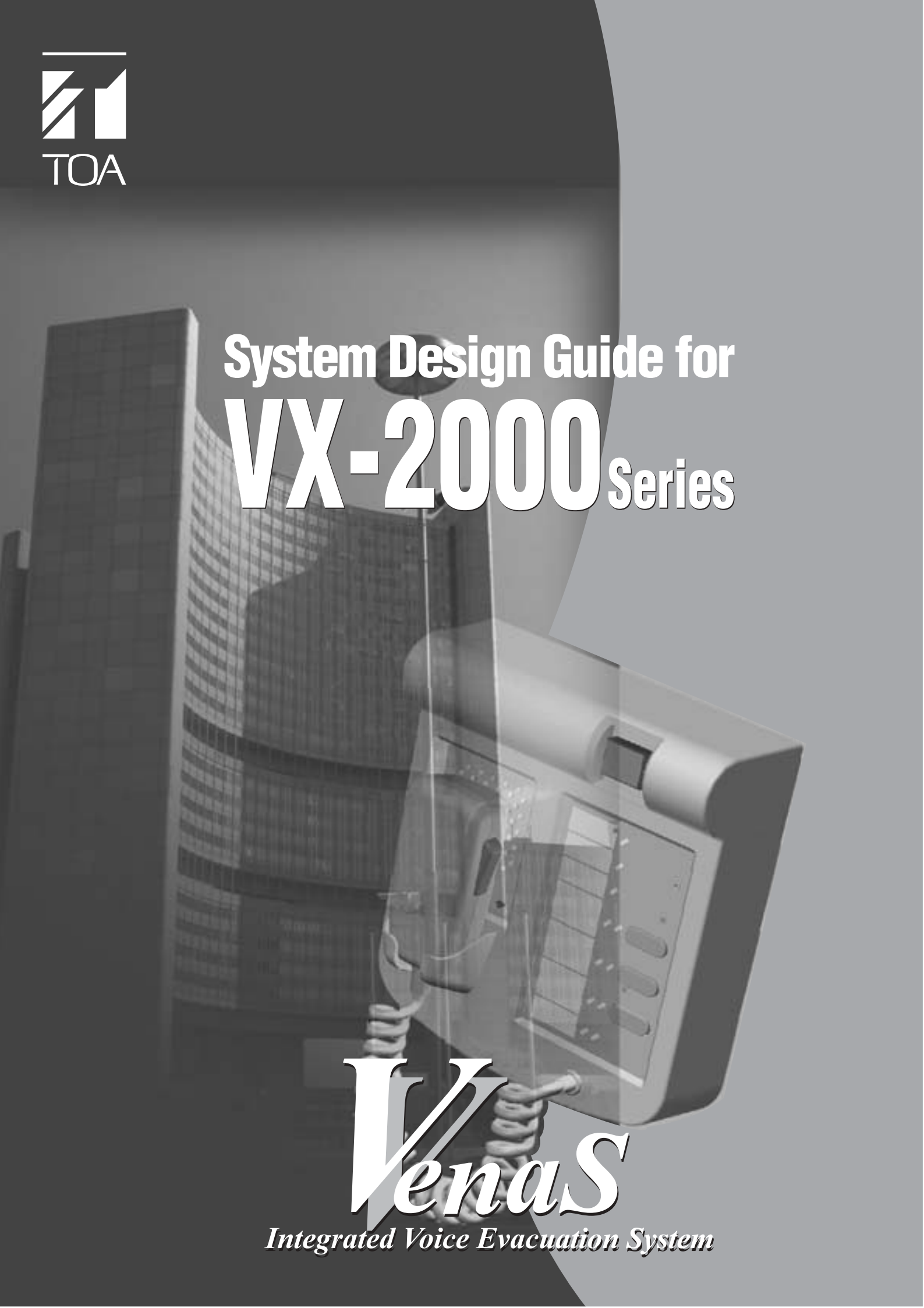
TOA

System Design Guide for VX-2000 Series



VenaS

Integrated Voice Evacuation System

Contents

1. General Description

The TOA VX-2000 Series broadcast system is designed for both general-purpose and emergency broadcasts. It is comprised of the System Manager, Surveillance Frame, Power Amplifiers, Power Supply unit, Emergency Power Supply, and a user-specified number of Remote Microphones. The system complies with the EN60849 Standard and its failure detection circuitry operates continuously to check components and speaker lines for any irregularities. If detected, failure warnings are provided by way of an LED indicator and a buzzer.

2. System Features

Modular System Offers Connection to Various Sound Sources.

The VX-2000 System Manager features 8 input slots that permit the use of various input sources with the selection of corresponding modules.

Up to 8 Remote Microphones Can Be Connected.

- A total of 8 RM-200X and RM-200XF Remote Microphones can be connected to the VX-2000. Up to 4 RM-200XF units can be installed.
- RM-210 extension capability permits the number of Remote Microphone function keys to be increased to up to 105 keys per unit.
- The system can be configured for up to 305 function key settings.

Sound Source Devices

- Up to 2 EV-200 units can be connected to the VX-2000.
- The VX-2000 features 4 different chime sound sources.

Standard-Equipment Control Input and Output

The VX-2000 features 16 control inputs and 16 control outputs as standard equipment.

Expansion to Up to 50 Output Zones

The VX-2000SF Surveillance Frame can be expanded to up to 5 units, increasing the number of available output zones to up to 50 zones.

Control Input and Output Modules, and 2 Types of Speaker Output Modules

- The VX-2000SF is designed to accept up to 10 modules. The control input module, control output module, and 2 types of speaker output modules are available.
- Speaker output modules feature failure-detection circuitry. Two failure detection methods are provided: impedance checking and pilot signal monitoring. Such failure modes as speaker line shorts, open circuits and ground faults can be detected.
- With the addition of extra control input modules and control output modules, the number of control inputs and outputs can be expanded to up to a total of 128 terminals within the system. (Sixteen terminals are included as standard equipment in the VX-2000.)

9-Band Graphic Equaliser Card

Provides 9 bands of computer-adjustable graphic equalisation to the system's speaker output module.

Standby Amplifier Function

A standby amplifier can be installed for each VX-2000SF to automatically provide substitute amplifier output should the main power amplifier fail.

CPU OFF Switch

Enables broadcast from the RM-200XF Fireman's Microphones to all output zones even if the system's main CPU fails.

2. System Features

Individual Block Failure Detection Circuitry

- This failure detection function monitors cable connections between the Remote Microphones and the VX-2000, between the VX-2000 and the VX-2000SF, between the VX-2000SF and the VP power amplifiers, and between the VP power amplifiers and the speakers.
- The function detects and warns of such failure modes as blown fuses or overheating in the VP power amplifier.
- Can detect and indicate failure of the VX-2000DS' charging circuitry, or battery irregularities.

Failure Indication

- The failure LED indicators for the VX-2000, VX-2000SF and Remote Microphone light when any failure is detected within the system.
- The failure indication function can be assigned to the Remote Microphone. When assigned, the LEDs flash and a buzzer is sounded if a failure is detected.

Monitoring Function

The sound output of a selected output zone can be monitored using the Remote Microphone's internal speaker or the VX-2000's monitor output.

Time Schedule Function

- A weekly schedule can be programmed.
- Up to 40 specific day programs can be set for any desired date and time.
- A summertime period can be set by either the system's PC software or the VX-2000's Summertime Setting switch.

Energy Saving Mode

Battery consumption can be reduced by using the VP power amplifier's standby function (since the entire system's power consumption is reduced by putting unnecessary power amplifiers in standby mode).

PC Setting Software

PC software is used to select input and output equipment, or set priorities, broadcast patterns, items to be activated, etc. Various functions can also be freely assigned to the Remote Microphone' s function keys.

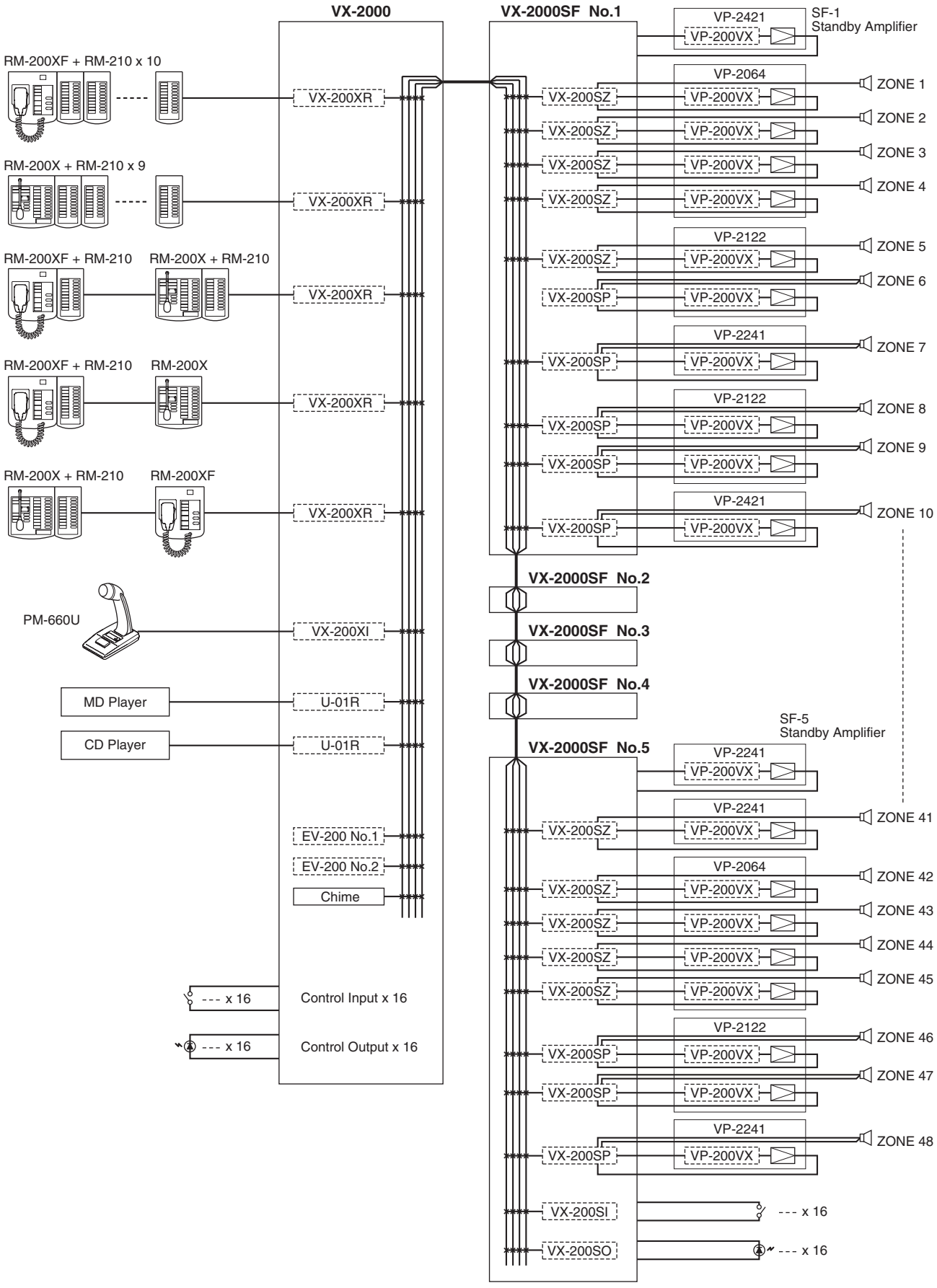
PC Software Provides Versatile Auxiliary Operation

- The VX-2000's memory can log up to 2,000 events, which can be read into a PC.
- System block diagrams and individual equipment settings can be printed out using the VX-2000's PC software.
- Remote Microphone function key names can be printed out and used as name labels.
- System configurations and connections can be checked during equipment installation.
- Inspection mode permits inspection of emergency broadcast equipment operations without actually making broadcasts.

3. Maximum System Examples

3.1. Block Diagram

The following block diagram shows the maximum size system that can be assembled with the VX-2000 Series.



3.2. Maximum System Configuration Table

Component	Maximum No. of Units		
Input Source Equipment			
RM-200XF	4 units	8 units in total of both models	18 units in total of all Input Source Equipment
RM-200X	8 units		
Paging Microphone and Music Sources (MD, CD, etc.)	8 units		
EV-200	2 units		
Chime (built-in)	1 unit		
RM-200XF's and RM-200X's Function Key Extension			
RM-210	10 units per RM-200XF	315 function keys per system	
	9 units per RM-200X		
VX-2000			
VX-2000	1 unit		
Input Module			
VX-200XR VX-200XI 900 module	8 units in total of all Input Modules Usable 900 modules: M-01F, M-01M, M-01P, M-51F, M-51S, M-61F, M-61S, U-01F, U-01P, U-01R, U-01S, and U-61S		
VX-2000SF			
VX-2000SF	5 units		
SF Module			
VX-200SP	50 units	50 units in total of all SF Modules (10 units per VX-2000SF)	
VX-200SZ	50 units		
VX-200SI	7 units		
VX-200SO	7 units		
Optional Equaliser Card (to be installed in VX-200SP and VX-200SZ)			
VX-200SE	50 units		
Control Input			
VX-2000	16 inputs (as standard equipment)	128 inputs in total	
VX-200SI	112 inputs (7 units)		
Control Output			
VX-2000	16 outputs (as standard equipment)	128 outputs in total	
VX-200SO	112 outputs (7 units)		
Power Amplifier	**Note:** The number and type of power amplifiers should be determined depending on the required speaker output for each zone.		
VP-2064 (4 ch) VP-2122 (2 ch) VP-2241 (1 ch) VP-2421 (1 ch)	50 channels (50 zones)		
Standby Amplifier	5 channels (1 channel per VX-2000SF)		
Power Amplifier Input Module			
VP-200VX	55 units in total of modules installed in Power and Standby Amplifiers		
Power Supply	**Note:** Necessary power capacity should be calculated based on total system specifications.		
VX-2000DS	10 units	2 units per VX-2000SF	
VX-200PS	30 units	2 units per VX-2000DS	
Battery	40 units	2 or 4 units per VX-2000DS	

4. Specifications

4.1. Fireman's Microphone 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 dB*, 600Ω, balanced
Hand-Held Microphone	Dynamic microphone, Function switch (default: Press-to-talk), Microphone element fault detection
Distortion	Under 1%
Frequency Response	200 – 15,000 Hz
S/N Ratio	Over 55 dB
Internal Monitor Speaker	200 mW
Volume Control	Microphone volume control, Monitor speaker volume control
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, blueish gray (PANTONE 538 or its equivalent)
Dimensions	200 (w) x 215 (h) x 82.5 (d) mm (excluding the coiled cord)
Weight	1.2 kg

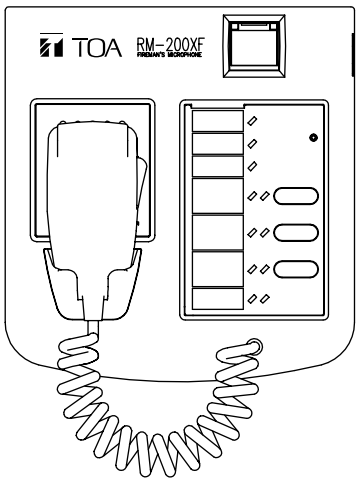
* 0 dB = 1 V

Note: LONWORKS is a trademark of Echelon Corporation.

• Accessory

Plug-in screw terminal 1
Wall mounting bracket 1
Wall mouting screw 2
Box mounting screw 2
(Applicable Box: YC-301, YS-11A)

[Top]



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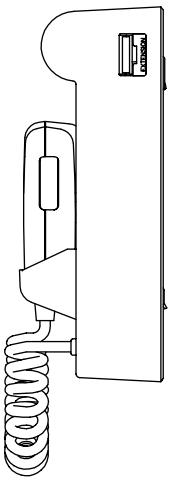

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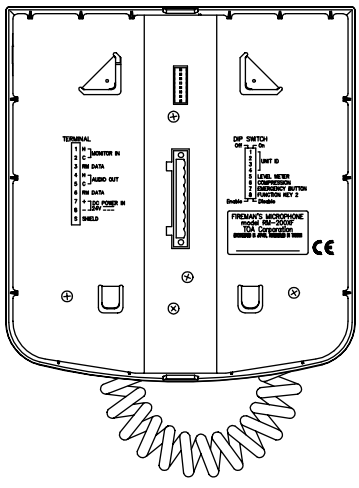


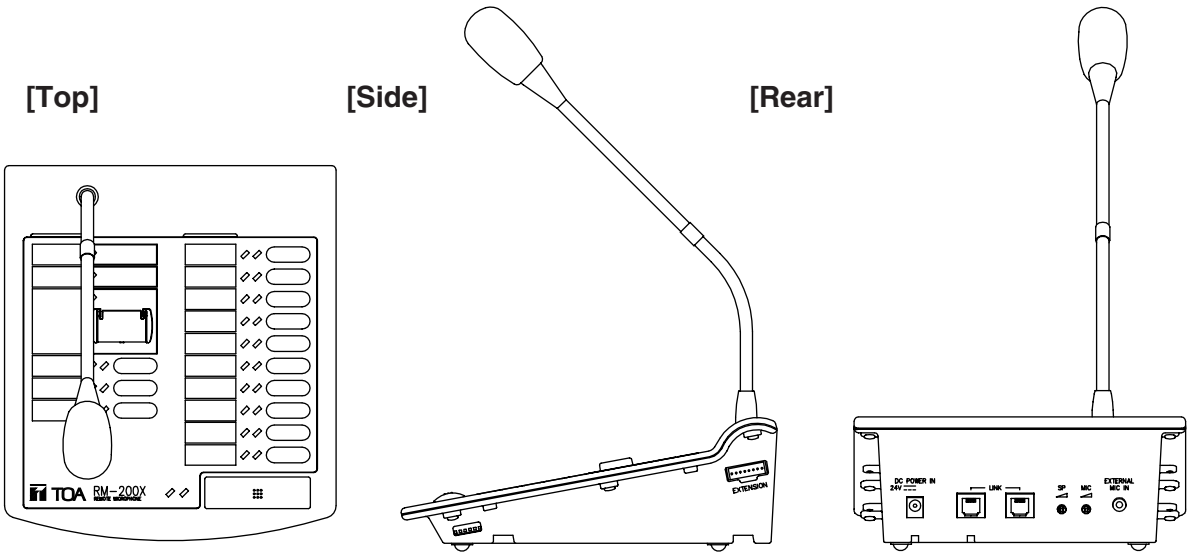
4.2. Remote Microphone RM-200X

Power Source	24 V DC (operating range: 16 – 40 V DC), supplied from RJ45 connector or power input jack (non-polarity type) Usable power input plug: 5.5 mm outer diameter, 2.1 mm inner diameter, and 9.5 mm long
Current Consumption	Under 200 mA (RM-200X), 750 mA (with 9 RM-210s connected)
Audio Output	0 dB*, 600Ω, balanced, RJ45 connector
Gooseneck Microphone	Unidirectional electret condenser microphone
External Microphone Input	–40 dB*, 2.2kΩ, unbalanced, mini jack, phantom powering
Distortion	Under 1%
Frequency Response	100 – 20,000 Hz
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)
Key Extension	10 keys extension per RM-210, EXTENSION connector
Number of Connectable Units	8 (include RM-200XF)
Communication System	LONWORKS twisted pair free topology transceiver
Connection Cable and Connector	Category 5 STP cable, RJ45 connector
Communication Distance	500 m (Free topology wiring)
Finish	ABS resin, blueish gray (PANTONE 538 or its equivalent)
Dimensions	190 (W) x 76.5 (H) x 215 (D) mm (gooseneck microphone excluded)
Weight	850 g

* 0 dB = 1 V

Note: LONWORKS is a trademark of Echelon Corporation.

[Top] **[Side]** **[Rear]**



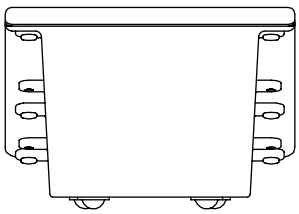
4.3. Remote Microphone Extension RM-210

Current Consumption	20mA max. (in terms of RM-200M's DC power input) 75mA max. (in terms of DC power inputs of RM-200X and RM-200XF)
Connection	Connection to RM-200M, RM-200X or RM-200XF by way of dedicated cable
Number of Function Keys	10
Function	When used to expand the RM-200M: Selects and activates the Voice Announcement Board messages. When used to expand the RM-200X and RM-200XF (PC software setting): Emergency activation, emergency reset, BGM pattern selection, EV message activation, broadcast zone selection, monitor zone selection, chime activation, Talk switch activation, control output activation, input volume adjustment, zone volume adjustment, and failure output indication and reset.
Finish	ABS resin, blueish gray (PANTONE 538 or its equivalent)
Dimensions	110 (W) x 76.5 (H) x 215 (D)mm
Weight	350g

• Accessories

Extension cable 1
Linkage bracket A 2
Linkage bracket B 1
Screw for linkage bracket 12

[Rear]



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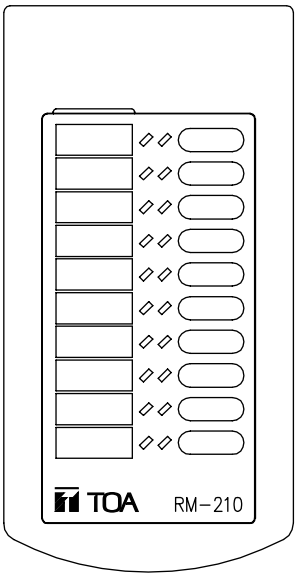

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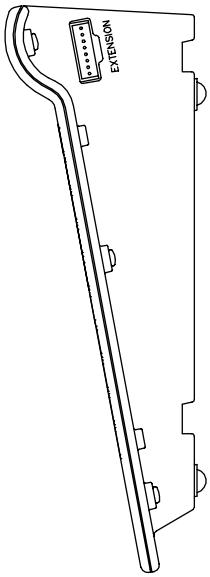


4.4. System Manager VX-2000

Power Source	24V DC (operating range: 20 – 40V DC) M3.5 screw terminal, distance between barriers: 8.8m
Current consumption	Under 650mA (20V DC)
Input	–20dB*, unbalanced, Number of module slots: 8 Usable module: VX-200XR, VX-200XI, 900 series plug-in modules (M-01F, M-01M, M-01P, M-01S, M-03P, M-51F, M-51S, M-61F, M-61S, M-61T, U-01F, U-01P, U-01R, U-01S, U-01T, M-03R, U-03S, U-61S, U-61T)
Audio Link Output	Number of audio buses: 4 0dB*, electronically balanced, RJ45 female connector Twisted-pair straight cable (TIA/EIA-568A standard)
Monitor Output	0dB*, electronically balanced, XLR receptacle (3 pins)
Frequency Response	20 – 20,000Hz
S/N Ratio	Over 60dB
Distortion	Under 0.5%
Cross Talk	Under –60dB (1kHz, 0dB*)
Control Input	16 inputs, no-voltage make contact, open voltage: 17V DC, Short circuit current: Under 5mA, RJ45 connector x 2
Control Output	16 outputs, open collector output, withstand voltage: 30V DC, Control current: Under 5mA, 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 female 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	482 (W) x 132.6 (H) x 337 (D)mm
Weight	6.4kg

* 0 dB = 1 V

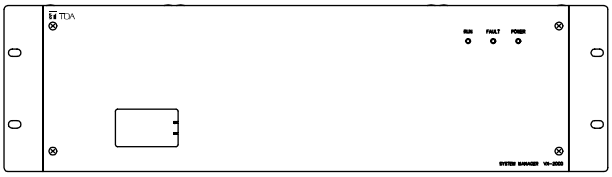
• Accessories

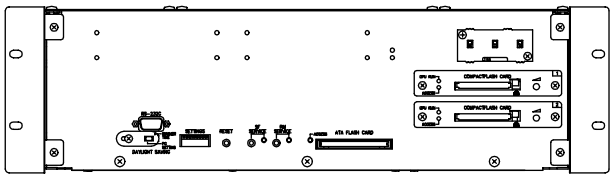
Rack mounting bracket (preinstalled on the unit) x 2, Rack mounting screw x 4, Fiber washer x 4, Blank panel x 7, Blank panel mounting screw x 14, Setting software installation CD x 1, Fuse (T1.6A L) x 1/(T6.3A L) x 1

• Optional products

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

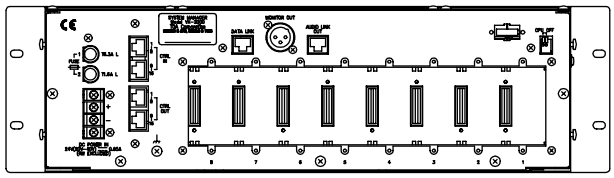
[Front]





[Front section without front panel]

[Rear]



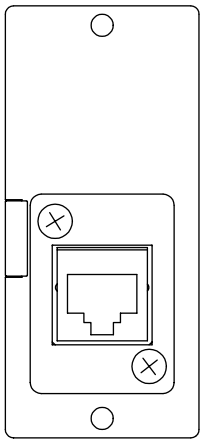
4.5. Remote Microphone Input Module VX-200XR

Power Source	Supplied from VX-2000
Current Consumption	Under 15 mA
Connectable Remote Microphone	RM-200X and RM-200XF
Input Connector	RJ45 female connector Twisted-pair straight cable (TIA/EIA-568A standard)
Finish	Panel: Alumite finished aluminum, white
Dimensions	35 (W) x 78 (H) x 88 (D) mm
Weight	70 g
Applicable Model	VX-2000

• Accessory

Mounting screw 2

[Front]



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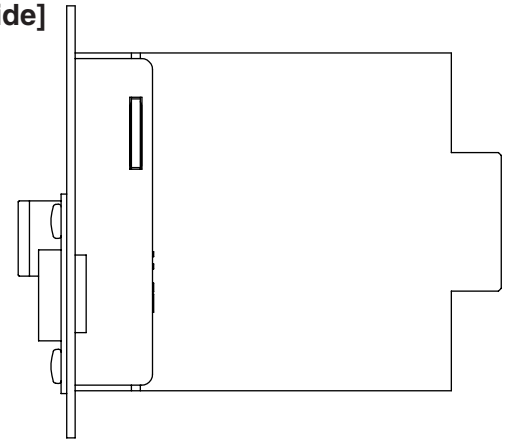


4.6. Audio Input Module with Control input VX-200XI

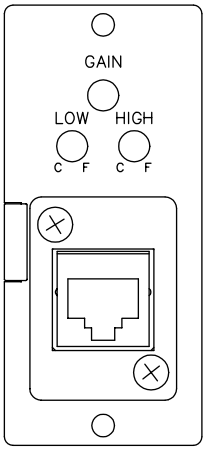
Power Source	Supplied from VX-2000
Current Consumption	Under 30 mA
Input Sensitivity (Rated Output –20dB)	MIC: –70 to – 42.5dB* (adjustable) LINE: –20 to +7.5dB* (adjustable) MIC or LINE selectable by the built-in switch
Low Cut Filter (100 Hz)	9 to 15 dB attenuation (adjustable)
High Cut Filter (10 kHz)	8 to 14 dB attenuation (adjustable)
Distortion	Under 0.5%
Frequency Response	50 – 20,000 Hz
Phantom Power	15V (open), 6V (current consumption: 3.3mA)
Control Input	No-voltage make contact, open voltage: 17V DC, short-circuit current: Under 5mA
Input Connector	RJ45 female connector Twisted-pair straight cable (TIA/EIA-568A standard)
Finish	Panel: Alumite finished aluminum, white
Dimensions	35 (W) x 78 (H) x 88 (D) mm
Weight	70 g
Applicable Model	VX-2000

*0 dB = 1 V

• Accessory
Mounting screw.....2

• Optional products
Isolation transformer: IT-450

[Front]



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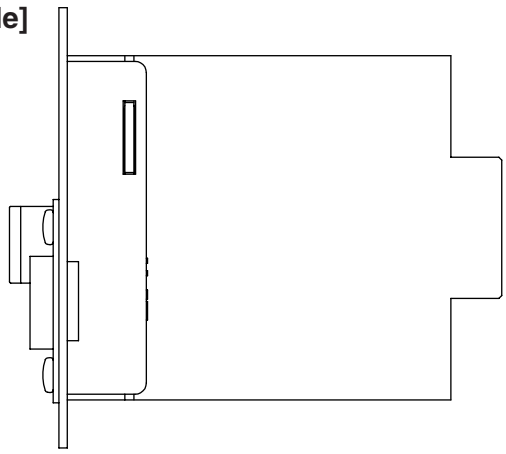


4.7. Voice Announcement Board EV-200

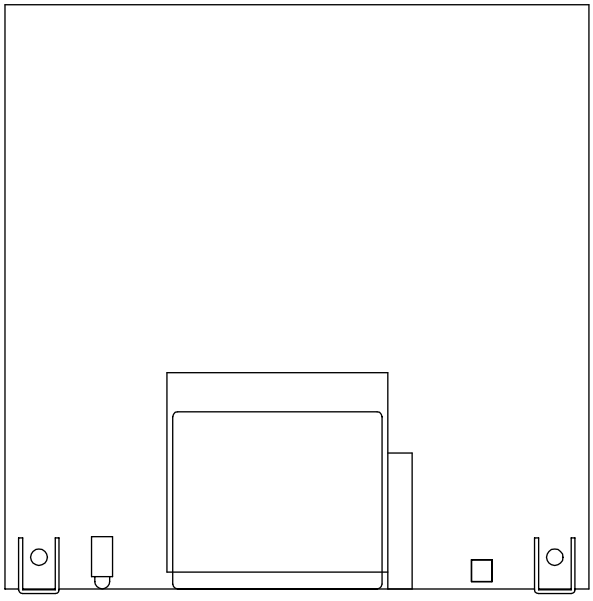
Power Source	24 V DC, 0.2 A
Power Consumption	5 W
Output	0 dB*1
Frequency Response	20 – 20,000 Hz (44.1 kHz sampling) 20 – 14,000 Hz (32 kHz sampling)
Distortion	Under 0.3% (44.1 kHz, recording method: Extremely High)
Memory Card	SanDisk*2 CompactFlash*2 card is optionally required. Number of mountable card: 1
Playback Mode	Single source playback
No. of Playback Program	8 programs
Operating Temperature	0°C to +50°C
Operating Humidity	Under than 90% RH (must be free from dew condensation)
Dimensions	120 (W) x 18.6 (H) x 121 (D) mm
Weight	110 g

*1 0 dB = 1 V
*2 Trademark of SanDisk Corporation.

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

• Accessory
Mounting screw 2

[Top]



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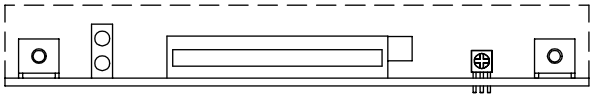


4.8. Surveillance Frame VX-2000SF

Power Source	24 V DC (operating range: 20 – 40 V DC) M3.5 screw terminal, distance between barriers: 8.8m
Current consumption	Under 2 A (40 V DC)
Number of Module Slot	10, usable modules: VX-200SZ, VX-200SP, VX-200SI, VX-200SO
Frequency Response	20 – 20,000Hz
S/N Ratio	Over 60dB
Distortion	Under 0.5%
Cross Talk	Under –60dB (1kHz, 0dB*)
Audio Link Input/Output	Number of audio busses: 4 0dB*, electronically balanced, RJ45 female connector Twisted-pair straight cable (TIA/EIA-568A standard)
Standby Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. Twisted-pair straight cable (TIA/EIA-586A standard)
Communication System	VX-2000, VX-2000SF: RJ45 female connector x 2, LONWORKS RS-485 VX-2000DS: RJ45 female connector x 2, Twisted-pair straight cable (TIA/EIA-586A standard)
Operating Temperature	0˚ C to +40˚ C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 132.6 (H) x 337 (D)mm
Weight	5.6 kg

* 0 dB = 1 V

Note: LONWORKS is a trademark of Echelon Corporation.

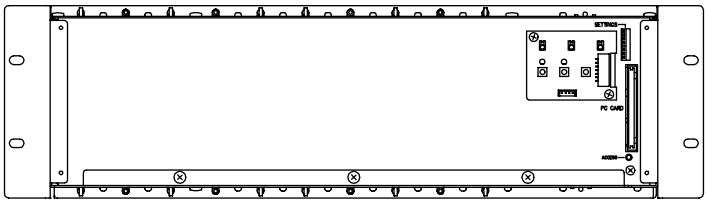
• Accessories

Rack mounting bracket (preinstalled on the unit) x 2, Rack mounting screw x 4, Fiber washer x 4, Blank panel x 9, Blank panel mounting screw x 18, Standby amp. cable (3m) x 1

• Optional products

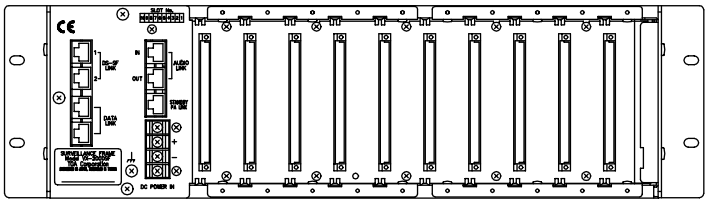
Isolation transformer: IT-450 (audio link output)

[Front]



[Front section without front panel]

[Rear]



4.9. Impedance Detection Module VX-200SZ

Power Source	Supplied from VX-2000SF
Current Consumption	Under 150mA
Power Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. Twisted-pair straight cable (TIA/EIA-568A standard)
External Attenuator Control Output	Plug-in screw connector, relay, no-voltage make contact output, transfer type, withstand voltage: 30V DC, 250V AC, contact current: Under 7A (DC), under 7A (AC) Applicable cable diameter: AWG24 – AWG 22
Speaker Output	Plug-in screw connector Applicable cable diameter: AWG24 – AWG 22
Power Amplifier Input	Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. Applicable cable diameter: AWG24 – AWG 22
Fault Detection System	Short circuit, open circuit (impedance detection method), ground fault
Finish	Panel: Surface-treated steel plate
Dimensions	30.5 (W) x 132.6 (H) x 290.3 (D)mm
Weight	320g
Applicable Model	VX-2000SF

• Accessory

Plug-in screw terminal 1

• Optional product

Equaliser card: VX-200SE

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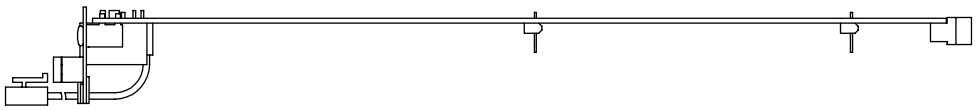

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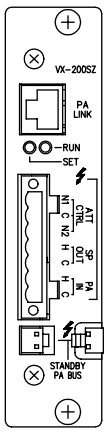

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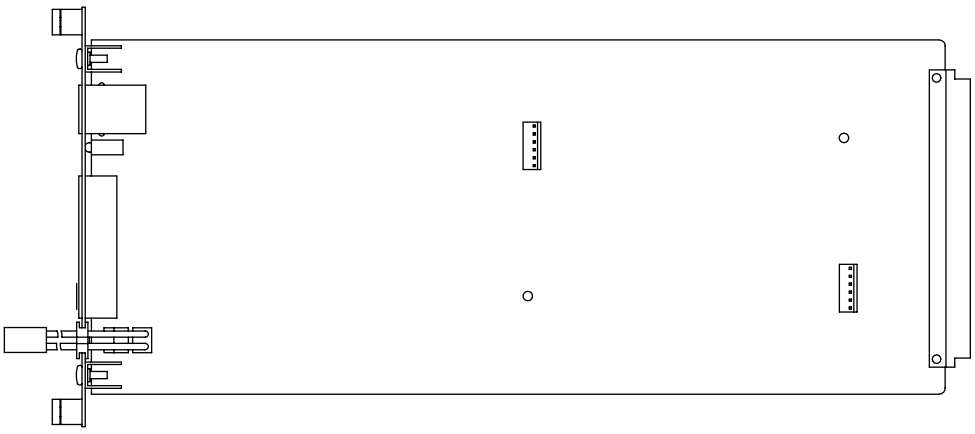


4.10 Pilot Tone Detection Module VX-200SP

Power Source	Supplied from VX-2000SF
Current Consumption	Under 100mA
Power Amplifier Link	RJ45 female connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. Twisted-pair straight cable (TIA/EIA-568A standard)
Line Monitor	Plug-in screw connector Applicable cable diameter: AWG24 – AWG 22
External Attenuator Control Output	Plug-in screw connector, relay, no-voltage make contact output, transfer type, withstand voltage: 30V DC, 250V AC, contact current: Under 7A (DC), under 7A (AC) Applicable cable diameter: AWG24 – AWG 22
Speaker Output	Plug-in screw connector Applicable cable diameter: AWG24 – AWG 22
Power Amplifier Input	Plug-in screw connector for connecting the VP-2064, VP-2122, VP-2241, VP-2421 Power Amplifier. Applicable cable diameter: AWG24 – AWG 22
Fault Detection System	Short circuit, open circuit (pilot tone detection method), ground fault
Finish	Panel: Surface-treated steel plate
Dimensions	30.5 (W) x 132.6 (H) x 290.3 (D)mm
Weight	240g
Applicable Model	VX-2000SF

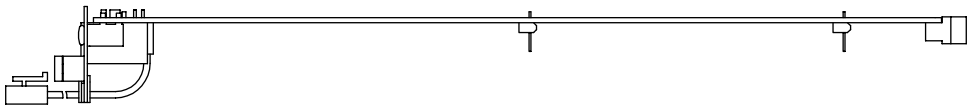
• Accessory

Plug-in screw terminal 1

• Optional product

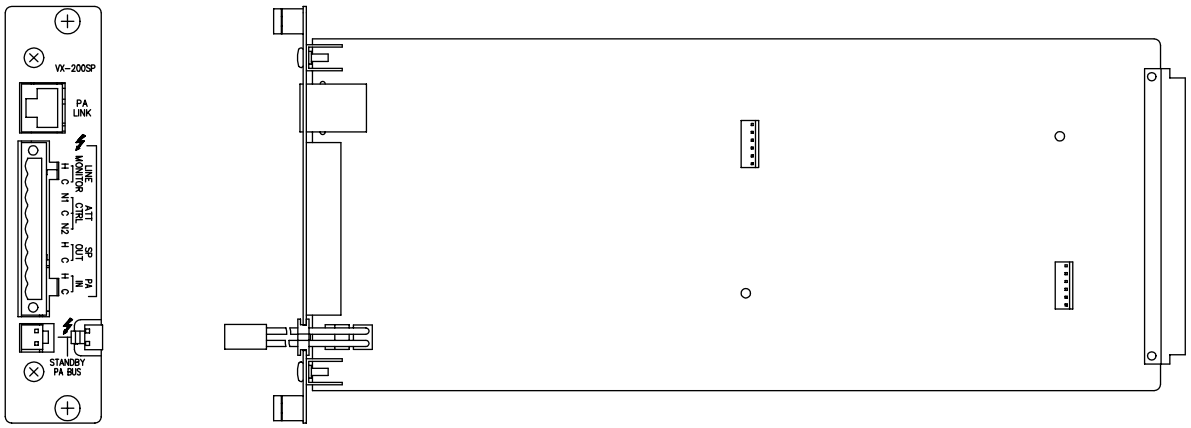
Equaliser card: VX-200SE

[Top]



[Side]

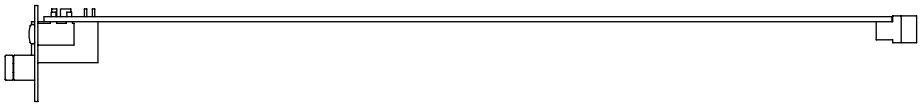
[Front]



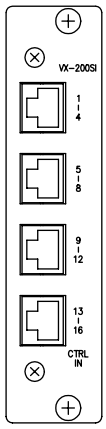
4.11. Control Input Module VX-200SI

Power Source	Supplied from VX-2000SF
Current Consumption	Under 100 mA
Control Input	16 inputs, no-voltage make contact, open voltage: 24V DC, short circuit current: under 10mA, RJ45 connector
Finish	Panel: Surface-treated steel plate
Dimensions	30.5 (W) x 132.6 (H) x 290.3 (D) mm
Weight	200 g
Applicable Model	VX-2000SF

[Top]



[Front]



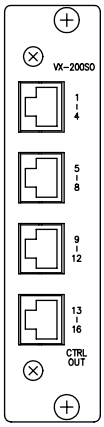
[Side]

4.12. Control Output Module VX-200SO

Power Source	Supplied from VX-2000SF
Current Consumption	Under 150 mA
Control Output	16 outputs, no-voltage make contact, contact capacity: 28V DC, 1A, RJ45 connector
Finish	Panel: Surface-treated steel plate
Dimensions	30.5 (W) x 132.6 (H) x 290.3 (D) mm
Weight	250 g
Applicable Model	VX-2000SF

[Top]

[Front]

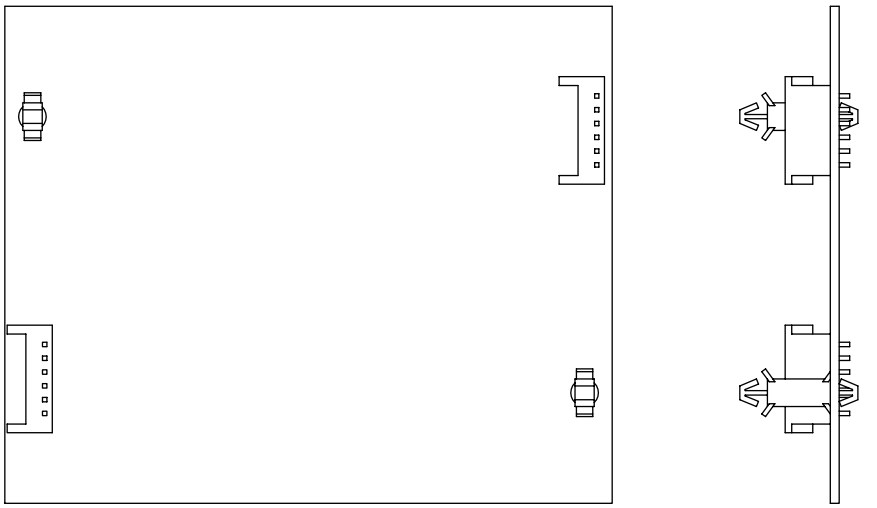


[Side]

4.13. Equaliser Card VX-200SE

Power Source	Supplied from VX-200SZ, VX-200SP
Current Consumption	Under 50 mA
Equaliser 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
Dimensions	110 (W) x 90 (H) x 21.4 (D) mm
Weight	50 g
Applicable Model	VX-200SZ, VX-200SP

[Top] **[Side]**



4.14. Power Amplifier 4 x 60 W VP-2064

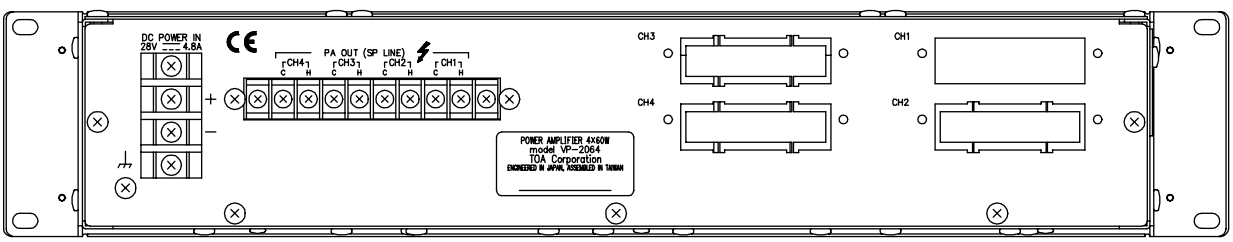
Power Source	28 V DC (operating range: 20 – 40 V DC) M4 screw terminal, distance between barriers: 12mm
Current Consumption (EN60065)	4.8 A in total
Rated Output Power	60 W x 4
Output Voltage/Impedance	100V/167Ω, 70V/83Ω, 50V/41Ω (selectable by the internal wiring change)
Number of Channels	4
Input	Specified by input module VP-200VX
Number of Module Slots	4, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal, distance between barriers: 8.8mm
Frequency Response	40 – 16,000 Hz, ±3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1 kHz)
S/N Ratio	Over 80 dB
Panel Indicator	Channel power indicator: 4 channels, dual colour LED Overheat indicator: Yellow LED
Operating temperature	0°C to +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 88.4 (H) x 340.5 (D) mm
Weight	11.2 kg

• Accessories

Rack mounting screw 4
Fiber washer 4

[Front]

[Rear]



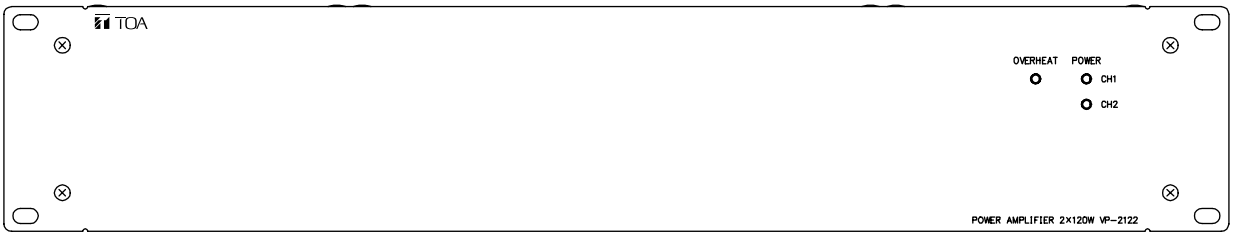
4.15. Power Amplifier 2 x 120 W VP-2122

Power Source	28 V DC (operating range: 20 – 40 V DC) M4 screw terminal, distance between barriers: 12mm
Current Consumption (EN60065)	4.8 A in total
Rated Output Power	120 W x 2
Output Voltage/Impedance	100V/83Ω, 70V/41Ω, 50V/21Ω (selectable by the internal wiring change)
Number of Channels	2
Input	Specified by input module VP-200VX
Number of Module Slots	2, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal, distance between barriers: 8.8mm
Frequency Response	40 – 16,000 Hz, ±3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1 kHz)
S/N Ratio	Over 80 dB
Panel Indicator	Channel power indicator: 2 channels, dual colour LED Overheat indicator: Yellow LED
Operating temperature	0°C to +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 88.4 (H) x 340.5 (D) mm
Weight	9.1 kg

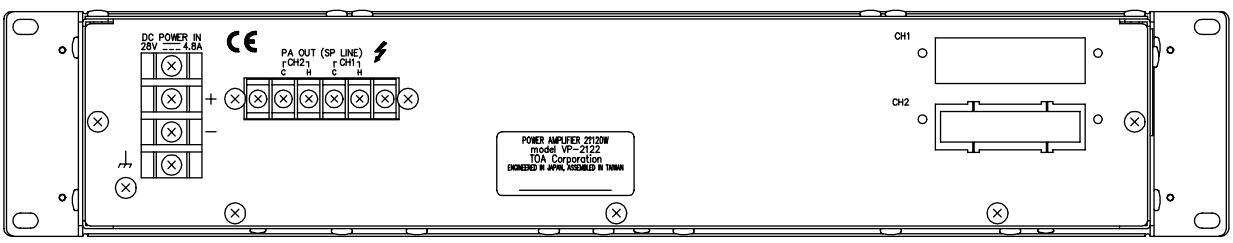
• Accessories

Rack mounting screw 4
Fiber washer 4

[Front]



[Rear]



4.16. Power Amplifier 1 x 240 W VP-2241

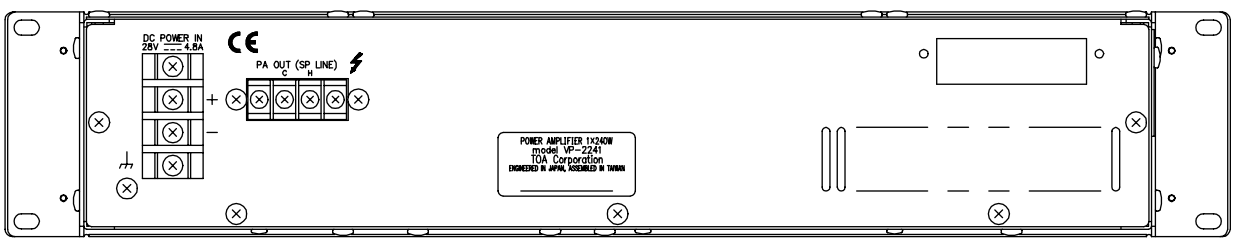
Power Source	28 V DC (operating range: 20 – 40 V DC) M4 screw terminal, distance between barriers: 12mm
Current Consumption (EN60065)	4.8 A
Rated Output Power	240 W
Output Voltage/Impedance	100V/41Ω, 70V/21Ω, 50V/10Ω (selectable by the internal wiring change)
Number of Channels	1
Input	Specified by input module VP-200VX
Number of Module Slots	1, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal, distance between barriers: 8.8mm
Frequency Response	40 – 16,000 Hz, ±3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1 kHz)
S/N Ratio	Over 80 dB
Panel Indicator	Channel power indicator: 1 channels, dual colour LED Overheat indicator: Yellow LED
Operating temperature	0°C to +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 88.4 (H) x 340.5 (D) mm
Weight	8.1 kg

• Accessories

Rack mounting screw 4
Fiber washer 4

[Front]

[Rear]



4.17. Power Amplifier 1 x 420 W VP-2421

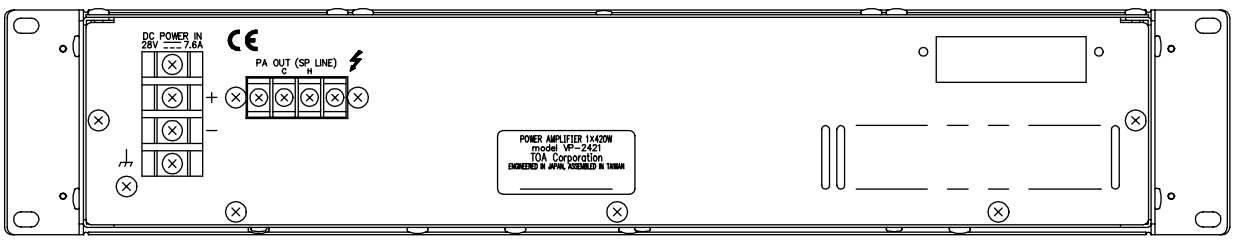
Power Source	28 V DC (operating range: 20 – 40 V DC) M4 screw terminal, distance between barriers: 12mm
Current Consumption (EN60065)	7.6 A
Rated Output Power	420 W
Output Voltage/Impedance	100V/24Ω, 70V/12Ω, 50V/6Ω (selectable by the internal wiring change)
Number of Channels	1
Input	Specified by input module VP-200VX
Number of Module Slots	1, usable module: VP-200VX
Output	Power amplifier output (speaker line): M3.5 screw terminal, distance between barriers: 8.8mm
Frequency Response	40 – 16,000 Hz, ±3 dB (at 1/3 rated output)
Distortion	Under 1% (at rated output, 1 kHz)
S/N Ratio	Over 80 dB
Panel Indicator	Channel power indicator: 1 channels, dual colour LED Overheat indicator: Yellow LED
Operating temperature	0°C to +40°C
Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	482 (W) x 88.4 (H) x 340.5 (D) mm
Weight	9.5 kg

• Accessories

Rack mounting screw 4
Fiber washer 4

[Front]

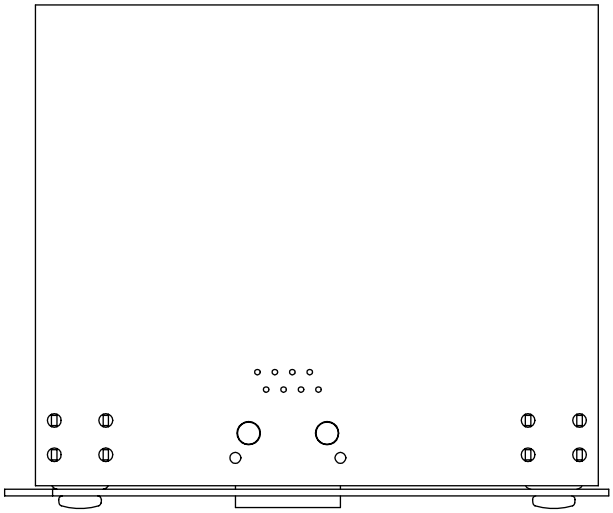
[Rear]



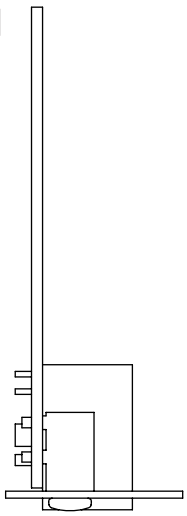
4.18. Power Amplifier Input Module VP-200VX

Power Source	Supplied from VP-2064, VP-2122, VP-2241, or VP-2421
Current Consumption	Under 30 mA
Power Amplifier Link	RJ45 female connector for connecting the VX-200SP or VX-200SZ Audio Output module. Twisted-pair straight cable (TIA/EIA-568A standard)
Finish	Panel: Surface treated steel plate
Dimensions	88 (W) x 25.8 (H) x 53.2 (D) mm
Weight	50 g
Applicable Model	VP-2064, VP-2122, VP-2241, VP-2421

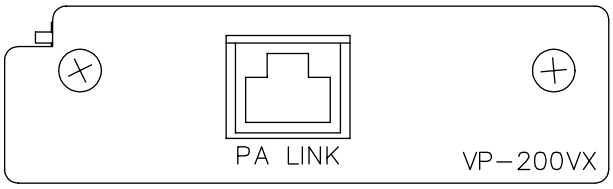
[Top]



[Side]



[Front]



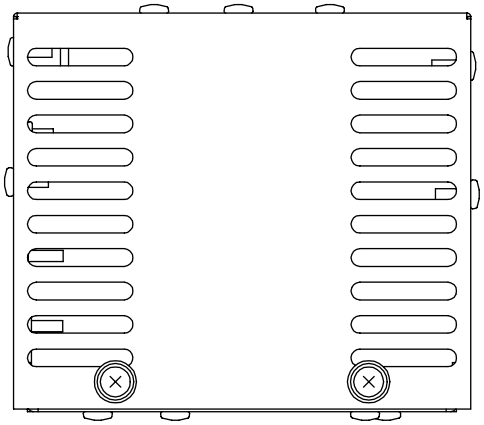
4.19. Power Supply Unit VX-200PS

Power Source	230 V AC, 50/60 Hz
Power Consumption	580 W
PS OUT	Rated output: 210 W (29V , 7.25 A) x 2 Peak output: 400 W x 2 M4 screw terminal, distance between barriers: 11 mm
Operating Temperature	0°C to +40°C
Applicable Frame	VX-2000PF
Finish	Surface-treated steel plate
Dimensions	135 (W) x 118.2 (H) x 333.8 (D) mm
Weight	13.2 kg

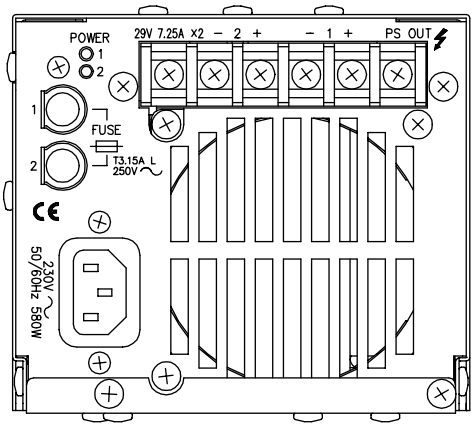
• Accessories

Fuse (T3.15 A L) 1
Power cable 1

[Front]



[Rear]



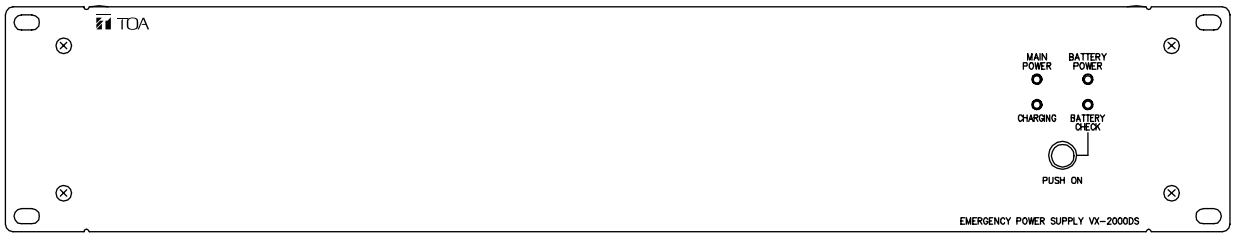
4.20. Emergeny Power Supply VX-2000DS

Power Source	230 V AC, 50/60 Hz
Power Consumption	240 W maximum
Applicable Battery	YUASA NP Series (12 V x 2 or 4)
Charging Method	Trickle charging
Charging Current	5 A maximum
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: 11mm
DC Power Output	6 (25 A max. each) M4 screw terminal, distance between barriers: 11mm
Control Connector	RJ45 female connector for connecting the VX-2000SF Surveillance Frame. 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	482 (W) x 88.4 (h) x 377.6 (D) mm
Weight	10.5 kg

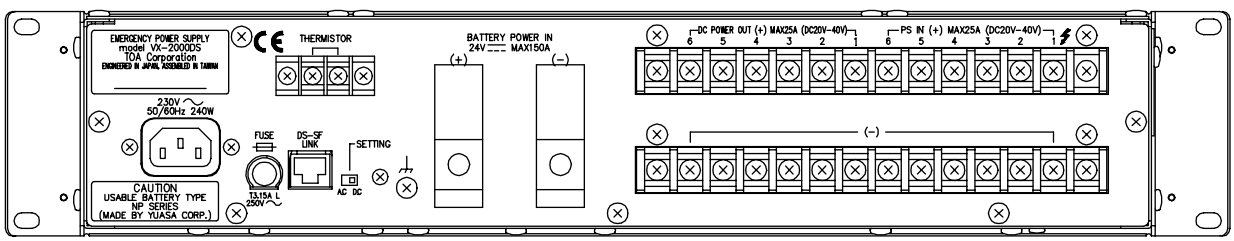
• Accessories

Rack mounting screw..... 4
Fiber washer 4
Blade fuse (40 A) 3
Fuse (T3.15 A L) 1
Power cable 1

[Front]



[Rear]



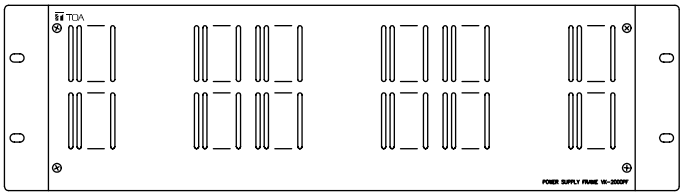
4.21. Power Supply Frame VX-2000PF

Finish	Panel: Surface-treated steel plate, black, 30% gloss, paint
Dimensions	483 (W) x 132.6 (H) x 324.8 (D) mm
Weight	5.5 kg
Product Composition	Side panel x 2, Chassis x 1, Front panel x 1
Usable Unit	VX-200PS (up to 3)

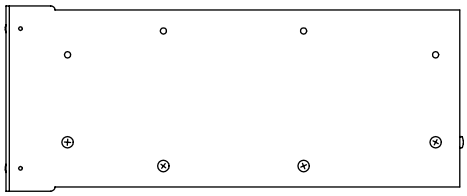
• Accessories

Rack mounting screw 4
Fiber washer 4

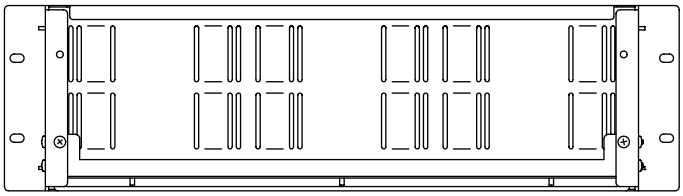
[Front]



[Side]



[Rear]



5.1.1. External View of the Building

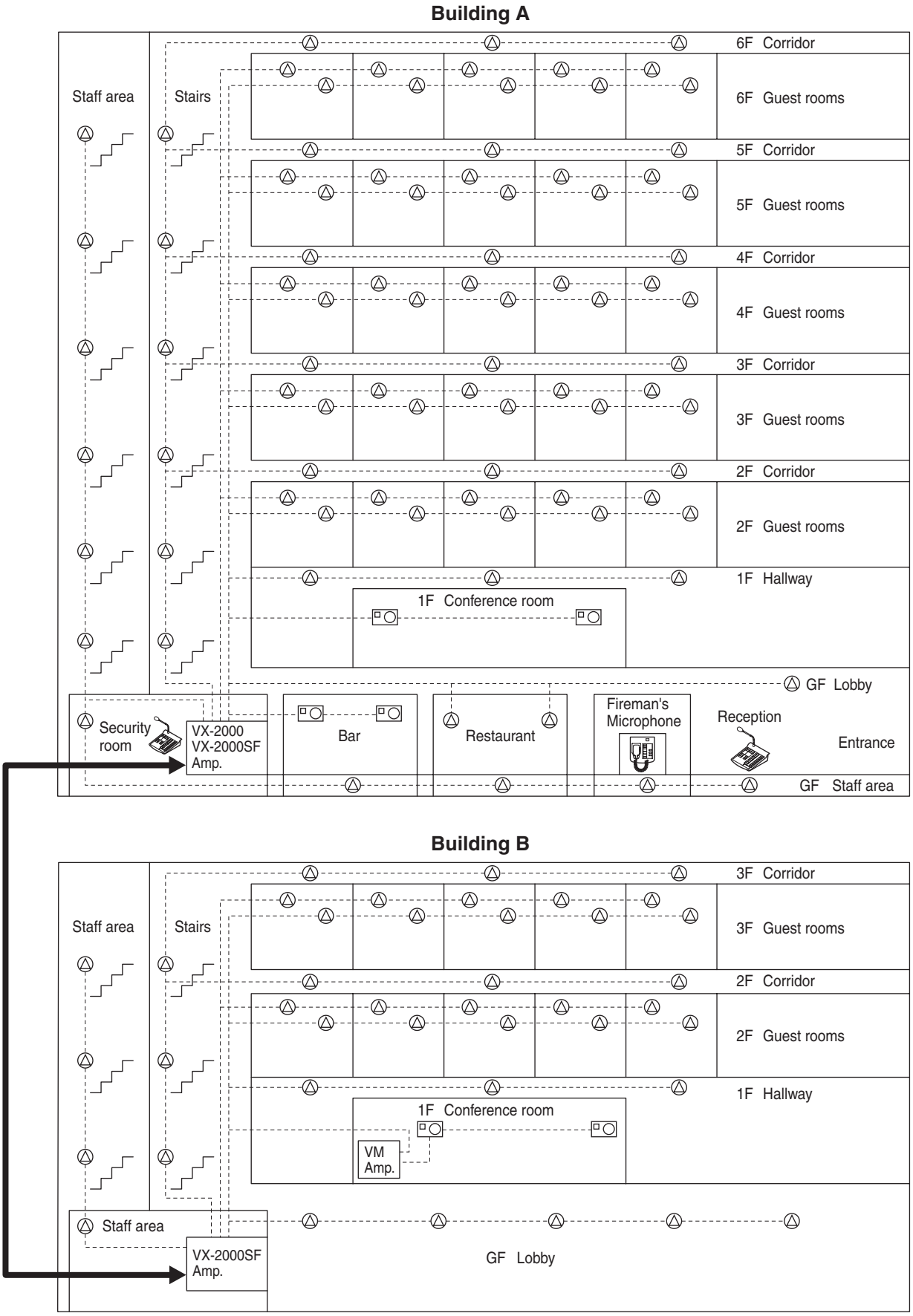
Here, system installations, settings, connections and operations are explained, taking some typical systems as an example.

The building shown below is used as an example.
The location is a hotel where Building A is linked with Building B. Building A was built earlier, and Building B added later. The original public address system was expanded by adding a VX-2000SF to cover Building B.

Building B Building A

5.1.2. Internal Wiring

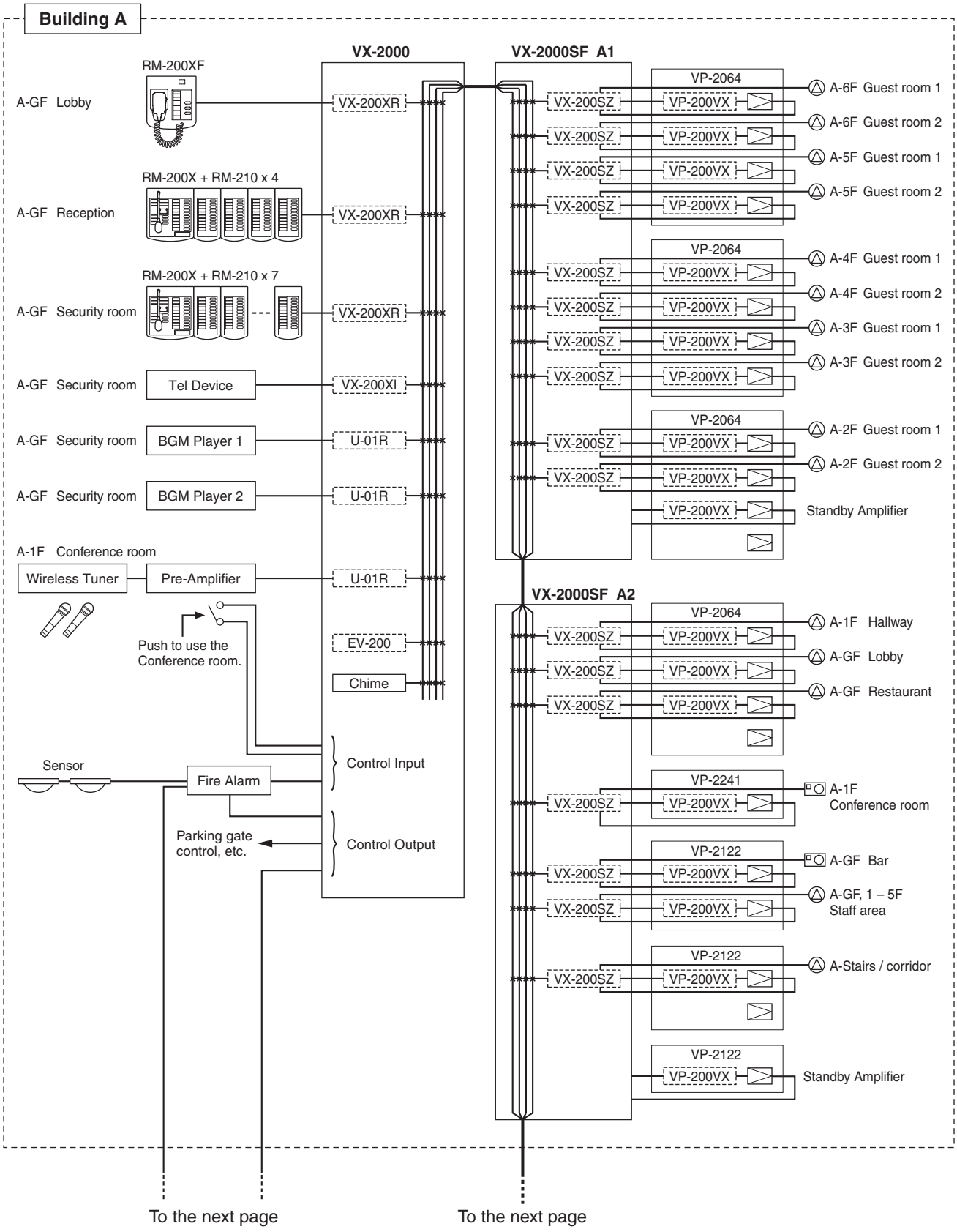
Speaker arrangements and their wiring in Buildings A and B are as shown in the figure below.



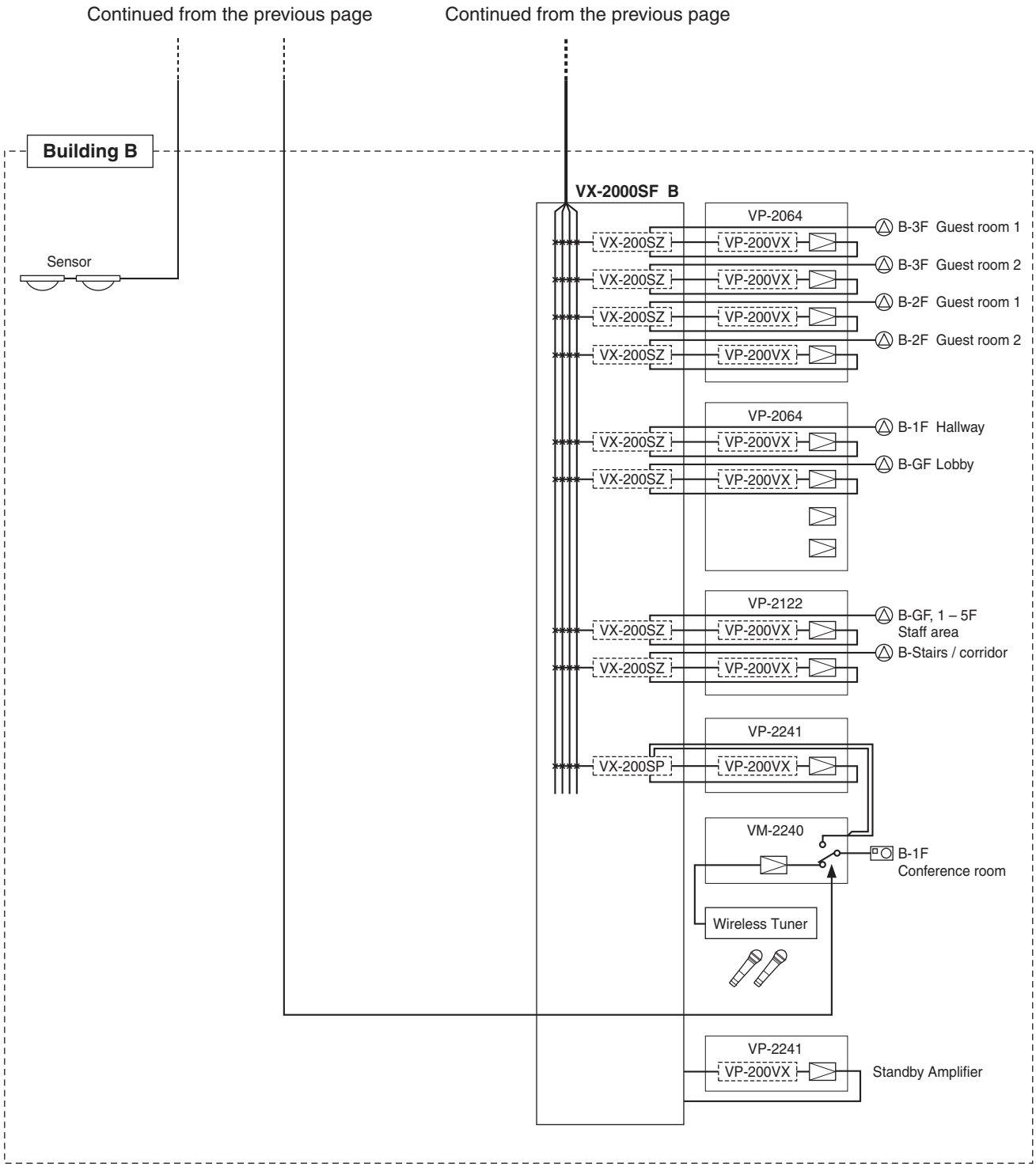
5.1.3. Block Diagram

The system's block diagram is shown below.

Note: Guest rooms 1 and 2 represent dual speaker lines of an interleaved speaker system provided for each guest room as fail safe system.



5.1.3. Block Diagram

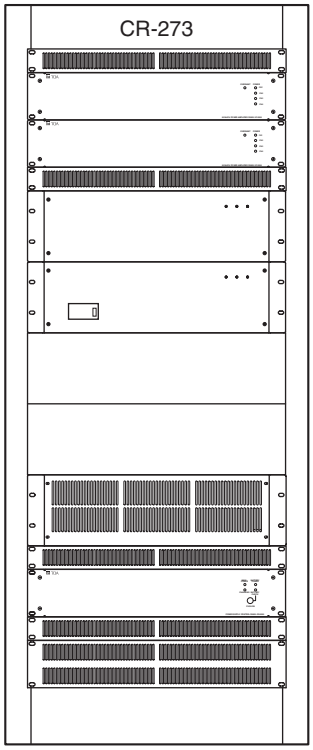


5.1.4. Equipment Rack Conceptual Drawing

Shown below are conceptual drawings for component racks installed in Buildings A and B.

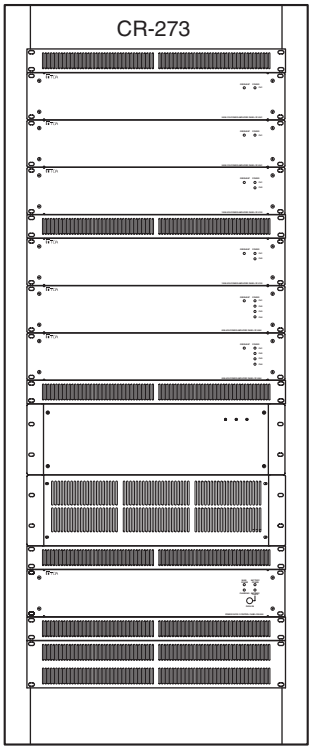
Building A

[Rack A-1]



1	PF-013B
2	VP-2064
3	
4	VP-2064
5	
6	PF-013B
7	VX-2000SF
8	
9	
10	VX-2000
11	
12	
13	BGM1
14	
15	
16	BGM2
17	
18	
19	VX-2000PF
20	
21	
22	PF-013B
23	VX-2000DS
24	
25	PF-013B
26	PF-023B
27	

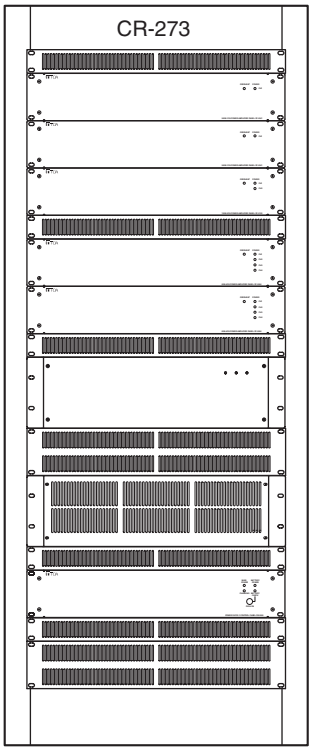
[Rack A-2]



1	PF-013B
2	VP-2241
3	
4	VP-2241
5	
6	VP-2122
7	
8	PF-013B
9	VP-2122
10	
11	VP-2064
12	
13	VP-2064
14	
15	PF-013B
16	VX-2000SF
17	
18	
19	VX-2000PF
20	
21	
22	PF-013B
23	VX-2000DS
24	
25	PF-013B
26	PF-023B
27	

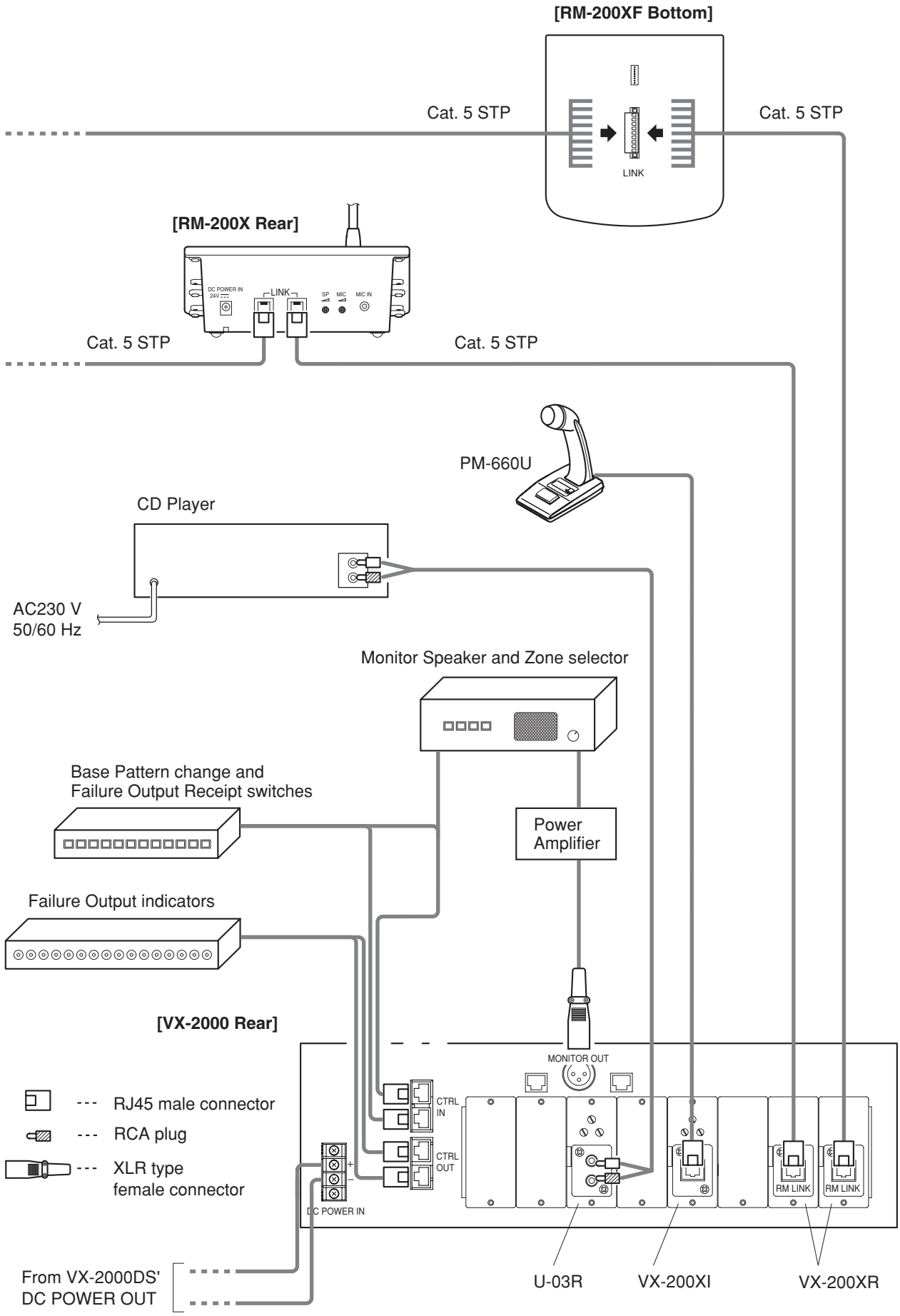
Building B

[Rack B]

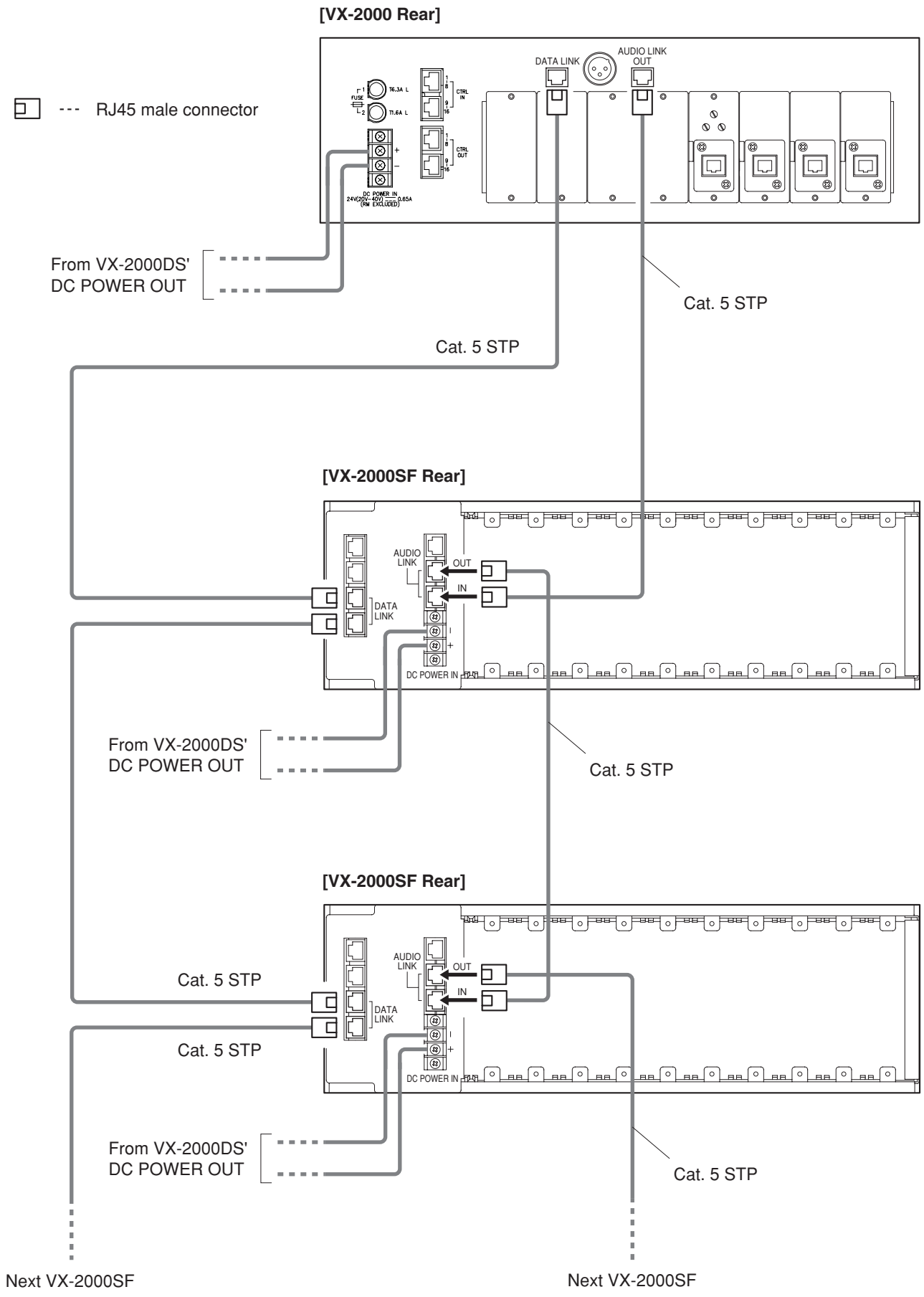


1	PF-013B
2	VP-2241
3	
4	VP-2241
5	
6	VP-2122
7	
8	PF-013B
9	VP-2064
10	
11	VP-2064
12	
13	PF-013B
14	VX-2000SF
15	
16	
17	PF-023B
18	
19	VX-2000PF
20	
21	
22	PF-013B
23	VX-2000DS
24	
25	PF-013B
26	PF-023B
27	

5.2.1. VX-2000 Connections to Remote Microphones and Input Source Equipment

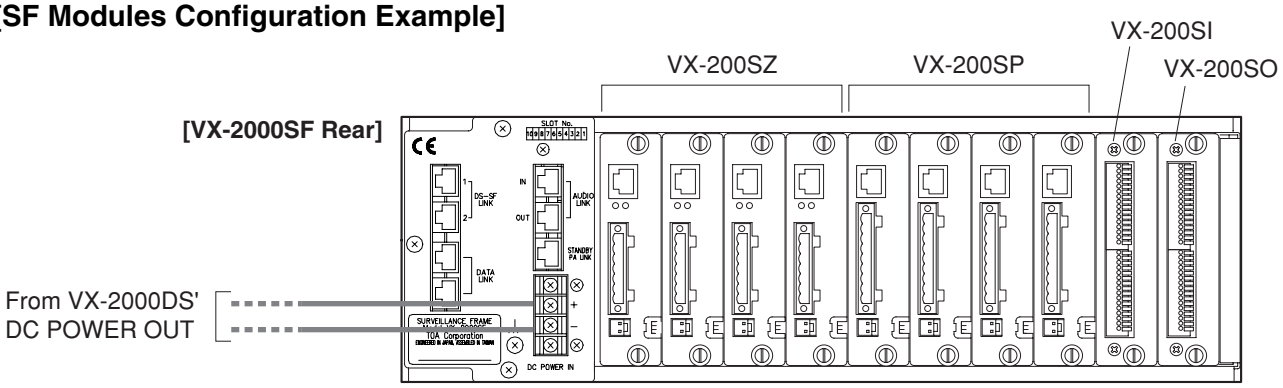


5.2.2. Connections between VX-2000 and VX-2000SF

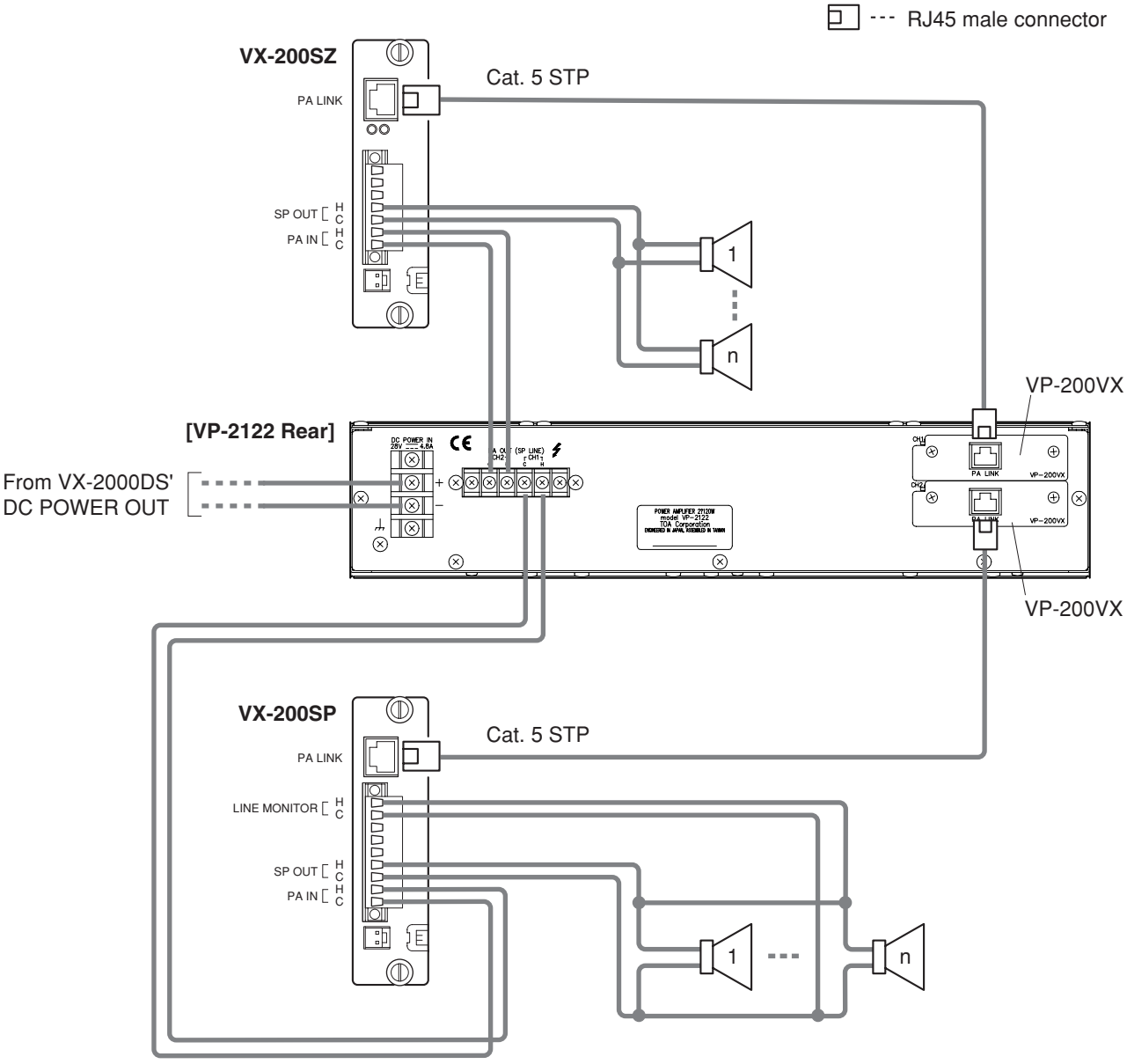


5.2.3. SF Modules (VX-200SP, VX-200SZ, VX-200SI, VX-200SO) Connections

[SF Modules Configuration Example]



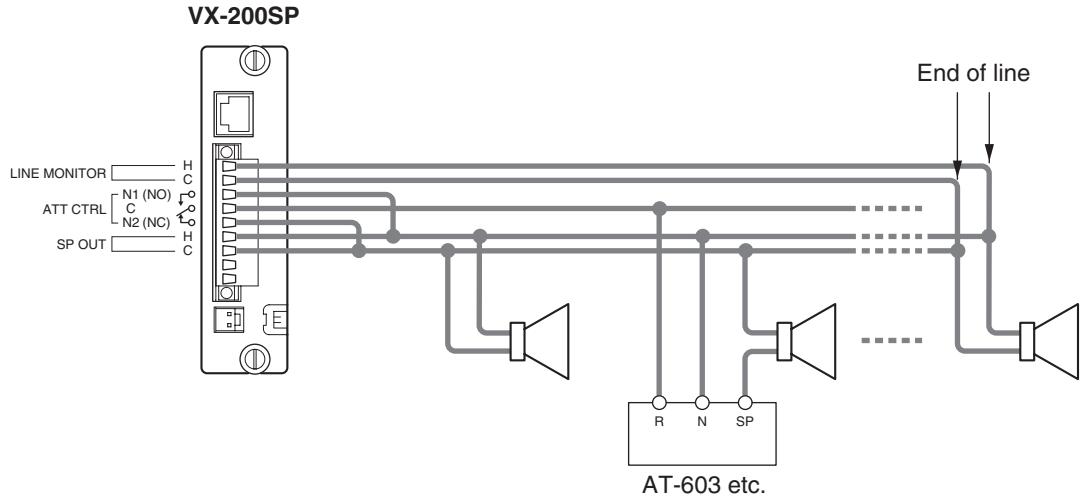
[VX-200SP and VX-200SZ Connection to Power Amplifier and Speakers]



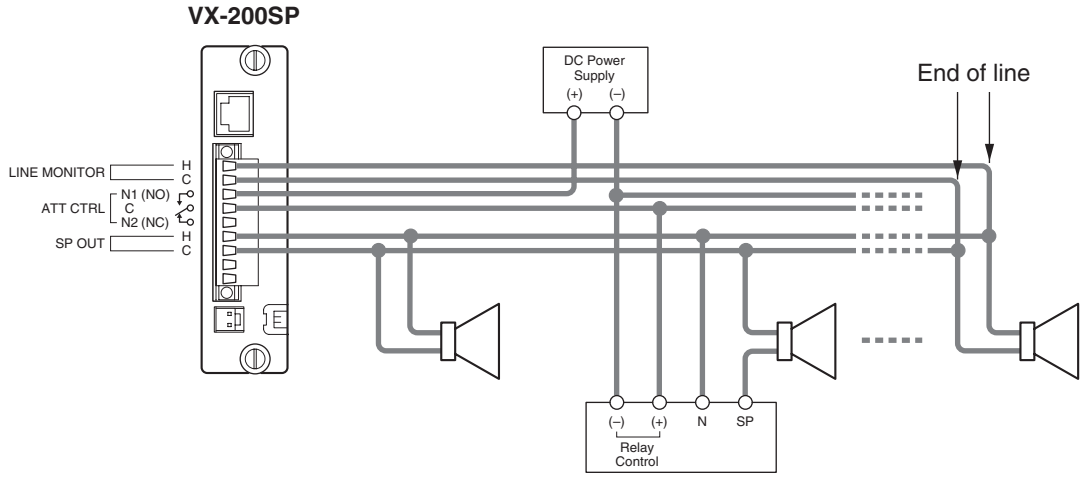
5.2.3. SF Modules (VX-200SP, VX-200SZ, VX-200SI, VX-200SO) Connections

[VX-200SP Connection to External Attenuator]

• 3-wire System Connection

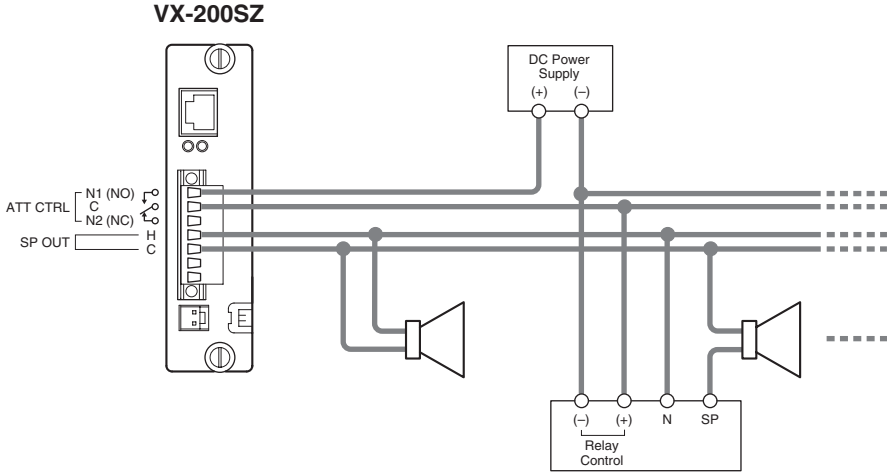


• 4-wire System Connection



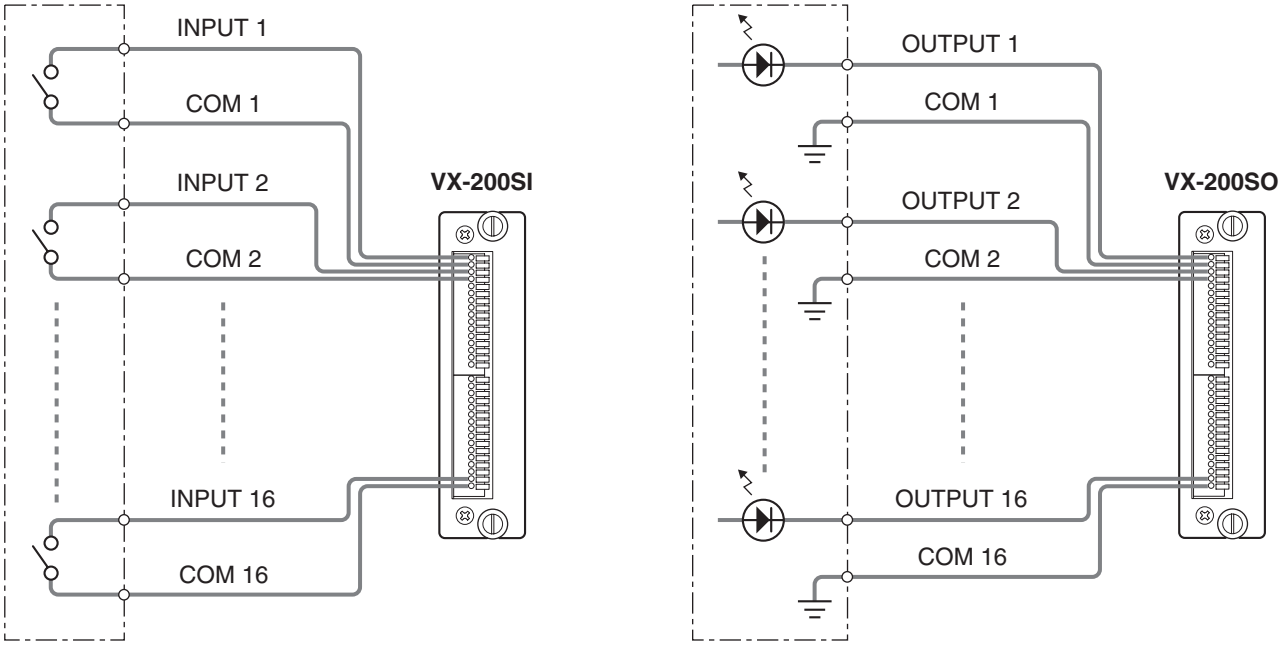
[VX-200SZ Connection to External Attenuator]

Note: Only the external attenuators of 4-wire system can be used for the VX-200SZ.

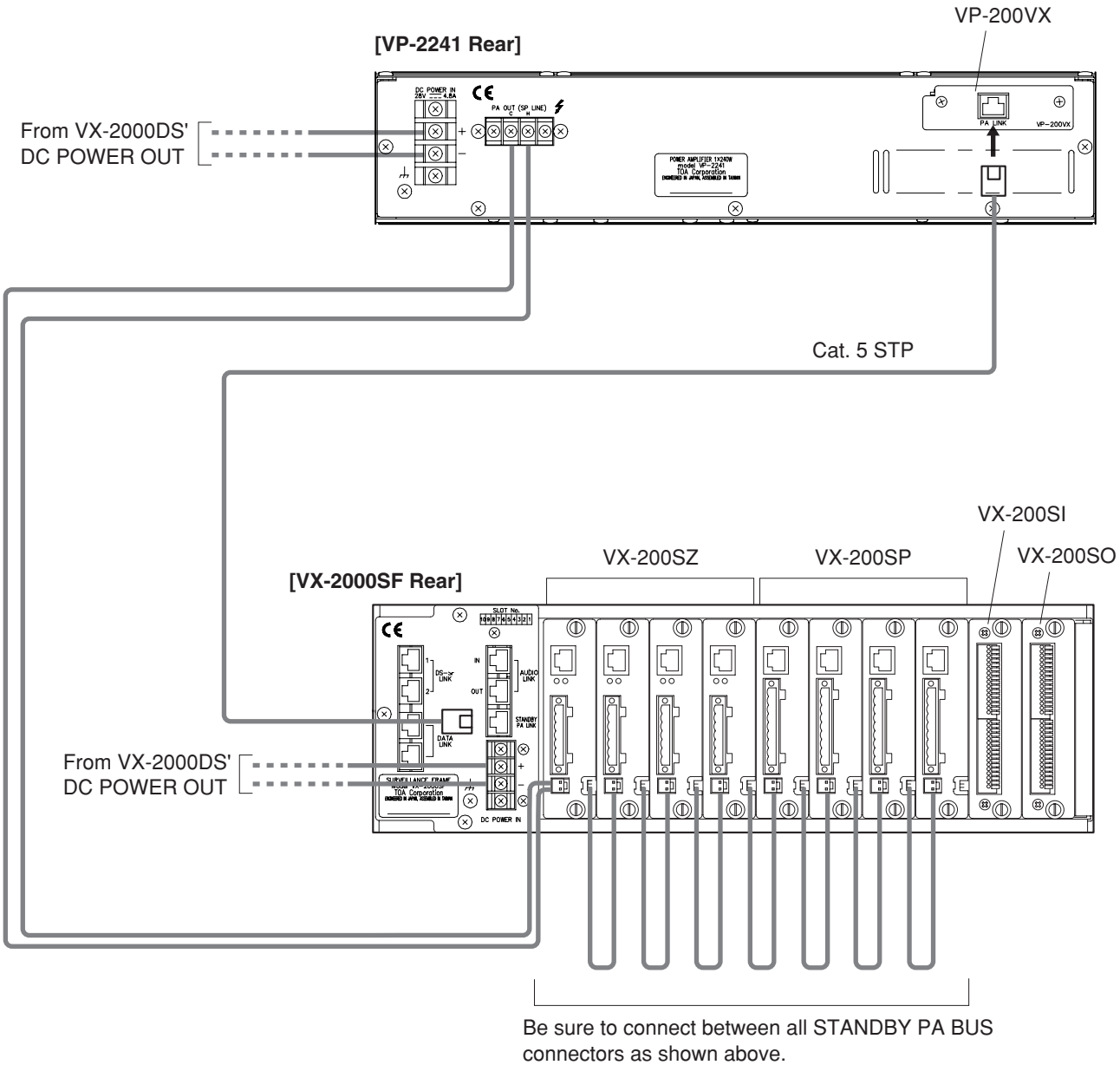


5.2.3. SF Modules (VX-200SP, VX-200SZ, VX-200SI, VX-200SO) Connections

[VX-200SI and VX-200SO Connection to External Devices]



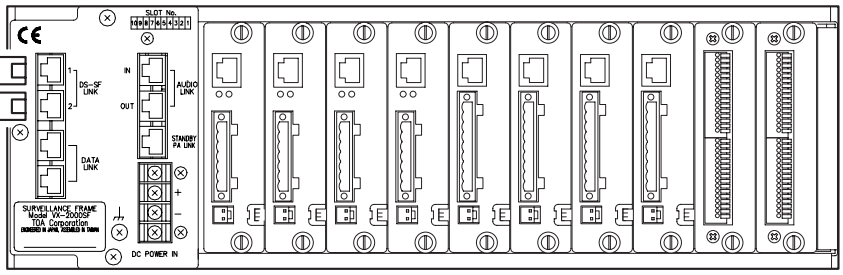
5.2.4. Connections Between VX-2000SF and Standby Amplifier



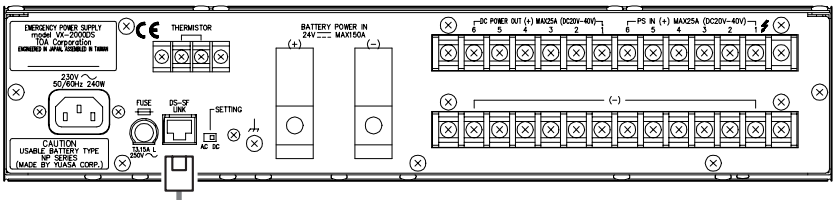
--- RJ45 male connector

5.2.5. Connections Between VX-2000SF and VX-2000DS

[VX-2000SF Rear]

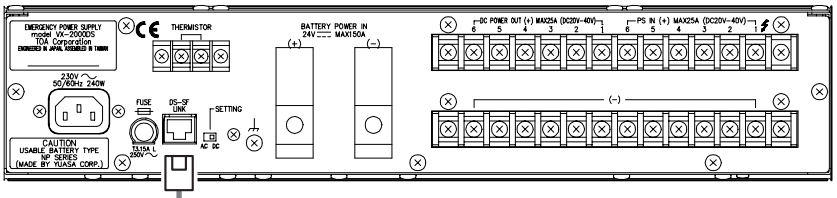


[VX-2000DS No.1 Rear]



Cat. 5 STP

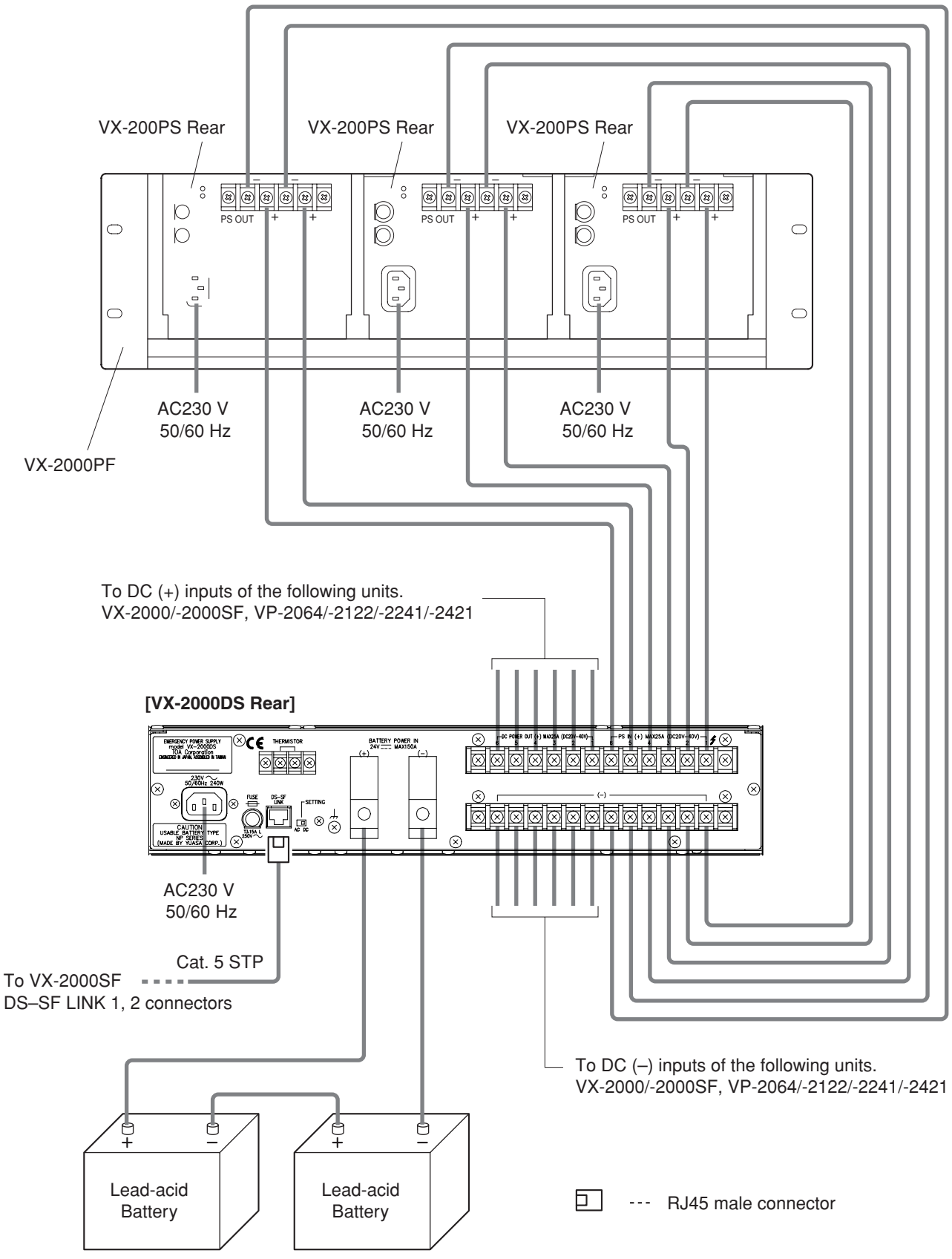
[VX-2000DS No.2 Rear]



Cat. 5 STP

--- RJ45 male connector

5.2.6. Connections Between VX-2000DS and VX-2000PS



Caution
The charging current from VX-2000DS is 5 A maximum.
Applicable Batteries: YUASA NP Series (12 V x 2)

5.2.7. VX-2000 Cable Usage Table

This table shows the cables to be used in the VX-2000 and their connection locations.

[Equipment: RM-200XF]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
LINK	Plug-in screw connector	Unprocessed cable end	Cat. 5 STP	RJ45	VX-200XR	RM LINK	RJ45

[Equipment: RM-200X]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VX-200XR	RM LINK	RJ45
DC IN	DC Jack	DC plug (Outer diameter: F5.5 mm Inner diameter: F2.1 mm length: 9.5 mm)	——	——	AC Adapter	——	——
EXT MIC IN	A3.5 mm-diameter Mini-jack	A3.5 mm-diameter Mini-plug	1-core sheilded cable	——	External microphone	——	——

[Equipment: VX-2000]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
RS-232C	9P D-sub connector (male)	9P D-sub connector (female)	Cross cable	9P D-sub connector (female)	PC	RS-232C	9P D-sub connector (male)
CTRL IN	RJ45	RJ45	Cat. 5 STP	Unprocessed cable end	Fire alarm system / other control unit	——	——
CTRL OUT	RJ45	RJ45	Cat. 5 STP	Unprocessed cable end	Fire alarm system / other control unit	——	——
DATA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000SF	DATA LINK	RJ45
AUDIO LINK OUT	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000SF	AUDIO LINK IN	RJ45
DC POWER IN	2P screw terminal	Round or Y terminal	——	Round or Y terminal	VX-2000DS	DC POWER OUT	Screw terminal
MONITOR OUT	3P XLR connector (male)	3P XLR connector (female)	2-core sheilded cable	——	Power amplifier	——	——

[Equipment: VX-200XR]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
RM LINK	RJ45	RJ45	Cat. 5 STP	Unprocessed cable end	RM-200XF	LINK	Plug-in screw connector
				RJ45	RM-200X	LINK	RJ45

[Equipment: VX-200XI]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
——	5P screw terminal	Unprocessed cable end	2-core sheilded cable, Twisted pair cable	——	Audio input equipment with control output	——	——

5.2.7. VX-2000 Cable Usage Table

[Equipment: VX-2000SF]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
DS-SF LINK 1, 2	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000DS	DS-SF LINK	RJ45
DATA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000 VX-2000SF	DATA LINK	RJ45
STANDBY PA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VP-200VX	PA LINK	RJ45
AUDIO LINK IN	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000 VX-2000SF	AUDIO LINK OUT	RJ45
AUDIO LINK OUT	RJ45	RJ45	Cat. 5 STP	RJ45	Standby amplifier VX-2000SF	AUDIO LINK IN	RJ45
STANDBY PA BUS	2P screw terminal	Unprocessed cable end	22-24AWG	Round or Y terminal	Standby amplifier VP-2064/-2122/ -2241/-2421	PA OUT (SP LINE)	2P screw terminal
STANDBY PA BUS	2P VH connector	——	PCB Cable	——	VX-200SP VX-200SZ	STANDBY PA BUS	——
DC POWER IN	2P screw terminal	Round or Y terminal	——	Round or Y terminal	VX-2000DS	DC POWER OUT	Screw terminal

[Equipment: VX-200SP]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
PA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VP-200VX	PA LINK	RJ45
LINE MONITOR	Plug-in screw connector	Unprocessed cable end	22-24AWG	Unprocessed cable end	Speaker termination	Speaker terminal	Push-in terminal block
ATT CTRL	Plug-in screw connector	Unprocessed cable end	3-wire:22-24AWG 4-wire:Twisted pair cable	Unprocessed cable end	External attenuator	——	——
SP OUT	Plug-in screw connector	Unprocessed cable end	22-24AWG	Unprocessed cable end	Speaker	Speaker terminal	Push-in terminal block
PA IN	Plug-in screw connector	Unprocessed cable end	22-24AWG	Round or Y terminal	VP-2064/-2122/ -2241/-2421	PA OUT (SP LINE)	2P screw terminal

[Equipment: VX-200SZ]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
PA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VP-200VX	PA LINK	RJ45
ATT CTRL	Plug-in screw connector	Unprocessed cable end	3-wire:22-24AWG 4-wire:Twisted pair cable	Unprocessed cable end	External attenuator	——	——
SP OUT	Plug-in screw connector	Unprocessed cable end	22-24AWG	Unprocessed cable end	Speaker	Speaker terminal	Push-in terminal block
PA IN	Plug-in screw connector	Unprocessed cable end	22-24AWG	Round or Y terminal	VP-2064/-2122/ -2241/-2421	PA OUT (SP LINE)	2P screw terminal

[Equipment: VX-200SI]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
CTRL IN	16P screwless terminal block	Unprocessed cable end	Twisted pair cable	Unprocessed cable end	External equipment	Control output	——

5.2.7. VX-2000 Cable Usage Table

[Equipment: VX-200SO]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
CTRL OUT	16P screwless terminal block	Unprocessed cable end	Twisted pair cable	Unprocessed cable end	External equipment	Control input	——

[Equipment: VP-2064/-2122/-2241/-2421]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
PA OUT (SP LINE)	Screw terminal	Round or Y terminal	22-24AWG	Unprocessed cable end	VX-200SZ VX-200SP	PA IN	Plug-in screw connector
					VX-2000SF	STANDBY PA BUS	2P plug-in screw connector
DC POWER IN	2P screw terminal	Round or Y terminal	——	Round or Y terminal	VX-2000DS	DC POWER OUT	Screw terminal

[Equipment: VP-200VX]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
PA LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VX-200SZ VX-200SP	PA LINK	RJ45
					VX-2000SF	STANDBY PA LINK	RJ45

[Equipment: VX-2000DS]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
AC IN	3P inlet	——	Supplied cable	——	AC230 V, 50/60 Hz	——	——
DS-SF LINK	RJ45	RJ45	Cat. 5 STP	RJ45	VX-2000SF	DS-SF LINK	RJ45
BATTERY POWER IN	Screw terminal	Unprocessed cable end	6-1/0AWG	Unprocessed cable end	Lead-acid battery	Electrode (+,–)	——
DC POWER OUT	Screw terminal	Round or Y terminal	——	Round or Y terminal	VX-2000 VX-2000SF VP-2064/-2122/ -2241/-2421	DC POWER IN	2P screw terminal
PS IN	Screw terminal	Round or Y terminal	——	Round or Y terminal	VX-200PS	PS OUT	Screw terminal

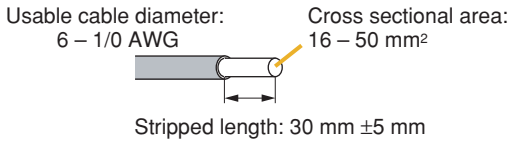
[Equipment: VX-200PS]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment	Terminal Name	Equipment Receptacle
AC IN	3P inlet	——	Supplied cable	——	AC230 V, 50/60 Hz	——	——
PS OUT	Screw terminal	Round or Y terminal	——	Round or Y terminal	VX-2000DS	PS IN	Screw terminal

5.2.8. VX-2000DS Cautions on Cable Connection to the Battery Terminal

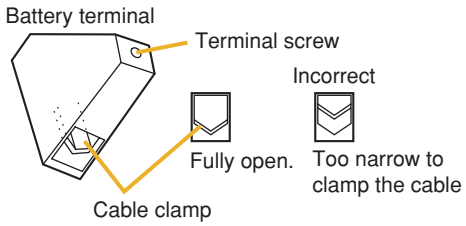
Cable end treatment

To secure the connection between the battery terminal and cable, be sure to use the cable of specified diameter and treat its end shown at right.

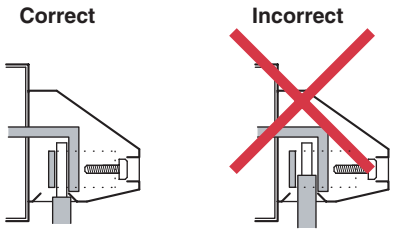


Cautions on cable connection to the battery terminal

- Before connecting the battery cable to the battery terminal, be sure to fully open the cable clamp by turning the terminal screw counterclockwise.

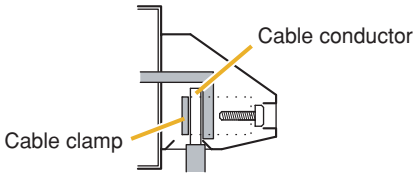


- Strip the cable end long enough to be fully clamped. Otherwise, its outer jacket prevents the cable conductor from being tightly secured, causing poor contact.



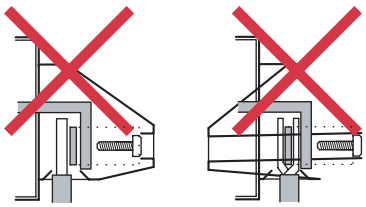
- Insert the battery cable into the correct position in the battery terminal referring to the terminal's cross sectional diagrams below.

Correct position of the cable insertion



Incorrect position of the cable insertion

Wrong insertion position of the cable or a forked cable insertion causes poor contact or insufficient connection tightness, making the cable come off to possibly cause short-circuit accident.



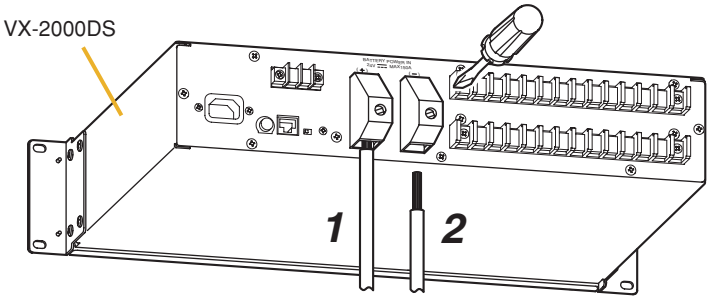
Connecting the Battery

Step 1. Insert the positive battery cable into the VX-2000DS' rear-mounted BATTERY POWER IN positive terminal from the bottom side of connector, then tighten the terminal screw with a flat screwdriver.

Note

Never connect the negative cable first to avoid accidental short between battery's positive and negative polarities if the positive cable should contact the unit chassis or equipment rack.

Step 2. Connect the negative battery cable to the negative terminal in the same manner as **Step 1**.



Disconnecting the Battery

Step 1. Loosen the VX-2000DS' BATTERY POWER IN negative terminal screw, then pull out the negative battery cable.

Notes

- Never remove the positive cable first to avoid accidental short between battery's positive and negative polarities if the positive cable should contact the unit chassis or equipment rack.
- Insulate the exposed end of removed cable with insulator such as insulating tape to avoid shorting to the other cable.

Step 2. Remove the positive battery cable from the positive terminal in the same manner as Step 1.

Note

Insulate the exposed end of removed cable with insulator such as insulating tape to avoid shorting to the other cable.

5.3.1. PC Hardware Requirements

Use the dedicated, Windows-compatible VX-2000 Setup software to set the equipment to use, broadcast patterns, and Remote Microphone function keys.

The VX-2000 setting software is designed to be exclusively used with the VX-2000 System.
The Microsoft Windows-based VX-2000 software can be used with most Windows-compatible personal computers.

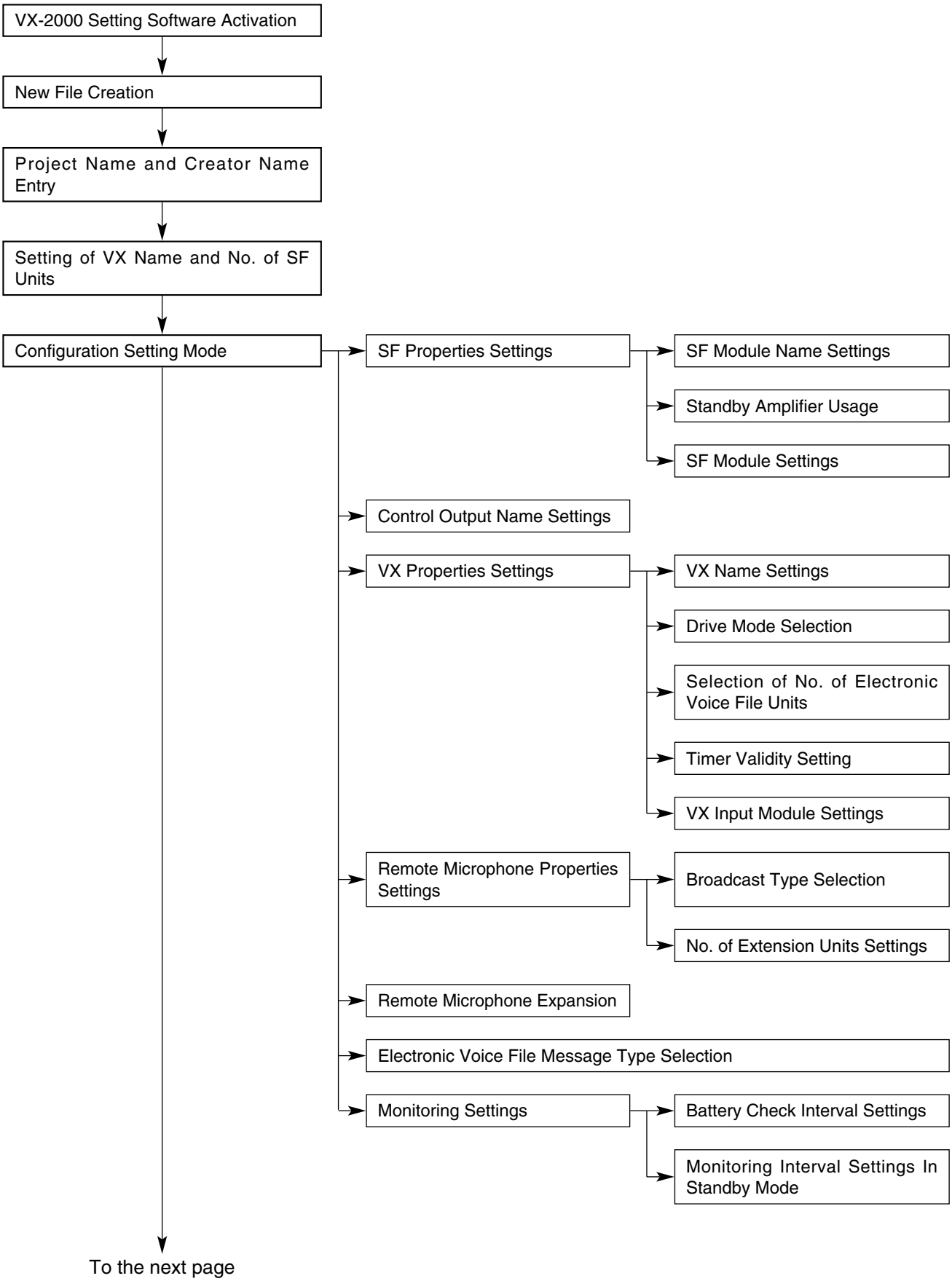
Hardware requirements are given below.

OS	Windows 98 Second Edition/ME/2000/XP
CPU Operating Speed	233 MHz Pentium II or faster
Memory Capacity	64 MB RAM
Available Hard Disk Space	200 MB
Communication Port	RS-232C
Display Size	800 x 600, 256 colors or more
Built-in Media Drive	CD-ROM Drive

Pentium is a trademark of Intel Corporation.
Windows is a trademark of Microsoft Corporation.

5.3.2. Offline Settings

The below flowchart shows the setting flow to be performed on a PC screen.



5.3.2. Offline Settings

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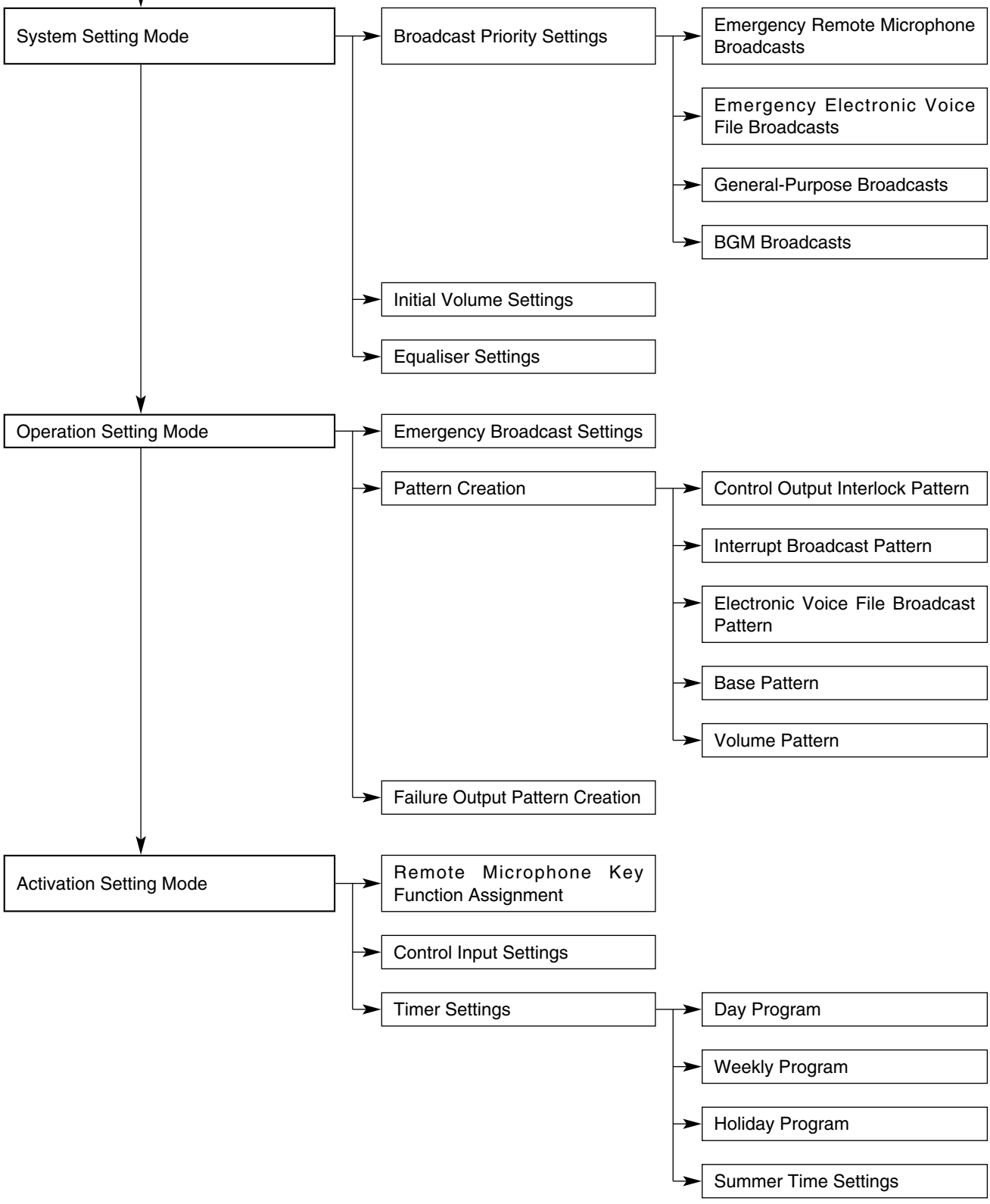
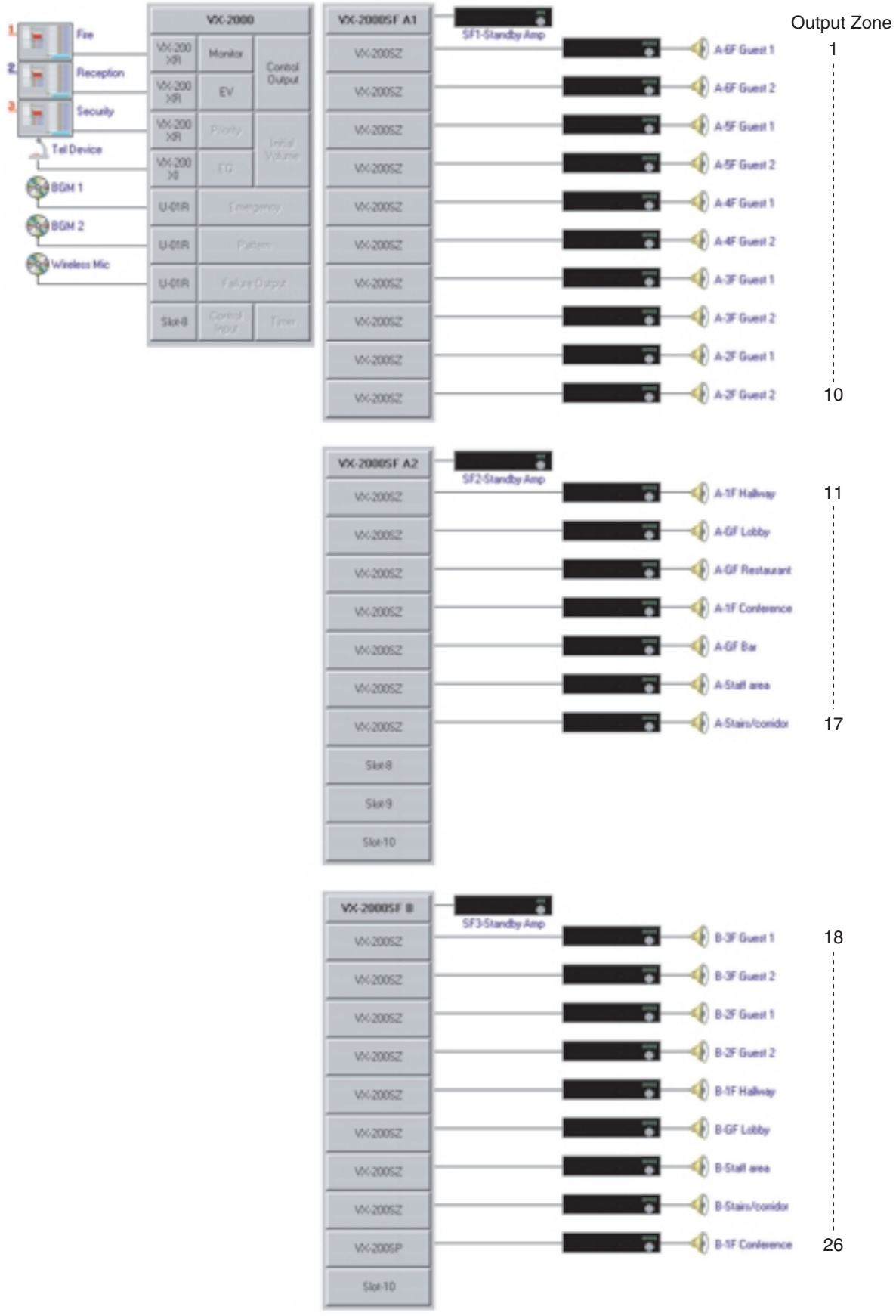


5.3.2. Offline Settings

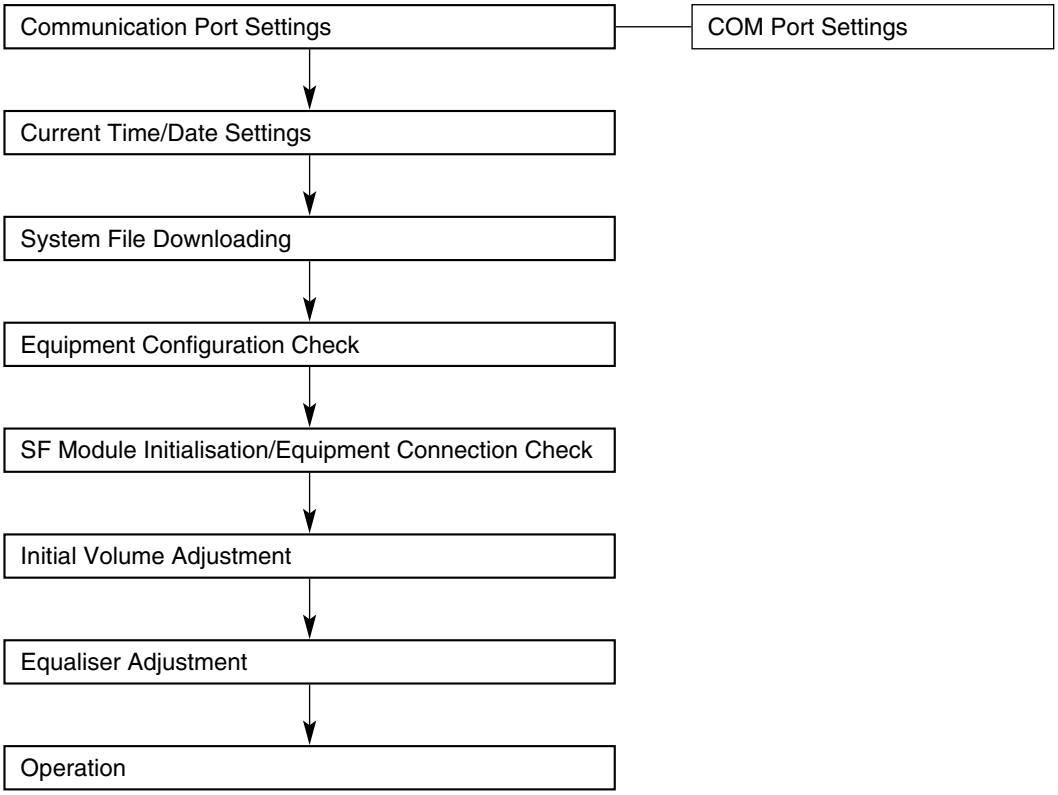
[Configuration Screen]

The following screen will be displayed when offline settings are performed for the typical system.



5.4.1. Online Settings

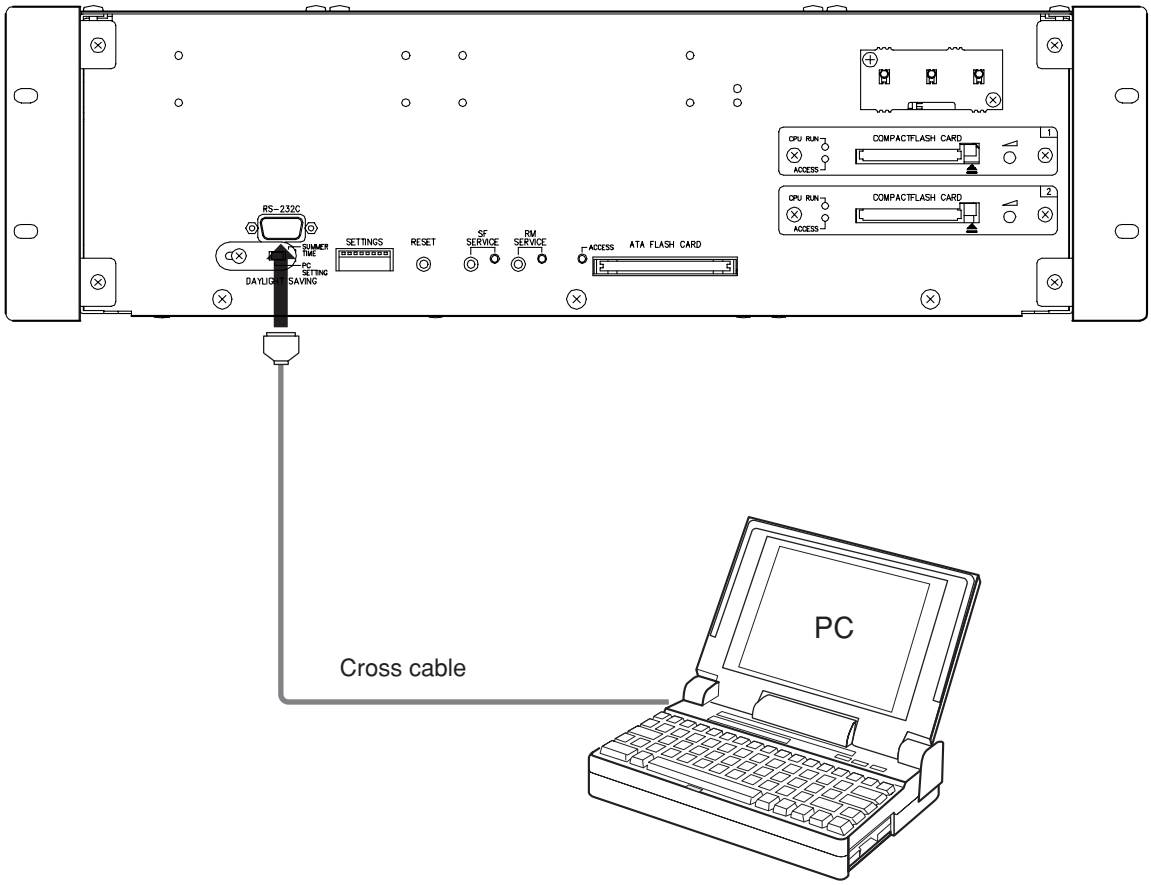
The below flowchart shows the settings to be performed with a PC and the VX-2000 system connected.



5.4.2. Connections Between VX-2000 and PC

To download the set system file to the VX-2000, connect the PC to be used to the VX-2000.

[VX-2000 Front section without front panel]



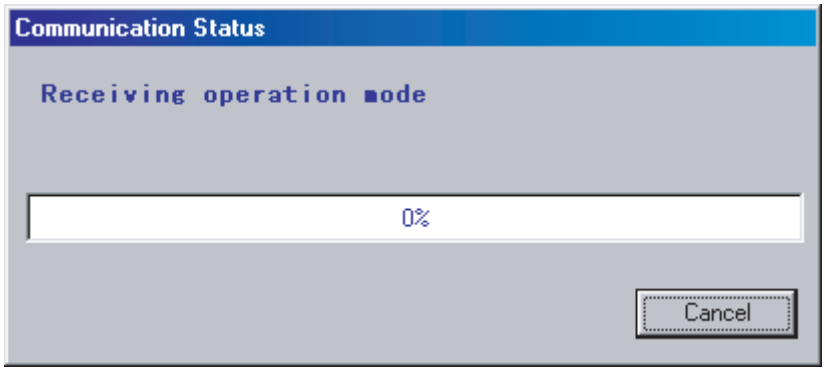
5.4.3. System File Download

Download the programmed system file from the PC to the VX-2000.

Step 1. Select [Download (PC → VX)] from the Communications menu.
The following message will be displayed:

"All the data under setup is transmitted. Is communication started?"

Step 2. Click on the [OK] button.
To return to the previous settings, click on the [Cancel] button.
Note: System files cannot be transferred while in the Emergency mode.



After the download is 100% complete, communications are automatically cut off.

If exiting partway through a data transmission, click on the [Cancel] button.

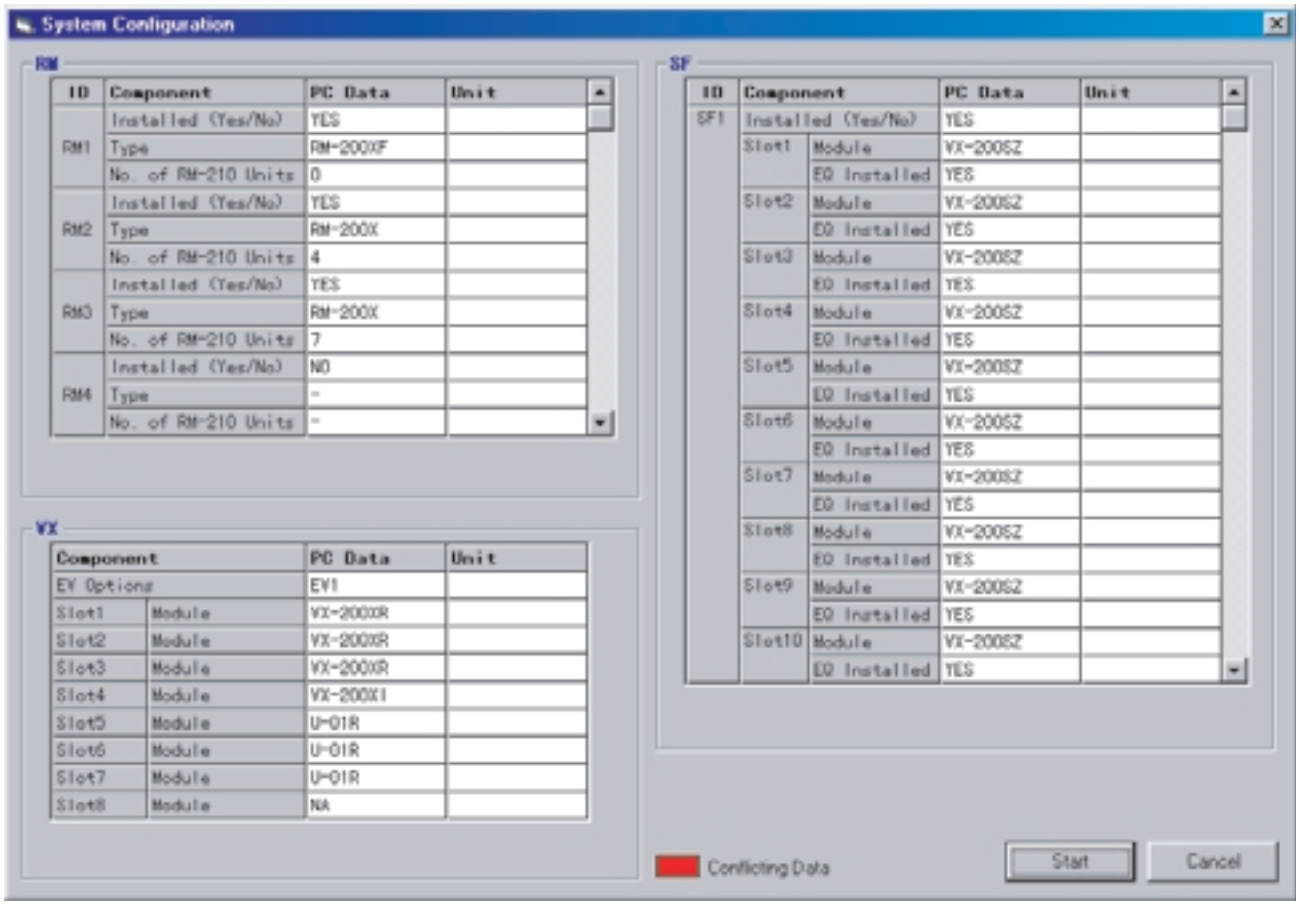
Tip
No changes are made to the VX-2000 system file when communications are cancelled partway through the transmission.

5.4.4. Equipment Configuration Check

This function confirms whether the system file set with a PC agrees with the actual equipment configuration.

Step 1. Select [Configuration Check] from the System menu.
The [System Configuration] window will open.

Step 2. Click on the [Start] button.
Note: The configuration check function cannot be used in the emergency mode.



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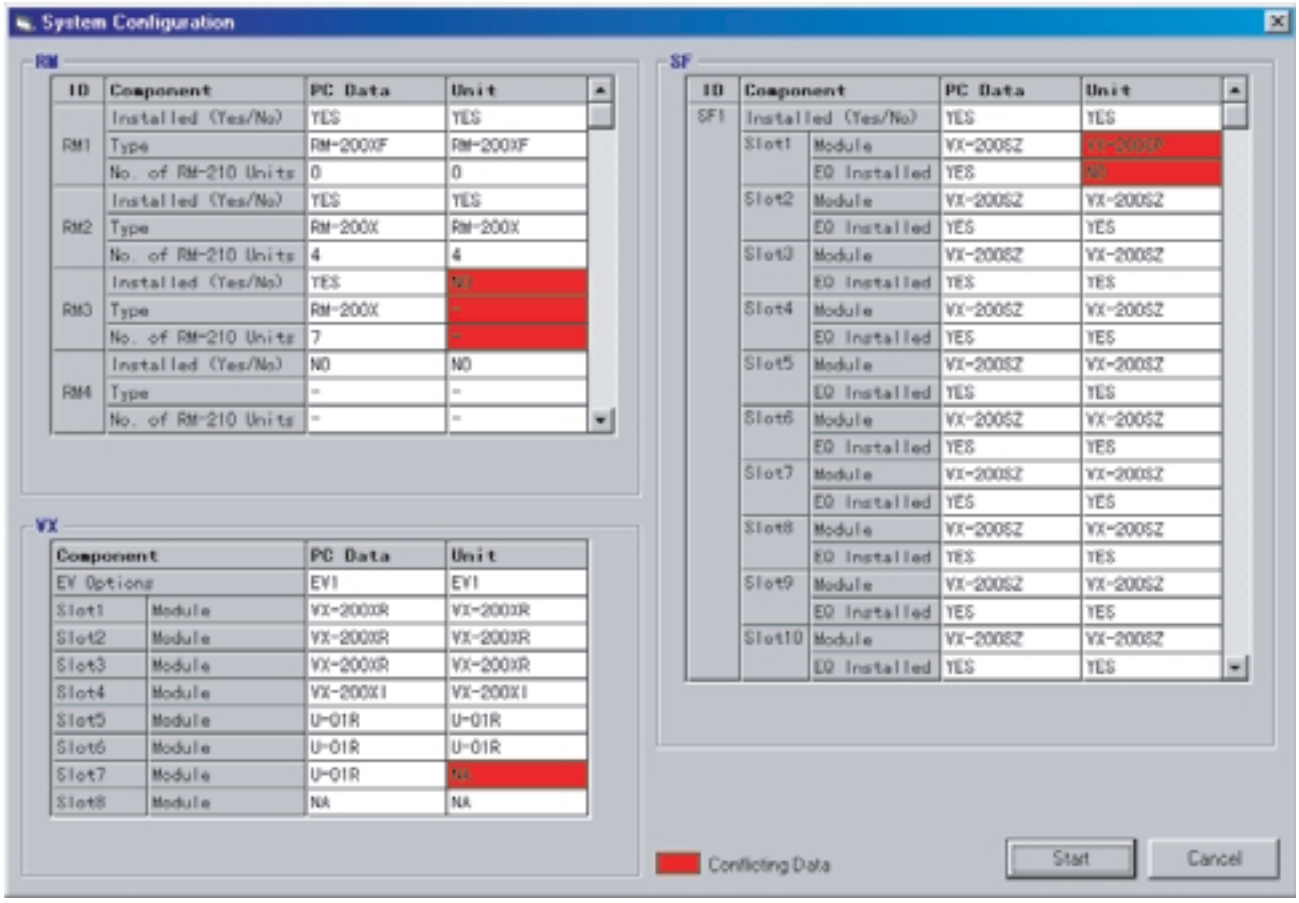
5.4.4. Equipment Configuration Check

After the configuration check is complete, the connected equipment is displayed in the "Unit" column.
Data that differ in configuration between the PC settings and actual configuration are displayed in red.



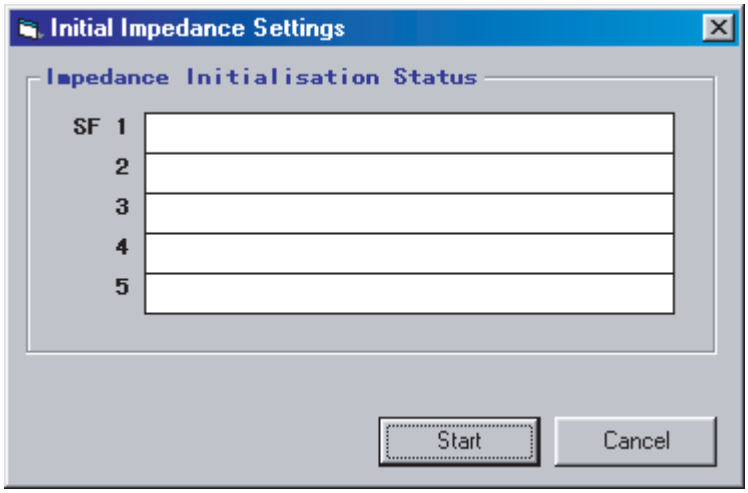
Step 3. Should conflicting data be detected, either correct the PC settings and download the new settings to the VX-2000 or match the actual component configuration to the PC settings.

5.4.5. SF Initialisation and Equipment interconnection Check

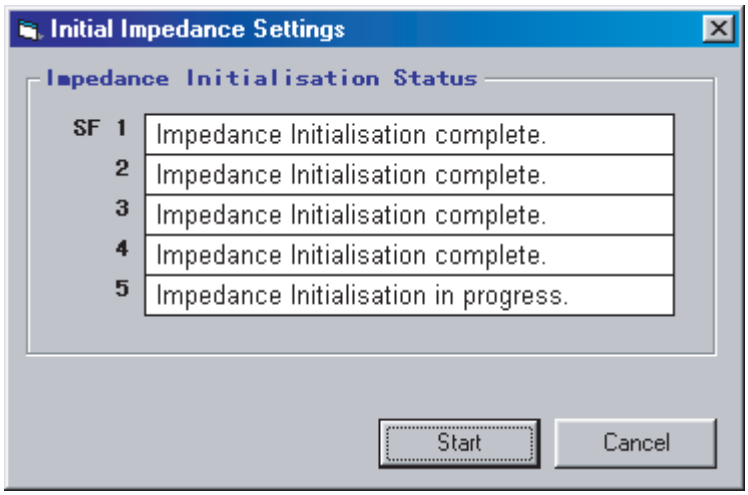
Cables running between equipment components can be checked for correct connection.
First initialise the Surveillance Frame, then check the equipment interconnections.

Step 1. Select [Connection Check] from the System menu.
The [Initial Impedance Settings] window will open.

Step 2. Click on the [Start] button.
Note: The Surveillance Frame cannot be initialised while in emergency mode.



After the Surveillance Frame initialisation is complete, the "Impedance Initialisation complete" message will be displayed.



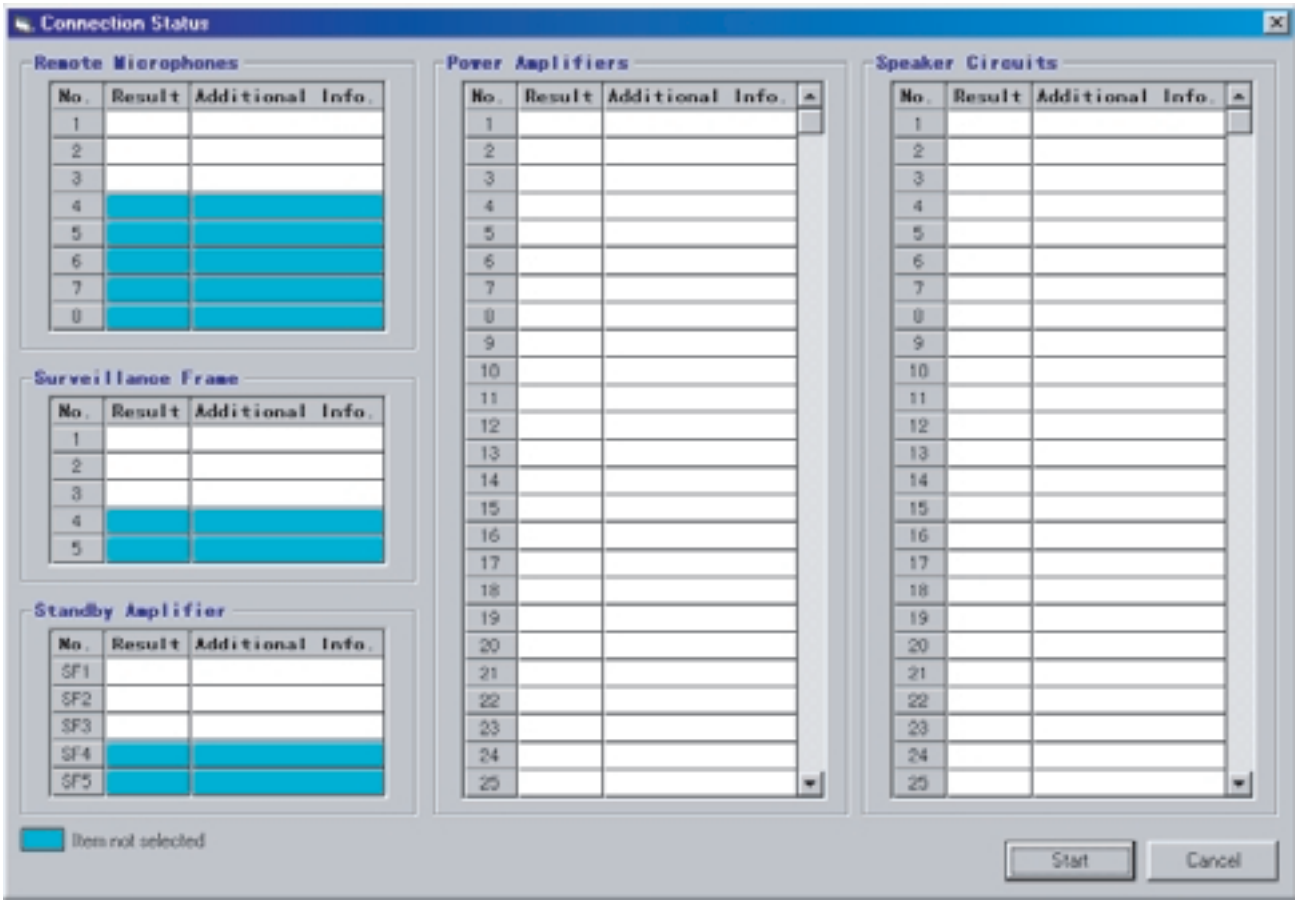
Step 3. Click on the [Cancel] button.
The [Initial Impedance Settings] window will close, and the [Connection Check] window will open.

Continued on next page

5.4.5. SF Initialisation and Equipment interconnection Check

Step 4. Click on the [Start] button.

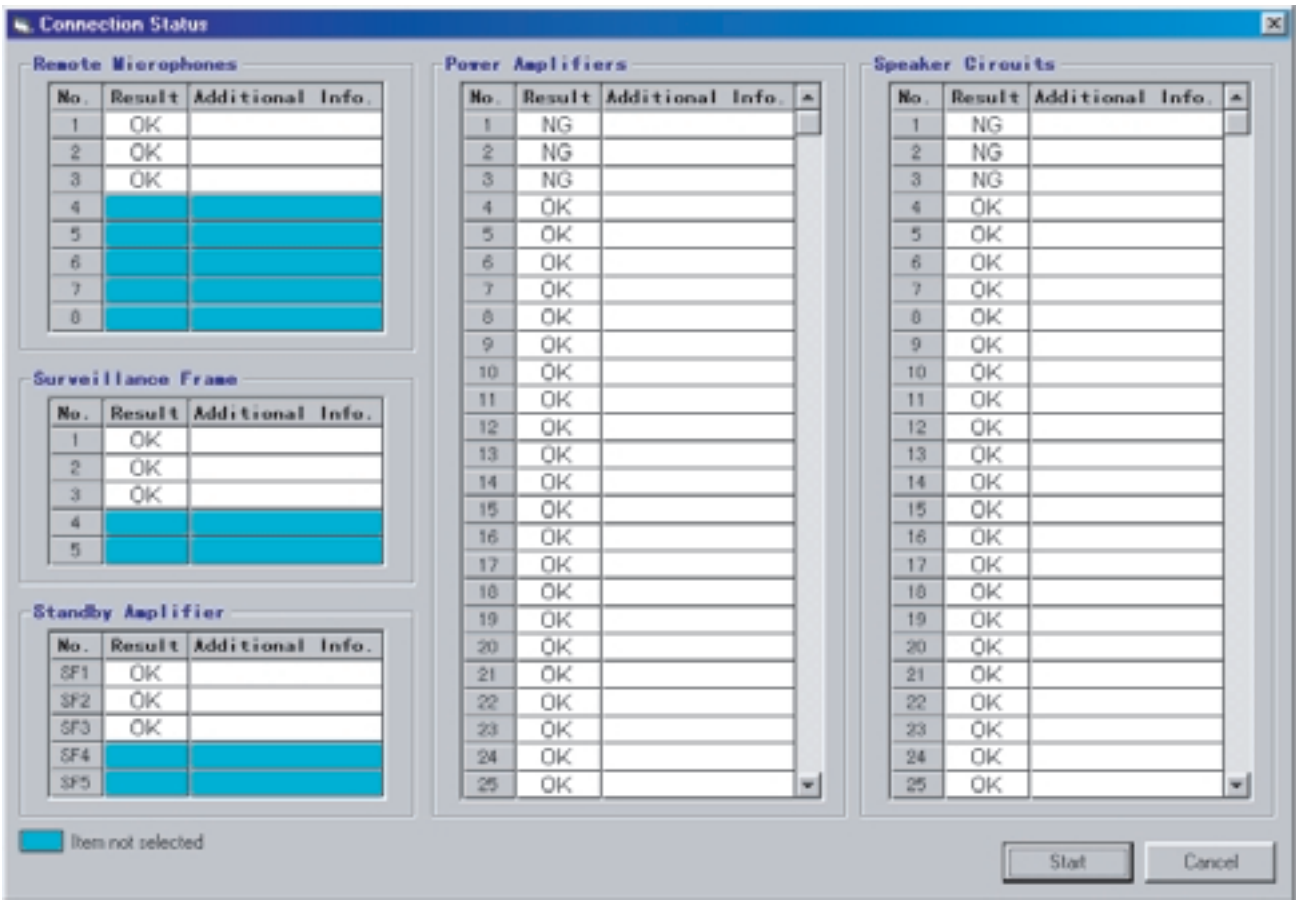
Communications with the VX-2000 will start, while the "Receiving operation mode" message flashes.
Note: Connections cannot be checked in emergency mode.



Continued on next page

5.4.5. SF Initialisation and Equipment interconnection Check

After the connection check is complete, "OK" will be displayed in the "Result" column if all connections are determined to be correct, and "NG" when a problem has been detected.



Step 5. If "NG" is displayed, check the connections between equipment in question, and perform the connection check again.

Tip

When performing only the initial settings of the Surveillance Frame, this can be accomplished by selecting [Initial Impedance Settings] from the System menu.

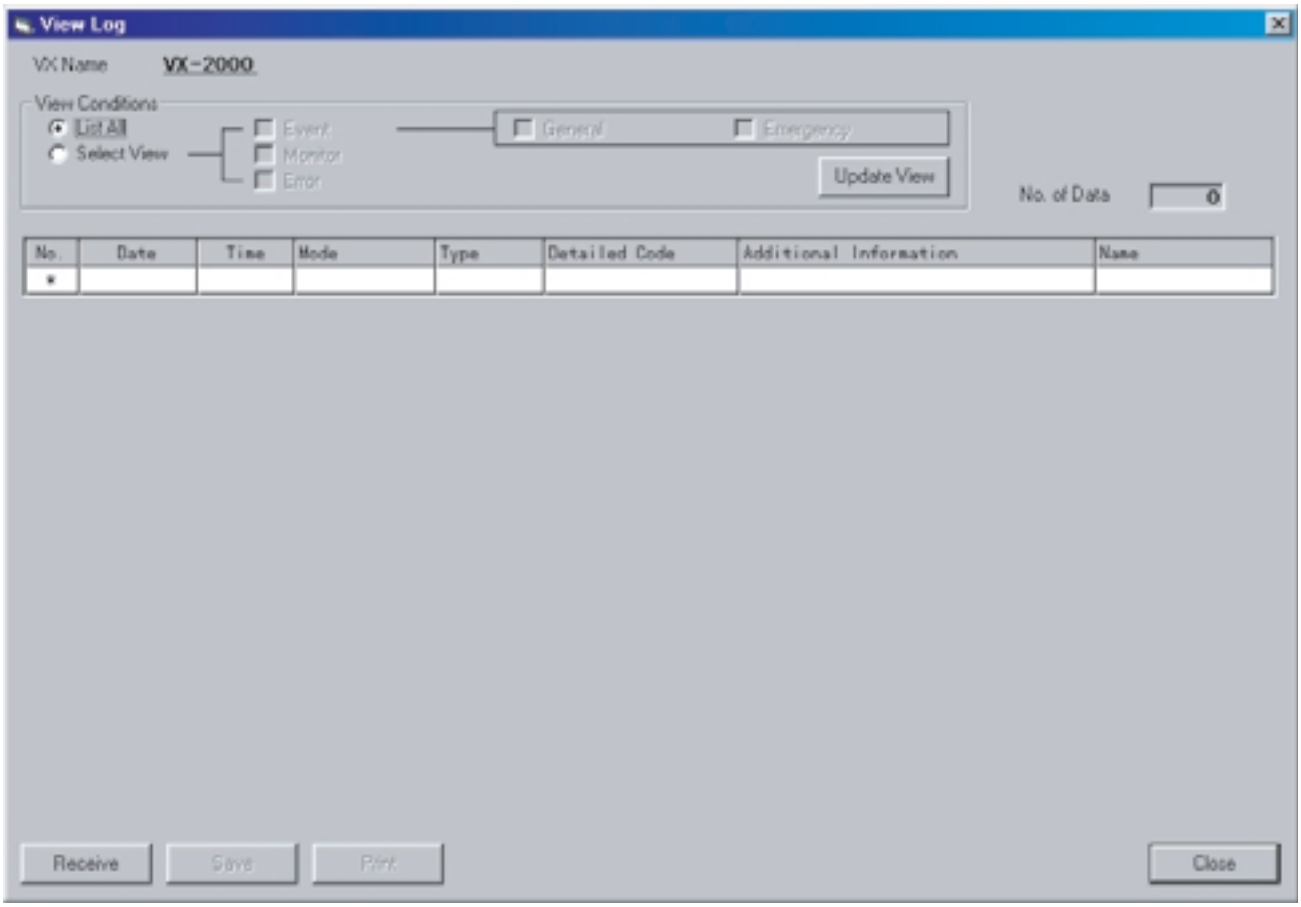
5.4.6. Introduction of Other Functions

5.4.6.1. Reading Logs

(1) Loading Logs

Operation logs stored inside the VX-2000 can be read into a PC to display.

Step 1. Select [Log] from the System menu.
The [View Log] window will open.



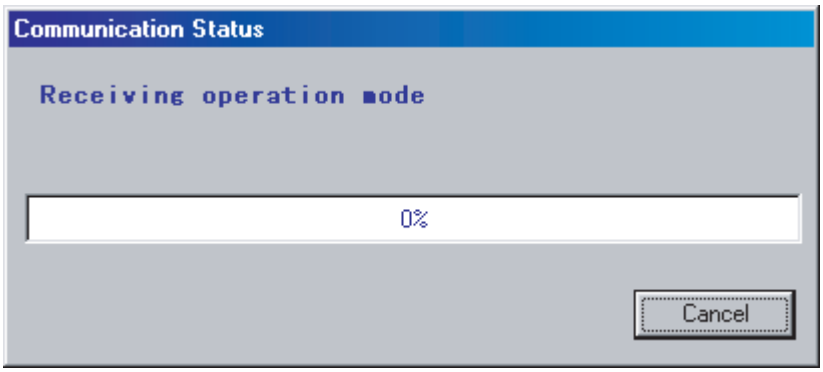
Step 2. Set the log to be viewed in the [View Conditions] area.
The type of log to be displayed can be selected.

[List All]: All stored logs can be viewed.
[Select View]: Only the desired logs are selected and displayed.
Tick the "Event, "Monitor," or "Error" checkbox for the data to be viewed.
More than one checkbox can be ticked.
If "Event" is selected, further select either "General" or "Emergency."

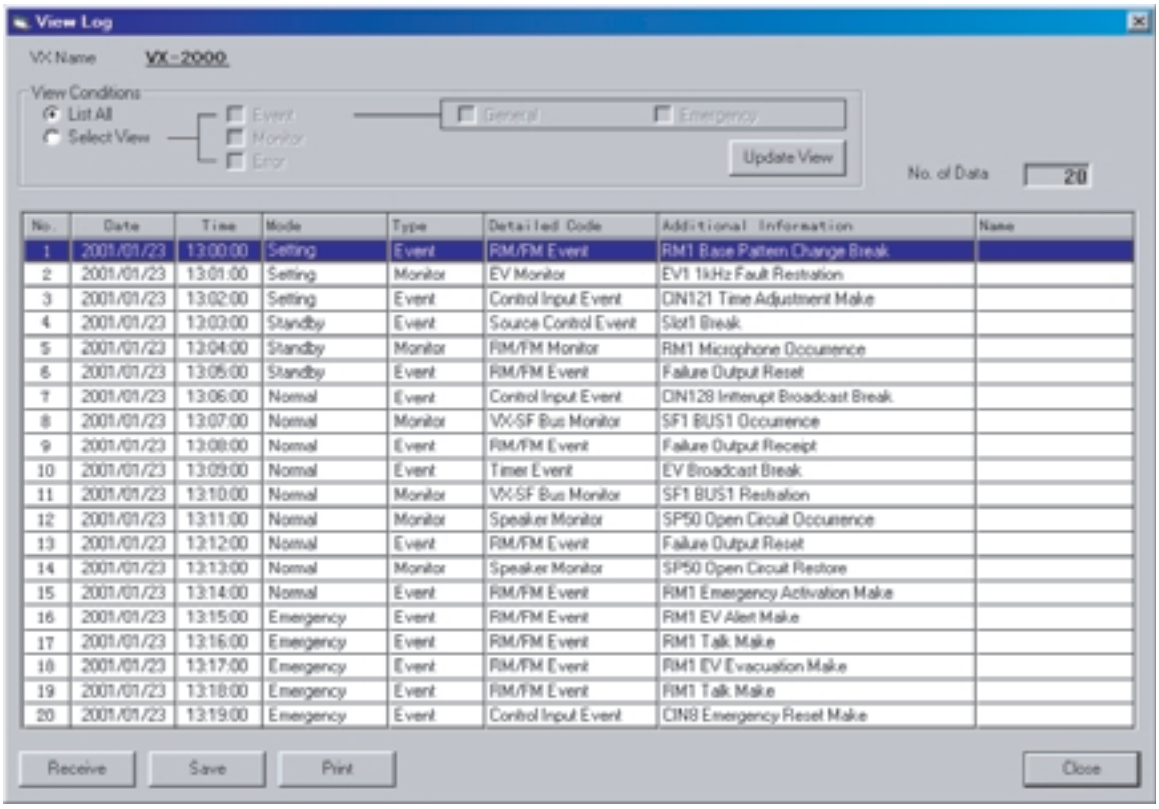
Continued on next page

Step 3. Read the logs.

Clicking on the [Receive] button will start communications and display the screen showing the communication status.



After the reading is 100% complete, the screen is closed, automatically cutting off communications. The [View Log] window will be opened, and all received logs displayed.



Clicking the [Update View] button re-enables communications with the VX-2000 to display the most recent logs.

Step 4. Click on the [Close] button to close the [View Log] window.

5.4.6. Introduction of Other Functions

(2) Storing Logs

Logs displayed in the [View Log] window can be stored as files.

Step 1. Click on the [Save] button, and the [Log Filename Settings] window will open.

Step 2. Select the location to save the file and its filename, then click on the [Save] button again.

(3) Printing Logs

Logs displayed on the [View Log] window can be printed out.

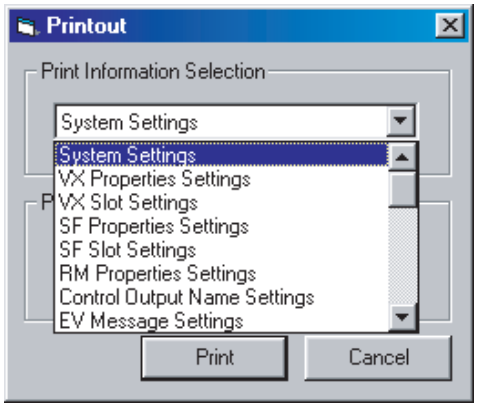
Click on the [Print] button to print.

5.4.6. Introduction of Other Functions

5.4.6.2. Printing Out System File Settings

(1) Printing Out

Step 1. Select [Print] from the File menu.
The [Print out] window will open.



Step 2. Select the item to be printed in the [Print Information Selection] window.

The available printout items are as follows:

Item	Printout Contents
System Settings	General system information
VX Settings	VX properties
VX Slot Settings	Usable input module list
SF Settings	SF properties
SF Slot Settings	Usable SF module list
RM Settings	RM properties list
Control Output Name Settings	Control output name list
EV Message Settings	EV message list
Priority Settings	Priority setting list
Initial Source Volume Settings	Initial source volume list.
Initial Output Volume Settings	Initial output volume list
EQ Settings	Individual EQ setting list
Emergency Sequence Settings*1	Emergency sequence settings
Alert Broadcast Pattern Settings*2	Alert broadcast pattern routings
Evacuation Broadcast Pattern Settings*2	Evacuation broadcast pattern routings
Emergency Broadcast Settings	Emergency broadcast pattern list
Emergency Output Settings	Emergency control output name lists
Control Output Interlock Pattern Settings	Control output interlock pattern list
Interrupt Broadcast Pattern Settings	Interrupt broadcast pattern list
EV Broadcast Pattern Settings	EV broadcast pattern lists
Base Pattern Settings	Base pattern routings
Volume Pattern Settings	Volume pattern list
Failure Output Pattern Settings	Failure output settings for each pattern
RM Function Key Setting	Functions assigned to each RM function key
Control Input Settings	Patterns to be activated by control input
Day Program Settings	Time and activation pattern
Weekly Program Settings	Day of the week and day programs to be activated
Holiday Program Settings	Period and day programs to be activated
Log List	VX log file
System Configuration	All equipment used within the system and their connections
RM Function Key Labels	RM function key names

*1 Displayed when 1 EV unit is used.
*2 Displayed when 2 EV units are used.

Step 3. Press the [Print] button to print.

(2) Printout Examples

Provided below are printouts of pattern settings for typical system examples.

To explain the terms used in the printout figures:
The "Output Zone" columns of the following pattern setting figures represent the output zone numbers: [Emergency Broadcast Pattern Settings], [Interrupt Broadcast Pattern Settings], [EV Broadcast Pattern Settings], [Base Pattern Settings], [Volume Pattern Settings].

The following table shows the relationship of each output zone number to its corresponding broadcast area.
For details, refer to p. 5-20, Configuration Screen.

[Zone Settings]

No.	Broadcast Zone	No.	Broadcast Zone
1	A-6F Guest room 1	14	A-1F Conference room
2	A-6F Guest room 2	15	A-GF Bar
3	A-5F Guest room 1	16	A-Staff area
4	A-5F Guest room 2	17	A-Stairs / corridor
5	A-4F Guest room 1	18	B-3F Guest room 1
6	A-4F Guest room 2	19	B-3F Guest room 2
7	A-3F Guest room 1	20	B-2F Guest room 1
8	A-3F Guest room 2	21	B-2F Guest room 2
9	A-2F Guest room 1	22	A-1F Hallway
10	A-2F Guest room 2	23	A-GF Lobby
11	A-1F Hallway	24	B-Staff area
12	A-GF Lobby	25	B-Stairs / corridor
13	A-GF Restaurant	26	B-1F Conference room

The numbers in the "Control Output" column in each table (except the Volume Pattern Setting table) represent the control output terminal numbers that operate in synchronization with each activated pattern.

In a typical system example, terminal names are set as follows:

[Control Output Settings]

No.	Terminal Name	No.	Terminal Name
1	Emergency A-6F	9	Emergency B-2F
2	Emergency A-5F	10	Emergency B-1F
3	Emergency A-4F	11	Emergency B-GF
4	Emergency A-3F	12	Evacuation all
5	Emergency A-2F	13	Emergency busy
6	Emergency A-1F	14	Alert all
7	Emergency A-GF	15	Parking gate control
8	Emergency B-3F	16	VM-2240 switched to VX-2000

5.4.6. Introduction of Other Functions

[Emergency Broadcast Pattern Settings] (1/2)

No.	Pattern Name	Phase No.	Output Zone*1	Control Output*2
1	EMG A-6F	Phase 1	1 2 16 17 24 25	1
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	1 12
2	EMG A-5F	Phase 1	3 4 16 17 24 25	2
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	2 12
3	EMG A-4F	Phase 1	5 6 16 17 24 25	3
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	3 12
4	EMG A-3F	Phase 1	7 8 16 17 24 25	4
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	4 12
5	EMG A-2F	Phase 1	9 10 16 17 24 25	5
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	5 12
6	EMG A-1F	Phase 1	11 12 16 17 24 25	6
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	6 12
7	EMG A-GF	Phase 1	13 14 15 16 17 24 25	7
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	7 12

*1 Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.
*2 Refer to p. 5-33, Control Output Settings, for the settings corresponding to each control output number.

Note: The blank spaces for *1 and *2 above indicate "No setting."

[Emergency Broadcast Pattern Settings] (2/2)

No.	Pattern Name	Phase No.	Output Zone*1	Control Output*2
8	EMG B-3F	Phase 1	16 17 18 19 24 25	8
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	8 12
9	EMG B-2F	Phase 1	16 17 20 21 24 25	9
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	9 12
10	EMG B-1F	Phase 1	16 17 22 24 25 26	10
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	10 12
11	EMG B-GF	Phase 1	16 17 23 24 25	11
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	11 12
12	EMG ALL	Phase 1	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	14
		Phase 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	12

*1 Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.
*2 Refer to p. 5-33, Control Output Settings, for the settings corresponding to each control output number.

Note: The blank spaces for *1 and *2 above indicate "No setting."

5.4.6. Introduction of Other Functions

[Interrupt Broadcast Pattern Settings]

No.	Pattern Name	Input Source		Output Zone*1	Control Output*2
		Slot No.	Name		
1	Wireless Mic → A-Conference	7	Wireless Mic	14	12

*1 Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.
*2 Refer to p. 5-33, Control Output Settings, for the settings corresponding to each control output number.

Note: The blank spaces for *1 and *2 above indicate "No setting."

5.4.6. Introduction of Other Functions

[EV Broadcast Pattern Settings]

No.	Pattern Name	EV Message		Output Zone*1	Control Output*2
		No.	Name		
1	Welcome-A	5	Welcome	12	
2	Welcome-B	5	Welcome	23	
3	Checkout-A	6	Checkout	12	
4	Checkout-B	6	Checkout	23	
5	In-house A	7	In-house 1	11 12 16 17 22 23 24 25	
6	In-house B	7	In-house 2	11 12 16 17 22 23 24 25	

*1 Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.
*2 Refer to p. 5-33, Control Output Settings, for the settings corresponding to each control output number.

Note: The blank spaces for *1 and *2 above indicate "No setting."

5.4.6. Introduction of Other Functions

[Base Pattern Settings]

No.	Pattern Name	EV Message		Output Zone*1	Control Output*2
		Slot No.	Name		
1	Day BGM 1	5	BGM 1	12 17 23 25	
		6	BGM 2		
2	Day BGM 2	5	BGM 1	15	
		6	BGM 2	12 17 23 25	
3	Night BGM	5	BGM 1		
		6	BGM 2	12 13 15 17 23 25	
4	Pattern A	5	BGM 1		
		6	BGM 2	11 12 13 14 15 17 22 23 25	
5	Pattern B	5	BGM 1		
		6	BGM 2	11 12 13 15 17 22 23 25 26	

*1 Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.
*2 Refer to p. 5-33, Control Output Settings, for the settings corresponding to each control output number.

Note: The blank spaces for *1 and *2 above indicate "No setting."

[Volume Pattern Settings]

No.	Pattern Name	EV Message		Output Zone*
		Slot No.	Name	
1	BGM 1	5	BGM 1	
2	BGM 2	6	BGM 2	
3	A-Stairs / corridor			17
4	A-Conference room			14
5	B-Conference room			26
6	A-Restaurant			13
7	A-Bar			15
8	A-Lobby			12

* Refer to p. 5-33, Zone Settings, for the broadcast zones corresponding to each output zone number.

Note: The blank spaces for * above indicate "No setting."

5.4.6. Introduction of Other Functions

Failure Output Pattern Setting Example

- The numbers shown in the "Power Amplifier" column of the Failure Output Pattern Setting figure indicate the power amplifiers used in each output zone. The numbers in the "Speaker" column indicate the speaker used in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.
- The numbers in the "Control Output" column of the Failure Output Pattern Setting figure represent the control output terminal numbers that operate in synchronization with each activated pattern. Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Failure detection is set for individual Remote Microphones.

1: Fire
2: Reception
3: Security
Blank: No setting

Refer to p. 5-20, Configuration Screen, for equipment designations.

Failure detection is set for individual VX-2000DS Power Supply Units.

1: VX-2000DS mounted in Rack A-1.
2: VX-2000DS mounted in Rack A-2.
3: VX-2000DS mounted in Rack B.
Blank: No setting

Refer to p. 5-5, Equipment Rack Conceptual Drawing, for equipment designations.

[Failure Output Pattern Settings]

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
1	Failure Example	**RM** 1 2 3 **EV** **VX** Setting **SF** 1 2 3	**Power Amplifier** 11 12 13 14 15 16 17 18 19 20 **Standby Amplifier** 1 2 3	**Open Circuit** 11 12 13 14 15 16 17 18 19 20 **Short Circuit** 1 2 3 4 5 6 7 8 9 10 **Ground Fault** 21 22 23 24 25 26	**DS** 1 2 3	3

Setting: Failure detection ON
Blank: Failure detection OFF

Failure detection is set for individual standby amplifiers.

1: SF 1-Standby Amp
2: SF 2-Standby Amp
3: SF 3-Standby Amp
Blank: No setting

Refer to p. 5-20, Configuration Screen, for equipment designations.

Failure detection is set for individual VX-2000SF units.

1: VX-2000SF A-1
2: VX-2000SF A-2
3: VX-2000SF B
Blank: No setting

Refer to p. 5-20, Configuration Screen, for equipment designations.

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (1/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
1	VX Failure	**RM** **EV** **VX** Setting **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
2	EV Failure	**RM** **EV** Setting **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
3	Failure Confirmation	**RM** 1 2 3 **EV** Setting **VX** Setting **SF** 1 2 3	**Power Amplifier** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 **Standby Amplifier** 1 2 3	**Open Circuit** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 **Short Circuit** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 **Ground Fault** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	**DS** 1 2 3	
4	SF-A1 Failure	**RM** **EV** **VX** **SF** 1	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
5	SF-A2 Failure	**RM** **EV** **VX** **SF** 2	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (2/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
6	SF-B Failure	**RM 2** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
7	RM-1 Failure	**RM 1** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
8	RM-2 Failure	**RM 2** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
9	RM-3 Failure	**RM 3** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
10	DS-1 Failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS 1**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (3/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
11	DS-2 Failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS** 2	
12	DS-3 Failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS** 3	
13	A-Staff area Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 16 **Short Circuit** **Ground Fault**	**DS**	
14	A-GF Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 13 14 15 **Short Circuit** **Ground Fault**	**DS**	
15	A-1F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 11 12 **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (4/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
16	A-2F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 9 10 **Short Circuit** **Ground Fault**	**DS**	
17	A-3F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 7 8 **Short Circuit** **Ground Fault**	**DS**	
18	A-4F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 5 6 **Short Circuit** **Ground Fault**	**DS**	
19	A-5F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 3 4 **Short Circuit** **Ground Fault**	**DS**	
20	A-6F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 1 2 **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

[Failure Output Pattern Settings] (5/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
21	A-Speaker Ground fault	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	**DS**	
22	A-Staff area Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 16 17 **Ground Fault**	**DS**	
23	A-GF Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 13 14 15 **Ground Fault**	**DS**	
24	A-1F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 11 12 **Ground Fault**	**DS**	
25	A-2F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 9 10 **Ground Fault**	**DS** 3	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (6/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
26	A-3F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 7 8 **Ground Fault**	**DS**	
27	A-4F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 5 6 **Ground Fault**	**DS**	
28	A-5F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 3 4 **Ground Fault**	**DS**	
29	A-6F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 1 2 **Ground Fault**	**DS**	
30	A-Staff area Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 16 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (7/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
31	A-GF Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 13 14 15 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
32	A-1F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 11 12 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
33	A-2F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 9 10 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
34	A-3F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 7 8 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
35	A-4F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 5 6 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (8/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
36	A-5F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 3 4 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
37	A-6F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 1 2 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
38	A-STB Amp1 failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier** 1	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
39	A-STB Amp2 failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier** 2	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
40	B-Staff area Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 24 **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

[Failure Output Pattern Settings] (9/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
41	B-GF Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 23 **Short Circuit** **Ground Fault**	**DS**	
42	B-1F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 22 26 **Short Circuit** **Ground Fault**	**DS**	
43	B-2F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 20 21 **Short Circuit** **Ground Fault**	**DS**	
44	B-3F Speaker open	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** 18 19 **Short Circuit** **Ground Fault**	**DS**	
45	B-Staff area Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 24 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (10/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
46	B-GF Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 23 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
47	B-1F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 22 26 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
48	B-2F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 20 21 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
49	B-3F Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** 18 19 **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	
50	B-Staff area Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 24 **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

[Failure Output Pattern Settings] (11/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
51	B-GF Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 23 **Ground Fault**	**DS**	
52	B-1F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 22 **Ground Fault**	**DS**	
53	B-2F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 20 21 **Ground Fault**	**DS**	
54	B-3F Speaker short	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** 18 19 **Ground Fault**	**DS**	
55	B-2F Speaker Ground fault	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier**	**Open Circuit** **Short Circuit** **Ground Fault** 18 19 20 21 22 23 24 25 26	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.

*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.4.6. Introduction of Other Functions

[Failure Output Pattern Settings] (12/12)

No.	Name	Equipment	Power Amplifier*1	Speaker*2	Power Supply	Control Output*3
56	B-STB Amp failure	**RM** **EV** **VX** **SF**	**Power Amplifier** **Standby Amplifier** 3	**Open Circuit** **Short Circuit** **Ground Fault**	**DS**	

*1 Failure detection is set for the power amplifier of each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.
*2 Failure detection is set for the speakers in each output zone. Refer to p. 5-33, Zone Settings, for the relationship of each output zone number to its designated broadcast area.
*3 Refer to p. 5-33, Control Output Settings, for the relationship of each control output number to its designated broadcast area.

Note: Blank spaces for *1, *2 and *3 above indicate 'No setting.'

5.5.1. Emergency Mode Operation (EV Single-source Sequence)

Here, an example of sequential operation with an EV-200 mounted in the VX-2000 is explained.

Sequential Operation

Sequential operation consists of Phase 1 and Phase 2.
Sequence Phase 1 operates upon emergency system activation. When the set time interval elapses, the broadcast is automatically switched to Phase 2.

Setting Contents

Both the broadcast messages and output zones are set for Phase 1 and Phase 2.
Assuming that these phases are set as follows:

Phase 1: The alert message is continuously broadcast for 5 minutes to each floor of each building.

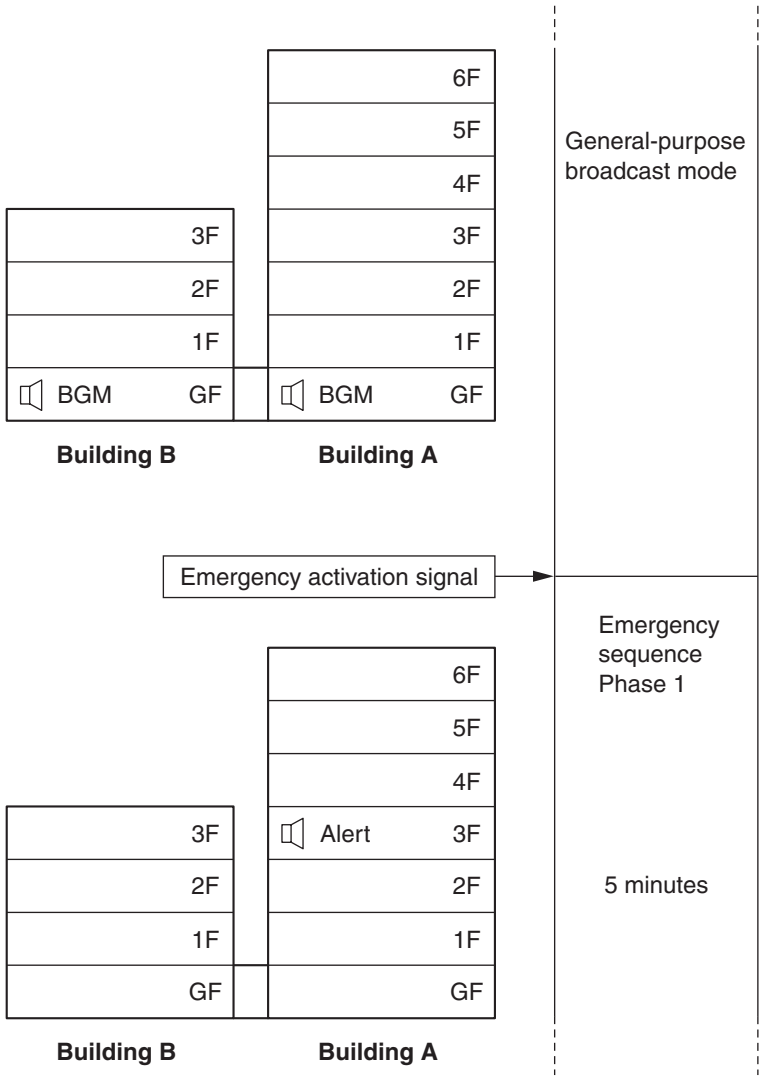
Phase 2: The evacuation message is continuously broadcast to the entire zone.

Alert and Evacuation Message Examples.

Alert Message: The fire alarm system has been engaged. We are now checking the cause. Please wait for further information.

Evacuation Message: There is a fire. Please evacuate immediately.

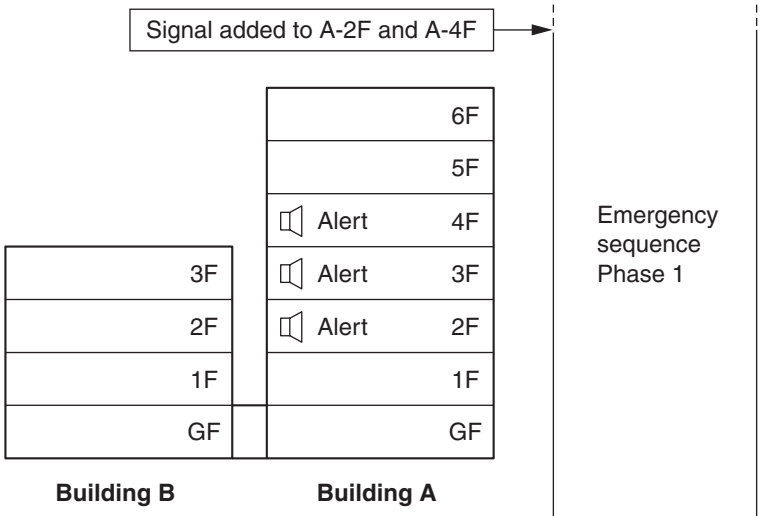
Step 1. Background music (BGM) is broadcast to A-GF (Building A ground floor) and B-GF (Building B ground floor) when the system is in general-purpose broadcast mode.



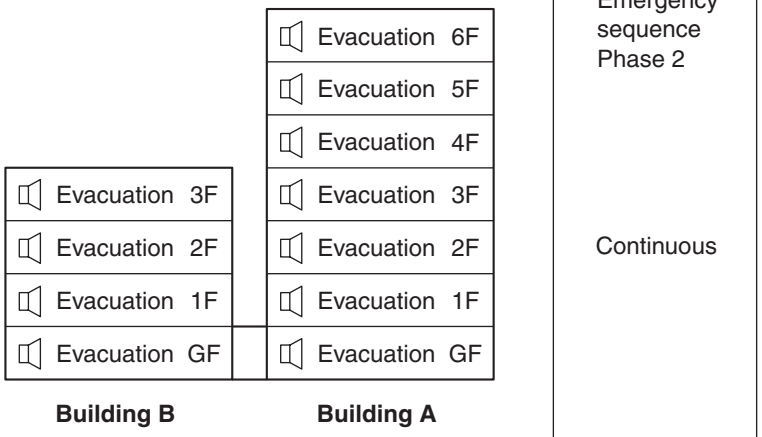
Step 2. The sensor installed on A-3F detects irregularities, and the fire alarm system transmits a control signal to the control input.
The emergency mode is activated and BGM stops, allowing the alert message to be played through to A-3F.

5.5.1. Emergency Mode Operation (EV Single-source Sequence)

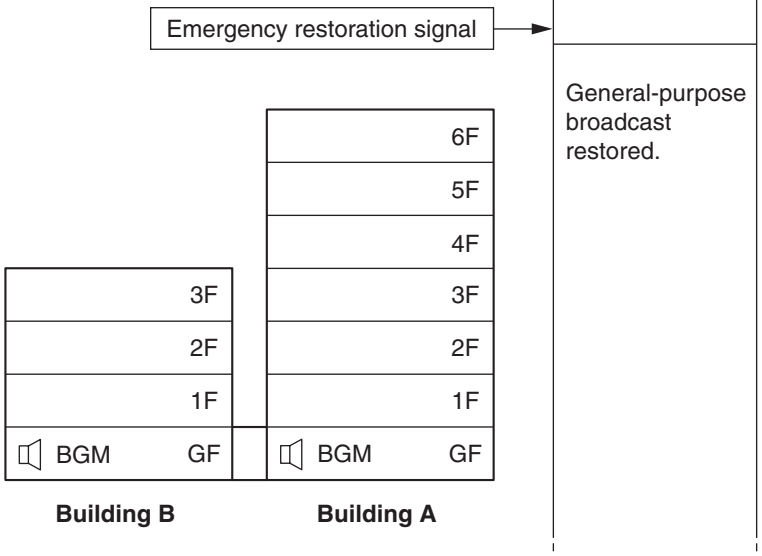
Step 3. Following this, the sensors installed on A-2F and A-4F detect irregularities and the fire alarm system transmits a control signal to the control input. Broadcast zones are added, and the alert message is also broadcast to A-2F and A-4F, as well.



Step 4. After the set 5-minute time interval elapses, the message is automatically switched from Phase 1 to Phase 2. Broadcast zones change to the "entire zone" and the evacuation message is broadcast to the entire area. The evacuation announcement continues until the Remote Microphone's restoration key is pressed or a restoration signal is transmitted from the connected fire alarm system.



Step 5. The fire alarm system transmits a restoration control signal to the control input.
The emergency mode is terminated and the broadcast reverts to general-purpose broadcast mode, restoring BGM output.



5.5.2. Remote Microphone Operation Examples

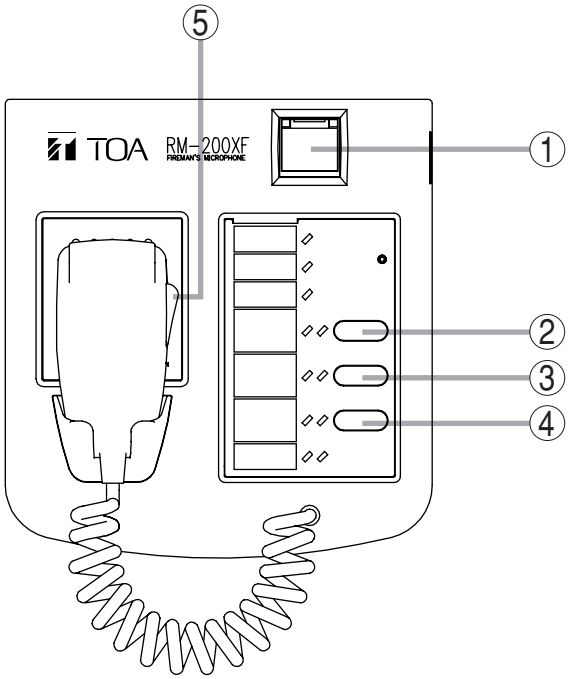
5.5.2.1. Emergency Mode Activation and Restoration

The emergency mode can not only be activated and restored from the connected fire alarm system, but also from any Remote Microphone set for emergency/general-purpose operation.

Here, the settings of the Fireman's Microphone installed on GF of Building A are used as an example to explain the flow from emergency mode activation to its restoration.

[Setting Contents of Fireman's Microphone on GF of Building A]

Fireman's Microphone
RM-200XF



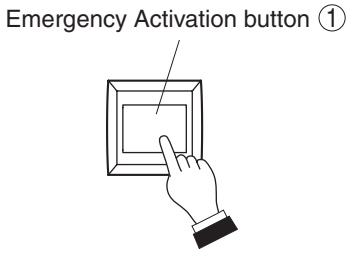
Key	Setting	Function
①	Emergency Activation	Activates emergency mode and recalls emergency sequence patterns. [Pattern setting contents] Phase 1: Alert EV message; all zones; 5 minutes Phase 2: Evacuation EV message; all zones; continuous
②	Evacuation EV	Recalls and broadcasts evacuation EV message.
③	Emergency Restoration (Restoration EV message)	Broadcast is restored from emergency to normal (general-purpose) broadcast mode after Restoration EV message announcement completion.
④	All-Zone Call	Selects all zones.
⑤	Press-to-Talk	Makes microphone announcements.

5.5.2. Remote Microphone Operation Examples

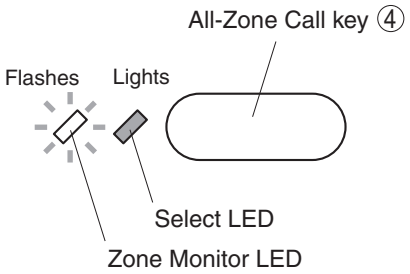
(1) From Emergency Mode Activation to Restoration

Described below are the steps of system operation from emergency mode activation to restoration.

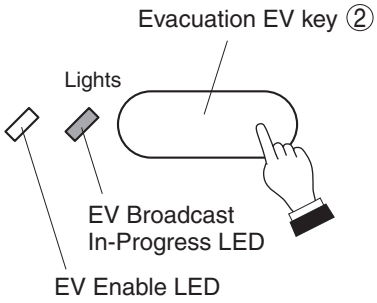
Step 1. Activate emergency broadcast mode.
Press the Emergency Activation button ① .



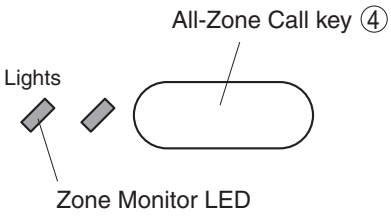
- Emergency mode is activated and the Emergency Activation button lights red.
- The pre-configured emergency sequence pattern is recalled, and the Alert EV Message is broadcast to all zones.
- The Zone Monitor LED of the All-Zone Call key ④ indicates the type of EV message currently being broadcast.
  It flashes red to indicate that an alert message is currently being broadcast.
- Because the alert message is set for broadcast to all zones, the Select LED of the All-Zone Call key ④ lights green.



Step 2. Press the Evacuation EV key ② to broadcast the Evacuation EV message, if necessary. The Evacuation EV message will be broadcast to all zones, and the EV Broadcast In-Progress LED lights green.



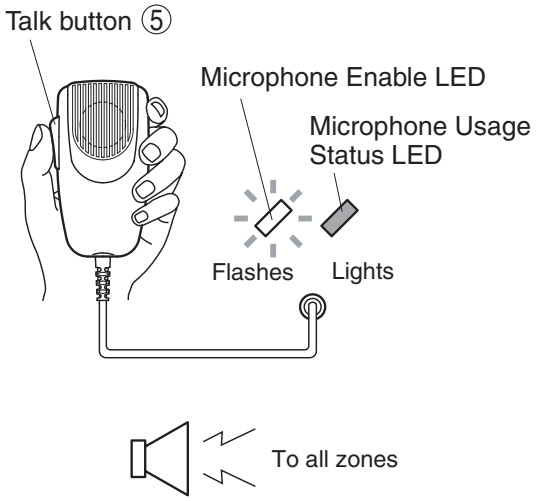
The Zone Monitor LED of the All-Zone Call key ④ indicates the type of EV message currently being broadcast.
It changes from flashing red to steady red status to indicate that the evacuation message is being broadcast.



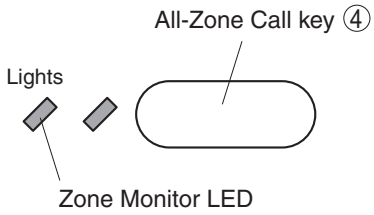
The Emergency Sequence function automatically switches the current message to the Evacuation EV message after a 5-minute interval if nothing is done.

5.5.2. Remote Microphone Operation Examples

Step 3. If necessary, press the Talk button ⑤ to make announcements from the Fireman's Microphone.



- Fireman's Microphone announcements are made to all zones.
- Because Fireman's Microphone announcements are given the highest priority, evacuation guidance messages can be broadcast from the Fireman's Microphone even during EV message broadcast.
- Because the Alert EV Message is being broadcast, the left-side Microphone Enable LED flashes green, indicating that a lower-priority broadcast than the microphone announcement is also being made.
- The right-side LED indicates the microphone's usage status, and lights green when the Talk button is pressed.
- The Zone Monitor LED of the All-Zone Call key ④ lights green to indicate that a microphone announcement is being made.

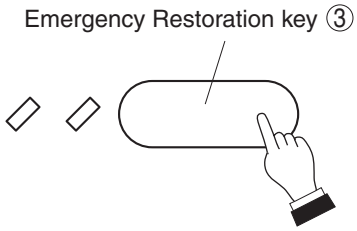


Tip

When a Fireman's Microphone announcement interrupts an EV message broadcast, the broadcast mode that follows Fireman's Microphone announcement completion can be set to either "Continue" the EV message broadcast or "Silent" broadcast termination. This setting can be made by way of the connected PC.

Step 4. Restore the emergency broadcast mode.

Press the Emergency Restoration key ③.
After the Restoration EV message has been broadcast to the entire area, the system is restored to general-purpose broadcast mode.

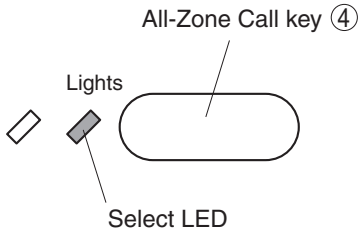


The Emergency Activation button light extinguishes to indicate that the system is in general-purpose broadcast mode.

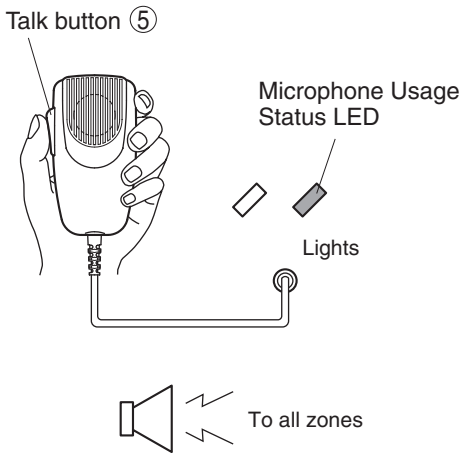
(2) Making a microphone restoration announcement after returning to general-purpose broadcast mode by pressing the Emergency Restoration key.

To use a microphone to make announcements in general-purpose broadcast mode, the broadcast zone needs to be selected. In this example, the key assigned for zone selection is the All-Zone Call key ④ .

Step 1. Press the All-Zone Call key ④ .
All zones will be pre-selected, and the Select LED of the All-Zone Call key ④ will light green.



Step 2. Press the Talk button ⑤ to make announcements.
The right-side Microphone Usage Status LED lights green.



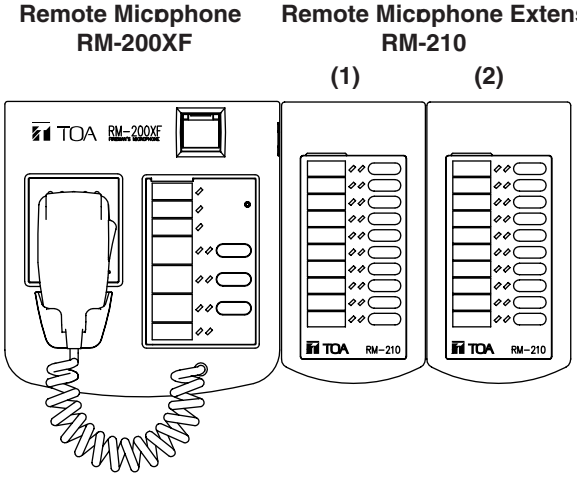
5.5.2. Remote Microphone Operation Examples

Notes

In the following cases, the RM-200XF can be extended with a RM-210 extension panel, and the desired zone selection functions assigned to the Remote Microphone keys.

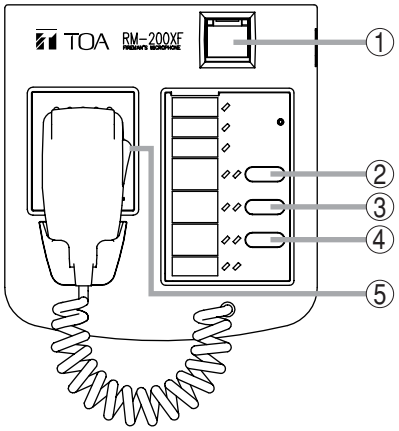
- To manually select broadcast zones to which to broadcast Emergency EV messages in emergency mode.
- To monitor broadcasts being made to individual zones.
- To select zones to which to make broadcasts in general-purpose broadcast mode.

[Setting Example]



Their function key settings are as follows:

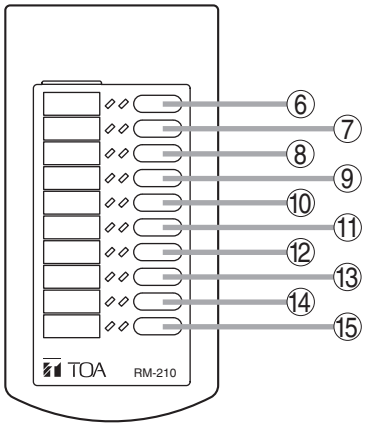
RM-200XF



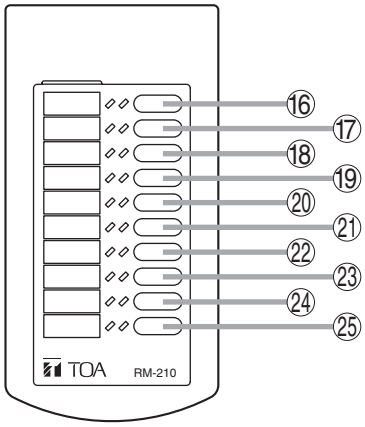
Key	Setting	Function
①	Emergency Activation	Activates emergency mode and recalls emergency sequence patterns. [Pattern setting contents] Phase 1: Alert EV message; all zones; 5 minutes Phase 2: Evacuation EV message; all zones; continuous
	Evacuation EV	Recalls and broadcasts evacuation EV message.
	Emergency Restoration (Restoration EV message)	Broadcast is restored from emergency to normal (general-purpose) broadcast mode after Restoration EV message announcement completion.
	All-Zone Call	Selects all zones.
	Press-to-Talk	Makes microphone announcements.

5.5.2. Remote Microphone Operation Examples

RM-210 (1)



RM-210 (2)



Key	Setting	Function
⑥	A-Staff area Zone Select	Building A zone selection [General-purpose broadcast mode] • The left-side LEDs are used to monitor zones. · OFF: Zone not used or broadcasting BGM · Green: Remote Microphone in use · Flashing Green: Other Remote Microphone in use. • The right-side LEDs light green during zone pre-selection. [Emergency Broadcast Mode] • The left-side LEDs indicate the type of EV message. · OFF: No broadcast output · Green: Microphone announcement · Red: Evacuation message broadcast · Flashing Red: Alert message broadcast • The right-side LEDs light green during zone pre-selection.
⑦	A-GF Zone Select	
⑧	A-1F Zone Select	
⑨	A-2F Zone Select	
⑩	A-3F Zone Select	
⑪	A-4F Zone Select	
⑫	A-5F Zone Select	
⑬	A-6F Zone Select	
⑭	None	No function assigned.
⑮	None	
⑯	B-Staff area Zone Select	Building B zone selection LED indicator contents are the same as those for Building A zone selection.
⑰	B-GF Zone Select	
⑱	B-1F Zone Select	
⑲	B-2F Zone Select	
⑳	B-3F Zone Select	
㉑	None	No function assigned.
㉒	None	
㉓	Alert Message	Emergency EV message call
㉔	Emergency Restoration Message	
㉕	Clear	Cancels all zone selections.

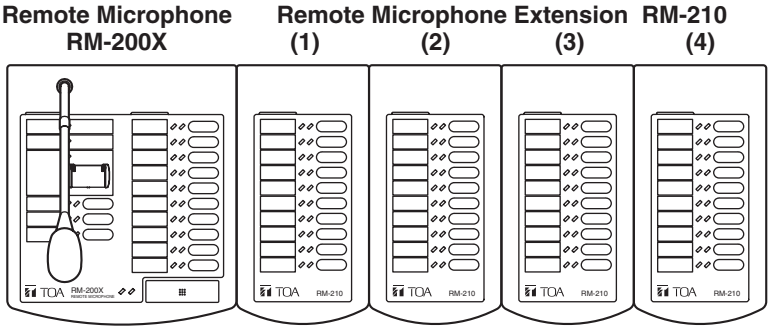
5.5.2. Remote Microphone Operation Examples

5.5.2.2. General-Purpose Broadcast

Basic operations and indications related to the general-purpose broadcast mode are explained here based on the settings of the Remote Microphones installed at the A-GF reception desk and in the A-GF security room.

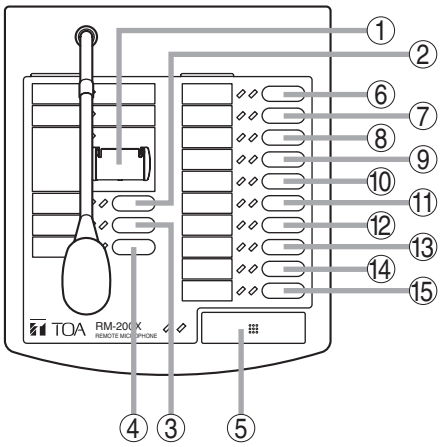
[A-GF Reception Desk Remote Microphones Settings]

A set of the RM-200X and 4 RM-210 units is installed at the A-GF reception desk.

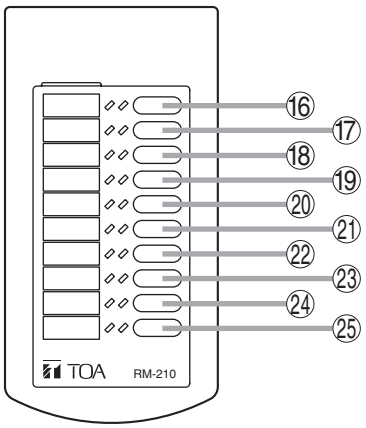


Their function key settings are as follows:

RM-200X



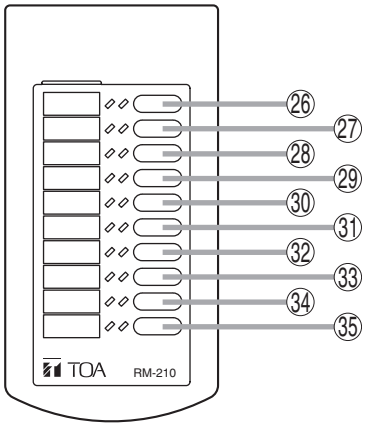
RM-210 (1)



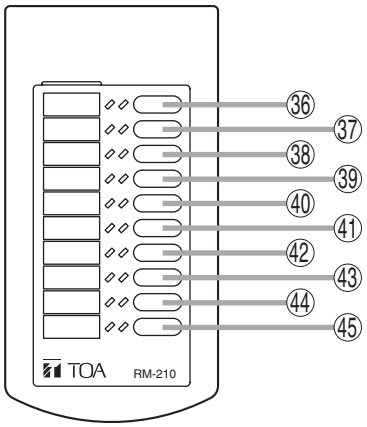
Key	Setting	Function
①	None	No function assigned
②	None	No function assigned
③	Clear	Clears the pre-selection.
④	All-Zone Call	Pre-selects all zones.
⑤	Talk with 2 Tone Chime	Makes microphone announcements.
⑥	A-Staff area	Pre-selects individual zones.
⑦	A-Stairs / corridor	
⑧	A-GF Restaurant	
⑨	A-GF Bar	
⑩	A-GF Lobby	
⑪	A-1F Hallway	
⑫	A-1F Conference room	
⑬	None	No function assigned
⑭	A-Public zones	Pre-selects A-public zones.
⑮	B-Public zones	Pre-selects B-public zones.
⑯	A-2F Guest rooms	Pre-selects individual zones.
⑰	A-3F Guest rooms	
⑱	A-4F Guest rooms	
⑲	A-5F Guest rooms	
⑳	A-6F Guest rooms	
㉑	B-Staff area	
㉒	B-Stairs / corridor	
㉓	B-GF Lobby	
㉔	B-1F Hallway	
㉕	B-1F Conference room	

5.5.2. Remote Microphone Operation Examples

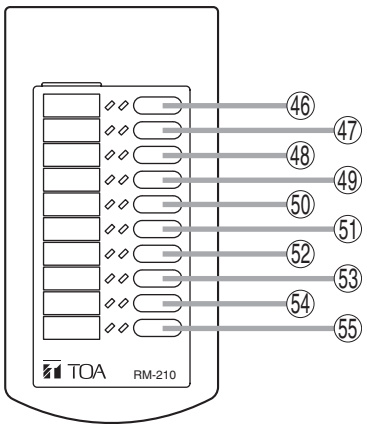
RM-210 (2)



RM-210 (3)



RM-210 (4)



Key	Setting	Function
㉖	B-2F Guest rooms	Pre-selects individual zones.
㉗	B-3F Guest rooms	
㉘	None	No function assigned
㉙	None	
㉚	None	
㉛	None	
㉜	Message 1 Welcome	Recalls individual EV messages.
㉝	Message 2 Checkout	
㉞	Message 3 In-house 1	
㉟	Message 4 In-house 2	
㊱	No BGM	Stops BGM broadcast.
㊲	BGM Pattern 1	Recalls individual base patterns.
㊳	BGM Pattern 2	
㊴	Night BGM	
㊵	BGM 1 Volume Up	Increases BGM-1 input level.
㊶	BGM 1 Volume Down	Decreases BGM-1 input level.
㊷	BGM 2 Volume Up	Increases BGM-2 input level.
㊸	BGM 2 Volume Down	Decreases BGM-2 input level.
㊹	Stairs / corridor Volume Up	Increases stair and corridor zone output levels.
㊺	Stairs / corridor Volume Down	Decreases stair and corridor zone output levels.
㊻	A-Conference room Volume Up	Increases A-conference room zone output level.
㊼	A-Conference room Volume Down	Decreases A-conference room zone output level.
㊽	B-Conference room Volume Up	Increases B-conference room zone output level.
㊾	B-Conference room Volume Down	Decreases B-conference room zone output level.
㊿	Restaurant Volume Up	Increases restaurant zone output level.
(51)	Restaurant Volume Down	Decreases restaurant zone output level.
(52)	Bar Volume Up	Increases bar zone output level.
(53)	Bar Volume Down	Decreases bar zone output level.
(54)	Lobby Volume Up	Increases lobby zone output level.
(55)	Lobby Volume Down	Decreases lobby zone output level.

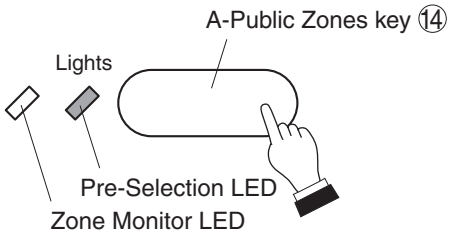
5.5.2. Remote Microphone Operation Examples

(1) Making Microphone Announcements

Assuming that paging broadcasts are made to both A-public and B-public zones:

Step 1. Press the A-Public Zones key ⑭ and B-Public Zones key ⑮ to pre-select the zones.

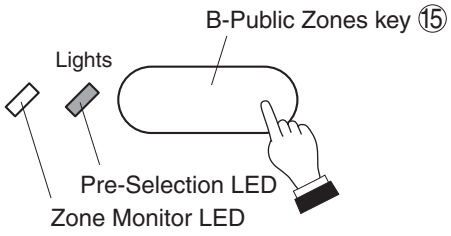
The zones are pre-selected and the right-side LEDs light green.



Tip

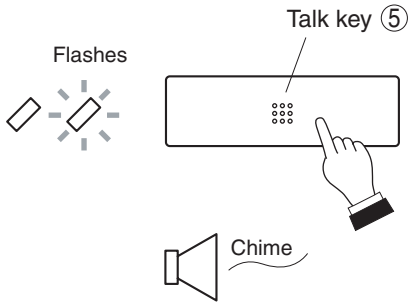
The zone broadcast status can be monitored by means of the 2 LEDs located next to the Zone Selection key.

- The left-side LED is used to monitor zones.
  - · OFF: The zone is not used or is broadcasting BGM.
  - · Green: The Remote Microphone is in use.
  - · Flashing Green: Other connected equipment (Remote Microphone, EV unit, chime, etc.) is currently broadcasting.
- The right-side pre-selection LED lights green during pre-selection.



Step 2. Make announcement while holding down the Talk key ⑤.

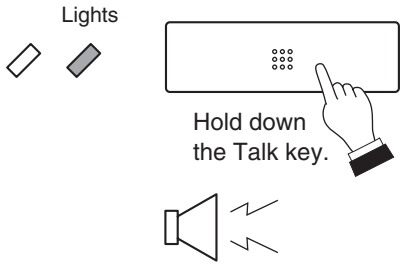
Since a 2-tone chime function is provided, a chime tone sounds as soon as the Talk key is pressed.
While sounding, the chime tone is heard from the monitor speaker, and the right-side LED flashes green.
Make the announcement after the LED has switched from flashing to steady on. (The Talk key is assumed to have been set to be a press-to-talk type.)



Tip

Two different modes can be set for the Talk key: PTT and Lock modes. Settings can be performed using PC software.

- PTT: Microphone broadcasts remain turned on as long as the key is pressed.
- Lock: Pressing the key turns on microphone announcements, and pressing it again turns them off. It is possible to limit the announcement time with a programmed timer in case the user forgets to turn off the microphone.



Tip

The 2 LEDs located next to the Talk key indicate the following.

- The left-side LED indicates whether microphone announcements can be made to the pre-selected zone.
  - · OFF: The zone is free and microphone announcement is possible.
  - · Flashing Green: Microphone announcements are possible because the priority of the equipment used to make the announcement is higher than that of the equipment currently broadcasting.
  - · Flashing Orange: Microphone announcements are impossible because the priority of equipment used to make the announcement is lower than that of the equipment currently broadcasting.
- The right-side LED indicates microphone usage status.
  - · OFF: The microphone is not in use.
  - · Green: Microphone announcement is now being made.
  - · Flashing Green: Chime tone is now sounding.

(2) Changing the Base Pattern

Which zone the sound source equipment set for BGM broadcast will be broadcast to is set in the base pattern. Up to 5 base patterns can be created.
Base patterns can be created and assigned to individual Remote Microphone function keys when changing BGM type or broadcast zones according to time or requirements. The assigned patterns can then be recalled by pressing their corresponding keys.
If the base patterns are to be switched at fixed times every day, program settings can be made to switch patterns referenced to the VX-2000's software timer.

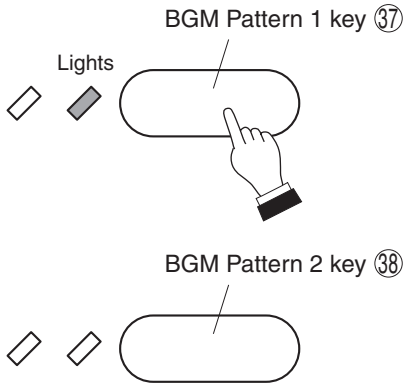
Here, the example of recalling the base pattern to be used only when required from the Remote Microphone will be explained.

Supposing that the Remote Microphone's keys ㊲ and ㊳ are set as follows:

Key	Setting	Function
㊲	BGM Pattern 1	BGM output to the A-1F Conference Room in addition to the originally set zone.
㊳	BGM Pattern 2	BGM output to the B-1F Conference Room in addition to the originally set zone.

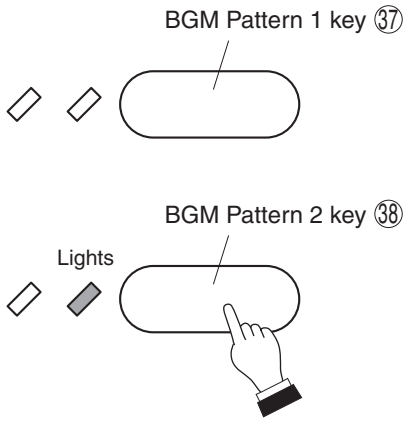
Step 1. Press the BGM Pattern 1 key ㊲ to additionally broadcast BGM to the A-1F Conference Room.

The right-side LED lights green to indicate that the "BGM Pattern 1" base pattern is in use.



Step 2. Press the BGM Pattern 2 key ㊳ to additionally broadcast BGM to the B-1F Conference Room.

The right-side BGM Pattern 1 LED will extinguish and the right-side BGM Pattern 2 LED will light green to indicate that the BGM Pattern 2 base pattern is in use.



5.5.2. Remote Microphone Operation Examples

(3) Changing Sound Volume

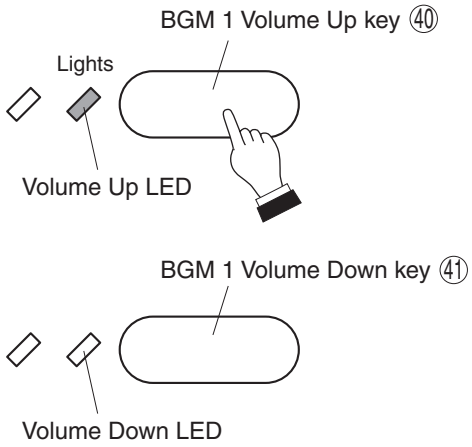
The sound source input level and zone output level can be changed.

[Example 1]
Adjusting the BGM Input Level to Compensate for Changes in Music Dynamics.

Step 1. To increase the sound volume when the music changes from a more dynamic selection to a quieter tune, press the BGM 1 Volume Up key ㊵.

The input level increases by 3 dB each time the key is pressed.

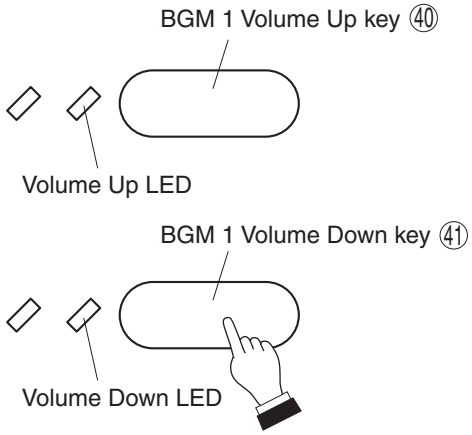
The right-side BGM 1 Volume Up LED lights green to indicate that the input level is higher than the initially set value.



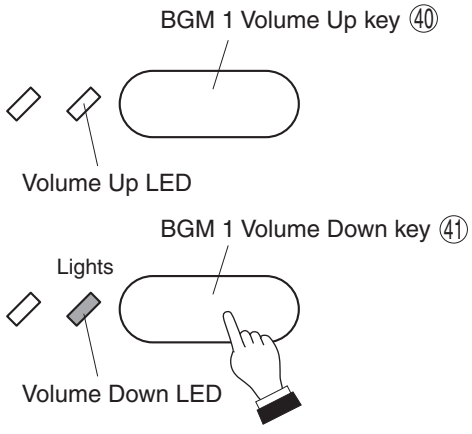
Step 2. To decrease the sound volume when the music seems too loud, press the BGM 1 Volume Down key ㊶.

The input level decreases by 3 dB each time the key is pressed.

The right-side BGM 1 Volume Up LED extinguishes when the input level returns to the initially set value.



The right-side BGM 1 Volume Down LED lights green when the input level drops below the initial setting.



5.5.2. Remote Microphone Operation Examples

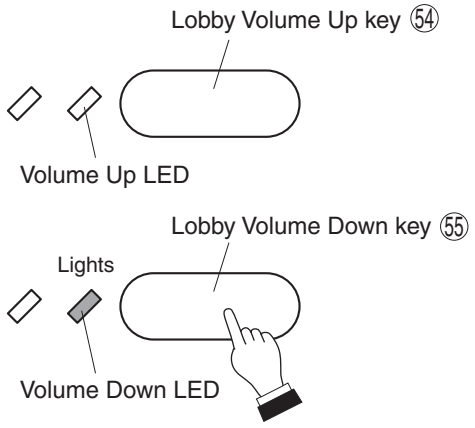
[Example 2]

Adjusting BGM Output Levels to Compensate for Changes in Lobby Congestion

Step 1. If the lobby becomes unclowded and quiet, the BGM output level can be reduced by pressing the Lobby Volume Down key ⑮⑤ .

The output level decreases by 3 dB each time the key is pressed.

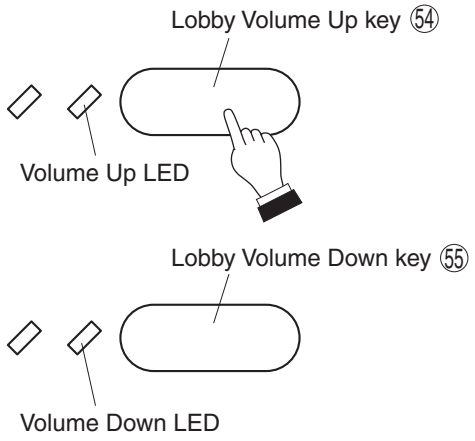
The right-side Lobby Volume Down LED lights green when the output level drops below the initial value.



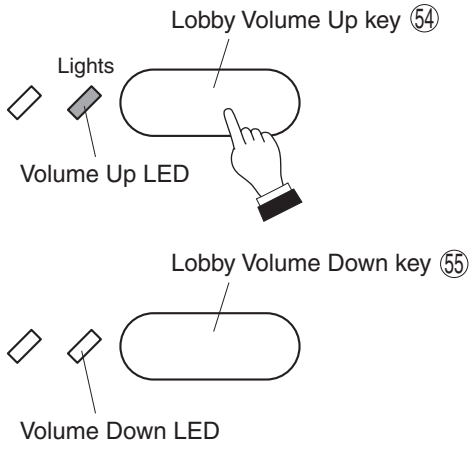
Step 2. When the lobby has been congested and noisy, increase the BGM volume by pressing the Lobby Volume Up key ⑮④ .

The output level increases by 3 dB each time the key is pressed.

The right-side Lobby Volume Down LED extinguishes to indicate that the output level returns to the initial setting.



The right-side Lobby Volume Up LED lights green when the output level increases above the initial value.



Note: Only the output levels of BGM broadcasts can be changed.

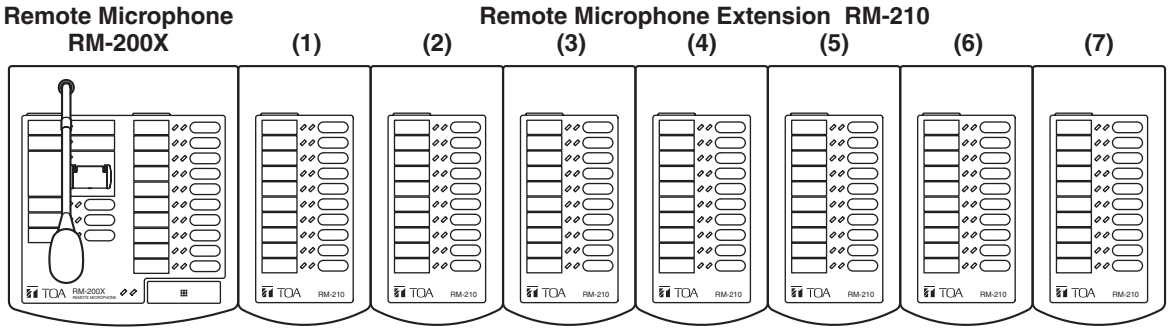
5.5.2. Remote Microphone Operation Examples

(4) Failure Indication

Here, the settings of the Remote Microphone installed in the A-GF Security Room are used as an example to explain system operation when a failure occurs.

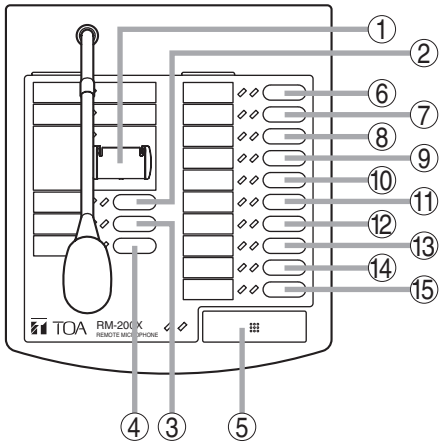
[A-GF Security Room Remote Microphones Settings]

A set of the RM-200X and 7 RM-210 units is installed in the A-GF Security Room.

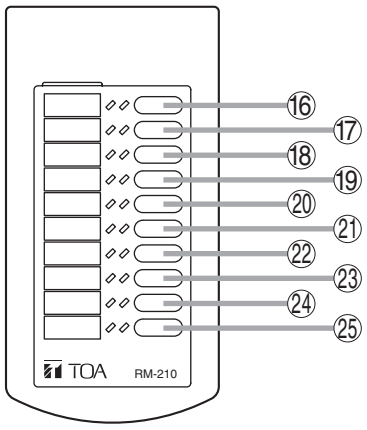


Their function key settings are as follows:

RM-200X



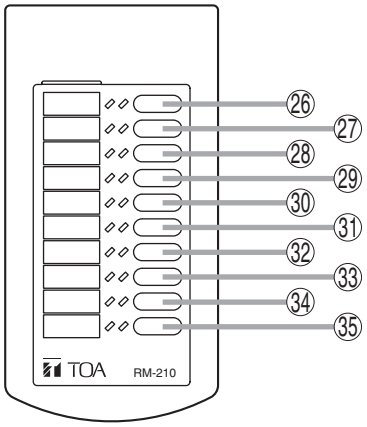
RM-210 (1)



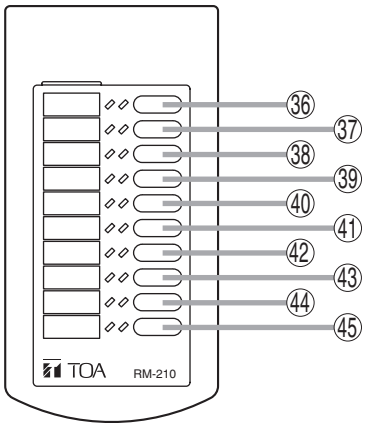
Key	Setting	Function
①	Emergency Activation	Activates the emergency broadcast mode.
②	Emergency Restoration	Restores to general-purpose broadcast mode.
③	Emergency Restoration (error)	Restores to general-purpose broadcast mode after broadcasting the false alarm EV message.
④	All	Pre-selects the entire area.
⑤	Talk with 2 Tone Chime	Makes microphone announcements.
⑥	A-Staff area	Pre-selects individual zones.
⑦	A-GF	
⑧	A-1F	
⑨	A-2F	
⑩	A-3F	
⑪	A-4F	
⑫	A-5F	
⑬	A-6F	
⑭	Message 3 In-house1	Selects individual EV messages.
⑮	Message 4 In-house2	
⑯	B-Staff area	Pre-selects individual zones.
⑰	B-GF	
⑱	B-1F	
⑲	B-2F	
⑳	B-3F	
㉑	None	No function assigned.
㉒	VX Failure	Indicates VX-2000 failure.
㉓	EV Failure	Indicates EV-200 failure.
㉔	Failure Confirmation	Indicates total system failure. (Assignment of all failure outputs)
㉕	Failure Output Reset	Resets failure indications.

5.5.2. Remote Microphone Operation Examples

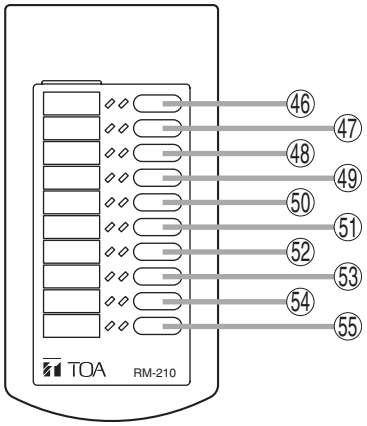
RM-210 (2)



RM-210 (3)



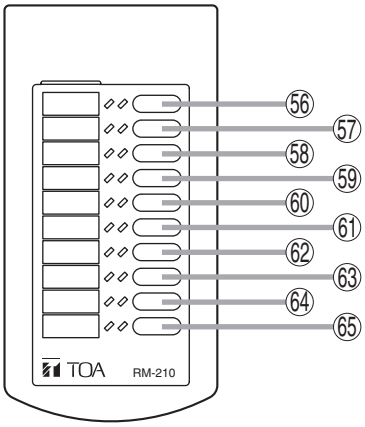
RM-210 (4)



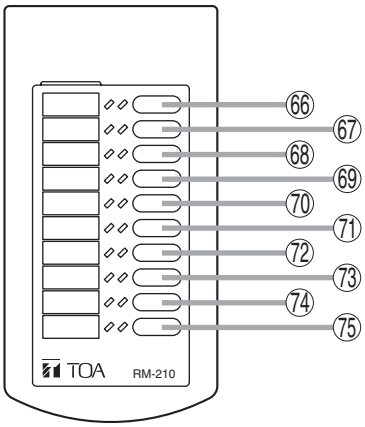
Key	Setting	Function
㉖	SF-A1 Failure	Indicates individual VX-2000SF unit failure.
㉗	SF-A2 Failure	
㉘	SF-B Failure	
㉙	RM-1 Failure	Indicates individual Remote Microphone failure.
㉚	RM-2 Failure	
㉛	Fireman's Microphone Failure	
㉜	DS-1 Failure	Indicates individual VX-2000DS unit failure.
㉝	DS-2 Failure	
㉞	DS-3 Failure	
㉟	None	No function assigned.
㊱	A-Staff area Speaker Open	Indicates individual speaker failure. (Open circuit)
㊲	A-GF Speaker Open	
㊳	A-1F Speaker Open	
㊴	A-2F Speaker Open	
㊵	A-3F Speaker Open	
㊶	A-4F Speaker Open	
㊷	A-5F Speaker Open	
㊸	A-6F Speaker Open	
㊹	A-Speaker Ground Fault	Indicates Building A speaker failure. (Ground fault)
㊺	None	No function assigned.
㊻	A-Staff area Speaker Short	Indicates individual speaker failure. (Short)
㊼	A-GF Speaker Short	
㊽	A-1F Speaker Short	
㊾	A-2F Speaker Short	
㊿	A-3F Speaker Short	
(51)	A-4F Speaker Short	
(52)	A-5F Speaker Short	
(53)	A-6F Speaker Short	
(54)	None	No function assigned.
(55)	None	

5.5.2. Remote Microphone Operation Examples

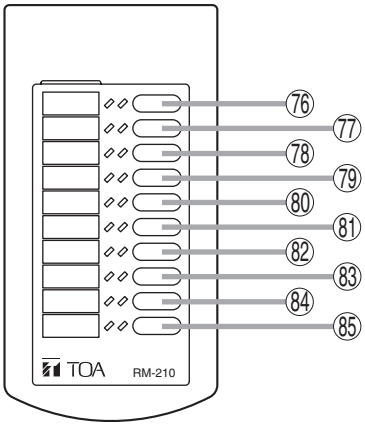
RM-210 (5)



RM-210 (6)



RM-210 (7)



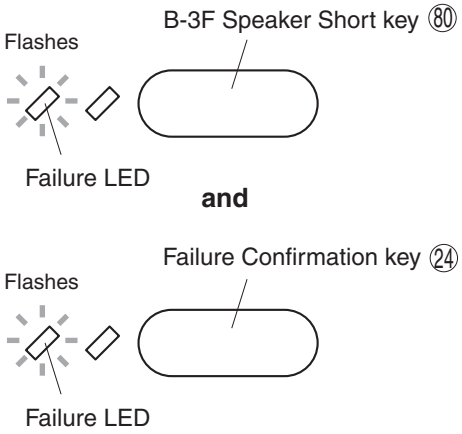
Key	Setting	Function
⑯	A-Staff area Amplifier Failure	Indicates individual power amplifier failure.
⑰	A-GF Amplifier Failure	
⑱	A-1F Amplifier Failure	
⑲	A-2F Amplifier Failure	
⑳	A-3F Amplifier Failure	
㉑	A-4F Amplifier Failure	
㉒	A-5F Amplifier Failure	
㉓	A-6F Amplifier Failure	
㉔	A-Standby Amplifier 1 Failure	
㉕	A-Standby Amplifier 2 Failure	
㉖	B-Staff area Speaker Open	Indicates individual speaker failure. (Open circuit)
㉗	B-GF Speaker Open	
㉘	B-1F Speaker Open	
㉙	B-2F Speaker Open	
㉚	B-3F Speaker Open	
㉛	B-Staff area Amplifier Failure	Indicates individual power amplifier failure.
㉜	B-GF Amplifier Failure	
㉝	B-1F Amplifier Failure	
㉞	B-2F Amplifier Failure	
㉟	B-3F Amplifier Failure	
㊱	B-Staff area Speaker Short	Indicates individual speaker failure. (Short)
㊲	B-GF Speaker Short	
㊳	B-1F Speaker Short	
㊴	B-2F Speaker Short	
㊵	B-3F Speaker Short	
㊶	B-Speaker Ground Fault	Indicates B-speaker failure. (Ground fault)
㊷	B-Standby Amplifier Failure	Indicates B-standby amplifier failure.
㊸	None	No function assigned.
㊹	None	
㊺	None	

5.5.2. Remote Microphone Operation Examples

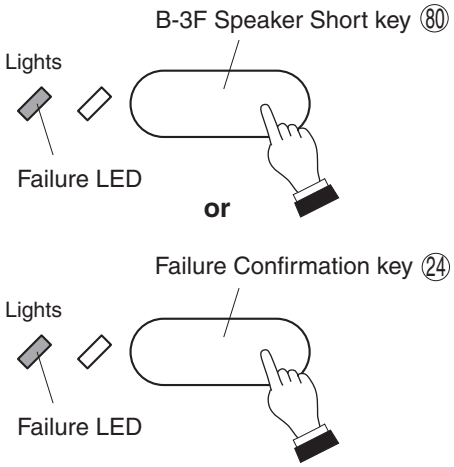
[Example]

Assuming a Shorted Speaker Line on B-3F Has Been Detected:

Step 1. When a failure is detected, a buzzer sounds, and both left-side Failure LEDs located next to the B-3F Speaker Short key ⑧⓪ and Failure Confirmation key ㉔ flash.



Step 2. Press either the Speaker Short key ⑧⓪ or the Failure Confirmation key ㉔ to acknowledge the failure. The buzzer stops and the failure LED changes from flashing orange to steady orange.



Step 3. Investigate and correct the problem.

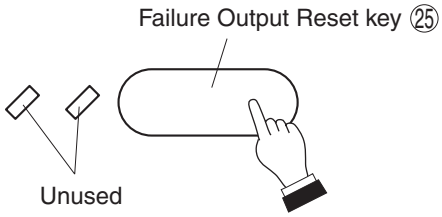
Connect a PC to the VX-2000, investigate the cause of the failure by reading out the log, and correct the problem.
If necessary, check all connections using the PC software. For log readout and connection check, refer to p. 5-29 of this booklet.

Tip

For most failure indications, the failure LED automatically extinguishes when the cause has been corrected. For certain other failure indications, such as power amplifier failure or speaker shorts, the LED does not automatically extinguish. In such cases, Failure Output Reset needs to be performed.

Step 4. Press the Failure Output Reset key ㉕ .

All of the failure LEDs will be extinguished.



5.6. Examples of Connections to the VM-2120 or VM-2240

When the VM-2120 or VM-2240 units are installed as local systems in such facilities as conference rooms, the units' functions permit the system operation to switch over to the VX-2000 system for emergency or paging broadcasts.

(1) Systems Using the VX-200SP Pilot Tone Detection Module

- Connect signal lines from the VX-2000's standard equipment control output or from the control output of the VX-200SO Control Output Module to the VM-2120's (VM-2240's) Control I/O terminal (Pin 8, Broadcast cutoff). By interlocking the control outputs with emergency activations or zone selections, the system operation switches over to the VX-2000 system whenever emergency broadcasts are made, or when a paging call is initiated from the VX-2000 system.

- When the VM unit is used in a local sound system, connections between the VX and VM units can be monitored by the VX-200SP. However, when operations have been switched to the VX-2000, connections between the VM unit and its speakers can also be monitored.
  For this reason, detectable failures between the VM unit and speakers vary depending on the system configuration condition. Note that ground faults between the VX unit and speakers can always be detected regardless of system conditions.

- When speaker line shorts are detected, broadcasts cannot be made to any zones connected to the VM system.

- The following table summarises the monitoring range and failures that can be detected, depending on system conditions.

System Condition	Monitoring Range	Failure Cause	Detectable (✓) Undetectable (X)
VX-2000 system in use.	Between VX and VM	Open circuit	✓
		Short circuit	✓
	Between VM and speakers	Open circuit	X
		Short circuit	✓
Local system in use. (Operation set to VM side)	Between VX and VM	Open circuit	✓
		Short circuit	✓
	Between VM and speakers	Open circuit	X
		Short circuit	X

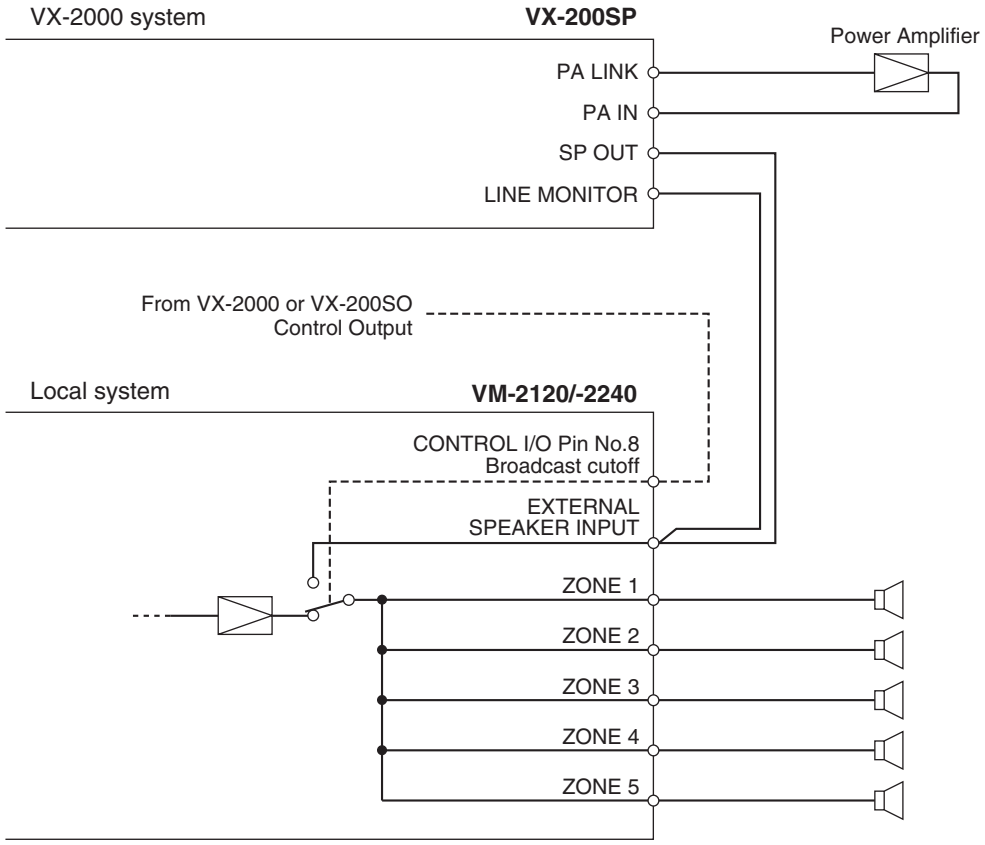
Note: Ground faults between the VM unit and the system's speakers can always be detected, regardless of system configuration.

Tip

Example for Regular Detection of VM System-to-Speaker Shorts
To perform daily monitoring during a 10-minute interval between 0:00 and 0:10 a.m., set the VX-2000's timer so that system operation is switched over to the VX-2000 system by control output for a 10-minute interval beginning at 0:00 a.m.

5.6. Examples of Connections to the VM-2120 or VM-2240

[Example of Connection Between the VX-200SP and VM-2120 (VM-2240)]



(2) Systems Using the VX-200SZ Impedance Detection Module

- Connect the VX-200SZ's external attenuator control signal to the VM-2120's (VM-2240's) Control I/O terminal (Pin No. 8, Broadcast cutoff) as a control signal. The system operation switches over to the VX-2000 system when emergency broadcasts are made or when a paging call is initiated from the VX-2000 system.
- Because the VX-200SZ carries out its monitoring by switching the system over to the VX-2000 side during the time intervals set in the PC software's Impedance Monitoring Settings, the monitoring range is between the VX and speakers. Ground faults between the VX and speakers can always be detected (even when not monitoring), regardless of the system configuration.
- When speaker line shorts are detected, broadcasts cannot be made to any zones connected to the VM system.
- The following table summarises the failure causes that can be detected, depending on system conditions:

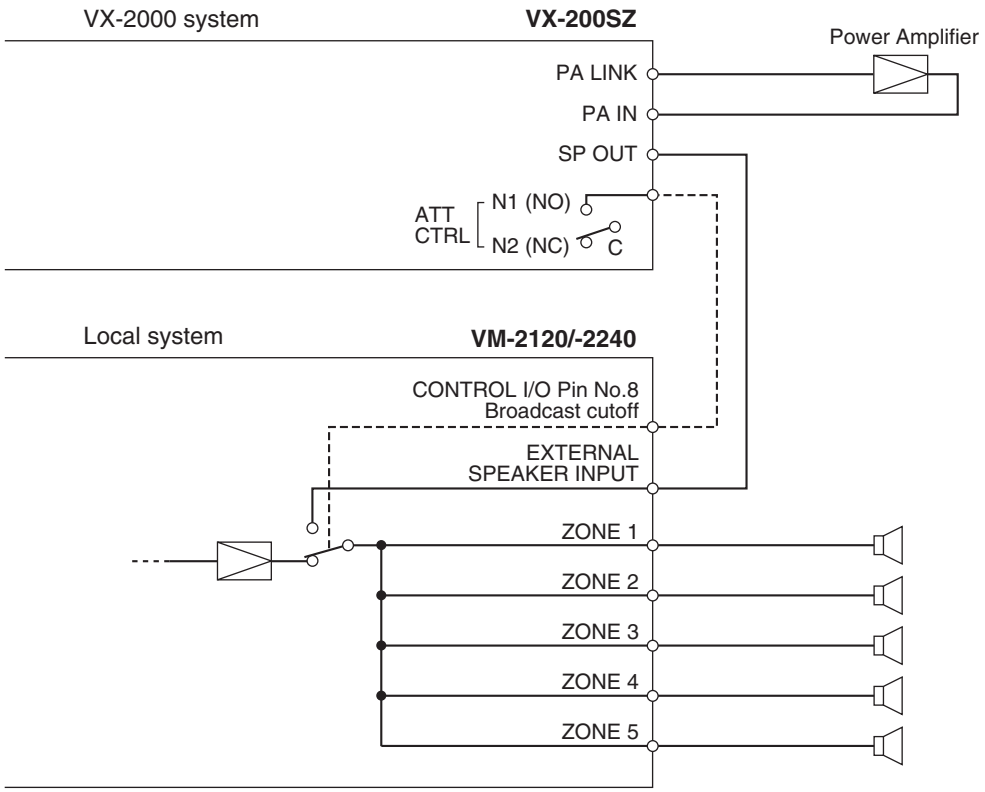
System Condition	Monitoring Range	Failure Cause	Detectable (✓)
Monitoring in progress	Between VX and speakers	Open circuit	✓
		Short circuit	✓

Note: Ground faults between the VX unit and speakers can always be detected, regardless of system conditions.

Tip

Example for Regulary Monitoring VX System-to-Speaker Failures
To monitor at 0:00 a.m. every day, set the VX-200SZ Impedance Monitoring Setting start time to 0:00 a.m. and the interval to 24 hours.

[Example of Connection Between the VX-200SZ and VM-2120 (VM-2240)]



(3) Using the SV-200M Surveillance Board with the VM-2120 or VM-2240

The SV-200M is a dedicated board for the VM unit, and detects failures between the VM unit and speakers. This section explains the system operation when the SV-200M is used in conjunction with the VX-200SP or VX-200SZ.

- When using the SV-200M, set it to timer operation mode. The SV-200M carries out monitoring between the VM unit and speakers at time intervals set with its internal timer.
- The VM-200M monitors each of 5 VM zones individually. If a speaker line is short-circuited, only the zone linked to the shorted speaker line is disconnected, allowing broadcasts to be made to the remaining zones.
- It is possible to output each VM zone's open or short circuit failure data from pins 1 through 10 of the SV-200M's Surveillance I/O connector. (Ground fault data can also be output, however connections are not necessary because it can be detected by the VX-200SP or VX-200SZ.)
  Failure data transmitted from the SV-200M to the VX's control input can be visually indicated on the system's Remote Microphones, VX-2000 and VX-2000SF. Such failure information can be logged as faulty external input.
- The following tables summarise the monitoring range and detectable failure causes that vary depending on system conditions when the SV-200M is used in combination with the VX-200SP or VX-200SZ.

[When Used With the VX-200SP]

System Condition	Monitoring Range	Failure Cause	Detectable (✓)
VX-2000 system in use.	Between VX and VM	Open circuit (detected by VX-200SP)	✓
		Short circuit (detected by VX-200SP)	✓
	Between VM and speakers	Open circuit (detected by SV-200M)	✓
		Short circuit (detected by VX-200SP/SV-200M)	✓
Local system in use. (Operation set to VM side)	Between VX and VM	Open circuit (detected by VX-200SP)	✓
		Short circuit (detected by VX-200SP)	✓
	Between VM and speakers	Open circuit (detected by SV-200M)	✓
		Short circuit (detected by SV-200M)	✓

Note: Ground faults between the VX unit and speakers can always be detected, regardless of system conditions.

[When Used With the VX-200SZ]

System Condition	Monitoring Range	Failure Cause	Detectable (✓)
VX-200SZ monitoring	Between VX and speakers	Open circuit (detected by VX-200SZ/SV-200M)	✓
		Short circuit (detected by VX-200SZ/SV-200M)	✓
VX-200SZ not monitoring	Between VM and speakers	Open circuit (detected by SV-200M)	✓
		Short circuit (detected by SV-200M)	✓

Note: Ground faults between the VX unit and speakers can always be detected, regardless of system conditions.

5.6. Examples of Connections to the VM-2120 or VM-2240

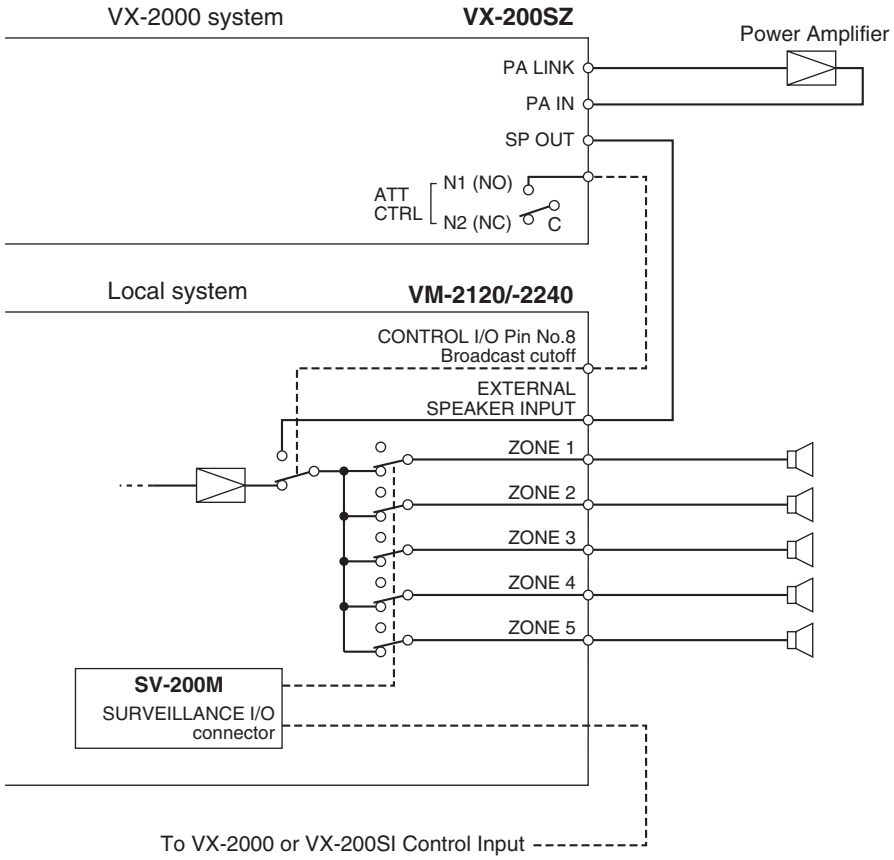
Tip

When a speaker line is shorted, broadcasts cannot be made to any zones if the short is detected by the VX-200SZ. However, if detected by the SV-200M, only the zone linked to the shorted speaker line is disconnected, allowing broadcasts to be made to the remaining zones.
For this purpose, it is recommended that the VX-200SZ's Impedance Monitoring Setting be set for a much longer interval than the SV-200M's Monitor Timer Setting. Performing this setting will increase the probability that the SV-200M will detect failures before the VX-200SZ.

(Setting Example)

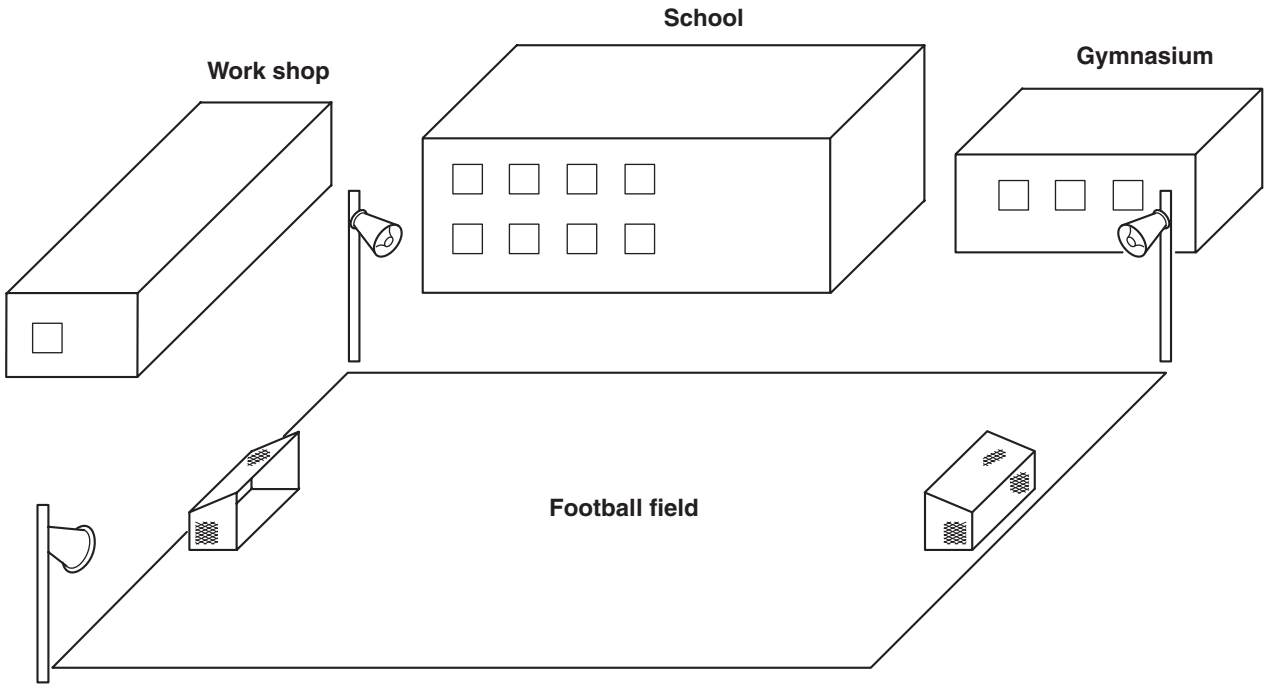
VX-200SZ Impedance Monitoring Setting	Time: 0:00 a.m. Interval: 24 hours
SV-200M Monitor Timer Setting	60 minutes intervals

[Example of Connection for the System Using the SV-200M]

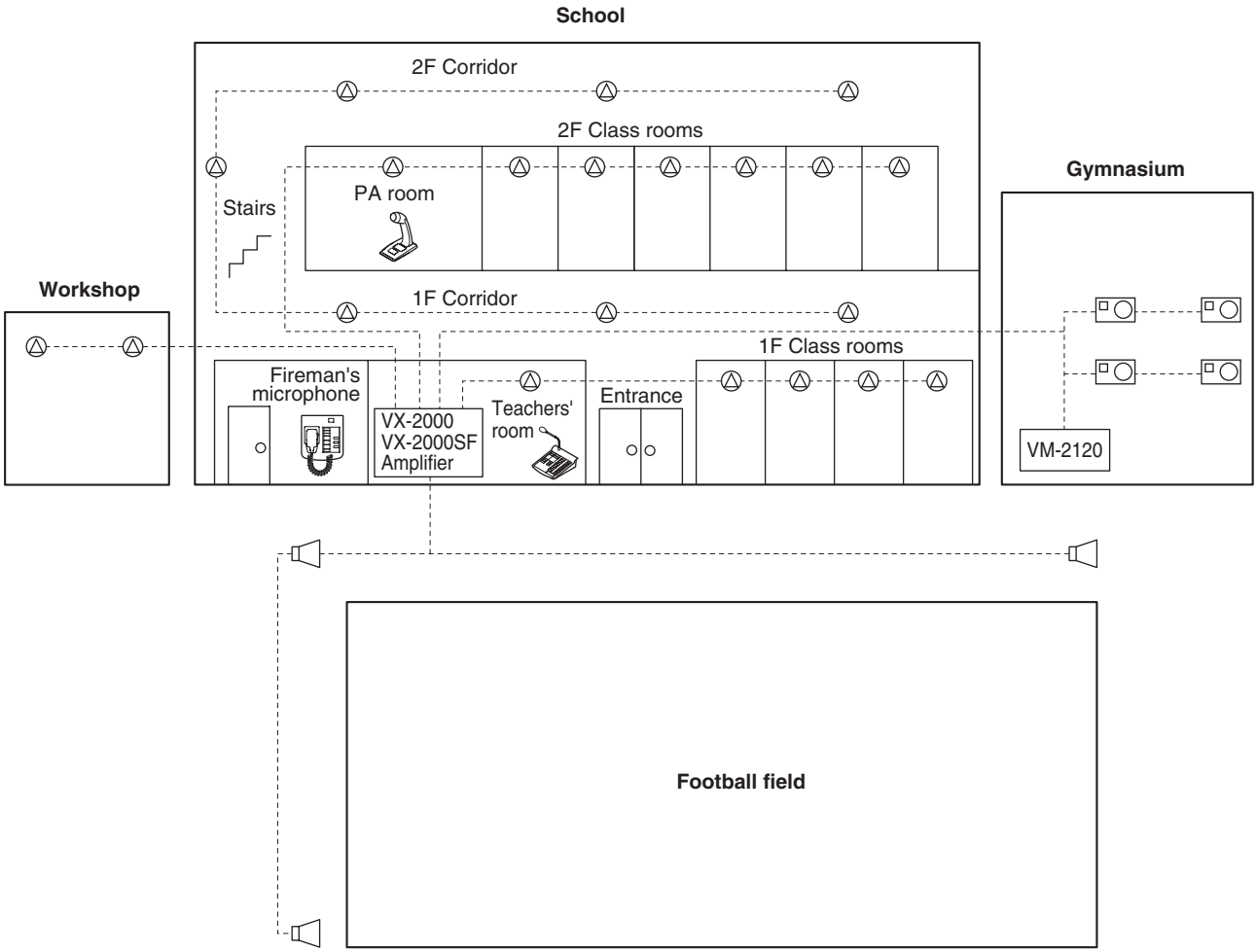


For details regarding the VM-2120 (VM-2240) and the SV-200M, refer to the VM-2120 (VM-2240) instruction manual.

6.1.1. External View of the School

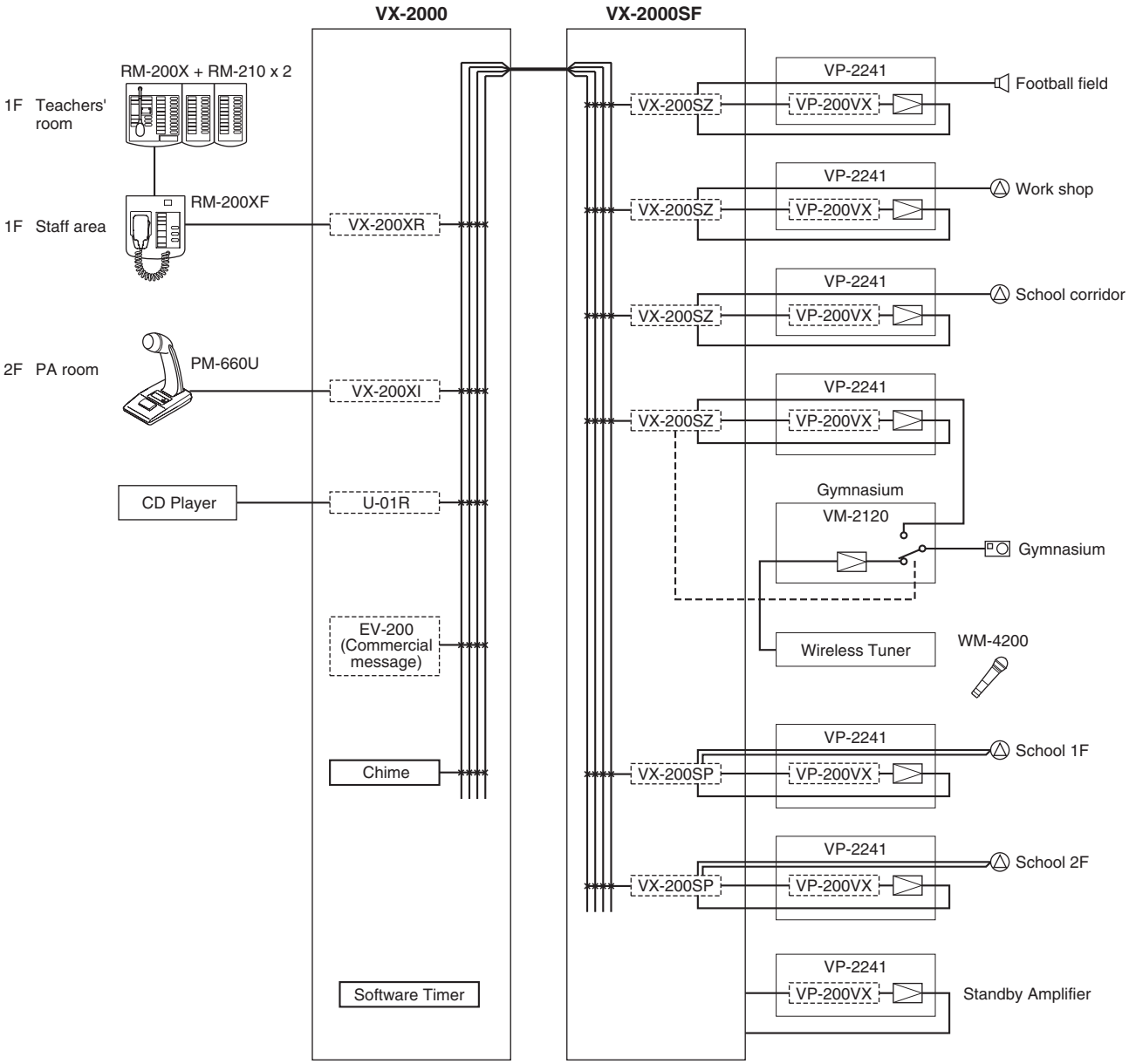


6.1.2. Internal Wiring



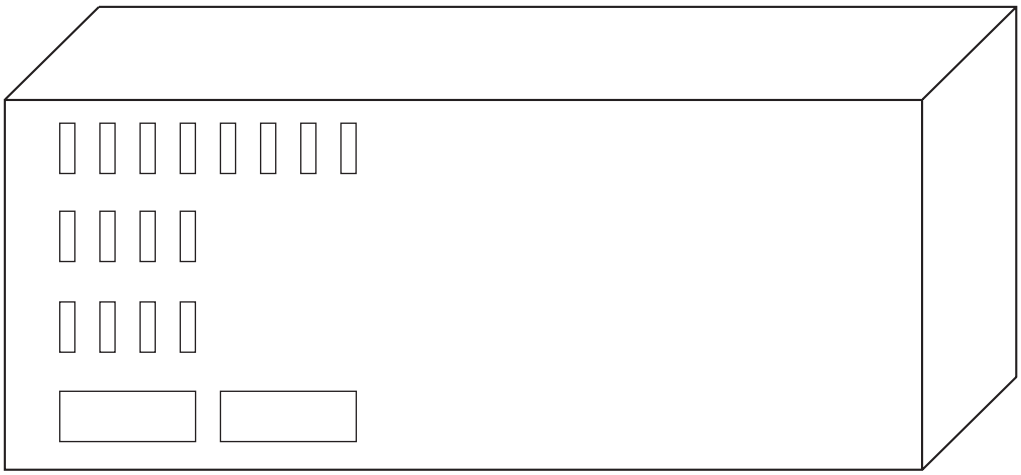
6.1.3. Block Diagram

- The EV-200 can be set to broadcast chimes, programmed announcements, etc. at regular daily intervals using the software timer.
- Output from the local powered mixer used in the gymnasium can be interrupted by broadcasts from the VX-2000 when an urgent call is made.
- The Remote Microphones installed in the teachers' room and the Staff area can make individual zone calls to other buildings. System failure modes can also be indicated on RM-200X + RM-210 x 2.
- In the gymnasium, the local VM-2120 amplifier is installed.
  Broadcast is switched from the local VM-2120 amplifier operation to the central VX-2000 system operation by the VX-200SZ's external attenuator control signals.

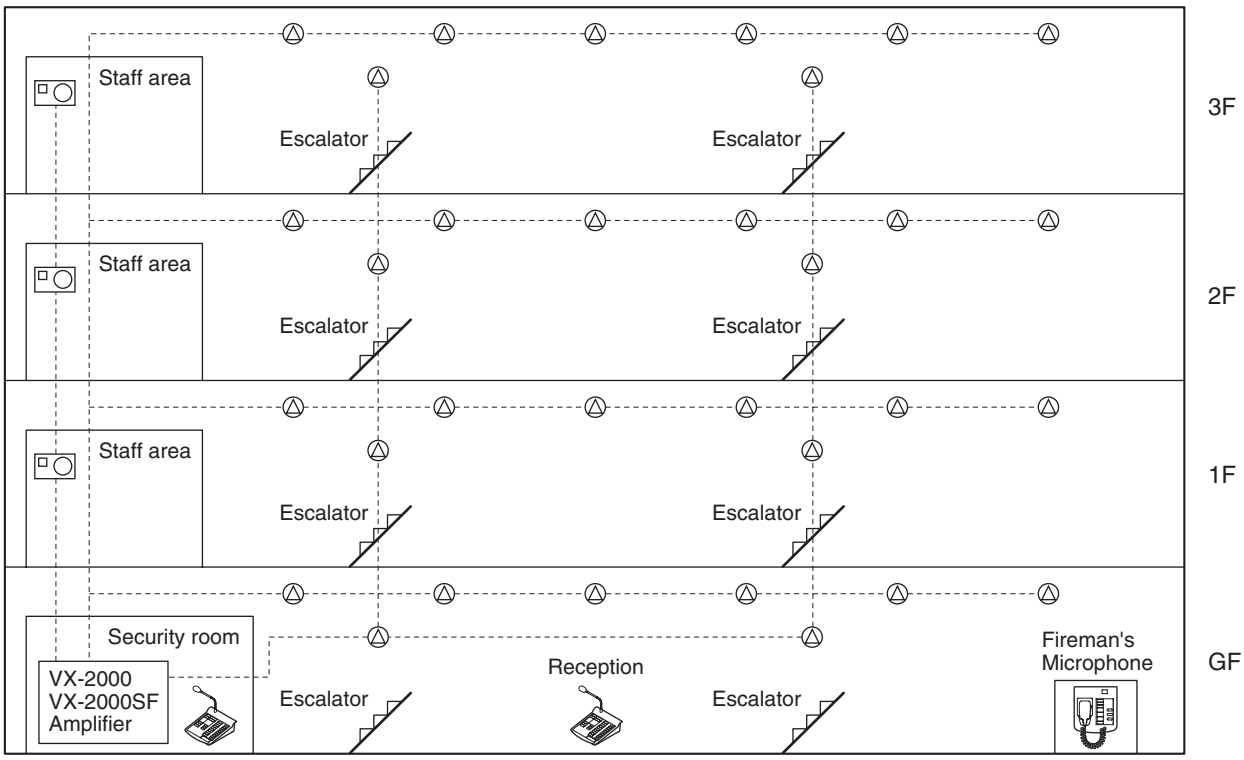


Note: The chime unit and the software timer are pre-installed in the VX-2000.

6.2.1. External View of the Building

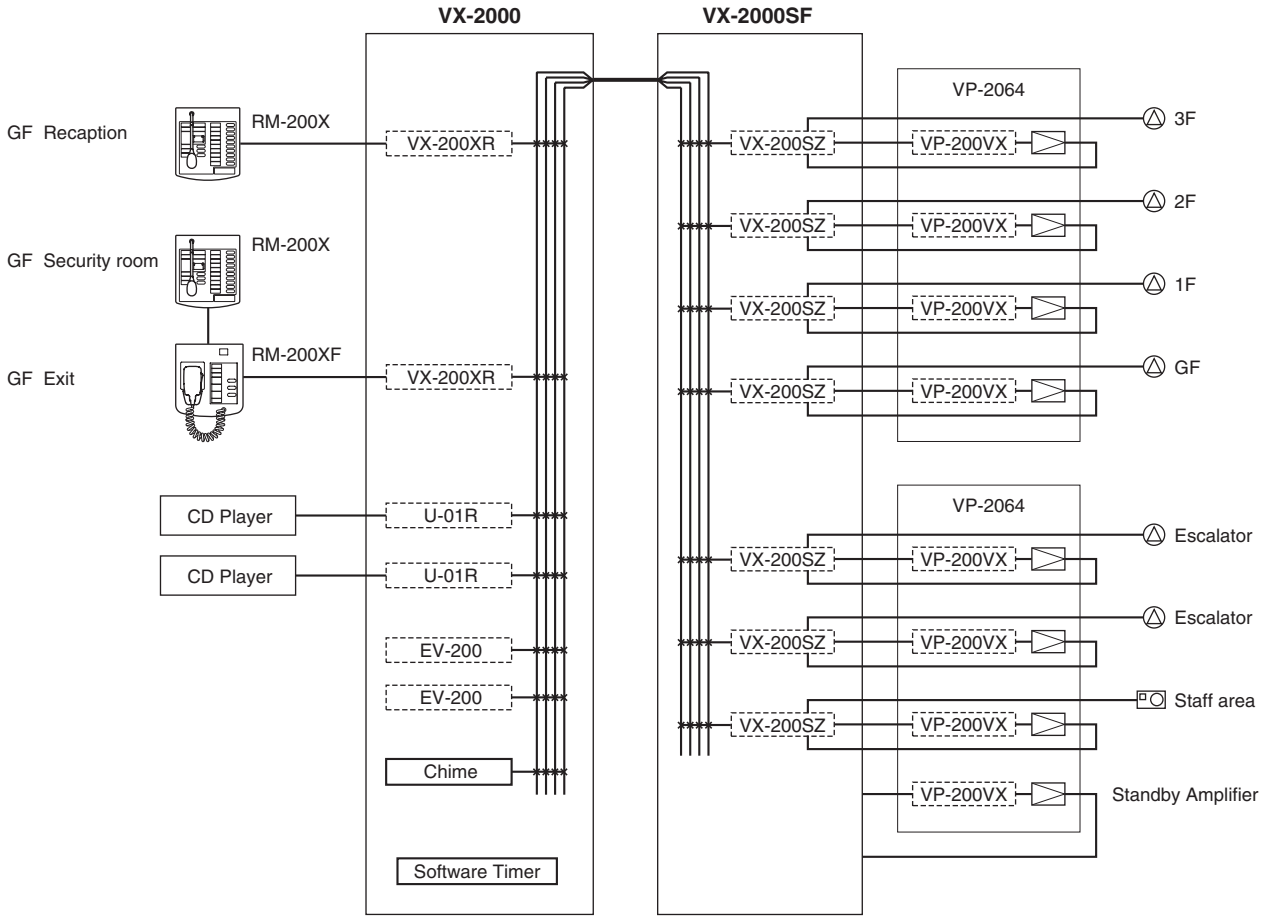


6.1.2. Internal Wiring



6.2.3. Block Diagram

- The key factor in this system application is simultaneous broadcast.
- BGM sound is broadcast from CD player.
- Pre-recorded messages are played back to any zones you had set, when software timer activates the EV-200.



Note: The chime unit and the software timer are pre-installed in the VX-2000.

6.2.4. Emergency Mode Operation (Dual-Origin EV Broadcasts)

In the following example, 2 EV-200 units are installed in the VX-2000 to provide dual-origin Emergency broadcasts.

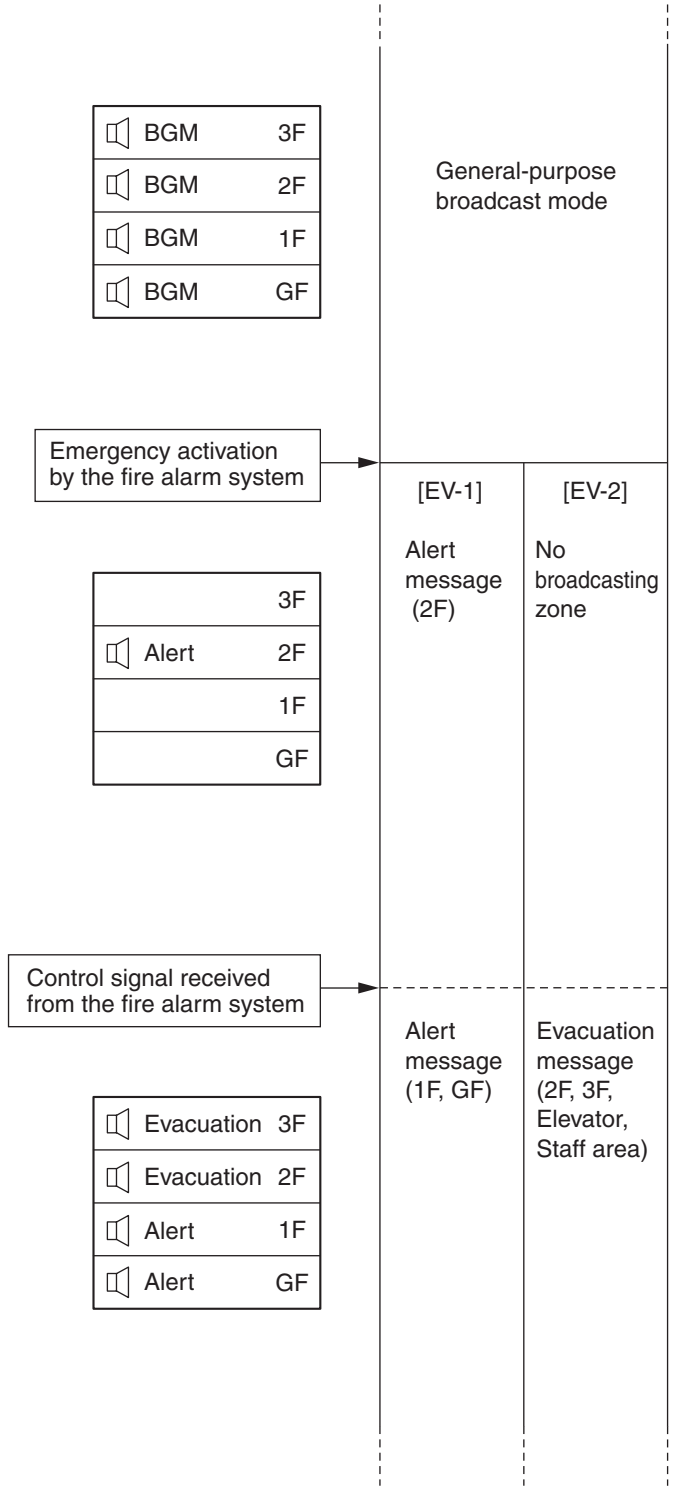
[Setting Contents]

- An Alert message is recorded in EV-1, and an Evacuation message is recorded in EV-2.
- The broadcast zones and broadcast duration depend on control signals received from the connected fire alarm system.
- Buttons to activate the Evacuation message broadcast are configured in all zones.

Step 1. In general-purpose broadcast mode, BGM is broadcast to the entire building area.

Step 2. A fire has broken out on 2F.
A sensor detects it and the connected fire alarm system transmits a control signal to the VX-2000's Control Input.
The Emergency mode is activated, and BGM play is interrupted.
The Alert message (EV-1) is broadcast to warn the people on 2F.

Step 3. Three minutes after the Emergency mode was activated, the fire alarm system automatically transmits a control signal to the Control Input, changing the broadcast zones and messages.
The Evacuation message (EV-2) is broadcast to both 2F and 3F, while the Alert message (EV-1) is broadcast to the remaining zones to provide warning of the detected fire.



6.2.4. Emergency Mode Operation (Dual-Origin EV Broadcasts)

Step 4. Since the fire has not been extinguished, a decision is made to press the fire button to call all zones for immediate evacuation.
Pressing the button transmits a control signal to the VX-2000, and broadcasts the Evacuation message (EV-2) to all zones.

Step 5. Once the fire has been brought under control, the fire alarm system automatically transmits a reset control signal to the Control Input.
The Emergency broadcast mode is terminated, and general-purpose broadcasting is resumed, restoring the original BGM output.