

# 1684A



## Expandable Automatic Microphone Mixer

### General Product Description

The Electro-Voice® **1684A** Automatic Microphone Mixer is a rack-mountable, four-channel mixer that is designed for commercial sound reinforcement. It can be expanded up to eight channels by adding individual **1681A** input modules. Each input channel exhibits balanced mic or line input with phantom power for condenser microphones, variable input pre-amp gain control, line output for logging recorders, logic output, high pass filter, phantom power, automatic or manual operating modes, and a channel status LED. The status LED not only displays the status of the input channel, but also gives a relative indication of the channel's gain. The master section features a remote volume control, priority/mute system, and series/parallel link capabilities. By utilizing the linking, multiple units may be combined in either series or parallel configurations to establish conference systems of any size. For the series-combined configuration, one mixer in the system operates as the master, and the remaining mixers as extensions of the master. For the parallel-combined configuration, any mixer in the system may operate as the master. The maximum recommended number of automatically mixed channels for each series-combined or parallel-combined system is forty. The **1684A** link system topology is similar to earlier models for compatibility with existing Electro-Voice sound installations.

The **1684A** maintains the patented Dugan speech system, with an additional "live" mode of operation. In the "live" mode, an individual channel does not attenuate during speech pauses like most other automatic mixers. The "live" mode allows the system to sound natural with the clarity of a manual mixer controlled by a human operator. This gives the system the live sound of room ambience without the audible gating of microphone channels. A "muting" mode of operation is available for those installations where channel attenuation is necessary. The patented circuitry allows easy system setup with only one front panel volume control for each channel. It also adjusts the NOM=1 function from 0 dB to 20 log NOM dB automatically without any manual setup.

The packaging of the **1684A** is distinctive. The standard unit comes from the factory with four channels installed. It is expandable up to eight channels with the addition of up to four **1681A** automatic input modules, each sold separately. This packaging approach allows the contractor to tailor the **1684A** to each installation. Each **1681A** can be easily inserted by removing the top panel, sliding the input card into the card guide, and connecting the bus cable. This greatly simplifies future system expansion.

The Electro-Voice® **1684A** Automatic Microphone Mixer's increased performance and flexibility meets the expanding mixing needs of the ever-changing commercial audio industry.

Registered U.S. Patent No. 3,992,584

### Architects' and Engineers' Specifications

The automatic microphone mixer shall contain four input channels and be rack-mountable. It shall be constructed so that it can be expanded up to eight input channels by adding individual input modules. Each input channel shall have a balanced mic or line input



with switchable phantom power for condenser microphones, variable input pre-amp gain control, line output for logging recorders, logic output, high pass filter, phantom power, automatic or manual operating modes, and a channel status LED. The status LED shall not only show channel status but also give relative indication of the channel's gain. The master section shall have a remote volume control, a priority/mute system and series/parallel link capabilities. The automatic microphone mixer's linking topology shall be similar to earlier models for compatibility with existing sound installations. The unit shall exhibit two modes of automatic operation. In the "live" mode, the system shall sound natural with the clarity of a manual mixer without microphone channel gating. The "mute" mode shall allow for individual microphone attenuation. The mixer shall adjust the NOM=1 function from 0 dB to 20 log NOM dB automatically without manual setup.

The mixer shall meet the following performance criteria. Frequency response: 20 Hz to 20 kHz, +1, -2 dB. THD: < 0.20% at +4 dBm at main output, 20 Hz to 20 kHz, with channel controls at 12 o'clock and master at nominal. Equivalent input noise: -124 dBm with 150 ohm source, 20 Hz to 20 kHz BW. Output noise: -86 dBm with channel and master controls full counterclockwise. Output noise: -85 dBm with channel controls full counterclockwise and master control at nominal, 20 Hz - 20 kHz BW. Output noise: -82 dBm with channel controls at 12 o'clock and master control at nominal, 20 Hz - 20 kHz BW. Maximum channel input (mic) level: -30 dBu. Maximum channel input (line) level: +23 dBu. The dimensions shall be: Height: 3.5 inches (8.9 cm); Width: 19 inches (48.3 cm); Depth: 12 inches (30.5 cm); Weight: 14 lbs (5.5 kg).

The automatic microphone mixer shall be the Electro-Voice® 1684A. The individual input module shall be the Electro-Voice® 1681A.

# Electro-Voice®

**SPECIFICATIONS:**

**Frequency Response:** ..... 50 Hz - 20 kHz +1, -2 dB  
**Total Harmonic Distortion:** ..... < 0.20%, +4 dBm  
 at main output, 50 Hz to 20 kHz (channel controls at 12 o'clock, master nominal)

**Noise:** (150 ohm source, 20 Hz - 20 kHz BW)  
 Equivalent Input Noise: ..... -124 dBm  
 Output Noise:(channel controls full counterclockwise):  
 Master full counterclockwise: ..... -86 dBm  
 Master nominal: ..... -85 dBm  
 Output Noise: (channel controls at 12 o'clock)  
 Master nominal: ..... -82 dBm

**High-Pass Filter:** ..... 200 Hz, 6 dB/octave

**Maximum Input Level:**  
 Channel Input (Mic): ..... -30 dBu  
 Channel Input (Line): ..... +23 dBu  
 Premix Input: ..... +23 dBu  
 Mix Input: ..... +23 dBu

**Channel Gain Control Range:** ..... 26 - 54 dB (mic only)

**Measurement Conditions**

1. 120 Vrms, 60 Hz line voltage maintained throughout testing.
2. 0 dBu = 0.775 Vrms.

**Maximum Voltage Gain:**

Channel Input (Mic) to Line Output: ..... 54 dB  
 Channel Input (Line) to Line Output: ..... 0 dB

Channel Input to Premix Output: ..... 75 dB  
 Channel Input to Mix Output: ..... 78 dB  
 Channel Input to Main Output: ..... 83 dB  
 Premix Input to Premix Output: ..... 0 dB  
 Mix Input to Mix Output: ..... 0 dB  
 Mix Input to Main Output: ..... 14 dB

**Minimum Load Impedance:**

Main Output: ..... 600 ohms  
 Line Output: ..... 10 kohms  
 Premix Output: ..... 10 kohms  
 Mix Output: ..... 10 kohms

**Maximum Output Level:**

Main Output: ..... +21 dBm  
 Line Output: ..... +23 dBu  
 Premix Output: ..... +23 dBu  
 Mix Output: ..... +23 dBu

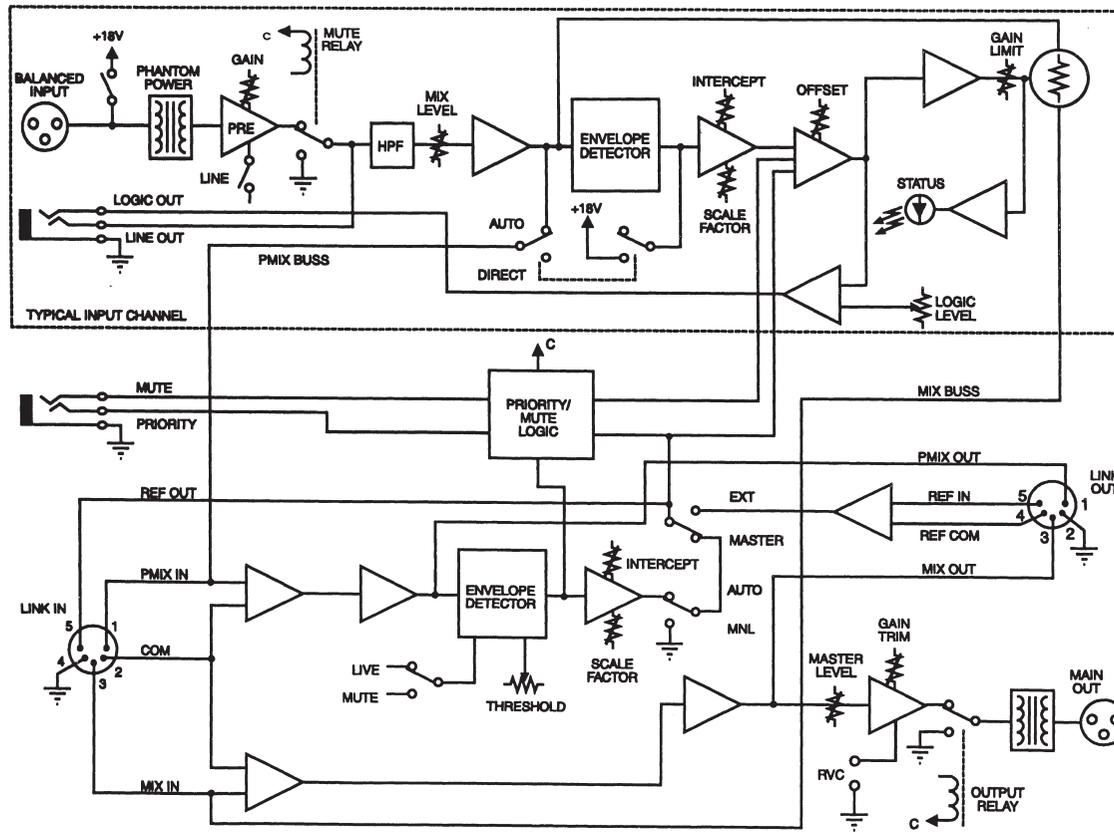
**Phantom Power Voltage:** ..... +18 Vdc

**Dimensions:**

Height: ..... 3.5 inches (8.9 cm)  
 Width: ..... 19 inches (48.3 cm)  
 Depth: ..... 12 inches (30.5 cm)

**Weight:** ..... 14 lbs (5.5 kg)

**Power Requirements:** ..... 115/230 Vrms (switchable), 20 W



*System Block Diagram*

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- Canada 705 Progress Avenue, Unit 46, Scarborough, Ontario, Canada, M1H2X1, Phone: 416-431-4975, 800-881-1685, FAX: 416-431-4588
- Switzerland Keltenstrasse 11, CH-2563 IPSACH, Switzerland, Phone: 41/32-331-6833, FAX: 41/32-331-1221
- Germany Hirschberger Ring 45, D94315, Straubing, Germany, Phone: 49 9421-706 392, FAX: 49 9421-706 287
- France Parc de Courcerin, Alle Lech Walesa, Lognes, 77185 Marne La Vallee, France, Phone: 33/1-6480-0090, FAX: 33/1-6480-4538
- Australia Unit 23, Block C, Slough Business Park, Slough Avenue, Silverwater, N.S.W. 2128, Australia, Phone: 61/2-9648-3455, FAX: 61/2-9648-5585
- Hong Kong Unit E & F, 21/F, Luk Hop Industrial Bldg., 8 Luk Hop St., San PO Kong, Kowloon, Hong Kong, Phone: 852-2351-3628, FAX: 852-2351-3329
- Japan 2-5-60 Izumi, Suginami-ku, Tokyo, Japan 168, Phone: 81-3-3325-7900, FAX: 81-3-3325-7789
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 For warranty repair or service information, contact the Service  
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 Please refer to the Engineering Data Sheet for warranty information.  
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