



Venas

Integrated Voice Evacuation System

VM-2000 series



An integral factor in buildings today.

Meet the TOA VM-2000 Series —

they're affordable and high-value added components for any building or site.

An indispensable part of building design and management today, communications infrastructures can effectively reach various audiences through paging, calls routed to selected areas and priority emergency announcements for the entire building.

The VM-2000 Series represents a highly cost-effective solution for building management and owners.

Designed specifically for effective communications in a building, VM-2000 Series units are not conventional power amplifiers with just a few added features. They're optimized to deal with emergency situations to alert building occupants as well as routine announcements and BGM.

safe&sound



Communications expert.

Taking advantage of TOA's long-accumulated technological expertise and knowledge in security and audio, the VM-2000 Series is part of a select range of sound management equipment. Featuring outstanding audio performance, this range of equipment satisfies the growing need for reliable and efficient communications for various applications including office buildings, schools, shopping malls, supermarkets, factories, hospitals and transportation terminals.

Targeted at medium-sized facilities, every VM-2000 Series unit offers three line/mic inputs, 2 BGM inputs

and remote mic capability as well as telephone paging. All controls and indicators are laid out in a logical, easy-to-see manner that aids operation. Tonal preferences may be set for each channel in order to optimize it to sound the best for speech or music signals. The processed input signals can then be sent on to any of five independent loudspeaker zones as desired, or automatically to all in the case of an emergency. Operation is simple and trouble-free for site staff. And the VM-2000 Series' clean, attractive design makes it well-suited for installation in a building's operation center equipment rack or even on a table or desk in a reception area.



VM-2120 :
120 W System
Management Amplifier
VM-2240 :
240 W System
Management Amplifier

Built to expand with your requirements.

The VM-2000 Series are designed with cost-effectiveness in mind, allowing for expansion as your needs grow. For instance, if the standard five loudspeaker zones are not enough, the unit can be linked to another unit for servicing an additional five zones and doubling the power output. The VM-2000 Series' cost-effectiveness allows installation to be basic at first, then expanded as particular requirements dictate. Optional accessories and related equipment are available to meet specific requirements and enhance a unit's operational scope. The VM-2000 Series conforms to most international emergency sound system standards and requirements such as IEC60849 (EN60849).

Remote microphone extends system control.

Adding convenience to a communications system is the RM-200M Remote Microphone that allows announcements to be made to any speaker zone and emergency announcements to all zones. These announcements can be made live or pre-recorded announcements can be activated. The remote microphone is connected by cable to the RM-210 Remote Microphone Extension unit.

Voice Announcement Board expands operational scope.

Any VM-2000 unit may be easily upgraded by installing several options such as the digital EV-200 Voice Announcement Board which offers two additional emergency announcements, five commercial announcements, and one chime in addition to the stock tones provided by every VM-2000 unit.



Intelligent self-diagnosis capability.

When a VM-2000 Series unit is fitted with the optional SV-200M Surveillance Board, the unit gains the ability to conduct automatic system-wide checks for open or shorted speaker lines and ground leakage as well as other malfunctions, simplifying maintenance and other routine system tasks as well as instantly alerting operators when a fault occurs. And of course, the VM-2000 Series is ready for failsafe operation with back up 24V battery power to ensure uninterrupted operation.



VM-2120/VM-2240 Rear



RM-210
Remote Microphone
Extension Unit

RM-200M
Remote Microphone

VenaS

Integrated Voice Evacuation System
VM-2000 series

BGM Player / recorder



Telephone System (paging)



Remote Microphone RM-200M



Fault Indication Panel



External Control Switch Panel



• External Control (Timer)

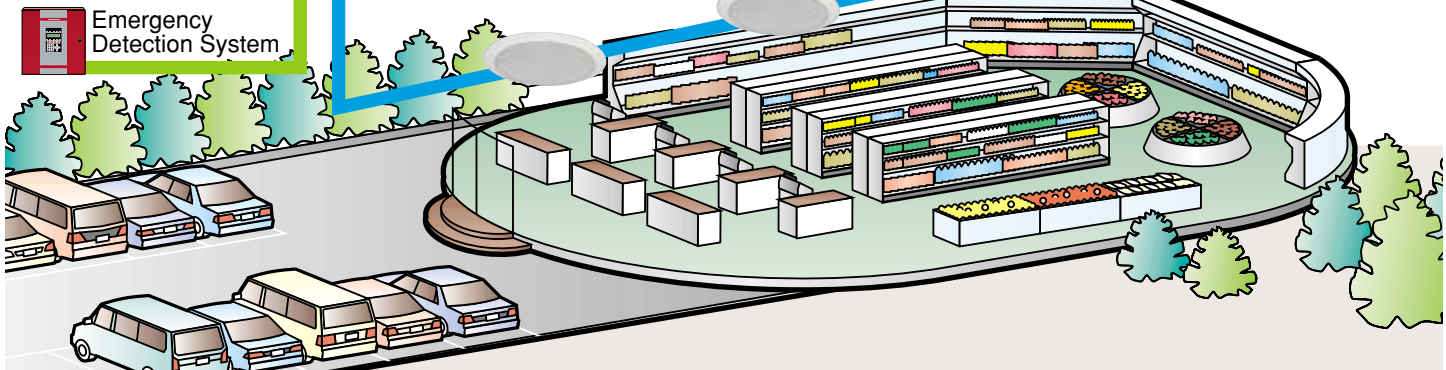
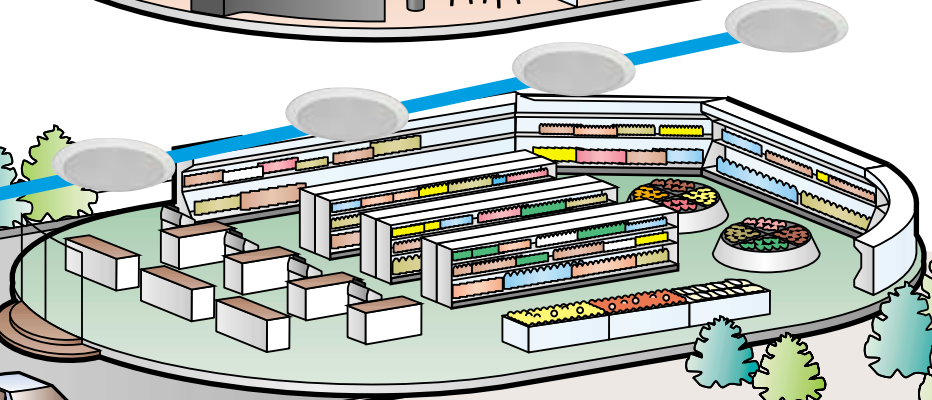
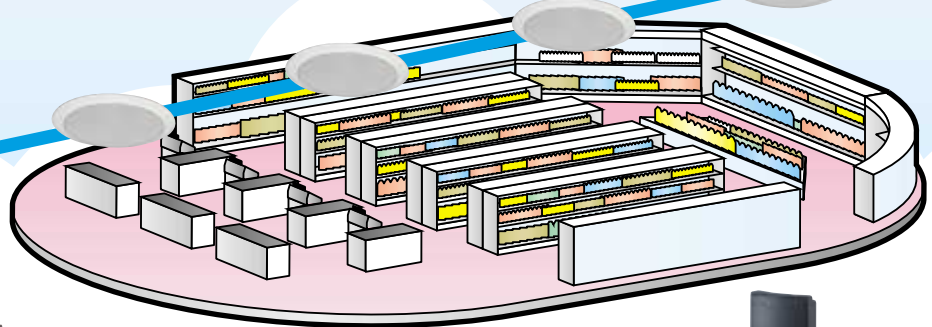
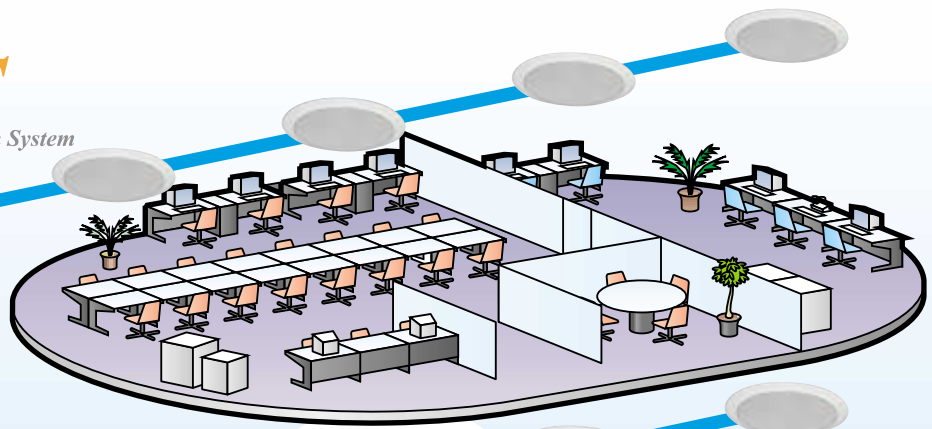


• Audio input with External Control



• Other PA System

Emergency Detection System



SPECIFICATIONS

System Management Amplifier VM-2120/2240

Model No.	VM-2120	VM-2240
Power Requirement	AC: mains, 50/60 Hz DC: 24 V DC/7.5 A, M3.5 screw terminal, Barrier distance: 8 mm, Applicable cable diameter: AWG22 – AWG14	AC: mains, 50/60 Hz DC: 24 V DC/15 A, M3.5 screw terminal, Barrier distance: 8 mm, Applicable cable diameter: AWG22 – AWG14
Power Consumption on AC Mains	With no signal present: 37 W Under normal operating conditions according to EN60065: 1998 sec. 4.2: 107 W With rated output signal: 201 W	With no signal present: 54 W Under normal operating conditions according to EN60065: 1998 sec. 4.2: 255 W With rated output signal: 549 W
Current Consumption on 24V DC Power Input	With no signal present: 0.7 A Under normal operating conditions according to EN60065: 1998 sec. 4.2: 2.1 A With rated output signal: 5.2 A	With no signal present: 1 A Under normal operating conditions according to EN60065: 1998 sec. 4.2: 5 A With rated output signal: 14 A
Rated Output	120 W	240 W
Output Voltage/Impedance	100 V/83Ω, 70 V/42Ω, 50 V/21Ω (selectable by the internal wiring change)	100 V/42Ω, 70 V/21Ω, 50 V/10Ω (selectable by the internal wiring change)
Frequency Response	50 – 16,000 Hz	
Distortion	Under 1%	
Signal-to-Noise Ratio	Over 60 dB	
Tone Control	Bass: 100 Hz ±10 dB, Treble: 10 kHz ±10 dB (Inputs 1 – 3 and BGM individually adjustable.)	
Remote Microphone/Expansion Amplifier Connection	2 RJ45 female connectors for connecting the RM-200M Remote Microphone and the VM-2120 or VM-2240 unit used as an expansion amplifier. Maximum distance: 800m in total, Link cable: Category 5 shielded Number of connectable RM-200M's: Up to 4 Twisted-Pair straight cable (TIA/EIA-568A standard)	
Input	Inputs 1 – 3: –60 dB*1 (MIC)–10 dB*1 (LINE) (changeable), 600 Ω, electronically balanced*2, combined XLR connector (female)/phone jack (Only Input 1 is additionally equipped with DIN connector*3.) Telephone paging input: Push-in terminal block*4 Voice sound: –10 dB*1, 10kΩ, electronically-balanced input with shield terminal*2 Control: No-voltage make contact input, open voltage: 30 V DC, short-circuit current: under 0.1 A BGM 1 - 2: –20 dB*1, 10 kΩ, RCA pin jack, monoaural (internally mixed) Power amplifier input: 0 dB*1, 10 kΩ, RCA pin jack External speaker line input: 100 V line, for All-Zone Broadcast (This input is selected when the "Unit's broadcast cutoff" control is activated.)	
Output	Speaker output: Plug-in screw connector*5 5-zone selector with attenuator (all zones simultaneously selectable) Direct speaker line output: Direct output from the power amplifier output transformer (attenuator bypassed), Plug-in screw connector*5 Line output: 0 dB*1, 10 kΩ, RCA pin jack Recording output: 0 dB*1, 10 kΩ, RCA pin jack Preamplifier output: 0 dB*1, 10 kΩ, RCA pin jack	
Control Input	For controlling Inputs 1 – 3, Push-in terminal block No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA	
Control Input and Output	D-sub connector (25-pin, female) Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA Output: Open collector output, withstand voltage: 30V DC, control current: under 10 mA (1) External control input •Activation of messages*6 •Activation of power •Activation and stop of Emergency Broadcast •Unit's broadcast cutoff (when activated by an external emergency equipment) (2) Status output •Irregularity of communications with the Remote Microphone and an expansion amplifier •AC power condition •DC power condition •Irregularity of the sound source of the Voice Announcement Board •Failure (FAULT) indication on •Power switch on	
External Attenuator Control Output	Plug-in screw connector*5, relay, no-voltage make contact output, transfer type, withstand voltage: 30 V DC, 125 V AC, contact current: under 7 A (DC), under 7 A (AC)	
Surveillance Input and Output*7	D-sub connector (25-pin, female) Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA Output: Open collector output, withstand voltage: 30 V DC, control current: under 10 mA	
Power Supply	24 V DC/0.1 A, for supplying power to an optional Amplifier Control Unit RU-2001/2002, push-in terminal block*4	
Chime Tone	Built-in chime: 2-tone chime/2-tone chime (fast repeat)/4-tone chime (Up)/Single-tone chime/4-tone chime (Up & Down)/Gong/off Voice Announcement Board sound source: Pre-recorded chime*6	
Function	Two units stacking (VM-2120 or VM-2240) Emergency broadcast (sequential control) Broadcast priority control Surveillance (failure detection) function*7 Power supply to only one Remote Microphone (RM-200M) Line resistance: Under 24 Ω (one way)	
Operating Temperature	0°C to +40°C	
Finish	Panel: ABS resin, dark gray, paint Case: Steel plate, dark gray, paint	
Dimensions	419 (W) × 143.3 (H) × 355.7 (D) mm	
Weight	12.5 kg	14.5 kg
Accessory	Power cable (2m) ...1, Miniature type time-lag fuse T 2.5A...1, Name label...1, Volume cover...4	Power cable (2 m) ...1, Miniature type time-lag fuse T3.15A...1, Name label...1, Volume cover...4
Option	Rack mounting bracket: MB-36, Input transformer: IT-450, Voice announcement board: EV-200, Surveillance board: SV-200M	

*1 0 dB = 1 V

*2 Can be transformer-balanced with the addition of an optional IT-450 input transformer.

*3 For connection of the Paging Microphone PM-660D with a remote control switch.

*4 Usable cable diameter: AWG26-AWG20, 0.5 mm².

*5 Usable cable diameter: AWG24-AWG12, 2.5 mm².

*6 An optional EV-200 Voice Announcement Board is required.

The chime sound source must be pre-recorded into a CF (CompactFlash) card to be inserted into the EV-200 Board.

*7 An optional SV-200M Surveillance Board is required.

Remote Microphone RM-200M

Power Requirement	24 V DC (Operating range: 14 – 28 V DC) Power input jack: Non-polarity type Usable power input plug*2: Outer diameter ø5.5 mm, inner diameter ø2.1 mm, length 9.5 mm
Current Consumption	100 mA maximum
Distortion	Under 1%
Frequency Response	100 – 20,000 Hz
Signal-to-Noise Ratio	Over 60 dB
Audio Output	0 dB*1, 600 Ω, balanced
Microphone	Unidirectional electret condenser microphone
Speaker Control	Zones 1 – 5 or Zones 1 – 10 (2 stacked amplifiers connection), Groups 1 – 2, and All-Zone Broadcast
Emergency Broadcast	Activation of Emergency Broadcast (pre-recorded announcement*3 or live microphone announcement) by Emergency Broadcast Switch
Voice Message Control	Activation of 5 messages*3
Volume Control	Microphone volume control
Connection Cable and Connector	Category 5 STP cable, RJ45 connector
Finish	ABS resin, blueish gray
Dimensions	190 (W) × 76.5 (H) × 215 (D) mm (Gooseneck microphone excluded)
Weight	750 g
Accessory	Link cable (3m) ...1

*1 0 dB = 1 V

*2 Use the AC adapter AD-4800 optionally available as our service component.

*3 An optional EV-200 Board must be mounted in the VM-2120 or VM-2240 Amplifier.

The voice messages must be pre-recorded into a CF (CompactFlash) card to be inserted into the EV-200 Board.

Remote Microphone Extension Unit RM-210

Current Consumption	20mA maximum (in terms of RM-200M's DC power input)
Connection	Connection to RM-200M by dedicated cable
Function	Activation of Voice Announcement Board's voice messages when controlling speakers in 10 zones at RM-200M
Finish	ABS resin, blueish gray
Dimensions	110 (W) × 76.5 (H) × 215 (D) mm
Weight	350g
Accessory	Extension cable ...1, Linkage bracket A...2, Linkage bracket B...1, Screw for linkage bracket...12

Voice Announcement Board EV-200

Power Requirement	24 V DC, 0.1 A
Power Consumption	3 W
Output	0 dB*1
Frequency Response	20 – 20,000 Hz (44.1 kHz sampling) 20 – 14,000 Hz (32 kHz sampling)
Distortion	Under 0.3% (44.1 kHz, recording method: Extremely High)
Memory Card	SanDisk*2 CompactFlash*2 card is optionally required. Number of mountable card: 1
Playback Mode	Single source playback
No. of Playback Program	8 programs
Operating Temperature	0°C to +50°C
Operating Humidity	Less than 90% (must be free from dew condensation)
Dimensions	120 (W) × 18.6 (H) × 121 (D) mm
Weight	110 g
Accessory	Mounting screw...2

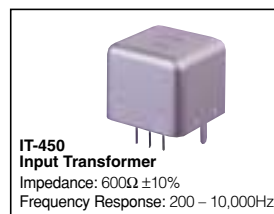
*1 0 dB = 1 V

*2 Trademark of SanDisk Corporation.

Note Use the CompactFlash card adapter on the market for recording by the EV-350R.

Surveillance Board SV-200M

Power Requirement	24V DC
Current Consumption	0.1 A
Control Input and Output	Input: No-voltage make contact input, open voltage: 3.3 V DC, short circuit current: under 1 mA (1) Speaker line initial setting activation signal (2) Speaker line surveillance activation signal Output: Open collector output, withstand voltage: 30 V DC, control current: under 10 mA (1) Monitoring short or open of individual speaker line (zone 1 – 5) (2) Ground fault (insulation resistance: under 50kΩ) (3) Power amplifier failures Connector: D-sub connector (25-pin, female)
Failure Detection	Power amplifier failure: 20 kHz pilot tone detection Speaker line failure: 40 Hz impedance detection
Speaker Line Surveillance	Speaker lines are automatically monitored at set time intervals
Set Time	(10 – 60 min, at 10 min intervals)
Operating Temperature	0°C to +50°C
Operating Humidity	Less than 90% (must be free from dew condition)
Weight	70 g



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URL: www.toa.co.jp/global/

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