TOA

Voice Alarm/ Public Address Systems

Integrated Voice Alarm Management
& Evacuation Systems
Including Loudspeakers

TOA Quality Assurance

The EN 54 Marque - TOA's Commitment to Quality

EN 54 is a standard marque of the European Union (EU) for fire detection and fire alarm systems. The relevant parts which concern the Voice Alarm manufacturers are Part 4 which covers power supplies, Part 16 which covers voice alarm control and indicating equipment (VACIE), and finally, Part 24 which covers speakers. In addition, all VA speakers should also meet the requirements of BS5839-8.

The EN 54 standard is a EU regulation and therefore mandatory in each EU member state without the necessity of being adopted as a national standard. It belongs to the Construction Product Directive (CPD, 89/106/EEC) and requires a certification by a notified body (which ensures a high product quality and reliability). It became a legal requirement to use EN 54 certified products in all new Voice Alarm installations in the UK, from 1st July 2013.

BS5839-8 Voice Alarm Standards

All TOA systems and extensions to existing systems comply with the BS5839-8 standards. The BS5839-8 is a code of practice for the design, installation, commissioning and maintenance of voice alarm systems. There are 5 categories of voice alarm system, and a specification and design should always be based around one of the following categories:

- V1 - Automatic Evacuation
- V2 - Live Emergency Messages
- V3 - Zonal Live Emergency Messages
- V4 - Manual Controls
- V5 - Special Engineered Systems

Content

VM-3000
series

VM-3000 series Integrated Voice Evacuation System

VM-3000 - Description

The VM-3000 Series is digitally audio processed and controlled, with fully digital audio mixing and a built-in high-quality electronic voice message feature. The system may be set up directly using the controls and LCD display on the front panel, which also enables easy operation of the system. Operational versatility is further enhanced by a dedicated PC software configuration capability for uploading and downloading settings via LAN.

The incorporation of wide-ranging functional capabilities, superb reliability and versatility make the VM-3000 a highly cost effective emergency broadcast system.

System Features

- Max. 4 MIC/LINE inputs
- 2 BGM inputs
- Up to 4 Remote Microphones (max. 2 Fireman's Microphones)
- Max. 60 assignable speaker zone outputs (6 zones per amplifier)
- Volume setting possible for each zone
- Digital audio processed & controlled
- Full digital audio mixing (DSP)
- Built-in high quality electronic voice message
- Intuitive configuration
- Zone setting, priority setting, failure detection setting by dedicated PC software
- LCD display of current status and configuration setting of system units

Emergency Functions

- Continuous speaker line monitoring without interruption of BGM distribution or paging announcements
- Complete fault detection and indication
- Both built-in and remote Fireman's Microphones
- Built-in voice alarm message
- 2-Phase voice alarm message (Alert and Evacuation) broadcasting

Paging Functions

- 2 Remote Microphone interface lines
- Paging (All zones/Group/Individual) 2-channel broadcast with external amplifier (Paging/BGM)

EN 54 4 EN 54 16

First fully EN 54 certified voice alarm system

VM-3000 series System Management Amplifier

VM-3240VA/ VM-3360VA

Features

- Central units in the VM-3000 system
- Power outputs 240 W (VM-3240VA) and 360 W (VM-3360VA)
- 1 unit per system
- Front panel-mounted LCD display for setting and operation status Automatic message function
- Play back of up to 6 recorded general announcements and 2 recorded emergency announcements
- Up to 2 RM-300MF Emergency Remote Fireman's Microphones can be connected
- Up to a total of 4 RM-200M General Broadcast Remote Microphones and RM-300MF Fireman's Microphones can be connected

Options

- VM-3240E: 240 W Extension Amplifier
- VM-3360E: 360 W Extension Amplifier
- RM-300MF: Emergency Microphone
- RM-200M: Remote Microphone
- IT-450: Input Transformer

EN 54 16

Certificate No : 1483-CPD-0180

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

Specifications

	VM-3240VA	VM-3360VA
Power Requirement	230 V AC, 50/60 Hz	
Power Consumption (AC mains)	600 W (with rated output signal), 260 W (according to EN60065)	850 W (with rated output signal), 380 W (according to EN60065)
Rated Output	240W	360W
Frequency Response	50 - 20 kHz, ±3dB (at 1/3 rated output)	50 - 20 kHz, ±3dB (at 1/3 rated output)
Distortion	Under 0.8% (at rated output, 1kHz)	Under 0.8% (at rated output, 1kHz)
Signal-to-Noise Ratio	Over 85dB	
Inputs	Input 1 - 3: -50 dB* (MIC)/ -10dB (LINE) (changeable) 600 Ohm, electronically balanced combined XLR connector (female)/phone jack Input 4: -50 dB* (MIC) / -10 dB (LINE) (changeable) 600 Ohm, electronically balanced, removable terminal block (14 pins) BGM 1 - 2 : -10 dB, 10 kOhm unbalanced, RCA pin jack External amplifier Input: 100 V Line removable terminal block (14 pins)	
Outputs	Speaker output 1 - 6: Total within rated output, removable terminal block (14 pins), Direct output from internal or external amplifier, removable terminal block (16 pins) Recording output BGM / Paging 0 dB*, 10 kOhm, unbalanced, RCA pin jack	
Control	Input 1 - 8: No-Voltage contact input, open voltage: 24V DC, short-circuit current: under 2mA, removable terminal block (14 pins) Output 1 - 8: Isolated open collector output, with stand voltage: 30V DC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control	Input 1 - 5: No-Voltage make contact input, open voltage : 24V DC, short-circuit current: under 2mA, RJ45 female connector Input 6: Isolated voltage input: Inactive; -24V ±20%/Active; +24V ±20%, RJ45 female connector Status out: Relay contact output, withstand voltage: 40V DC, operating current: 2 - 300mA, RJ45 female connector	
DC-24 V-Output	24 V DC, maximum feeding current 0.3 A	24V DC ±10% Maximum feeding current 0.4A
Dimensions (W x H x D)	482 x 132.6 x 460 mm	482 x 132.6 x 460 mm
Weight	16.5 kg	19kg

VM-3000 series Extension Amplifier

VM-3240E/VM-3360E

Features

- System can be expanded by connecting up to 9 VM-3240E or VM-3360E Extension Amplifiers. The 240 W VM-3240E and 360 W VM-3360E are both equipped with 6 speaker line outputs. Both also feature 8 contact inputs and 8 contact outputs for general broadcasts and 6 in puts and 3 outputs for emergency broadcasts. They are connected to the VM-3240VA or VM-3360VA via the VM Link connector.
- EN54-16 Certificate No. 1438/CPD/0180

Options

- VM-3240VA: 240 W System Amplifier
- VM-3360VA: 360 W System Amplifier
- IT-450: Input Transformer

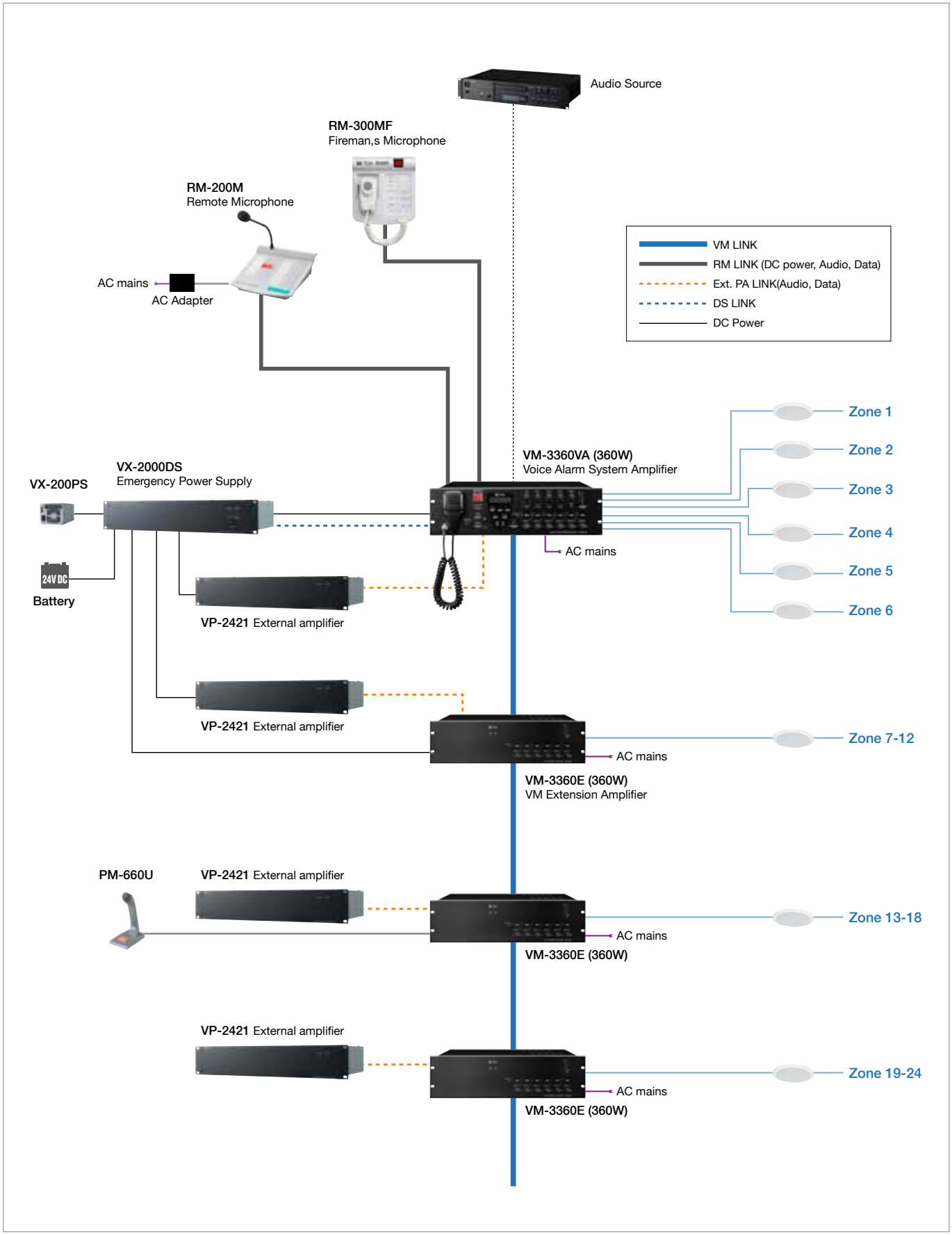
EN 54 16

First fully EN 54 Certified Voice Alarm System

Specifications

	VM-3240E	VM-3360E
Power Requirement	230 V AC, 50/60 Hz	
Power Consumption (AC mains)	600 W (with rated output signal), 260 W (according to EN60065)	850 W (with rated output signal), 380 W (according to EN60065)
Rated Output	240W	360W
Frequency Response	50 - 20 kHz, ±3dB (at 1/3 rated output)	50 - 20 kHz, ±3dB (at 1/3 rated output)
Distortion	Under 0.7% (at rated output, 1kHz)	Under 0.8% (at rated output, 1kHz)
Signal-to-Noise Ratio	Over 85dB	
Inputs	External amplifier Input: 100 V Line removable terminal block(14 pins)	
Outputs	Speaker output 1 - 6: Total within rated output, removable terminal block (14 pins) Direct output from internal or external amplifier, removable terminal block (16 pins)	
Control	Input 1 - 8: No-Voltage make contact input, open voltage: 24V DC, short-circuit current: under 2mA, removable terminal block (14 pins)	
Output	1 - 8: Isolated open collector output, withstand voltage: 30V DC, operating current: under 10mA, removable terminal block (14 pins)	
Emergency Control RJ45	Input 1 - 5: No-Voltage make contact input, open voltage : 24V DC, short-circuit current: under 2mA, female connector Input 6: Isolated voltage input: Inactive; -24V ±20%/Active; +24V ±20%, RJ45 female connector Status out: Relay contact output, withstand voltage: 40V DC, operating current: 2 - 300mA, RJ45 female connector	
DC-24 V-Output	24 V DC, maximum feeding current 0.3 A	24V DC. maximum feeding current 0.4A
Dimensions (W x H x D)	482 x 132.6 x 407 mm	482 x 132.6 x 460 mm
Weight	16.5 kg	19 kg
Certificates	EN54 16 1438 - CPD - 0180	

VM-3000 series Application Example



VM-3000 series Emergency Remote Microphone

RM-300MF

Alarm Switch

Microphone

Function keys

RM-320F

Features

- 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 OFF switch allows all-zone calls (simultaneous attenuator-free global calls).
- No general broadcasts can be made.
- The RM-320F Emergency Microphone Extension enables zone selection or failure indication/failure acknowledgment function.
- Up to 3 RM-320Fs can be connected to the Emergency Microphone, expanding the available keys up to 60 per unit.
- 20 function buttons per unit.
- Zone selection (1 - 20) and failure indication/acknowledgment functions can be assigned to each function key using the dedicated software.

Specifications

	RM-300MF	RM-320F
Power Requirement	24 V DC (Operating range: 14 - 28 V DC)	From RM-200X/M/XF
Current Consumption	100 mA (up to 550 mA with 3x RM-320F)	155 mA max. (in terms of DC power inputs of RM-300MF)
Distortion	Under 1%	-
Frequency Response	200 - 15 kHz	-
Signal-to-Noise Ratio	Over 55 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Unidirectional dynamic microphone	-
Volume Control	Microphone, buzzer	-
Operation key	Emergency button, Evacuate button, Alert button, Emergency reset key, CPU switch, Reset switch	
Key Extension	20 keys extension per RM-320F, extension connector	20
Connection Cable	Shielded CPEF cable or Category 5 STP cable, by M3 screw terminal	Connection to RM-300MF by way of dedicated cable
Finish	ABS resin, bluish gray	ABS resin, bluish gray (PANTONE 538 or its equivalent)
Dimensions (W x H x D)	200 x 215 x 82.5 mm	110 x 76.5 x 215 mm
Weight	1.1 kg	350 g

VM-3000 series Remote Microphone

RM-200M/RM-210

RM-210

WB-RM200

Features

- Elegant design
- Zone, group and all-call paging, and activating pre-recorded messages
- Indication of system failure, line failure, busy zone etc.
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 4 remote microphones can be connected to the VM-3000 system amplifier
- Up to 800 m total cable length
  RM-210: Allows announcements in Up to 50 zones
- Color: Bluish gray

Options

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

Specifications

	RM-200M	RM-210
Power Requirement	24 V DC (Operating range: 14 - 28 V DC)	From RM-200X/M/XF
Current Consumption	100 mA maximum	20 mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Distortion	Under 1%	-
Frequency Response	100 - 20 kHz	-
Signal-to-Noise Ratio	Over 60 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Unidirectional electret condenser microphone	-
Speaker Control	Controllable by PC software	-
Voice Message Control	Activation of 5 messages	-
Key Extension	10 keys extension per RM-210, extension connector	10
Connection Cable and Connector	Category 5 STP cable, RJ45 connector	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Finish	ABS resin, bluish gray	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

VX-2000
series

VX-2000 series Audio Management System

VX-2000 - 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.

The VX-2000 features a scalable architecture that can be easily expanded as requirements dictate.

Its fully modular configuration facilitates assembling a system that is ideally optimized for a particular application with specific modules.

The VX-2000 offers a high-performance cost-effective solution to any environment's broadcast and public address requirements.

Features

- Full compliance with EN60849 standards
- System status can be confirmed on Remote Microphones
- Emergency Microphone is available
- Simultaneous dual-origin recorded message broadcasts
- Convenient multi-language software
- 1 per 100 second frequency program non-interruptive surveillance

Applications

- Public buildings for example schools, train stations, shopping malls or administrative buildings which need to fulfill the demanding requirements of emergency evacuation according to EN 60849 as well as standard PA requirements

Options

- EV-200M: Voice announcement board
- IT-450: Isolation transformer (audio link output)

EN 54 16

Certificate No : 1134-CPD-110

VX-2000 series System Manager

Features

- Input matrix unit that assigns input signals to 4 audio buses
- Functions as the VX-2000 system's manager
- Up to 8 units of the VX-200XI, VX-200XR, and 900 Series input modules can be mounted in the System Manager
- The VX-2000 can control audio signal routing, priorities, and peripheral equipment
- Input and output control settings are performed by way of a PC software
- Up to 2000 system events and failures can be logged and viewed from a PC

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)

EN 54 4

First fully EN 54 Certified Voice Alarm System

Specifications

	VX-2000
Power Source	24 V DC (operating range: 20 - 40V DC)
Current consumption	Under 650 mA (20 V DC)
Input	-20 dBV, unbalanced, number of module slots: 8
Audio Link Output	Number of audio buses: 4, 0 dBV, electronically balanced, RJ45 female connector
Monitor Output	0 dBV, electronically balanced, XLR receptacle (3 pins)
Frequency Response	20 - 20 kHz
S/N Ratio	Over 60 dB
Distortion	Under 0.5 %
Cross Talk	Under -60 dB (1 kHz, 0 dB)
Control Input	16 inputs, RJ45 connector x 2
Control Output	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,
	VX-2000SF: RJ45 connector, twisted-pair straight cable (TIA/ EIA-568A standard), LONWORKS RS-485
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 132.6 x 337 mm
Weight	6.4 kg

VX-2000 series Surveillance Frame

Features

- Surveillance Frame is the output matrix section of the VX-2000 system
- A total of 10 units of output modules and control modules can be installed
- Assigns audio signals to individual zones from 4 audio buses
- Expandable to up 8 units
- Rack-mountable, 3 units height
- 1 standby amplifier per VX-2000SF
- In case of power amplifier failure, output is automatically switched to the standby amplifier
- Output volume setting with PC system software
  6 types of modules can be used:
- The VX-200SP/200SP-2 Pilot Tone Detection module, the VX-200SZ/200SZ-2 Impedance Detection module, the VX-200SI Control Input module, and the VX-200SO Control Output module

Options

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

Specifications

	VX-2000SF
Power Source	24 V DC (operating range: 20 - 40V DC)
Current Consumption	Under 2 A (40V DC)
Number of Module Slot	10, usable modules: VX-200SZ, VX-200SZ-2, VX-200SP, VX-200SP-2, VX-200SI, VX-200SO
Frequency Response	20 Hz - 20 kHz (when use VX-200SZ: 120 Hz - 20 kHz)
S/N Ratio	Over 60 dB
Distortion	Under 0.5%
Cross Talk	Under -60 dB (1 kHz, 0 dBV)
Audio Link Input/Output	Number of audio buses: 4, 0 dBV, electronically balanced, RJ45 connector
Standby Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier.
Communication System	VX-2000, VX-2000SF: RJ45 female connector x 2, LONWORKS RS-485 VX-2000DS: RJ45 connector x 2
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 132.6 x 337 mm
Weight	5.6 kg
Accessory	Pre-installed rack mounting bracket (pre-installed on the unit), blank panel x 9, standby amp. cable (3m) x 1

VX-2000 series Power Supply Manager

Features

- The VX-3000DS Power Supply Manager supplies DC power to all VX-2000 system components. It combines two built-in power source units with a high-performance charger. If the primary power supply is cut off, the VX-3000DS switches automatically to auxiliary battery power.
- Battery capacity per unit: Maximum 100Ah
- EN54-4 Certified.
  Certificate No.: XXXX

Specifications

	VX-3000DS
Power Source	220-230 V AC, 50/60 Hz
Power Consumption	2800 W max in total (at rated output with charging), 650 W max in total, 350 W max each (EN60065)
DC Power Output (AC mode)	Rated output: 2300 W (31 V, 72.5 A, total DC power output), Peak output: 2780 W (29 V, 96 A, total DC power output)
Current Specification	Maximum output current from the battery: 72.5 A Rated maximum continuous output current, I max. a: 72.5 A Rated maximum short duration output current, I max. b: 72.5 A Rated minimum output current, I min: 0 A Ripple Voltage at I max. b: 4 V max
DC Power Output	8 x 31 V (19-33 V) 25 A max. each, M4 screw terminal, distance between barriers: 11 mm 3 x 31 V (19-33 V) 5 A max. each, removable terminal block (3 x 2 pins) 1 x 24 V (16-25 V) 0.3 A max., removable terminal block (1 x 2 pins)
Charging Method	Temperature compensated trickle charging
Charging Output Voltage	27.3 V ±0.3 V (at 25 C), Temperature correction coefficient: -40 mV/ C
Battery Connection	1 pair of positive and negative terminals, Applicable cable diameter: AWG 6 - AWG 0 (AWG 1/0) (16 mm2 - 50 mm2) Line resistance within 4 m / total
Applicable Battery	Panasonic: LC-X1265PG/APG (65 Ah), LC-XA12100P (100 Ah), Yuasa: NP65-12 (65 Ah), NPL100-12 (100 Ah)
Control Connector DS LINK IN/OUT	RJ45 female connector for connecting the system and cascade connection Shielded Twisted-pair straight cable (TIA/EIA-568A standard) 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)
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 132.6 x 400.5 mm
Weight	11.8 kg
Accessory	Fuse (T8A H) …2, Fuse (T6.3A L) …2, Blade fuse (35 A) …2, Rack mounting screw (with washer) …4, Power cord (2 m (6.56 ft)) …2, Fastener hook …4, Fastener loop …4, Thermal insulating sheet …1, CAT5-STP cable (3 m (9.84 ft)) …1, Ferrite clamp …1
Fuse Rating	Blade fuse (35 A), Fuse (T8A H), Fuse (T6.3A L)

VX-2000 series Digital Power Amplifier

VP-3154/VP-3304/VP-3504

Features

- 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
- Power amplifier input modules are included.
- Supplied with BGM input ports

Specifications

	VP-3154	VP-3304	VP-3504
Power Source	31 V DC (operating 20-34 V DC)DC power in: M4 screw terminal, distance between barriers: 11 mm		
Amplification System	Class D		
Current Consumption	6 A (Rated Output Power), 0.6 A (Surveillance), 0.1 A (Standby), at 31 V DC, 100 V line, each channels	11 A (Rated Output Power), 0.6 A (Surveillance), 0.1 A (Standby) at 31 V DC, 100 V line, each channels	20 A (Rated Output Power), 0.6 A (Surveillance), 0.1 A (Standby) at 31 V DC, 100 V line, each channels
Rated Output Power	150 W x 4 (at 100 V line and min. resistive and max. capacitive load) 105 W x 4 (at 70 V line and min. resistive and max. capacitive load) 75 W x 4 (at 50 V line and min. resistive and max. capacitive load) (at AC Mains of VX-3000DS: 187 V - 253 V)	300 W x 4 (at 100 V line and min. resistive and max. capacitive load) 210 W x 4 (at 70 V line and min. resistive and max. capacitive load) 150 W x 4 (at 50 V line and min. resistive and max. capacitive load) (at AC Mains of VX-3000DS: 187 V - 253 V)	500 W x 4 (at 100 V line and min. resistive and max. capacitive load) 350 W x 4 (at 70 V line and min. resistive and max. capacitive load) 250 W x 4 (at 50 V line and min. resistive and max. capacitive load) (at AC Mains of VX-3000DS: 187 V - 253 V)
Output Voltage	100 V (70 V, 50 V: selectable by internal change)		
Minimum Resistive Load	67 (at 100 V line), 47 (at 70 V line), 33 (at 50 V line)	33 (at 100 V line), 23 (at 70 V line), 17 (at 50 V line)	20 (at 100 V line), 14 (at 70 V line), 10 (at 50 V line)
Maximum Capacitive Load	0.5% 133F		
Number of Channels	4		
Input	PA link: 4 channels, RJ45 connector, BGM: 4 channels, removable terminal block (5 pins) BGM INPUT (H, C, E): -10 dB/0 dB (LINE, changeable), 22 k , electronically balanced BGM MUTE (G, +): no-voltage make contact input,open voltage: 15 V DC, short-circuit current: 2 mA, Volume adjustment: 4 channels		
Output	PA out (Speaker line): removable terminal block (9 pins) x 1		
Frequency Response	40 Hz - 16 kHz, ±3 dB (at 100 V line, 1/3 rated output)		
Distortion	1% or less (at 100 V line, rated output, 1 kHz)		
Signal to Noise Ratio	80 dB or more (at 100 V line, A-weighted)		
Crosstalk	60 dB or more (at 100 V 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 390 mm		
Weight	7.3 kg		7.7 kg
Accessory	Rack mounting screw (with washer) … 4, Removable terminal plug (5 pins) … 4, Removable terminal plug (9 pins) … 1		

VX-2000 series Emergency & Standard Power Supply

Features

- The VX-2000DS Emergency Power Supply Unit supplies the DC power to each component in the VX-2000 system by connecting the VX-2000PS Power Supply Unit. It keeps the battery unit that contains 2 X 12 V sealed lead batteries charged compensating for the temperature of the battery charging voltage.
- Automatically switch-over in case of AC mains failure EN 54-4 certified
- Certificate No : 1134-CPD-083

First fully EN 54 Certified Voice Alarm System

Specifications

	VX-2000DS
Power Source	230 V AC, 50/60 Hz
Power Consumption	240 W max.
Applicable Battery	Panasonic LC-X1265PG / APG (65 Ah) (12V x 2 or 4)
Charging Method	Trickle charging
Charging Current	5 A max
Charging Output Voltage	27.3 V ±0.3 V (at 25 C) Temperature correction coefficient: -40 mV/ C
Power Supply Input	6 M4 screw terminal, distance between barriers: 11 mm
DC Power Output	6 (25 A 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) 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 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
Weight	10.5 kg

VX-2000 series Power Supply

VX-200PS

VX-2000PF

Features VX-200PS

- Up to 3 VX-200PS Power Supply units (6 channels) can be mounted in one VX-2000PF Power Supply Frame
- 2 DC output channels per unit
- EN 54-4 Certified
  Certificate No : 1134-CPD-083

Features VX-2000PF

- VX-2000PF frame for rack mounting of up to 3 VX-200PS Power Supply Units
- EN54-4 Certified
  Certificate No: 1134-CPD-083

Specifications

	VX-200PS	VX-2000PF
Power Source	230 V AC, 50/60 Hz	-
Power Consumption	580 W	-
PS OUT	Rated output: 210 W (29 V, 7.25 A) x 2,	-
	Peak output: 400 W 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 333.8 mm	483 x 132.6 x 324.8 mm
Weight	13.2 kg	5.5 kg
Product Composition	Fuse (T3.15A L) x 1, Power cable x 1	Side panel x 2, Chassis x 1, Front panel x 1
Accessory	-	Rack mounting screw x 4, Fiber washer x 4
Usable Unit	-	VX-200PS (up to 3)

VX-2000 series System Amplifier

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

VP-200VX

VP-200VX-BGM

Features

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

Options

- VP-200VX: Amplifier Input Module for transmission of status and audio signals between amplifier and control modules
- VP-200VX-BGM: Amplifier Input Module with additional input for BGM

VX-2000 series System Amplifier - Specification

Specifications	VP-2064	VP-2122
Type	Power Amplifier 4 x 60 W	Power Amplifier 2 x 120 W
Power Source	28 V DC (operating range: 20 - 40 V DC) M4 screw terminal, distance between barriers: 12 mm	
Current Consumption (EN60065)	4.8 A in total	
Rated Output Power	4 x 60 W	4 x 120 W
Output Voltage/Impedance	100 V/167 Ohm, 70 V/83 Ohm, 50 V/41 Ohm (selectable by the internal wiring change)	100 V/83 Ohm, 70 V/41 Ohm, 50 V/21 Ohm (selectable by the internal wiring change)
Number of Channels	4	2
Input	Specified by input module VP-200VX	
Number of Module Slots	1, usable module: VP-200VX	
Output	Power amplifier output (speaker line): M3.5 screw terminal	
Frequency Response	40 - 16,000 Hz, ±3 dB (at 1/3 rated output)	
Distortion	Under 1% (at rated output, 1kHz)	
S/N Ratio	Over 80 dB	
Panel Indicator	Channel power indicator: 4 channels, dual color LED Overheat indicator: Yellow LED	
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 340.5 mm	
Weight	11.2 kg	9.1 kg
Accessory	Rack mounting screw x 4, Fiber washer x 4	

Specifications	VP-2241	VP-2421
Type	Power Amplifier 120 W	Power Amplifier 420 W
Power Source	28 V DC (operating range: 20 - 40 V DC) M4 screw terminal, distance between barriers:12 mm	
Current Consumption (EN60065)	4.8 A	7.6 A
Rated Output Power	1 x 240 W	1 x 420 W
Output Voltage/Impedance	100 V/41 Ohm, 70 V/21 Ohm, 50 V/10 Ohm (selectable by the internal wiring change)	100 V/24 Ohm, 70 V/12 Ohm, 50 V/6 Ohm (selectable by the internal wiring change)
Number of Channels	1, usable module: VP-200VX	
Input	Specified by input module VP-200VX	
Number of Module Slots	4, usable module: VP-200VX	2, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal	
Frequency Response	40 - 16,000 Hz, ±3 dB (at 1/3 rated output)	
Distortion	Under 1% (at rated output, 1kHz)	
S/N Ratio	Over 80 dB	
Panel Indicator	Channel power indicator: 4 channels, dual color LED Overheat indicator: Yellow LED	
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 340.5 mm	
Weight	8.1 kg	9.5 kg
Accessory	Rack mounting screw x 4, Fiber washer x 4	

VX-2000 series Emergency Remote Microphone

RM-200XF

Alarm Switch

Microphone

Function keys

RM-210

Features

- Special microphone for fireman's use
- 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
- 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
- WB-RM200: Wall-mounting bracket

Specifications

	RM-200XF
Power Source	24 V DC (operating range: 16 - 40 V DC)
Current Consumption	Under 200 mA (RM-200XF), 850 mA (with 10 RM-210s connected)
Audio Output	0 dBV, 600 Ohm, balanced
Hand-Held Microphone	Dynamic microphone, function switch (default: press-to-talk), microphone element fault detection
Frequency Response	200 - 15 kHz
S/N Ratio	Over 55 dB
Functions	Internal monitor speaker 200 mW/Volume control: microphone, monitor speaker
Number of Function Keys	5 (including hand-held microphone's switch), extendable up to 105 (with 10 RM-210s connected)
Key Extension	10 keys extension per RM-210, EXTENSION connector
Number of Connectable Units	4
Communication System	LONWORKS twisted pair free topology transceiver
Connection Cable and Connector	Category 5 STP cable, plug-in screw connector
Communication Distance	500 m (Free topology wiring)
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

Features

- RM-200X: System remote microphone
- 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)
- Up to 9 RM-210 Remote Microphone Extension units can be used with each RM-200X Remote Microphone
- Up to 8 in total of RM-200X and RM-200XF units can be connected within one system
- RM-210: Key extension unit
- 10 additional keys

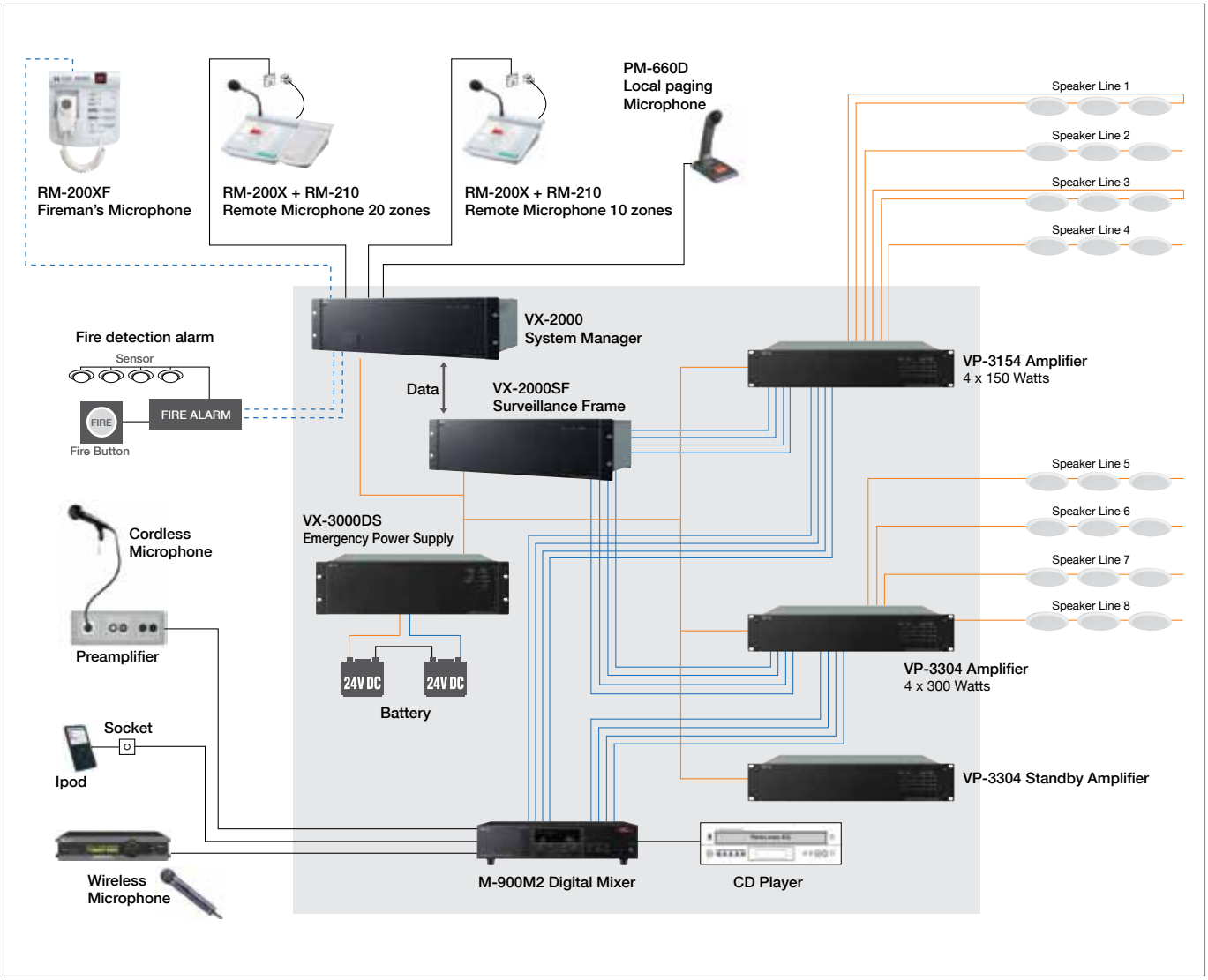
Options

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

Specifications

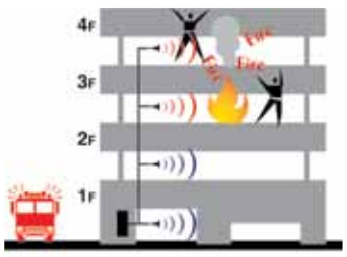
	RM-200X	RM-210
Power Source	24 V DC (operating range: 16 - 40 V DC), supplied from RJ45 connector or power input jack (non-polarity type)	From RM-200X/XF
Current Consumption	Under 200 mA (RM-200X), 750 mA (with 9 RM-210s connected)	20 mA max. (in terms of DC power inputs of RM200X and RM-200XF)
Audio Output	0 dBV, 600 Ohm, balanced, RJ45 connector	-
External Microphone Input	-40 dB, 2.2 k , unbalanced, mini jack, phantom powering	-
Distortion	Under 1%	-
Frequency Response	100 Hz - 20 kHz	-
S/N Ratio	Over 60 dB	-
Internal Monitor Speaker	200 mW	-
Volume Control	Microphone volume control, Monitor speaker volume control	-
Number of Function Keys	15, extendable up to 105 (with 9 RM-210s connected, 10 keys each)	10
Number of Connectable Units	8 (including RM-200XF)	-
Communication	System: LONWORKS twisted pair free topology transceiver, Distance: max. 500 m (Free topology wiring)	-
Connection Cable and Connector	Category 5 STP cable, RJ45 connector way of dedicated cable	Connection to RM-200M, RM-200X or RM-200XF by
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.

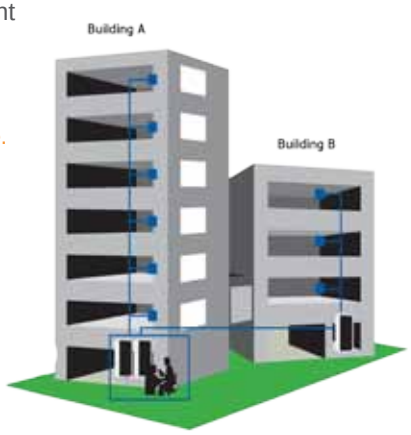


*A maximum of 4 broadcasts are simultaneously possible.

(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

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	VX-200SZ-2 (s. next page)
Power Source	Supplied from VX-2000	Supplied from VX-2000	Supplied from VX-2000SF	Supplied from VX-2000SF
Current Consumption	Under 30 mA	Under 17 mA	Under 150 mA	Under 170 mA
Connectable Microphones	-	RM-200X and RM-200XF	-	-
Input Sensitivity	MIC: -70 to -42.5 dBV LINE: -20 to +7.5 dBV MIC or LINE with selector switch	-	-	-
Speaker Output	-	-	Plug-in screw connector	2 outputs (A, B), 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	335 g
Applicable Model	VX-2000	VX-2000	VX-2000SF	VX-2000SF

VX-2000 series Modules

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

Dual ciruit 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-200SP	VX-200SP-2
Power Source	Supplied from VX-2000SF	Supplied from VX-2000SF
Current Consumption	Under 100 mA	Under 100 mA
Power Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241,VP-2421Power 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	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 (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
Dimensions (W x H x D)	30.5 x 132.6 x 290.3 mm	30.5 x 132.6 x 290.3 mm
Weight	240 g	235 g
Applicable Model	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

VX-200SO (For VX-2000SF)

VX-200SI (For VX-2000SF)

VX-200SE (For VX-2000SF)

Features VX-200SO

- Control Output Module
- Increases the number of control outputs in the VX-2000 system
- 16 control outputs
- No-voltage, make contact to external equipment depending on the 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

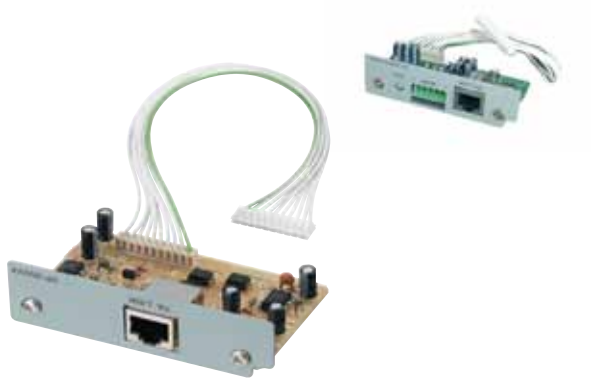
- Equalizer Card
- 9-band, 1-channel equalizer
- To be mounted on the circuit board of the VX-200SP Pilot Tone Detection module VX-200SP-2 Pilot Tone Detection module VX-200SZ Impedance Detection module VX-200SZ-2 Impedance Detection module
- Settings are performed by using the PC system software

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

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 8 messages, can be used for Alert & Evacuation, general messages or music.
- Includes compact memory flash card

Specifications

	VP-200VX (For VP-200 Amps)	EV-200M (For VX-2000)
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

SX-2000
series

SX-2000 series Network Enabled for Extended System Installations

SX-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.

SX-2000 System Configuration

The basic system comprises one SX-2100AI Audio Input Unit, one SX-2000AO or SX-2100 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 keeps the system operational 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.

Operational Simplicity and Low Maintenance

Control over the entire system is software-driven. Operation tasks are performed easily through menu and function buttons assisted by an LCD and status LEDs. Operation and maintenance tasks are easier compared to conventional systems with parameter settings saved to a compact flash card.

EN 54 16 EN 54 4

Certificate No : 1134-CPD-102

SX-2000 series System Manager

Features

- 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
Power Source	24 V DC; 2 power inputs
Current Consumption	Under 0.8 A
SX Link Network I/F	2 100BASE-TX circuits
Matrix System Specification	Bus: 16; audio input: Max. 64 ch, audio output: Max. 256 zones. Contact input: Max. 1,416, contact output: Max. 1,416. Priority control: 256 steps. Event log: Max. 10,000 events
Matrix System Configuration	Connectable SX-2100AI No.: Max. 8 units. Connectable SX-2100AO No.: Max. 32 units. Connectable RM-200S No.: Max. 64 units (up to 4 RM-200S per SX-2000AI) Connection cable / device shielded category 5 twisted pair cable for LAN (CAT5-STP)
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
Weight	3.8 kg

SX-2000 series Audio Input Unit

Features

- Modular audio input
- 2 to 8 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
Power Source	24 V DC (2 independent power inputs)
Current Consumption	Under 1.5 A
Audio Inputs	8 inputs, for up to 4 modules
Audio Input Characteristics	Sampling frequency: 48 kHz
Analog Link Input / Output Connector Connection Cable / Device	 1 input, 1 output, CAT5-STP, max. cable length 800m, 2 x RJ45 connector
SX Link Network I/F Connection Cable / Device	2 x 100 Base TX 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
Weight	7 kg

SX-2000 series Modules for SX-2100AI

SX-2100AI (rear)

SX-200RM

Remote Microphone Interface Module

The SX-200RM is a dedicated
remote microphone module for the SX-2000 Series audio input unit and can be used to connect two remote microphones. Input sensitivity can be adjusted.

Specifications	SX-200RM
Power Source	Supplied from SX-2000AI
Input	Monaural x 2, -10 dB (0 dB=0.775V), 10 Ohm, RCA pin jack
A/D Converter	24 bits
Frequency Response	20 - 20 000 Hz, ± 1dB (+4 dB input, 0 dB=0.775V)
Sampling Frequency	48 kHz
Dynamic Range	> 100 dB (IHF-A weighted)
Total Harmonic Distortion	< 0.05% (+4 dB input, 0 dB=0.775V)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions (W x H x D)	35 x 119.5 x 178.4 mm
Weight	180 g
Applicable Model	SX-2100AI

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) Network Protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Voice packet loss recovery: Silence insertion Audio delay time: 80 ms, 320 ms (controllable on the software)
Indicator	Operation indicator (RUN)

D-921E

Mic/Line Input Module (24 bits monaural type)

The D-921E is a dedicated
2-channel microphone/line input module designed for use with the SX-2100AI and equipped with removable terminal block type connectors.

D-921F

Mic/Line Input Module (24 bits monaural type)

The D-921F is a dedicated
2-channel microphone/line input module designed for use with the SX-2100AI and equipped with XLR connectors.

D-922E

Mic/Line Input Module (20 bits monaural type)

The D-922E is a dedicated
2-channel microphone/line input module designed for use with the SX-2100AI and equipped with removable terminal block type connectors.

D-922F

Mic/Line Input Module (20 bits monaural type)

The D-922F is a dedicated
2-channel microphone/line input module designed for use with the SX-2100AI and equipped with XLR connectors.

D-936R

Stereo Select Input Module

The D-936R is a dedicated 4 stereo input module designed for use with the SX-2000AI and equipped with standard RCA pin jacks.

SX-2000 series Audio Output Unit SX-2000AO

SX-2000AO

Features

- 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

- DA-250DH Digital 2 Channel Amplifier
- DA-250FH Digital 4 Channel Amplifier
- DA-550FH Digital 4 Channel Amplifier
- VX-2000DS: Emergency Power Supply
- VX-200PS: Power Supply Unit
- VX-2000PF: Power Supply Frame

Specifications

	SX-2000AO
Power Source	24 V DC (operating range: 20 - 40V DC from VX-200PS)
Current Consumption	Under 0.79 A
Audio Output	8 outputs, 0 dB, load: 600 Ohm or more
Audio Output Characteristics	Frequency Response: 20 Hz - 20 kHz , 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 with RJ 45 connector. Connection cable CAT5-STP, maximum cable length of 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
Weight	6.2 kg

SX-2000 series Audio Output Unit SX-2100AO

SX-2100AO

Features

- 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
- 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
- For Voice Alarm/Emergency Broadcast Systems

Options

- VP-3154: 150 W by 4 channels amplifier
- VP-3304: 300 W by 4 channels amplifier
- VP-3504: 500 W by 4 channels amplifier
- VX-3000DS: Power Supply Manager
- VP-2064: 60 W by 4 channels amplifier
- VP-2122: 120 W by 2 channels amplifier
- VP-2241: 240 W by 1 channel amplifier
- VP-2421: 420 W by 1 channel amplifier
- VX-2000DS: Emergency Power Supply
- VX-200PS: Power Supply Unit
- VX-2000PF: Power Supply Frame

Specifications

	SX-2100AO
Power Source	24 V DC (2 power inputs)
Current Consumption	Under 1.2 A
Audio Output	8 outputs, 0 dB, load: 600 Ohm or more
Audio Output Characteristics	Frequency Response: 20 Hz - 20 kHz , sampling frequency 48 kHz, D/A converter 24 bit
CI/CO Link	SX-2000CI / SX-2000CO: 1 interface, connection cable CAT5-STP, RJ45 connector
Local Audio Input	2 audio inputs, 0 dB, 10 kOhm, electronically balanced, RJ45 connector Frequency Response: 20 Hz - 20 kHz , sampling frequency 48 kHz, D/A converter 24 bit 2 Control inputs Connection cable CAT5-STP,
DS Link	VX-2000DS: 2 interfaces, connection cable CAT5-STP, RJ45 connector
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
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
Weight	7.1 kg

SX-2000 series Control Input Unit SX-2000CI

SX-2000CI

Features

- Decentralized installation possible
- 32 control inputs
- Control input line failure detection
- Front panel LED for monitoring the line status
- Supply of stabilized 24 V DC
- 2 independent power inputs
- RJ45 connectors

Options

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

Applications

- Airports, Exhibition Centers, Event Centers, Hotels

Specifications

	SX-2000CI
Power Source	24 V DC, 2 independent Inputs
Current Consumption	Under 0.55 A (when operated on 24 V DC)
Control Inputs	32 inputs
CI/CO Link	Input: 1 input, output: 1 output, input/output connector : RJ45 connector Connection cable: Shielded category 5 twisted pair cable (CAT5-STP)
Maximum Cable Distance	800 m
Finish	Panel: Aluminum black, alumite, Case: Steel plate
Dimensions (W x H x D)	482 x 44 x 331.5 mm
Weight	3.6 kg

SX-2000 series Control Output Unit SX-2000CO

SX-2000CO

Features

- Decentralized installation possible
- 32 control outputs
- Control input line failure detection
- Front panel LED for monitoring the line status
- Supply of stabilized 24 V DC
- 2 independent power inputs
- RJ45 connectors

Options

- SX-2100AO Audio Output Unit

Applications

- Airports, Exhibition Centers, Event Centers, Hotels

Specifications

	SX-2000CO
Power Source	24 V DC, 2 independent Inputs
Current Consumption	Under 0.29A (when operated on 24V DC)
Control Outputs	32 outputs
CI/CO Link	Input: 1 input, output: 1 output, input/output connector : RJ45 connector Connection cable: Shielded category 5 twisted pair cable (CAT5-STP)
Maximum Cable Distance	800 m
Finish	Panel: Aluminum black, alumite, Case: Steel plate
Dimensions (W x H x D)	482 x 44 x 331.5 mm
Weight	3.6 kg

SX-2000 series Emergency Remote Microphone

RM-200SF/RM-210

Alarm Switch

Microphone

Function keys

RM-210

Features

- Exclusively for emergency broadcasts made by firem officer to evacuate
- For activation of emergency mode, start and stop automatic broadcasts of emergency announcements, reset emergency signals, and live microphone announcements
- CPU OFF switch allows all-zone calls (simultaneous attenuator-free global calls).
- No general broadcasts can be made.
- RM-210: Key extension unit
- 10 additional keys

Specifications

	RM-200SF
Power Requirement	24 V DC (Operating range: 14 - 28 V DC)
Current Consumption	100 mA (up to 550 mA with 3x RM-320F)
Distortion	Under 1%
Frequency Response	200 - 15,000 Hz
Signal-to-Noise Ratio	Over 55 dB
Audio Output	0 dBV, 600 Ohm, balanced
Microphone	Unidirectional dynamic microphone AGC
Volume Control	Microphone, buzzer
Operation key	Emergency key, Evacuate key, Alert key, Emergency reset key, CPU switch, Reset switch
Key Extension	10 keys extension per RM-210, extension connector
Connection Cable	Shielded CPEF cable or Category 5 STP cable, M3 screw terminal
Finish	ABS resin, bluish gray
Dimensions (W x H x D)	200 x 215 x 95 mm
Weight	1.48 kg

SX-2000 series Remote Microphone

RM-200SA/RM-210

RM-210

WR-RM-200

Features

- Elegant design
- 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
- Color: Bluish gray

Options

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

Specifications

	RM-200SA	RM-210
Power Requirement	24 V DC (Operating range: 15 - 40 V DC)	From RM-200X/M/XF
Current Consumption	290 mA maximum	20 mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Distortion	Under 1%	-
Frequency Response	100 - 20,000 Hz	-
Signal-to-Noise Ratio	Over 60 dB	-
Audio Output	0 dBV, 600 Ohm, 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 5 messages	-
Key Extension	10 keys extension per RM-210, extension connector	10
Connection Cable and Connector	Category 5 STP cable, RJ45 connector	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Finish	ABS resin, bluish gray	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	880 g	350 g

SX-2000 series Terminal Unit

RM-200RJ

Features

- The RM-200RJ is designed to convert the RJ45 connector into a screw terminal block. It is used to connect between a trunk cable (such as CPEV cable) and a feeder cable (such as LAN cable) in wiring a remote microphone.
- The 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
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
Dimensions (W x H x D)	84 x 116 x 25.7 mm

SX-2000 series IP Remote Microphone Station

N-8610RM

Features

- Connects directly to network
- Can make a paging call to any selected zone(s) of SX-2000 System
- Two way communication capability with other staions 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 AV adapter

Options

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

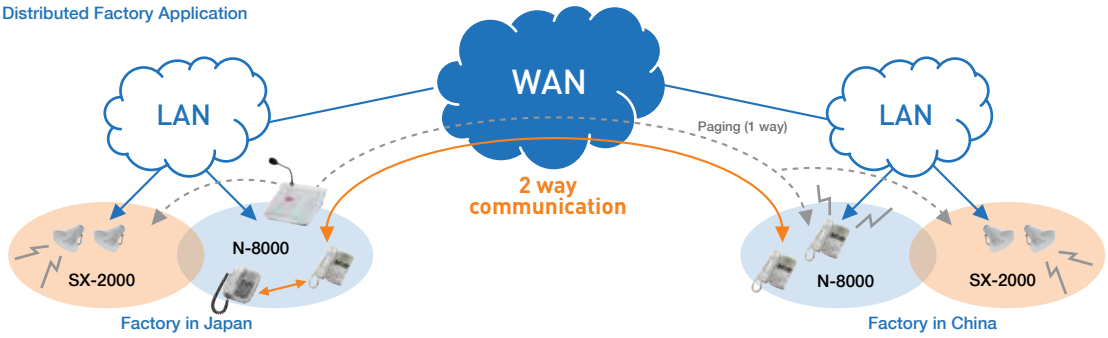
Specifications

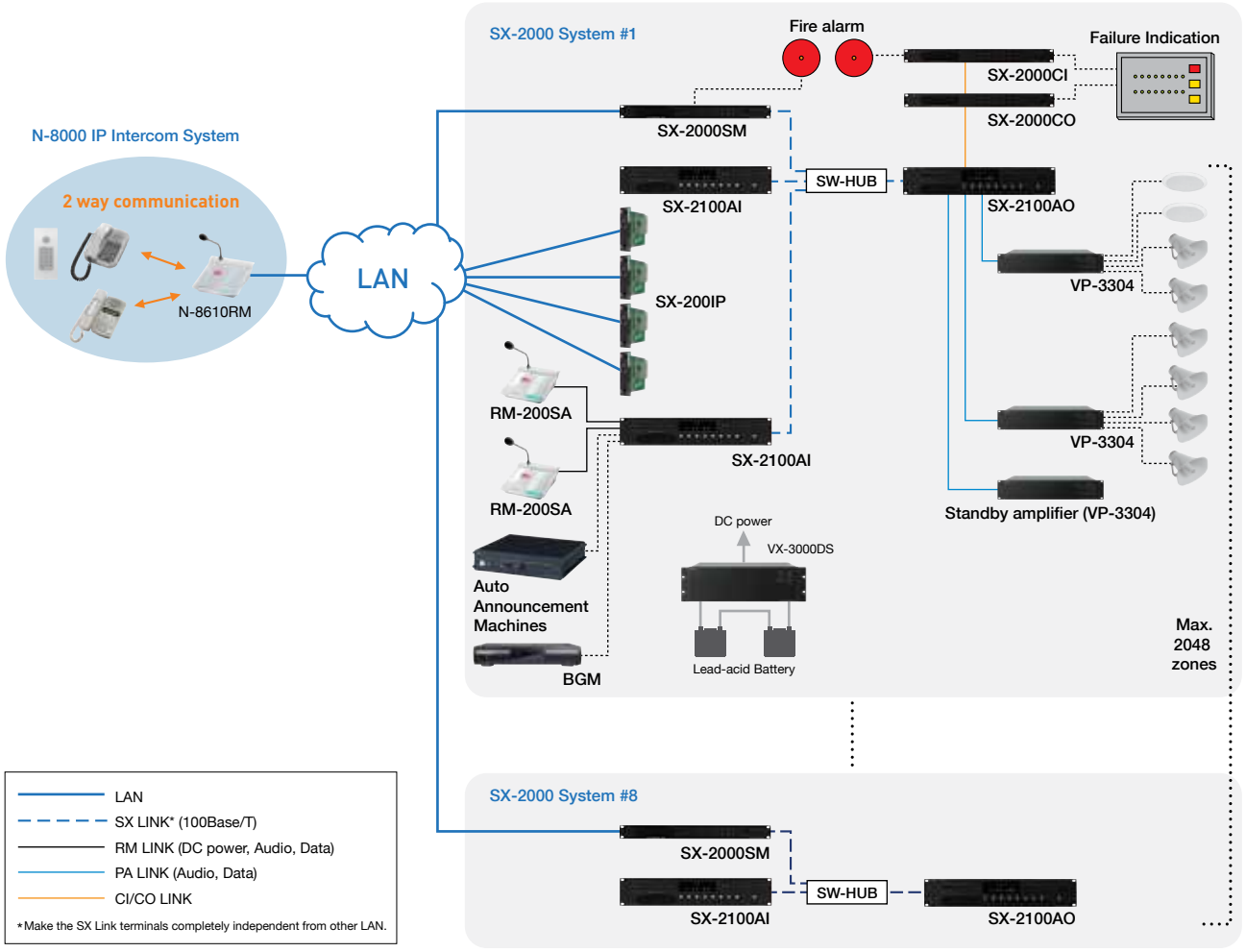
	N-8610RM
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))
Power Consumption	Use of the AC adapter (12 V DC): 4W (microphone only), 8.5W (when connecting 4 RM-210 Extension units) Use of the PoE (48 V DC): 5.2W (microphone only), 7.5W (when connecting 4 RM-210 Extension units)
Speech Method	Hands-free conversation (use of goose-neck microphone)
No. of Connectable Expansion	Max.4 units (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	80ms, 320ms (controllable on the software)
Finish	ABS resin, blueishgray
Dimensions (W x H x D)	190 x 76.5 x 215 mm (excluding microphone)
Weight	700 g
Option	Remote microphone extension: RM-210 Wall mounting bracket: WB-RM200, AC adapter, AD-1210P, AD-1215P

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.

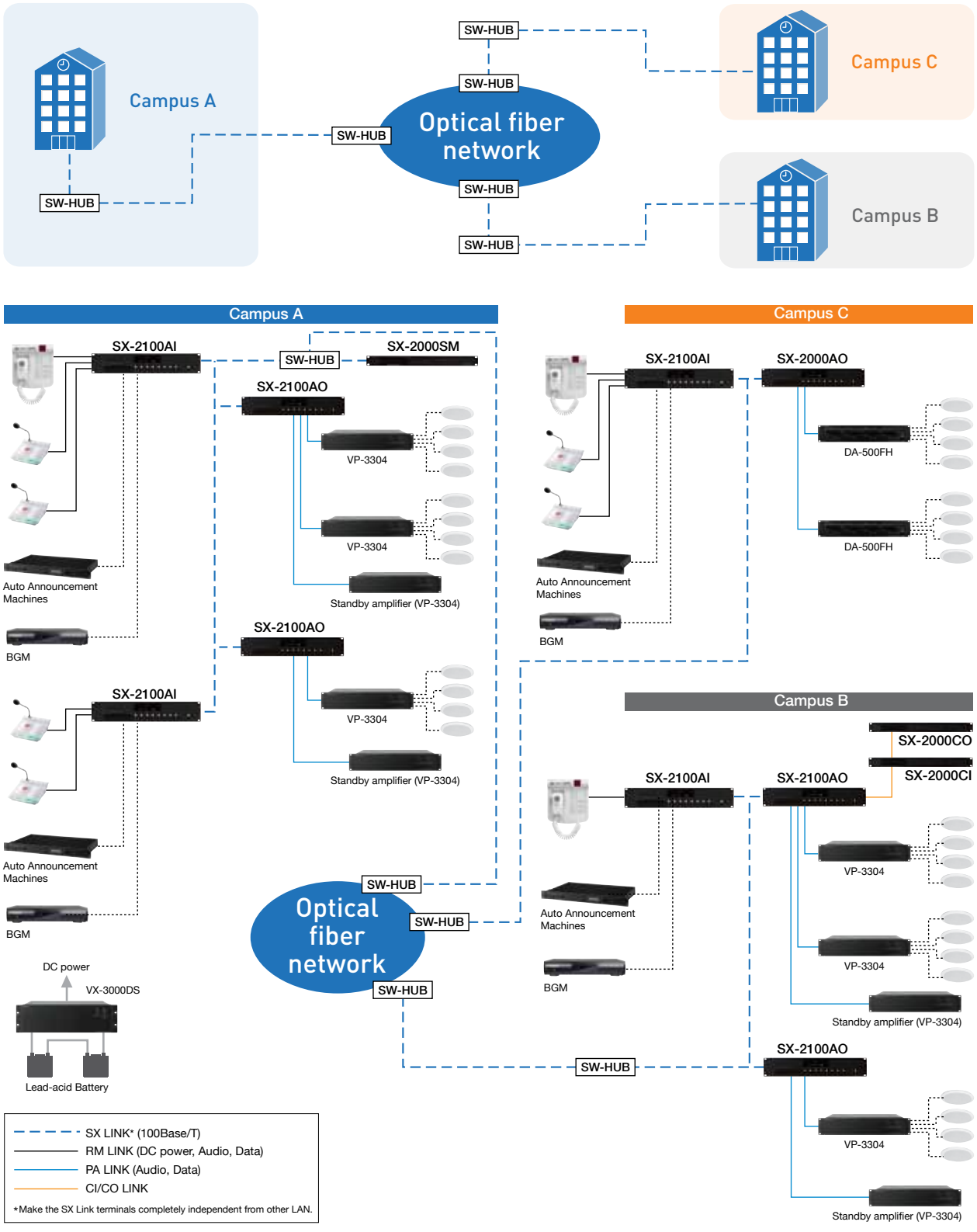
Example: Distributed Factory Application





SX-2000 series System Configuration

Distributed Control System Example (University)



VM-2000
series

VM-2000 series PA Management System

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.

Built to expand with your requirements.

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

Remote microphone extends system control.

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

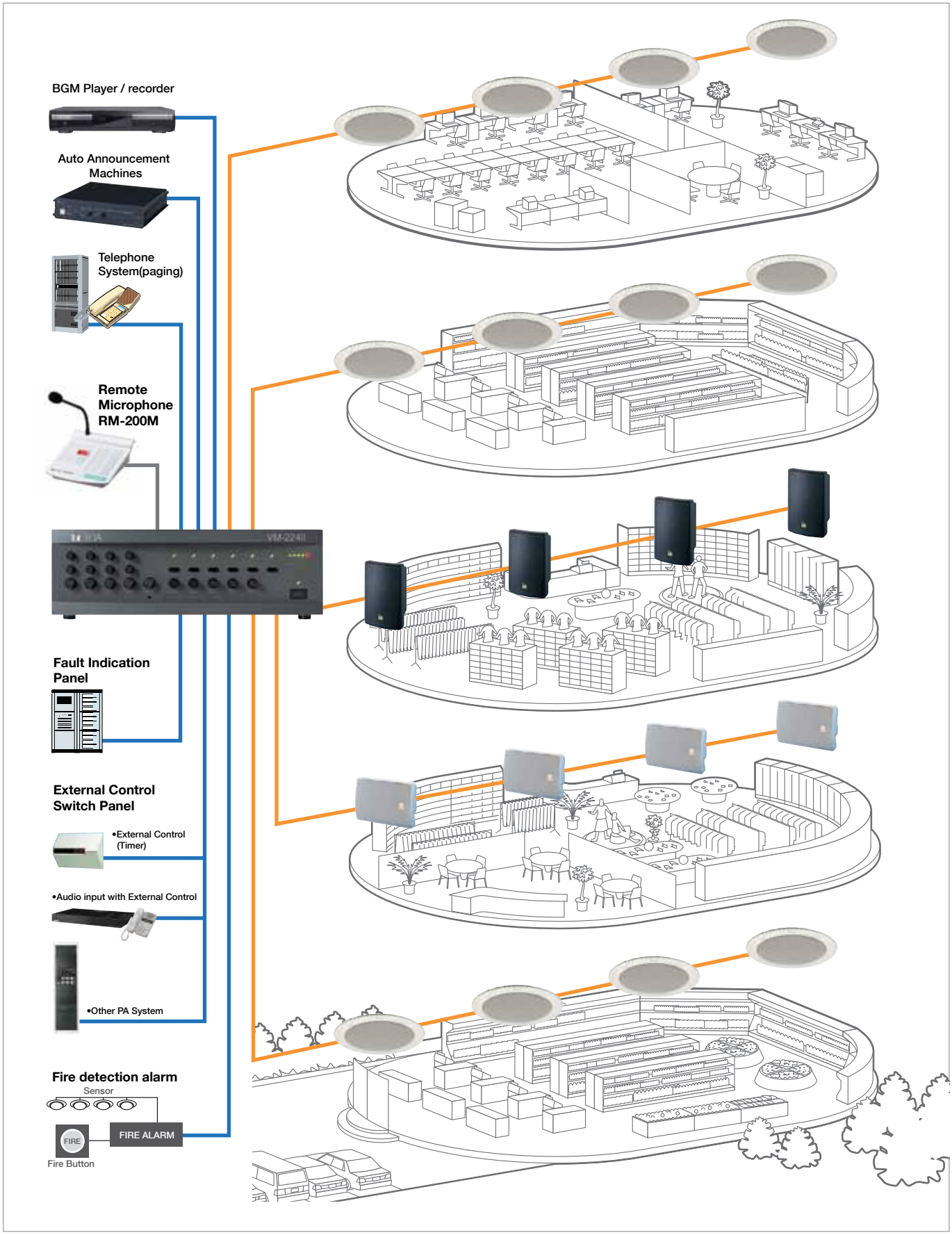
VM-2000 series System Management Amplifier

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 ±10 dB, Treble: 10 kHz ±10 dB	
Input	Mic/Line input × 3 Telephone paging input BGM input × 2 Power amplifier input External speaker line input	
Output	Speaker output Direct speaker line output Line output Recording output Preamplifier output	
Control Input and Output	(1) External control input •Activation of messages •Activation of power •Activation and stop of Emergency Broadcast •Unit's broadcast cutoff (when activated by an external emergency equipment) (2) Status output •Irregularity of communications with the Remote Microphone and an expansion amplifier •AC power condition •DC power condition •Irregularity of the sound source of the Voice Announcement Board •Failure (FAULT) indication on •Power switch on	
External Attenuator Control Output	Plug-in screw connector, 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 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) Emergency broadcast (sequential control) Broadcast priority control Surveillance (failure detection) function Power supply to only one Remote Microphone (RM-200M) Line resistance: Under 40 (one way)	
Dimensions (W x H x D)	419 ×143.3 × 355.7 mm	

VM-2000 series System Configuration



VM-2000 series Remote Microphone

RM-200M/RM-210

RM-210

WB-RM200

Features

- Elegant design
- Zone, group and all-call paging, and activating pre-recorded messages
- Indication of system failure, line failure, busy zone etc.
- Extraordinary clarity and freedom from distortion by built-in compression circuit
- Up to 4 remote microphones can be connected to the VM-2000 system amplifier
- Up to 800 m total cable length
  RM-210: Allows announcements in Up to 45 zones
- Color: Bluish gray

Options

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

Specifications

	RM-200M	RM-210
Power Requirement	24 V DC (Operating range: 14 - 28 V DC)	From RM-200X/M/XF
Current Consumption	100 mA maximum	20 mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Distortion	Under 1%	-
Frequency Response	100 - 20 kHz	-
Signal-to-Noise Ratio	Over 60 dB	-
Audio Output	0 dBV, 600 Ohm, balanced	-
Microphone	Unidirectional electret condenser microphone	-
Speaker Control	Controllable by PC software	-
Voice Message Control	Activation of 5 messages	-
Key Extension	10 keys extension per RM-210, extension connector	10
Connection Cable and Connector	Category 5 STP cable, RJ45 connector	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Finish	ABS resin, bluish gray	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-2000 series Modules

EV-200M *Voice Announcement Board*

SV-200MA *Surveillance Board*

Features EV-200M

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

Features SV-200MA

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

Specifications

	EV-200M	SV-200MA
Playback Mode	Single source playback	-
No. of Playback Programs	8 programs	-
Control Input and Output	-	Input: (1) Speaker line initial setting activation signal (2) Speaker line surveillance activation signal Output: (1) Monitoring short or open of individual speaker line (zone 1 – 5) (2) Ground fault (insulation resistance: under 50 k) (3) Power amplifier failures Input/Output (1) Speaker Zone information/selection (2) Power amplifier fault link
Failure Detection	-	Power amplifier failure: 20 kHz pilot tone detection Speaker line failure: 40 Hz impedance detection
Speaker Line Surveillance	-	Speaker lines are automatically monitored at set time intervals

IT-450 Input Transformer

Impedance: 600 ±10%
Frequency Response: 200 – 10,000Hz

SPEAKER lineup

Legend

This icon indicates that the speaker EN 54-24 certified and is therefore legalised for use in conjunction with fire detection systems

This icon indicates that the speaker is fully compliant to the BS5839 part 8 code of practice

This icon indicates that the speaker complies by the Ingress Protection standard (IP). Five IP ratings are present within our speaker lineup: IP34, IP64, IP-65, IPX4 & IPX2. These icons will help show how the speaker can perform within different types of weather conditions.

This icon indicates the details of the tappings for the speaker. The larger figure on the left of the icon shows whether the speaker is 100V line and or 70V line, and the tappings are indicated by the smaller figure to the right.

This icon indicates that the speaker is UL certified

Flush Mount Type Ceiling Speakers




Specifications	PC-1869	PC-2369	PC-2852	PC-2869
Sensitivity (1W, 1m)	90dB	93dB	96dB	94dB
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			
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
Sensitivity (1W, 1m)	90dB	90dB	97 dB	97 dB
Frequency Response	100Hz – 18kHz	65Hz – 18kHz	50 – 16.5 KHz	
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		White	
Dimensions	168(Dia.) x 77(D) mm	192(Dia.) x 73(D) mm	324(Dia.) x 85.0 (D) mm	

Flush Mount Type Ceiling Speakers

Specifications	PC-1869EN	PC-2369EN
Sensitivity (1W, 1m)	94 dB (500Hz- 5k Hz, pink noise)	94 dB (500Hz- 5k Hz, pink noise)
Frequency Response	100 – 18k Hz	70 – 18k Hz
Mounting Hole Diameter	150 (Dia.) ±3 mm	200 (Dia.) ±3 mm
Speaker Component	5" cone-type	6" cone-type
Color	off-white (RAL 9010 or equivalent color)	
Dimensions	180(Dia.) × 77.5 (D) mm	230(Dia.) × 113.8 (D) mm

Firedome Speakers

Heat-Resistant Ceiling Speaker

Specifications	PC-1867F	PC-1867FC	PC-129
Sensitivity (1W, 1m)	90dB	90dB	100 dB
Frequency Response	100Hz – 16kHz	160Hz – 13kHz	500 – 8.000 Hz
Mounting Hole Diameter	ø156 mm +/-3 mm	ø156 mm +/-3 mm	ø130 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	166(Dia.) x 140 (D) mm

Splashproof Ceiling Speakers

Clean Room Ceiling Speaker

Specifications	PC-3CL	PC-3WR	PC-5CL
Sensitivity (1W, 1m)	87dB	88dB	87 dB
Frequency Response	150Hz – 20kHz	180Hz – 20kHz	150 - 20k Hz
Mounting Hole Diameter	ø100 mm	ø150 mm	150 (Dia.) ±3 mm
Speaker Component	—	3" cone-type	3" cone-type
Color	Frame: Alloy-coated ABS resin/Grille: Stainless steel punching net		Off-white
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
Sensitivity (1W, 1m)	90dB		92dB	
Frequency Response	100Hz – 16kHz		100Hz – 12kHz	
Mounting Hole Diameter	5" dynamic cone-type		6" dynamic cone-type	
Speaker Component	ø150mm +/-3mm		ø200 mm +/-3 mm	
Color	Unit: Fire-resistant, high-impact styrene resin/Grille: Aluminum net		Unit: Fire-resistant, high-impact styrene resin/Grille: Aluminum net ct styrene resin	
Dimensions	CM-760: 215(W) x 134(H) x 89(D)mm CP-73: 180(Dia.) x 16.5(D)mm (ABS resin frame)	CM-760: 215(W) x 134(H) x 89(D)mm CP-77: 180(Dia.) x 16.5(D)mm (Metal frame)	CM-960: 230(W) x 174(H) x 106.5(D)mm CP-93: 230(Dia.) x 18(D)mm (ABS resin frame)	CM-960: 230(W) x 174(H) x 106.5(D)mm CP-97: 230(Dia.) x 18(D)mm (Metal frame)

SPEAKER lineup

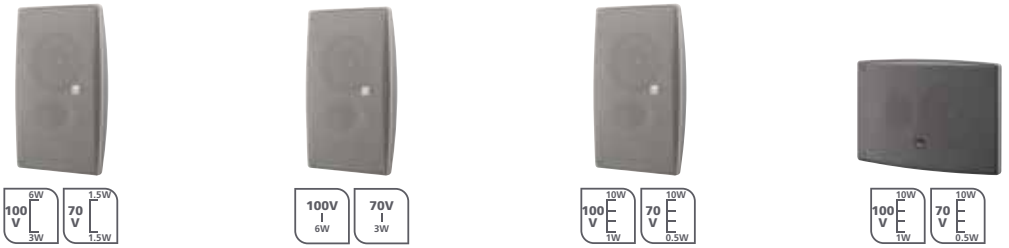
Surface Mount Type Ceiling Speakers


Specifications	PC-2268	PC-2268WP	PC-2668
Sensitivity (1W, 1m)	90dB		90dB
Frequency Response	160Hz – 14kHz		100Hz – 16kHz
Mounting Hole Diameter	—		—
Speaker Component	5" cone-type		5" dynamic cone-type
Color	Frame: Fire-resistant HIPS resub/Grille: Fire-resistant HIPS resub		off-white
Dimensions	220(Dia.) x 80.5 (D)mm		260(Dia.) x 202 (D) mm

Plane Wave Speakers


Specifications	PW-1230DB	PW-1230DW	PW-1430DB	PW-1430DW
Sensitivity	86 dB (1 – 10 kHz)		88 dB (1 – 10 kHz)	
Frequency Response	300 Hz – 17.5 kHz		250 Hz – 17.5 kHz	
Speaker Unit	Plane wave unit (152 × 214 mm (5.98" × 8.43")) × 2		Plane wave unit (152 × 214 mm (5.98" × 8.43")) × 4	
Finish	black	light ivory	black	light ivory
Dimensions	524 (W) × 355 (H) × 60 (D) mm		831 (W) × 355 (H) × 60 (D) mm	

Wall Mount Box Speakers



Specifications	BS-634	BS-634T	BS-1034	BS-1034S
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	

Specifications	BS-680F	BS-680FC	BS-1034EN
Sensitivity (1W, 1m)	94dB		89 dB (500Hz- 5k Hz, pink noise)
Frequency Response	150Hz – 20kHz		120Hz - 20k Hz
Speaker Component	6" double cone-type		Low: 5" cone-type High: 1" balanced dome tweeter
Color	off-white		Off-white (RAL9010 or equivalent)
Dimensions	310(W) x 190(H) x 87.2(D)mm		210 (W) × 330 (H) × 80 (D) mm

Specifications	BS-680U	BS-633A	BS-633AT
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

Specifications	BS-678/BS-678B	BS-678T/BS-678BT	BS-678BSB	BS-678BSW
Sensitivity (1W, 1m)	94dB		94 dB (500Hz- 5k Hz, pink noise)	
Frequency Response	150Hz – 20kHz		150 - 18k Hz	
Speaker Component	6" double cone-type		6" cone-type	
Color	off-white or black		BS-678BSB: black (RAL 9011 or equivalent) 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) × 190 (H) × 110 (D) mm	

Wall Mount Box Speakers

Specifications	BS-1030B/BS-1030W	BS-1015BSB	BS-1015BSW
Sensitivity (1W, 1m)	90dB	90 dB (500Hz- 5k Hz, pink noise)	
Frequency Response	80Hz – 20kHz	80 - 20k Hz	
Speaker Component	5" dynamic cone-type + dome-type	Low: 5" cone-type High: 1" balanced dome tweeter	
Color	black or white	BS-1015BSB: black (RAL 9011 or equivalent) BS-1015BSW: White (RAL 9010 or equivalent)	
Dimensions	196 (W) x 290 (H) x 150 (D) mm	196 (W) × 290 (H) × 186 (D) mm	

Splashproof Speakers

Garden Speaker

Specifications	BS-4W	GS-302
Sensitivity (1W, 1m)	87 dB	87dB
Frequency Response	100 - 12k Hz	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

SPEAKER lineup

Combination Type Reflex Horn Speakers

Active Powered Horn Speakers




Specifications	TC-615M	TC-631M	TC-651M	APH-20
Sensitivity (1W, 1m)	108dB	110dB	111dB	106 dB
Frequency Response	250Hz – 7kHz	200Hz – 6kHz	200Hz –6kHz	350 - 9k Hz
Color	Horn flare: off-white/Bracket: gray			Light Grey
Dimensions	400(Dia.) x 376(D)mm	500(Dia.) x 463(D)mm	400(Dia.) x 376(D)mm	Ø 165X238mm




Specifications	SC-610M	SC-615M	SC-630M	SC-615BS
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	400(Dia.) x 376(D)mm	500(Dia.) x 463(D)mm	400(Dia.) x 376(D)mm	172 (W) × 195 (H) × 229 (D) mm

Separate Type Horn Speakers




Specifications	TH-650	TH-660	TU-631M	TU-651M
Sensitivity (1W, 1m)	110dB*	110dB*	110dB*	110dB*
Frequency Response	200Hz – 6kHz*		150Hz – 6kHz **	150Hz – 6kHz **
Color	Horn flare: off-white/Bracket: gray		gray	
Dimensions	500(Dia.) – 394 (D)mm	600(Dia.) – 425 (D)mm	139(Dia.) x 149 (D)mm	139(Dia.) x 149 (D)mm

TH-660*When operated with TU-631/631M/651/651M driver unit.

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

Explosion-proof/Heat-resistant Horn Speakers


Specifications	TP-M15E	TP-M15D
Sensitivity (1W, 1m)	104dB	104dB
Frequency Response	300Hz – 5.5kHz	350Hz – 5.5kHz
Color	Horn: ivory/Bracket: Surface zinc treated steel plate	
Dimensions	392(Dia.) x 475(D) mm	242(Dia.) x 368(D) mm

Wide Range Horn Speakers

Specifications	CS-64	CS-64BS
Sensitivity (1W, 1m)	96dB	96 dB (330Hz - 3.3kHz, pink noise)
Frequency Response	130Hz – 13kHz	130 - 13k Hz
Speaker Component	5" cone-type (Treated for splash proof)	—
Color	Horn, cover: off-white/Punched net: dark-gray	off-white
Dimensions	233 (W) x 224 (H) x 208 (D) mm	233 (W) × 224 (H) × 249 (D) mm

Specifications	CS-154	CS-154BS	CS-304
Sensitivity (1W, 1m)	97dB	97 dB (500Hz - 5kHz, pink noise)	98dB
Frequency Response	150Hz – 15kHz	150 - 15k Hz	120Hz – 15kHz
Speaker Component	5" cone-type	5" cone-type	5" cone-type
Color	Horn, cover: off-white/Net: gray	gray	Horn, cover: off-white/Net: gray
Dimensions	366 (W) x 230 (H) x 272 (D) mm	366 (W) × 230 (H) × 310 (D) mm	366 (W) x 230 (H) x 272 (D) mm

Projection Speakers

Specifications	PJ-64	PJ-154BS	PJ-304
Sensitivity (1W, 1m)	90dB	91 dB (500Hz- 5kHz, pink noise)	91dB
Frequency Response	100Hz – 18kHz	70 - 20k Hz	70Hz – 20kHz
Speaker Component	5" cone-type	Low: 5" cone-type High: 1" balanced dome tweeter	5" cone-type + balanced dome tweeter
Color	off-white	off-white (RAL 9010 or equivalent)	off-white
Dimensions	186(Dia.) x 369 (H)mm	186(Dia.) × 251(H) mm	186(Dia.) x 369 (H)mm

Specifications	PJ-100W	PJ-200W
Sensitivity (1W, 1m)	92dB	95dB
Frequency Response	65Hz – 18kHz	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

SPEAKER lineup

Pendant Speakers




Specifications	PE-64	PE-154EN	PE-154BS	PE-304
Sensitivity (1W, 1m)	90dB	91 dB (500Hz- 5kHz, pink noise)		91dB
Frequency Response	100Hz – 18kHz	70 - 20k Hz		70Hz – 20kHz
Speaker Component	5" cone-type	Low: 5" cone-type High: 1" balanced dome tweeter		5" cone-type + balanced dome tweeter
Color	off-white	off-white (RAL 9010 or equivalent)		off-white
Dimensions	186(Dia.) x 251(H)mm (unit only)	186(Dia.) × 251(H) mm		186(Dia.) x 251(H)mm (unit only)


Specifications	PE-304BU/304WU	PE-604BU/604WU
Sensitivity (1W, 1m)	90dB (330Hz – 3.3kHz, pink noise)	
Frequency Response	110 Hz– 20kHz	95 Hz – 20kHz
Speaker Component	5" cone-type + balanced dome-tweeter (coaxial)	
Color	PE-304BU: black PE-304WU: white (RAL 9010 or equivalent)	PE-604BU: black PE-604WU: white (RAL 9010 or equivalent)
Dimensions	186(Dia.) x 275 (H) mm	

Speaker System


Specifications	H-1	H-2	H-2WP
Sensitivity (1W, 1m)	85 dB	88dB	
Frequency Response	120Hz – 20kHz	100Hz – 20kHz	
Speaker Component	Low: 8 x 5cm 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	

Specifications	H-3	H-3WP
Sensitivity (1W, 1m)	88dB	
Frequency Response	100Hz – 20kHz	
Speaker Component	Low: 4" cone-type x 2, High: 1" dome-type (neodymium magnet)	
Color	Enclosure: black/Frame: off-white/Punched net: off-white	
Dimensions	295 (W) x 318 (H) x 129 (D) mm	

F Series Wide-Dispersion Ceiling Speakers

Specifications	F-2852C	F-2322C	F-2352C	F-122C
Sensitivity (1W, 1m)	91dB	90dB	90dB	90dB
Frequency Response	80 – 20,000 Hz	70 – 20,000 Hz	70 – 20,000 Hz	40 – 20,000 Hz
Mounting Hole Diameter	ø250 mm	ø200mm	ø200mm	ø200mm
Speaker Component	Low: 16cm cone-type, High: Dome-type	12cm cone-type	Low: 12cm cone-type, High: Balanced dome-type	12cm 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
Sensitivity (1W, 1m)	89dB	88dB
Frequency Response	80 – 20,000 Hz	65 – 18,000 Hz
Mounting Hole Diameter	ø200mm	ø135mm
Speaker Component	Low: 12cm cone-type, High: Balanced dome-type	10cm cone-type
Color	Baffle: black/Rim: white/Punched net: white/Dust proof bag: black	
Dimensions	155(Dia.) x 117(D) mm	430 (W) x 544 (H) x 135 (D) mm

SPEAKER lineup

F Series Wide-Dispersion Speakers

Specifications	F-1000BT/WT	F-1000BTWP/WTWP	F-1300BT/WT	F-1300BTWP/WTWP
Sensitivity (1W, 1m)	87dB		90dB	
Frequency Response	85Hz – 20kHz		80Hz – 20kHz	
Speaker Component	Low: 4" cone-type, High: Balabced dome tweeter		Low: 5" cone-type, High: 2.5cm dome tweeter	
Color	Enclosure: HIPS resin, black or white/Punched net: Surface-treated steel plate, black or white, paint		Enclosure: HIPS resin, black or white/Punched net: Surface-treated steel plate, black or white, paint	
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
Sensitivity (1W, 1m)	92dB	
Frequency Response	65Hz – 20,kHz	
Speaker Component	Low: 8" cone-type, High: 2.5cm dome tweeter	
Color	Enclosure: HIPS resin, black or white/Punched net: Surface-treated steel plate, black or white, paint	
Dimensions	244 (W) x 373 (H) x 235(D) mm	

Line Array Speaker

Specifications	SR-S4L	SR-S4LWP	SR-S4S	SR-S4SWP
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	SR-H2L	SR-H2S	SR-H3L	SR-H3S
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

Compact Array Speakers

Specifications	HX-5B	HX-5B-WP	HX-5W	HX-5W-WP
Sensitivity (1W, 1m)	96dB (60° mode), 97dB (45° mode), 98dB (30° mode, 99dB (15° mode)		96dB (60° mode), 97dB (45° mode), 98dB (30° mode, 99dB (15° mode)	
Frequency Response	70Hz – 20kHz (60° mode)	95Hz – 20kHz (60° mode)	70Hz – 20kHz (60° mode)	95Hz – 20kHz (60° mode)
Speaker Component	Low: 5" cone-type x 4, High: Balanced dome-type x 12		Low: 5" cone-type x 4, High: Balanced dome-type x 12	
Color	black or white			
Dimensions	408 (W) x 546 (H) x 342(D)mm		408 (W) x 546 (H) x 342(D)mm	

Line Array Speaker

Specifications	SR-T5
Sensitivity (1W, 1m)	96dB
Frequency Response	70Hz – 20kHz
Speaker Component	Low: 5" cone-type x 8, High: Balanced dome-type x 24
Color	black
Dimensions	310 (W) x 1,239 (H) x 341 (D)mm

Coaxial Line Array Speaker System

Specifications	HS-1200BT	SR-1200WT	HS-1500BT	HS-1500WT
Sensitivity (1W, 1m)	97dB		98dB	
Frequency Response	70Hz – 20kHz		60Hz – 20kHz	
Speaker Component	Low: 12" cone-type, High: Balanced dome tweeter x 6		Low: 15" cone-type, High: Balanced dome tweeter x 6	
Color	black or white		black or white	
Dimensions	361 (W) x 448 (H) x 320(D) mm		451 (W) x 560 (H) x 400(D) mm	

NOTES

TOA Corporation
www.toa.eu

Distributed by