15,000	15, 7.5 and 3.75	8	0.6	1/2
15132	±1 dB, 100-10,000	4, 2, 1 and 0.5	8	1.0	1/2
15230	±2 dB, 100-5000	2, 1, 0.5 and 0.25	8	1.0	5/8
15313	±1 dB, 150-12,000	30, 15, 7.5 and 3.75	8 and 16	0.8	1/2

*Insertion loss for the most unfavorable combinations of impedances

DIMENSIONS (INCHES)

Model	Size	A	B	C	D	E	F	H
15480	Small	2½	4	2⅝	3⅝			⅝ Dia. Holes
15064	Small	1⅝	2⅝	1⅝	2			⅝ Dia. Holes
15065	Small	2⅝	4	2⅝	3⅝			⅝ Dia. Holes
15066	Large	3	3⅝	3¼	2⅝	2½	3⅝	⅝ x ⅝
15067	Large	3	3⅝	4¼	2¾	2⅝	2⅝	⅝ x ⅝
15074	Small	1⅝	2⅝	1⅝	2			⅝ Dia. Holes
15075A	Small	2¼	4	2⅝	3⅝			⅝ Dia. Holes
15132	Small	1½	2⅝	1⅝	2			⅝ Dia. Holes
15230	Small	1½	2⅝	1⅝	2			⅝ Dia. Holes
15313	Small	1⅝	3⅝	2¾	2⅝			⅝ Dia. Holes

NETWORKS

Model	Crossover Frequency	Input/Output Impedance (ohms)	Power Rating (watts)	Features
N500F	500 Hz	16	250	Passive dual LC network. 12 dB/octave slope. HF shelving, four 1 dB steps.
N800D	800 Hz	16	75	Passive dual LC network. 12 dB/octave slope. HF shelving, four 1 dB steps.
N1209-8A	1200 Hz Nominal	8	125	Full section dual LC equalizer/network. 12 dB/octave slope.

1628A Microphone Mixer



The 1628A is an 8-channel, solid-state mixer/amplifier with provision for plug-in input accessory modules. Total system mix gain is held constant by the automatic adjustment of the signal level in each channel, dependent on the channel-to-system, signal-to-noise ratio. ("Channel-to-system" refers to the channel which is activated by a talker speaking into a microphone vs. the other seven channels not activated by a talker. "Signal" designates the channel activated by the talker, and "noise" means the ambient noise in the room or the sounds from the loudspeakers detected by all the microphones in the system, whichever is louder.)

Whereas with VOX the threshold is manually set and thus fixed, the adaptive threshold of the Altec 1628A is automatically adjusted as a function of the ambient noise in the room. All noise, heard uniformly by all mics in the system, varies the threshold in proportion to the sound pressure level of the noise. However, if a louder sound rising above the threshold level is emitted (such as a talker close to the mic), that mic will open and its talker will be amplified.

The innovative Altec 1628A finds immediate uses for city council chambers, board rooms, churches, courtrooms, plus many other applications requiring four or more microphones.

FEATURES

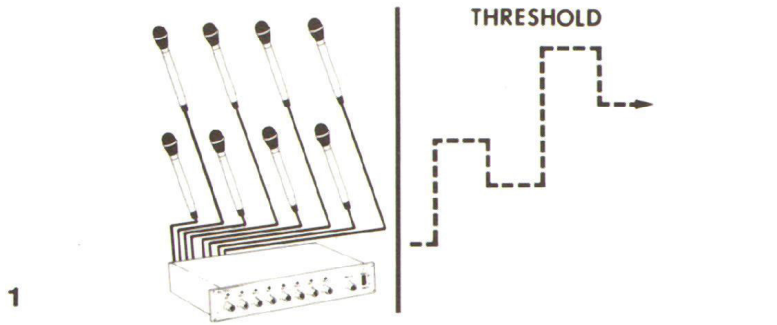
- LED front panel indicators for identifying operating channel
- Short-circuit-protected power supply and output stage

- Remote power available for condenser microphones with 1588C*
- Variable 1588C gain control*
- Modular packaging for ease of service
- RF shielding on channel input and ac power lines
- Slew-rate limited output protects power amplifier from high-frequency overload
- Illuminating front panel power switch
- Mix 1 priority provision for fully attenuating all non-priority channels including any channels in direct mix mode

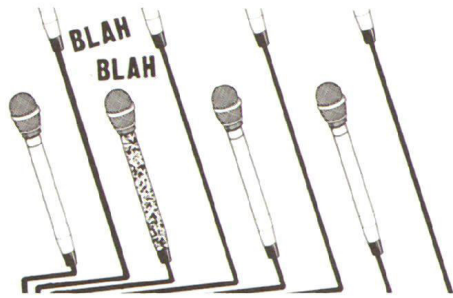
*Factory wired for 34 dB gain mode with phantom power connected. 20 dB gain mode and disconnection of remote power selected by removal of two jumpers (per channel) from the dual input PC boards.

The 1628A—Unheard-of Reliability

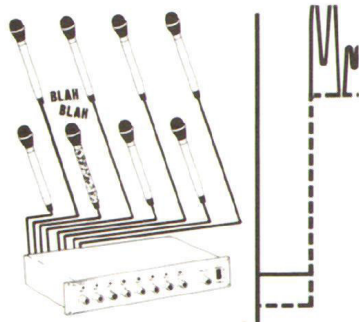
The diagrams on the facing page illustrate the 1628's adaptive threshold gating concept and how it works to adjust to multiple speakers while solving distortion problems. In our example, a panel discussion is being held which necessitates that all eight microphones be open. Through this revolutionary technique of "adaptive threshold audio gating" the 1628A discriminates between an actual signal versus ambient noise. Follow through the illustrations to see exactly how the threshold is constantly changing in response to the sum of the sound reaching each mic, and thereby reinforcing sound accurately and clearly.



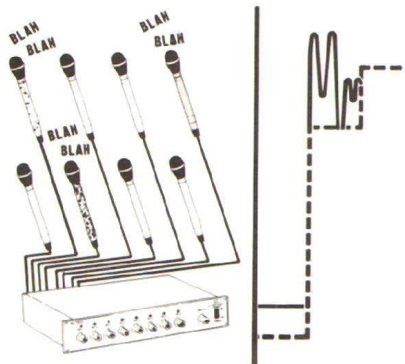
1 The 1628A takes the sum of the noise level at each mic in the system, and uses this to vary the threshold level.



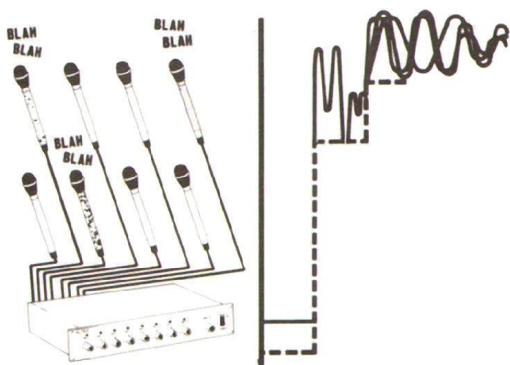
Now, if the person at microphone three starts talking ...



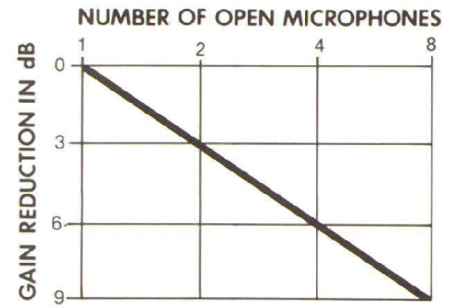
3 ... his voice produces a signal greater than the threshold level. This causes his mike to gate open ... and the threshold rises.



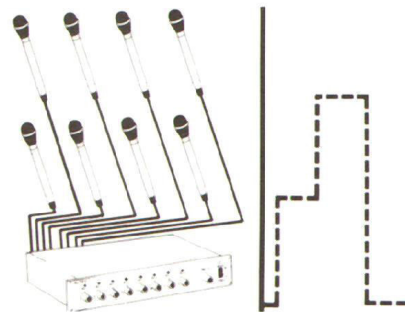
4 Suppose the people at mikes two and eight now chime in at the same time.



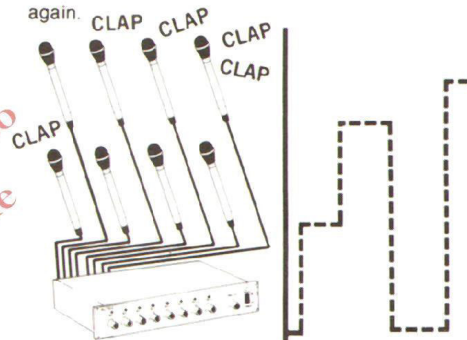
5 The threshold goes up ... but each of the above three mikes is receiving a sound above the new threshold level — so all three are gated open simultaneously.



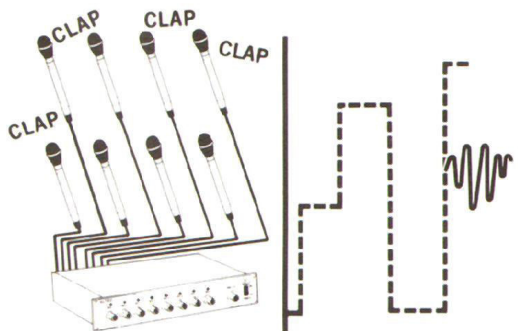
6 At the same time, overall system gain is reduced, to prevent howling. Gain is reduced by 3 dB for each doubling in the number of open mikes.



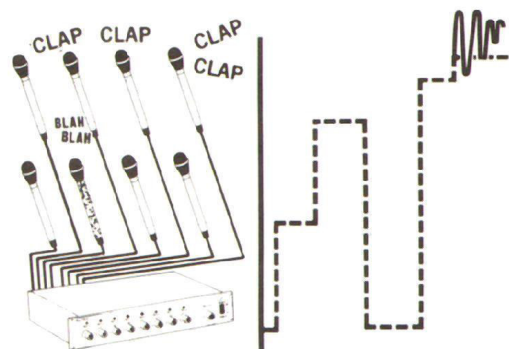
7 When all three people stop talking the threshold goes down again.



8 Now the audience applauds. The noise reaches all mikes, and the threshold goes way up. Remember — threshold is determined by the sum of the sound reaching all mikes.



9 Note that the sound of applause reaching mike three — like all the others — produces a signal that is below the increased threshold. So none of the mikes gates open.



10 While the applause continues, the person at mike three starts talking. The sound level in this channel is now above threshold, so the mic is instantaneously opened.

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Mixers and Accessories

Altec remains committed to ongoing research and product development because better sound is our business. And when you utilize Altec mixer/amplifiers you can be sure of optimum power along with the finest of options.

1592B The 1592B is a versatile general-purpose mixer/amplifier. Five signal source inputs adaptable by means of plug-in modules can be used for microphone, magnetic phono pickup or line level sources. Features include separate master and monitor gain controls, a variable range VU meter, separate bass and treble controls, test tone, normal/bridge switch, and gain level switch for each mic input channel.

1599B Altec's 1599B mixer/extender features six input channels and may be used with Altec amplifiers. It serves superbly as the only mixer in the system, or with another mixer such as the 1592B to extend input capabilities. Each input is adaptable to receive different signal sources and each input is equipped with a mic gain level switch. The 1599B has a hinged panel for rapid access to the chassis.

1589B The 1589B is a compact, two-input channel mixer/amplifier with low distortion and excellent signal-to-noise characteristics. Each input has plug-in module capabilities and a fuse accessible from the front panel.

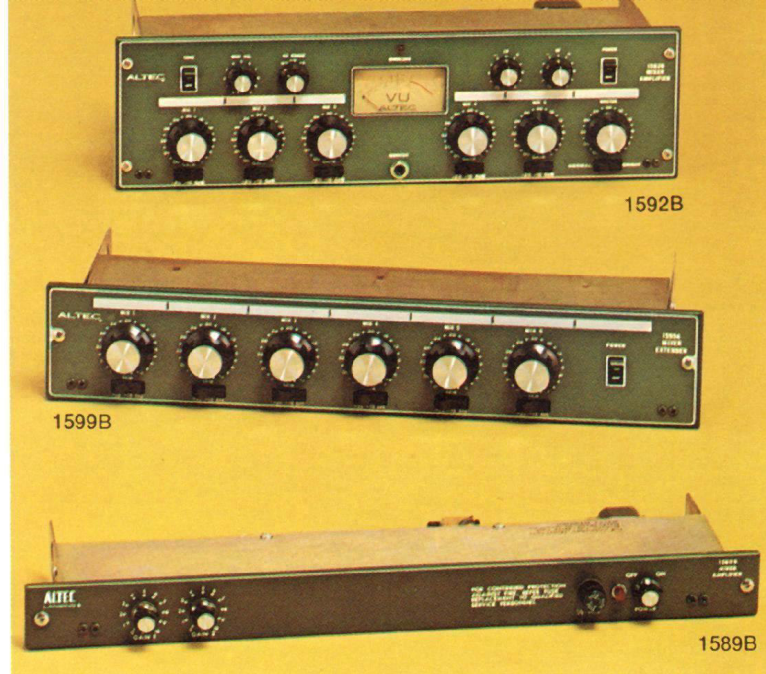
15036 Repeat Coil. This precision transformer provides isolation and line-matching for 150- or 600-ohm lines through selectable taps. This allows the repeat coil to match unequal impedances with a minimum loss and virtually no distortion.

1579C Equalized Preamp. Easily mounted in a standard octal socket, the 1579C adapts Altec mixer inputs to accept magnetic phono input.

1588B The 1588B Microphone Preamp is a sealed, plug-in solid state module with a transformer-isolated input and low noise characteristics. The built-in transformer provides a balanced and isolated input for maximum protection from RF and other stray fields normally induced on low-level microphone lines.

1588C Microphone Preamp. Adapts Altec mixer input to accept low-impedance microphone. Features 129 dBm equivalent input noise and phantom power for condenser microphones. Less than 0.1% THD over all frequencies.

15095A Line Transformer. This miniature plug-in, line-bridging transformer is used for input and output impedance-matching in 600-ohm systems and has a frequency response of ± 1 dB, at 30 Hz to 20 kHz.



15335A Bridging and Matching Transformer. The precision-manufactured 15335A provides isolation and line matching at a 15,000-ohm impedance level. Frequency response is 1 dB across its 30 Hz to 15 kHz spectrum.

15356A Line-Matching Transformers. Provides isolation and line matching for 600-ohm lines.

MIXER/PREAMPLIFIERS

	1589B	1592B	1599B
Input Channels	2	5	6
Gain			
With 1588C	77 dB	87 dB	48 dB
With 15095A	28 dB	38 dB	-1 dB
With 15356A	42 dB	54 dB	15 dB
Power Output	+18 dBm	+30 dBm	+6 dBm
Frequency Response	± 1 dB from 20-20,000 Hz	± 1 dB from 20-20,000 Hz	± 1 dB from 20-20,000 Hz
Total Harmonic Distortion	Less than 0.5%	Less than 0.5%	Less than 0.5%
Source Impedance (ohms)			
With 1588C	150/250	150/250	150/250
With 1579C	Up to 50,000	Up to 50,000	Up to 50,000
With 15036	125/150 or 500/600	125/150 or 500/600	125/150 or 500/600
With 15356A	125/150 or 500/600	125/150 or 500/600	125/150 or 500/600
Load Impedance (ohms)			
With 15036	125/100 or 500/600	125/150 or 500/600	125/150 or 500/600
With 15356A	500/600	500/600	500/600
Equivalent Input Noise With 1588C	-129 dBm	-129 dBm	-129 dBm
Output Noise Level (below rated output)	85 dB	85 dB	85 dB
Dimensions	1 3/4" H x 19" W x 4 3/4" D 4.5 cm H x 48.3 cm W x 12.1 cm D	5 1/4" H x 19" W x 6 1/2" D 13.3 cm H x 48.3 cm W x 16.5 cm D	3 1/2" H x 19" W x 7" D 8.9 cm H x 48.3 cm W x 17.8 cm D
Weight	4.2 lbs-1.9 kg	10.5 lbs-4.8 kg	7 lbs-3.2 kg

9477B Power Amplifier and 1220AC Control Console



1220A/C

1177A

9477B

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The professional performer often relies on the most modern and dependable equipment to complement and advance the creativity, the personality, the art of music. With Altec control consoles and power amplifiers behind the performance, you can depend on accurate and reliable sound reinforcement. Check out the construction, the built-in extras, and the independent controls and monitoring of the 1220A. Study the specs of the 9477B and listen to it. We think you'll be impressed.

1220AC Constructed for long and rugged service, the portable 1220AC solid-state mixer/preamplifier provides these features: self-contained reverb unit, 10 low-impedance, transformer-isolated input channels and one auxiliary input channel for line-level devices. In addition, each of the 10 channels has controls to adjust volume, bass, treble and reverb levels. The output of each channel may be monitored on two selectable channels. Each input is independently monitored by a VU meter prior to entry onto the main (master) channel. Other special circuits include a line and polarity indicator and switch to prevent shock hazards, an electronic crossover output circuit for bi-amplification, and a peak limiter circuit. Modular construction makes operation and service easy. A vinyl-covered wood case housing detachable steel legs is standard equipment. The console itself may be removed from the bottom half of the case and used as a permanent table-top console.

Gain:	86, 78 or 74 dB for channels 1-10 with 150-ohm source
Input Clipping Level:	-8 dBm
Power Output:	+21 dBm maximum at less than 0.5% THD, 30 Hz to 20 kHz
Frequency Response:	±1 dB from 30 Hz to 20 kHz
Crossover Frequency:	500 or 800 Hz with ±10 dB shelving balance
Input Impedance:	150 ohms nominal (channels 1-10) 5000 ohms nominal (channel 11)

Load Impedance:	600 ohms nominal
Equivalent Input Noise:	-127.5 dBm
Tone Control Response:	±16 dB at 100 Hz (LF) and 10 kHz (HF)
Limiter Attack:	10 μs to ±1 dB
Limiter Release:	63% recovery in 0.5 second (FAST) or 1.5 seconds (SLOW)
Limiter Distortion:	Typically less than 1% for 10 dB of compression with +8 dBm output
Power Requirements:	120/240V ac, 50/60 Hz, 50 watts—or 24/28V dc battery, 1A maximum
Dimensions:	36"W x 24"D x 11"H (91.4 cm W x 61 cm D x 27.9 cm H)
Weight:	62 pounds (28.1 kg)

9477B High quality, low distortion and moderate power requirements are all features of the 9477B power amplifier. It delivers up to 100 watts of continuous power at less than 0.5% THD from 30 to 20,000 Hz.

Power at Clip Point:	Typically 130 watts continuous into 8 ohms
Frequency Response:	±0.5 dB, 20 Hz to 20 kHz
Total Harmonic Distortion:	Less than 0.5% at 100 watts, 30 Hz to 20 kHz
Input Sensitivity:	0.8V RMS for rated output (0 dBm input)
Load Impedances:	4, 8, or 16 ohms selectable
Power Requirements:	120/240V ac, 50/60 Hz, 20 watts at zero signal, 250 watts at 100 watts output
Dimensions:	7"H x 19"W x 8½"D (17.8 cm H x 48.3 cm W x 21.6 cm D)
Weight:	34 pounds (15.4 kg)

1177A The optional 1177A travel case provides portability and protection for the 9477B power amplifier.

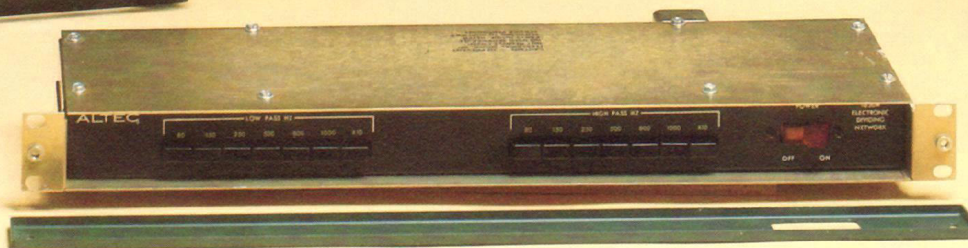
Power Amplifiers and Accessories



1224A



9440A



1630A

Altec amplifiers are specifically designed for operations where dependability is of the utmost concern—studio and on-the-road performances, discotheques, stadiums, theatres and commercial establishments. The most advanced circuitry and selected components ensure years of trouble-free service.

9440A Power Amplifier. The 9440A, high in power and low in distortion, can deliver more than 200 watts per channel into 8 ohms or 400 watts per channel into 4 ohms at less than 0.1% THD at any frequency from 20 Hz to 20 kHz, or greater than 800 watts monaural into 8 ohms. The 9440A offers these extras: illuminated VU meters, brushed metal finish, and rack-mount chassis with provision for mounting two accessory fans. It is ideal for high-power, wide-response, high-accuracy music reproduction/reinforcement.

1224A Electronic Crossover Biampifier. For music reproduced with verbatim accuracy, forceful impact and wide dynamic range, consider the 1224A. This electronic crossover/biampifier is designed to be installed in the 828C low-frequency horn and other Altec speaker enclosures for use in high-accuracy playback and reinforcement systems.

1630A Electronic Dividing Network. The 1630A network is designed to provide selected crossover points from 80 Hz to 10 kHz. The unit may be used as a two-way frequency dividing network for biampified systems, or in pairs for three-way triampified applications. The low-pass and

high-pass sections provide 18 dB/octave roll-off, and are independently selectable allowing for a variety of special application requirements in large sound systems, such as arenas, stadiums, and large installations.

- Input Impedance:** 15,000 ohms direct or 15,000 ohms balanced, bridging with 15335A bridging transformer.
- Load Impedance:** 600 ohms direct, 150 or 600 ohms balanced with 15356A line transformer.
- Frequency Response:** ± 1 dB from 20 Hz to 20 kHz
- Power Bandwidth:** +15 dBm with less than 0.5% THD, 20 Hz to 20 kHz, typically less than 0.25% THD @ +18 dBm, 20 Hz to 15 kHz.
- Filter Sections:** 18 db/octave Butterworth response, high- and low-pass sections, each independently selectable to any of the following frequencies: 80 Hz, 150 Hz, 250 Hz, 500 Hz, 800 Hz, 1000 Hz, 1500 Hz, 2500 Hz, 5000 Hz, 10,000 Hz.
- Power Consumption:** 1 watt @ 120/240 vac 50/60 Hz line operation, or 24/28 vdc @ 20 ma dc.
- Dimensions:** 1 $\frac{3}{4}$ "H x 19"W x 7 $\frac{1}{2}$ "D-4.4 cmH x 48.2 cmW x 19 cmD
- Weight:** 6 pounds (2.7 kg)

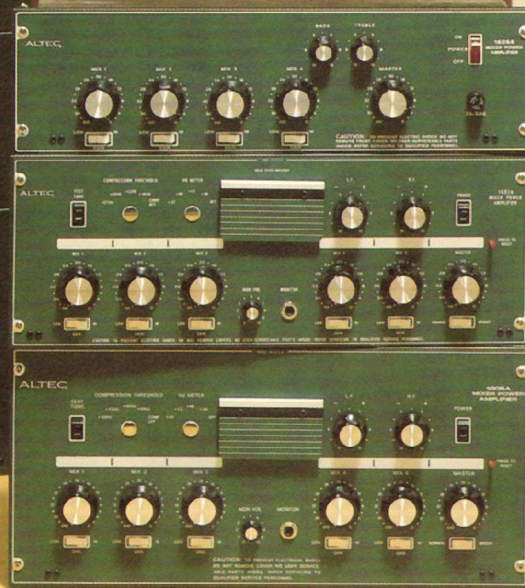
POWER AMPLIFIER

BIAMPLIFIER

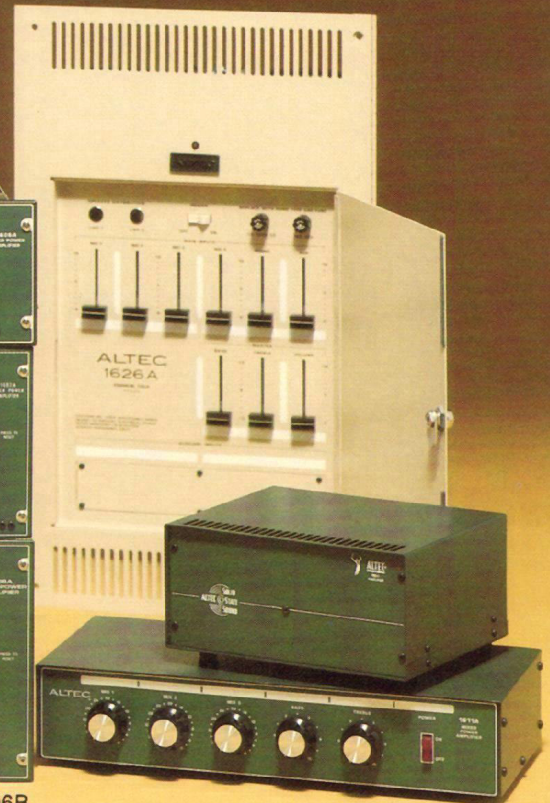
	9440A	1224A
Power Output (watts)	200/channel (8 ohms); 400/channel (4 ohms)	60 (LF) (8 ohms); 30 (HF) (8 ohms)
Gain (each channel)	55.7 dB w/15335A (8-ohm load) 58.7 dB w/15335A (4-ohm load) 61.7 dB w/15335A in mono mode (8-ohm load)	46 dB w/15335A (LF) 62 dB w/15095A (LF) 47 dB w/15335A (HF) 63 dB w/15095A (HF)
Input Sensitivity with 15335A with 15095A	0.6V rms	0.5V rms 0.5V rms 0.1V rms
Frequency Response	± 0.25 dB from 20-20,000 Hz	± 1 dB from 20-20,000 Hz
Crossover Frequency		500, 800 or 1500 Hz with 12 dB/octave slope
Input Impedance (ohms) with 15335A with 15095A	15,000 15,000 600	15,000 15,000 600
Load impedance (ohms)	4 (minimum)	4 (minimum)
Signal-to-Noise Ratio	100 dB	80 dB
Dimensions	7"H x 19"W x 11"D-17.8 cmH x 48.3 cmW x 27.9 cmD	6 $\frac{1}{2}$ "H x 9 $\frac{7}{8}$ "W x 9"D-16.5 cmH x 25.1 cmW x 22.9 cmD
Weight	56.5 lbs-25.6 kg	16 lbs-7.3 kg

Power Amplifiers/Mixers/Biamplifiers

1593B
1609A
1594B
1590C



1606B
1607A
1608A



1626A
351C
1611A

The following line of Altec amplifiers are specifically designed for commercial and industrial applications where dependability and uninterrupted, trouble-free service are mandatory. Most Altec commercial amplifiers are capable of 70-volt line operation for use with distributed loudspeaker systems.

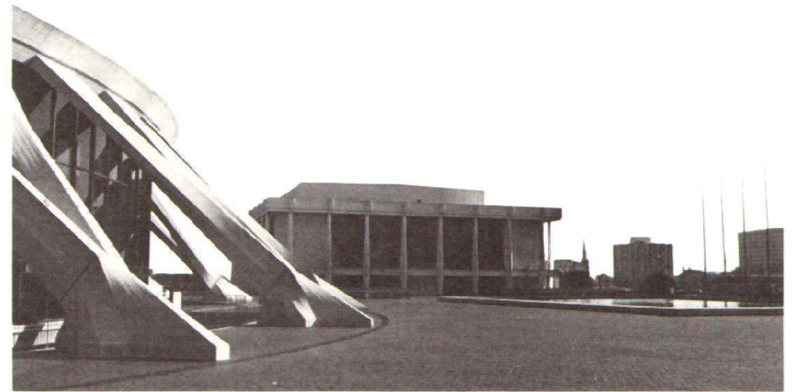
1609A Biamplifier. The 1609A rack-mounted biamplifier, composed of two separate power amplifiers and an electronic crossover circuit, is used to drive wide-band, 2-way speaker systems for music reproduction and sound reinforcement. It will deliver 100 watts to the bass driver and 50 watts to the treble driver, with a crossover frequency selectable at 500 Hz, 800 Hz or 1500 Hz with 12 dB per octave high- and low-pass elements. The transformer-coupled outputs maintain rated power levels into 4-, 8- or 16-ohm loads, or 70-volt distributed systems.

1593B Power Amplifier. The 1593B is a 50-watt solid-state power amplifier designed for standard 19" rack mounting, and features a front panel gain adjustment. The 1593B will operate on 120 or 240 volts ac or 28 volts dc, making it ideal for permanent, mobile, or emergency use. Output taps for 4, 8, or 16 ohms and 25- or 70-volt line operation are included.

1594B Power Amplifier. Like the 1593B, the 1594B is an all-solid-state power amplifier designed for rack mounting. It is capable of delivering 100 watts into 4, 8 or 16 ohms and 25- or 70-volt distributed systems, and will operate from 120 or 240 volts ac, or 28 volts dc.

1590C Power Amplifier. For high power applications where a transformer isolated power amplifier is required, the 1590C is ideal. It can deliver 200 watts into 4.5 ohms and 25-, 28-, 70-, 100-, 140- or 200-volt distributed systems, and will operate on 120 or 240 volts ac, or 28 volts dc.

351C Power Amplifier. The 351C is a compact 50-watt amplifier designed for shelf mounting. Its small size, low distortion and low power consumption make it an ideal choice as a portable paging amplifier.



POWER AMPLIFIERS

BIAMPLIFIERS

	351C	1590C	1593B	1594B	1609A
Power Output (watts)	50	200	50	100	100 (LF); 50 (HF)
Gain (each channel)	68 dB	67 dB	61 dB	64 dB	64 dB (LF); 61 dB (HF)
Input Sensitivity	450 mV rms	0.8V rms	0.8V rms	0.8V rms	0.8V rms
Frequency Response	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz
Crossover Frequency					500, 800 or 1500 Hz with 12 dB/octave slope
Input Impedance (ohms)	50,000 with 15335A 50,000 with 15095A 600	15,000 15,000 600	15,000 15,000 600	15,000 15,000 600	15,000 15,000 600
Load Impedance (ohms)	4, 8, 16 and 100	25, 50, 100, 200	4, 8, 16 and 100	4, 8, 16 and 50	4, 8, 16 and 50 (LF) 4, 8, 16 and 100 (HF)
Signal-to-Noise Ratio	90 dB	85 dB	85 dB	85 dB	85 dB
Dimensions	5 7/8" H x 9 3/4" W x 9 3/8" D 13.0 cm H x 24.8 cm W x 23.8 cm D	10 1/2" H x 19" W x 8 1/4" D 26.7 cm H x 48.3 cm W x 21.0 cm D	5 1/4" H x 19" W x 7 3/8" D 13.3 cm H x 48.3 cm W x 18.7 cm D	7" H x 19" W x 8 1/2" D 17.8 cm H x 48.3 cm W x 21.6 cm D	7" H x 19" W x 8 1/2" D 17.8 cm H x 48.3 cm W x 21.6 cm D
Weight	16.5 lbs-7.5 kg	41 lbs-18.6 kg	23 lbs-10.4 kg	35 lbs-15.9 kg	37 lbs-16.8 kg

Power Amplifiers/Mixers/Biampifiers (Continued)

1607A Mixer/Power Amplifier. Five mixable inputs, adaptable for many uses through plug-in modules, and 75 watts of power into 4-, 8- or 16-ohm loads or 70-volt distributed systems, are just a few features of the 1607A. A built-in test tone, master bass and treble controls, bright/normal switch, front-panel-accessible circuit breaker, and monitor output with volume control complete the package. An ideal unit for medium-sized installations with requirements for up to five inputs. A wide variety of accessories can be ordered to customize the unit to your particular requirements.

1608A Mixer/Power Amplifier. The 1608A can be loaded with accessories to emerge as an amazingly well-equipped single unit. It comes standard with everything the 1607A has but with twice the output power (150 watts). The 1608A can be equipped (as can the 1607A) with a variable-range VU meter, variable-threshold compressor, shelf-mounting cover and equalization filters.

1626A In-Wall Mixer/Power Amplifier. The versatile 1626A adapts well to speech and music reinforcement where local access to controls is necessary. The unit delivers 100 watts of output power at less than 1.5% THD from 50 Hz to 15 kHz. The 1626A has a variety of features including separate bass, treble and master gain controls, an auxiliary panel for optional user inputs, provisions for speaker distribution switching, 4 mic inputs, a phono input and an auxiliary input.

1611A Mixer/Power Amplifier. Although best known for massive installations and sophisticated sound products, Altec provides sound equipment for even the smallest installation. Such is the case with the 1611A. Providing the basic essentials—mixing capabilities for three inputs and master bass and treble controls, it can serve as the complete electronics package for a small sound reinforcement system or background music and paging system. It will deliver 25 watts into a 2- or 8-ohm load, or a 25- or 70-volt distributed system, and will shelf or rack mount.

1606B Mixer/Power Amplifier. Where an increase in output power and flexibility over the 1611A is required, the 1606B is the answer. Its built-in power amplifier delivers 40 watts into 4-, 8- or 16-ohm loads or 70-volt distributed systems. Features include four mixable inputs which can be used with various sources through plug-in modules, switchable gain levels (low and high) on each input channel, master gain control, and bass and treble controls. The 1606B mounts in a standard 19" rack or may be shelf or table mounted.



MIXER/POWER AMPLIFIERS

	1606B	1607A	1608A	1611A	1626A
Input Channels	4	5	5	3	6 (4 mic + 1 aux + 1 phono)
Power Output (watts)	40	75	150	25	100
Gain (each channel) with 1588C with 15095A	115 dB 65 dB	119 dB 63 dB	121 dB 71 dB	97 dB 62 dB	110 dB mic input 67 dB aux
Input Sensitivity (for full output) Microphone Channels with 1579C with 15095A Auxiliary Channel	1 mV rms 87 mV rms 160 mV rms	1 mV rms 87 mV rms N/A	1 mV rms 87 mV rms N/A	5.4 mV rms 92 mV rms 340 mV rms	0.4 mV rms
Frequency Response	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-15,000 Hz
Source Impedance (ohms) with 1588C with 1579C with 15095A with 15356A with 15335A	150/250 Up to 47,000 600-15,000 150 or 600	150/250 Up to 50,000 600-15,000 150 or 600	150/250 Up to 50,000 600-15,000 150 or 600	150/250 Up to 47,000	600 15,000 15,000
Load Impedance (ohms)	4, 8, 16 or 125	4, 8, 16 or 66	4, 8, 16 or 32	2, 8, 25 or 200	6, 16, or 50
Equivalent Input Noise	-129 dBm*	-124 dBm*	-124 dBm*	-124 dBm*	-120 dBm
Dimensions	5¼"H x 19"W x 7"D 13.3 cmH x 48.3 cmW x 17.8 cmD	7"H x 19"W x 9"D 17.8 cmH x 48.3 cmW x 22.9 cmD	8¾"H x 19"W x 10½"D 22.2 cmH x 48.3 cmW x 26.7 cmD	3½"H x 17"W x 9½"D 8.9 cmH x 43.2 cmW x 24.1 cmD (Rack mount brackets available)	26"H x 17⅝"W x 3⅞"D 66 cmH x 44.8 cmW x 9.8 cmD
Weight	19 lbs-8.6 kg	29.3 lbs-13.3 kg	42 lbs-19.1 kg	17.75 lbs-8.1 kg	38 lbs-17.2 kg

*Equivalent input noise measured with 1588C in circuit.

Special-Purpose Electronics



1612A
1605B
1640



1603A
1660/1661

1603A SEQR Amplifier Coupler. The 1603A is used to safely couple two identical power amplifiers in parallel to drive a common load. Where a fail-safe operation is required in distributed page-announce systems, the 1603A isolates one amplifier, should one fail, preventing the failure of the second amp and keeping the sound system in operation.

1605B NOALA (Noise-Operated Automatic Level Adjustment). Important messages must be supported by highly reliable paging systems in airports, industrial plants or any high-ambient-noise environment. Our NOALA system senses increases and decreases in ambient noise levels through the speaker system and automatically adjusts amplifier gain to compensate for these variations. Thus a high degree of intelligibility is maintained.

1612A Limiter Amplifier. Great variations in input signal level can occur in sound systems. The two-input 1612A is highly effective at controlling dynamic range, making the average sound level more uniform. The 1612A functions as a limiter or as a line amplifier and features a compression/VU meter, a dual-range attack/release mode switch and a limit/line balance control to defeat limiting without affecting the average preset output level. Circuitry is solid-state.

1640 Time Delay System. The high-quality Model 1640 Digital Time Delay System presents exceptionally good performance specifications. Frequency response is a flat +1, -3 dB from 20 Hz to 12 kHz, and it has an unweighted dynamic range (signal-to-noise ratio) of 85 dB. The 1640 provides a maximum delay time of 120 ms and six outputs at fixed 20 ms delay intervals. Additional 1640's may be cascaded via a rear-panel connection for longer delay times with no signal degradation. Typical applications for this economically-priced time delay system include theatres and auditoriums where under-balcony seating cannot be covered by the central loudspeaker cluster, and in long, low-ceiling rooms with extremely high reverberation time. The time delay system maintains desired coverage and intelligibility (while preventing annoying echoes) and retains the desirable illusion that sound is emanating from the original source.

1660/1661 Time Delay System. The 1660 and 1661 modular audio time delay systems, using digital RAM (random access memory), accept up to six memory modules for a maximum delay time of 510 ms. Both models also accept up to five output modules, each output module providing a

Incremental Power System

Not just another power amplifier, Altec's Incremental Power is a dynamically flexible system with which to power a variety of sound system designs. The Altec system can result in cost savings both in equipment and labor. Typical in application of the Incremental Power System are auditoriums and churches (including pew-back systems), concerts, discos and studio multi-track monitoring.

The Incremental Power System consists of a Model 2200 seven-inch rack-mount card cage containing up to eight 75-watt power amplifiers (Model 2275), a crossover/driver card (Model 2251), driver cards (Models 2250, 2252), a balanced or unbalanced input card (Models 2221, 2220), and special driver cards with matrix-switching for console-like

signal processing. The eight power amplifiers can be operated independently or can be combined in increments of 75 watts to meet several audio applications: in parallel mode to drive high-power, low-impedance loads; in bridged mode to drive balanced 70-volt lines; and parallel-bridged mode to drive high-power balanced 70-volt lines; or other high-power loads. Typical applications include the ability to control high-, mid- and low-frequency loudspeakers with separate power amplifiers, to connect far-, middle- and near-throw horns to separate amplifiers with separate level controls; to power up to four separate balanced 70-volt systems from a single main frame and to power extremely complex sound systems by combining the capabilities of two or more incremental power systems.

Special-Purpose Electronics (Continued)



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thumbwheel switch to select a time delayed output in increments of 1 ms up to the maximum installed memory capacity. The combination of versatile features and high performance make the state-of-the-art 1660/1661 suitable for the finest sound reinforcement systems, such as theatres or auditoriums having under-balcony seating, long, low-ceiling rooms with extremely high reverberation time, and recording studio applications wherein extremely reliable, high-quality time delay is required. The 1660 features exposed front panel thumbwheel selectors, and the 1661 features a cover panel protecting the selectors from unauthorized access. □

designed to compensate for acoustic imperfections in sound environments, the 1650 Equalizer and 9880A Active Filter readily connect to a preamp/power amp circuit in sound systems. The possibilities of application are limitless: conference and meeting rooms, churches, industrial facilities, and on stage with a microphone mixer in recording and playback.

1650 An exciting addition to Altec's line of electronic products is the 1650 Active Equalizer, designed to provide accurate equalization of the entire audio spectrum for professional and industrial use. The 1650 contains 28 active band-rejection filters at ISO-preferred $\frac{1}{3}$ -octave center frequencies from 31.5 to 16,000 Hz. Each filter section provides up to 15 dB attenuation at its center frequency and is skirted to cross over with adjacent sections at -7 dB, combining to give ripple-free summation over 85% of the range. A gain control restores equalization losses. The high- and low-pass filters roll off at 18 dB/octave with continuously variable 3 dB down points. The control panel is calibrated in markings of OFF/20 Hz/40 Hz/80 Hz/160 Hz (high pass), and OFF/5 kHz/8 kHz/12.5 kHz/20 kHz (low pass). A slide-type bypass switch allows the filter set to be conveniently switched in and out of the circuit.

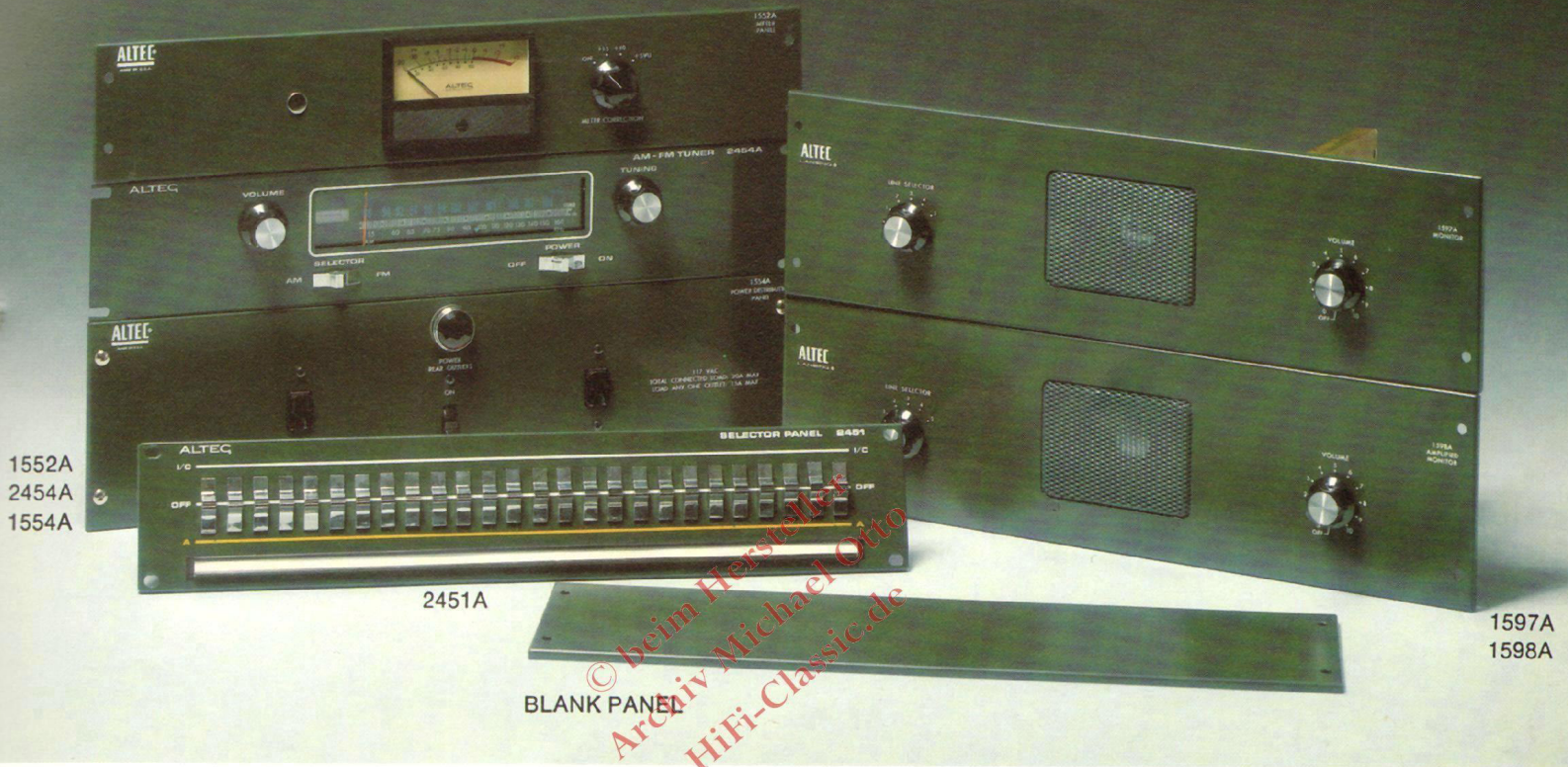
9880A Active Filter. The 9880A provides high- and low-pass filter action to eliminate unwanted energy at the ends of the audio band. High-pass filter frequencies are selectable in $\frac{1}{3}$ octave steps from 31.5 Hz to 250 Hz; low-pass filter frequencies are selectable in the same way, from 2 kHz to 16 kHz. Separate bypass switches are provided for high- and low-pass functions. Each filter attenuates the signal 3 dB at cutoff frequency. Rolloff is 18 dB/octave beyond cutoff.

1680 Pink Noise Generator. The 1680 digital random pink noise generator provides the tool for calibration and adjustment of equalizers and filters; also for use in speech privacy systems.

9025-1, 9025-2 Dividing Networks. These high-precision passive crossover networks are placed ahead of the power amplifier stage for bi-amplification operation. Crossover frequencies available are 500 Hz (9025-1) and 800 Hz (9025-2).

SPECIFICATIONS

Crossover	
Frequency—	
9025-1:	500 Hz
9025-2:	800 Hz
Impedance:	600 ohms (with proper buildout and termination)
Type:	Line-level with constant "K" circuitry
Attenuation Rate:	12 dB/octave
Input Level:	+30 dBm maximum
Dimensions:	2" (5.1 cm) H x 2" (5.1 cm) W x 3" (7.6 cm) D
Weight:	10 ounces (283.5 gm)



1552A Meter Panel. The ALTEC 1552A Meter Panel contains a VU meter, range switch, pads and terminal strip on a 3½" panel for 19" rack mounting. The range switch includes an OFF position and provides ranges to indicate program levels of +5, +10 and +15 VU on a 600-ohm circuit. Provisions are available for mounting an additional fixed pad for circuits of other impedances or levels such as a 70-Volt line. It is finished in ALTEC green.

1554A Power Distribution Panel. Designed for master power control, this panel has six outlets on the rear-side controlled by a 20-Ampere switch (117-120 Volts). A pilot light is mounted on the face of the panel directly above the switch. Two additional outlets, not controlled by the power switch, are located on the front of the panel. The ALTEC 1554A occupies 5¼" on a 19" rack mount. All outlets are of the 3-pin type. It is finished in ALTEC green.

1597A Monitor Speaker Panel. The ALTEC 1597A consists of a 4-inch, high-quality loudspeaker mounted on a 5¼-inch by 19-inch rack panel. Two front panel controls allow monitor selection of up to five 70-volt input lines and adjustment to the desired listening level. The 1597A includes a 70-volt line transformer with an input impedance of 5000 ohms for bridging 70-volt loudspeaker lines. The 1597A draws one watt from the input serving line.

1598A Amplified Monitor Speaker Panel. The ALTEC 1598A has an amplifier section with an input isolation transformer and an input impedance of 10,000 ohms, allowing a line-bridging impedance high enough to not disturb a 600-ohm line being monitored. The amplifier features an integrated circuit and a 2-watt amplifier output section plus a regulated power supply. This amplifier uses only 6 watts of line power and the power transformer is usable for 120V ac as well as 240V ac operation. Line power changes are made by strapping. The 1598A can also be used with a 24-volt battery. Silent and automatic transfer from ac to dc source occurs if ac line power fails. The 1598A is 3 rack units high, 5 inches deep, and uses the ALTEC 405A Loudspeaker.

2451A Selector Panel. The 2451A is used primarily in institutional sound and communication applications. By utilizing the 2451A, up to 26 speaker lines can be selectively connected to either of two program channels. The selector panel features 26 three-position switches with OFF and two other program positions for their designated speaker lines. Each switch includes a glamour cap for ease of operation.

2454A Solid-State AM-FM Tuner. The monophonic, solid-state 2454A provides high quality AM or FM reception. It is designed for use in background music systems or public address systems in factories, auditoriums and other institutional systems.

Microphones

a wider selection of microphones is now available from Altec. Spanning a wide range of applications from CB radio and telephone transmitters to on-stage and recording mikes, Altec microphones include updated technology and expanded variety to more thoroughly meet your requirements.

Basically, Altec offers two types of microphone pick-up patterns: *omni-directional*, which picks up sound in a spherical pattern insuring smooth response from all surrounding instrument and voice sources; or *cardioid*, picking up a hemispherical range pattern, which rejects background sound in order to isolate a specific instrument or voice sound. Each type of pick-up pattern is available in both dynamic and condenser type microphones.

DYNAMIC MICROPHONES

D60L Dynamic Lavalier. Miniature mic for use in speech reproduction and P.A. systems. Frequency response is attenuable by adjusting funnel-shaped lavalier attachment. Accessories include stand adapter and 30' cable with XLR-type mating connector.

D80C Cardioid Dynamic. Directional pick-up characteristics. Entire mic system is suspended within the housing which reduces handling noise. Sintered bronze cap protects system from dust, moisture, iron particles and from ambient noise interference. Includes stand adapter.

D81 Omnidirectional Dynamic. Professional mic with linear, full-range response characteristics. Applications in studio recording, sports events, newscasting, vocal performances. Accessories include stand adapter and 15' cable with XLR-type mating connector.

D90P Announce & Paging. Low-frequency response characteristic provides reduction of unwanted interference and maintains excellent speech reproduction. On-off switch for microphone and accessory equipment operation. Accessories include 15' cable, 3-conductor.

D91P Omnidirectional Dynamic. Adaptable to high-intelligibility fixed and mobile handheld communication systems including aircraft and CB radios. Push-to-talk switch, impact-resistant housing, shock-mounted components.

CONDENSER MICROPHONES

C61L Lavalier Electret Condenser. Shock mounted to minimize handling noises. System includes miniature electret microphone element, preamplifier powering module, rotary support clip, cable ending in screw-cap for preamplifier connection. On-off switch for battery cell.

C70C Cardioid Condenser. Low noise level, reliability and professional reproduction quality make the C70C adaptable to recording applications, stage and concert halls, and high-quality commercial sound installations. Basic system includes preamplifier, miniaturized mic capsule, stand adapter and windscreen.

C71 Omnidirectional Condenser. Adaptable to various recording, broadcasting, concert and commercial sound applications, the C71 provides high-quality sound reproduction. System includes preamplifier, miniaturized microphone capsule, stand adapter and windscreen.



Model	Type	Pickup Pattern	Frequency Response	Output Level *	Finish	Dimensions	Weight
D60L	Dynamic Lavalier	Omni	70 Hz-15 kHz	-60 dBm	Black matte chrome plate	0.70" (1.8 cm) dia. x 2.85" (7.2 cm) long	1.2 oz.-35 gm
D80C	Dynamic	Cardioid	50 Hz-15 kHz	-59 dBm	Non-reflective light gray metallic	1.5" (4 cm) dia. x 6.5" (17 cm) long	6 oz.-170.1 gm
D81	Dynamic	Omni	50 Hz-15 kHz	-54 dBm	Satin-chrome plate	1.5" (4 cm) dia. x 6.5" (17 cm) long	9 oz.-255.2 gm
D90P	Dynamic	Omni	50 Hz-15 kHz	-58 dBm	Satin chrome	7.5" (19 cm) H x 3" (7.6 cm) D x 1.6" (4.1 cm) max. dia.	1 lb.-453.6 gm
D91P	Dynamic	Omni	100-5000 Hz	-61 dBm	Charcoal gray plastic	2.5" (6.4 cm) W x 3.6" (9.2 cm) L x 2" (5.1 cm) H	4.5 oz.-127.6 gm
C61L	Electret Condenser Lavalier	Omni	50 Hz-15 kHz	-54 dBm	Gray plastic	0.57" (1.3 cm) dia. x 1.5" (5.8 cm) long	1.6 oz.-45 gm
C70C	Condenser	Cardioid	20 Hz-15 kHz	-40 dBm to -70 dBm (adjustable in 4 10 dB steps)	Non-reflective satin chrome	0.76" (1.94 cm) dia. x 6.62" (16.8 cm) long (cartridge and base)	5.3 oz.-150 gm
C71	Condenser	Omni	20 Hz-15 kHz	-40 dBm to -70 dBm (adjustable in 4 10 dB steps)	Non-reflective satin chrome	0.76" (1.94 cm) dia. x 6.62" (16.8 cm) long (cartridge and base)	5.3 oz.-150 gm

*Referenced to 10 dynes/cm²



D81



D80C



D91P



C61L



34A



D90P



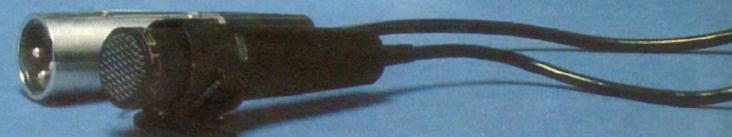
C71



C70C



D60L



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Microphone Stands and Accessories



ACCESSORIES

Model UGN. Flexible "goose necks" may be used with any mic stand for hard to reach applications. Bright Chrome finish.
Model UGN-106: 6 inches; *Model UGN-113:* 13 inches; *Model UGN-119:* 19 inches.

Model UBB-100. Boom attachment, features a solid machined brass swivel mount. Fits securely on any standard floor stand. Bright Chrome finish.

Model UBB-200. Baby boom attachment featuring all chrome steel counterweight and unique ratchet type lock. This attractive boom fits securely on any standard 5/8"-27 floor stand.

Model UBS-100. Boom swivel mount used on UBB-100. Available as a replacement, or can be used to mount several mics to one floor stand.

Model UBS-200. Guitar microphone holder. Holds two microphones and is completely adjustable to any level. Includes 6-inch long tube, 5/8"-27 male each end.

Model US01. Two-piece, snap-on microphone accessory unit. The male section attaches to standard microphone stands and boom attachments. Standard microphone holders attach to the female section for easy transfer of microphone stand position.

Model US3N1. Multiple microphone adapter permits minimum of three microphones per stand. When used with goosenecks or other extensions, several microphones can be placed in any position.

ADAPTORS

Model UAD100. 5/8"-27 to 1/2" pipe thread male (RCA Adaptor).

Model UAD101. 3/4" long, 5/8"-27 male running thread.

Model UAD102. 5/8"-27 female to 5/8"-27 female, coupling.

Model UAD103. 3" long tube 5/8"-27 male each end.

Model UAD104. 6" long tube 5/8"-27 male each end.

Model UAD105. Flange, 5/8"-27 female. Base Diameter 2".

Model UAD106. Flange, 5/8"-27 male. Base Diameter 2".

Model UAD107. 12" long tube 5/8"-27. Male each end.

Model UAD108. 24" long tube 5/8"-27. Male each end.

SPECIFICATIONS

Model	Height	Base	Stem Assembly
Floor Stands			
UMSTP1	32 to 60"	Tripod folding	Bright Chrome
UMS100	35 to 63"	10" Diam. black wrinkle	Bright Chrome
UMS101	34 to 62"	10" Diam. bright chrome	Bright Chrome
UMS102	34 to 62"	10" Diam. bright chrome	Bright Chrome
UMS103	35 to 63"	12" Diam. black wrinkle	Bright Chrome
UMS110	34 1/4 to 64"	10 1/4" Diam. black wrinkle	Bright Chrome
UMS111	34 1/4 to 64"	10 1/4" Diam. chrome	Bright Chrome
Desk Stands			
UDS100	4" only	6" Diam. black wrinkle	Bright Chrome
UDS101	8 to 13"	6" Diam. black wrinkle	Bright Chrome

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