



FEATURES

- eight electronically balanced Mic/Line inputs, switchable phantom power
- Patented Voice-Matic® automatic mixing
- LEVEL-MATIC II® AGC on main output
- smooth NOM attenuation control
- LAST MIC HOLD function
- three-band TEQ®, 20dB pad, high-pass filter on all Mic/Line inputs
- linkable for input expansion and room combining
- post-gate buffered preamp output for each input
- channel status logic output
- remote level control for all inputs and main output with 60dB control range
- two independent auxiliary outputs
- two electronically balanced auxiliary inputs
- rugged all steel chassis for maximum RFI and EMI protection

The VM-4083 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.

Several microphones 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 4083** main output is a mix of the gated microphone signals with NOM count attenuation and Level-Matic® AGC, ungated signals from input channels switched to STANDARD mode, plus the auxiliary input signals assigned to this output.

The auxiliary mix bus bypasses both the NOM attenuation and Level-Matic® circuitry. The electronically balanced Aux outputs are provided for tape recordings, tele-conferencing, hearing assistance systems, and other off premises transmissions.

The **Level-Matic® AGC** incorporated in the VM-4083 mixer performs an important function typically performed by a manual operator in a sound system. The Level-Matic® AGC circuitry automatically adjusts the master output gain to maintain a uniform output signal level for input level variations of as much as 10dB. The Level-Matic® gain control is based on the loudness versus frequency and loudness versus time response of the human ear. A loud talker causes the master gain to decrease. If the talker stops talking the gain holds as established by the talkers average speaking level. If a quiet talker then begins to use the system, the gain increases to a new value as established by his average speaking level. Two control voltages are created in the circuitry, one circuit establishes a semi-stationary control voltage and another circuit creates a voltage which follows the signal peaks. At any instant, an attenuation circuit is governed by one, but not both, of these control voltages. Gain corrections are made at a constant slew rate to minimize gain "hunting".

The **three-band equalizer** incorporated on each of the Mic/Line inputs on the VM-4083 is designed to compensate for an undesired frequency response in a source. The equalizer utilizes transversal technology (TEQ®) to produce three adjustable minimum phase response curves focused on the speech spectrum of the typical human voice. The transversal equalizer utilizes an analog all-pass phase shift network and the application of Fourier Transform theory to synthesize a filter by its time response. This creates an equalizer with a continuous smooth response curve without band-edge ripple, excellent transient response and minimum coloration of the original signal.

The **VM-4083 is linkable** for the expansion of automatically mixed inputs. Combined are all features, including Dynamic Threshold Sensing, NOM count attenuation, Level-Matic® AGC, LAST MIC HOLD and Automatic/Standard mode selection. Identical output signals are transmitted to the main outputs of all linked mixers.

Complete **remote control** capability is provided for all standard end-user adjustments. Each of the inputs and the main output may be connected to independent 10kOhm linear potentiometers for up to 60dB remote level adjustment range. Remote switching activates 90dB muting of the corresponding inputs and the main output. Remote selection of Automatic/Standard mixer operation is also provided.

Specifications:

Operating Principle:	Voice-Matic® Dynamic Threshold Sensing (DTS)
Mic/Line Inputs:	OCMR electronically balanced, Mic: 1.1kOhm, Line: 13kOhm, -20dBV (0dBV with 20dB PAD enabled), +20dBV with 40dB Line
Aux Inputs:	82 kOhm, electronically balanced, 41 kOhm unbalanced source, 0dBV nominal, +19dBV maximum
Main Output:	electronically balanced, 30 Ohm, max. output: +19dBV maximum, unloaded
Audio Inputs And Outputs:	removable screw-clamp terminal block connectors
Frequency Response:	20Hz-20KHz ± 0.5dB
THD:	<0.1% @ 0dBV output, clipping @ +19dBV output
Level-Matic Gain Control:	10dB gain compensation
Power Supply:	external power supply 115/230 VAC 50/60Hz
Size:	19" W x 3 1/2" H x 11" D (48.3 cm x 8.9 cm x 27.9 cm)