



FEATURES

- four transformer isolated balanced Mic inputs, switchable 24V phantom power
- four switchable Mic/Line inputs
- transformer isolated balanced outputs
- Patented Voice-Matic® automatic mixing
- smooth NOM attenuation control
- LAST MIC HOLD function
- 100Hz high-pass filter on all inputs, switchable 14dB input pad
- remote control unit DE-209E available
- independent auxiliary output
- two electronically balanced auxiliary inputs
- rugged all steel chassis for maximum RFI and EMI protection

The VM-4024E Voice-Matic automatic mixer includes all features needed for any automatically mixed sound system.

The Voice-Matic® Microphone Mixer is unique in its operating principle. It uses *Dynamic Threshold Sensing (DTS)* to differentiate between active and inactive microphones. Dynamic Threshold Sensing utilizes a combination of the amplitude and history of the signal to determine channel access. DTS generates a threshold reference which decays over an 80dB range from a high level to a low level in a 10ms or less interval. All microphone inputs are referenced to the threshold simultaneously. The first channel whose instantaneous amplitude equals or exceeds the sweeping threshold is given temporary ON status for 200ms. Simultaneously, the threshold is reset high for 7ms and another sweep is initiated. Since any active input will equal or exceed the decaying threshold earlier in its sweep, the average sweep time is only 3 to 4ms and the frequency of the intervals will be increased.

More than one microphone can have simultaneous ON status and be effectively updated without dropouts. Rather than turning an inactive microphone OFF it is attenuated by an internally pre-set 30dB. The microphone is rapidly turned ON when it receives a signal, preventing upcutting of leading syllables. A continuous count of the number of ON microphones is used to adjust the master amplifier gain according to the rule of reducing gain by 3dB for each doubling in the number of simultaneously active microphones.

The **VM-4024E** is a four channel Voice-Matic® automatic mixer with remote control capability for input channel sensitivity, auxiliary input level, master output level, plus mode selection between automatic and standard mixer operation. Remote Control electronics are contained in the mixer and respond to DC voltage levels from a VM-209E Remote Control unit or individual remote potentiometers.

Four transformer isolated automatic mixing inputs include individual switches for 24 VDC phantom power, a 14dB input pad for high output electret condenser microphones, and a 100 Hz Low-Cut filter bypass. Input #4 may be converted to line level sensitivity for use with wireless microphones and other high-output sources. All inputs and outputs are made with removable screw-clamp terminal-block connections.

The microphone gating circuitry can be selected for **LAST MIC HOLD**. This feature enhances room ambience continuity for tape recordings, teleconferencing, hearing assistance systems, and other off premises transmissions. LAST MIC HOLD will keep the most recently activated microphone channel held to the ON status until another active input is detected.

Two **electronically balanced auxiliary inputs** are available for use with various line level sources. Level control for auxiliary input #1 is by a front panel knob on the VM-4024E or via remote control (from the VM-209E or from an externally mounted 100kΩ potentiometer). Auxiliary input #2 has a fixed gain setting of 10dB for use with CD players, cassette recorders, or other external sources which include their own output level control.

Remote Control of the mixer passes to the **VM-209E Remote Control** unit when it is connected, and returns to the VM-4024E front panel controls when it is disconnected. The VM-4024E can be set up for unattended automatic mixing, or special events can be operator mixed by attaching the VM-209E Remote Control unit.

The VM-209E Remote Control unit is supplied with a 10' cable, terminated with an 8-pin DIN plug.

Alternately, individual 100kΩ counter-clockwise log potentiometers may be used for each control, thereby eliminating the need for a VM-209E. Any combination of remote controls may be installed. Those not controlled remotely remain under front panel control.

The **Main Output** is a mix of the four gated microphone signals with automatic level compensation for number of open microphones (NOM) count, plus the auxiliary inputs. The main output is used for sound reinforcement, affording feedback stability with maximum gain and minimum background noise/reverberation.

The **Auxiliary Output** is intended for tape recordings, teleconferencing, hearing assistance systems, etc and provides an auxiliary output mix of the gated microphone inputs and the auxiliary inputs.

Specifications:

Operating Principle:	Voice-Matic® Dynamic Threshold Sensing (DTS)
Mic/Line Inputs:	transformer balanced, Mic: 1.2kΩ, Line: 20kΩ, -23dBV (-9dBV with 4dB pad enabled)
Aux Inputs:	82 kΩ, electronically balanced, 41 kΩ unbalanced source, -10dBV nominal, +19dBV maximum
Main Output:	electronically balanced, 115 Ω, max. output: +23dBV maximum, unloaded
Audio Inputs And Outputs:	removable screw-clamp terminal block connectors
Frequency Response:	20Hz-20KHz ± 1.5dB
THD:	<0.1% @ 0dBV output, clipping @ +19dBV output
Power Requirement:	117/234 VAC ± 10% 50/60 Hz, 100 mA max
Size:	19" W x 1¾" H x 8½" D (48.3 cm x 4.5 cm x 21.6 cm)