



MODEL 231A MIXING CONSOLE



DESCRIPTION

The Altec Lansing Model 231A Mixing Console is a stereo mixer/preamplifier having 23 input channels and 30 outputs:

Input Channels	Outputs (Unbalanced)	Outputs (Balanced)
12 mic/line	12 line	2 stereo (L/R)
2 stereo (L/R)	2 stereo (L/R)	4 sub ends
4 submaster	1 mono	1 mono
1 effects	2 effects	1 effects
1 auxiliary	1 auxiliary	1 auxiliary
1 monitor	1 monitor	1 monitor
1 'solo audio'	1 headphones	
1 'solo control'		

Each mic/line input channel is equipped with 16 controls to optimize the mixer system for applications such as sound reinforcement, mixdown and recording/overdub. Control parameters include signal level, frequency equalization, pan, channel selection and other functions. Equalization controls are provided for low, mid and high fre-

quencies. Other features of the input channels include peak indication of input signals, low impedance balanced microphone inputs, and high level line input/outputs.

Input signals are routed to mixing busses and separate outputs. Any input may be mixed into almost any output. Each output is provided with a master fader (level) control and may be switched to a VU meter to monitor signal level.

Phantom power may be switched on for all microphone inputs.

The optional Model 231EM Extender Module is available to add eight additional mic/line input channels to the 231A Mixer; each additional channel is identical in control function to those of the 231A. Up to four 231EM Extender Modules may be added to the basic 231A Mixing Console.



ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The mixing console shall have 12 independent microphone/line input channels and 11 additional channels for stereo, effects, auxiliary, monitor and submaster inputs. Separate outputs shall be provided for stereo, mono, effects, auxiliary, monitor, headphones, and all (mic/line) channels. Connectors shall be provided to permit any input to be mixed into most outputs. Optional units shall be available to expand mixing capability in increments of 8 microphone/line input channels.

The mixing console shall meet the following performance criteria. Gain: 84 dB for microphone inputs, and 54 dB for line inputs. Sensitivity: -50 dBu (microphone) at 1 kHz, and -20 dBu (line) for rated output. Output: +18 dB maximum, 600-ohm line. Frequency Response: ± 1.0 dB 20-20,000 Hz (microphone), ± 0.5 dB 20-20,000 Hz (line). Input impedance: 150 ohms nominal (microphone). Load Impedance: 600 ohms. THD:

0.3% (line input) and 0.5% (microphone input), 20-20,000 Hz. CCIF IM distortion: 0.02%, 19 & 20 kHz mixed 1:1. Equivalent input noise: -129 dBV, 20-20,000 Hz NBW, at 40 dB gain. Output noise: -80 dBV with 1 channel assigned, and -72 dBV with 12 channels assigned. Equalization: ± 18 dB at 50 Hz, shelving; ± 12 dB sweep range 300 Hz to 6,000 Hz, peaking; ± 18 dB at 15,000 Hz, shelving.

The mixing console shall operate from _____ (100, 120, 220, or 240 VAC) and shall internally provide +48 VDC for phantom power to operate condenser microphones.

The mixing console shall be 9.5" H x 28.5" W x 29" D and shall weigh 49 pounds.

The mixing console shall be the ALTEC LANSING Model 231A.



SPECIFICATIONS

Type:	Mixer/preamplifier with 23 input channels
Gain—	
Preamplifier:	50 dB maximum
Total System:	84 dB max. (mic input) 54 dB max. (line input)
Input Sensitivity—	
Microphone:	- 50 dBu at 1 kHz for rated output
Line Input:	- 20 dBu
Output:	+ 18 dBm (6.2 Vrms) maximum, 600-ohm line
Frequency Response:	± 1.0 dB from 20 Hz to 20 kHz, microphone input* ± 0.5 dB from 20 Hz to 20 kHz, line input**
Microphone Input Load Impedance:	150 ohms nominal source (microphone) impedance
Line Input Load Impedance:	20,000 ohms
Output Load Impedance:	600 ohms
THD—	
Mic Input:*	0.5% at 20 Hz 0.15% at 50 Hz 0.05% at 100 Hz 0.01% at 1 kHz 0.02% at 20 kHz
Line Input:**	0.03% at 20 Hz 0.01% at 1 kHz 0.02% at 20 kHz
CCIF IM Distortion:	0.02% (19 kHz & 20 kHz mixed 1:1)*
Equivalent Input Noise:	- 129 dBV (20 Hz to 20 kHz NBW, 40 dB gain, 150-ohm source, measured at Channel Patch Send)
Output Noise—***	
1 ch. assn.:	- 80 dBV
12 ch. assn.:	- 72 dBV
20 ch. assn.:	- 70 dBV
28 ch. assn.:	- 68 dBV
36 ch. assn.:	- 67 dBV
44 ch. assn.:	- 66 dBV
Equalization:	± 18 dB at 50 Hz, shelving ± 12 dB sweep range 300 Hz to 6 kHz, peaking ± 18 dB at 15 kHz, shelving
Phantom Power:	+ 48 VDC, regulated 60 mA maximum current

Controls/Indicators—	1 Power on-off ac line switch 1 Phantom Power switch 12 MIC/LINE switches 12 CLIP indicators 12 TRIM controls 12 MONITOR controls 12 AUX controls 12 EFFECTS controls 12 HIGH (EQ) controls 12 MID (EQ) controls 12 MID (EQ) frequency controls 12 LOW (EQ) controls 12 SUB CHANNEL ASSIGN switches 12 L/R MAINS switches 12 PAN controls 12 MUTE switches 12 SOLO switches 12 Fader controls
Channel Input:	

System Controls and Indicators:	4 VU meters 2 EFFECTS RETURN LEVEL controls 2 EFFECTS RETURN PAN controls 1 HEADPHONE LEVEL control 1 PHANTOM POWER indicator 1 STEREO MASTER control 4 SOLO switches 4 PAN SUB controls 4 Sub Level controls 1 SOLO TO L/R MAINS switch 1 SOLO STATUS indicator 1 SOLO LEVEL control 2 VU METER switches 1 EFFECTS SOLO switch 1 EFFECTS MASTER control 1 AUX SOLO switch 1 AUX MASTER control 1 MONITOR SOLO switch 1 MASTER MONITOR control
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*150-ohm source, 44 dB gain, normalized gain structure, +4 dBm at Stereo Outputs.

**14 dBm gain, normalized gain structure, +4 dBm at Stereo Outputs.

***20 Hz to 20 kHz NBW, 44 dB gain, normalized gain structure, 150 ohms source measured at Stereo Outputs.

Connections—

Input: 12 XLR type (M) MIC IN receptacles

Phone Jacks (tip-sleeve)—
 12 LINE IN
 4 SUBMASTER
 2 STEREO
 2 SOLO
 3 MONITOR/EFFECTS

Patching:

Phone Jacks (tip-sleeve)—
 12 channel SENDS
 12 channel RETURNS
 4 SUB SENDS
 4 SUB RETURNS
 4 SUB RETURNS
 4 EFFECTS RETURNS

Output:

Phone Jacks (tip-sleeve)—
 12 CHANNEL OUTPUTS
 2 STEREO
 1 MONO
 2 Effects
 1 AUX
 1 MON

XLR Type (transformer balanced)—

4 SUB SENDS
 2 STEREO
 1 MONO
 1 EFF (HI)
 1 AUX
 1 MON

Power

Requirements:**** 120 VAC, 60 Hz, 60W

Operating Temperature

Range: Up to 55°C (131° F)

Dimensions:

28.5" (72.4 cm) W x
 9.5" (24.1 cm) H x
 29" (73.7 cm) D

with 231EM Extender Module:

45.5" (115.6 cm) W x
 9.5" (24.1 cm) H x
 29" (73.7 cm) D
 49 lbs. (22.3 kg)

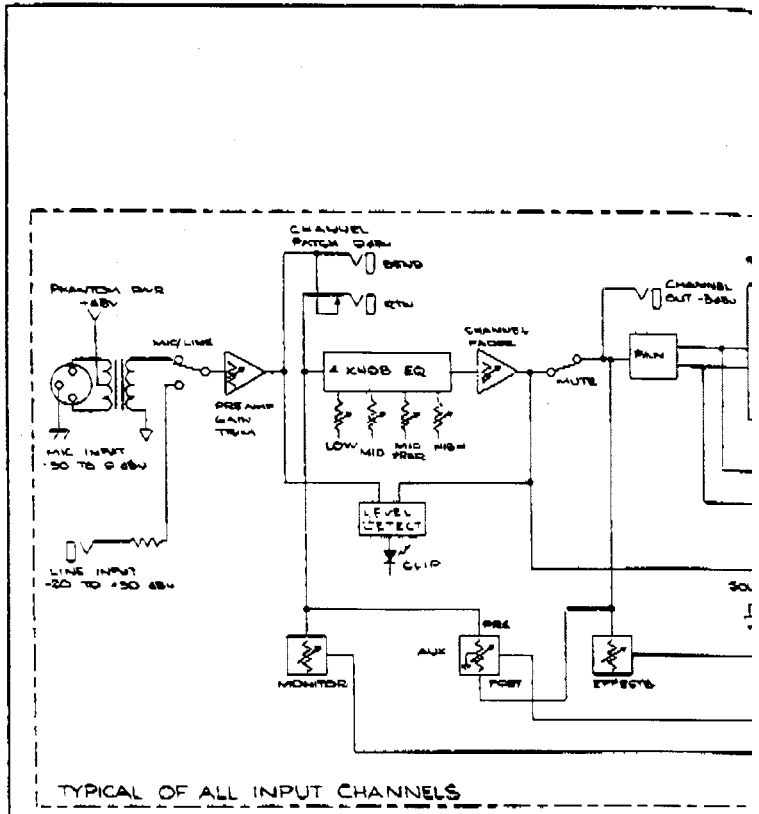
Weight:

with 231EM Extender Module:

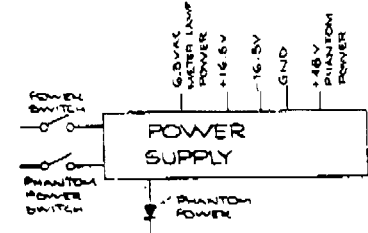
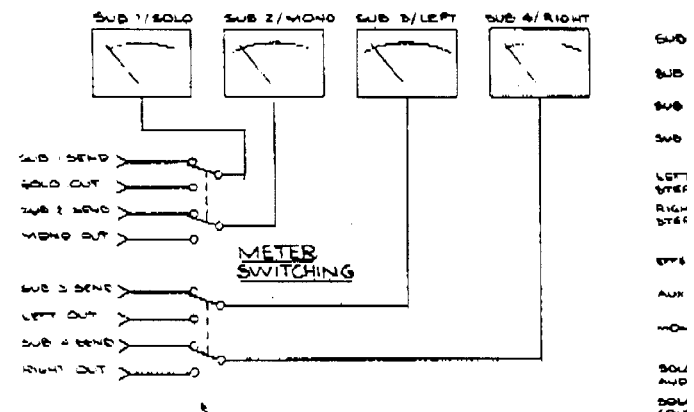
82 lbs. (37.3 kg)

Accessories:

Model 231EM-WP Decor Kit
 Model 231EM Extender
 Model 231-AK Attachment Kit



TYPICAL OF ALL INPUT CHANNELS

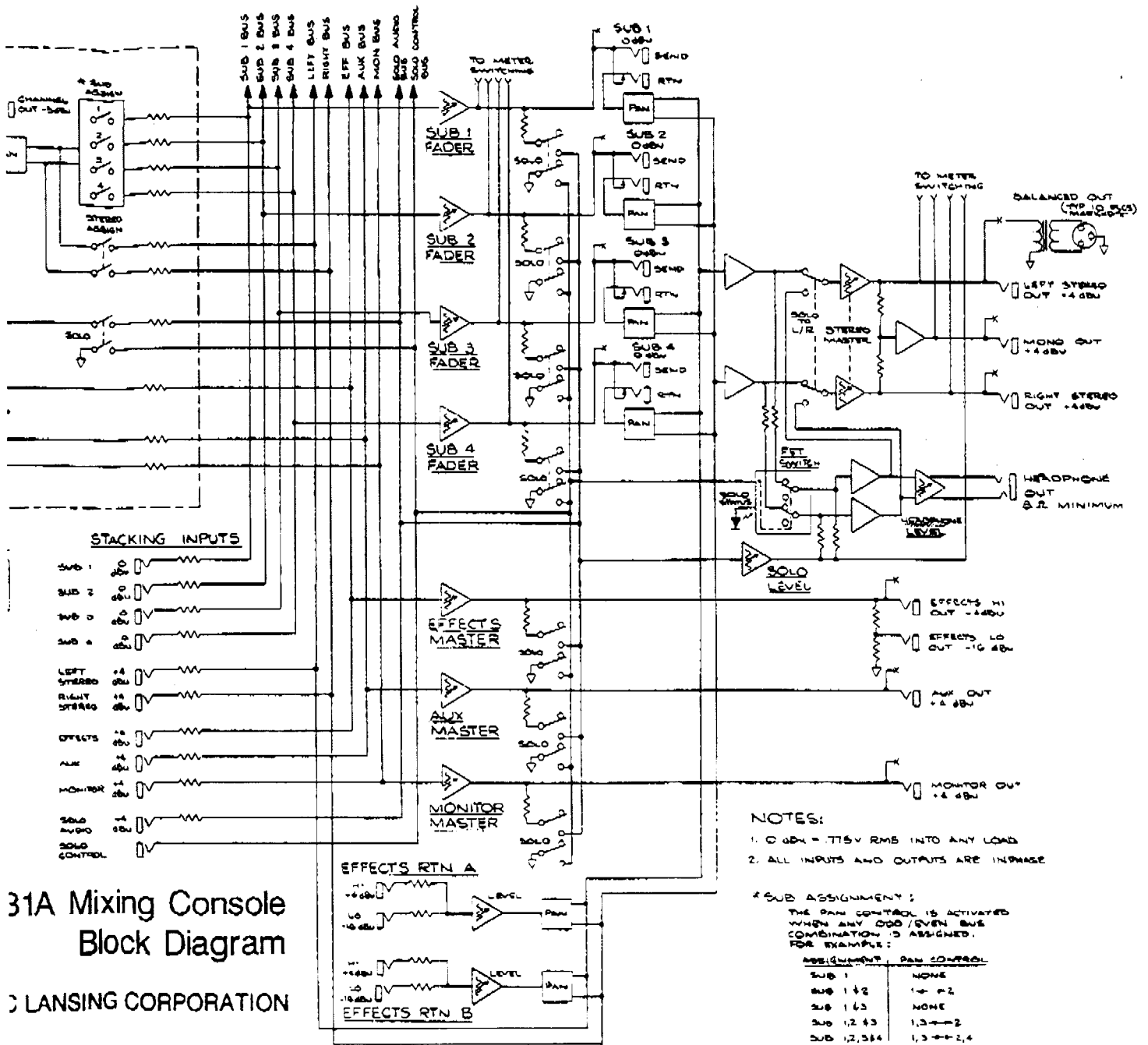


231A M



****Field modifiable for 100V, 220V, 240V, 50 Hz.

Notes: (1) The Model 231EM/AK kit is required to connect the 231EM Extender Module to the basic Model 231A Mixing Console.
 (2) The Model 231EM/WP Decor Kit is an optional kit for use with the 231EM Extender Module when it is not physically attached to the 231A Mixer. A decor kit is included with every 231A.



31A Mixing Console Block Diagram

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- NOTES:**
- 0 dB = 775V RMS INTO ANY LOAD
 - ALL INPUTS AND OUTPUTS ARE IN PHASE

* SUB ASSIGNMENT:
THE PAN CONTROL IS ACTIVATED
WHEN ANY ODD/EVEN BUS
COMBINATION IS ASSIGNED.
FOR EXAMPLE:

ASSIGNMENT	PAN CONTROL
SUB 1	NONE
SUB 1 & 2	1 → 2
SUB 1 & 3	NONE
SUB 1, 2 & 3	1, 3 → 2
SUB 1, 2, 3 & 4	1, 3 → 2, 4