



# M-9000 DIGITAL MATRIX MIXER



***Unparalleled DSP mixer ideal for  
multi-zone paging, music distribution and  
room-combining applications.***

# M-9000

## Digital Matrix Mixer



### FEATURES

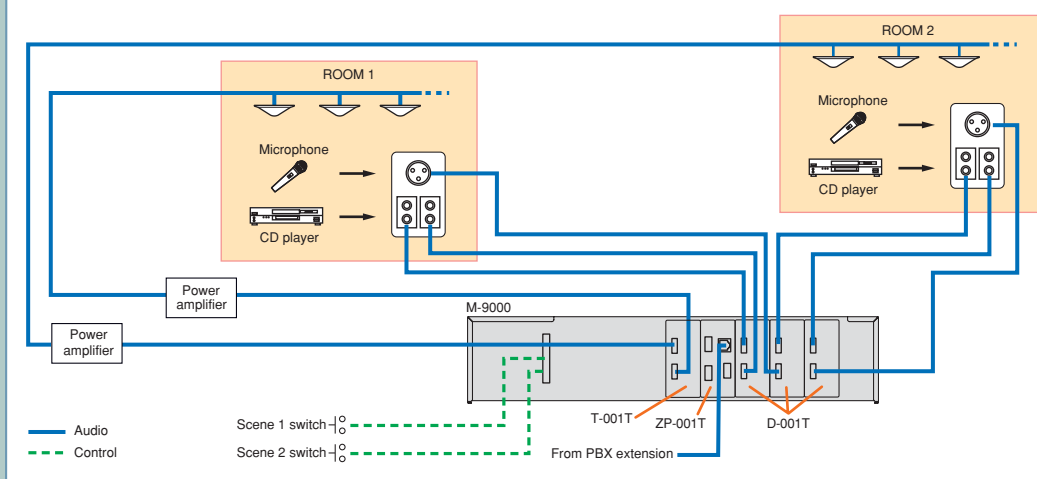
- **Modular Digital Matrix Mixer** for a multitude of applications including audio-visual, zone paging, room combining and many more
- **Dual Modes (MIXER and MATRIX)** –two separate feature sets to suit both simple mixing and complex multi-zone distribution applications
- **Easy to Configure and Operate**
- **Exceptional Audio Quality**
  - 24-bit, 48 kHz sampling
  - Low Distortion - 0.008%
- **Modular System**—up to 8 mic/line inputs and 8 outputs
- **Dual Channel Digital Signal Processor (DSP):**
  - 10-Band Parametric EQ
  - High and Low Pass Filters
  - Compressor • Loudness Contour
  - Bass and Treble • Delay (MIXER mode)
  - TOA Speaker EQ Presets
  - Additional DSP included on D-001T, D-001R and T-001T modules
- **Telephone Zone Paging**—access up to eight zones with optional ZP-001T module
- **Ambient Noise Control**—automatically increase or reduce output levels in response to changes in ambient noise
- **Multi-function Display** allows programming and operation without a PC
- **Rack-mount Kit Included (2RU)**

### MIXER Mode

- **Ideal for Speech and Sound Reinforcement Applications** in hotel meeting rooms, houses of worship, and conference rooms
- **Automatic Mixing**
  - Automatically adjusts output level based on the total number of open microphones (NOM)
  - Adjustable output attenuation from 0 to 20 logNOM
- **32 Programmable Scenes** – activate via front panel, switch closure, RS-232 or optional remote panels, models ZM-9001, ZM-9002 and ZM-9003
- **Flexible Input-to-Output Routing** – assign any input to one or more outputs with adjustable cross-point gain

- **Stereo Link** – control two inputs or outputs with one volume control
- **Paging Function**
  - Assign outputs to up to four zones
  - Trigger paging function with VOX (one routing), control input (up to four routings) or optional ZP-001T module
  - Selectively disable outputs from programmed paging zone with contact closures

### Hotel/banquet : Room combining



### APPLICATIONS

- Restaurants
- Retail Stores
- Training Rooms
- Bars/Lounges/Clubs
- Boardrooms
- Conference rooms
- Fitness Clubs/Gyms
- Educational Facilities
- Houses of Worship
- Museums
- Offices
- Theme Parks



M-9000 Digital Matrix Mixer



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### Flexible Remote Control

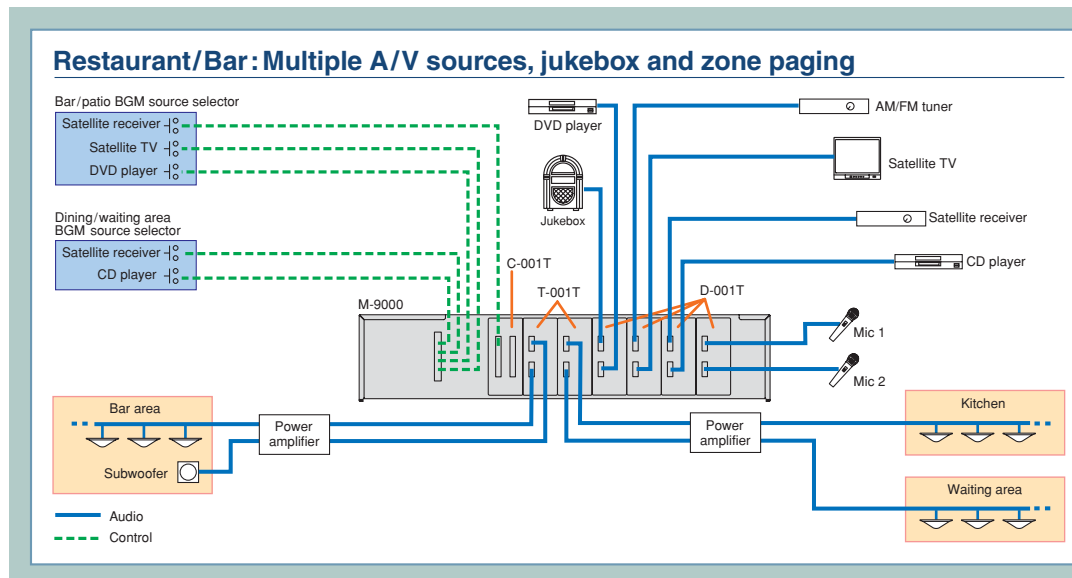
- **Two Remote Volume Control Terminals**
  - Assignable to any input or output channel
  - Control with 10k ohm linear potentiometer, 0-10 VDC or optional ZM-9001/ZM-9002 remote panels
  - Assign remote volume control to background music(Priority 8) inputs without affecting paging input volume
- **Four Control Inputs** (expandable to twelve with C-001T module)– programmable to activate Memory, Volume Up/Down, Mute, Power On/Off, Emergency Mute
  - ZM-9003 can also be connected.
- **Four Control Outputs** (expandable to twelve with C-001T module) – programmable to activate external relays synchronized with Memory, Channel On/Off and Power On/Off
- **RS-232 Port**
  - Control protocol available for external devices (see protocol for controllable parameters)
  - AMX and Crestron control modules available

### Additional Features

- **Software Utility** for saving unit parameters to PC, updating unit firmware, virtual control activation and status indication
- **MS Excel Programming Templates** – use Microsoft(R) Excel for off-site programming
- **Keylock Security** sets password-protected access to Input, Output, Utility & Power functions
- **Input and Output Metering** (D-001 modules required for input metering)
- **Alphanumeric Channel and Memory Naming**
- **Power On Memory** sets the Event/Scene selected when unit powers up
- **Detachable AC Cable**

### MATRIX Mode

- **Multiple Simultaneous Event Activation** for paging and BGM distribution applications
- **Flexible Routing** – each audio input can be simultaneously routed to multiple outputs
- **Eight Level Ducker** – assignable priority levels and mute depth attenuates all other lower priority input signals
- **32 Programmable Events** – activate via control input, RS-232 or optional remote panels, models ZM-9001, ZM-9002 and ZM-9003
- **Input Priority Modes** sets priority order when multiple inputs with the same priority level are broadcast
  - First-In-First-Out (FIFO): input that occurs first is broadcast
  - Last-In-First-Out (LIFO): most recent input is broadcast
  - MIX: all inputs are mixed and broadcast
- **Voice Operated (VOX) Event Activation** with adjustable threshold/sensitivity and gate release time



### APPLICATIONS

- Restaurants
- Retail Stores
- Training Rooms
- Bars/Lounges/Clubs
- Fitness Clubs/Gyms
- Houses of Worship
- Educational Facilities
- Hotels/Hospitality
- Museums
- Auditoriums/Theatres
- Banks
- Offices
- Theme Parks
- Airports

## SPECIFICATIONS

<b>Audio Input</b>	Max. 8 channels, modular construction (modules optional)
<b>Audio Output</b>	Preamplifier output 1 2: 0 dBV, 600Ω, balanced, removable terminal block (3 pins)
<b>Frequency Response</b>	20 – 20,000 Hz +1, -3 dB
<b>Total Harmonic Distortion</b>	0.008% (22 kHz LPF, 1 kHz, +10 dBV output)
<b>S/N Ratio</b>	At Input short, 20 – 20,000 Hz, ALL FLAT or OFF setting Output volume min.: 90 dB Output volume max.: 61 dB (input 1 vol.: 0 dB, other inputs: OFF)
<b>Crosstalk</b>	Over 64 dB at 20 kHz
<b>Tone Control</b>	Bass: +/-12 dB (at 100 Hz), Treble: +/-12 dB (at 10 kHz)
<b>Parametric Equalizer</b>	10 bands, Freq: 20 – 20,000Hz, 31 steps, Various range: +/-12 dB, Q: 0.3 – 5
<b>Speaker Equalizer</b>	15 (presets for TOA speakers)
<b>High-pass Filter</b>	-12 dB/oct, Variable frequency range: 20 – 400 Hz, 14 steps
<b>Low-pass Filter</b>	-12 dB/oct, Variable frequency range: 4,000 – 20,000 Hz, 8 steps
<b>Compressor</b>	Depth: 1 – 5
<b>Delay</b>	0 – 40 ms (1 ms steps), maximum 40 ms (CH1 + CH2) (Mix mode only)
<b>Scene/Event Memory</b>	32
<b>Operation Mode</b>	Matrix mode/Mixer mode (selector switch)
<b>Auxiliary Function</b>	Key lock function
<b>Control Input/Output</b>	RS-232C, D-sub connector (9P, female) Control input: 4 inputs, no-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA, removable terminal block Control output: 4 outputs, open collector output, withstand voltage: 27 V DC, control current: 50 mA, removable terminal block Remote volume: 2 channels, connect a 10kΩ/linear taper potentiometer or 0 – 10 V DC, removable terminal block
<b>Power Source</b>	AC mains, 50/60 Hz
<b>Power Consumption</b>	40W
<b>Operating Temperature</b>	-10° to 40°C
<b>Operating Humidity</b>	35% to 80% RH (no condensation)
<b>Finish</b>	Panel: Aluminum, hair-line, black; Case: Surface-treated steel plate, black paint
<b>Dimensions (W × H × D)</b>	420 × 107.6 × 353 mm
<b>Weight (without modules)</b>	6 kg

## M-9000 MODULES

### D-001T

#### Dual Mic/Line Input Module with DSP

- Two Balanced Mic / Line Inputs
- Digital Signal Processing
  - 10-Band Parametric EQ
    - Bass / Treble
    - Loudness
    - High and Low Pass Filters
    - Compressor
- Adjustable Sensitivity (nine levels, -60 to -10 dBV)
- Phantom Power (24 VDC)
- Removable Terminal Block
- Maximum four per chassis
- Required for VOX function and input metering



### ZP-001T

#### Telephone Zone Paging Module

- Telephone Paging to up to eight zones
- Uses DTMF dialing to access outputs
- Dial up to eight output zones in one operation
- Analog extension or page port compatible
- Page port operation requires contact closure activation
- RJ-11 Telephone Jack and Removable Terminal Blocks
- Maximum one per chassis



### AN-001T

#### Ambient Noise Controller Module

- Automatically adjusts output gain to compensate for changes in ambient noise level
- Each input can be assigned to control a specific output
- Two inputs with +24VDC phantom power for condenser mics
- 14 preset gain ratios
- Accessory sensing microphone available, model AN-9001
- Maximum two per chassis



### D-001R

#### Line Input Module with DSP

- Two Unbalanced Line Inputs of RCA jacks
- Digital Signal Processing
  - 10-Band Parametric EQ
    - Bass / Treble
    - Loudness
    - High and Low Pass Filters
    - Compressor
- Adjustable Sensitivity (nine levels, -60 to -10 dBV)
- Maximum four per chassis
- Required for VOX function and input metering



### T-001T

#### Dual Line Output Expansion Module with DSP

- Two Balanced Line Outputs
- Digital Signal Processing
  - 10-Band Parametric EQ
    - Bass / Treble
    - Loudness
    - High and Low Pass Filters
    - Compressor
    - TOA speaker EQ presets
- Removable Terminal Block
- Maximum three per chassis



### C-001T

#### Input/Output Control Module

- Eight assignable control inputs for activating
- Event, Volume Up/Down, Mute, Power On/Off
- Emergency Mute
- Eight assignable control outputs for activating external relays
- Removable Terminal Block
- Maximum one per chassis



### ZM-9001

#### Remote Panel

- Six buttons to activate preset selection or volume up/down
- Wiring: Single conductor shielded cable
- Max. loop resistance: 50 ohms per line
- Fits one gang electrical box (American type)
- Maximum two ZM-9001/9002 per chassis



### ZM-9002

#### Remote Panel

- Four push buttons to activate preset selection or volume up/down
- Volume control knob
- Wiring: Single conductor shielded cable
- Max. loop resistance: 50 ohms per line
- Fits one gang electrical box (American type)
- Maximum two ZM-9001/9002 per chassis



### ZM-9003

#### Remote Panel

- Four interlocking selection buttons and two momentary buttons
- Max. loop resistance: 250 ohms per line
- Fits two gang electrical box (American type)
- Removable Terminal Block
- Maximum two ZM-9003 per chassis



### AN-9001

#### Ambient Noise Sensing Microphone

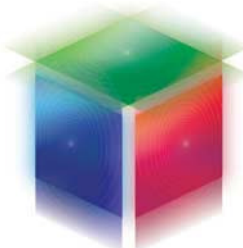
- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box (American type)
- Use with AN-001T module or DP-L2 processor



### SS-9001

#### Speaker Selector

- Switch up to four speaker lines on one amplifier output
- Two amplifier inputs for Paging/ BGM applications
- 24VDC power supply



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