



# 9000 SERIES MODULAR DIGITAL MATRIX

## MIXER/AMPLIFIERS

- A-9060S
- A-9120S
- A-9240SH
- A-9060DH
- A-9120DH
- A-9120DL

## MIXER M-9000

The TOA 9000 Series Digital Matrix Mixer/Amplifiers redefine the conventional mixer/amplifier category by combining a modular matrix mixer, digital signal processor (DSP) and amplifiers in a compact, two rack space package. The versatile new series is ideal for multi-zone paging, music distribution and room-combining applications.

9000 Series models include dual and single channel amplifiers with high or low impedance outputs plus a matrix mixer-only version. Dual channel amplifier models feature flexible output power allowing 50% of one amplifier channel to be allocated to the second channel.

All models include eight module ports allowing designers to easily configure custom systems with up to eight mic/line inputs and eight outputs. Each 9000 Series chassis has two channels of built-in digital signal processing (DSP) with ten band parametric EQ, compressor, eight-level ducking and more. Input and output modules provide additional DSP.

Two discrete operation modes, "Matrix" and "Mixer", allow the 9000 Series to be used in both simple mixing and complex multi-zone paging applications. Versatile features include telephone zone paging, automatic microphone mixing and ambient noise control.

Modules include the D-001T dual channel mic/line input module, T-001T dual channel line output module, ZP-001T telephone access zone paging module, C-001T control expansion module, and AN-001T Ambient Noise Control module. Accessories include the AN-9001 ceiling/wall-mount microphone, ZM-9001 and ZM-9002 remote panels, and SS-9001 4-zone speaker selector.

The 9000 Series products are UL and cUL Listed and backed with TOA's five year product warranty.



## HIGHLIGHTS

### FEATURES

- **Modular Digital Matrix Mixer/Amplifiers** for a multitude of applications including audio-visual, zone paging, room combining and many more
- **Easy to Configure and Operate**
- **Exceptional Audio Quality**
  - 24-bit, 48 kHz sampling
  - Ultra-Low Distortion – 0.0008%
- **Modular Mixer** — up to 8 mic/line inputs and 8 outputs
- **Dual Channel Digital Signal Processor (DSP):**
  - 10-Band Parametric EQ
  - Loudness Contour
  - TOA Speaker EQ Presets
  - High and Low Pass Filters
  - Bass and Treble
  - Additional DSP included on D-001T and T-001T modules
  - Compressor
  - Delay (MIXER mode)
- **Single or Dual Channel Power Amplifiers** — 70.7 V, 25 V and low impedance models
- **Flexible Output Power** — dual channel models allow 50% of either amplifier channel to be allocated to the other channel (Ex. A-9060DH: CH1:90W, CH2:30W)
- **Dual Modes (MIXER and MATRIX)** — two separate feature sets to suit both simple mixing and complex multi-zone distribution applications
- **Telephone Zone Paging** — access up to eight zones with optional ZP-001T module
- **Automatic Mic Mixing** — automatically adjusts output level based on the total number of open microphones (NOM)
- **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)**
- **Five Year Warranty**

### MODULAR DIGITAL MATRIX MIXER/AMPLIFIERS

<b>A-9060S</b>	1x 60W @ 25/70V, 4/8 ohms
<b>A-9120S</b>	1x 120W @ 25/70V, 4/8 ohms
<b>A-9240SH</b>	1x 240W @ 70V
<b>A-9060DH</b>	2x 60W @ 70V
<b>A-9120DH</b>	2x 120W @ 70V
<b>A-9120DL</b>	2x 120W @ 4-16 ohms

### MODULES

<b>D-001T</b>	Dual Mic/Line Input with DSP
<b>T-001T</b>	Dual Line Output Expansion with DSP
<b>ZP-001T</b>	Telephone DTMF Zone Paging
<b>C-001T</b>	Input/Output Control Expansion
<b>AN-001T</b>	Ambient Noise Control

### MODULAR DIGITAL MATRIX MIXER

<b>M-9000</b>	2x Line Level
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### ACCESSORIES

<b>AN-9001</b>	Ceiling Mic for Ambient Noise Control
<b>ZM-9001</b>	Remote Switch Panel
<b>ZM-9002</b>	Remote Volume Switch Panel
<b>SS-9001</b>	4-Zone Speaker Selector

# FEATURES

9000 SERIES MODULAR DIGITAL MATRIX  
MIXER AND MIXER/AMPLIFIERS

Tel: 800-733-7088  
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## MIXER Mode

- **Ideal for Speech and Sound Reinforcement Applications** in hotel meeting rooms, churches, 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 and ZM-9002
- **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 zone), control input (up to four zones) or optional ZP-001T module
  - Selectively disable outputs from programmed paging zone with contact closures

## 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 or Synch On/Off
- **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

## 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 and ZM-9002
- **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

## Additional Features

- **Mixer Out / Power Amp In Patching Loops** (except M-9000) for connection of external processor(s)
- **Software Utility** for saving unit parameters to PC, updating unit firmware, virtual control activation and status indication
- **MS Excel Programming Templates** — use Microsoft® Excel for off-site programming
- **Keylock Security** sets password-protected access to Input, Output, Utility & Power functions
- **Input and Output Metering** (D-001T module(s) required for input metering)
- **Alphanumeric Channel and Memory Naming**
- **Power Off Save Mode** saves adjusted volume levels when the power is switched off
- **Power On Memory** sets the Event/Scene selected when unit powers up
- **Detachable IEC-type AC Cable**
- **UL and cUL Listed**

## 9000 Series Models

Model	Power Amplifier Output(s)	Digital Signal Processor	Mic/Line Inputs	Line Outputs
A-9060S	1x 60 W @ 25/70V, 4/8 ohms	2 Channels	Up to 8 (4x D-001T)	Up to 7 (1 built-in plus 3x T-001T)
A-9120S	1x 120 W @ 25/70V, 4/8 ohms	2 Channels	Up to 8 (4x D-001T)	Up to 7 (1 built-in plus 3x T-001T)
A-9240SH	1x 240 W @ 70V	2 Channels	Up to 8 (4x D-001T)	Up to 7 (1 built-in plus 3x T-001T)
A-9060DH	2x 60 W @ 70V	2 Channels	Up to 8 (4x D-001T)	Up to 6 (3x T-001T)
A-9120DH	2x 120 W @ 70V	2 Channels	Up to 8 (4x D-001T)	Up to 6 (3x T-001T)
A-9120DL	2x 120 W @ 4 ohms	2 Channels	Up to 8 (4x D-001T)	Up to 6 (3x T-001T)
M-9000	2x Line Level	2 Channels	Up to 8 (4x D-001T)	Up to 8 (2 built-in plus 3x T-001T)



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# SPECIFICATIONS

Model No.	A-9060DH	A-9120DH	A-9120DL	A-9060S
<b>Output Power</b>	2 x 60W @ 70V	2 x 120W @ 70V	2 x 120W @ 4-16 ohms	1 x 60W @ 25/70V, 4/8 ohms
<b>Audio Input</b>	Max. 8 channels, modular construction (modules optional) Power amplifier input 1, 2: 0 dBV, 10k $\Omega$ , RCA pin jack			
<b>Audio Output</b>	Preamplifier output 1, 2: 0 dBV, 300 $\Omega$ , unbalanced, RCA pin jack			Preamplifier output 1: 0 dBV, 300 $\Omega$ , unbalanced, RCA pin jack; Preamplifier output 2: 0 dBV, 600 $\Omega$ , balanced, removable terminal block (3 pins)
	Speaker output 1, 2: 60 W, 70.7 V line, 83 $\Omega$ x 2, BTL output, removable terminal block (4 pins)	Speaker output 1, 2: 120 W, 70.7 V line, 41 $\Omega$ x 2, BTL output, removable terminal block (4 pins)	Speaker output 1, 2: 4-16 $\Omega$ , unbalanced, removable terminal block (4 pins), 120W x 2 (4 $\Omega$ load), 70W x 2 (8 $\Omega$ load), 40W x 2 (16 $\Omega$ load)	Removable terminal block (7 pins); Direct: 60W, 4 $\Omega$ , unbalanced; Transformer: 60W, 8 $\Omega$ 25V and 70V, balanced
<b>Power Bandwidth</b>	20 - 20,000 Hz, 0.008% THD		20 - 20,000 Hz, 0.02% THD	Direct: 20 - 20,000 Hz, 0.02% THD; Transformer: 50 - 20,000 Hz, 0.5% THD
<b>Frequency Response</b>	Power amplifier section: 20 - 20,000 Hz, +0, -1 dB Analog input module to speaker output: 20 - 20,000 Hz +1, -3 dB			
<b>Total Harmonic Distortion</b>	Power amplifier section: 0.0008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz, rated power)		0.0008% (8 $\Omega$ , 16 $\Omega$ rated power) 0.002% (4 $\Omega$ rated power) 0.008% (22 kHz LPF, 1 kHz, rated power)	0.008% (22 kHz LPF, 1 kHz, rated power) 0.008% (22 kHz LPF, 1 kHz, rated power)
<b>S/N Ratio</b>	At Input short, 20 - 20,000 Hz, ALL FLAT or OFF setting Output volume min.: 90 dB (preamplifier output) Output volume max.: 61 dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF) Power amplifier section: 110 dB			
<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 EQ</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/Mix 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: 3.3V DC, short-circuit current: under 1 mA, removable terminal block Control output: 4 outputs, open collector output, withstand voltage: 27V DC, control current: 50 mA, removable terminal block Remote volume: 2 channels, connect a 10k $\Omega$ /linear taper variable resistor or 0 - 10 VDC, removable terminal block			
<b>Power Source</b>	120 V AC, 60 Hz			
<b>Power Consumption</b>	150 W	250 W	260 W	100 W
<b>Operating Temperature</b>	14° to 104° F (-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 x H x D)</b>	16.54" x 4.24" (3.5" w/out feet) x 15.55" (420 x 107.6 x 395 mm)			16.54" x 4.24" (3.5" w/out feet) x 13.98" (420 x 107.6 x 355 mm)
<b>Weight (without modules)</b>	19.84 lbs. (9 kg)	24.25 lbs. (11 kg)	24.25 lbs. (11 kg)	24.25 lbs. (11 kg)



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# SPECIFICATIONS

Model No.	A-9120S	A-9240SH	M-9000
<b>Output Power</b>	1 x 120W @ 25/70 V, 4/8 ohms	1 x 240W @ 70 V	n/a
<b>Audio Input</b>	Max. 8 channels, modular construction (modules optional) Power amplifier input 1, 2: 0 dBV, 10k $\Omega$ , RCA pin jack		Max. 8 channels, modular construction (modules optional)
<b>Audio Output</b>	Preamplifier output 1: 0 dBV, 300 $\Omega$ , unbalanced, RCA pin jack Preamplifier output 2: 0 dBV, 600 $\Omega$ , balanced, removable terminal block (3 pins) Speaker output: Removable terminal block (7 pins); Direct: 120W, 4 $\Omega$ , unbalanced; Transformer: 120W, 8 $\Omega$ 25 V & 70 V, balanced		Preamplifier output 1, 2: 0 dBV, 600 $\Omega$ , balanced, removable terminal block (3 pins) Speaker output: 240 W, 21 $\Omega$ , BTL output, removable terminal block (4 pins)
<b>Power Bandwidth</b>	Direct: 20 - 20,000 Hz, 0.02% THD Transformer: 50 - 20,000 Hz, 0.5% THD	20 - 20,000 Hz, 0.008% THD	
<b>Frequency Response</b>	Power amplifier section: 20 - 20,000 Hz, +0, -1 dB Analog input module to speaker output: 20 - 20,000 Hz +1, -3 dB		20 - 20,000 Hz +1, -3 dB
<b>Total Harmonic Distortion</b>	Power amplifier section: 0.008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.008% (22 kHz LPF, 1 kHz, rated power)	Power amplifier section: 0.0008% (22 kHz LPF, 1 kHz, rated power) Analog input module to speaker output: 0.0008% (22 kHz LPF, 1 kHz, rated power)	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 (preamplifier output) Output volume max.: 61 dB (preamplifier output, input 1 volume: 0 dB, other inputs: OFF) Power amplifier section: 110 dB		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 EQ</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/Mix 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 10k $\Omega$ /linear taper variable resistor or 0 - 10 VDC, removable terminal block		
<b>Power Source</b>	120 V AC, 60 Hz		
<b>Power Consumption</b>	150 W	250 W	40 W
<b>Operating Temperature</b>	14° to 104° F (-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 x H x D)</b>	16.54" x 4.24" (3.5" w/out feet) x 13.98" (420 x 107.6 x 355 mm)	16.54" x 4.24" (3.5" w/out feet) x 15.55" (420 x 107.6 x 395 mm)	16.54" x 4.24" (3.5" w/out feet) x 13.9" (420 x 107.6 x 353 mm)
<b>Weight (without modules)</b>	28.66 lbs. (13 kg)	24.25 lbs. (11 kg)	13.23 lbs. (6 kg)

## 9000 SERIES 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



### 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



### 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



### SS-9001

#### Speaker Selector

- Switch up to four speaker lines on one amplifier output
- Two amplifier inputs for Paging/BGM applications
- Triggered by ZP-001T module control outputs
- Wall-mount bracket included
- Requires optional 24VDC power supply, model AD-246



### ZP-001T

#### Telephone Zone Paging Module

- Telephone Paging to up to eight zones
- Uses DTMF dialing to access amplifier and/or line 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



### C-001T

#### Input/Output Control Module

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



### AN-9001

#### Ambient Noise Sensing Microphone

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



### ZM-9001

#### Remote Panel

- Six buttons to activate preset selection or volume up/down
- Wiring: shielded conductor to chassis Remote Volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Fits one gang electrical box
- Maximum two ZM-9001/ZM-9002 per chassis



### ZM-9002

#### Remote Panel

- Four push buttons to activate preset selection or volume up/down
- Volume control knob
- Wiring: shielded conductor to chassis Remote Volume terminals
- Max. loop resistance: 100 ohms (3000 ft. 22AWG)
- Fits one gang electrical box
- Maximum two ZM-9001/ZM-9002 per chassis



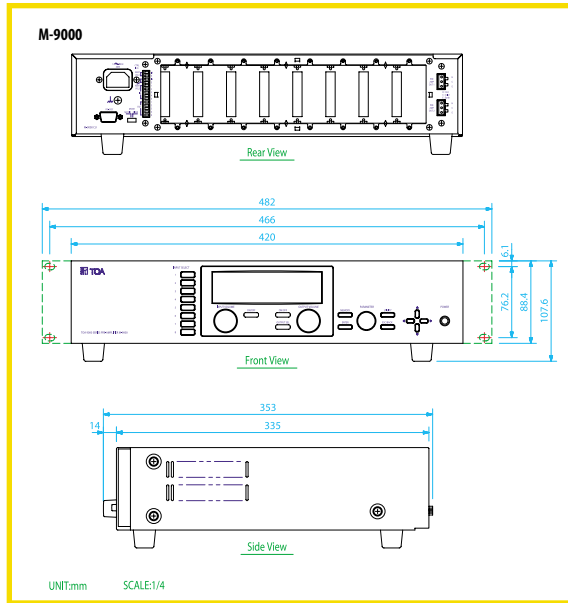
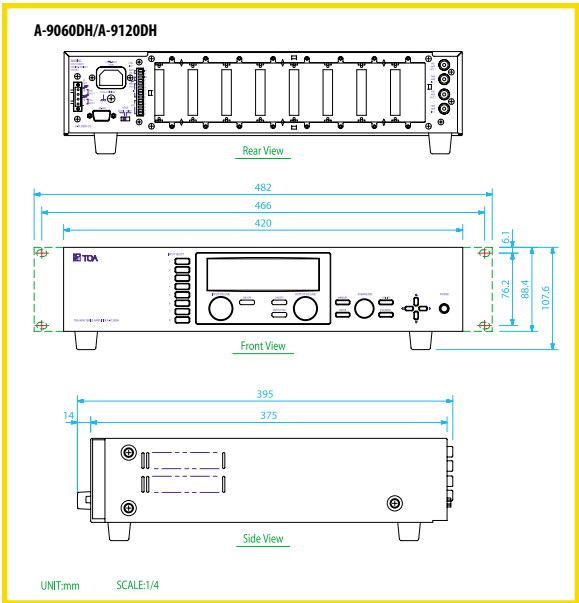
**IMPORTANT NOTE ON MODULES:** All existing 900 Series modules are compatible with all 9000 Series module ports. Please see the new 9000 Series installation manual for details on installing modules. New 9000 modules are not compatible with module ports in 900 Series, 700 Series or BG-M Series mixer/amplifiers.



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# 9000 SERIES MODULAR DIGITAL MATRIX MIXER AND MIXER/AMPLIFIERS

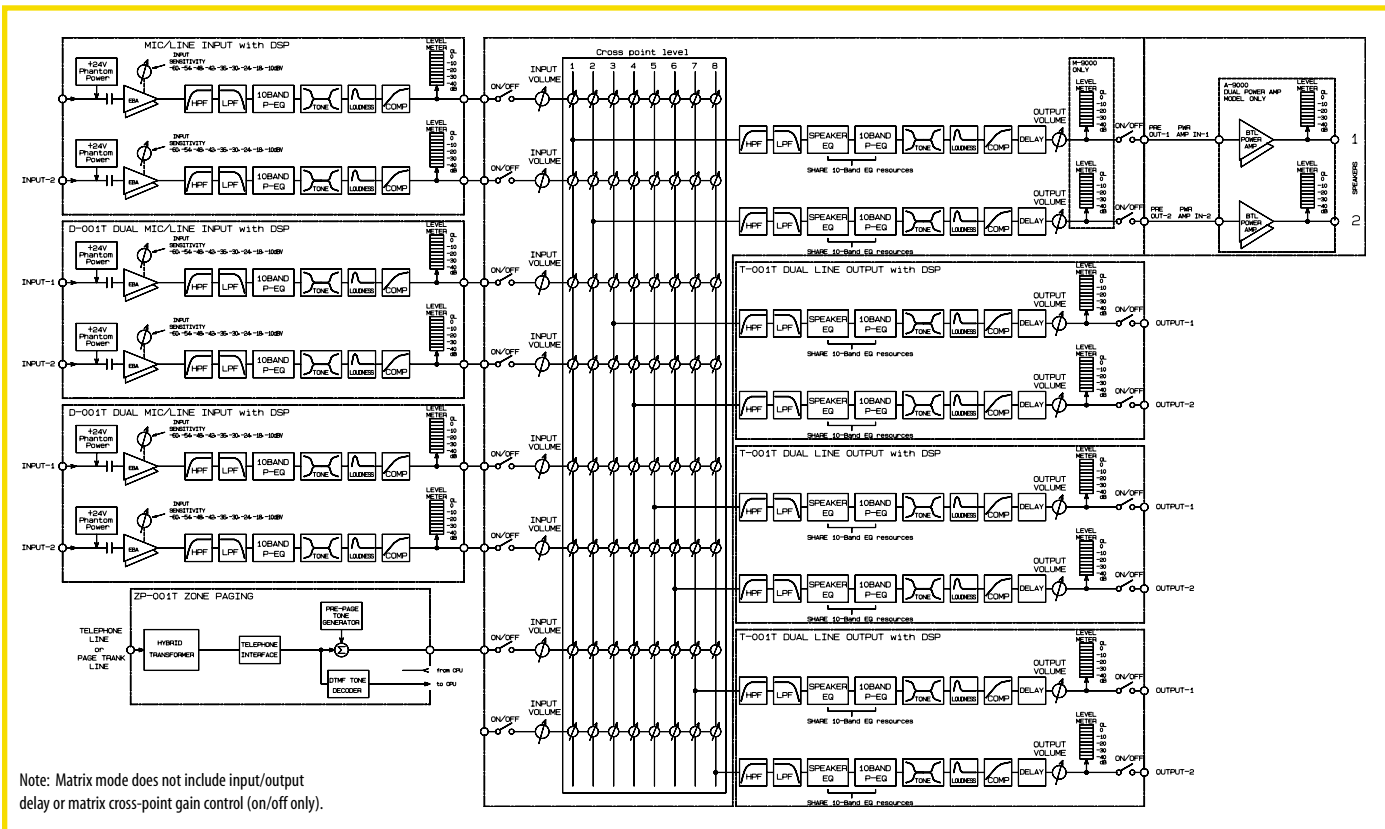
## DIMENSIONAL DRAWINGS



For dimensions of other 9000 Series models, please refer to the Specifications section.

For CAD files, please visit [www.toaelectronics.com](http://www.toaelectronics.com).

## BLOCK DIAGRAM (MIXER MODE)



### APPLICATIONS

- Airports
- Audio / Visual
- Auditoriums / Theaters
- Automatic Microphone Mixing
- Banks
- Bars / Lounges / Clubs
- Boardrooms
- Business Music
- Conference Facilities
- Educational Facilities
- Fitness Clubs / Gyms
- Hotels / Hospitality
- Houses of Worship
- Multi-Zone Paging
- Museums
- Music Distribution
- Offices
- Public Address
- Restaurants
- Retail Stores
- Room Combining
- Theme Parks
- Training Rooms

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- Quick Start Guides
- Specification Sheets
- Architect and Engineering Specifications
- MS Excel Programming Templates
- Installation Manuals
- CAD Files
- High-resolution Images

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 Specifications subject to change without notice.  
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