M-9000M2
DIGITAL MATRIX MIXER

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

The TOA M-9000M2 Digital Matrix Mixer redefines the mixer category, by combining a modular matrix mixer and digital signal processor (DSP) in a compact two-rack package. This versatile new modular unit is ideal for multi-zone paging, music distribution and room-combining applications. The M-9000M2 combines an enhanced GUI programming interface with exceptional audio quality.

The M-9000M2 enables easily configured custom systems with up to eight mic/line inputs and eight outputs. The M-9000M2 has two output channels with built-in DSP, including ten-band parametric EQ, compressor, delay, and more.
Input and output modules include additional DSP.

A new integrated operating mode provides powerful functionality for both simple mixing and complex multi-zone paging applications. Features include telephone zone paging, automatic microphone mixing and ambient noise control.

M-9000M2 MATRIX MIXER

- ■ **Modular digital matrix mixer** for a multitude of applications including audio-visual, zone paging, room combining and many more.

- ■ **Enhanced GUI programming interface** for PC configuration and uploading/downloading of settings using RS-232 connection. Includes setup wizards and firmware upgrade utility.
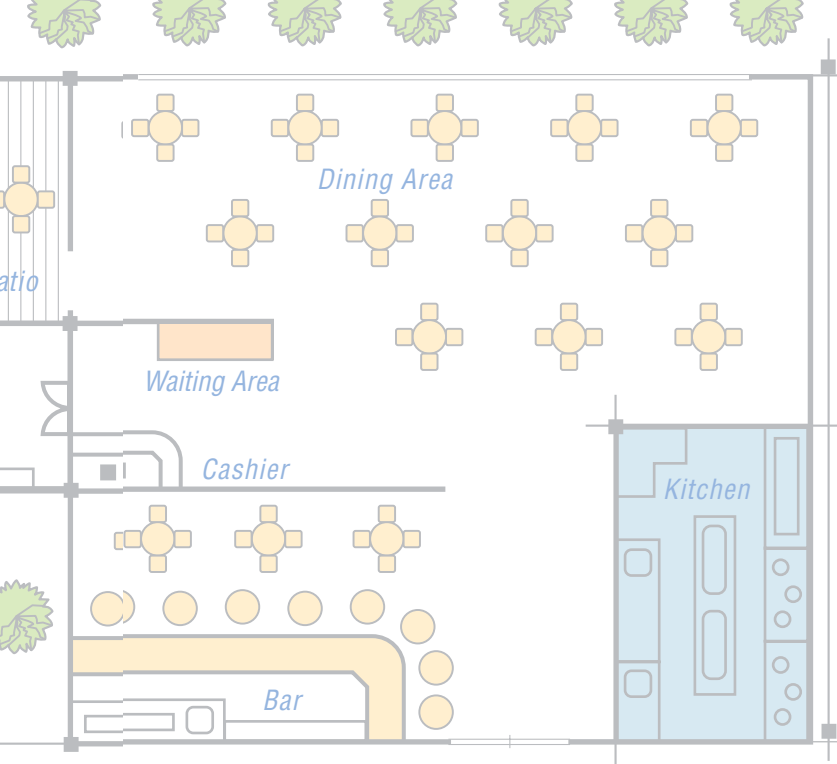
- ■ **Exceptional Audio Quality:**
  - 24-bit, 48 kHz sampling
  - Ultra-Low Distortion – 0.008%

- ■ **Dual Channel Digital Signal Processor (DSP)** on Input & Output channels:
  - 10-Band Parametric EQ   • High and Low Pass Filters
  - Bass and Treble   • Loudness
  - Compressor   • Gate
  - Ducker   • NOM (Automix)
  - Delay (Output channel only)
  - TOA Speaker EQ Presets (Output channel only)
  - DSP included on M-9000M2 Mainframe Outputs, D-001T, D-001R and T-001T modules

- ■ **Flexible, Integrated Operating System (Mixer + Paging Matrix):**
  - Mixer functions along with simultaneous Priority Paging Matrix activation, each with 32 presets.
  - Scene memory (x32) contains all mixer (non-priority) settings
  - Paging memory (x32) contains global (static) input settings, independent Xpoint assignments, paging trigger & paging output levels for all high priority (1, 2 & 3) inputs.
  - Both scene & paging memories are stored in a single template along with remote assignments, security lock and other global functions
  - Mixer & Paging functions are independent and mixer (scene) settings will not affect Paging (event) functions.
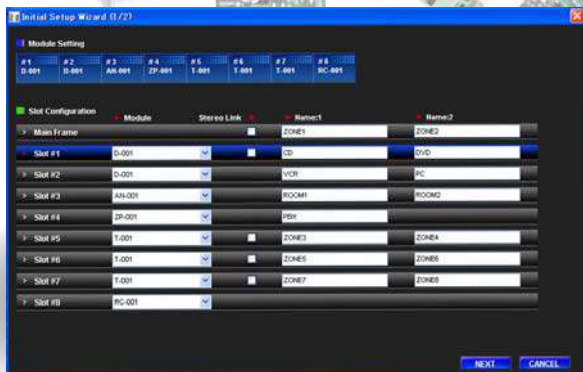
Features

- Multiple Input Priority Modes sets priority order when multiple inputs with the same priority level and output assignment are broadcast
  - First-In-First-Out (FIFO): input that occurs first is broadcast
  - Last-In-First-Out (LIFO): the most recent input is broadcast
  - MIX: all inputs are simultaneously mixed and broadcast
- Triggers of paging activation
  - VOX(audio activated) with adjustable threshold/sensitivity and gate release time
  - Control input (Mainframe & C-001T with ZM-9003 or remote contacts)
  - ZM-9011/ZM-9013/ZM-9014 (Page initiate)
  - ZP-001T Telephone Zone Paging Module
- Stereo Link – Mirrors all the settings of one channel to the adjacent channel, reducing redundant setup tasks for stereo signals. Useful for stereo zone applications.
- Speaker Line Switching – select up to four speaker lines from a singleamplifier output using optional model SS-9001 Speaker Selector and AD-246 Power Supply
- 2 Balanced Line Outputs; expandable with T-001T dual line output modules
- Keylock Security sets password-protected access to prevent access to Input, Output, Utility & Power functions

- Alphanumeric Input/Output Channel and Memory Naming
- Two Remote Volume Control Terminals on mainframe
- Four Control Inputs – programmable to activate Paging/Scene Memory, Volume Up/Down (Input or Output), Mute (Input or Output), Power On/Off, Emergency Mute, Sync On/Off (expandable to twelve with C-001T module). Works with optional ZM-9003 or custom contact panel
- Four Control Outputs (open collector) programmable to activate external relays (expandable to twelve with C-001T module) synchronized with Event/Scene Memory, Channel On/Off (Input or Output) and Power On/Off. Works with optional ZM-9003 or custom contact panel.
- RS-232C serial port
  - Allows upload & download of programming templates and firmware upgrades as well as real-time control of various parameters.
  - Control protocol available
  - AMX and Crestron control modules available

    *AMX is a trademark of AMX Corporation
    *Crestron is a trademark of Crestron Electronics, Inc.

M-9000M2 GUI

Detailed screens make even complex setting

Initial Setup Wizards

Module Configuration Settings
Displays possible selections according to module insertion rules, ensuring correct system configuration.

Input & Output Channel Name Settings
The names set using these screens are carried over into subsequent remote controller and paging configuration screens, streamlining the setting process.

Paging Settings

Set 3-level prioritized paging for each activation trigger (up to 32)
To handle multiple simultaneous paging calls with the same priority level, the system can be set for "FIFO" (first in, first out), "LIFO" (last in, first out), or "MIX" (mixing). This allows paging settings to handle situations requiring sophisticated priority orders. It is also possible to make settings that cause a contact to be closed with the initiation of each page, a feature that can be used to illuminate a strobe, call up a CCTV camera's preset positions, or enable audio or video recording via external equipment. Additionally, the optional S-20S Sound Repeater Module allows different messages to be broadcast corresponding to individual triggered outputs.

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

D-001R
Line Input Module with DSP
- Two RCA phone inputs per channel provides stereo summing
- Digital Signal Processing
  - 10-Band Parametric EQ
  - Bass / Treble
  - Loudness
  - High and Low Pass Filters
  - Compressor

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

ZP-001T
Telephone Zone Paging Module
- Telephone Paging to up to eight zones
- Uses DTMF dialing to access output
- Dial up to eight output zones in one operation
- Analog extension or page port con
- Page port operation requires conta
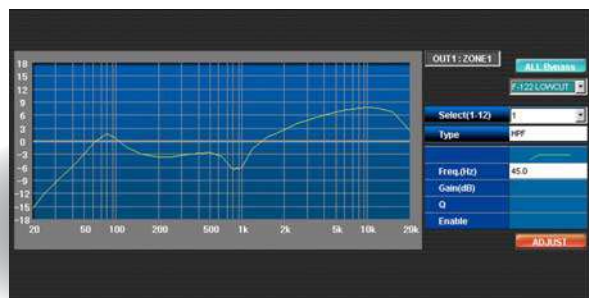- RJ-11 Telephone Jack and Remova
- Maximum one per chassis

Remote Controller Settings

Easy pull-down menu facilitates complex settings!
The remote controller buttons can be used to switch scene memory, turn output sources on or off, and control the start and stop of paging. The output source on/off function includes Simultaneous Mode, which allows simultaneous output from multiple sources, and Exclusive Mode, which allows selection of only one output source. Knobs on the remote controller adjust the volume for the selected input-output channels.
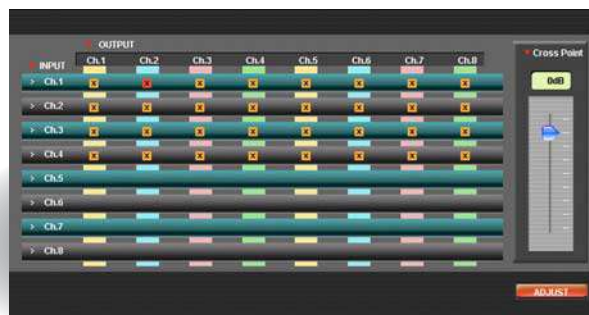
EQ Settings

Select from 3 types: LPF, HPF and PEQ. Up to 12 filters can be applied to each input-output channel
TOA's Speaker preset EQ is visible in graphic display
Use the Adjust button to change and check the effects of EQ settings on the fly. Use the Enable check boxes to deactivate filters without erasing their settings. Use the All Bypass button to disable all filters at once. Using these in conjunction with the Adjust button allows EQ effects to be compared efficiently.

Cross Point Settings

Up to 32 preprogrammed broadcast patterns that switch according to each scene can be stored in the scene memory.

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 or Sync On/Off
- Eight assignable control outputs for activating external relays
- Removable Terminal Block
- Maximum one per chassis

RC-001T
RS-485 Control Modules
- Allows use of up to 16 RS-485 remote control panels
- Bi-directional RS-485 communication provides control and status feedback display for each remote function
- Dual ports allows independent home runs for up to 8 modules each
- 24V DC power adapter (optional AD-246) required for each 1 port used
- May be used in any control option slot on 9000M2 mainframe in addition to a C-001T when spare slots are available

Compatible
ct closure activation
le Terminal Blocks

SPECIFICATIONS

Power Source	AC Mains, 50/60Hz
Power Consumption	40W
Audio Input	Max. 8 channels, modular construction (modules optional)
Audio Output	Preamplifier output 1, 2: 0dB*, 600Ω, balanced, removable terminal block (3 pins)
Modul Slot	Analog input (slot 1 - 8): -10dB*, 10kΩ, unbalanced Digital input (slot 1 – 4): 24 bit/48kHz MIX output (slot 1 – 8); -14dB*, 330Ω (CH 1 prefader output), unbalanced Digital output (slot 5 – 7): 24 bit/48kHz Power pupply (slot 1 – 8); +24V, -24V, +6V DC
Frequency Response	20Hz – 20kHz +1, -3dB
Total Harmonic Distortion	0.008% (@22kHz LPF, 1kHz, +10 dB* output)

S/N Ratio	At input short, 20Hz – 20kHz, ALL FLAT or OFF setting
	        Output volume min.: 90dB
	        Output volume max.: 61dB (input 1 vol.: 0dB,other inputs:OFF)

Crosstalk	64dB or more (at 20kHz)
Tone Control	Bass: +/-12dB (at 100Hz), Treble: +/-12dB (at 10kHz)
Parametric EQ	10 bands, Freq: 20Hz – 20kHz, 31 points, Variable range: +/- 12dB, Q: 0.3 – 5
Speaker Equalizer	10 (setup software has 30 TOA speaker presets)
High-pass Filter	-12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps
Low-pass Filter	-12dB/oct, Variable frequency range: 20Hz - 20kHz, 31 steps
Compressor	Depth: 1 – 5
Delay	0 – 40 ms (1 ms steps), maximum 40 ms (CH1 + CH2)
Scene/Event Memory	32
Auxiliary Function	Key lock function
Control Input/Output	RS-232C*², D-sub connector (9P, female) Control input: 4 inputs, no-voltage make contact input, open voltage: 3.3V DC, short-circuit current: 1mA or less, removable terminal block (14 pins) Control output: 4 outputs, open collector output, withstand voltage: 27V DC,control current: 50mA, removable terminal block (14 pins) Remote volume: 2 channels, connect a 10kΩ/linear taper variable resistor or input the DC voltage of 0 to 10V, removable terminal block (14 pins)
Operating Temperature	-10° to 40°C (14° to 104°F)
Operating Humidity	35% to 80% RH (no condensation)
Finish	Panel: aluminum, hair-line, black; Case: surface-treated steel plate, black paint
Dimensions (W × H × D)	420 × 107.6 × 353mm (16.54" × 4.24" ×13.9")
Weight	6 kg (13.23 lbs.)

*0dB = 1V

*² Allowing it to be controlled by a control system such as AMX and Crestron through RS-232C port.

ACCESSORIES

ZM-9001
Remote Panel
- Six assignable buttons to activate preset selection or volume up/down
- Operates on Remote Volume Control terminal on the 9000M2 back panel

ZM-9002
Remote Panel
- Four assignable buttons to activate preset selection or volume up/down
- Variable knob to control volume
- Operates on Remote Volume Control terminal on the 9000M2 back panel

ZM-9003
Remote Panel
- Works with contact inputs on 9000M2 mainframe and on C-001T
- Six buttons - 4 locking with label strips and two momentary buttons - may be assigned to control program change, volume up/down, channel on/mute, emergency mute, power and paging prohibit function.

ZM-9011
Remote Control Panel
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

ZM-9012
Remote Control Panel
- Rotary Encoder can be assigned to control any input or output volume
- Multiple input or outputs may be "ganged" for Master volume terminals
- Multi-segment LED indicator provides visual volume level status

ZM-9013
Remote Control Panel
- Eight assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

ZM-9014
Remote Control Panel
- Four assignable buttons each with LED status indicator can control Xpoint settings (on/off, select), paging activation, scene and relay activation
- Assignable ID rotary adjustment on box

AN-9001
Ambient Noise Sensing Microphone
- Ceiling or wall-mount condenser microphone
- Fits one gang electrical box
- Use with AN-001T module

SS-9001
Speaker Selector
- Switch up to four speaker lines on one amplifier output
- Two amplifier inputs for Paging/ BGM applications
- Wall-mount bracket included
- Requires optional 24VDC power supply, model AD-246

TOA
Smiles for the Public