

KEY SYSTEM FEATURES

- DSP Controlled; 18/24 Bit
- 2 In / 4 Out
- Three Configurations: STEREO 2-WAY, 3-WAY/SUB+1, 4-WAY
- Factory Presets for Various Combinations of Altec Lansing DTS Loudspeaker Systems
- Independent Limiters, Parametric EQs, Shelving EQs, Alignment Delays, Phase Controls, and Level Adjusts are Available to Tailor Any Factory Preset
- Master Delay
- Mono Subwoofer Capability
- Electronically Balanced XLR Inputs and Outputs with Transformer Option
- Remote Memory Select by Contact-Closure
- 2 x 16 Character LCD Display
- Level Indicators for Each Input and Output
- Universal Input Switching Power Supply

KEY SPECIFICATIONS

Frequency Response:	20 Hz to 20 kHz; ±0.3 dB typical.
THD: (+4 dBu output)	<0.01%, typical.
Dynamic Range:	>100 dB, typical.
Input:	
No. of channels:	2.
Topology:	Electronically balanced; transformer option.
Nominal level:	+4 dBu.
Maximum level:	+21 dBu.
Input impedance:	20 kohms.
CMRR:	>70 dB, typical.
Connector:	Female XLR-3 pin type.
Output:	
No. of channels:	4.
Topology:	Electronically balanced; transformer option.
Nominal level:	+4 dBu.
Maximum level:	+21 dBu.
Output impedance:	100 ohms.
Minimum load impedance:	600 ohms.
Connector:	Male XLR-3 pin type.

DESCRIPTION

The ALTEC LANSING **4024A** is a multifunctional digital signal processor to set up and optimize active multi-way DTS loudspeaker sound systems. Being part of the DTS family, it specifically controls various arrangements of the DTS loudspeaker systems. This 19" rack unit only occupies one rack space and is based on linear 18 bit AD/DA hardware with Sigma Delta converters and a 24 bit DSP. AD conversion occurs by means of 64-times oversampling; DA conversion with 8-times oversampling.

The following system configurations are possible: 2-way stereo, 3-way mono + direct, and 4-way mono. Thirty-two factory presets are provided for proper cross-over frequency, equalization, and alignment delay for virtually every DTS loudspeaker system. In most cases, all the user needs to do is select the loudspeaker types from the display menu and set the limiters to correspond with the system power amplifiers. In some modes, the user may tailor some of the equalization and delay

parameters with the adjustable parametric and shelving equalizers, and alignment delay controls. Also included are independent digital limiters, level attenuators, signal phase controls, master delay, and 3-way mono subwoofer output function with fully controlled user interface. A remote memory select allows one of eight programs in each configuration to be loaded by simple contact closures connected to a 9-pin remote connector on the rear panel.

The **4024A** features a lockout function that protects against unauthorized operation. Other features include a stereo input level control with VU meters, output level controls with VU meters, turn on/off transient suppression, and electronically balanced inputs and outputs with isolation transformer options. The universal input switching power supply accepts voltages from 90 to 250 Vac, 50/60 Hz.

The **4024A** Digital Signal Processor is the perfect complement to the Duplex® Technology System series of loudspeakers.

4024A SPECIFICATIONS

Testing Conditions:

- 0 dBu = 0.775 Vrms
- Measurements are referred to a 1 kHz, +4 dBu sinewave input signal unless otherwise noted.
- Measurement bandwidth is limited to 22 Hz to 22 kHz unless otherwise noted.
- No isolation transformers installed.
- Line voltage maintained at 120 Vac, 60 Hz.

Propagation Delay:	2 ms.
Data Format:	18 bit linear; 24 bit internal.
Sampling Frequency:	46.875 kHz.
Internal Memory:	24 user RAM locations (8 per configuration).
Level Indicators:	
Input:	8 segment LED indicators including CLIP for each.
Output:	6 segment LED indicators including CLIP for each.
Response:	No peak (600 dB/s), Slow (60 dB/s), Peak hold (600 dB/s).
Master PEQ:	
Frequency Response:	20 to 20,000 Hz.
Q:	0.4 to 20.
Gain:	-12 to +12 dB (1 dB steps).
Limiter:	
Threshold:	0 dBu to +21 dBu (in 1 dB steps).
Decay time:	0 to 50 dB/s (in 1 dB/s steps).
Hold time:	0 to 100 ms (in 1 ms steps).
Output Alignment Delay:	-10 to +10 ms (in 1 ms steps)**; ref: Master Delay setting.
Output Phase:	Not inverted, inverted.
Level Attenuator:	Off, -20 to 0 dB (in 1 dB steps).
Master Delays (every mode):	2 to 1000 ms (in 1 ms steps)**.
Output 4 Delay (3-Way/Sub+1):	2 to 1000 ms (in 1 ms steps)**.
Delay Unit:	ms, μ s, feet, inch, meter, centimeter**.

Output 1 Parameters:

(Stereo 2-Way Ch 1 Lo output; 3-Way/Sub+1 Lo output; 4-Way Lo output)	
Low cut frequency:	20 to 50 Hz.
Low cut response:	Off, -6 dB/oct, -12 dB/oct, Q0.7, Q0.8, Q1.0, Q1.2, Q1.5, Q2.0*.
Low shelving frequency:	20 to 200 Hz.
Low shelving gain:	-12 to +12 dB (1 dB steps).
Parametric EQ frequency:	20 to 2500 Hz (Stereo 2-Way). 20 to 500 Hz (3-Way/Sub+1; 4-Way).
Parametric EQ Q:	0.4 to 20.
Parametric EQ gain:	-12 to +12 dB (1 dB steps).
Low pass frequency:	50 to 2500 Hz (Stereo 2-Way). 50 to 500 Hz (3-Way/Sub+1; 4-Way).
Low pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24*.

Output 2 Parameters:

(Stereo 2-Way Ch 1 Hi output; 3-Way/Sub+1 Mid output; 4-Way Lo-Mid output)	
High pass frequency:	50 to 2500 Hz (Stereo 2-Way). 50 to 500 Hz (3-Way/Sub+1; 4-Way).

High pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24*.
Parametric EQ frequency:	50 Hz to 20,000 Hz (Stereo 2-Way, 2 PEQ sections). 50 to 5000 Hz (3-Way/Sub+1; 4-Way).
Parametric EQ Q:	0.4 to 20.
Parametric EQ gain:	-12 to +12 dB (1 dB steps).
Low pass frequency:	250 to 5000 Hz (3-Way/Sub+1; 4-Way).
Low pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24* (3-Way/ Sub+1; 4-Way).
High shelving frequency:	1000 to 10,000 Hz (Stereo 2-Way).
High shelving gain:	-12 to +12 dB (1 dB steps) (Stereo 2-Way).

Output 3 Parameters:

(Stereo 2-Way Ch 2 Lo output; 3-Way/Sub+1 Hi output; 4-Way Hi-Mid output)	
Low cut frequency:	20 to 50 Hz (Stereo 2-Way).
Low cut response:	Off, -6 dB/oct, -12 dB/oct, Q0.7, Q0.8, Q1.0, Q1.2, Q1.5, Q2.0* (Stereo 2-Way).
Low shelving frequency:	20 to 200 Hz (Stereo 2-Way).
Low shelving gain:	-12 to +12 dB (1 dB steps) (Stereo 2-Way).
High pass frequency:	250 to 5000 Hz (3-Way/Sub+1; 4-Way).
High pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24* (3-Way/ Sub+1; 4-Way).
Parametric EQ frequency:	20 to 2500 Hz (Stereo 2-Way). 250 to 20,000 Hz (3-Way/Sub+1, 2 PEQ sections). 250 to 10,000 Hz (4-Way).
Parametric EQ Q:	0.4 to 20.
Parametric EQ gain:	-12 to +12 dB (1 dB steps).
Low pass frequency:	50 to 2500 Hz (Stereo 2-Way). 1000 to 10,000 Hz (4-Way).
Low pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24* (Stereo 2- Way; 4-Way).
High shelving frequency:	1000 to 10,000 Hz (3-Way/Sub+1).
High shelving gain:	-12 to +12 dB (1 dB steps) (3-Way/Sub+1).

Output 4 Parameters:

(Stereo 2-Way Ch 2 Hi output; 3-Way/Sub+1 Direct output; 4-Way Hi output)	
High pass frequency:	50 to 2500 Hz (Stereo 2-Way). 1000 to 10,000 Hz (4-Way).
High pass response:	Off, -6 dB/oct, BS12, BT12, LZ12, BS18, BT18, BS24, BT24, LZ24* (Stereo 2- Way; 4-Way).
Parametric EQ frequency:	50 Hz to 20,000 Hz (Stereo 2-Way, 2 PEQ sections). 1000 to 20,000 Hz (4-Way, 2 PEQ sections).
Parametric EQ Q:	0.4 to 20 (Stereo 2-Way; 4-Way).
Parametric EQ gain:	-12 to +12 dB (in 1 dB steps) (Stereo 2-Way; 4-Way).
High shelving frequency:	1000 to 10,000 Hz (Stereo 2-Way; 4- Way).
High shelving gain:	-12 to +12 dB (in 1 dB steps) (Stereo 2-Way; 4-Way).

Remote Memory Select:

D-Sub 9-pin connector.

Power Requirements: 90 - 250 Vac; 50/60 Hz; 30 W.

Ground Lift: Lifts signal common from chassis ground.

Dimensions:
Height: 19.0 inches (48.3 centimeters).
Width: 1.75 inches (4.4 centimeters).
Depth: 10.9 inches (27.6 centimeters).

Weight: 8.5 lbs (3.9 kgs).

Included Accessories: Rack-mount hardware kit; IEC power cord; operating instructions; (2) 6.8 kohm resistors.

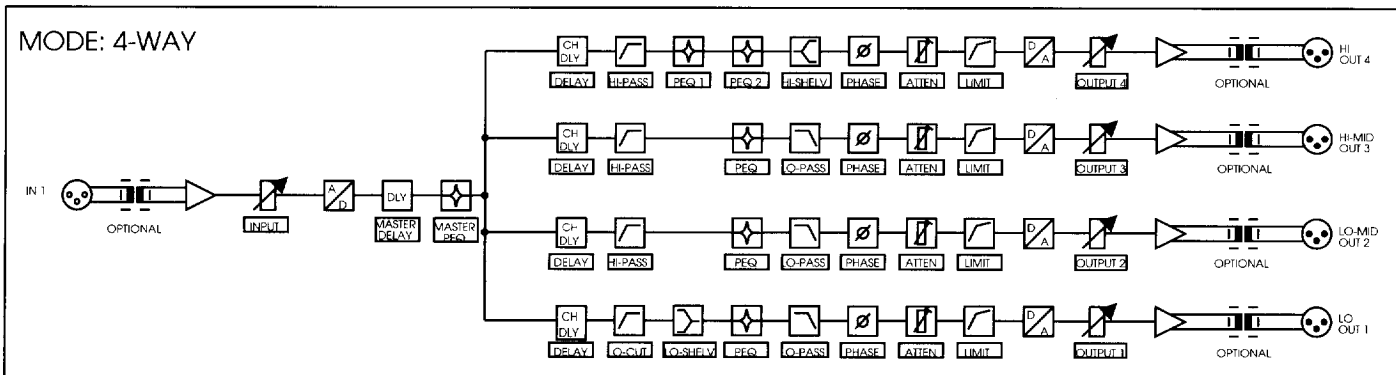
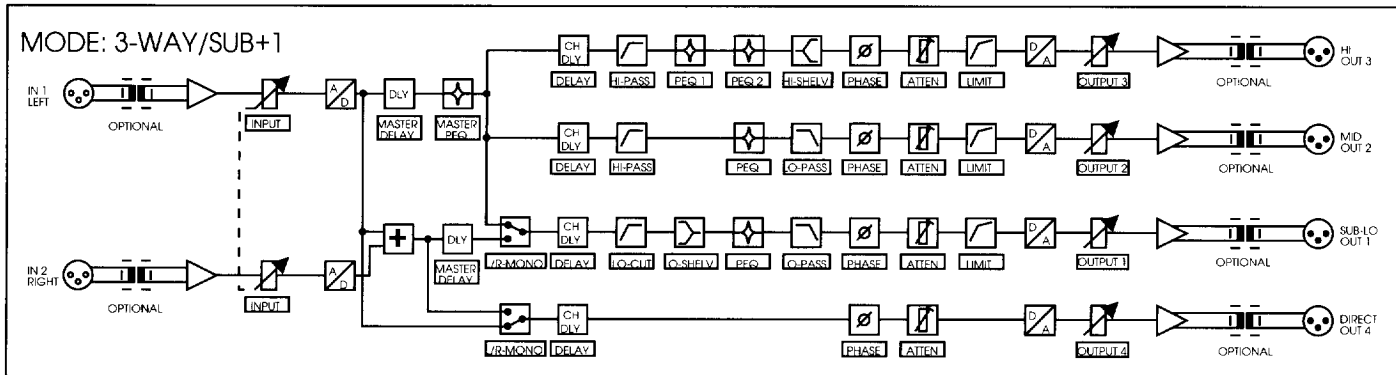
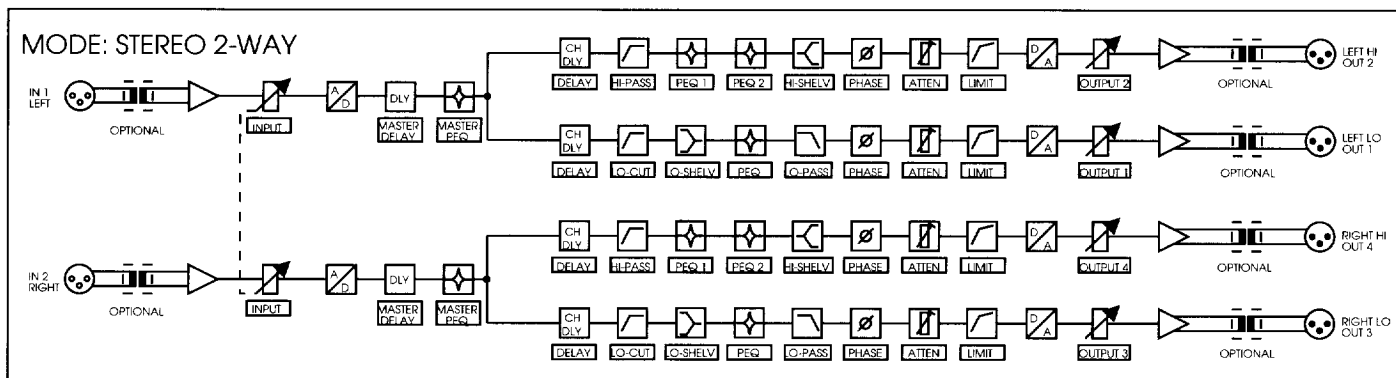
Optional Accessories: **15550A** plug-in input isolation transformer.
15560A plug-in output isolation transformer.

- * Q0.7: Characteristic attenuated by 3 dB at low cut frequency.
- Q0.8: Characteristic attenuated by 2 dB at low cut frequency.
- Q1.0: Characteristic 0 dB at low cut frequency.
- Q1.2: Characteristic boosted by 1.5 dB at low cut frequency.
- Q1.5: Characteristic boosted by 3.5 dB at low cut frequency.
- Q2.0: Characteristic boosted by 6.0 dB at low cut frequency.
- BS12: -12 dB/oct Bessel characteristic.
- BT12: -12 dB/oct Butterworth characteristic.
- LZ12: -12 dB/oct Linkwitz/Riley characteristic.
- BS18: -18 dB/oct Bessel characteristic.
- BT18: -18 dB/oct Butterworth characteristic.
- BS24: -24 dB/oct Bessel characteristic.
- BT24: -24 dB/oct Butterworth characteristic.
- LZ24: -24 dB/oct Linkwitz/Riley characteristic.

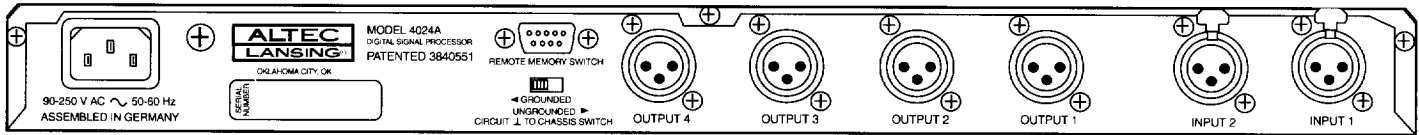
** The units in all delay parameters conform to the "DELAY UNIT" parameter.

Altec Lansing continually strives to improve products and performance. Therefore specifications are subject to change without notice.

Block Diagram of 4024A



Back Panel of 4024A



ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The processor shall be an 18/24 bit digital device with over 100 dB of dynamics. The processor shall provide crossover functions for stereo 2-way or mono 3/4-way DTS loudspeaker system configurations. Factory loaded software presets shall provide parameters for various DTS loudspeaker system arrangements. The unit shall also include control function lockout, turn on/off transient suppression, and universal input switching power supply.

Each output shall have independent limiting and related parametric functions, alignment delay, signal phase control, parametric EQ, and level attenuation. The LOW and HI outputs shall also have shelving EQs. A Master delay shall be provided to control all outputs. In the 3-way configuration, accommodations shall be made for a mono subwoofer output and a full-range direct output.

The front panel shall include a stereo input level control, individual output level controls, VU meters for each input and output, a 2 x 16 alphanumeric backlit LCD, function keys for software interface, and a power switch.

The rear panel shall include two female XLR

connectors for inputs, four male XLR connectors for outputs, a ground lift switch, and an IEC power connector. A 9-pin connector shall also be included for remote memory select via contact closures.

The inputs and outputs shall be electronically balanced with internal isolation transformer options.

The processor shall meet or exceed the following criteria: frequency response of 20 Hz to 20 kHz, ± 0.3 dB; total harmonic distortion (1 kHz, +4 dBu output) less than 0.01%; dynamic range greater than 100 dB; balanced input impedance of 20 kohms; maximum input level of +21 dBu; maximum output level of +21 dBu at 1 kHz; balanced output impedance of 100 ohms. The processor shall operate on input line voltages between 90 and 250 Vac, 50/60 Hz, selected by a universal input switching power supply. The chassis shall be steel painted black with white nomenclature. The chassis shall have a height of 1.75 inches (4.4 cm), a width of 19.0 inches (48.3 cm), and a depth of 10.9 inches (27.6 cm). The unit shall weigh approximately 8.5 pounds.

The processor shall be the ALTEC LANSING Model **4024A**.



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