



# Public Address/ Voice Evacuation Systems

Steps,  
noises,  
hustle and bustle...

... and yet you are still led out quickly  
and safely in an emergency.



# Security with conviction.

## Proven quality by TOA.

Consistently TOA has continued to strengthen its role as an innovative leader and redefined the standards of technical improvement. Founded 1934 in Kobe, Japan, we benefit from 80 years of experience in research, development and international sales and marketing of numerous products in the field of public address systems. Thereby our longstanding know-how guarantees proven quality and the upmost peace of mind.

It is our goal to provide you high quality products, as well as first-class sound, to find the ideal acoustic solution for each of your applications.

We are proud to be one of the first companies to develop a fully EN 54 compliant voice alarm systems and that we can offer four different systems along with a variety of certified loudspeakers for several applications today.

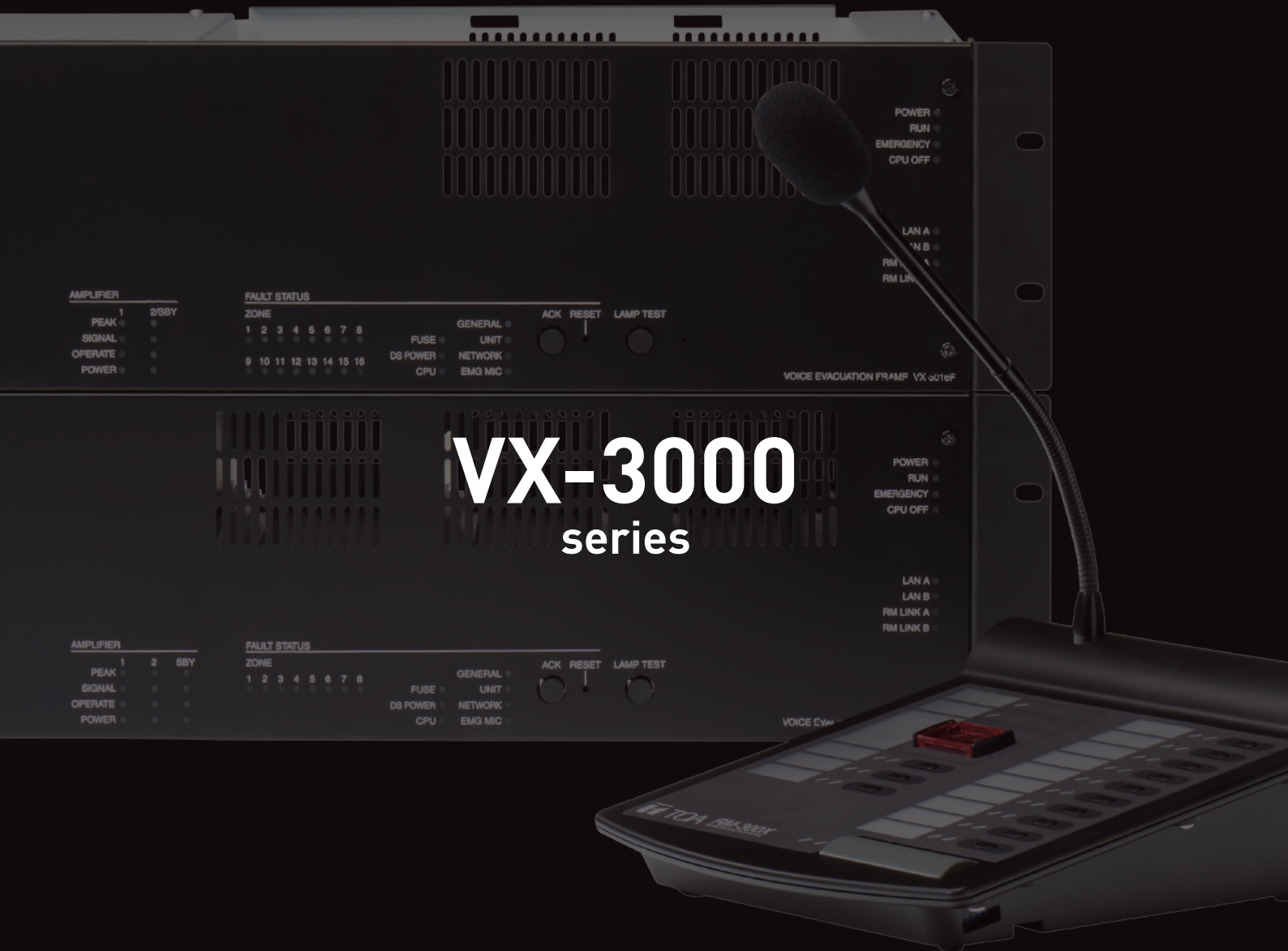
Since April 2011 the EN 54 standards are mandatory in all EU member states and consist of three parts (part 4: refers to power supplies, part 16: refers to voice alarm control and indicating equipment and part 24: refers to loudspeakers), which ensure the functionality of the system under extreme external conditions.

At TOA, we don't only guarantee you the very best sound quality, but a dependable system to go with it.

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# VX-3000

## series

## Description

The issue of security is more than ever important. Our VX-3000 is a reliable and energy-saving voice alarm system that combines all important functions for PA/VA in one unit frame. The limited number of components makes the design and installation much easier, as well as saving space and reducing cable complexity. This enables rapid system configuration and makes the VX-3000 a cost effective system.

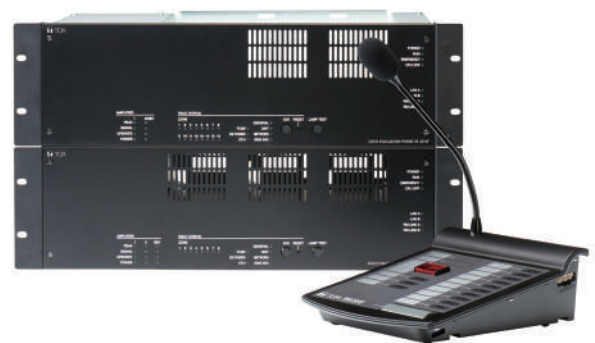
It comes with low loss modular class D amplifiers, with 3 different output ratings. These can easily be removed or replaced simply by unplugging them; there is no need for specialist tools. By using low loss modular class D amplifiers and modern power supply switching technology the system becomes much more energy efficient and keeps the operating costs low.

Thanks to its flexible and scalable system architecture the VX-3000 system can be used for both small and large applications, with up to 320 remote microphones and 160 audio sources.

## System Features

- Compact: All functions, all inputs and outputs in one unit
- Cost effective: Easy system configuration thanks to small number of system components
- Flexible: Broadcast of many different audio signals simultaneously, flexible speaker driving from 1 zone per amplifier up to 64 zones per amplifier
- Scalable: up to 320 remote microphones, 160 audio sources, and 640 speaker zones.
- Light-weight: Modern supply switching technology and digital amplifiers
- Energy saving: Standby mode for low power consumption during battery backup reduces the required battery capacity
- Decentralized: IP Network based, hub-less and the ring topology
- Reliable: Advanced failure detection & indication
- DSP functions: Comp., SPEQ, FBS and Ambient Noise Control (ANC)
- Integration: Connectable with TOA's other system; NX-300 and IP-3000 Series
- Remote control: Remote protocol enables VX-3000 to be controlled by external devices. Furthermore VX-3000 complies with Modbus protocol.

|                               |          |
|-------------------------------|----------|
| Maximum Output Power          | 80,000 W |
| Maximum Speaker Zones         | 640      |
| Maximum Remote Mic connection | 320      |



# VX-3000 series Frames

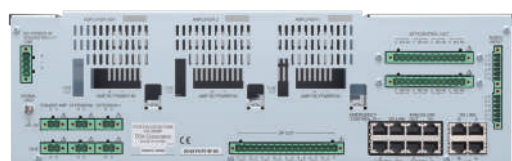
## VX-3004F / VX-3008F / VX-3016F Voice Evacuation Frame



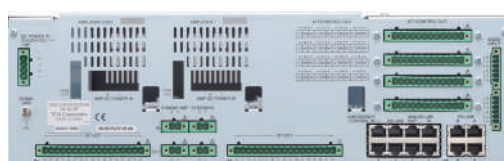
VX-3004F front



VX-3004F rear



VX-3008F rear



VX-3016F rear

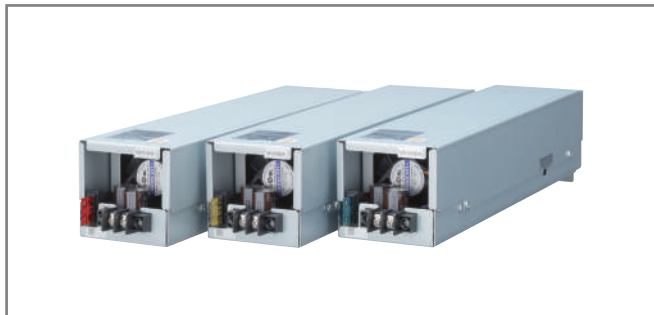
- VX-3004F: up to 4 amps (1-zone - 1 amp, 4 AB-zones or 3 AB zones + standby amp)
- VX-3008F: up to 3 amps (8 zones switching between 2 amps + standby amp or 8 zones freely assignable to 1 of 2 amps)
- VX-3016F: up to 2 amps (16 switched zones + standby amp or 2 x 8 switched zones)
- All mandatory indications by EN54-16
- Status indication for each speaker line
- Fault acknowledge and lamp test button
- Input DSP: 3-point filters(PEQ/HPF/LPF/High shelving/Low shelving), VOX and Comp.
- Output DSP: 6-point filters(PEQ/HPF/LPF/High shelving/Low shelving/All pass/Notch/Horn EQ) and Delay

### Specifications

|                        | VX-3004F                                                                                                                                                                                                                                                                                                                                                                                                                                           | VX-3008F                                                                                                      | VX-3016F                                                                                                                                           |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Source           | 31 V DC (operating range: 20 to 33 V DC), removable terminal block (4 pins)                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                               |                                                                                                                                                    |
| Speaker Line           | 4 channels (with AB LINE speaker out)                                                                                                                                                                                                                                                                                                                                                                                                              | 8 channels                                                                                                    | 16 channels                                                                                                                                        |
| LAN A, B               | No. of Connectors: 2 (LAN A, LAN B) ; Network I/F: 100BASE-TX ; Network Protocol: TCP, UDP, ARP, ICMP, RTP, IGMP, FTP, HTTP ; Spanning tree Protocol: RSTP ; Audio Transmission System: TOA Packet Audio ; Audio Encoding Method: PCM ; Audio Sampling Frequency: 48 kHz, 16 bits Connection Device: other VX-3004F, VX-3008F, VX-3016F, NX-300 and Switching HUB, Connector: RJ45 connector ; Connection Cable: CAT5 ; Max. Cable Distance: 100 m |                                                                                                               |                                                                                                                                                    |
| RS Link A, B           | 2 (RS LINK A, RS LINK B) , Up to 8 RM units can be connected to a single VX-3XXXF, up to 4 RM units connectable per RS LINK                                                                                                                                                                                                                                                                                                                        |                                                                                                               |                                                                                                                                                    |
| DS Link                | Connector: RJ45 connector, Connection Cable: CAT5-STP, Max. Cable Distance: 5 m                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                               |                                                                                                                                                    |
| Analog Link            | Number of Connectors: 1 input, 1 output, Connection Device: other VX-3004F, VX-3008F, VX-3016F, Connector: R J45 connector, Connection Cable: CAT5-STP, Max. Cable Distance: 800 m                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                                                    |
| Control Input          | 16 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA<br>Fault Detection System: Short circuit, Open circuit, Method: Voltage detect ; Connector: RJ45 connector ; Connection Cable: CAT5-STP                                                                                                                                                                                                               |                                                                                                               |                                                                                                                                                    |
| Emergency Control IN   | Input 2: Isolated voltage input, -24 to +24 V ; Connector: RJ45 connector ; Connection Cable: CAT5                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                                                    |
| VOX Function           | Threshold: -60 to 0 dB (1 dB steps), Hysteresis: 0 to +10 dB, Hold time: 10 ms – 10 s, Settable for each audio input                                                                                                                                                                                                                                                                                                                               |                                                                                                               |                                                                                                                                                    |
| Control Output         | General outputs : 8 with CONTROL OUTPUT 1 ; Exclusive outputs : 3 with CONTROL OUTPUT 2 ; GENERAL FAULT, CPU FAULT, CPU OFF<br>No-voltage make contact, electrical contact output, control current: 10 mA ; Connector: RJ45 connector ; Connection Cable: CAT5-STP                                                                                                                                                                                 |                                                                                                               |                                                                                                                                                    |
| ATT/Control Output     | 8 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A ;<br>Connector: Removable terminal block (12 pins) x 2                                                                                                                                                                                                                                                                                                 |                                                                                                               | 16 outputs, no-voltage make contact, relay contact (NC, NO, C), control current: 2 mA to 5 A,<br>Connector: Removable terminal block (12 pins) x 4 |
| DSP                    | Feedback suppression, Equalizer/Filter, Compressor, Delay and Ambient Noise Control (ANC)                                                                                                                                                                                                                                                                                                                                                          |                                                                                                               |                                                                                                                                                    |
| Audio input            | 4 inputs (Line: -20 dBV / Mic: -60 dBV / ANC sensor, phantom power selectable)                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                                                                                                                                                    |
| Standby Amplifier      | Input: 1, Output: 1 ; Max. Voltage/Current: 100 Vrms, 5 Arms ; Connector: Removable terminal block (2 pins) x 2                                                                                                                                                                                                                                                                                                                                    |                                                                                                               |                                                                                                                                                    |
| Extension Amplifier    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Input: 2, Output: 2, Max. Voltage/Current: 100 Vrms, 5 Arms, Connector: Removable terminal block (2 pins) x 4 | Input: 1, Output: 1 ; Max. Voltage/Current: 100 Vrms, 5 Arms ; Connector: Removable terminal block (2 pins) x 2                                    |
| Power Amplifier        | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                                                                                                             | 2                                                                                                                                                  |
| Dimensions (W x H x D) | 482 x 132.6 x 345 mm (19", 3U)                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                                                                                                                                                    |
| Weight                 | 7.6kg                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               | 7.9 kg                                                                                                                                             |

## VX-3000 series Amplifiers

### VX-015DA / VX-030DA / VX-050DA Digital Power Amplifier Module



- Low loss modular class D amplifiers
- Modules to be mounted in the frame units
- Three different power levels: 150W, 300W or 500W
- Can easily be removed or replaced simply by unplugging them; no need for special tools
- Dust filter, easy to clean
- 100V Output without transformer resulting in light-weight units
- Fuse easily accessible from rear

| Specifications         | VX-015DA                                                                                                                                                    | VX-030DA                                                                                                                                                    | VX-050DA                                                                                                                                                    |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model       | VX-3004F, VX-3008F, VX-3016F                                                                                                                                |                                                                                                                                                             |                                                                                                                                                             |
| Power Source           | 31 V DC (operating range: 20 to 33 V DC)                                                                                                                    |                                                                                                                                                             |                                                                                                                                                             |
| Amplification System   | Class D                                                                                                                                                     |                                                                                                                                                             |                                                                                                                                                             |
| Rated Output Power     | 150 W (at 100 V line)<br>105 W (at 70 V line)<br>75 W (at 50 V line)<br>(at min. resistive & max. capacitive load)<br>(at AC mains VX-3000DS : 187 - 253 V) | 300 W (at 100 V line)<br>210 W (at 70 V line)<br>150 W (at 50 V line)<br>(at min. resistive & max. capacitive load)<br>(at AC Mains VX-3000DS: 187 - 253 V) | 500 W (at 100 V line)<br>350 W (at 70 V line)<br>250 W (at 50 V line)<br>(at min. resistive & max. capacitive load)<br>(at AC Mains VX-3000DS: 187 - 253 V) |
| Output Voltage         | 100 V (70 V, 50 V: selectable)                                                                                                                              |                                                                                                                                                             |                                                                                                                                                             |
| Min. Resistive Load    | 67Ω (100 V), 47Ω (70 V), 33Ω (50 V)                                                                                                                         | 33Ω (100 V), 23Ω (70 V), 17Ω (50 V)                                                                                                                         | 20Ω (100 V), 14Ω (70 V), 10Ω (50 V)                                                                                                                         |
| Max. Capacitive Load   | 0.5 μF                                                                                                                                                      |                                                                                                                                                             |                                                                                                                                                             |
| Frequency Response     | 40 Hz to 20 kHz: - 5 to +1 dB                                                                                                                               |                                                                                                                                                             |                                                                                                                                                             |
| Distortion             | 1 % or less (at 100 V line, A-weighted)                                                                                                                     |                                                                                                                                                             |                                                                                                                                                             |
| Dimensions (W x H x D) | 82.8 x 91 x 358.2 mm                                                                                                                                        |                                                                                                                                                             |                                                                                                                                                             |
| Weight                 | 1.3 kg                                                                                                                                                      |                                                                                                                                                             | 1.4 kg                                                                                                                                                      |

### VM-300SV End of Line Unit



- Speaker line failure can be detected with high accuracy
- Module for installation between the speaker line end and the emergency input terminal of the VX-3008F and VX-3016F.

# VX-3000 series Emergency Remote Microphone

## RM-200SF / RM-320F Wall Mount Remote Microphone / Extension



- For emergency broadcast
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU-switch for emergency broadcast to all zones even in case of a CPU error
- Up to 4 RM-320F Remote Microphone Extension units can be used with each RM-200SF Remote Microphone



### Options

- RM-320F: Key extension unit
- RM-210: Key extension unit
- WB-RM200: Wall-mounting bracket

| Specifications              | RM-200SF                                                                                                       | RM-320F                                   |
|-----------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Power Source                | 24 V DC (operating range: 15 – 40 V DC)                                                                        | From remote microphone                    |
| Current Consumption         | 240 mA or less                                                                                                 | 180 mA max.                               |
| Distortion                  | 1 % or less                                                                                                    | -                                         |
| Frequency Response          | 200 Hz – 15 kHz                                                                                                | -                                         |
| Signal-to-Noise Ratio       | 55 dB or more                                                                                                  | -                                         |
| Audio Output                | 0 dBV, transformer-balanced                                                                                    | -                                         |
| Microphone                  | Unidirectional dynamic microphone with talk key, AGC (ON/OFF switchable)                                       | -                                         |
| Chime                       | Built inside (PCM sound source), Monitoring available with a built-in speaker                                  |                                           |
| Volume Control              | Microphone volume, Monitor speaker volume, Chime volume (using the software)                                   | -                                         |
| Connection Cable            | Main line: Shielded CPEV cable or Shielded Category 5 twisted pair cable for LAN (CAT5-STP), M3 screw terminal | Connection to RM-200SF by dedicated cable |
| No. of Connectable RM -320F | Max. 4 units                                                                                                   | -                                         |
| Key Operation               | Emergency key, Talk key, 3 Function keys                                                                       | 20 Function keys                          |
| Finish                      | ABS resin, bluish gray (PANTONE 538 or its equivalent)                                                         |                                           |
| Dimensions (W x H x D)      | 200 x 215 x 95 mm                                                                                              | 175 x 215 x 70 mm                         |
| Weight                      | 1.48 kg                                                                                                        | 700 g                                     |

## VX-3000 series Remote Microphone

### RM-300X/RM-210F Remote Microphone / Extension



- For both emergency and general purpose broadcast
- Zone selection or all call
- PC-programmable system software permits desired functions to be assigned to individual function keys (equipped with 2 LED indicators)
- RM-210F: Key extension unit with 10 additional keys
- Up to 7 RM-210F Remote Microphone Extension units can be used with each RM-300X Remote Microphone

#### Options

- AD-246: Power supply unit
- WB-RM200: Wall-mounting bracket

| Specifications             | RM-300X                                                                                                                                                                     | RM-210F                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Power Source               | 24VDC (operating range: 15 - 40VDC), supplied from the audio input unit or DC input power supply connector                                                                  | Supplied from the optional RM -300X |
| Current Consumption        | 240mA or less                                                                                                                                                               | 80mA or less                        |
| Audio Output               | 0 dBV, 600Ω, balanced                                                                                                                                                       | -                                   |
| External Microphone Input  | -40 dBV, 2.2kΩ, unbalanced, ø3.5 mm phone jack, phantom powering<br>[When used as AUX input] -20 dBV, 4.7 kΩ, unbalanced                                                    | -                                   |
| Frequency Response         | 100Hz – 20 kHz                                                                                                                                                              | -                                   |
| Distortion                 | 1 % or less                                                                                                                                                                 | -                                   |
| Signal-to-noise Ratio      | 60 dB or more                                                                                                                                                               | -                                   |
| Microphone                 | Unidirectional electret condenser microphone with AGC (ON/OFF selectable)                                                                                                   |                                     |
| Chime                      | Built inside (PCM sound source), Monitoring available with a built-in speaker                                                                                               |                                     |
| Volume Control             | Microphone volume, Monitor speaker volume, Chime volume (using the software)                                                                                                | -                                   |
| Connectable Cable          | Main line: Shielded CPEV cable or Shielded Category 5 twisted pair cable for LAN (CAT5-STP), Branch line: Shielded Category 5 twisted pair cable (CAT5-STP), RJ45 connector |                                     |
| No. of Connectable RM-210F | Max. 7 units                                                                                                                                                                | -                                   |
| Operation                  | Emergency/all-zone emergency broadcast key, Talk key, 13 Function keys                                                                                                      | 10 Function keys                    |
| Finish                     | ABS resin, black                                                                                                                                                            |                                     |
| Dimensions (W x H x D)     | 190 x 76.5 x 215 mm (gooseneck microphone excluded)                                                                                                                         | 110 x 76.5 x 215 mm                 |
| Weight                     | 880 g                                                                                                                                                                       | 350 g                               |

### RM-200RJ Terminal Unit



- Convert the RJ45 connector into a screw terminal block
- Used to connect between a trunk cable (such as CPEV cable) and a feeder cable (such as CAT-5 or CAT-6 cable) in wiring a remote microphone
- Built-in indicator shows the voltage status of DC power cable when the remote microphone cable for the VX-3000 series system is connected

## VX-3000 series Power Supply

### VX-3000DS Power Supply Manager



- DC power supply to all system components
- Combination of two built-in power source units with a high-performance charger
- Automatical switch to auxiliary battery power if the AC power supply is down
- VX-3000DS: EN 54-4 certified, Certificate No: 1134-CPR-137



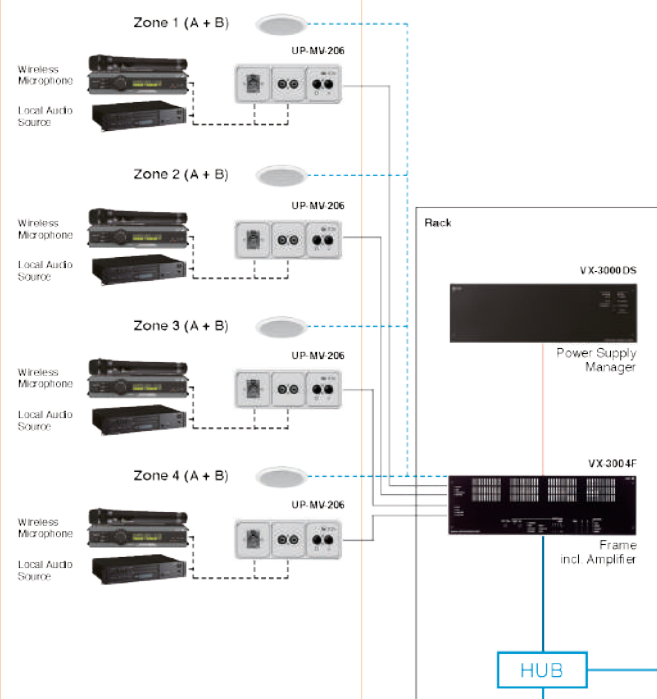
#### Specifications

|                                  | VX-3000DS                                                                                                                                                                                                                                                                        |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Source                     | 220 – 230 VAC, 50/60Hz                                                                                                                                                                                                                                                           |
| Power Consumption                | 2800W max in total (at rated output with charging), 650 w max in total, 350W max each (EN 60065)                                                                                                                                                                                 |
| DC Power Output (AC mode)        | Rated output: 2300W (total DC power output), Peak output: 2780W (total DC power output)                                                                                                                                                                                          |
| DC Power Output                  | 8 x 31 V (19 – 33V) 25A max. each, M4 screw terminal, distance between barriers: 11 mm<br>3 x 31V (19 – 33V) 5A max. each, removable terminal block (3 x 2 pins)<br>1 x 24V (16 – 25V) 0.3A max., removable terminal block (1 x 2 pins)                                          |
| Charging Method                  | Temperature compensated trickle charging                                                                                                                                                                                                                                         |
| Charging Output Voltage          | 27.3V +/- 0.3V (at 25°C), Temperature correction coefficient: -40mV/°C                                                                                                                                                                                                           |
| Battery Connection               | One each positive and negative terminal, applicable cable diameter: AWG 6 – AWG 0 (AWG 1/0) (16mm <sup>2</sup> – 50mm <sup>2</sup> )<br>Line resistance within 4mΩ/ total                                                                                                        |
| Control Connector DS LINK IN/OUT | RJ45 female connector for connecting the system and cascade connection,<br>Shielded Twisted-pair straight cable (TIA/EIA-568A standard)<br>Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, battery failure, and communication |
| Panel Indicator                  | AC power IN 1, IN 2 (Green), Charging (Green), Battery power (Green), Battery connect (Green), Battery condition (Green)                                                                                                                                                         |
| Dimensions (W x H x D)           | 482 x 132.6 x 400.5mm (19", 3U)                                                                                                                                                                                                                                                  |
| Weight                           | 11.8kg                                                                                                                                                                                                                                                                           |

# VX-3000 series Application Example

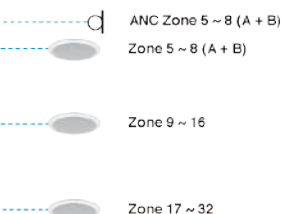
## Area 1: Conference Area

### Conference Rooms



## Area 2: Shopping Arcade

### Mall

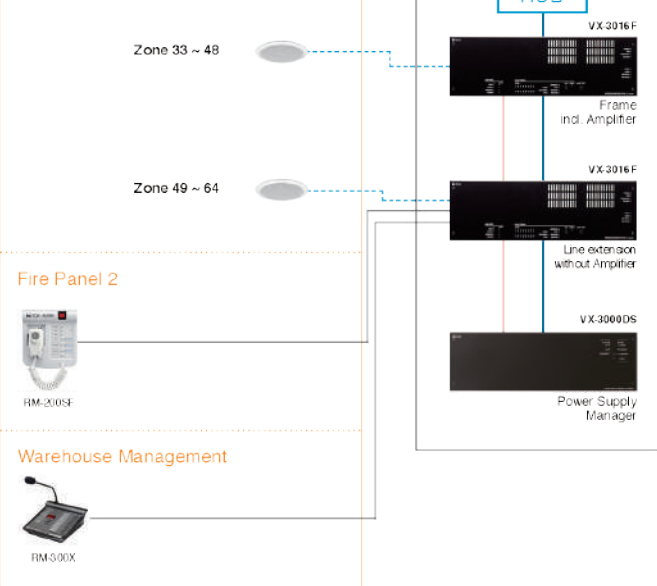


### Control Room



## Area 3: Warehouse

### Storage Areas

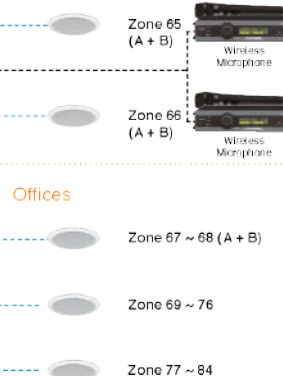


### Fire Panel 2

### Warehouse Management

## Area 4: Center Management

### Training Rooms



### Reception



# VM-3000 series



## VM-3000 series Integrated Voice Evacuation System

### Description

The VM-3000 is a cost-effective integrated public address and voice alarm system. It is designed to fulfil the EN 54 European regulation for voice alarm and also engineered with powerful digital signal processor (DSP), ensuring high quality audio broadcasting for proper speech intelligibility. The compact design enables the system to fit best in various small to medium sized applications such as schools, shopping centres or restaurants.

### System Features

- Cost-effective integrated public address and voice evacuation system
- Easy installation and compact design
- EN 54 certified
- Intuitive and userfriendly configuration through dedicated PC-Software
- 6 – 60 assignable speaker zones
- 4 – 13 MIC/LINE audio inputs (volume setting for each audio output)
- 8 remote microphones max. (4x general + 4x emergency; EN 54: max. 2x emergency or 4x general + 1x emergency)
- 2 selectable BGM audio inputs
- 8 priority levels
- 1,000 system events can be logged
- 6 high quality electronic voice messages
- LCD display of current status and configuration settings
- Built-in emergency microphone
- Simultaneous broadcast of 2 emergency messages (alert and evacuation)
- Remote maintenance via LAN
- Continuous speaker line monitoring without interruption of BGM or paging announcements (no external amplifier required)
- Modbus protocol ready
- Complete fault detection and indication

| Maximum System Capacity |        |
|-------------------------|--------|
| Output Power            | 3,600W |
| Speaker Zones           | 60     |
| Remote Mic connection   | 8      |



Certificate No: 1438-CPD-0180

## VM-3000 series System Management Amplifier



VM-3240VA

### VM-3240VA / VM-3360VA

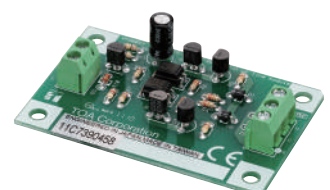
- > 1 unit per system
- > 2 models available: 240 W or 360 W power output
- > 6 recorded general announcements and 2 recorded emergency announcements
- > 8 remote microphones max. (up to 4 emergency remote microphones)
- > 6 zones selectable from the front panel
- > Built-in high quality electronic voice message

### Options

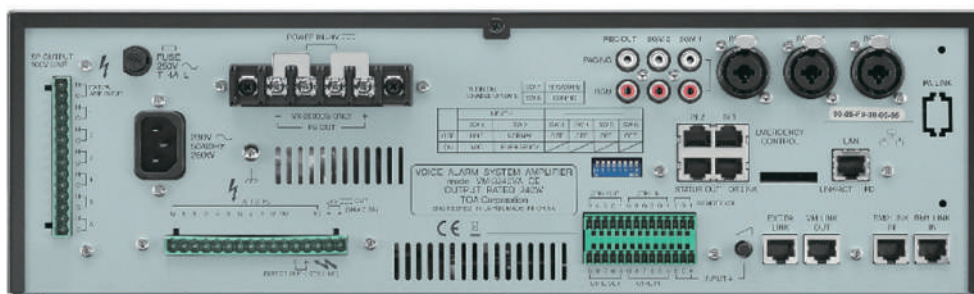
- > VM-3240E: 240W Extension Amplifier
- > VM-3360E: 360W Extension Amplifier
- > RM-300MF: Emergency Microphone
- > RM-200M: General Remote Microphone
- > IT-450: Input Transformer
- > VM-300SV: Pilot Tone Detection Module

### VM-300SV Pilot Tone Detection Module

- > Speaker line failure can be detected with high accuracy when a VM-300SV unit (specifically designed for 100V speaker line) is connected between the speaker line end and the emergency input terminal of the VM-3240VA, VM-3360VA, VM-3240E, or VM-3360E.



# VM-3000 series System Management Amplifier



VM-3240VA (Rear)

| Specifications               | VM-3240VA                                                                                                                                                                                                                                                                                                                                                                                                                           | VM-3360VA                                                     |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Applicable Model             | VM-3240E, VM-3360E, VP-2241, VP-2421, VX-2000DS                                                                                                                                                                                                                                                                                                                                                                                     |                                                               |
| Power Requirement            | 230 VAC, 50/60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                               |
| Power Consumption (AC mains) | 600W (with rated output signal), 260W (according to EN 60065)                                                                                                                                                                                                                                                                                                                                                                       | 850W (with rated output signal), 380W (according to EN 60065) |
| Rated Output                 | 240W                                                                                                                                                                                                                                                                                                                                                                                                                                | 360W                                                          |
| Frequency Response           | 50 Hz – 20 kHz, $\pm 3$ dB (at 1/3 rated output)                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |
| Distortion                   | Under 0.7 % (at rated output, 1 kHz)                                                                                                                                                                                                                                                                                                                                                                                                |                                                               |
| Signal-to-Noise Ratio        | Over 85 dB                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                               |
| Inputs                       | Input 1 – 3: -50 dBV (MIC) / -10 dB (LINE) (changeable), 600 $\Omega$ , electronically balanced combined, XLR connector (female) / phone jack<br>Input 4: -50 dBV (MIC) / -10 dB (LINE) (changeable), 600 $\Omega$ , electronically balanced, removable terminal block (14 x 2 pins)<br>BGM 1 - 2: -10 dB, 10 k $\Omega$ unbalanced, RCA pin jack (2 x 2)<br>External amplifier Input: 100V Line removable terminal block (14 pins) |                                                               |
| Outputs                      | Speaker output 1 - 6: Total within rated output, removable terminal block (14 pins)<br>Direct output from internal or external amplifier, removable terminal block (16 pins)<br>Recording output BGM / Paging 0 dBV, 10 k $\Omega$ , unbalanced, RCA pin jack                                                                                                                                                                       |                                                               |
| Control                      | Input 1 - 8: No-Voltage make contact input, open voltage: 24VDC, short-circuit current: under 2 mA, removable terminal block (14 pins)<br>Output 1 - 8: Isolated open collector output, withstand voltage: 30VDC, operating current: under 10 mA, removable terminal block (14 x 2 pins)                                                                                                                                            |                                                               |
| Emergency Control            | Input 1 - 5: No-Voltage make contact input, open voltage : 24VDC, short-circuit current: under 2mA, RJ45 female connector<br>Input 6: Isolated voltage input: Inactive: -24V $\pm 20$ % / Active: +24V $\pm 20$ %, RJ45 female connector<br>Status out: Relay contact output, withstand voltage: 40VDC, operating current: 2 – 300 mA, RJ45 female connector                                                                        |                                                               |
| Regulated Voltage Output     | 24 VDC, maximum feeding current 0.3 A                                                                                                                                                                                                                                                                                                                                                                                               |                                                               |
| Finish                       | Panel: Surface-treated steel plate, black, 30 % gloss, paint                                                                                                                                                                                                                                                                                                                                                                        |                                                               |
| Dimensions (W x H x D)       | 482 x 132.6 x 431.2 mm (19", 3U)                                                                                                                                                                                                                                                                                                                                                                                                    |                                                               |
| Weight                       | 16.5 kg                                                                                                                                                                                                                                                                                                                                                                                                                             | 19 kg                                                         |

## VM-3000 series Extension Amplifier



VM-3360E



### VM-3240E / VM-3360E

- System management amplifier can be expanded by connecting up to 9 extension amplifiers
- 2 models available: 240 W or 360 W
- 6 speaker line outputs
- 8 control inputs and 8 control outputs for general purpose
- 6 control inputs for emergency purpose and 3 control outputs for status information
- Connection to system management amplifier via VM Link

### Options

- VM-3240VA: 240 W System Amplifier
- VM-3360VA: 360 W System Amplifier
- IT-450: Input Transformer
- VM-300SV: Pilot Tone Detection Module

### Specifications

|                              | VM-3240E                                                                                                                                                                                                                                                                                                                                                    | VM-3360E                                                      |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Applicable Model             | VM-3240VA, VM-3360VA, VP-2241, VP-2421, VX-2000DS                                                                                                                                                                                                                                                                                                           |                                                               |
| Power Requirement            | 230VAC, 50/60 Hz                                                                                                                                                                                                                                                                                                                                            |                                                               |
| Power Consumption (AC mains) | 600W (with rated output signal), 260W (according to EN 60065)                                                                                                                                                                                                                                                                                               | 850W (with rated output signal), 380W (according to EN 60065) |
| Rated Output                 | 240W                                                                                                                                                                                                                                                                                                                                                        | 360W                                                          |
| Frequency Response           | 50Hz – 20kHz $\pm 3$ dB (at 1/3 rated output)                                                                                                                                                                                                                                                                                                               |                                                               |
| Distortion                   | Under 0.7 % (at rated output, 1kHz)                                                                                                                                                                                                                                                                                                                         |                                                               |
| Signal-to-Noise Ratio        | Over 85 dB                                                                                                                                                                                                                                                                                                                                                  |                                                               |
| Inputs                       | External amplifier Input: 100V Line removable terminal block (14 pins)<br>Local input -50 dB (Mic) / -10 dB (Line), 600 $\Omega$ / electronically balanced, removable terminal block (14 x 2 pins)                                                                                                                                                          |                                                               |
| Outputs                      | Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins)<br>Direct output from internal or external amplifier, removable terminal block (16 pins)                                                                                                                                                                                |                                                               |
| Control                      | Input 1 – 8: No-Voltage make contact input, open voltage: 24VDC, short-circuit current: under 2mA, removable terminal block (14 pins)<br>Output 1 – 8: Isolated open collector output, withstand voltage: 30VDC, operating current: under 10mA, removable terminal block (14 pins)                                                                          |                                                               |
| Emergency Control            | Input 1 – 5: No-Voltage make contact input, open voltage : 24VDC, short-circuit current: under 2mA, female connector RJ45<br>Input 6: Isolated voltage input: Inactive; -24V $\pm 20$ % / Active; +24V $\pm 20$ %, RJ45 female connector<br>Status out: Relay contact output, withstand voltage: 40VDC, operating current: 2 – 300mA, RJ45 female connector |                                                               |
| Regulated Voltage Output     | 24VDC, maximum feeding current 0.3A                                                                                                                                                                                                                                                                                                                         |                                                               |
| Finish                       | Panel: Surface-treated steel plate, black, 30 % gloss, paint                                                                                                                                                                                                                                                                                                |                                                               |
| Dimensions (W x H x D)       | 482 x 132.6 x 407mm (19", 3U)                                                                                                                                                                                                                                                                                                                               |                                                               |
| Weight                       | 16.5 kg                                                                                                                                                                                                                                                                                                                                                     | 19 kg                                                         |

## VM-3000 series Emergency Remote Microphone



### RM-300MF

- Exclusively for broadcasts made by firemen in emergency situations
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU-switch for emergency broadcast to all zones even in case of a CPU error

### RM-320F

- 20 function buttons per extension unit
- System software allows assigning of functions to the individual keys
- Up to 3 RM-320F extension units can be connected to the emergency microphone

| Specifications         | RM-300MF                                                          | RM-320F                                              |
|------------------------|-------------------------------------------------------------------|------------------------------------------------------|
| Applicable Model       | VM-3240VA, VM-3360VA, RM-320F                                     | RM-300MF, RM-200XF, RM-200SF                         |
| Power Requirement      | 24V DC (operating range: 14 – 28V DC)                             | From remote microphone                               |
| Current Consumption    | 100mA (up to 550mA with 3x RM-320F)                               | 180mA max. (in terms of DC power inputs of RM-300MF) |
| Frequency Response     | 200Hz – 15kHz                                                     | -                                                    |
| Distortion             | Under 1%                                                          | -                                                    |
| Signal-to-Noise Ratio  | Over 55dB                                                         | -                                                    |
| Audio Output           | 0dBV, 600Ω, balanced                                              | -                                                    |
| Microphone             | Unidirectional dynamic microphone                                 | -                                                    |
| Volume Control         | Microphone, buzzer                                                | -                                                    |
| Key Extension          | Max. 3 RM-320F                                                    | 20 keys, freely assignable                           |
| Connection Cable       | Shielded CPEV cable or Category 5 STP cable, by M3 screw terminal | Connection by way of dedicated cable                 |
| Finish                 | ABS resin, bluish gray (PANTONE 538 or its equivalent)            |                                                      |
| Dimensions (W x H x D) | 200 x 215 x 82.5mm                                                | 175 x 215 x 70mm                                     |
| Weight                 | 1.1 kg                                                            | 700g                                                 |

## VM-3000 series General Remote Microphone



### RM-200M / RM-210

- 11 function keys, 10 freely assignable
- Zone, group and all-call paging, and activating pre-recorded messages
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 4 RM-200M per system management amplifier
- Up to 800 m total cable length
- RM-210: Extension unit with 10 keys with similar functions as the remote microphone RM-200M

### Options

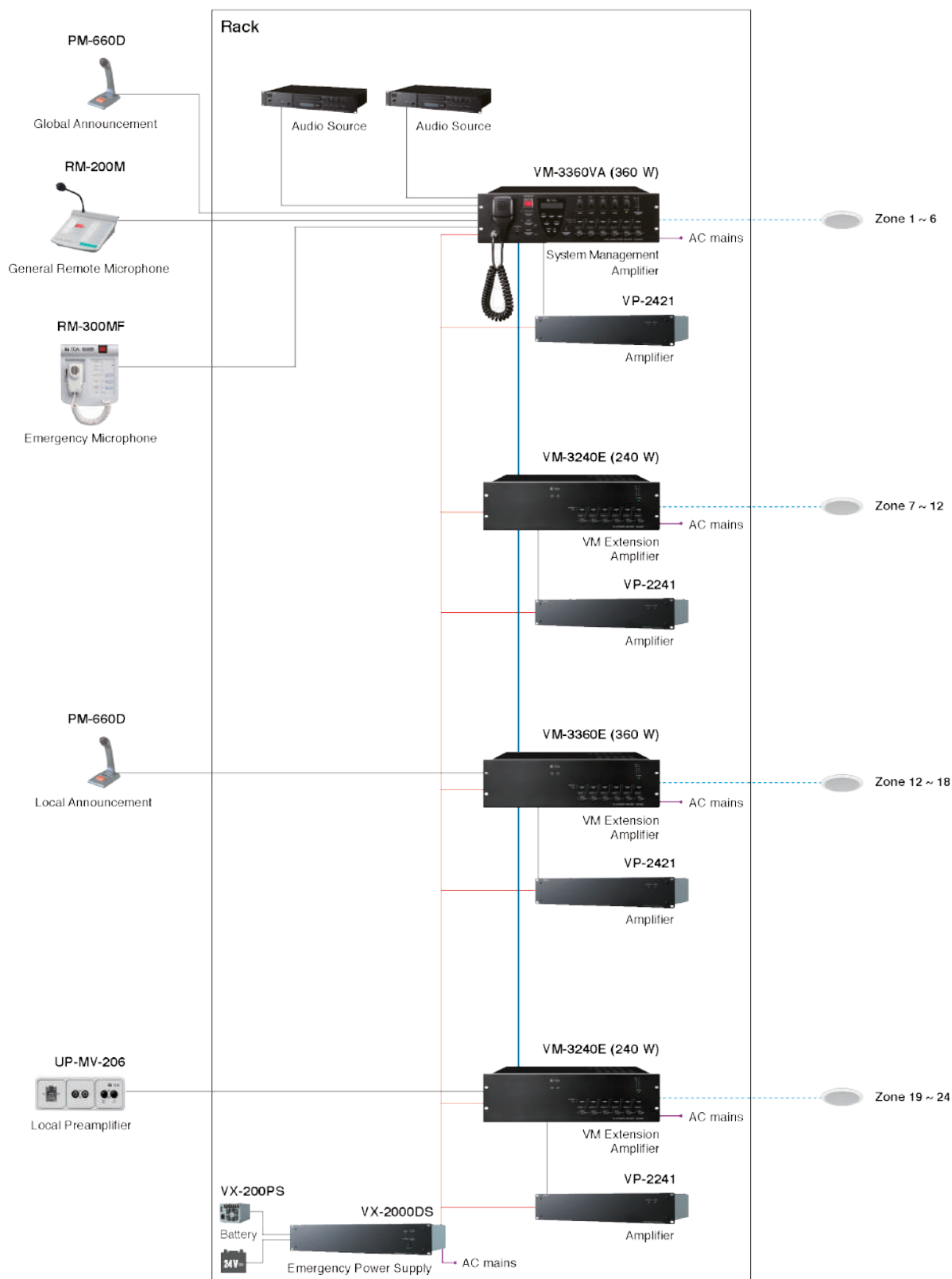
- WH-4000A: Headset
- WB-RM200: Wall-mounting bracket

### Specifications

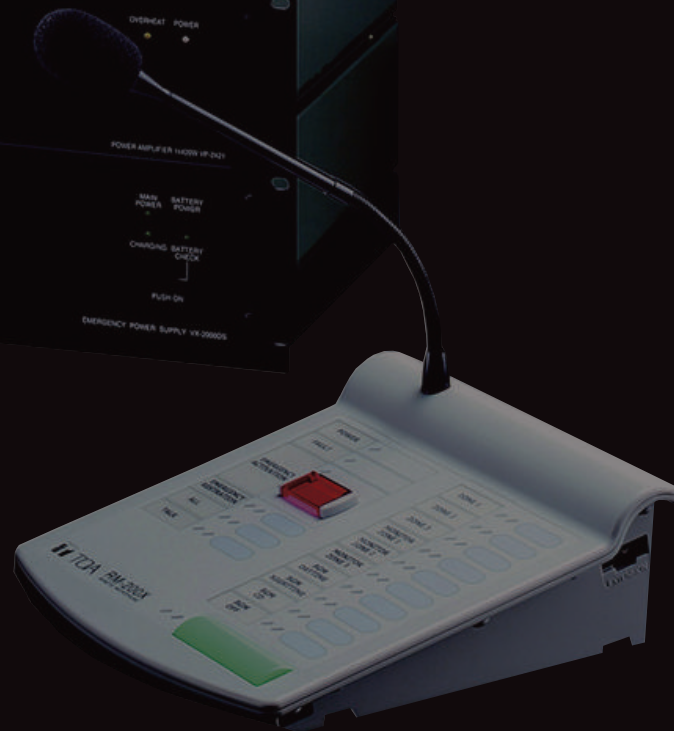
|                                | RM-200M                                                    | RM-210                                            |
|--------------------------------|------------------------------------------------------------|---------------------------------------------------|
| Applicable Model               | VM-3240VA, VM-3360VA, RM-210                               | RM-200M, RM-200X, RM-200XF, RM-200SA, RM-200SF    |
| Power Requirement              | 24VDC (operating range: 14 – 28VDC)                        | From remote microphone                            |
| Current Consumption            | 100mA maximum                                              | 20 mA max. (in terms of RM-200M's DC power input) |
| Frequency Response             | 100 Hz – 20 kHz                                            | -                                                 |
| Distortion                     | Under 1 %                                                  | -                                                 |
| Signal-to-Noise Ratio          | Over 60 dB                                                 | -                                                 |
| Audio Output                   | 0 dBV, 600 Ω, balanced                                     | -                                                 |
| Microphone                     | Unidirectional electret condenser microphone               | -                                                 |
| Zone Control                   | Assignable by PC setting software, Zones, Groups, All call |                                                   |
| Voice Message Control          | Activation of 6 messages                                   |                                                   |
| Key Extension                  | Max. 4 RM-210                                              | 10 keys, freely assignable                        |
| Connection Cable and Connector | Category 5 STP cable, RJ45 connector                       | Connection by way of dedicated cable              |
| Finish                         | ABS resin, bluish gray (PANTONE 538 or its equivalent)     |                                                   |
| Dimensions (W x H x D)         | 190 x 76.5 x 215 mm (Gooseneck microphone excluded)        | 110 x 76.5 x 215 mm                               |
| Weight                         | 750 g                                                      | 350 g                                             |

## VM-3000 series Application Example

Configuration BGM-Announcement: Background music is preserved during announcements in other zones



# VX-2000 series



## VX-2000 series EN 54 Certified Voice Evacuation System

### Description

The VX-2000 Series is a versatile broadcast and public address system that fulfills the requirements of EN60849 / IEC60849 standard for general purpose and emergency broadcasts. It is configured for simple as well as for complex installations.

The total system is composed of a System Manager, Surveillance Frame, Power Amplifiers, Power Supply, Emergency Power Supply, Fireman's Microphone and user-specified number of Remote Microphones.

The most important factor in an emergency system is total reliability. The VX-2000 features include multiple failure detection measures that constantly check components and speaker lines for any faults or abnormalities which are informed via indicators and buzzers. Its fully modular configuration facilitates assembling a system that is ideally optimized for a particular application with specific modules.

### System Features

- Module-base sound system
- Max. 15 external audio inputs and 80 speaker lines
- 4 bus audio matrix
- Max. 128 control inputs and outputs
- Built-in yearly program timer for scheduled broadcasting
- Continuous speaker line monitoring without interruption of BGM or paging announcements
- System status can be confirmed on Remote Microphone
- Simultaneous 2-channel recorded message broadcasts
- Convenient multi-language software for easy configuration and settings included

#### Maximum System Capacity

|                       |          |
|-----------------------|----------|
| Output Power          | 40,000 W |
| Speaker Zones         | 80       |
| Remote Mic connection | 8        |



Certificate No: 1134-CPR-110



## VX-2000 series System Manager



VX-2000



### VX-2000

- Functions as the VX-2000 System Manager
- Input matrix unit that assigns input signals to 4 audio buses
- Up to 8 units of input modules can be mounted in the System Manager
- The VX-2000 can control audio signal routing, priorities, and contacts to peripheral equipment
- Input and output control settings are configured by way of a PC software
- Up to 2,000 system events can be logged and viewed from a PC
- Rack-mountable, 3 units height

### Options

- VX-200XR: Remote Mic Input Module
- VX-200XI: Audio / Control Input Module
- 900 series plug-in modules: M-01F, U-01F, U-01R, U-03R

### Specifications

|                        | VX-2000                                                                                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model       | VX-2000DS, VX-3000DS                                                                                                                                                                       |
| Power Source           | 24VDC (operating range: 20 – 40VDC)                                                                                                                                                        |
| Current consumption    | Under 650mA (20VDC)                                                                                                                                                                        |
| Number of module slots | 8                                                                                                                                                                                          |
| Audio Link Output      | Number of audio buses: 4, 0 dBV, electronically balanced, RJ45 female connector                                                                                                            |
| Monitor Output         | 0dBV, electronically balanced, XLR receptacle (3 pins)                                                                                                                                     |
| Frequency Response     | 20 Hz – 20 kHz                                                                                                                                                                             |
| Distortion             | Under 0.5%                                                                                                                                                                                 |
| Signal-to-noise Ratio  | Over 60 dB                                                                                                                                                                                 |
| Cross Talk             | Under -60 dB (1 kHz, 0 dBV)                                                                                                                                                                |
| Controls               | 16 inputs, RJ45 connector x 2<br>16 outputs, RJ45 connector x 2                                                                                                                            |
| Chime Tone             | Built-in chime: 4-tone chime (up)/ 4-tone chime (down)/ 2-tone chime/ Gong                                                                                                                 |
| Communication System   | PC (setting software to be installed): D-sub connector (9 pins), cross cable, RS-232C,<br>VX-2000SF: RJ45 connector, twisted-pair straight cable (TIA/ EIA-568A standard), LONWORKS RS-485 |
| Finish                 | Panel: Surface-treated steel plate, black, 30% gloss, paint                                                                                                                                |
| Dimensions (W x H x D) | 482 x 132.6 x 337 mm (19" 3U)                                                                                                                                                              |
| Weight                 | 6.4 kg                                                                                                                                                                                     |

## VX-2000 series Surveillance Frame



### VX-2000SF

- Surveillance Frame is the output matrix section of the VX-2000 system
- A total of 10 modules and control modules can be installed
- Assigns audio signals to individual zones from 4 audio buses
- Expandable to up to 8 units
- Rack-mountable, 3 units height
- In case of power amplifier failure, output is automatically switched to the standby amplifier
- Output volume setting with PC system software
- 7 types of modules can be used (please see options)

### Options

- Pilot Tone Detection Modules: VX-200SP, VX-200SP-2, VX-200SP-ANC
- Impedance Detection Modules: VX-200SZ, VX-200SZ-2
- VX-200SI: Control Input Module
- VX-200SO: Control Output Module

### Specifications

|                              | VX-2000SF                                                                                                              |
|------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Applicable Model             | VX-2000DS, VX-3000DS                                                                                                   |
| Power Source                 | 24VDC (operating range: 20 – 40VDC)                                                                                    |
| Current Consumption          | Under 2A (40VDC)                                                                                                       |
| Number of Module Slot        | 10, usable modules: VX-200SZ, VX-200SZ-2, VX-200SP, VX-200SP-2, VX-200SP-ANC, VX-200SI, VX-200SO                       |
| Frequency Response           | 20Hz – 20kHz (when use VX-200SZ / VX-200SZ-2: 120Hz – 20kHz)                                                           |
| Distortion                   | Under 0.5%                                                                                                             |
| Signal-to-Noise Ratio        | Over 60dB                                                                                                              |
| Cross Talk                   | Under -60dB (1kHz, 0dBV)                                                                                               |
| Audio Link Input / Output    | Number of audio busses: 4, 0dBV, electronically balanced, RJ45 female connector                                        |
| Standby Amplifier connection | RJ45 female connector for connecting the VP-3154, VP-3304, VP-3504, VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier |
| Connector                    | VX-2000 / VX-2000SF: RJ45 female connector x 2, LONWORKS RS-485 VX-2000DS: RJ45 connector x 2                          |
| Finish                       | Panel: Surface-treated steel plate, black, 30% gloss, paint                                                            |
| Dimensions (W x H x D)       | 482 x 132.6 x 337mm (19" 3U)                                                                                           |
| Weight                       | 5.6kg                                                                                                                  |

# VX-2000 series System Amplifier



VP-2421



VP-200VX



VP-200VX-BGM

## VP-2064 / VP-2122 / VP-2241 / VP-2421

- 4 different power configurations:
  - 60W x 4 Channels (VP-2064)
  - 120W x 2 Channels (VP-2122)
  - 240W x 1 Channel (VP-2241)
  - 420W x 1 Channel (VP-2421)
- Usable as standby amplifier for emergency switch over
- Power Amplifier uses 1 VP-200VX or VP-200VX-BGM Power Amplifier Input Module per channel
- Programmable power amplifier standby function extends battery-powered operation time in emergency cases

### Options

- VP-200VX: Amplifier Input Module
- VP-200VX-BGM: Amplifier Input Module with additional input for BGM

| Specifications                | VP-2064                                                                                           | VP-2122                                                                                          | VP-2241                                                                                          | VP-2421                                                                                         |
|-------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Applicable Model              | VX-2000DS, VX-3000DS, System VX-2000 / SX-2000                                                    |                                                                                                  | VX-2000DS, VX-3000DS, System VM-3000 / VX-2000 / SX-2000                                         |                                                                                                 |
| Power Source                  | 28 V DC (operating range: 20 – 40 V DC) M4 screw terminal                                         |                                                                                                  |                                                                                                  |                                                                                                 |
| Current Consumption (EN60065) | 4.8 A in total                                                                                    |                                                                                                  |                                                                                                  | 7.6 A                                                                                           |
| Rated Output Power            | 4 x 60 W                                                                                          | 2 x 120 W                                                                                        | 1 x 240 W                                                                                        | 1 x 420 W                                                                                       |
| Output Voltage/Impedance      | 167 Ω (100 V line), 83 Ω (70 V line), 41 Ω (50 V line) (selectable by the internal wiring change) | 83 Ω (100 V line), 41 Ω (70 V line), 21 Ω (50 V line) (selectable by the internal wiring change) | 41 Ω (100 V line), 21 Ω (70 V line), 10 Ω (50 V line) (selectable by the internal wiring change) | 24 Ω (100 V line), 12 Ω (70 V line), 6 Ω (50 V line) (selectable by the internal wiring change) |
| Number of Channels            | 4                                                                                                 | 2                                                                                                | 1                                                                                                |                                                                                                 |
| Input                         | Specified by input module VP-200VX                                                                |                                                                                                  |                                                                                                  |                                                                                                 |
| Number of Module Slots        | 4, usable module: VP-200VX / VP-200VX-BGM                                                         | 2, usable module: VP-200VX / VP-200VX-BGM                                                        | 1, usable module: VP-200VX / VP-200VX-BGM                                                        |                                                                                                 |
| Output                        | Power amplifier output (speaker line): M3.5 screw terminal                                        |                                                                                                  |                                                                                                  |                                                                                                 |
| Frequency Response            | 40 Hz – 16 kHz, ±3 dB (at 1/3 rated output)                                                       |                                                                                                  |                                                                                                  |                                                                                                 |
| Distortion                    | Under 1 % (at rated output, 1 kHz)                                                                |                                                                                                  |                                                                                                  |                                                                                                 |
| Signal-to-noise Ratio         | Over 80 dB                                                                                        |                                                                                                  |                                                                                                  |                                                                                                 |
| Panel Indicator               | Channel power indicator: 4 channels, dual Colour LED Overheat indicator: Yellow LED               |                                                                                                  |                                                                                                  |                                                                                                 |
| Finish                        | Panel: Surface-treated steel plate, black, 30 % gloss, paint                                      |                                                                                                  |                                                                                                  |                                                                                                 |
| Dimensions (W x H x D)        | 482 x 88.4 x 340.5 mm (19", 2U)                                                                   |                                                                                                  |                                                                                                  |                                                                                                 |
| Weight                        | 11.2 kg                                                                                           | 9.1 kg                                                                                           | 8.1 kg                                                                                           | 9.5 kg                                                                                          |

# VX-2000 series Digital Power Amplifier



## VP-3154 / VP-3304 / VP-3504

- > System amplifier for VX-2000 and SX-2000
- > 3 different power configurations:
  - 150W x 4 Channels (VP-3154)
  - 300W x 4 Channels (VP-3304)
  - 500W x 4 Channels (VP-3504)
- > Usable as standby amplifier for emergency switch over
- > Compact, lightweight and energy efficient
- > 4 amplifier input modules are built-in
- > With BGM input ports
- > Usable with VX-3000DS, system VX-2000 / SX-2000

| Specifications              | VP-3154                                                                                                                                                                                                                                                                                                        | VP-3304                                                                                        | VP-3504                                                                                         |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Applicable Model            | VX-3000DS, System VX-2000 / SX-2000                                                                                                                                                                                                                                                                            |                                                                                                |                                                                                                 |
| Power Source from VX-3000DS | 31VDC (operating 20 – 34VDC) DC power in: M4 screw terminal                                                                                                                                                                                                                                                    |                                                                                                |                                                                                                 |
| Amplification System        | Class D                                                                                                                                                                                                                                                                                                        |                                                                                                |                                                                                                 |
| Current Consumption         | 6A (Rated Output Power), 0.6A (Surveillance), 0.1A (Standby), at 31VDC, 100V line, each channel                                                                                                                                                                                                                | 9A (Rated Output Power), 0.6A (Surveillance), 0.1A (Standby) at 31VDC, 100V line, each channel | 13A (Rated Output Power), 0.6A (Surveillance), 0.1A (Standby) at 31VDC, 100V line, each channel |
| Rated Output Power          | 150W x 4 (at 100V line)<br>105W x 4 (at 70V line)<br>75W x 4 (at 50V line)                                                                                                                                                                                                                                     | 300W x 4 (at 100V line)<br>210W x 4 (at 70V line)<br>150W x 4 (at 50V line)                    | 500W x 4 (at 100V line)<br>350W x 4 (at 70V line)<br>250W x 4 (at 50V line)                     |
| Output Voltage              | 100V (70V, 50V: selectable by internal change)                                                                                                                                                                                                                                                                 |                                                                                                |                                                                                                 |
| Minimum Resistive Load      | 67Ω (at 100V line), 47Ω (at 70V line), 33Ω (at 50V line)                                                                                                                                                                                                                                                       | 33Ω (at 100V line), 23Ω (at 70V line), 17Ω (at 50V line)                                       | 20Ω (at 100V line), 14Ω (at 70V line), 10Ω (at 50V line)                                        |
| Maximum Capacitive Load     | 500nF                                                                                                                                                                                                                                                                                                          |                                                                                                |                                                                                                 |
| Number of Channels          | 4                                                                                                                                                                                                                                                                                                              |                                                                                                |                                                                                                 |
| Input                       | PA link: 4 channels, RJ45 connector, BGM: 4 channels, removable terminal block (5 pins)<br>BGM INPUT (H, C, E): -10dB/0 dB (LINE, changeable), 22kΩ, electronically balanced<br>BGM MUTE (G, +): no-voltage make contact input, open voltage: 15VDC, short-circuit current: 2mA, Volume adjustment: 4 channels |                                                                                                |                                                                                                 |
| Output                      | PA out (speaker line): removable terminal block (9 pins) x 1                                                                                                                                                                                                                                                   |                                                                                                |                                                                                                 |
| Frequency Response          | 40Hz – 16kHz, ±3dB (at 100V line, 1/3 rated output)                                                                                                                                                                                                                                                            |                                                                                                |                                                                                                 |
| Distortion                  | 1% or less (at 100V line, rated output, 1kHz)                                                                                                                                                                                                                                                                  |                                                                                                |                                                                                                 |
| Signal-to-noise Ratio       | 80dB or more (at 100V line, A-weighted)                                                                                                                                                                                                                                                                        |                                                                                                |                                                                                                 |
| Crosstalk                   | 60dB or more (at 100V line, A-weighted)                                                                                                                                                                                                                                                                        |                                                                                                |                                                                                                 |
| Panel Indicator             | Power indicator x 4 (Green), Operate indicator x 4 (Green), Input signal indicator x 4 (Green), Peak signal indicator x 4 (Red)                                                                                                                                                                                |                                                                                                |                                                                                                 |
| Operating Temperature       | -5°C to +45°C                                                                                                                                                                                                                                                                                                  |                                                                                                |                                                                                                 |
| Operating Humidity          | 90% RH or less (no condensation)                                                                                                                                                                                                                                                                               |                                                                                                |                                                                                                 |
| Finish                      | Panel: Surface-treated steel plate, black, 30% gloss, paint                                                                                                                                                                                                                                                    |                                                                                                |                                                                                                 |
| Dimensions (W x H x D)      | 482 x 88.4 x 390mm (19" 2U)                                                                                                                                                                                                                                                                                    |                                                                                                |                                                                                                 |
| Weight                      | 7.3kg                                                                                                                                                                                                                                                                                                          |                                                                                                | 7.7kg                                                                                           |

## VX-2000 series Emergency Power Supply



VX-2000DS

### VX-2000DS

- Supplies the DC power to each component in the VX-2000 system by means of the VX-200PS Power Supply Unit
- Keeps the batteries charged
- Ambient temperature controlled charging voltage
- Matching battery: 2 x 12V sealed lead batteries
- Automatically switch-over in case of AC mains failure
- EN 54-4 certified, Certificate No: 1134-CPR-083

### Specifications

|                         | VX-2000DS                                                                                                                                                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model        | System VM-3000 / VX-2000 / SX-2000, not the VP-3000 Series amplifier                                                                                                                                                              |
| Power Source            | 230VAC, 50/60Hz                                                                                                                                                                                                                   |
| Power Consumption       | 240W max.                                                                                                                                                                                                                         |
| Applicable Battery      | Panasonic LC-X1265PG / APG (65Ah) (12V x 2 or 4)                                                                                                                                                                                  |
| Charging Method         | Trickle charging                                                                                                                                                                                                                  |
| Charging Current        | 5A max                                                                                                                                                                                                                            |
| Charging Output Voltage | 27.3V $\pm$ 0.3V (at 25°C) Temperature correction coefficient: -40mV/°C                                                                                                                                                           |
| Power Supply Input      | 6 / M4 screw terminal                                                                                                                                                                                                             |
| DC Power Output         | 6 (25A max. each) M4 screw terminal, distance between barriers: 11 mm                                                                                                                                                             |
| Control Connector       | RJ45 female connector for connecting the VX-2000SF. Twisted-pair straight cable (TIA/EIA-568A standard)<br>Type of control signal: Battery check, AC power status, DC power status, charging circuit failure, and battery failure |
| Battery Connection      | 1 pair of positive and negative terminals, applicable cable diameter: AWG 6 – AWG 0 1/0                                                                                                                                           |
| Operating Temperature   | 0°C to +40°C                                                                                                                                                                                                                      |
| Finish                  | Panel: Surface-treated steel plate, black, 30% gloss, paint                                                                                                                                                                       |
| Dimensions (W x H x D)  | 482 x 88.4 x 377.6 mm (19", 2U)                                                                                                                                                                                                   |
| Weight                  | 10.5 kg                                                                                                                                                                                                                           |

## VX-2000 Serie Power Supply



VX-2000PF



VX-200PS



### VX-200PS

- Power Supply Frame
- 2 DC output channels per unit
- EN 54-4 certified, Certificate No: 1134-CPR-083

### VX-2000PF

- VX-2000PF frame for rack mounting of up to 3 VX-200PS Power Supply Units
- EN 54-16 certified, Certificate No: 1134-CPR-110

### Specifications

|                        | VX-200PS                                                                      | VX-2000PF                                                    |
|------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------|
| Applicable Model       | VX-2000DS                                                                     | VX-200PS                                                     |
| Power Source           | 230VAC, 50/60Hz                                                               | -                                                            |
| Power Consumption      | 580W                                                                          | -                                                            |
| DC Power Output        | Rated output: 210W (29V, 7.25A) x 2, Peak output: 400W x 2, M4 screw terminal | -                                                            |
| Operating Temperature  | 0°C to +40°C                                                                  | -                                                            |
| Finish                 | Surface-treated steel plate                                                   | Panel: Surface-treated steel plate, black, 30 % gloss, paint |
| Dimensions (W x H x D) | 135 x 118.2 x 324.8mm                                                         | 483 x 132.6 x 324.8mm (19" 3U)                               |
| Weight                 | 13.2kg                                                                        | 5.5kg                                                        |

## VX-2000 series Emergency Remote Microphone



### RM-200XF

- For emergency broadcast and general purpose broadcast applications
- Push-button zone selection
- PC-programmable system software allows assigning of functions to the individual keys (each with 2 LED)
- Per 1 RM-200XF up to 10 extensions of RM-210 or RM-320F
- Up to 4 Emergency microphones per 1 system
- CPU-switch for emergency broadcast to all zones even in case of a CPU error
- Automatic failure detection of emergency keys and in the signal path (control and audio signals) between microphone (including microphone element) and system manager

### Options

- RM-210: Extension Unit
- RM-320F: Extension Unit
- WB-RM200: Wall-mounting bracket

### Specifications

|                                | RM-200XF                                                                                             |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| Applicable Model               | VX-200XR in VX-2000, RM-210, RM-320F                                                                 |
| Power Source                   | 24VDC (operating range: 16 – 40VDC)                                                                  |
| Current Consumption            | Under 200 mA (RM-200XF), 850 mA (with 10 RM-210s connected)                                          |
| Audio Output                   | 0dBV, 600Ω, balanced                                                                                 |
| Hand-Held Microphone           | Dynamic microphone, function switch (default: press-to-talk), microphone element fault detection     |
| Frequency Response             | 200 Hz – 15 kHz                                                                                      |
| Signal-to-noise Ratio          | Over 55 dB                                                                                           |
| Functions                      | Internal monitor speaker 200 mW / Volume control: microphone, monitor speaker                        |
| Operation Keys                 | 5 (including hand-held microphone's switch), extendable up to 105 (with 10 RM-210s connected)        |
| Key Extension                  | Max. 10 RM-210 or 5 RM-320F, 10 keys per RM-210, 20 keys per RM-320F                                 |
| Communication                  | System: LONWORKS twisted pair free topology transceiver, Distance: max. 500 m (Free topology wiring) |
| Connection Cable and Connector | Category 5 STP cable, plug-in screw connector                                                        |
| Finish                         | ABS resin, bluish gray (PANTONE 538 or equivalent)                                                   |
| Dimensions (W x H x D)         | 200 x 215 x 82.5 mm (excluding the coiled cord)                                                      |
| Weight                         | 1.2 kg                                                                                               |

## VX-2000 series Remote Microphone



RM-200X



RM-210



WB-RM200



### RM-200X

- For emergency broadcast and general purpose broadcast applications
- PC-programmable system software permits desired functions to be assigned to individual function keys (equipped with 2 LED indicators)
- Up to 8 in total of RM-200X and RM-200XF units can be connected within one system

### RM-210

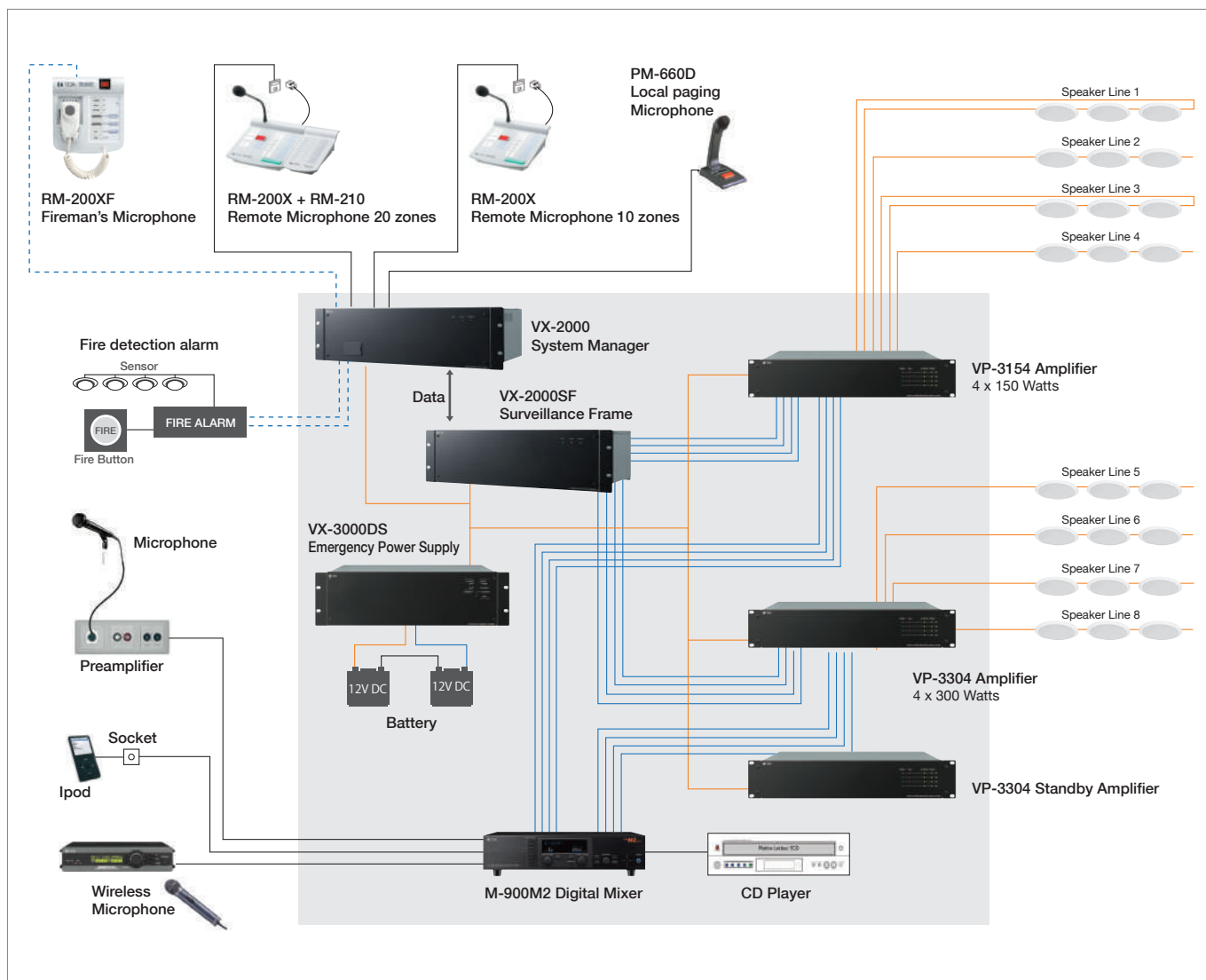
- Key extension unit with 10 additional keys
- Up to 9 RM-210 Remote Microphone Extension Units can be used with each RM-200X Remote Microphone

### Options

- WB-RM200: Wall mounting bracket
- WH-4000A: Headset

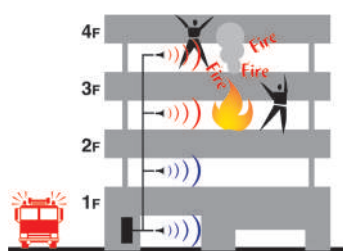
| Specifications                 | RM-200X                                                                                                   | RM-210                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Applicable Model               | VX-200XR in VX-2000, RM-210                                                                               | RM-200M, RM-200X, RM-200XF, RM-200SA, RM-200SF         |
| Power Source                   | 24VDC (operating range: 16 – 40VDC), supplied from RJ45 connector or power input jack (non-polarity type) | From remote microphone                                 |
| Current Consumption            | Under 200 mA (RM-200X), 750 mA (with 9 RM-210s connected)                                                 | 75 mA max. (from remote microphone)                    |
| Audio Output                   | 0 dBV, 600Ω, balanced, RJ45 connector                                                                     | -                                                      |
| External Microphone Input      | -40 dBV, 2.2 kΩ, unbalanced, mini jack, phantom powering                                                  | -                                                      |
| Frequency Response             | 100 Hz – 20 kHz                                                                                           | -                                                      |
| Distortion                     | Under 1 %                                                                                                 | -                                                      |
| Signal-to-noise Ratio          | Over 60 dB                                                                                                | -                                                      |
| Internal Monitor Speaker       | 200 mW                                                                                                    | -                                                      |
| Volume Control                 | Microphone volume control, Monitor speaker volume control                                                 | -                                                      |
| Key Extension                  | Max. 9 RM-210                                                                                             | 10 keys, freely assignable                             |
| Connectable Units              | 8 (including RM-200XF)                                                                                    | -                                                      |
| Communication                  | System: LONWORKS twisted pair free topology transceiver, Distance: max. 500m (Free topology wiring)       | -                                                      |
| Connection Cable and Connector | Category 5 STP cable, RJ45 connector way of dedicated cable                                               | Connection with dedicated cable                        |
| Finish                         | ABS resin, bluish gray (PANTONE 538 or its equivalent)                                                    | ABS resin, bluish gray (PANTONE 538 or its equivalent) |
| Dimensions (W x H x D)         | 190 x 76.5 x 215 mm (gooseneck microphone excluded)                                                       | 110 x 76.5 x 215 mm                                    |
| Weight                         | 850 g                                                                                                     | 350 g                                                  |

## VX-2000 series System Configuration



### Automatic Dual Broadcasting

When activated by a remote microphone or fire detection system link, simultaneous dual broadcasting is possible by using 2 voice announcement cards to allow different messages\* to be available at the same time such as alert and evacuation messages.



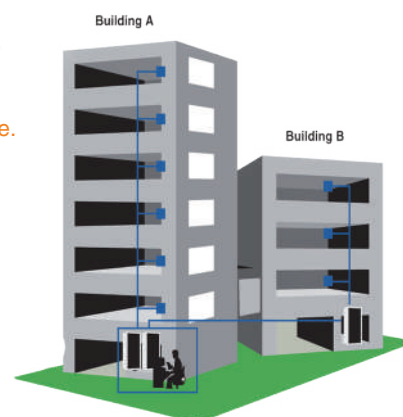
**\*A maximum of 2 broadcasts are simultaneously possible.**  
(2 EV-200M voice announcement boards installed in the VX-2000)

#### Red

In an emergency, the system automatically broadcasts one evacuation message to the buildings 3rd and 4th floors.

#### Blue

Along with the evacuation message, the system automatically broadcasts an alert message to the 1st and 2nd floors simultaneously.



## VX-2000 series Modules for VX-2000

VX-200XI (For VX-2000)



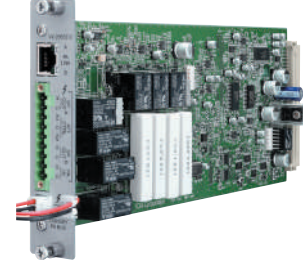
External Equipment

VX-200XR (For VX-2000)



Paging Station Connection

VX-200SZ (For VX-2000)



Impedance Monitoring



### Features VX-200XI

- Audio Input Module with Control Input
- Control input terminals
- Low-cut and high-cut filters
- Gain controls
- Connects e.g. to paging microphone or other sound source equipment with both audio and control outputs
- Audio input sensitivity -70 dB or -20 dB by internal switch
- For input module slot of the VX-2000 frame

### Features VX-200XR

- Remote Microphone Input Module for RM-200X Remote Microphone or RM-200XF Fireman's Microphone
- For VX-2000 frame's input module slot

### Features VX-200SZ

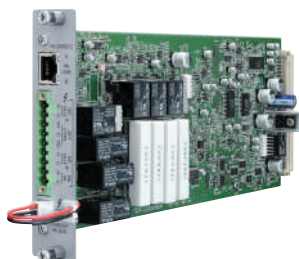
- Impedance Detection Module is an audio signal output module
- Speaker line impedance detection
- For VX-2000SF Surveillance Frame
- Detection of speaker line short circuits, open circuits by comparing impedance values, and ground fault

### Specifications

|                         | VX-200XI                                                                           | VX-200XR                   | VX-200SZ                                                                                      |
|-------------------------|------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------|
| Power Source            | Supplied from VX-2000                                                              | Supplied from VX-2000      | Supplied from VX-2000SF                                                                       |
| Current Consumption     | Under 30 mA                                                                        | Under 17 mA                | Under 150 mA                                                                                  |
| Connectable Microphones | -                                                                                  | RM-200X and RM-200XF       | -                                                                                             |
| Input Sensitivity       | MIC: -70 to -42.5 dBV<br>LINE: -20 to +7.5 dBV<br>MIC or LINE with selector switch | -                          | -                                                                                             |
| Speaker Output          | -                                                                                  | -                          | Plug-in screw connector                                                                       |
| Power Amplifier Input   | -                                                                                  | -                          | Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 power amplifier |
| Fault Detection System  | -                                                                                  | -                          | Short circuit, open circuit (impedance detection method), ground fault                        |
| Control Input           | No-voltage make contact, open voltage: 17 V DC, short circuit current: Under 5 mA  | -                          | -                                                                                             |
| Finish                  | Panel: Aluminium, hairline                                                         | Panel: Aluminium, hairline | Panel: Surface-treated steel plate                                                            |
| Dimensions (W x H x D)  | 35 x 78 x 88 mm                                                                    | 35 x 78 x 88 mm            | 30.5 x 132.6 x 290.3 mm                                                                       |
| Weight                  | 70 g                                                                               | 70 g                       | 320 g                                                                                         |
| Applicable Model        | VX-2000                                                                            | VX-2000                    | VX-2000SF                                                                                     |

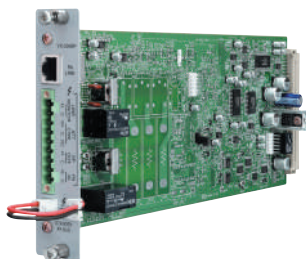
## VX-2000 series Modules for VX-2000SF

VX-200SZ-2 (For VX-2000SF)



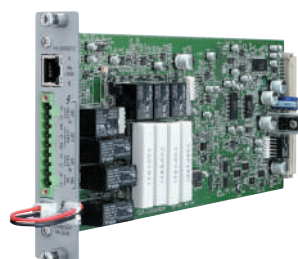
Dual circuit Impedance Monitoring

VX-200SP (For VX-2000SF)



Return Loop Monitoring

VX-200SP-2 (For VX-2000SF)



End of Line Monitoring



### Features VX-200SZ-2

- Impedance Detection Module
- Similar to the VX-200SZ's features
- 2 speaker outputs (A and B), broadcasts can be maintained even if 1 of the 2 outputs fails
- Failures indication by LED on the panel

### Features VX-200SP

- Pilot Tone Detection Module
- Audio signal output module with speaker line pilot tone detection
- Detection of speaker line short circuits, open circuits by monitoring for the presence of a pilot signal, and ground fault

### Features VX-200SP-2

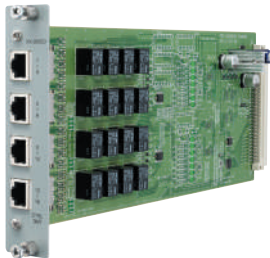
- Consists of Pilot Tone Detection Module + End of Line Module
- Similar to the VX-200SP's features
- Connected to the end of the speaker line
- Eliminates the necessity of using the speaker line for line monitoring
- Shielded cable must be used for the speaker line

### Specifications

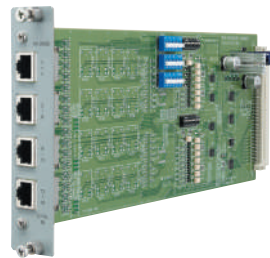
|                              | VX-200SZ-2                                                                                    | VX-200SP                                                                                     | VX-200SP-2                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Power Source                 | Supplied from VX-2000SF                                                                       | Supplied from VX-2000SF                                                                      | Supplied from VX-2000SF                                                                      |
| Current Consumption          | Under 170 mA                                                                                  | Under 100 mA                                                                                 | Under 100 mA                                                                                 |
| Power Amplifier Link         | -                                                                                             | RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. |                                                                                              |
| Line Monitor                 | -                                                                                             | Plug-in screw connector                                                                      | Plug-in screw connector                                                                      |
| External Attenuator          | -                                                                                             | Plug-in screw connector, relay, no-voltage make contact output                               | Plug-in screw connector, relay, no-voltage make contact output                               |
| Control Output               | -                                                                                             | Transfer type, withstand voltage: 30 V DC, 250 V AC, contact current: Under 7A               | Transfer type, withstand voltage: 30 V DC, 250 V AC, contact current: Under 7A               |
| Speaker Output               | 2 outputs (A, B), plug-in screw connector                                                     | Plug-in screw connector                                                                      | Plug-in screw connector                                                                      |
| Power Amplifier Input        | Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier |                                                                                              |                                                                                              |
| Fault Detection System       | Short circuit, open circuit (impedance detection method), ground fault                        | Short circuit, open circuit (pilot tone detection method), ground fault                      | Short circuit, open circuit (pilot tone detection method), ground fault                      |
| Finish                       | Panel: Surface-treated steel plate                                                            | Panel: Surface-treated steel plate                                                           | Panel: Surface-treated steel plate                                                           |
| Dimensions (W x H x D)       | 30.5 x 132.6 x 290.3 mm                                                                       | 30.5 x 132.6 x 290.3 mm                                                                      | 30.5 x 132.6 x 290.3 mm                                                                      |
| Weight                       | 335 g                                                                                         | 240 g                                                                                        | 235 g                                                                                        |
| Applicable Model             | VX-2000SF                                                                                     | VX-2000SF                                                                                    | VX-2000SF                                                                                    |
| End Of Line Unit (Accessory) | -                                                                                             | -                                                                                            | Power supplied from the VX-200SP-2, speaker line connection: Plug-in connector, weight: 22 g |

## VX-2000 series Modules for VX-2000SF

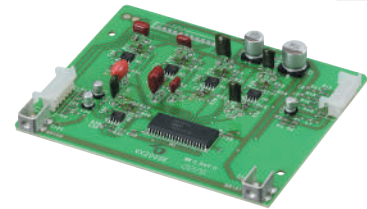
VX-200SO (For VX-2000SF)



VX-200SI (For VX-2000SF)



VX-200SE



### Features VX-200SO

- > Control Output Module
- > Increases the number of control outputs in the VX-2000 system
- > 16 control outputs
- > No-voltage 'make' contacts can be output to external equipment depending on the internal event
- > Up to 128 control outputs per system

### Features VX-200SI

- > Control Input Module
- > Increases the number of control inputs
- > 16 control inputs
- > Receives a contact signal from connected external equipment and controls the system
- > Up to 128 control inputs per system

### Features VX-200SE

- > Equalizer Card
- > 9-band, 1-channel equalizer
- > To be mounted on the circuit board of the VX-200SP Pilot Tone Detection module
- > VX-200SP-2 Pilot Tone Detection module
- > VX-200SZ Impedance Detection module
- > VX-200SZ-2 Impedance Detection module
- > Settings are performed by using the PC system software

### Specifications

|                            | VX-200SO                                                                          | VX-200SI                                                                                                      | VX-200SE                                                          |
|----------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Power Source               | Supplied from VX-2000SF                                                           | Supplied from VX-2000SF                                                                                       | Supplied from VX-200SZ, VX-200SP                                  |
| Current Consumption        | Under 150 mA                                                                      | Under 100 mA                                                                                                  | Under 50 mA                                                       |
| Equalizer Centre Frequency | -                                                                                 | -                                                                                                             | 80 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 12 kHz |
| Gain Range                 | -                                                                                 | -                                                                                                             | ±12 dB, adjustable in 2 dB steps                                  |
| Control Output             | 16 outputs, no-voltage make contact contact capacity: 28 V DC, 1A, RJ45 connector | 16 inputs, no-voltage make contact, open voltage: 24 V DC, short circuit current: under 10mA, RJ45 connector, | -                                                                 |
| Finish                     | Panel: Surface-treated steel plate                                                | Panel: Surface-treated steel plate                                                                            | -                                                                 |
| Dimensions (W x H x D)     | 30.5 x 132.6 x 290.3 mm                                                           | 30.5 x 132.6 x 290.3 mm                                                                                       | 110 x 90 x 21.4 mm                                                |
| Weight                     | 250 g                                                                             | 200 g                                                                                                         | 50 g                                                              |
| Applicable Model           | VX-2000SF                                                                         | VX-2000SF                                                                                                     | VX-200SZ, VX-200SP                                                |

## VX-2000 series Modules for VX-2000SF

VP-200VX (For VP-2000 Amps)/ VP-200VX-BGM



EV-200M (For VX-2000)



### Features VP-200VX

- Power Amplifier Input Module
- For transmission of status and audio signal between amplifier and control module
- To be built into the VP-2064, VP-2122, VP-2241 or VP-2421 power amplifier
- VP-200VX-BGM features additional BGM input plus muting

### Features EV-200M

- Sound Repeater Module
- Up to 7 messages, 5 general messages/ music, 1 alert and 1 evacuation (in compressed format it will allow 20 minutes) plus of message duration and can be re-recorded and played back
- Includes compact memory flash card

### Specifications

|                         | VP-200VX                                                                   | EV-200M                                                 |
|-------------------------|----------------------------------------------------------------------------|---------------------------------------------------------|
| Power Source            | Supplied from VP-2064, VP-2122, VP-2241 or VP-2421                         | 24 V DC, 0.2 A                                          |
| Power Consumption       | Under 30 mA                                                                | 5 W                                                     |
| Output                  | -                                                                          | 0 dBV                                                   |
| Frequency Response      | -                                                                          | 20 Hz - 20 kHz (44.1 kHz sampling)                      |
| Power Amplifier Link    | RJ45 connector for connecting the VX-200SP or VX-200SZ audio output module | -                                                       |
| Distortion              | -                                                                          | Under 0.3% (44.1 kHz, recording method: Extremely high) |
| Playback Mode           | -                                                                          | Single source playback                                  |
| No. of Playback Program | -                                                                          | 8 programs                                              |
| Operating Temperature   | -                                                                          | 0°C to +50°C                                            |
| Finish                  | Panel: Surface-treated steel plate                                         | -                                                       |
| Dimensions (W x H x D)  | 88 x 25.8 x 73.2 mm                                                        | 120 x 18.6 x 121 mm                                     |
| Weight                  | 50 g                                                                       | 110 g                                                   |

## VX-2000 series Modules

M-01



U-03R



### Features M-01

- Microphone input module
- Phantom power
- Balanced, low impedance
- Filter: High pass, low pass
- Connector:M-01F : XLR

### Features U-03R

- U-03R Module Input (RCA connector)
- U-01F Module Aux input (XLR connector)
- U-01S Module Input (Phoenix connector)

### Specifications

|                        | M-01               | U-03R                       |
|------------------------|--------------------|-----------------------------|
| Input Impedance        | 200 Ohm, balanced  | -                           |
| Current Consumption    | 9 mA               | Under 8 mA                  |
| Sensitivity            | -60 dBv            | 100 - 3,600 mV (adjustable) |
| Frequency range        | 25 Hz - 20 kHz     | 20 Hz - 20 kHz              |
| Finish                 | Front: Steel plate | Front: Steel plate          |
| Dimensions (W x H x D) | 35 x 78 x 88 mm    | 35 x 78 x 88 mm             |
| Weight                 | 110 g              | 50g                         |
| Applicable Model       | VX-2000            | VX-2000                     |



## Description

The SX-2000 is a scalable system for configuring versatile and highly effective PA systems. The system features new matrix capabilities, so that a single system can have its components distributed in different locations under centralized control. Ideal for large scale installations ranging from multiple buildings to local systems, the versatile SX-2000 Series is particularly suitable for using in airports and railway stations, factories, shopping malls and large offices. The system's versatility such as dual power source and redundancy for fail-safe operation makes it a reliable solution for any specific installation without long lead times and the expense of custom systems.

## System Configuration

The basic system comprises one SX-2100AI Audio Input Unit, one SX-2000AO or SX-2100AO Audio Output Unit and the SX-2000SM System Manager. It enables from 2 inputs / 8 outputs right up to 64 inputs and 256 outputs, with further expansion to 1,416 control inputs/outputs if needed. The SX-2000 Series makes it simple to control an expanded system by use of networking with commercial switching hub and cables, IP Intercom Network audio adaptor(s) can also be used. It features functions such as feedback suppressor, compressor / auto-leveler, equalizer / filters, and auto mixing (with feedback ducker) to ensure high sound quality. The SX-2100AI modular construction simplifies system configuration as only plug-in modules have to be used. Therefore it allows flexibility of use with a wide range of input devices such as CD player, FM etc. to suit a particular application.

## Fail-Safe Operation

The system is featuring a self-diagnosis to continuously monitor the status as well as speaker lines and connections. It generates alerts and email notifications to the system administrator along with a failure log. Power failure protection is given by two power supply channels plus a battery back-up that keeps the system in operation without requiring an UPS. An additional analog backup line from the microphone to the amplifier allows simultaneous broadcasting even during a breakdown of the system's digital functions. The SX-2000 system can be password-protected and key locked at external devices.

## Features

- > Network-base sound system
- > Max. 64 audio inputs and 256 outputs with 16 bus lines
- > Max. 1,416 control inputs and outputs for system integration
- > Built-in DSP function, event logger and surveillance of amplifiers and speaker lines
- > Max 1,536 zones in combination with VM-3000
- > Max 2,048 zones in combination with TOA's N-8000 series IP Intercom System

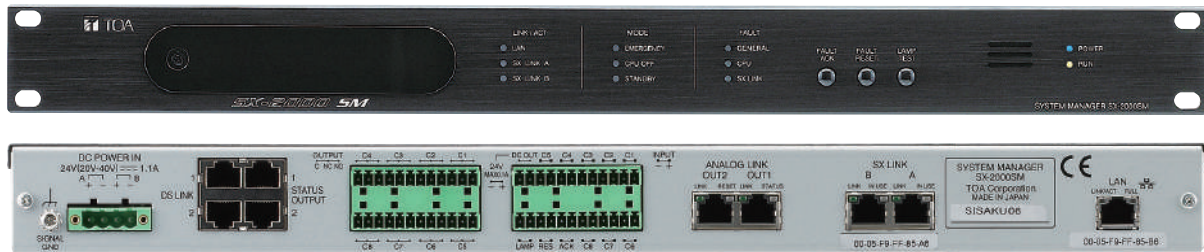
| Maximum System Capacity |          |
|-------------------------|----------|
| Output Power            | 128,000W |
| Speaker Zones           | 256      |
| Remote Mic connection   | 64       |



Certificate No: 1134-CPR-102



## SX-2000 series System Manager



SX-2000SM

### SX-2000SM

- Matrix system in combination with an audio input unit, audio output unit and remote microphone
- Audio signal routing and priority control
- 8 control inputs, 8 control outputs
- Failure status outputs, failure data inputs/switches
- Access indicators, mode indicators and failure indicators enabling a wide range of controls and status monitoring
- Control can be performed by way of a CF card inserted into the SX-2000SM unit
- Operations can be recorded and their contents stored on a CF card as an operation log
- Two power inputs for creation of a dual-redundant power system
- Automatic voice announcement for emergency purpose available
- System settings via Dual LAN connection

### Options

- SX-2000AO: Audio Output Unit
- SX-2100AI: Audio Input Unit
- SX-2100AO: Audio Output Unit

### Specifications

|                        | SX-2000SM                                                                                                                                        |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model       | VX-2000DS, VX-3000DS                                                                                                                             |
| Power Source           | 24VDC; 2 power inputs                                                                                                                            |
| Current Consumption    | Under 0.8A                                                                                                                                       |
| SX Link Network I/F    | 2 x 100 BASE-TX circuits                                                                                                                         |
| LAN                    | Network I/F 1 10 BASE-T/100 BASE-TX circuit. Network Protocol TCP/IP. Connection Cable Shielded Category 5 twisted pair cable for LAN (CAT5-STP) |
| Analog Link            | Input/output connector output: 2. Connection cable shielded category 5 twisted pair cable for LAN (CAT5-STP)                                     |
| Failure Data           | 3 inputs (ACK/RESET/LAMP TEST) and 4 outputs (CPU FAULT/GENERAL FAULT/CPU OFF/BUZZER)                                                            |
| Memory Card            | Insertion slot: 1 (supplied CF card (128MB))                                                                                                     |
| Control                | 8 control outputs, 8 control inputs                                                                                                              |
| Finish                 | Panel: Aluminum, black, alumite, case: Surface-treated steel plate                                                                               |
| Dimensions (W x H x D) | 482 x 44 x 333 mm (19" 1U)                                                                                                                       |
| Weight                 | 3.8 kg                                                                                                                                           |

## SX-2000 series Audio Input Unit



SX-2100AI

### SX-2100AI

- Modular audio input
- 2 to 8 audio inputs per unit
- Multiple units can be decentralized in a whole system
- Audio signals are transmitted digitally to the audio output unit
- Analog audio output function (1 channel) enables simultaneous all-zone calls for use in emergency situations
- Audio input levels (post-fader levels) are indicated on the level meters provided for each input channel
- Volumes can be adjusted for each channel using the volume controls on the front panel or the SX-2000 software
- Volume controls can be locked using the SX-2000 software
- Input channels can be monitored using the internal speaker
- 2 power inputs for redundant power system to support a dual-redundant power supply system

### Options

- SX-200RM: Remote Microphone Interface Module
- RM-200SF: Remote Microphone
- RM-200SA: Remote Microphone
- RM-210: Extension Unit
- D-921E: Mic/Line Input Module
- D-921F: Mic/Line Input Module
- D-922E: Mic/Line Input Module
- D-922F: Mic/Line Input Module
- D-936R: Stereo Select Input Module

### Specifications

|                                                                      | SX-2100AI                                                                  |
|----------------------------------------------------------------------|----------------------------------------------------------------------------|
| Applicable Model                                                     | VX-2000DS, VX-3000DS                                                       |
| Power Source                                                         | 24VDC (2 independent power inputs)                                         |
| Current Consumption                                                  | Under 1.5A (when operated on 24VDC)                                        |
| Audio Inputs                                                         | 8 inputs, for up to 4 modules                                              |
| Audio Input Characteristics                                          | Sampling frequency: 48 kHz                                                 |
| Analog Link<br>Input / Output Connector<br>Connection Cable / Device | 1 input, 1 output,<br>CAT5-STP, max. cable length 800m, 2 x RJ45 connector |
| SX Link Network I/F<br>Connection Cable / Device                     | 2 x 100 Base-TX<br>CAT5-STP, maximum cable length 100m to hub              |
| Operating Temperature                                                | 0 °C to +40 °C                                                             |
| Finish                                                               | Panel: Aluminum, black, alumite, case: Surface-treated steel plate         |
| Dimensions (W x H x D)                                               | 482 x 88.4 x 349 mm (19" 2U)                                               |
| Weight                                                               | 7 kg                                                                       |

## SX-2000 series Input Modules for SX-2100AI



SX-2100AI (Rear)



### SX-200RM

#### Remote Microphone Interface Module

- Can be used to connect two remote microphones
- Input sensitivity can be adjusted



#### Specifications

|                           | SX-200RM                                         |
|---------------------------|--------------------------------------------------|
| Power Source              | Supplied from SX-2100AI                          |
| Input                     | 2 x RJ45 connector for remote microphones        |
| A/D Converter             | 24 bits                                          |
| Frequency Response        | 20 Hz – 20 kHz, $\pm 1$ dB                       |
| Sampling Frequency        | 48 kHz                                           |
| Dynamic Range             | > 100 dB (IHF-A weighted)                        |
| Total Harmonic Distortion | < 0.05 %                                         |
| Finish                    | Panel: Pre-coated steel plate, black, 30 % gloss |
| Dimensions (W x H x D)    | 35 x 119.5 x 178.4 mm                            |
| Weight                    | 190 g                                            |



### SX-200IP

#### IP Interface Module

- Module for mounting in the SX-2100AI, RJ45 connectors
- Enable paging announcement from the N-8000 Series stations (N-8600MS and N-8610RM) to the SX-2000 System

#### Specifications

|                        | SX-200IP                                                                                                                                                                                                                                                                                                           |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Section        | Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation)<br>Network Protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP<br>Voice sampling frequency: 16 kHz, 8 kHz (controllable on the software)<br>Voice packet loss recovery: Silence insertion<br>Audio delay time: 80 ms, 320 ms (controllable on the software) |
| Indicator              | Operation indicator (RUN)                                                                                                                                                                                                                                                                                          |
| Finish                 | Panel: Pre-coated steel plate, black, 30 % gloss                                                                                                                                                                                                                                                                   |
| Dimensions (W x H x D) | 35 x 119.5 x 178.4 mm                                                                                                                                                                                                                                                                                              |
| Weight                 | 150 g                                                                                                                                                                                                                                                                                                              |

**D-921E****Mic/Line Input Module (24 bits monaural type)**

- 2-channel microphone/line input module designed for use with the SX-2100AI
- Equipped with removable terminal block type connectors

**D-921F****Mic/Line Input Module (24 bits monaural type)**

- 2-channel microphone/line input module designed for use with the SX-2100AI
- Equipped with XLR connectors

**D-922E****Mic/Line Input Module (20 bits monaural type)**

- 2-channel microphone/line input module designed for use with the SX-2100AI
- Equipped with removable terminal block type connectors

**D-922F****Mic/Line Input Module (20 bits monaural type)**

- 2-channel microphone/line input module designed for use with the SX-2100AI
- Equipped with XLR connectors

**D-936R****Stereo Select Input Module**

- 4 stereo input module designed for use with the SX-2000AI
- Equipped with standard RCA pin jacks

## SX-2000 series Audio Output Unit



SX-2000AO

### SX-2000AO

- Audio output unit
- Units can be operated in a decentralized system
- 8 audio outputs and 2 inputs, can be mixed
- 8 control inputs and 8 control outputs
- Receives audio signals from the audio input unit via digital transmission
- Analog audio input function (1 channel) enables simultaneous all-zone calls for use in emergency situations
- Audio output levels (post-fader levels) indicated on the level meters separate for each output channel
- Volumes adjustable for each channel by front volume controls or the SX-2000 software
- The volume controls can be locked by SX-2000 software
- Any output channel can be monitored using the internal speaker
- Emergency audio input and 24V emergency cut-off input
- 2 power inputs for dual-redundant power supply system
- For public address applications

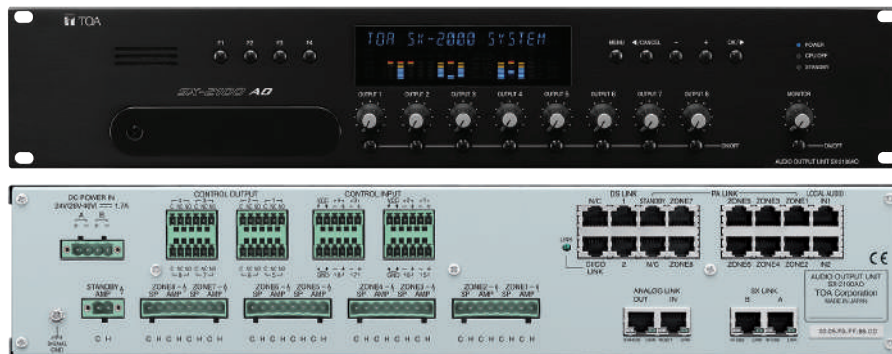
### Options

- SX-2000CI: Control Input Unit
- SX-2000CO: Control Output Unit
- DA-250DH: Digital 2 Channel Amplifier 100V
- DA-250FH: Digital 4 Channel Amplifier 100V
- DA-550FH: Digital 4 Channel Amplifier 100V
- DA-250D: Digital 2 Channel Amplifier 4/8 Ω
- DA-250F: Digital 4 Channel Amplifier 4/8 Ω
- DA-550F: Digital 4 Channel Amplifier 4/8 Ω

### Specifications

|                                | SX-2000AO                                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Applicable Model               | VX-2000DS, VX-3000DS                                                                                            |
| Power Source                   | 24VDC (operating range: 20 – 40VDC from VX-200PS)                                                               |
| Current Consumption            | Under 0.79A                                                                                                     |
| Audio Output                   | 8 outputs, 0 dBV, load: 600Ω or more                                                                            |
| Audio Output Characteristics   | Frequency Response: 20Hz – 20kHz, sampling frequency 48 kHz, D/A converter 24 bit                               |
| Control Input / Control Output | 8 inputs / 8 outputs, removable terminal blocks (6 pins)                                                        |
| Emergency Line Input           | Emergency signals switched and sent to input 1 (H,C,E) by relay, removable terminal blocks (3 pins)             |
| Emergency-Cutoff 24 V Input    | 1 input, input current < 5 mA, removable terminal block (2 pins)                                                |
| Analog Link                    | 1 input, 1 output, connection cable CAT5-STP, max. cable length 800m, 2 x RJ45 connector                        |
| SX Link                        | 2 x 100 Base - TX circuits with RJ 45 connector. Connection cable CAT5-STP, maximum cable length of 100m to hub |
| Finish                         | Panel: Aluminum, black, alumite, case: Surface-treated steel plate                                              |
| Dimensions (W x H x D)         | 482 x 88.4 x 349mm (19" 2U)                                                                                     |
| Weight                         | 6.2kg                                                                                                           |

## SX-2000 series Audio Output Unit



SX-2100AO

### SX-2100AO

- Multiple units can be decentralized in a system
- 8 audio outputs
- 8 control inputs and 8 control outputs
- 1 SX-2000CI Control Input Unit and 1 SX-2000CO Control Output Unit each can be cascaded
- 2 local audio inputs with control inputs are provided for the audio inputs
- Emergency switch over to a standby amplifier
- Analog transmission path (1 channel) enables all-zone calls for use in emergency situations
- 2 channels of link connection terminals for connecting to two VX-2000DS or VX-3000DS
- 2 inputs can be mixed and output
- 2 power inputs for redundant power supply
- Level meters for each output channel allow monitoring of audio output levels
- Output volumes adjustable on the front panel
- Any output channel can be monitored using the internal speaker
- Key lock function
- Automatic control of stand-by amplifier

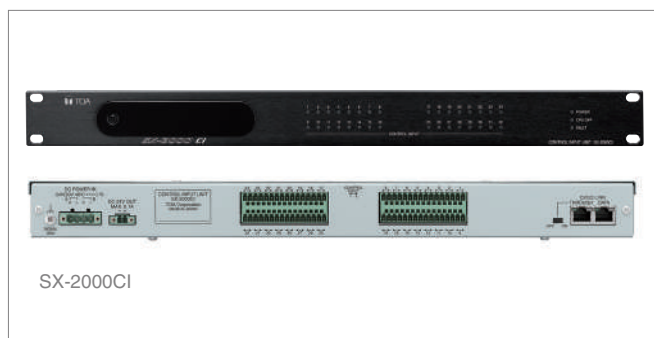
### Options

- SX-2000CI: Control Input Unit
- SX-2000CO: Control Output Unit
- VP-3154: 150W by 4 channels amplifier
- VP-3304: 300W by 4 channels amplifier
- VP-3504: 500W by 4 channels amplifier
- VP-2064: 60W by 4 channels amplifier
- VP-2122: 120W by 2 channels amplifier
- VP-2241: 240W by 1 channel amplifier
- VP-2421: 420W by 1 channel amplifier

### Specifications

|                              | SX-2100AO                                                                                                                                                                                              |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model             | VX-2000DS, VX-3000DS                                                                                                                                                                                   |
| Power Source                 | 24VDC (2 power inputs)                                                                                                                                                                                 |
| Current Consumption          | Under 1.2A                                                                                                                                                                                             |
| Audio Output                 | 8 outputs, 0dBV, load: 600 Ω or more                                                                                                                                                                   |
| Audio Output Characteristics | Frequency Response: 20Hz – 20kHz , sampling frequency 48kHz, D/A converter 24bit                                                                                                                       |
| CI/CO Link                   | SX-2000CI / SX-2000CO: 1 interface, connection cable CAT5-STP, RJ45 connector                                                                                                                          |
| Local Audio Input            | 2 audio inputs, 0dBV, 10kΩ, electronically balanced, RJ45 connector<br>Frequency Response: 20Hz – 20kHz , sampling frequency 48kHz, D/A converter 24bit<br>2 Control inputs Connection cable CAT5-STP, |
| DS Link                      | VX-2000DS, VX-3000DS: 2 interfaces, connection cable CAT5-STP, RJ45 connector, VX-3000DS                                                                                                               |
| Analog Link                  | 1 input, 1 output, connection cable CAT5-STP, RJ45 connector                                                                                                                                           |
| SX Link                      | 2 x 100 Base-TX with RJ 45 connector, connection cable CAT5-STP                                                                                                                                        |
| Finish                       | Panel: Aluminum, black, alumite, Case: Surface-treated steel plate                                                                                                                                     |
| Dimensions (W x H x D)       | 482 x 88.4 x 349mm (19" 2U)                                                                                                                                                                            |
| Weight                       | 7.1 kg                                                                                                                                                                                                 |

## SX-2000 series Control Input Unit/Control Output Unit

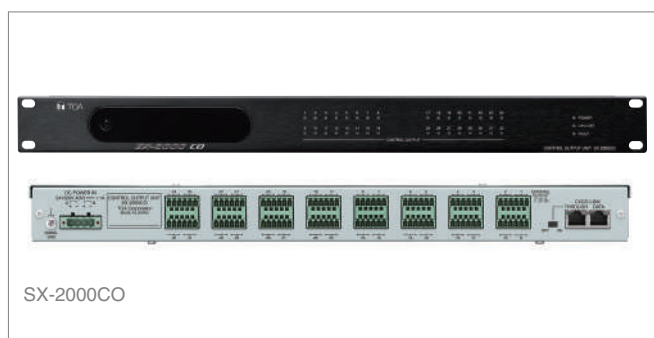


### SX-2000CI Control Input Unit

- 32 control inputs
- Control input line failure detection
- Front panel LED for monitoring the line status
- Supply of stabilized 24VDC
- 2 independent power inputs
- Decentralised installation of multiple units possible
- RJ45 connectors

### Options

- SX-2100AO: Audio Output Unit
- SX-2000AO: Audio Output Unit



### SX-2000CO Control Output Unit

- 32 control outputs
- Front panel LED for monitoring the line status
- Supply of stabilized 24VDC
- 2 independent power inputs
- Decentralised installation of multiple units possible
- RJ45 connectors

### Options

- SX-2100AO: Audio Output Unit
- SX-2000AO: Audio Output Unit



### Specifications

|                         | SX-2000CI                                                          | SX-2000CO                               |
|-------------------------|--------------------------------------------------------------------|-----------------------------------------|
| Applicable Model        | VX-2000DS, VX-3000DS                                               |                                         |
| Power Source            | 24VDC, 2 independent Inputs                                        |                                         |
| Current Consumption     | 0.55A or less (when operated on 24VDC)                             | 0.29A or less (when operated on 24 VDC) |
| Control Input           | 32 inputs                                                          | 32 outputs                              |
| CI/CO Link              |                                                                    |                                         |
| Input/Output Connector  | Input: 1, output: 1, RJ45 connector                                |                                         |
| Connection Cable        | Shielded category 5 twisted pair cable (CAT5-STP)                  |                                         |
| Maximum Cable Distance  | 800m                                                               |                                         |
| 24V DC Output           |                                                                    |                                         |
| Output Voltage          | 24VDC $\pm 10\%$ or less                                           | -                                       |
| Maximum Feeding Current | 100mA                                                              | -                                       |
| Connector               | Removable terminal block (2 pins)                                  | -                                       |
| Finish                  | Panel: Aluminum, black, alumite, Case: Surface-treated steel plate |                                         |
| Dimensions              | 482 x 44 x 331.5mm (19", 1U)                                       |                                         |
| Weight                  | 3.6kg                                                              |                                         |



### RM-200SA / RM-210

- 13 function switches
- Zone, group, all-call paging, and activate pre-recorded messages
- Emergency sequence can be started with the alarm button which is covered by a hinged lid
- Indication of system failure, line failure, busy zones, etc.
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 64 remote microphones can be connected
- Covered switch prevents against accidental use
- RM-210: Allows extended zone selection

### RM-200SF

- Further product information and specifications please see page 7

### Options

- WH-4000A: Headset
- WB-RM200: Wall mounting bracket

| Specifications                 | RM-200SA                                                                                                                    | RM-210                                              |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Applicable Model               | SX-200RM in SX-2100AI, RM-210                                                                                               | RM-200M, RM-200X, RM-200XF, RM-200SA, RM-200SF      |
| Power Requirement              | 24VDC (operating range: 15 – 40VDC)                                                                                         | From remote microphone                              |
| Current Consumption            | 240mA maximum                                                                                                               | 80mA max. (in terms of DC power inputs of RM-200SA) |
| Distortion                     | Under 1%                                                                                                                    | -                                                   |
| Frequency Response             | 100Hz – 20kHz                                                                                                               | -                                                   |
| Signal-to-Noise Ratio          | Over 60dB                                                                                                                   | -                                                   |
| Audio Output                   | 0dBV, 600Ω, balanced                                                                                                        | -                                                   |
| Microphone                     | Uni directional electret condenser microphone                                                                               | -                                                   |
| Volume Control                 | Microphone, buzzer, monitor speaker                                                                                         | -                                                   |
| Emergency Broadcast            | Activation of emergency broadcast (pre-recorded announcement or live microphone announcement) by emergency broadcast switch | -                                                   |
| Voice Message Control          | Activation of up to 32 messages                                                                                             | -                                                   |
| Key Extension                  | Max. 4 RM-210                                                                                                               | 10 keys, freely assignable                          |
| Connection Cable and Connector | Category 5 STP cable, RJ45 connector                                                                                        | Connection by way of dedicated cable                |
| Finish                         | ABS resin, bluish gray (PANTONE 538 or its equivalent)                                                                      |                                                     |
| Dimensions (W x H x D)         | 190 x 76.5 x 215mm (Gooseneck microphone excluded)                                                                          | 110 x 76.5 x 215mm                                  |
| Weight                         | 880g                                                                                                                        | 350g                                                |

## SX-2000 series IP Remote Microphone Station



N-8610RM

### N-8610RM

- Connection via LAN or switching hub and SX-200IP
- Can make a paging call to any selected zone(s) of SX-2000 System
- Two way communication capability with other stations in N-8000 Intercom System
- 14 function keys
- Up to 4 RM-210 Extension units can be connected
- Powered by PoE-compatible switching hub or optional AC adapter

### Options

- RM-210: Key extension unit
- WB-RM200: Wall mounting bracket
- AD-1210P: AC Adapter
- SX-200IP: IP Interface Module

### Specifications

|                            | N-8610RM                                                                                                                                                            |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model           | SX-200IP in SX-2100AI                                                                                                                                               |
| Power Source               | Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))                                                       |
| Power Consumption          | 4W (Use of the AC adapter, 12VDC), 8.5W (when connecting 4 RM-210 Extension units)<br>5.2W (Use of the PoE, 48VDC), 7.5W (when connecting 4 RM-210 Extension units) |
| Key Extension              | Max. 4 RM-210 (maximum 2 units at PoE power supply)                                                                                                                 |
| Network Section            |                                                                                                                                                                     |
| Network I/F                | 10BASE-T/100BASE-TX (Automatic-Negotiation)                                                                                                                         |
| Network Protocol           | TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP                                                                                                                             |
| Audio Packet               |                                                                                                                                                                     |
| Transmission System        | Unicast, Multicast                                                                                                                                                  |
| Voice Packet Loss Recovery | Silence insertion                                                                                                                                                   |
| Audio Delay Time           | 80 ms, 320 ms (controllable on the software)                                                                                                                        |
| Finish                     | ABS resin, bluish gray (PANTONE 538 or its equivalent)                                                                                                              |
| Dimensions (W x H x D)     | 190 x 76.5 x 215 mm (excluding microphone)                                                                                                                          |
| Weight                     | 700 g                                                                                                                                                               |

## SX-2000 series Terminal Unit



RM-200RJ

### RM-200RJ

- Convert the RJ45 connector into a screw terminal block
- Used to connect between a trunk cable (such as CPEV cable) and a feeder cable (such as CAT-5 or CAT-6 cable) in wiring a remote microphone
- Built-in indicator shows the voltage status of DC power cable when the remote microphone cable for the SX-2000 series system is connected

### Specifications

|                        | RM-200RJ                                                                                                                                                |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicable Model       | SX-2100AI, RM-200SA, RM-200SF                                                                                                                           |
| Applied Voltage        | Under 40V                                                                                                                                               |
| Withstand Voltage      | 1A                                                                                                                                                      |
| Voltage Indicator      | Monitor terminals: terminal No 7 (+) and terminal No 8 (-), extinguish voltage: 14V or less, lighting voltage: 21V or more, indicator ON/OFF switchable |
| Connector              | RJ45 connector: 1                                                                                                                                       |
| Terminal               | M3 screw terminal (10 pins), distance between barriers: 6.62mm                                                                                          |
| Finish                 | Surface-treated steel plate, black, paint                                                                                                               |
| Dimensions (W x H x D) | 84 x 116 x 25.7mm                                                                                                                                       |
| Weight                 | 250g                                                                                                                                                    |

## SX-2000 series System Configuration

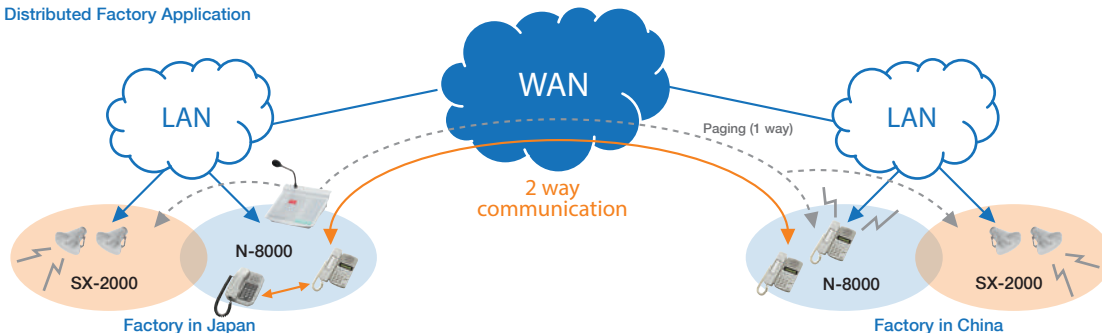
### Integration of SX-2000 with N-8000 IP Intercom strengthens system capabilities.

A large system with up to 2048 zones is realized on the IP Network.

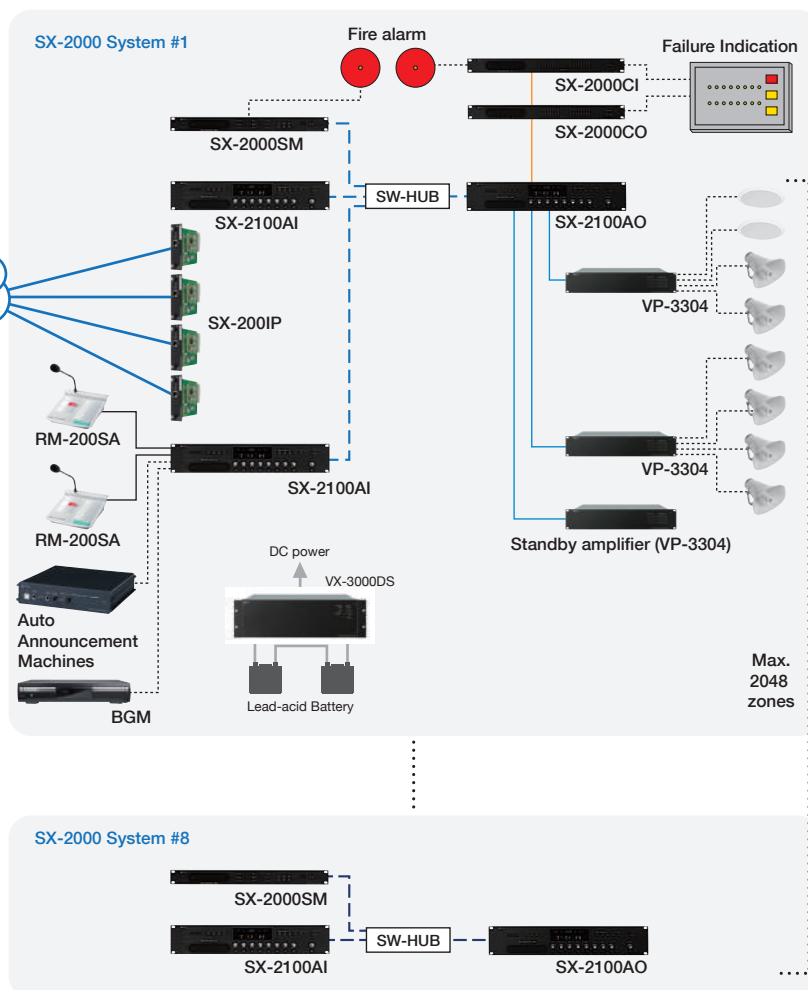
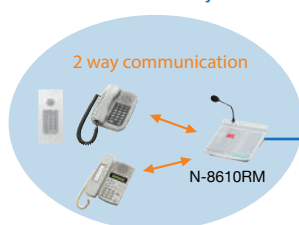
From a remote location, IP Station\* can make a paging call to any selected zone(s).

\*N-8610RM and N-8600MS

#### Example: Distributed Factory Application

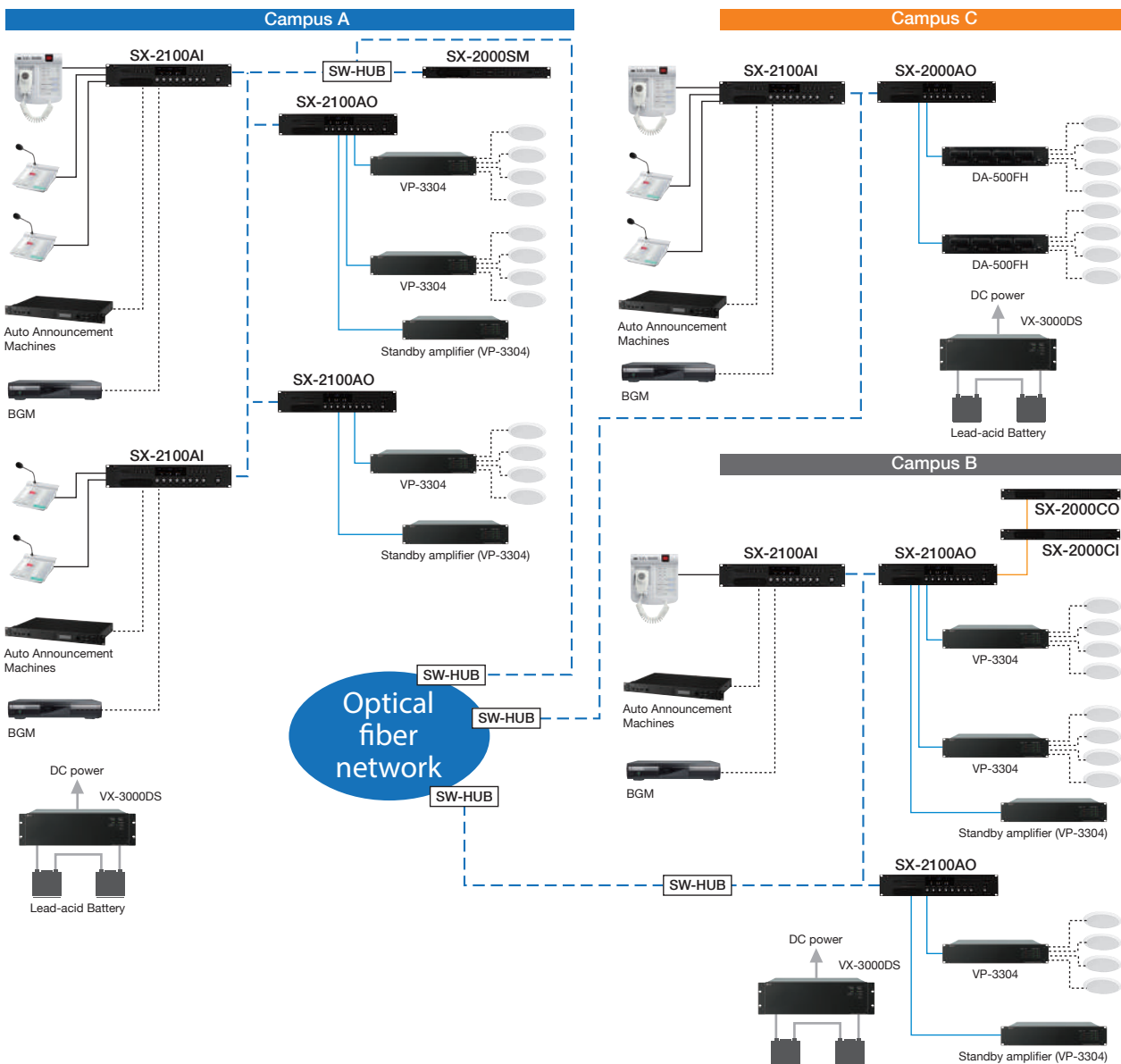
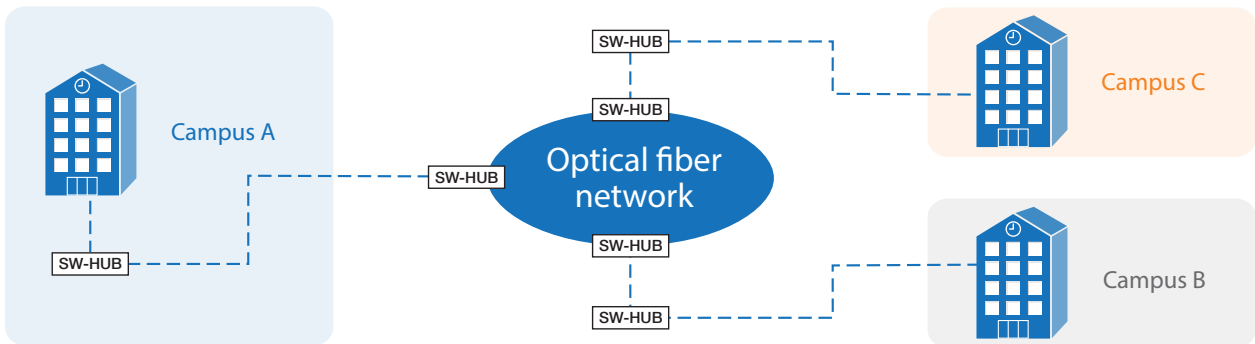


#### N-8000 IP Intercom System



## SX-2000 series System Configuration

### Distributed Control System Example (University)





# VM-2000

## series



## VM-2000 series Cost-effective Package Amplifier

### VM-2000 - Description

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.

### Features

- > All-in-one package amplifiers
- > Built-in chime, control inputs and outputs
- > Options of surveillance and voice announcement boards
- > 3 x Mic/Line, 2 x BGM, 1 x telephone page inputs
- > 2 BUS

#### Maximum System Capacity

|                       |          |
|-----------------------|----------|
| Output Power          | 2,160W   |
| Speaker Zones         | 45 zones |
| Remote Mic connection | 4 units  |



## VM-2000 series System Management Amplifier

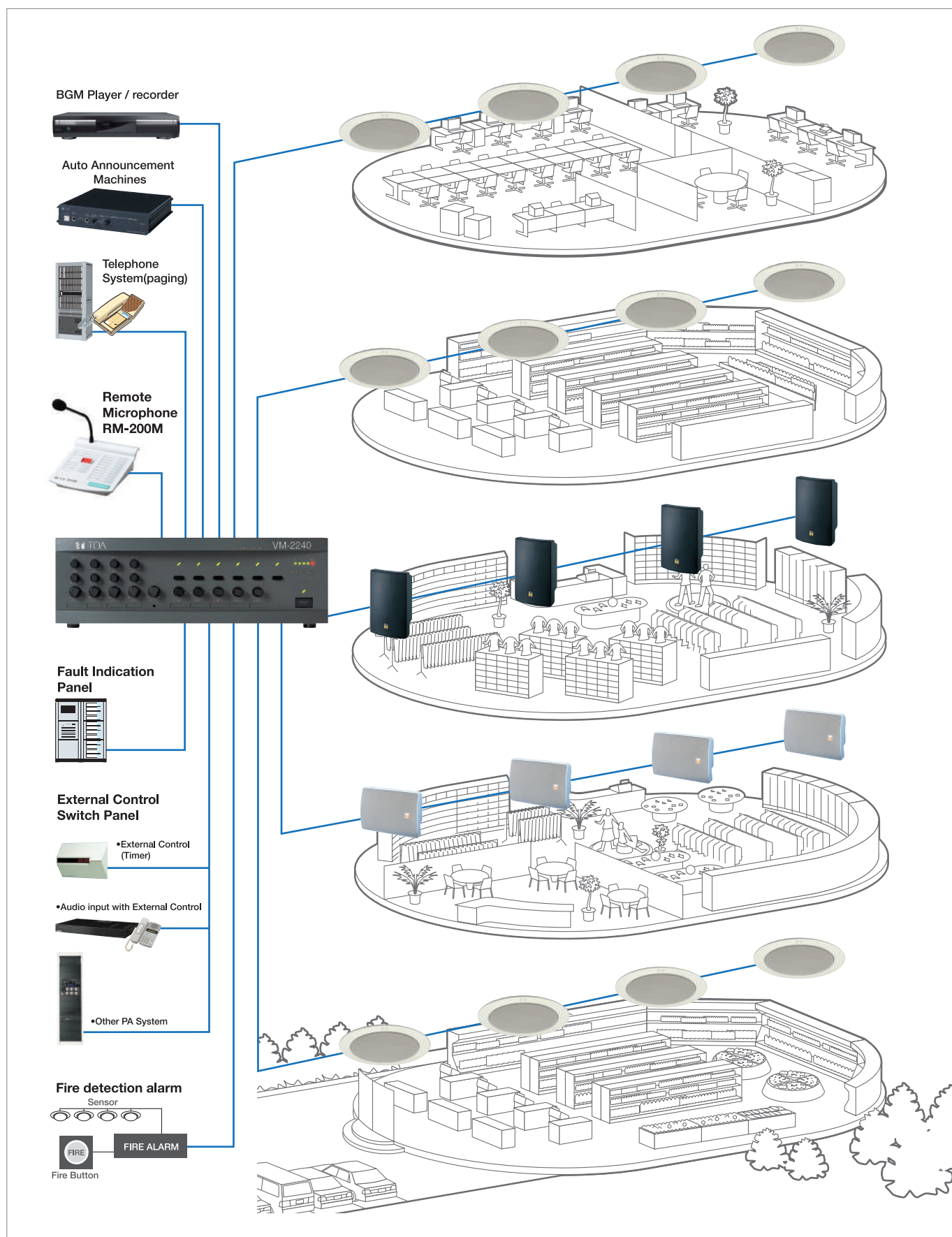


VM-2120/VM2240

### Specifications

|                                    | VM-2120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | VM-2240 |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Power Requirement                  | AC mains, 50/60Hz or 24V DC, 7.5A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| Rated Output                       | 120 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 240 W   |
| Frequency Response                 | 50Hz – 16kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
| Distortion                         | Under 1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
| S/N Ratio                          | Over 60 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| Tone Control                       | Bass: 100 Hz $\pm$ 10 dB, Treble: 10 kHz $\pm$ 10 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
| Input                              | Mic/Line input $\times$ 3<br>Telephone paging input<br>BGM input $\times$ 2<br>Power amplifier input<br>External speaker line input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |
| Output                             | Speaker output<br>Direct speaker line output<br>Line output<br>Recording output<br>Preamplifier output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| Control Input and Output           | (1) External control input <ul style="list-style-type: none"> <li>•Activation of messages</li> <li>•Activation of power</li> <li>•Activation and stop of Emergency Broadcast</li> <li>•Unit's broadcast cutoff (when activated by an external emergency equipment)</li> </ul> (2) Status output <ul style="list-style-type: none"> <li>•Irregularity of communications with the Remote Microphone and an expansion amplifier</li> <li>•AC power condition</li> <li>•DC power condition</li> <li>•Irregularity of the sound source of the Voice Announcement Board</li> <li>•Failure (FAULT) indication on</li> <li>•Power switch on</li> </ul> |         |
| External Attenuator Control Output | Plug-in screw connector, 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      | Input: No-voltage make contact input, open voltage: 3.3 V DC, short-circuit current: under 1 mA<br>Output: Open collector output, withstand voltage: 30 V DC, control current: under 10 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| Chime Tone                         | Built-in chime, Voice Announcement Board sound source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |
| Function                           | Two units stacking (VM-2120 or VM-2240)<br>Emergency broadcast (sequential control)<br>Broadcast priority control<br>Surveillance (failure detection) function<br>Power supply to only one Remote Microphone (RM-200M)<br>Line resistance: Under 40 $\Omega$ (one way)                                                                                                                                                                                                                                                                                                                                                                         |         |
| Dimensions (W x H x D)             | 419 $\times$ 143.3 $\times$ 355.7 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |

# VM-2000 series System Configuration





Indicates that the speaker EN54-24 certified and is therefore legalized for use in conjunction with fire detection systems



Indicates that the speaker is fully compliant to the BS5839 part 8 code of practice

## SPEAKER lineup

### Flush Mount Type Ceiling Speakers



| Specifications         | PC-1869                                               | PC-2369                                               | PC-2852                                                  | PC-2869                                               |
|------------------------|-------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|
| Rated Input            | 6W                                                    | 6W                                                    | 15W                                                      | 6W                                                    |
| Tap Settings           | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W | 100V: 15W, 10W, 5W, 3W<br>70V: 15W, 7.5W, 5W, 2.5W, 1.5W | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W |
| Sensitivity (1W, 1m)   | 90dB <sup>*1</sup>                                    | 93dB <sup>*1</sup>                                    | 96dB <sup>*1</sup>                                       | 94dB <sup>*1</sup>                                    |
| Frequency Response     | 55Hz – 18kHz                                          | 45Hz – 20kHz                                          | 45Hz – 20kHz                                             | 40Hz – 20kHz                                          |
| Mounting Hole Diameter | ø150 +/-3mm                                           | ø200 +/-3mm                                           | ø250 +/-3mm                                              | ø250 +/-3mm                                           |
| Speaker Component      | 5" cone-type                                          | 6" double cone-type                                   | 8" coaxial cone-type                                     | 8" double cone-type                                   |
| Color                  | off-white (RAL 9010 or equivalent color)              |                                                       |                                                          |                                                       |
| Dimensions             | 180(Dia.) x 72(D) mm                                  | 230(Dia.) x 79 (D) mm                                 | 280(Dia.) x 92(D) mm                                     | 280(Dia.) x 92(D) mm                                  |



| Specifications         | PC-648R                                  | PC-658R                                 | PC-580RU                                                     | PC-580RVU                                                    |
|------------------------|------------------------------------------|-----------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Rated Input            | 6W                                       | 6W                                      | 5W                                                           | 5W                                                           |
| Tap Settings           | 100V: 6W, 3W, 1W<br>70V: 3W, 1.5W, 0.5W  | 100V: 6W, 3W, 1W<br>70V: 3W, 1.5W, 0.5W | 70V: 5W, 2W, 1W, 0.5W, 0.25W<br>25V: 5W, 2W, 1W, 0.5W, 0.25W | 70V: 5W, 2W, 1W, 0.5W, 0.25W<br>25V: 5W, 2W, 1W, 0.5W, 0.25W |
| Sensitivity (1W, 1m)   | 90dB <sup>*1</sup>                       | 90dB <sup>*1</sup>                      | 97dB                                                         | 97dB                                                         |
| Frequency Response     | 100Hz – 18kHz                            | 65Hz – 18kHz                            | 50Hz – 16.5kHz                                               |                                                              |
| Mounting Hole Diameter | ø145 +/-5mm                              | ø170 +/-5mm                             | 203.2(Dia.) mm                                               |                                                              |
| Speaker Component      | 5" cone-type                             | 6" cone-type                            | 8" Dual cone type                                            |                                                              |
| Color                  | off-white (RAL 9010 or equivalent color) |                                         | White                                                        |                                                              |
| Dimensions             | 168(Dia.) x 77(D) mm                     | 192(Dia.) x 73(D) mm                    | 324(Dia.) x 85(D) mm                                         | 324(Dia.) x 96.2 (D) mm                                      |

### Flush Mount Type Ceiling Speakers



| Specifications         | PC-1869EN                                                     | PC-2369EN                                                     | PC-245AB-EB                             |
|------------------------|---------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------|
| Rated Input            | 6W                                                            | 6W                                                            | 6W                                      |
| Tap Settings           | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W | 100V: 6W, 3W, 1.5W                      |
| Sensitivity (1W, 1m)   | 94dB <sup>*1</sup>                                            | 94dB <sup>*1</sup>                                            | 88dB                                    |
| Frequency Response     | 100Hz – 18kHz                                                 | 70Hz – 18kHz                                                  | 150Hz - 20kHz                           |
| Mounting Hole Diameter | 150 (Dia.) ±3 mm                                              | 200 (Dia.) ±3 mm                                              | 200 (Dia.) - 235 (Dia.) mm              |
| Speaker Component      | 5" cone-type                                                  | 6" double cone-type                                           | 3x5" full range dual cone (A/B 2-lines) |
| Color                  | off-white (RAL 9010 or equivalent color)                      |                                                               | White                                   |
| Dimensions             | 180(Dia.) x 77.5 (D) mm                                       | 230(Dia.) x 113.8 (D) mm                                      | 245(Dia.) x 131 (D) mm                  |

### Firedoom Speakers



| Specifications         | PC-1867F                                                      | PC-1867FC                                                     |
|------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Rated Input            | 6W                                                            | 6W                                                            |
| Tap Settings           | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W |
| Sensitivity (1W, 1m)   | 90dB <sup>*1</sup>                                            | 90dB <sup>*1</sup>                                            |
| Frequency Response     | 100Hz – 16kHz                                                 | 160Hz – 13kHz                                                 |
| Mounting Hole Diameter | ø156 mm +/-3 mm                                               | ø156 mm +/-3 mm                                               |
| Speaker Component      | 5" cone-type                                                  | 5" cone-type                                                  |
| Color                  | off-white                                                     |                                                               |
| Dimensions             | 180(Dia.) x 121(D) mm                                         | 180(Dia.) x 121(D) mm                                         |

<sup>\*1</sup> 500Hz - 5kHz, pink noise



Indicates that the speaker is  
UL 1480 UUMW certified



Indicates that the speaker complies by the Ingress Protection standard (IP).  
This icon will help show how the speaker can perform within different types of weather conditions.

### Splashproof Ceiling Speakers



### Clean Room Ceiling Speaker



#### Specifications

|                        | PC-3CL                          | PC-3WR                 | PC-5CL                 |
|------------------------|---------------------------------|------------------------|------------------------|
| Rated Input            | 3W                              | 3W                     | 5W                     |
| Tap Settings           | 100V: 3W, 1W<br>70V: 1.5W, 0.5W | 100V: 3W, 1W           | 100V: 5W<br>70V: 2.5W  |
| Sensitivity (1W, 1m)   | 87dB                            | 88dB                   | 87 dB                  |
| Frequency Response     | 150Hz – 20kHz                   | 180Hz – 20kHz          | 150Hz - 20kHz          |
| Mounting Hole Diameter | ø100 mm                         | ø150 mm                | 150 (Dia.) ±3 mm       |
| Speaker Component      | —                               | 3" cone-type           | 3" cone-type           |
| Color                  | Stainless steel punching net    |                        |                        |
| Dimensions             | 139(Dia.) x 104.5 (D)mm         | 180(Dia.) x 120 (D) mm | 116(Dia.) x 110 (D) mm |

### Separate Type with Spring Catch Speakers



#### Specifications

|                        | CM-760 + CP-73                                                                         | CM-760 + CP-77                                                                     | CM-960 + CP-93                                                                          | CM-960 + CP-97                                                                      |
|------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Rated Input            | 6W                                                                                     | 6W                                                                                 | 6W                                                                                      | 6W                                                                                  |
| Tap Settings           | 100 V: 6 W, 3 W, 1.5 W, 0.8 W                                                          | 100 V: 6 W, 3 W, 1.5 W, 0.8 W                                                      | 100 V: 6 W, 3 W, 1.5 W, 0.8 W                                                           | 100 V: 6 W, 3 W, 1.5 W, 0.8 W                                                       |
| Sensitivity (1W, 1m)   | 90dB                                                                                   | 90dB                                                                               | 92dB                                                                                    | 92dB                                                                                |
| Frequency Response     | 100Hz – 16kHz                                                                          | 100Hz – 16kHz                                                                      | 100Hz – 12kHz                                                                           | 100Hz – 12kHz                                                                       |
| Mounting Hole Diameter | 5" dynamic cone-type                                                                   | 5" dynamic cone-type                                                               | 6" dynamic cone-type                                                                    | 6" dynamic cone-type                                                                |
| Speaker Component      | ø150mm +/-3mm                                                                          | ø150mm +/-3mm                                                                      | ø200 mm +/-3 mm                                                                         | ø200 mm +/-3 mm                                                                     |
| Color                  | off-white                                                                              |                                                                                    |                                                                                         |                                                                                     |
| Dimensions             | CM-760: 215(W) x 134(H) x 89(D)mm<br>CP-73: 180(Dia.) x 16.5(D)mm<br>(ABS resin frame) | CM-760: 215(W) x 134(H) x 89(D)mm<br>CP-77: 180(Dia.) x 16.5(D)mm<br>(Metal frame) | CM-960: 230(W) x 174(H) x 106.5(D)mm<br>CP-93: 230(Dia.) x 18(D)mm<br>(ABS resin frame) | CM-960: 230(W) x 174(H) x 106.5(D)mm<br>CP-97: 230(Dia.) x 18(D)mm<br>(Metal frame) |

### Surface Mount Type Ceiling Speakers



#### Specifications

|                      | PC-275AB-EB                             | PC-2268                                                       | PC-2268WP                                                     | PC-2668                                                       |
|----------------------|-----------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Rated Input          | 6W                                      | 6W                                                            | 6W                                                            | 6W                                                            |
| Tap Settings         | 100 V: 6 W, 3 W, 1.5 W                  | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W | 100 V: 6 W, 3 W, 1.5 W, 0.8 W<br>70V: 3W, 1.5 W, 0.8 W, 0.4 W |
| Sensitivity (1W, 1m) | 88 dB                                   | 90dB (330Hz - 3.3kHz, pink noise)                             | 90dB (330Hz - 3.3kHz, pink noise)                             | 90dB (330Hz - 3.3kHz, pink noise)                             |
| Frequency Response   | 130Hz - 20kHz                           | 160Hz – 14kHz                                                 | 100Hz – 16kHz                                                 | 100Hz – 16kHz                                                 |
| Speaker Component    | 6" full range, dual cone (A/ B 2-lines) | 5" cone-type                                                  | 5" cone-type                                                  | 5" dynamic cone-type                                          |
| Color                | White                                   | light gray                                                    | off-white                                                     | off-white                                                     |
| Dimensions           | 274.4(Dia.) x 86.5 (H) mm               | 220(Dia.) x 80.5 (D)mm                                        | 260(Dia.) x 92 (D) mm                                         | 260(Dia.) x 92 (D) mm                                         |

### Plane Wave Speakers



#### Specifications

|                    | PW-1230DB/DW                                                   | PW-1230SB/SW                                                   | PW-1430DB/DW                                                   | PW-1430SB/SW                                                   |
|--------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|
| Rated Input        | 30W                                                            | 30W                                                            | 30W                                                            | 30W                                                            |
| Tap Settings       | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15 W, 7.5W, 5 W, 2.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15 W, 7.5W, 5 W, 2.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15 W, 7.5W, 5 W, 2.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15 W, 7.5W, 5 W, 2.5W |
| Sensitivity        | 86dB (1 – 10kHz)                                               | 88dB (1 – 10kHz)                                               | 88dB (1 – 10kHz)                                               | 88dB (1 – 10kHz)                                               |
| Frequency Response | 300Hz – 17.5kHz                                                | 250Hz – 17.5kHz                                                | 300Hz – 17.5kHz                                                | 250Hz – 17.5kHz                                                |
| Speaker Unit       | Plane wave unit (152 x 214 mm (5.98" x 8.43")) x 2             | Plane wave unit (152 x 214 mm (5.98" x 8.43")) x 2             | Plane wave unit (152 x 214 mm (5.98" x 8.43")) x 4             | Plane wave unit (152 x 214 mm (5.98" x 8.43")) x 4             |
| Finish             | black/ light ivory                                             | black/ light ivory                                             | black/ light ivory                                             | black/ light ivory                                             |
| Dimensions         | 524 (W) x 355 (H) x 60 (D) mm                                  | 524 (W) x 355 (H) x 60 (D) mm                                  | 831 (W) x 355 (H) x 60 (D) mm                                  | 831 (W) x 355 (H) x 60 (D) mm                                  |

\*Double-sided radiation

\*Single-sided radiation

\*Double-sided radiation

\*Single-sided radiation



Indicates that the speaker EN54-24 certified and is therefore legalized for use in conjunction with fire detection systems



Indicates that the speaker is fully compliant to the BS5839 part 8 code of practice

## SPEAKER lineup

### Wall Mount Box Speakers



| Specifications       | BS-634                        | BS-634T             | BS-1034                                                 | BS-1034S                                                |
|----------------------|-------------------------------|---------------------|---------------------------------------------------------|---------------------------------------------------------|
| Rated Input          | 6W                            | 6W                  | 10W                                                     | 10W                                                     |
| Tap Settings         | 100V: 6W, 3W<br>70V: 3W, 1.5W | 100V: 6W<br>70V: 3W | 100V: 10W, 5W, 3W, 1W<br>70V: 10W, 5W, 2.5W, 1.5W, 0.5W | 100V: 10W, 5W, 3W, 1W<br>70V: 10W, 5W, 2.5W, 1.5W, 0.5W |
| Sensitivity (1W, 1m) | 90dB                          |                     | 90dB                                                    |                                                         |
| Frequency Response   | 120Hz – 18kHz                 |                     | 120Hz – 18kHz                                           |                                                         |
| Speaker Component    | 5" cone-type                  |                     | Low: 5" cone-type, High: Balance dome-type              |                                                         |
| Color                | off-white                     |                     | off-white                                               | silver                                                  |
| Dimensions           | 210(W) x 330(H) x 80(D)mm     |                     | 210(W) x 330(H) x 80(D)mm                               |                                                         |

\* Built-in attenuator



| Specifications       | BS-680F                                               | BS-680FC | BS-1034EN                                               | BS-250AB-EB                           |
|----------------------|-------------------------------------------------------|----------|---------------------------------------------------------|---------------------------------------|
| Rated Input          | 6W                                                    | 6W       | 10W                                                     | 6W                                    |
| Tap Settings         | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W |          | 100V: 10W, 5W, 3W, 1W<br>70V: 10W, 5W, 2.5W, 1.5W, 0.5W | 100V: 6W, 3W, 1.5W                    |
| Sensitivity (1W, 1m) | 94dB*                                                 |          | 89dB*                                                   | 89dB                                  |
| Frequency Response   | 150Hz – 20kHz                                         |          | 120Hz – 20kHz                                           | 150Hz – 20kHz                         |
| Speaker Component    | 6" double cone-type                                   |          | Low: 5" cone-type High: 1" balanced dome tweeter        | 4" full range dual cone (A/B 2-lines) |
| Color                | off-white                                             |          | Off-white (RAL9010 or equivalent)                       | White                                 |
| Dimensions           | 310(W) x 190(H) x 87.2(D)mm                           |          | 210 (W) x 330 (H) x 80 (D) mm                           | 200 (W) x 250(H) x 85(D) mm           |

\* Push-in connector

\* Screw connector



| Specifications       | BS-680U                            | BS-633A                                 | BS-633AT                      |
|----------------------|------------------------------------|-----------------------------------------|-------------------------------|
| Rated Input          | 6W                                 | 6W                                      | 6W                            |
| Tap Settings         | 70V: 6W, 3W, 1W<br>25V: 6W, 3W, 1W | 100V: 6W, 3W, 1W<br>70V: 3W, 1.5W, 0.5W | 100V: 6W, 3W<br>70V: 3W, 1.5W |
| Sensitivity (1W, 1m) | 94dB                               | 91dB                                    |                               |
| Frequency Response   | 150Hz – 20kHz                      | 120Hz – 15kHz                           |                               |
| Speaker Component    | 6" double cone-type                | 5" cone-type                            |                               |
| Color                | White (RAL9010 or equivalent)      | off-white                               |                               |
| Dimensions           | 310(W) x 190(H) x 87.2(D) mm       | 173(W) x 195(H) x 101(D)mm              | 173(W) x 195(H) x 101(D)mm    |

\* Tentative spec

\* Built-in attenuator



| Specifications       | BS-678/BS-678B                                        | BS-678T/BS-678BT           | BS-678BSB/BS-678BSW                                                                    |
|----------------------|-------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------|
| Rated Input          | 6W                                                    | 6W                         | 6W                                                                                     |
| Tap Settings         | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W |                            | 100V: 6W, 3W, 1.5W, 0.8W<br>70V: 3W, 1.5W, 0.8W, 0.4W                                  |
| Sensitivity (1W, 1m) | 94dB                                                  |                            | 94dB*                                                                                  |
| Frequency Response   | 150Hz – 20kHz                                         |                            | 150Hz – 18kHz                                                                          |
| Speaker Component    | 6" double cone-type                                   |                            | 6" cone-type                                                                           |
| Color                | off-white or black                                    |                            | BS-678BSB: black (RAL 9011 or equivalent)<br>BS-678BSW: white (RAL 9010 or equivalent) |
| Dimensions           | 250(W) x 190(H) x 110(D)mm                            | 250(W) x 200(H) x 110(D)mm | 250 (W) x 190 (H) x 110 (D) mm                                                         |

\* Built-in attenuator

\*1 500Hz - 5kHz, pink noise



Indicates that the speaker is UL 1480 UUMW certified



Indicates that the speaker complies by the Ingress Protection standard (IP). This icon will help show how the speaker can perform within different types of weather conditions.

### Wall Mount Box Speakers



#### Specifications

|                      | BS-1030B/BS-1030W                                                       | BS-1015BSB/BS-1015BSW                                                                    |
|----------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Rated Input          | 30W                                                                     | 15W                                                                                      |
| Tap Settings         | 100V: 30 W, 20W, 15 W, 10W, 5 W<br>70V: 30 W, 20W, 15 W, 10W, 5 W<br>8Ω | 100V: 15 W, 10W, 5 W<br>70V: 7.5W, 5 W, 2.5W                                             |
| Sensitivity (1W, 1m) | 90dB                                                                    | 90 dB (500Hz- 5k Hz, pink noise )                                                        |
| Frequency Response   | 80Hz – 20kHz                                                            | 80Hz - 20kHz                                                                             |
| Speaker Component    | 5" cone-type + dome-type                                                | Low: 5" cone-type High: 1" balanced dome tweeter                                         |
| Color                | BS-1030B: black (RAL 9011)<br>BS-1030W: White (RAL 9010)                | BS-1015BSB: black (RAL 9011 or equivalent)<br>BS-1015BSW: White (RAL 9010 or equivalent) |
| Dimensions           | 196 (W) x 290 (H) x 150 (D) mm                                          | 196 (W) x 290 (H) x 186 (D) mm                                                           |

### Splashproof Speakers



### Garden Speaker



#### Specifications

|                      | BS-4W                               | GS-302                                                           |
|----------------------|-------------------------------------|------------------------------------------------------------------|
| Rated Input          | 5W                                  | 30W                                                              |
| Tap Settings         | 100 V: 5W                           | 100V: 30 W, 15 W, 10W, 5 W, 3W<br>70V: 15W, 7.5W, 5W, 2.5W, 1.5W |
| Sensitivity (1W, 1m) | 87dB                                | 87dB                                                             |
| Frequency Response   | 100Hz - 12kHz                       | 100Hz – 8kHz                                                     |
| Speaker Component    | 4" cone-type                        | 5" splash proof cone-type                                        |
| Color                | Enclosure: gray Grille: silver gray | dark gray                                                        |
| Dimensions           | 196(W) x 177(H) x 160(D) mm         | 270(Dia.) x 335(H) mm                                            |

### Combination Type Reflex Horn Speakers



#### Specifications

|                      | TC-615M                                                     | TC-631M                                                       | TC-651M                                         | SC-630TU                                              |
|----------------------|-------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------|
| Rated Input          | 15W                                                         | 30W                                                           | 50W                                             | 30W                                                   |
| Tap Settings         | 100V: 15 W, 10W, 5 W, 3W<br>70V: 15W, 7.5W, 5 W, 2.5W, 1.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15W, 7.5W, 5 W, 2.5W | 100V: 50W, 30W, 15W<br>70V: 50W, 25W, 15W, 7.5W | 70V: 30 W, 15W, 7.5W<br>25V: 30W, 15W, 3.7W, 1.9W, 1W |
| Sensitivity (1W, 1m) | 108dB                                                       | 110dB                                                         | 111dB                                           | 113 dB                                                |
| Frequency Response   | 250Hz – 7kHz                                                | 200Hz – 6kHz                                                  | 200Hz – 6kHz                                    | 250Hz - 10kHz                                         |
| Color                | Horn flare: off-white/Bracket: gray                         |                                                               |                                                 | off-white                                             |
| Dimensions           | 400(Dia.) x 376(D)mm                                        | 500(Dia.) x 463(D)mm                                          | 400(Dia.) x 376(D)mm                            | 285(W) x 227(H) x 277(D) mm                           |

\* Tentative spec



#### Specifications

|                      | SC-610M                                                                            | SC-615M                                                     | SC-630M                                                       | SC-615BS                                                    |
|----------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------|
| Rated Input          | 10W                                                                                | 15W                                                         | 30W                                                           | 15W                                                         |
| Tap Settings         | 100V: 10W, 5 W, 3W, 1W<br>70V: 10W, 5 W, 2.5W, 1.5W, 0.5W                          | 100V: 15 W, 10W, 5 W, 3W<br>70V: 15W, 7.5W, 5 W, 2.5W, 1.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15W, 7.5W, 5 W, 2.5W | 100V: 15 W, 10W, 5 W, 3W<br>70V: 15W, 7.5W, 5 W, 2.5W, 1.5W |
| Sensitivity (1W, 1m) | 110dB                                                                              | 112dB                                                       | 113dB                                                         | 109 dB (500Hz- 5k Hz, pink noise)                           |
| Frequency Response   | 315Hz – 12.5kHz                                                                    | 280Hz – 12.5kHz                                             | 250Hz – 10kHz                                                 | 315Hz – 12.5kHz                                             |
| Color                | Horn flare: off-white/Reflector horn: off-white/Bracket holder: gray/Bracket: gray |                                                             |                                                               | off-white                                                   |
| Dimensions           | 172 (W) x 161 (H) x 188 (D) mm                                                     | 222 (W) x 179 (H) x 234 (D) mm                              | 285 (W) x 227 (H) x 277 (D) mm                                | 172 (W) x 195 (H) x 229 (D) mm                              |



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Indicates that the speaker is fully compliant to the BS5839 part 8 code of practice

## SPEAKER lineup

### Separate Type Horn Speakers



#### Specifications

|                      | TH-650                              | TH-660                |
|----------------------|-------------------------------------|-----------------------|
| Rated Input          | —                                   | —                     |
| Tap Settings         | —                                   | —                     |
| Sensitivity (1W, 1m) | 110dB*                              | 110dB*                |
| Frequency Response   | 200Hz – 6kHz*                       |                       |
| Color                | Horn flare: off-white/Bracket: gray |                       |
| Dimensions           | 500(Dia.) x 394 (D)mm               | 600(Dia.) x 425 (D)mm |

\* When operated with TU-631/631M/651/651M driver unit.



#### Specifications

|                      | TU-660M                                          | TU-631M                                                       | TU-651M                                         |
|----------------------|--------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------|
| Rated Input          | 50W                                              | 30W                                                           | 50W                                             |
| Tap Settings         | 100V: 60W, 30W, 15W<br>70V: 60 W, 30W, 15W, 7.5W | 100V: 30 W, 15 W, 10W, 5 W<br>70V: 30 W, 15W, 7.5W, 5 W, 2.5W | 100V: 50W, 30W, 15W<br>70V: 50W, 25W, 15W, 7.5W |
| Sensitivity (1W, 1m) | 110 dB*                                          | 110dB**                                                       | 110dB**                                         |
| Frequency Response   | 150 Hz – 8 kHz*                                  | 150Hz – 6kHz**                                                | 150Hz – 6kHz**                                  |
| Color                | gray                                             | gray                                                          |                                                 |
| Dimensions           | 139 (Dia.) x 151 (D) mm                          | 139(Dia.) x 149 (D)mm                                         | 139(Dia.) x 149 (D)mm                           |

\*When operated with JIS C 5504 standard horn.

\*\*When operated with TH-650 and TH-660.

### Explosion-proof/Heat-resistant Horn Speakers



#### Specifications

|                      | TP-M15E                                               | TP-M15D               | CS-64                                         | CS-64BS                                     |
|----------------------|-------------------------------------------------------|-----------------------|-----------------------------------------------|---------------------------------------------|
| Rated Input          | 15W                                                   | 15W                   | 6W                                            | 6W                                          |
| Tap Settings         | 100V: 15 W, 10W, 5 W                                  | 00V: 15 W, 10W, 5 W   | 100V: 6W, 3W, 1W<br>70V: 6W, 3W, 1.5W, 0.5W   | 100V: 6W, 3W, 1W<br>70V: 6W, 3W, 1.5W, 0.5W |
| Sensitivity (1W, 1m) | 104dB                                                 | 104dB                 | 96dB                                          | 96 dB (330Hz - 3.3kHz, pink noise)          |
| Frequency Response   | 300Hz – 5.5kHz                                        | 350Hz – 4.5kHz        | 130Hz – 13kHz                                 | 130Hz - 13kHz                               |
| Speaker Component    | Horn: ivory/Bracket: Surface zinc treated steel plate |                       | 5" cone-type (Treated for splash proof)       |                                             |
| Color                | Horn: ivory/Bracket: Surface zinc treated steel plate |                       | Horn, cover: off-white/Punched net: dark-gray |                                             |
| Dimensions           | 392(Dia.) x 475(D) mm                                 | 242(Dia.) x 368(D) mm | 233 (W) x 224 (H) x 208 (D) mm                | 233 (W) x 224 (H) x 249 (D) mm              |

### Wide Range Horn Speakers



#### Specifications

|                      | CS-154                                            | CS-154BS                                          | CS-304                                            |
|----------------------|---------------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| Rated Input          | 15W                                               | 15W                                               | 30W                                               |
| Tap Settings         | 100V: 15 W, 10W, 5 W<br>70V: 15W, 7.5W, 5 W, 2.5W | 100V: 15 W, 10W, 5 W<br>70V: 15W, 7.5W, 5 W, 2.5W | 100V: 30 W, 20W, 10W<br>70V: 30 W, 15 W, 10W, 5 W |
| Sensitivity (1W, 1m) | 97dB                                              | 97 dB (330Hz - 3kHz, pink noise)                  | 98dB                                              |
| Frequency Response   | 150Hz – 15kHz                                     | 150Hz - 15kHz                                     | 120Hz – 15kHz                                     |
| Speaker Component    | 5" cone-type                                      |                                                   |                                                   |
| Color                | Horn, cover: off-white/Net: gray                  |                                                   |                                                   |
| Dimensions           | 366 (W) x 230 (H) x 272 (D) mm                    | 366 (W) x 230 (H) x 310 (D) mm                    | 366 (W) x 230 (H) x 272 (D) mm                    |

### Projection Speakers



| Specifications       | PJ-64                                            | PJ-154BS                                            | PJ-304                                                                | PJ-202DL-EB            |
|----------------------|--------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| Rated Input          | 6W                                               | 15W                                                 | 30W                                                                   | 20W                    |
| Tap Settings         | 100V: 6 W, 3 W, 1W<br>70V: 3W, 1.5 W, 0.5W<br>8Ω | 100V: 15 W, 10W, 5 W<br>70V: 7.5W, 5 W, 2.5W        | 100V: 30 W, 20W, 15W, 10W, 5W<br>70V: 30 W, 20W, 15 W, 10W, 5 W<br>8Ω | 100V: 20W, 10W, 5W     |
| Sensitivity (1W, 1m) | 90dB*1                                           | 91dB*1                                              | 91dB*1                                                                | 89dB                   |
| Frequency Response   | 100Hz – 18kHz                                    | 70Hz - 20kHz                                        | 70Hz – 20kHz                                                          | 120Hz - 20kHz          |
| Speaker Component    | 5" cone-type                                     | Low: 5" cone-type<br>High: 1" balanced dome tweeter | 5" cone-type + balanced dome tweeter                                  | 5" P.P. cone + HC x 2  |
| Color                | off-white                                        | off-white (RAL 9010 or equivalent)                  | off-white                                                             | White                  |
| Dimensions           | 186(Dia.) x 369 (H)mm                            | 186(Dia.) x 251(H) mm                               | 186(Dia.) x 369 (H)mm                                                 | 146(Dia.) x 186 (D) mm |



| Specifications       | PJ-100W                                                                                | PJ-200W                                                                            |
|----------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Rated Input          | 10W                                                                                    | 20W                                                                                |
| Tap Settings         | 100V: 10W, 5 W, 2.5W<br>70V: 10W, 5 W, 2.5W, 1.25W<br>50V: 10W, 5W, 2.5W, 1.25W, 0.63W | 100V: 20W, 10W, 5W<br>70V: 20W, 10W, 2.5W, 1.25W<br>50V: 20W, 10W, 5W, 2.5W, 1.25W |
| Sensitivity (1W, 1m) | 92dB                                                                                   | 95dB                                                                               |
| Frequency Response   | 65Hz – 15kHz                                                                           | 50Hz – 20kHz                                                                       |
| Speaker Component    | 5"                                                                                     | 6"                                                                                 |
| Color                | off-white                                                                              | off-white                                                                          |
| Dimensions           | 160 (W) x 200 (H) x 195 (D)mm                                                          | 200 (W) x 255 (H) x 250 (D)mm                                                      |

### Pendant Speakers



| Specifications       | PE-64                                       | PE-154EN                                         | PE-154BS                                     | PE-304                                                                |
|----------------------|---------------------------------------------|--------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| Rated Input          | 6W                                          | 15W                                              | 15W                                          | 30W                                                                   |
| Tap Settings         | 100 V: 6 W, 3 W, 1W<br>70V: 3W, 1.5 W, 0.5W | 100V: 15 W, 10W, 5 W<br>70V: 7.5W, 5 W, 2.5W     | 100V: 15 W, 10W, 5 W<br>70V: 7.5W, 5 W, 2.5W | 100V: 30 W, 20W, 15W, 10W, 5W<br>70V: 30 W, 20W, 15 W, 10W, 5 W<br>8Ω |
| Sensitivity (1W, 1m) | 90dB*1                                      | 91dB*1                                           | 91dB*1                                       | 91dB*1                                                                |
| Frequency Response   | 100Hz – 18kHz                               | 70Hz - 20k Hz                                    | 70Hz – 20kHz                                 | 70Hz – 20kHz                                                          |
| Speaker Component    | 5" cone-type                                | Low: 5" cone-type High: 1" balanced dome tweeter | 5" cone-type + balanced dome tweeter         | 5" cone-type + balanced dome tweeter                                  |
| Color                | off-white                                   | off-white (RAL 9010 or equivalent)               | off-white                                    | off-white                                                             |
| Dimensions           | 186(Dia.) x 251(H)mm (unit only)            | 186(Dia.) x 251(H) mm                            | 186(Dia.) x 251(H)mm (unit only)             | 186(Dia.) x 251(H)mm (unit only)                                      |



| Specifications       | PE-304BU/304WU                                                                                       | PE-604BU/604WU                                                                                       |
|----------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Rated Input          | 30W                                                                                                  | 60W                                                                                                  |
| Tap Settings         | 100V: 30W, 10W, 3W, 1.3W<br>70V: 30W, 15W, 5W, 1.5W, 0.6W<br>25V: 3.7W, 1.9W, 0.6W, 0.2W, 0.1W<br>8Ω | 100V: 60W, 30W, 15W, 3W<br>70V: 60W, 30W, 15W, 7.5W, 1.5W<br>25V: 7.5W, 3.7W, 1.9W, 0.9W, 0.2W<br>8Ω |
| Sensitivity (1W, 1m) | 90dB (330Hz – 3.3kHz, pink noise)                                                                    |                                                                                                      |
| Frequency Response   | 95 Hz – 20kHz                                                                                        | 110 Hz – 20kHz                                                                                       |
| Speaker Component    | 5" cone-type + balanced dome-tweeter (coaxial)                                                       |                                                                                                      |
| Color                | PE-304BU: black<br>PE-304WU: white (RAL 9010 or equivalent)                                          | PE-604BU: black<br>PE-604WU: white (RAL 9010 or equivalent)                                          |
| Dimensions           | 186(Dia.) x 275 (H) mm                                                                               |                                                                                                      |

\*1 500Hz - 5kHz, pink noise



Indicates that the speaker complies by the Ingress Protection standard (IP).  
This icon will help show how the speaker can perform within different types of weather conditions.

## SPEAKER lineup

### Interior Design Speaker System



| Specifications       | H-1                                                    | H-2                                                    | H-2WP                                                  |
|----------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Rated Input          | 12W                                                    | 12W                                                    | 12W                                                    |
| Tap Settings         | 100V: 12W, 6W, 3W<br>70V: 12W, 6W, 3W, 1.5W<br>4Ω, 16Ω | 100V: 12W, 6W, 3W<br>70V: 12W, 6W, 3W, 1.5W<br>4Ω, 16Ω | 100V: 12W, 6W, 3W<br>70V: 12W, 6W, 3W, 1.5W<br>4Ω, 16Ω |
| Sensitivity (1W, 1m) | 85dB* <sup>1</sup>                                     | 88dB* <sup>1</sup>                                     | 88dB* <sup>1</sup>                                     |
| Frequency Response   | 120Hz – 20kHz                                          | 100Hz – 20kHz                                          | 100Hz – 20kHz                                          |
| Speaker Component    | Low: 3" x 2" cone-type,<br>High: Balanced dome-type    | Low: 4" cone-type, High: Balanced dome-type            | Low: 4" cone-type, High: Balanced dome-type            |
| Color                |                                                        | white                                                  |                                                        |
| Dimensions           | 312 (W) x 126 (H) x 90(D) mm                           | 268(Dia.) x 111 (H) mm                                 | 268(Dia.) x 111 (H) mm                                 |



| Specifications       | H-3                                                           | H-3WP                                                         |
|----------------------|---------------------------------------------------------------|---------------------------------------------------------------|
| Rated Input          | 30W                                                           | 30W                                                           |
| Tap Settings         | 100V: 30W, 15W, 7.5W<br>70V: 30W, 15W, 7.5W, 3.75W<br>8Ω, 16Ω | 100V: 30W, 15W, 7.5W<br>70V: 30W, 15W, 7.5W, 3.75W<br>8Ω, 16Ω |
| Sensitivity (1W, 1m) | 89dB* <sup>1</sup>                                            | 89dB* <sup>1</sup>                                            |
| Frequency Response   | 100Hz – 20kHz                                                 | 100Hz – 20kHz                                                 |
| Speaker Component    | Low: 4" cone-type x 2, High: 1" dome-type (neodymium magnet)  | Low: 4" cone-type x 2, High: 1" dome-type (neodymium magnet)  |
| Color                | Enclosure: black/Frame: off-white/Punched net: off-white      | Enclosure: black/Frame: off-white/Punched net: off-white      |
| Dimensions           | 295 (W) x 318 (H) x 129 (D) mm                                | 295 (W) x 318 (H) x 129 (D) mm                                |

### F Series Wide-Dispersion Ceiling Speakers



| Specifications         | F-2852C                                                                                              | F-2322C                                                                                             | F-2352C                                                                                             | F-122C                                                                                              |
|------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Rated Input            | 60W                                                                                                  | 30W                                                                                                 | 30W                                                                                                 | 30W                                                                                                 |
| Tap Settings           | 100V: 60W, 30W, 15W, 3W<br>70V: 60W, 30W, 15W, 7.5W, 1.5W<br>25V: 7.5W, 3.7W, 1.9W, 0.9W, 0.2W<br>8Ω | 100V: 30W, 10W, 3W, 1W<br>70V: 30W, 15W, 5W, 1.5W, 0.5W<br>25V: 3.7W, 1.9W, 0.6W, 0.2W, 0.06W<br>8Ω | 100V: 30W, 10W, 3W, 1W<br>70V: 30W, 15W, 5W, 1.5W, 0.5W<br>25V: 3.7W, 1.9W, 0.6W, 0.2W, 0.06W<br>8Ω | 100V: 30W, 10W, 3W, 1W<br>70V: 30W, 15W, 5W, 1.5W, 0.5W<br>25V: 3.7W, 1.9W, 0.6W, 0.2W, 0.06W<br>8Ω |
| Sensitivity (1W, 1m)   | 91dB                                                                                                 | 90dB                                                                                                | 90dB                                                                                                | 90dB                                                                                                |
| Frequency Response     | 80Hz – 20kHz                                                                                         | 70Hz – 20kHz                                                                                        | 70Hz – 20kHz                                                                                        | 40Hz – 20kHz                                                                                        |
| Mounting Hole Diameter | ø250 mm                                                                                              | ø200mm                                                                                              | ø200mm                                                                                              | ø200mm                                                                                              |
| Speaker Component      | Low: 6" cone-type,<br>High: Dome-type                                                                | 5" cone-type                                                                                        | Low: 5" cone-type,<br>High: Balanced dome-type                                                      | 5" cone-type                                                                                        |
| Color                  | Baffle: black/Rim: white/Punched net: white                                                          |                                                                                                     |                                                                                                     |                                                                                                     |
| Dimensions             | 280(Dia.) x 227(D) mm                                                                                | 230(Dia.) x 200 (D) mm                                                                              | 230(Dia.) x 229(D) mm                                                                               | 230(Dia.) x 154(D) mm                                                                               |



| Specifications         | F-2352SC                                                                                               | F-1522SC                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Rated Input            | 6W                                                                                                     | 6W                                                                |
| Tap Settings           | 100V: 6W, 3W, 1W, 0.5W<br>70V: 6W, 3W, 1.5W, 0.5W, 0.25W<br>25V: 0.75W, 0.4W, 0.2W, 0.06W, 0.03W<br>8Ω | 100V: 6W, 3W<br>70V: 6W, 3W, 1.5W<br>25V: 0.75W, 0.4W, 0.2W<br>8Ω |
| Sensitivity (1W, 1m)   | 89dB                                                                                                   | 88dB                                                              |
| Frequency Response     | 80Hz – 20kHz                                                                                           | 65Hz – 18kHz                                                      |
| Mounting Hole Diameter | ø200mm                                                                                                 | ø135mm                                                            |
| Speaker Component      | Low: 5" cone-type,<br>High: Balanced dome-type                                                         | 4" cone-type                                                      |
| Color                  | Baffle: black/Rim: white/Punched net: white/Dust proof bag: black                                      |                                                                   |
| Dimensions             | 230(Dia.) x 154(D) mm                                                                                  | 155(Dia.) x 117(D) mm                                             |

\*1 at installation in 1/2 free sound field

### F Series Wide-Dispersion Speakers



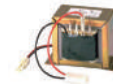
#### Specifications

|                      | F-1000BT/WT                                                      | F-1000BTWP/WTWP                                            | F-1300BT/WT                                                    | F-1300BTWP/WTWP                                          |
|----------------------|------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------|
| Rated Input          | 15W                                                              | 15W                                                        | 30W                                                            | 30W                                                      |
| Tap Settings         | 100 V: 15W, 5W, 3W, 1W<br>70V: 15W, 7.5W, 2.5W, 1.5W, 0.5W<br>8Ω | 100 V: 15W, 5W, 3W, 1W<br>70V: 15W, 7.5W, 2.5W, 1.5W, 0.5W | 100 V: 30W, 10W, 3W, 1W<br>70V: 30W, 15W, 3W, 1.5W, 0.5W<br>8Ω | 100 V: 30W, 10W, 3W, 1W<br>70V: 30W, 15W, 3W, 1.5W, 0.5W |
| Sensitivity (1W, 1m) | 87dB*1                                                           |                                                            | 90dB*1                                                         |                                                          |
| Frequency Response   | 85Hz – 20kHz*1                                                   |                                                            | 80Hz – 20kHz*1                                                 |                                                          |
| Speaker Component    | Low: 4" cone-type, High: Balanced dome tweeter                   |                                                            | Low: 5" cone-type, High: 2.5cm dome tweeter                    |                                                          |
| Color                | black or white                                                   |                                                            | black or white                                                 |                                                          |
| Dimensions           | 130 (W) x 202 (H) x 131(D) mm                                    |                                                            | 162 (W) x 250 (H) x 161(D) mm                                  |                                                          |



#### Specifications

|                      | F-2000BT/WT                                                      | F-2000BTWP/WTWP                                            |
|----------------------|------------------------------------------------------------------|------------------------------------------------------------|
| Rated Input          | 60W                                                              | 60W                                                        |
| Tap Settings         | 100 V: 60W, 30W, 15W, 3W<br>70V: 60W, 30W, 15W, 7.5W, 1.5W<br>8Ω | 100 V: 60W, 30W, 15W, 3W<br>70V: 60W, 30W, 15W, 7.5W, 1.5W |
| Sensitivity (1W, 1m) | 92dB*1                                                           |                                                            |
| Frequency Response   | 65Hz – 20kHz*1                                                   |                                                            |
| Speaker Component    | Low: 8" cone-type, High: 1" dome tweeter                         |                                                            |
| Color                | black or white                                                   |                                                            |
| Dimensions           | 244 (W) x 373 (H) x 235(D) mm                                    |                                                            |



MT-S0601  
Matching Transformer

Allows SR-S Series and SR-T5 to be used in high impedance applications.



MT-S0301  
Matching Transformer

Allows SR-H Series to be used in high impedance applications.

### Line Array Speaker



#### Specifications

|                         | SR-S4L                                                                             | SR-S4LWP                                                                           | SR-S4S                                                                             | SR-S4SWP                                                                           |
|-------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Power Handling Capacity | Continuous program:<br>600W(single amp mode)<br>Low: 240W, High: 240W(bi-amp mode) | Continuous program:<br>600W(single amp mode)<br>Low: 240W, High: 240W(bi-amp mode) | Continuous program:<br>600W(single amp mode)<br>Low: 240W, High: 240W(bi-amp mode) | Continuous program:<br>600W(single amp mode)<br>Low: 240W, High: 240W(bi-amp mode) |
| Rated Impedance         | 8Ω                                                                                 | 8Ω                                                                                 | 8Ω                                                                                 | 8Ω                                                                                 |
| Sensitivity (1W, 1m)    | 94dB                                                                               | 94dB                                                                               | 93dB                                                                               | 93dB                                                                               |
| Frequency Response      | 70Hz – 20kHz                                                                       | 70Hz – 20kHz                                                                       | 70Hz – 20kHz                                                                       | 70Hz – 20kHz                                                                       |
| Speaker Component       | Low: 4" cone-type x 8, High: 1" balanced dome-type x 24                            |                                                                                    |                                                                                    |                                                                                    |
| Color                   | white                                                                              |                                                                                    |                                                                                    |                                                                                    |
| Dimensions              | 160 (W) x 895 (H) x 255(D)mm                                                       | 160 (W) x 895 (H) x 255(D)mm                                                       | 160 (W) x 892 (H) x 303(D)mm                                                       | 160 (W) x 892 (H) x 303(D)mm                                                       |



#### Specifications

| Specifications          | SR-H2L                         | SR-H2S                         | SR-H3L                         | SR-H3S                           |
|-------------------------|--------------------------------|--------------------------------|--------------------------------|----------------------------------|
| Power Handling Capacity | Continuous program: 180W       | Continuous program: 180W       | Continuous program: 360W       | Continuous program: 360W         |
| Rated Impedance         | 8Ω                             | 8Ω                             | 8Ω                             | 8Ω                               |
| Sensitivity (1W, 1m)    | 92dB                           | 90dB                           | 95dB                           | 92dB                             |
| Frequency Response      | 80Hz – 18kHz                   | 90Hz – 17kHz                   | 110Hz – 18kHz                  | 90Hz – 17kHz                     |
| Speaker Component       | 2.8" cone-type x 9             |                                | 2.8" cone-type x 16            |                                  |
| Color                   | white                          |                                |                                |                                  |
| Dimensions              | 84 (W) x 668.4 (H) x 115 (D)mm | 84 (W) x 663.4 (H) x 115 (D)mm | 84 (W) x 1,186 (H) x 115 (D)mm | 84 (W) x 1,177.2 (H) x 157 (D)mm |







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Specifications are subject to change without notice.  
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