



OPERATING INSTRUCTIONS

INTEGRATED VOICE EVACUATION SYSTEM

VM-3000 Series

VOICE ALARM SYSTEM AMPLIFIER	VM-3240VA
VM EXTENSION AMPLIFIER	VM-3240E
REMOTE MICROPHONE	RM-200M

for Mass Notification Installations

Note: Refer to the VX-2000DS Instruction Manual for installation instructions relating to installation of the VX-2000DS Emergency power supply.

Thank you for purchasing the VM-3000 Series TOA Integrated Voice Evacuation System.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

TOA Corporation

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1. GENERAL DESCRIPTION

The VM-3000 Series Voice Alarm System is an integrated emergency/general announcement broadcast system. The VM-3240VA Voice Alarm System Amplifier plays the central role in the system. Using this amplifier in conjunction with the VM-3240E VM Extension Amplifiers allows larger systems to be built.

2. FEATURES

- The VM-3240VA has 6 speaker outputs. This can be expanded to up to 60 outputs by combining the VM-3240E amplifiers.
- Set data, log data and other Voice Alarm System Amplifier data can be accessed by Ethernet connection for maintenance or installation.
- Up to 4 general broadcast-use RM-200M Remote Microphones can be connected.
- For systems employing the VX-2000DS Emergency Power Supply, only emergency broadcasts can be made while backup power is being supplied by the VX-2000DS to preserve battery reserves.
- Settings can easily be performed from a PC using the intuitive setting software.
- Audio inputs include 4 mic/line inputs, a remote microphone input, BGM inputs 1 & 2 (select either of the 2) and internal 6 General EV messages storage.
- Control inputs and outputs include 8 general control inputs. 6 Emergency Control inputs and 3 status outputs are provided for emergency broadcasts. By adding extension amplifiers (up to 9 units can be connected), the number of general control inputs can be increased up to 80.

System: In-building Mass Notification Systems for voice evacuation.

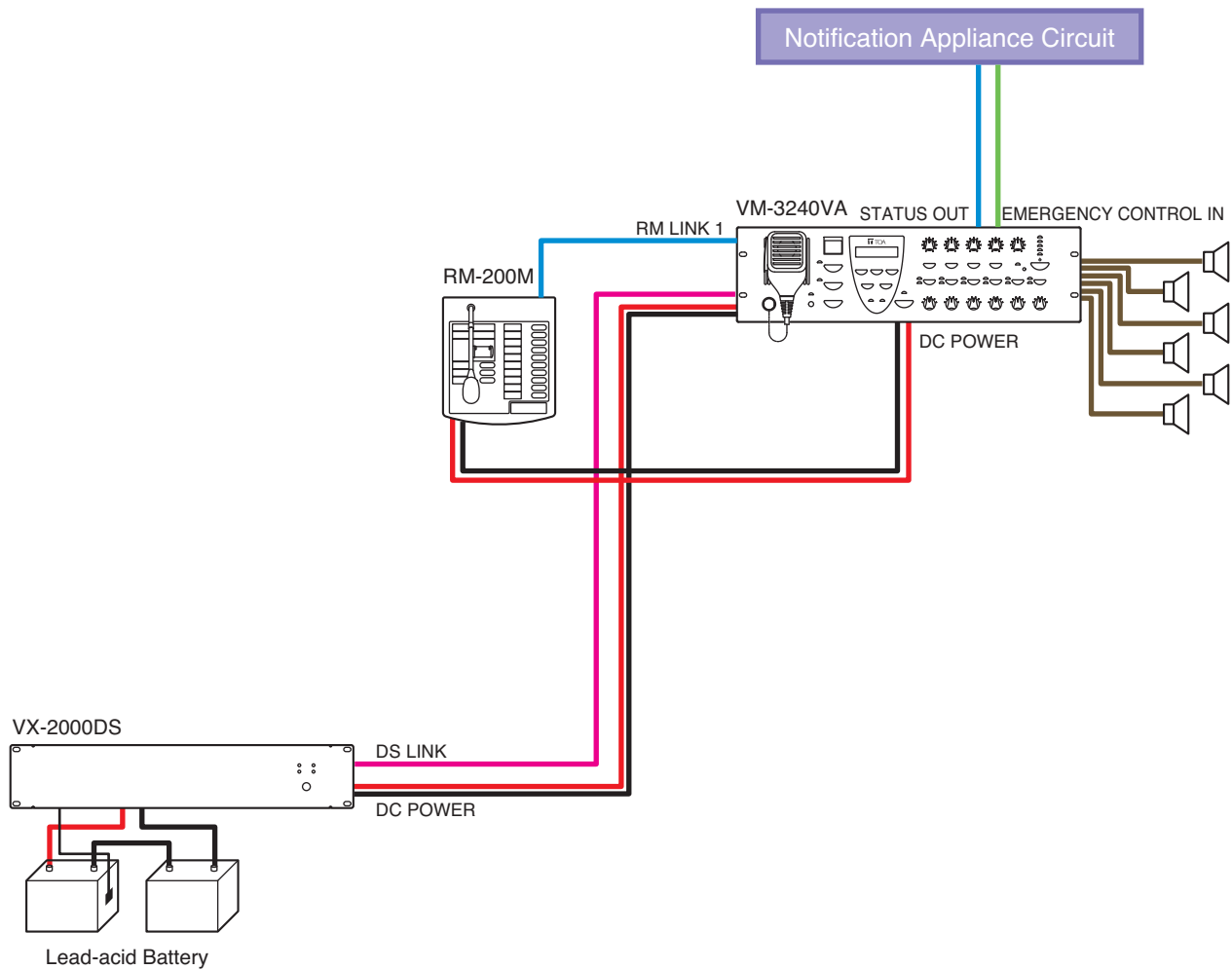
- Autonomous Control Unit (ACU): VM-3240VA
- Number of ACUs: Single interface on the VM-3240VA.
- The wiring should be connected as follows:
 - VM LINK between VM-3240VA and VM-3240E
 - DS LINK between VM-3240VA/E and VX-2000DS
- Class B wiring: SP OUTPUT, CTRL IN, EMERGENCY CONTROL IN1, IN2, STATUS OUT
- All circuits except SP OUTPUT are Power Limited.
- At least one set of VX-2000DS and batteries should be used to provide secondary power supply for emergency purposes and be installed in the same rack as the VM-3240VA and/or VM-3240E.
- The RM-200M cannot be used for Emergency purposes.
- SP OUTPUTs are supervised and the RM1/2 LINK and DC22 V OUT are not supervised.
- The audio inputs of input 1 – 4, BGM, and RM-200M, and the audio sources of the built-in General EV 1 – 6 cannot be used for Emergency purposes.
- The VM-3240VA should be installed in the following locations:
 - (1) Within a key-locked cabinet or rack with physical security level 1 or higher
 - (2) In a controlled access room with a minimum access control security level 1.Front-mounted controls should only be changed by Authorized Personnel.
- The system is provided with a Communication Security Level 0, which indicates no Security Level employed.
- RM-200M should be installed in the same room or within 20 ft (6.1 m) of the equipment rack unless CAT5 UL listed transient suppression devices (Tripp Lite DSUT1CSU or equal) is installed on both ends of the RM LINK.
- The following wiring connections are intended to be made in the same room within 20 ft (6.1 m) of each other and are enclosed within conduit or equivalently protected against mechanical damage.
 - EMERGENCY CONTROL IN and CTRL IN between VM-3240VA or VM-3240E and Fire Alarm Control Panel or Notification Appliance Circuits.
 - VM LINK between VM-3240VA and VM-3240E.
 - STATUS OUT between VM-3240VA or VM-3240E and Fire Alarm Control Panel or Notification Appliance Circuits
 - CTRL IN between VM-3240VA or VM-3240E and audio sources.
- Password must be set (refer to [p. 48](#)).
- BGM Volume must be set to lower than 70%.
- The FACP and TOA MNS units need to be installed adjacent to each other.
- The system is not to be used in buildings providing Suppression Service (Systems using Halon, etc.). Sprinkled systems are allowed.

- Use Listed Lowell Manufacturing Rack, Model LER1822, or an equivalent Listed Rack with the following minimum ventilation openings:
 - Fully perforated Front and Back door that has a minimum 90% of the surface area provided with perforated openings.
 - Top Enclosure of the rack shall be provided with a ventilation openings that cover a minimum surface area equal to 40% of the overall top enclosure surface area.
 - The side enclosures of the rack shall be provided with minimum ventilation openings located at the upper 1/3 and lower 1/3 of each of the side enclosure, each set of ventilation openings shall cover a minimum surface area equal to 8% of the overall side enclosure surface area.
- Use the following UL2572 listed NAC Extenders or an equivalent.
 - Edward Booster Power Supplies;
 - Models APS6AC, APS10AC
 - Auxiliary Power Supplies;
 - Models BPS6A, BPS6AC, BPS10A, BPS10AC, BPS6A/230, BPS10A/230, BPS6CAA, BPS10CAA, MIRBPS6A, MIRBPS6AC, MIRBPS6A/230, MIRBPS10A, MIRBPS10AC, MIRBPS10A/230, XLS-BPS6A, XLS-BPS6A/230, XLS-BPS10A, XLS-BPS10A/230, EBPS6A, EBPS6A/230, EBPS10A, EBPS10A/230, ZBPS6A, ZBPS6A/230, ZBPS10A, ZBPS10A/230, BPS6CAA
 - Remote Booster Power Supplies;
 - Models APS6A, APS6A/230, APS6CAA, APS10A, APS10A/230, APS10CAA, MIRAPS6A, MIRAPS6A/230, MIRAPS10A, MIRAPS10A/230, XLS-APS6A, XLS-APS6A/230, XLS-APS10A, XLS-APS10A/230, EAPS6A, EAPS6A/230, EAPS10A, EAPS10A/230
- In the case where MNS is lower priority than FACP, the FACP active common alarm relay of the FACP must connect to the Emergency RESET input of VM-3000.
 - MNS cannot resume until the FACP is reset and initiated manually at the VM-3000.
 - This functionality is only permitted for a life safety system that consists of a single ACU and FACP with no voice and the ACU does only ALL Zone Broadcast during MNS Event.
- UPS should be located in the same room as the equipment it is powering.
 - UPS must be hardwired to the branch circuit and hardwired to the MNS Rack and any other MNS Device if powered by the UPS.
 - The connection between the UPS and the MNS Rack and any other MNS Device shall in conduit and not exceed 20 ft (6.1 m), or equivalently protected against mechanical damage.
- For Canadian Installations the NAC Extender provide 2 hours of alarm condition.
 - If 2 hours loading exceeds the NAC Extender Battery capacity, the unit needs to be powered by the UPS.

3. SYSTEM CONFIGURATION

• Sample System 1

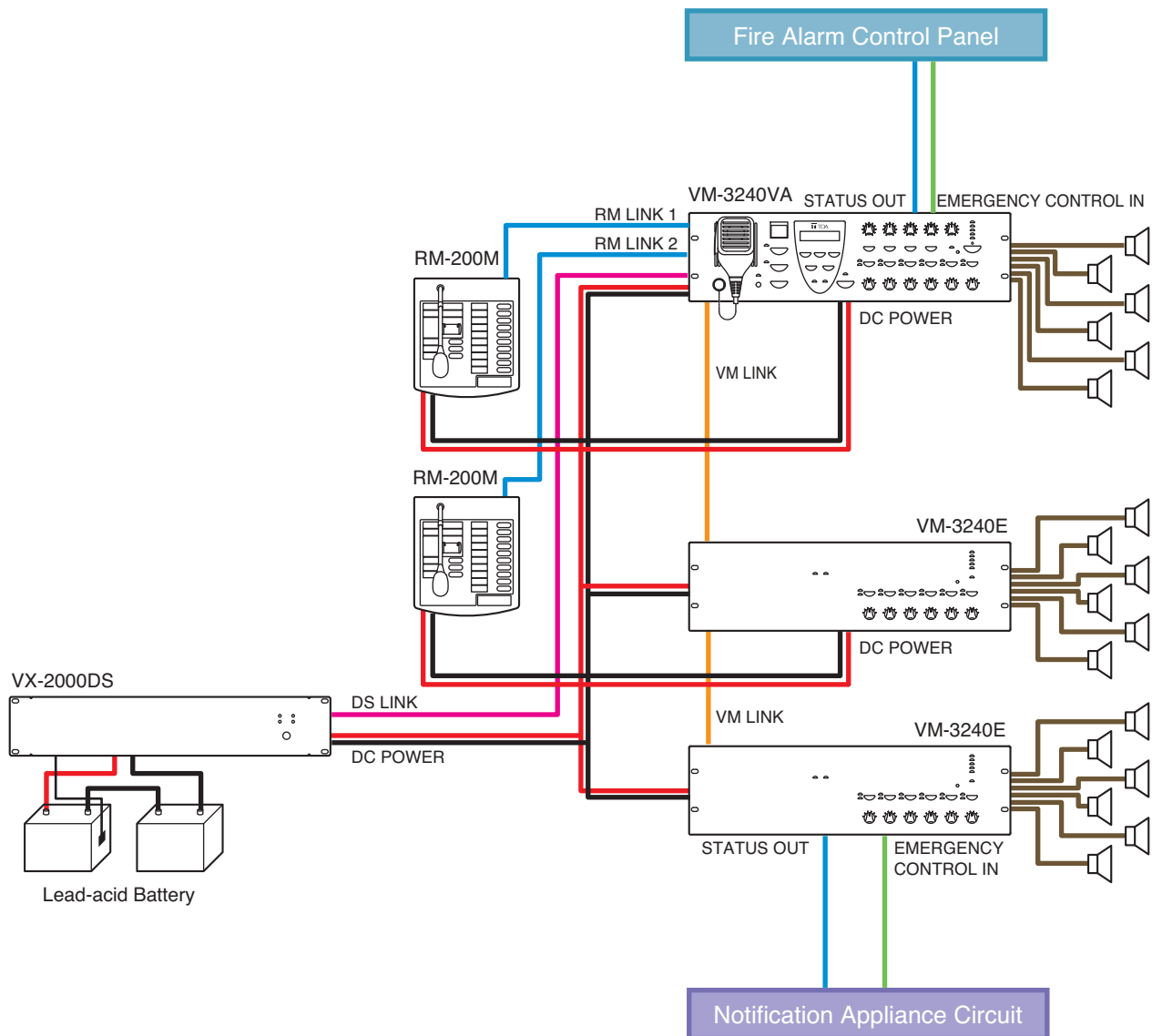
This example is ideal for installation in facilities and churches does not need the FACP.



- A 200 W integrated emergency/general broadcast system with 6 outputs.
- Emergency broadcasts can be made even during power failures. However, general broadcasts are not possible.

• Sample System 2

This example is ideal for installation in large stores applied to the FACP with FACP-Strobe for FACP use only and separate MNS-Strobe for MNS use only.



- A 600 W integrated emergency/general broadcast system with 18 outputs.
- Emergency broadcasts can be made even during power failures. However, general broadcasts are not possible.

4. NOMENCLATURE AND FUNCTIONS

4.1. VM-3240VA Voice Alarm System Amplifier

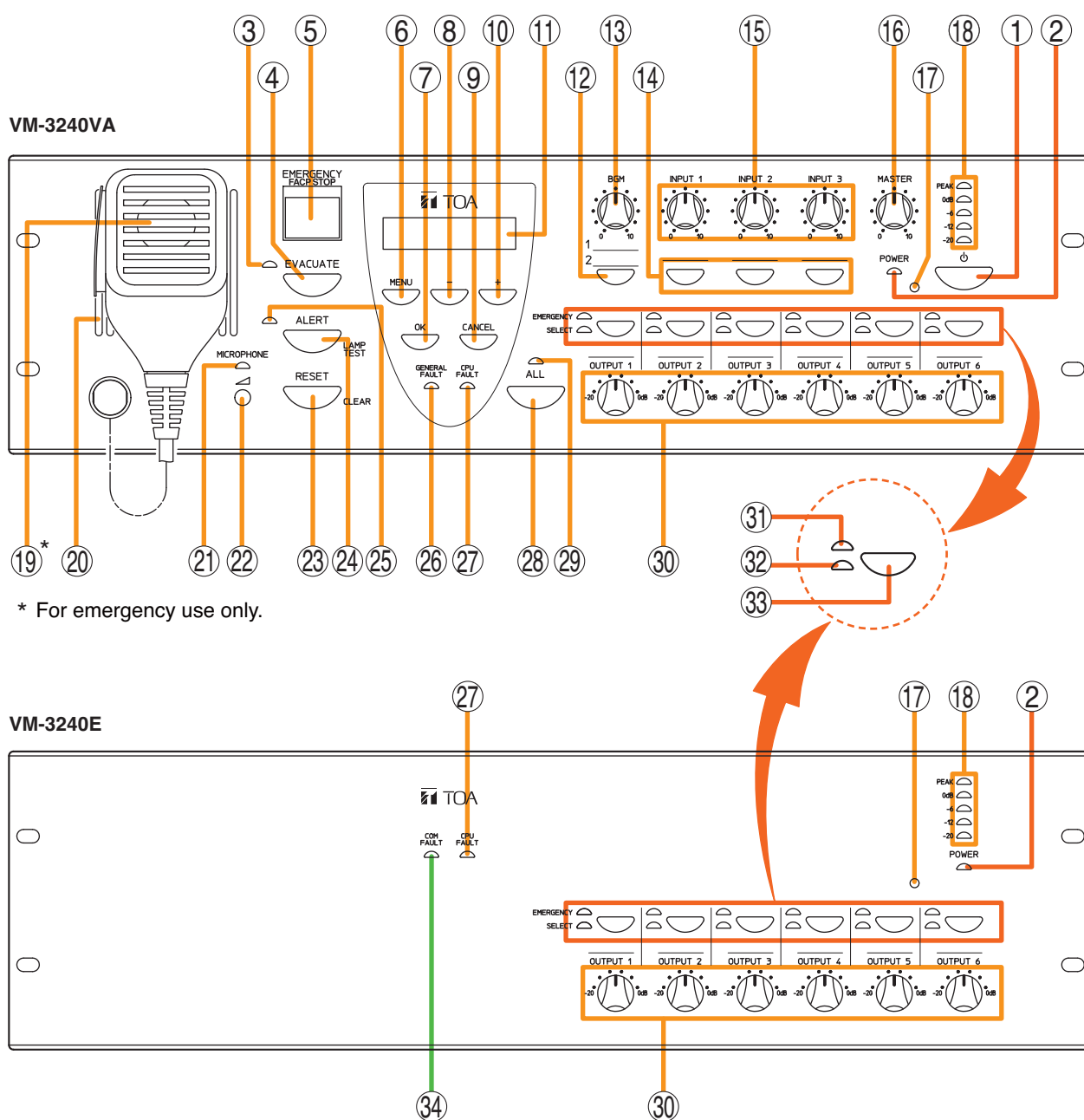
This amplifier functions as the central unit in the VM-3000 system and its power output is rated at 200 W. Only one unit can be connected in the system.

The front panel-mounted LCD displays setting and operation status. The amplifier also features an automatic message function and can play back up to 6 recorded general announcements and 2 recorded emergency announcements. Up to 4 RM-200M general broadcast-use Remote Microphones can be connected.

4.2. VM-3240E VM Extension Amplifier

The system can be expanded by connecting up to 9 VM-3240E Extension Amplifiers. The VM-3240E is equipped with 6 speaker line outputs. It also features 8 control inputs for general broadcasts and 6 inputs and 3 status outputs for emergency broadcasts. It is connected to the VM-3240VA via the VM Link connector.

[Front]



- Common to both Voice Alarm System and Extension amplifiers.
- Differing between Voice Alarm System and Extension amplifiers.

1. Power Switch

Unit is switched between operating and standby modes each time this switch is pressed. Power is always supplied regardless of the switch setting.

2. Live Status Indicator (green) [POWER]

Remains lit while DC power is supplied.

* As long as the DC power is connected, this indicator remains lit even if the AC power is switched OFF.

3. Evacuation Announcement Indicator (red)

Lights whenever an Evacuation announcement is broadcast.

4. Evacuation Announcement Key [EVACUATE]

Can only be used while in emergency broadcast mode.

Pressing this key plays Evacuation tone and pre-recorded Evacuation announcement, which are repeatedly broadcast from the speaker output(s) selected with the Output Selection key (33). To stop the Emergency tone and Evacuation announcement, hold down this key for 3 seconds or more during emergency broadcast.

5. Emergency Activation Switch / Emergency Indicator (red) [EMERGENCY]

Pressing this switch causes it to light and switches the VM-3240VA emergency broadcast mode. (No automatic announcements are made.) When an emergency broadcast is activated by a control input other than this switch, the switch flashes and a buzzer sounds, disabling front panel operation.

While flashing, this switch functions as an emergency activation acknowledgement switch. Pressing this switch while it is flashing causes it to stay lit, stopping the buzzer and enabling front panel operation. In any case, this switch goes out once the emergency broadcast is reset.

Steady On: Lights when the emergency mode is activated either by this switch or by other connected external equipment and subsequently acknowledged and remains lit until the emergency mode is reset.

Flashing: Flashes when the emergency mode is activated by external equipment other than this switch.

6. Menu Key [MENU]

During emergency broadcasts:

Cannot be used.

During general broadcasts:

Displays the setting item menu.

During settings:

Selects the setting item.

7. OK Key [OK]

During failure indication:

Stops the buzzer when a failure is detected by the surveillance function (functioning as a failure acknowledgment key).*

During settings:

Functions as a confirmation key.

* For more information on surveillance functions, refer to [page 33](#).

8. — (Minus) Key [—]

Decreases setting value numbers.

9. Cancel Key [CANCEL]

Returns the display to the previous screen during settings.

Pressing this switch when a failure occurs reverts the unit back to normal mode. (Refer to ["Failure reset operation" on page 37](#) and ["Examples of Failures and Their Counter-Operations" on page 38](#).)

10. + (Plus) Key [+]

Increases setting value numbers.

11. LCD

Backlit during unit operation.

During emergency or general broadcasts:

Displays operation and failure information.

During settings:

Used to perform settings.

12. BGM Selection Key [BGM]

Displays the BGM (background music) selection screen on the LCD (11). The display switches between the setting screens for Treble, Bass, etc. with each depression of this key. (Refer to ["BGM Settings" on page 68](#).)

13. BGM Volume Control [BGM]

Adjusts the BGM input volume.

14. Input Selection Keys [INPUT 1 – 3]

Display key's corresponding setting screen on the LCD (11). The display switches between the setting screens for Treble, Bass, etc. with each depression of the selected key. (Refer to ["Input 1 – 3 Settings" on page 66](#).)

15. Input Volume Controls [INPUT 1 – 3]

Adjust the input volume for Inputs 1 – 3.

16. Master Volume Control [MASTER]

Sets the output volume for the entire system.

17. VM Reset Key

For the VM-3240VA:

Resets the entire system.

For the VM-3240E:

Resets only VM-3240E Extension amplifiers.

18. Level Meter

Indicates the output level of the unit's internal amplifier.

19. Emergency Microphone

Only used while in emergency broadcast mode. Press the Talk key located on the side of the microphone to broadcast emergency announcements.

20. Monitor Speaker

Buzzer tone is audible from this speaker when the emergency mode is activated by external equipment other than the unit's Emergency Activation switch (5) or when any failure occurs.

Emergency tone: Repeating the cycle of 1 second on and 1 second off

Failure tone: Repeating the cycle of 2 seconds on and 3 seconds off

21. Emergency Microphone Indicator (red)

Lights when the unit's front panel-mounted emergency microphone (19) is used.

22. Emergency Microphone Volume Control

Rotate clockwise to increase the emergency microphone volume.

Rotate counterclockwise to decrease the emergency microphone volume.

23. Reset Key [RESET]

For emergency broadcasts:

Terminates the emergency broadcast and returns operation to the original general broadcast.

For general broadcasts:

Resets the front panel's output selection status.

24. Alert Announcement Start Key [ALERT]

For emergency broadcasts:

Plays Alert tone and pre-recorded Alert announcements through the speaker output selected with the Output Selection key (33). Holding down this key for 3 seconds stops the broadcast.

For general broadcasts:

Used to test LED indicators. (While pressed, LED indicators remain lit and the unit's internal buzzer sounds.)

25. Alert Announcement Indicator (red)

Remains lit while a recorded Alert announcement is being broadcast.

26. Failure Indicator (yellow) [GENERAL FAULT] (VM-3240VA only)

Flashes when a failure occurs while sounding the internal buzzer. Pressing the [OK] key (7) stops the buzzer and switches the indicator from flashing to steady ON. Failure details are

displayed on the LCD (11). (When there are multiple failures, they can be checked by moving the screen using the [+] key (10) or [-] key (8). Failures are not displayed on the LCD when in setting mode. Failures are displayed or notified after exiting the setting mode. Also, if any failure occurs during general or emergency broadcasts, the operation status and failure display are alternately shown on the LCD.

27. CPU Failure Indicator (yellow) [CPU FAULT]

Lights when the CPU fails.

28. All-Zone Call Selection Key [ALL]

Simultaneously selects all speaker outputs for general and emergency broadcasts. Press again to reset the simultaneous selection.

When pressed, all speaker output volume controls do not work in both general and emergency broadcast modes.

29. All-Zone Call Indicator (green) [ALL]

Lights when an all-zone call is initiated.

30. Speaker Output Volume Controls [OUTPUT 1 – 6]

Adjust the output volume of speaker outputs 1 – 6.

31. Emergency Broadcast Output Indicators (red) [EMERGENCY]

Indicate the speaker outputs for emergency broadcasts.

32. Selected Output Indicators (green) [SELECT]

Indicate the speaker outputs selected with the Output Selection key (33).

33. Output Selection Keys

Select corresponding speaker output. Press again to reset the selection.

For general broadcasts:

Select and reset broadcast zones.

For emergency broadcast:

Select and reset speaker outputs for emergency broadcasts made by the unit's front panel-mounted emergency microphone and automatic announcements.

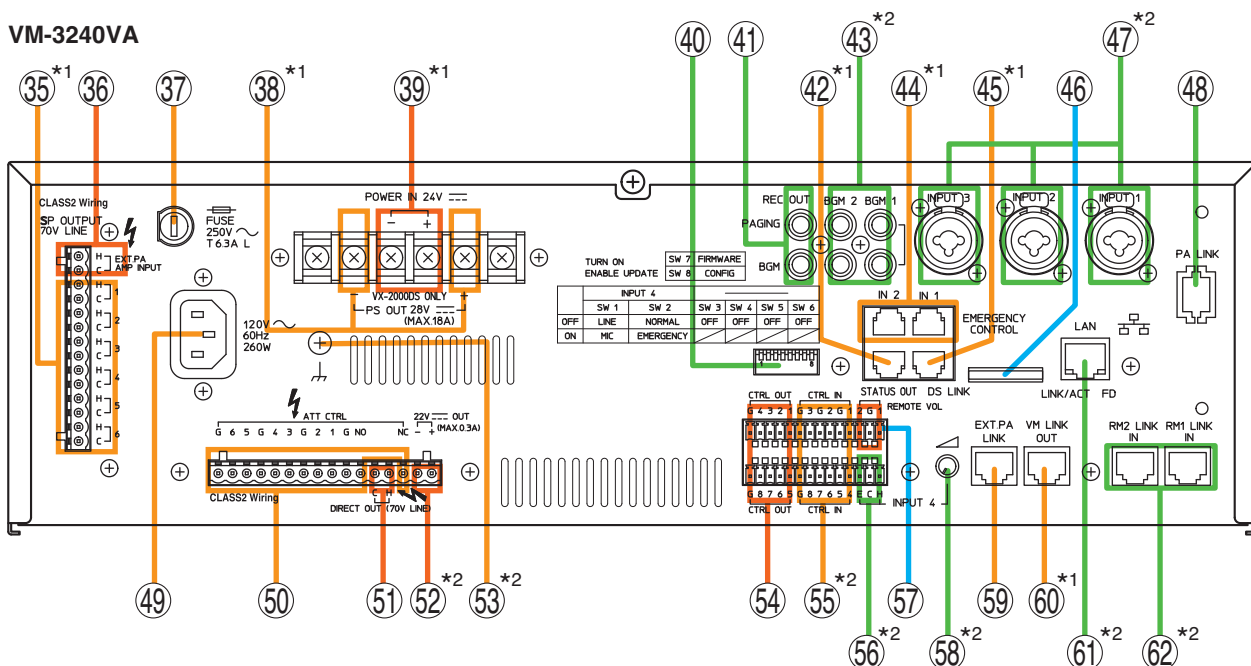
34. Communications Failure Indicator (yellow) [COM FAULT]

(VM-3240E only)

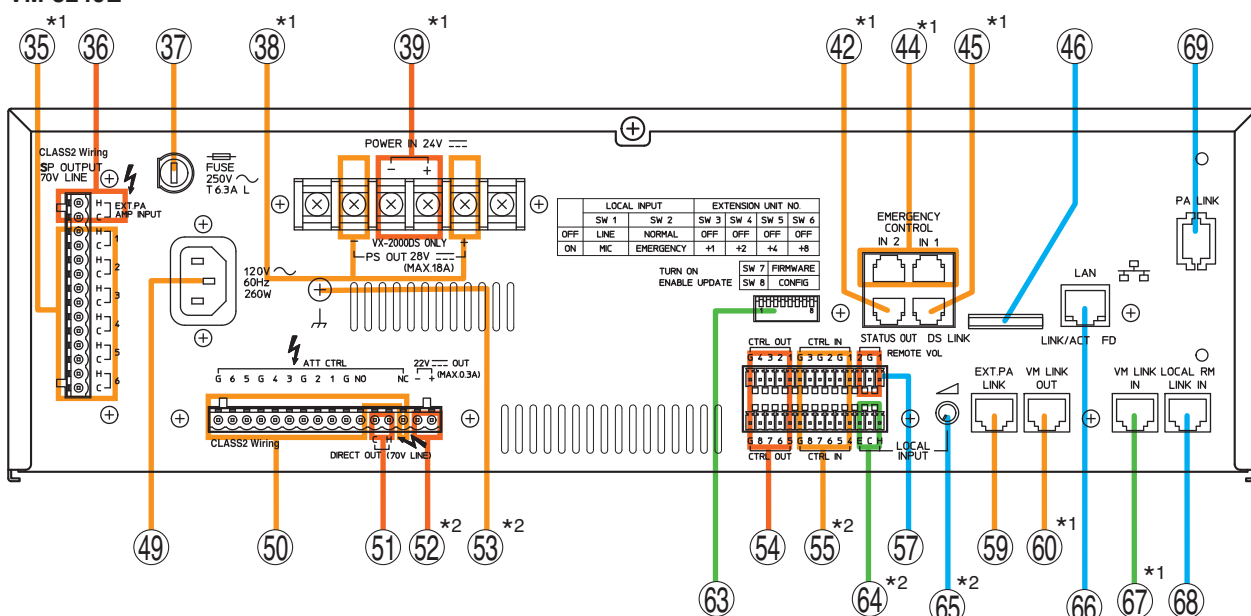
Flashes when failures are detected in communications with the VM-3240VA.

[Rear]

VM-3240VA



VM-3240E



Common to both Voice Alarm System and Extension amplifiers.

Differing between Voice Alarm System and Extension amplifiers.

Not used.

*1 For both emergency and no-emergency use.

*2 For no-emergency use only.

35. Speaker Output Terminals 1 – 6 [SP OUT 70 V LINE 1-6, H, C]

Connect speakers to these outputs.

37. AC Fuse

Use the following 20 mm type miniature fuses:
8 A (for VM-3240VA and VM-3240E)

36. External Amplifier Input [EXT. PA AMP INPUT]

Not used.

38. Power Supply Output Terminals [VX-2000DS ONLY, PS OUT]

Supply power to the VX-2000DS Emergency Power Supply.

39. 24 V DC Input Terminals [VX-2000DS ONLY, 24 V POWER IN]

Connect power from the VX-2000DS Emergency Power Supply Unit.

40. DIP switch (VM-3240VA only)

Used to perform equipment settings.

DIP Switch 1 [LINE/MIC]

Switches input sensitivity of Input 4. (ON: MIC, OFF: LINE; Default: OFF)

DIP Switch 2 [NORMAL/EMERGENCY]

Always set this switch to OFF. (Default: OFF)

DIP Switches 3 – 5

Not used. (Default: OFF)

DIP Switches 6

Set to ON when excluding the front-mounted emergency microphone from the surveillance item. (Default: OFF)

DIP Switch 7 [FIRMWARE]

Set to ON when upgrading firmware version, and OFF to prohibit update. (Default: ON)

DIP Switch 8 [CONFIG]

Set to ON when transferring set data from a PC, and to OFF to prohibit set data transfer. (Default: ON) (For more information on set data transfer, refer to "Transferring Data Edited by PC between the VM-3000VA and a PC" in the separate software manual.)

41. BGM/Paging Recording Output Terminals [REC OUT BGM/PAGING]

(VM-3240VA only)

Not used.

42. Status Output Terminals [STATUS OUT]

Provide the following status outputs in synchronization with unit operation:

- Emergency status output
- Failure status output
- CPU OFF status output

43. BGM 1 & 2 Input Terminals [BGM 1, 2] (VM-3240VA only)

Connect the BGM sound source.

(–10 dB*, 10 kΩ)

*0 dB = 1 V

44. Emergency Control Input Terminals 1 – 6 [EMERGENCY CONTROL, IN 1/IN 2]

Connect to an automatic fire alarm control panel. Contact inputs 1 – 5 are no-voltage make contact inputs.

Input 6 is an isolated voltage input which is activated when the polarity of the applied voltage (24 V DC is kept applied to this terminal under normal condition) is reversed.

45. DS Link Connector [DS LINK]

Connects to the VX-2000DS Emergency Power Supply's DS-SF link connector.

46. Not used.

47. Audio Input Terminals 1 – 3 [INPUT 1 – 3] (VM-3240VA only)

Electronically-balanced 600 Ω, –10 dB* / –50 dB, XLR/phone jack combination connectors. LINE or MIC input can be selected, and the phantom power supply turned on and off. (Refer to "Inputs 1-3 Settings" on page 66.) These inputs can be converted into transformer-balanced terminals using the optional IT-450 transformer. It is also possible to change microphone sensitivity to –30 dB. (Refer to the separate Installation guide.)

* 0 dB = 1 V

48. PA Link Connector [PA LINK]

Not used.

49. AC Input

Connects to an AC outlet using the supplied AC power cord.

50. Attenuator Control Outputs [ATT CTRL]

Not used.

51. Direct Output Terminals [DIRECT OUT 70 V LINE]

Not used.

52. 22 V DC Output [22 V, +, –]

Provide 22 V DC output, max. 0.3 A.

53. Functional Ground Terminal

Noise may be generated when external equipment is connected to the unit. Connecting this terminal to the functional ground terminal of the external equipment may reduce the noise.

Note: This ground is not for protective ground.

54. Control Output Terminals 1 – 8 [CTRL OUT 1 – 8, G]

Not used.

55. Control Input Terminals 1 – 8 [CTRL IN 1 – 8, G]

Control input terminals for general broadcasts. Functions assigned to each contact input are determined by software settings. (For details, refer to "Event Settings" in the separate software manual.)

**56. Audio Input 4 Terminals [INPUT 4]
(VM-3240VA only)**

Electronically-balanced 600 Ω , –10 dB* / –50 dB, screw terminal. Use DIP switch (40) for LINE/MIC switching.
* 0 dB = 1 V

57. Remote VOL Terminals 1 & 2 [REMOTE VOL]

Not used.

**58. Input 4 Volume Control
(VM-3240VA only)**

Adjusts the audio input 4's (56) input volume.

59. External Amplifier Link Connector [EXT. PA LINK]

Not used.

60. VM Link Connector [VM Link Out]

Connects to the VM-3240E's VM Link In connector.

**61. LAN Connector [LAN]
(VM-3240VA only)**

Connects to a PC.

**62. Remote Microphone Link Connectors 1 & 2
[RM1 LINK IN, RM2 LINK IN]
(VM-3240VA only)**

Connect the RM-200M Remote Microphone to these connectors.

63. DIP Switch (VM-3240E only)

Used for unit ID and equipment settings.

DIP Switches 1 & 2 [LOCAL INPUT]

Not used. Default setting: OFF

DIP Switches 3 – 6 [EXTENSION UNIT NO.]

Used for unit ID settings for the VM-3240E. (Refer to ["Connections between VM Amplifiers" on page 96](#) for ID settings.)

Default settings: ON (Switch 3), OFF (Switches 4 – 6)

DIP Switch 7 [FIRMWARE]

Set this switch to ON to enable firmware version updates, and OFF to prohibit the update.

Default setting: ON

DIP Switch 8 [CONFIG]

Not used.

Default setting: ON

**64. Local Input Terminals [LOCAL INPUT]
(VM-3240E only)**

Local broadcast can be made when this terminal is used in conjunction with the Control Input terminals (55).

For details, refer to "6. SYSTEM SETTINGS; 6.8. Local Input Setting" in the separate software instruction manual.)

**65. Local Input Volume Control
(VM-3240E only)**

Adjusts the input volume of the equipment connected to the Local Input terminal (64).

**66. LAN Connector [LAN]
(VM-3240E only)**

Not used.

**67. VM Link In Connector [VM LINK IN]
(VM-3240E only)**

Connect this connector to the VM-3240VA's VM LINK OUT connector. When using two or more VM-3240Es, connect this connector to other VM-3240E's VM LINK OUT.

**68. Local Remote Microphone Link Connector
[LOCAL RM LINK IN]
(VM-3240E only)**

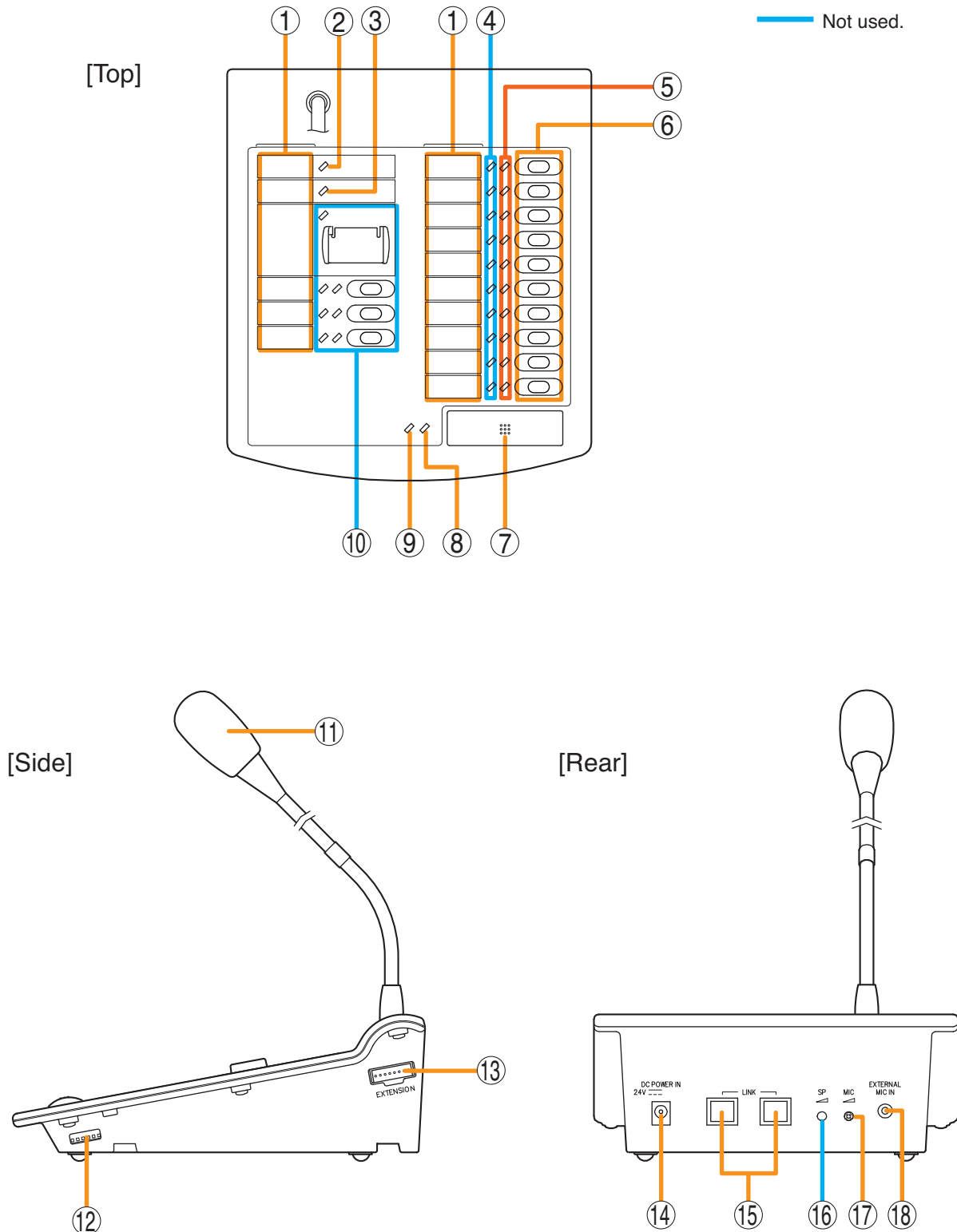
Not used.

69. PA Link Connector [PA LINK]

Not used.

4.3. RM-200M Remote Microphone

The RM-200M Remote Microphone connects to the VM-3240VA for the purpose of making general broadcast announcements. It communicates with the VM-3240VA through its RS-485 interface. Zone selection or automatic announcement start can be assigned to the function key using the dedicated software. No emergency broadcasts can be made with this microphone.



1. Indication Label Holder

Write the name, purpose, etc. of the indicator and key on a label and insert the label into the holder from the top. Labels can be printed using the setting software. (For more information, refer to "Printing Remote Microphone Labels" in the separate software manual.)

2. Power Indicator (green)

Lights when power is supplied to the unit.

3. Communication Failure Indicator (yellow)

Flashes when a failure is detected in communications with the VM-3240VA.

4. Not used.

Lights when the system is in emergency status.

5. Broadcast Zone / Automatic general broadcast Announcement Start Indicators (green)

Indicator's function assigned to each indicator is determined by software settings.

Broadcast Zone Indicators

Light when their corresponding zones are selected.

Automatic general broadcast Announcement Start Indicators

Light when an automatic announcement is started.

6. Broadcast Zone Selector / Automatic general broadcast Announcement Start Keys

Key function assigned to each key is determined by software settings.

Broadcast Zone Selector Keys

Select broadcast zones. Pressing the Talk key (7) after zone selection allows microphone announcements to be broadcast over the selected zone(s).

Automatic general broadcast Announcement Start Key

Automatic general broadcast announcements are broadcast over the selected zone(s).

7. Talk Key

This key is used for general broadcast microphone announcements. Pressing the Talk key after zone selection allows microphone announcements to be broadcast over the selected zone(s).

8. Talk Indicator (green)

Lights when the Talk key (7) is pressed.

9. External Microphone In-Use Indicator (orange / green)

Flashes when a paging call is made from the external remote microphone.

Orange: Indicates the mode that disables broadcasts from the unit.

Green: Indicates the mode that allows the unit to interrupt broadcasts from external equipment.

10. Not used.

11. Microphone

Used for making announcements.

12. DIP Switch

Used to set the unit ID number and equipment functions. (Refer to ["DIP Switch Functions" on page 70.](#))

Switches 1 and 2

Set the ID number of the Remote Microphone.

Default setting: ON

(Refer to ["Unit ID Number Settings" on page 70.](#))

Switch 3

Not used.

Default setting: ON

Switch 4

Sets the Talk key's operating system.

Default setting: ON

(Refer to ["Talk Key Settings" on page 70.](#))

Switch 5

Not used.

Default setting: ON

Switch 6 [COMPRESSION]

Enables/disables compression.

Default setting: ON

(Refer to ["Compression Settings" on page 70.](#))

13. RM-210 Connector [Extension]

Not used.

14. Power Supply Input Connector

The VM-3240VA or VM-3240E can supply power to one RM-200M Remote Microphone. Connect a power supply to this connector.

15. Link Connector (RJ45 Connector)

Connects to the VM-3240VA's or other RM-200M's LINK connector.

16. Not used.

17. Microphone Volume Control

Adjusts the volume of the unit's microphone (11).

Rotate clockwise to increase the microphone volume.

Rotate counterclockwise to decrease the microphone volume.

18. External Microphone Input Jack (3.5 mm mini jack)

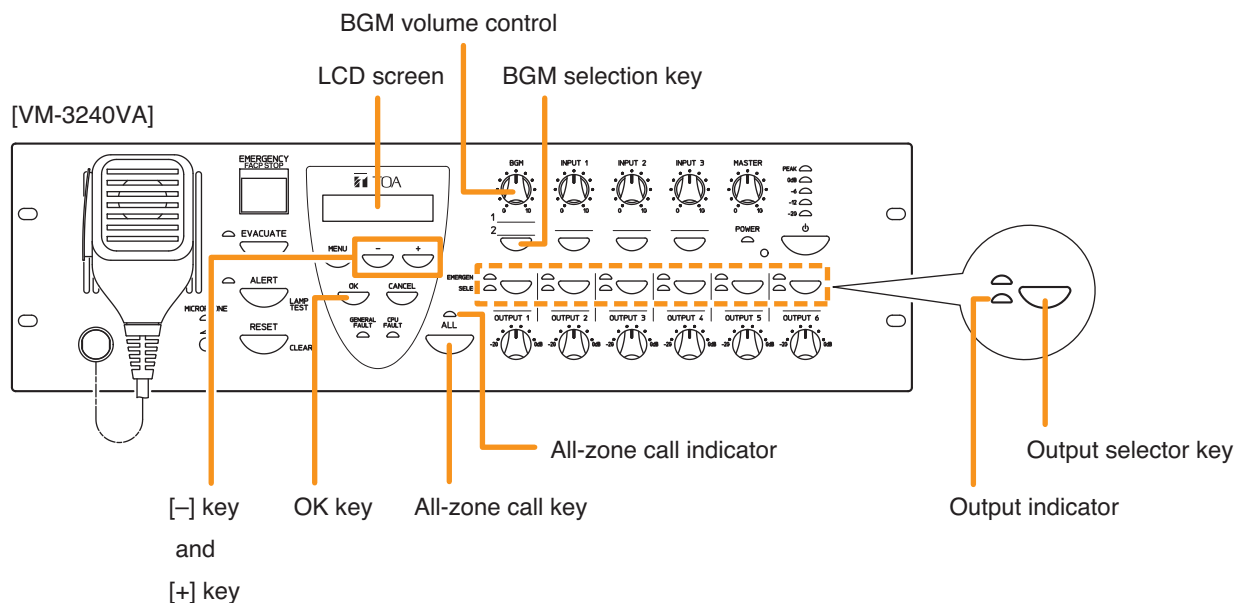
An electret condenser microphone can be connected to this terminal. Connecting a microphone to this jack disables the unit's microphone (11).

5. MAKING GENERAL BROADCASTS

5.1. Making Broadcasts from the VM-3240VA

5.1.1. BGM broadcasts

Broadcast musical programs from the BGM sound source connected to BGM input terminals 1 or 2 located on the rear panel of the VM-3240VA. Adjust the BGM volume control and the volume control of the designated speakers to an appropriate sound level in advance.



Step 1. Press the BGM selection key. The "Select BGM" screen will be displayed on the LCD.

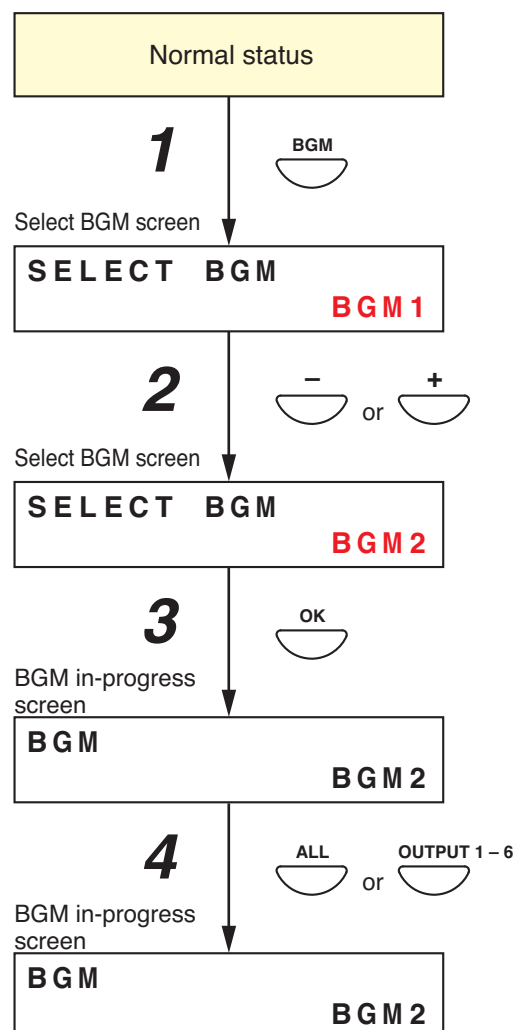
Step 2. Select either BGM 1 or BGM 2 with the [+] or [-] key.

Step 3. Press the [OK] key to confirm the selected BGM program.

Step 4. Press the all-zone call key or output selector key to select the broadcast zone, then begin the BGM broadcast.

- Pressing the all-zone call key causes the all-zone call indicator to light green, enabling BGM broadcasts over an entire area.
- Pressing an output selector key causes the selected output's indicator to light green, allowing the BGM program to be broadcast over the corresponding zone.

Step 5. To terminate the BGM broadcast, press either the all-zone call key or output selector key again. The indicator goes out and the BGM broadcast is terminated.



5.1.2. Microphone announcements

Make voice broadcasts using the microphone connected to any of audio input terminals 1 – 4 located on the rear panel of the VM-3240VA. Perform input sensitivity settings (Line/Mic selection) while viewing the LCD. (Refer to ["Input 1 – 3 Settings" on page 66.](#)) Also, adjust the volume control for the input the microphone is connected to (Inputs 1 – 4) and the speaker output volume control for the broadcast zone to an appropriate volume in advance.

Note

The microphone on the front panel is intended for emergency broadcasts only. It cannot be used for general broadcasts.

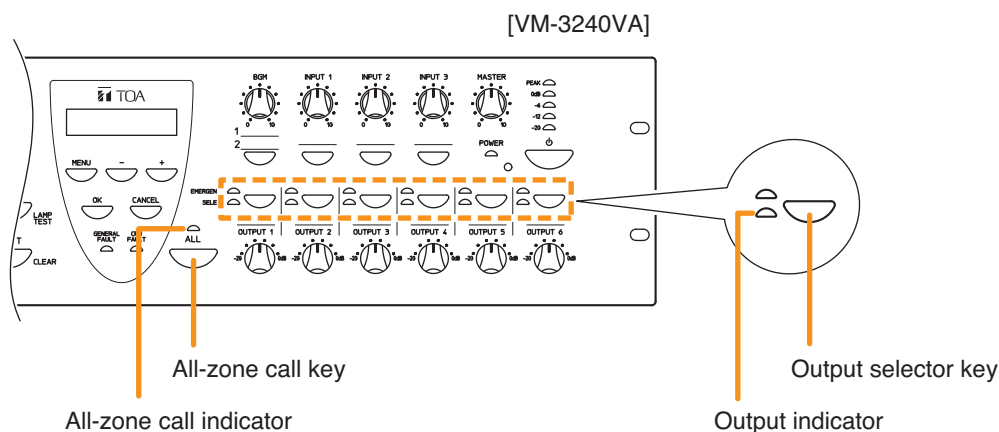
[Front panel-mounted key operation for microphone announcements]

Perform the following setting in advance using the setting software:

Set the priority level of the audio input terminal to which the microphone is connected to "7" (MIX). (Refer to ["General Broadcast Priorities" on page 31](#) for priority levels, and to "Priority Settings" in the separate software manual for how to set priorities.)

Step 1. Press either the all-zone call key or output selector key to select the broadcast zone.

- Pressing the all-zone call key causes the all-zone call indicator to light green, enabling microphone announcement broadcast over an entire area.
- Pressing an output selector key causes the selected output's indicator to light green, allowing the microphone announcement to be broadcast over the corresponding zone.



Step 2. Make a microphone announcement using the microphone connected to the audio input terminal on the rear panel.

Step 3. To terminate the microphone announcement, press the all-zone call key or the same output selector key again.

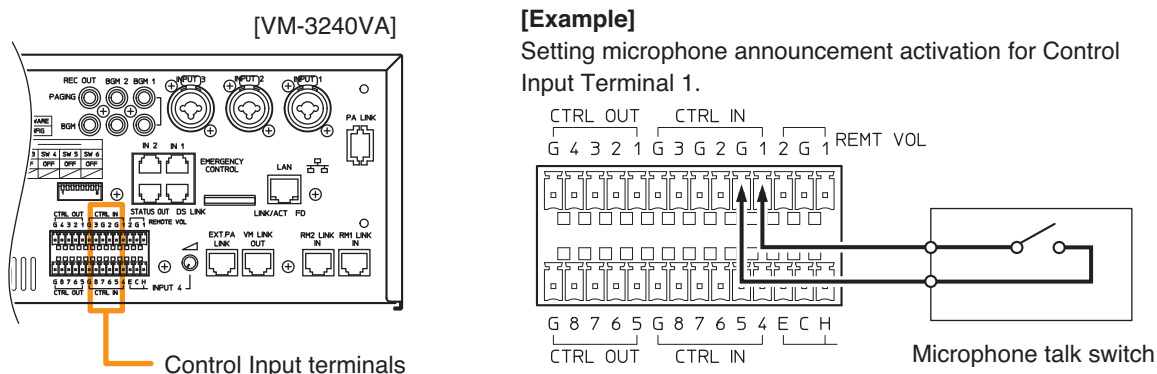
The corresponding indicator goes out, terminating the microphone announcement.

[Making microphone announcements by activating control inputs]

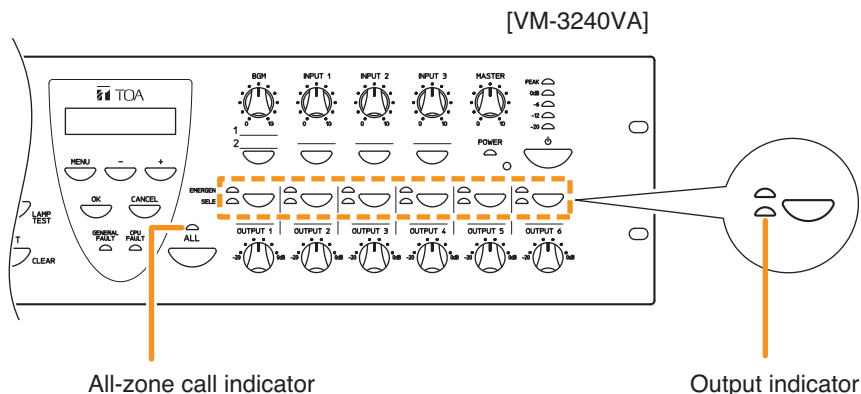
Perform the following settings in advance using the setting software:

- Set the priority level of the audio input terminal to which the microphone is connected to any of "1" – "6". (Refer to ["General Broadcast Priorities" on page 31](#) for priority levels, and to "Priority Settings" in the separate software manual for how to set priorities.)
- Perform settings so that a microphone announcement is broadcast over designated broadcast zones when the control input terminal is activated. (For more information, refer to "General Control Input Settings" in "Event Settings" in the separate software instruction manual.)

Step 1. Close ("Make") the Control Input terminals on the rear panel of the VM-3240VA.



The corresponding all-zone call or output indicator lights green, allowing microphone announcements to be broadcast from the corresponding speaker line.



Step 2. Make a microphone announcement using the microphone connected to the audio input terminal on the rear panel.

Step 3. To terminate the microphone announcement, open ("break") the Control Input terminals. The corresponding indicator goes out, terminating the microphone announcement.

5.2. Broadcasting from the RM-200M

5.2.1. Microphone announcements

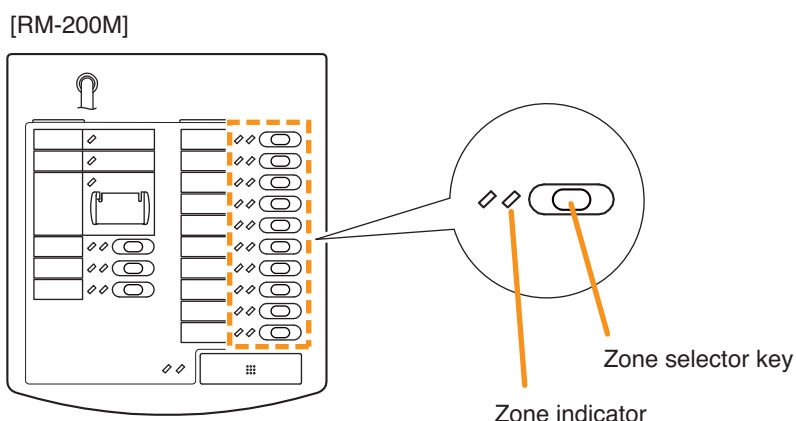
Use the RM-200M's microphone to make announcements.

Perform the following settings in advance using the setting software:

Assign a broadcast zone selection function to the key.
(Refer to "RM Function Key Settings" in "Event Settings" in the separate software instruction manual.)

Step 1. Press the broadcast zone selector key to select the broadcast zone.

The selected zone's indicator lights green, allowing microphone announcements to be broadcast over the zone assigned to the key.



Step 2. Press the Talk key to make an announcement.

The talk indicator lights green while the Talk key is pressed.

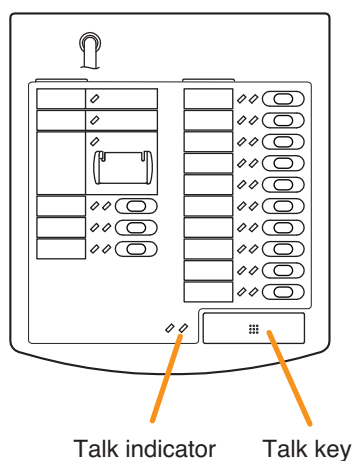
Notes

Two modes are available for Talk key operation: "PTT" and "Lock" modes.

- When the talk key is set to PTT mode, announcements can only be broadcast while the Talk key is held down. Releasing the Talk key terminates the broadcast and extinguishes the indicator.
- When set to Lock mode, pressing the Talk key initiates a broadcast and pressing the key again terminates the broadcast and extinguishes the indicator.

To set the Talk key mode, use the DIP switch located on the side of the RM-200M.

(Refer to ["Talk Key Settings" on page 70 for DIP switch settings.](#))

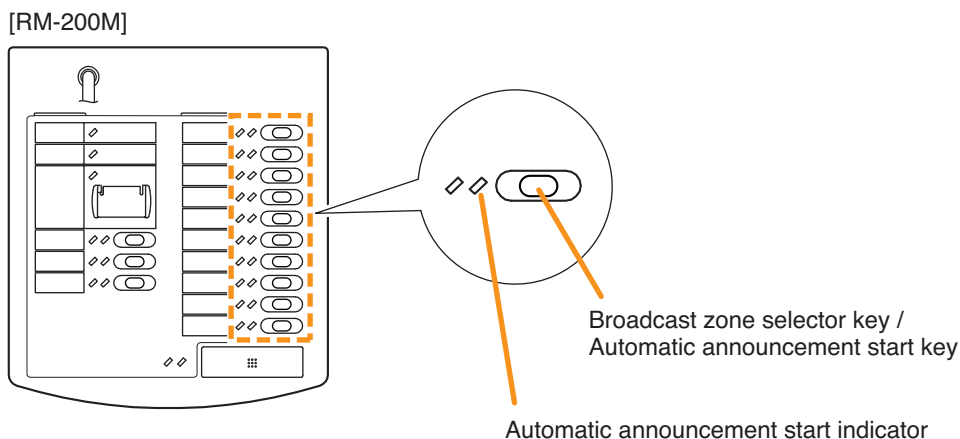


5.2.2. Automatic announcement broadcasts

This function makes general broadcasts by activating and playing back automatic announcements recorded and stored in the VM-3240VA.

Perform the following settings in advance using the setting software:

- Assign a broadcast zone selection to the key.
(Refer to "RM Function Key Settings" in "Event Settings" in the separate software instruction manual.)
- Assign an automatic announcement function to the key.
(Refer to "RM Function Key Settings" in "Event Settings" in the separate software instruction manual.)



Step 1. Press the broadcast zone selector key to select the broadcast zone.

The selected zone's indicator lights green, allowing the automatic announcement assigned to that key to be broadcast.

Step 2. Press the automatic announcement start key to start the broadcast. The automatic announcement indicator lights green and the automatic announcement is broadcast over the selected zone.

Step 3. When the automatic announcement playback is complete, the indicator goes out and the broadcast is terminated.

Note

Pressing the automatic announcement start key partway through playback causes the broadcast to be terminated and the indicator to go out.

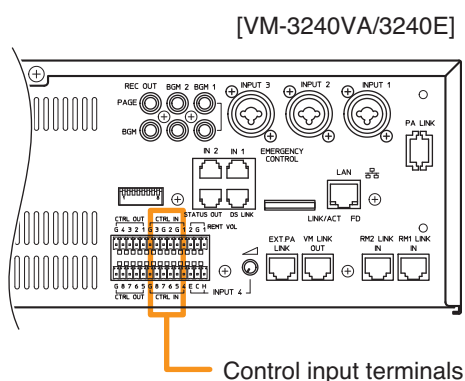
5.3. Making Automatic Announcements Using Control Signal Inputs

This function makes general broadcasts by playing back internal automatic announcements activated when the control input terminals located on the rear panel of the VM-3240VA or VM-3240E receive a broadcast control signal.

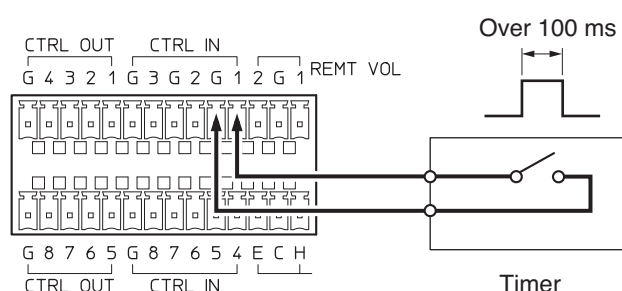
Perform the following settings in advance using the setting software:

Make settings so that the automatic general announcement is broadcast over the designated zone(s) when the control input terminals of the VM-3240VA or VM-3240E are activated.
(For more information, refer to "VM-3000VA Settings" or "VM-3000E Settings" in "System Settings" in the separate software instruction manual.)

Step 1. Connect a timer or other external control device to the control input terminals located on the rear panel of the VM-3240VA or VM-3240E.

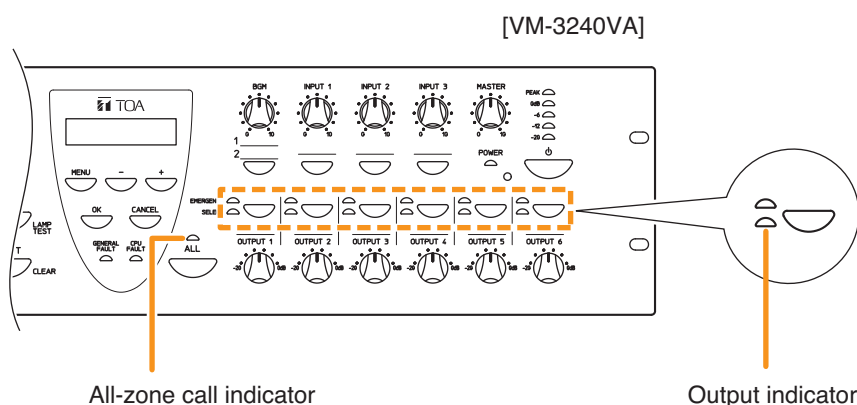


[Example] Connecting a timer to Control Input Terminal 1



Note: This figure shows the VM-3240VA.

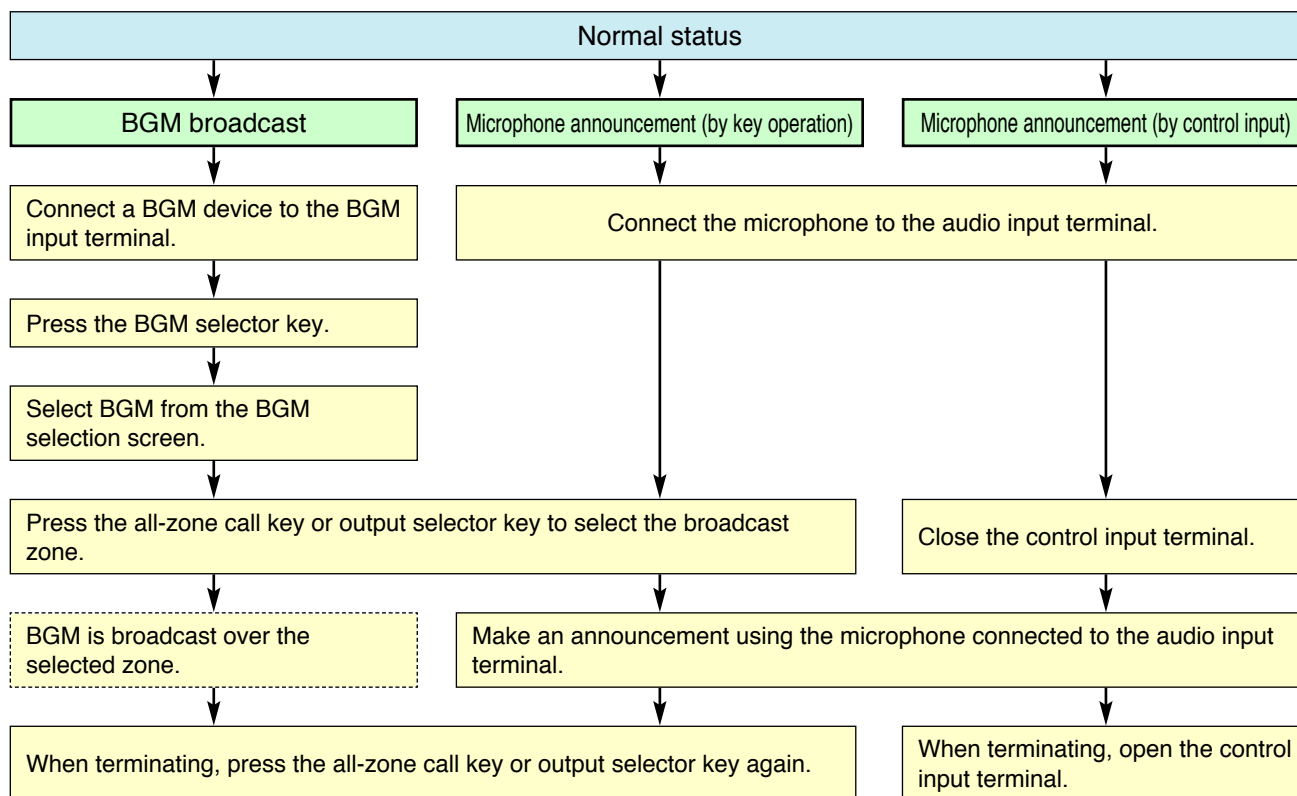
Step 2. When the timer's preset time is reached, the Contact Input receives a contact output signal (make contact) from the timer. The all-zone call indicator or output indicator corresponding to the set zone lights green and the automatic general announcement is broadcast over that zone.



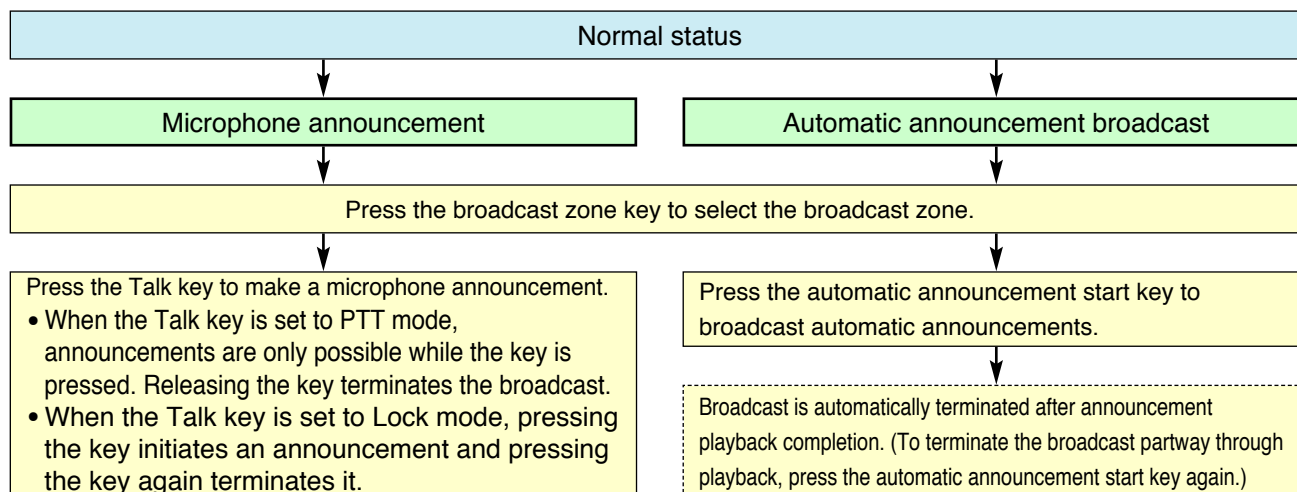
Step 3. After the automatic general announcement playback is complete, the broadcast is terminated and the indicator goes out.

5.4. Summary of General Broadcast Procedures

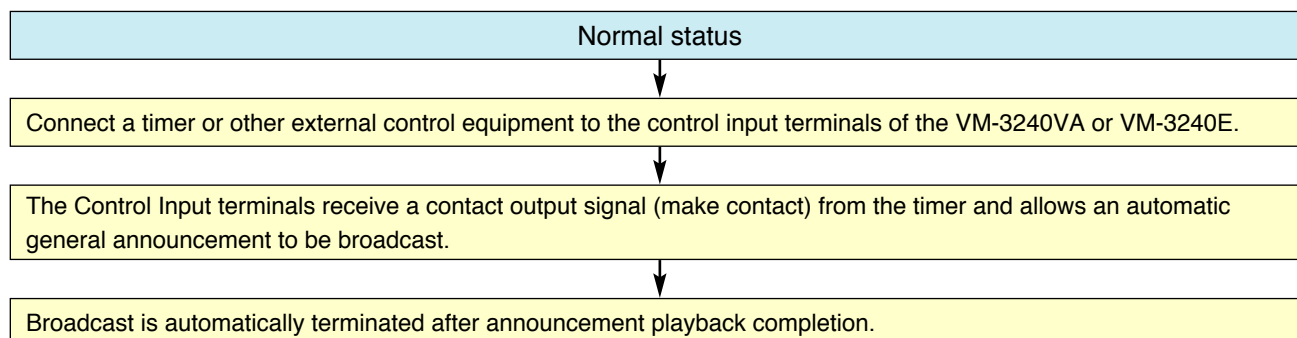
5.4.1. Making general broadcasts from the VM-3240VA



5.4.2. Making general broadcasts from the RM-200M Remote Microphone



5.4.3. Broadcasting automatic general announcements using the control signal input



6. MAKING EMERGENCY BROADCASTS

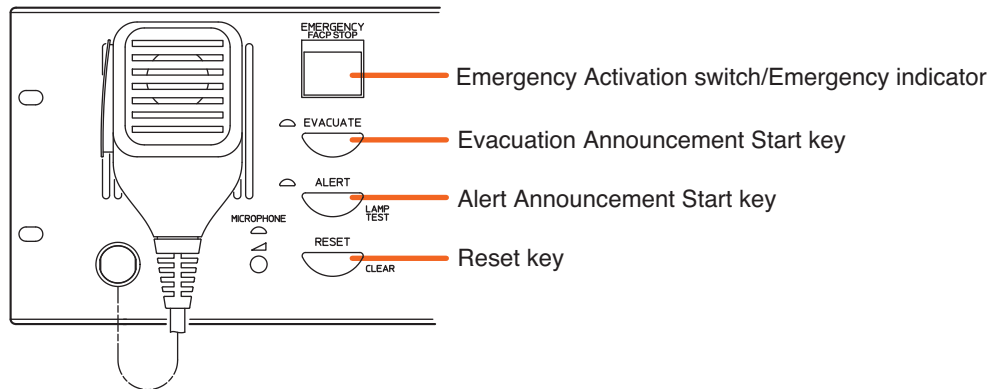
The following method is used for making emergency broadcasts:

Press the Emergency Activation switch on the front panel of the VM-3240VA to initiate emergency broadcasts.

Note

To use the keys shown below, enable their functions on the setting software. (For details, refer to "Emergency Control Input Settings" in "Event Settings" in the separate software instruction manual.)

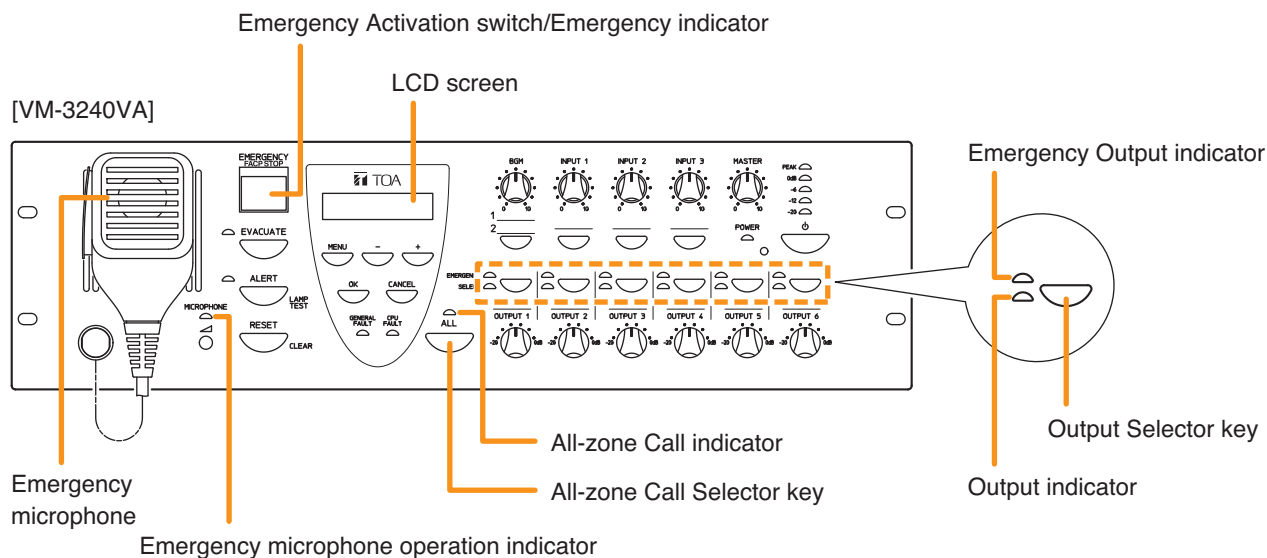
[VM-3240VA]



6.1. Making Emergency Broadcasts from the VM-3240VA

6.1.1. Microphone announcements

Use the emergency microphone located on the front panel of the VM-3240VA.



Step 1. Press the Emergency Activation switch.

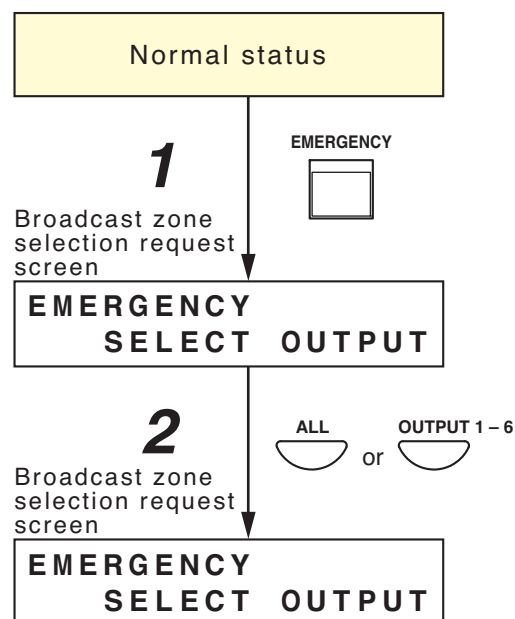
The Emergency indicator (Emergency Activation switch) lights red and the VM-3240VA is placed in emergency broadcast mode. The indication requesting broadcast output selection is displayed on the LCD.

Step 2. Press the All-Zone Selector key or Output Selector key to select the broadcast zones.

- Pressing the All-Zone Call Selector key causes the All-Zone Call indicator to light green, allowing emergency broadcasts to be made over all broadcast zones.
- Pressing the Output Selector key causes the selected Output indicators to light green, allowing emergency broadcasts to be made over the corresponding broadcast zone(s).

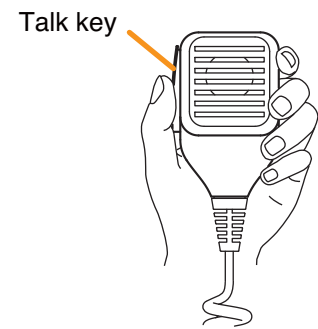
Note

Skipping Step 2 allows emergency broadcasts to be made over all zones, as if the All-Zone Call Selector key was pressed.



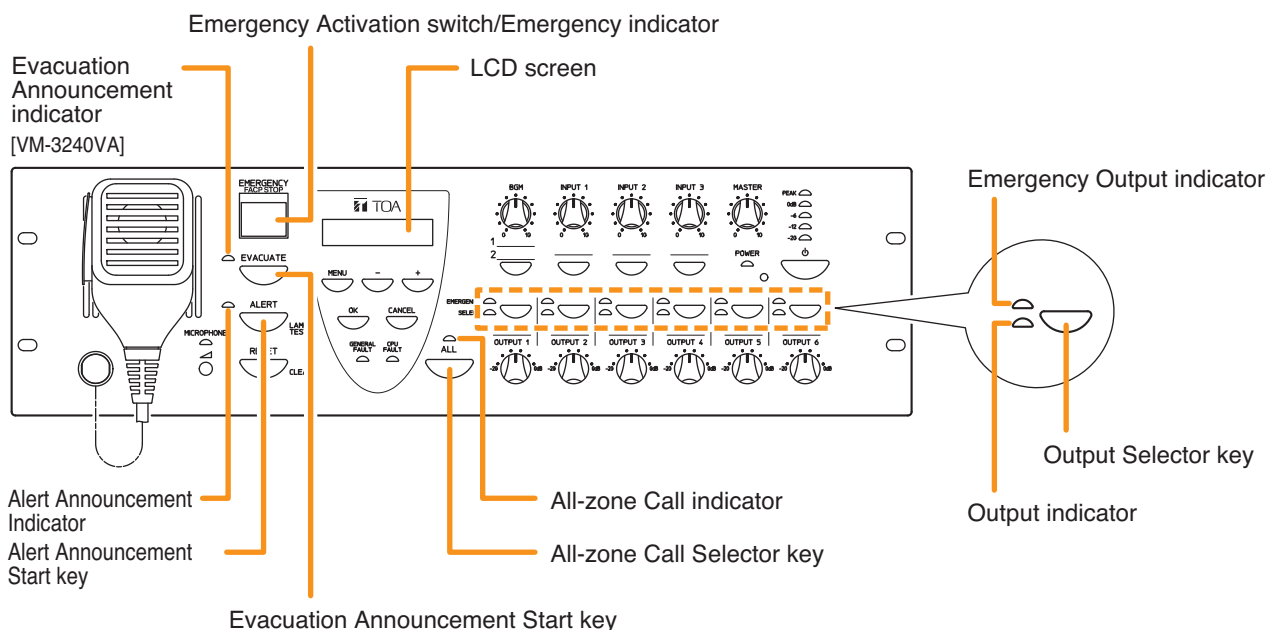
Step 3. Make announcement while pressing the emergency microphone's Talk key. During emergency microphone announcements, the Emergency Microphone Operation indicator and Output indicator both light red. At the same time, the "EMERGENCY VA MICROPHONE" indication is displayed on the LCD.

**EMERGENCY
VA MICROPHONE**



6.1.2. Automatic emergency announcement broadcasts

This function makes emergency broadcasts with the key on the VM-3240VA's front panel by playing back the Alert or Evacuation tone and message announcements recorded and stored in the VM-3240VA.



Step 1. Press the Emergency Activation switch.

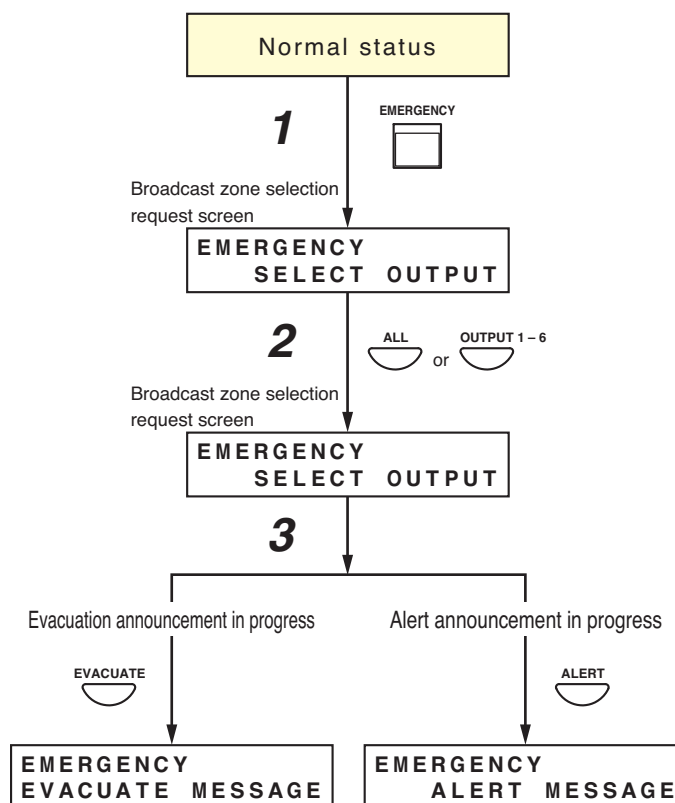
The Emergency indicator (Emergency Activation switch) lights red and VM-3240VA is placed in emergency broadcast mode. The indication requesting broadcast output selection is displayed on the LCD.

Step 2. Press the All-Zone Call Selector key or Output Selector key to select the broadcast zones.

- Pressing the All-Zone Call Selector key causes the All-Zone Call indicator to light green, allowing emergency broadcasts to be made over all broadcast zones.
- Pressing the Output Selector key causes the selected Output indicators to light green, allowing emergency broadcasts to be made over the corresponding broadcast zone(s).

Note

Skipping Step 2 allows emergency broadcasts to be made over all zones, as if the All-Zone Call Selector key was pressed.



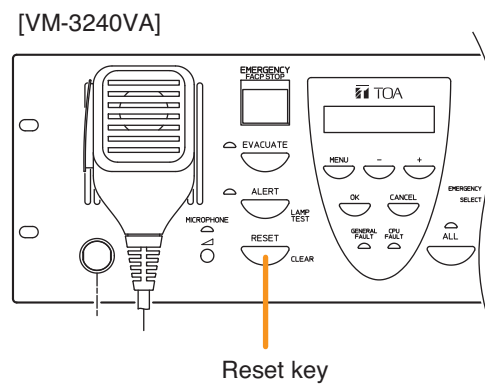
Step 3. Press either the Alert or Evacuation Announcement Start key.

The Alert Announcement indicator or Evacuation Announcement indicator and the Emergency Output indicator both light red, broadcasting the Alert or Evacuation announcement over the selected broadcast zone(s).

Note

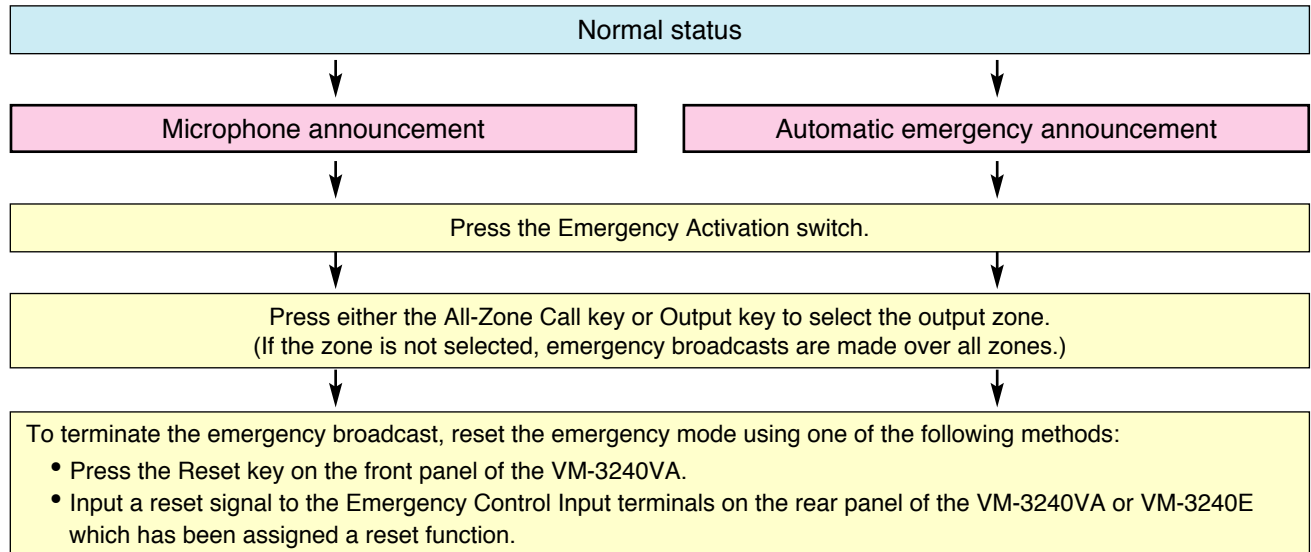
Holding down the Alert Announcement Start key during Alert announcements or the Evacuation Start key during Evacuation announcements for 3 seconds or more causes the announcement to be terminated and the indicator to go out.

Step 4. To terminate the emergency broadcast, press the Reset key.



6.2. Summary of Emergency Broadcast Procedures

[Making emergency broadcasts from the VM-3240VA]



7. PRIORITY SETTINGS

7.1. General Broadcast Priorities

In general broadcasts, priorities can be set to the VM-3240VA's input source and the VM-3240E's local input source. Following are such priority-assignable inputs or sound sources: INPUT 1 – 4 (audio input), BGM 1 & 2 (BGM input), RM 1 & 2 LINK IN (remote microphone input), internal automatic general announcements 1 – 6, and Local INPUT (audio input).

Priority levels can be set on the setting software. (Refer to "Priority Settings" in the separate software instruction manual.)

- The lower the number, the higher the priority. Priorities that can be set differ depending on the connected terminal.

Input Terminal (Sound Source)	Priorities
Inputs 1 – 4 (audio)	1 – 6 and 7 (MIX)
BGM 1 & 2 (BGM)	8 (BGM)
RM 1&2 LINK IN (remote microphone)	1 – 6
Automatic announcements 1 – 6 (Internal sound source)	1 – 6
Local Input	1 – 6

- While a broadcast with Priority 1 – 6 is being made, if another broadcast with higher priority is made, the lower priority broadcast is interrupted. When multiple broadcasts with the same priority are simultaneously made, the latest broadcast takes precedence (default: last-in-first-out priority). This priority can be changed to a first-in-first-out arrangement through software settings. The original broadcast is restored after the priority broadcast is complete.
- When another higher priority broadcast is started during a broadcast, if broadcast areas for the two are different, the original broadcast is cut off in areas other than those where the higher priority broadcast has been made.
- Priority 7 can be assigned only to Inputs 1 – 4 (audio input). Setting these inputs to Priority 7 (MIX) allows them to be used as BGM source inputs. If two or more of these inputs are set to Priority 7, their sound source outputs are mixed.
- Priority 8 can be assigned only to BGM 1 & 2 (BGM input). If broadcast with Priority 1 – 7 is started during BGM (Priority 8) playback, the BGM is temporarily attenuated to allow the broadcast with Priority 1 – 7 to go through. The original BGM playback is restored when the priority broadcast is complete.
- When multiple input sound sources are simultaneously broadcast, the Output indicator indicates the input sound source with the highest priority.
- Depending upon priorities set to each input terminal (sound source), operations of the internal attenuator (speaker output volume control) and master volume control differ.

Priority	Internal ATT.	Master volume
1, 2	Bypass	Bypass
3, 4	Bypass	Bypass
5, 6	Bypass	Enable
7 (MIX)	Enable	Enable
8 (BGM)	Enable	Enable

7.2. Emergency Broadcast Priorities

Priorities for emergency broadcasts are assigned to the following announcements: microphone announcements from VM-3240VA and Alert/Evacuation announcements. (Priorities are fixed.)
The lower the number, the higher the priority.

Sound Source	Priorities (fixed)
Not used.	1
VM-3240VA Microphone Announcement	2
Not used.	3
Evacuate EV (internal pre-recorded Evacuation message)	4
Alert EV (internal pre-recorded Alert message)	5

The internal attenuator (speaker output volume control) and master volume control cannot be used during emergency broadcasts.

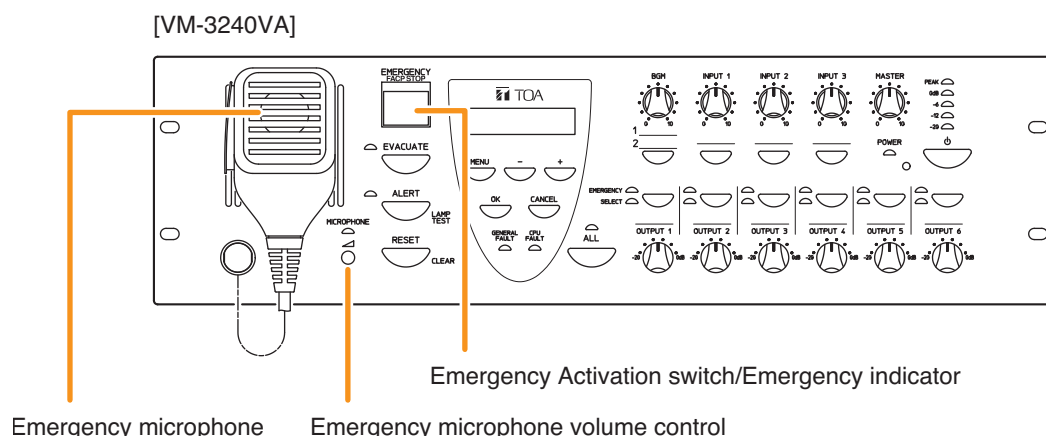
8. CPU OFF FUNCTION

8.1. What Is the CPU OFF Function?

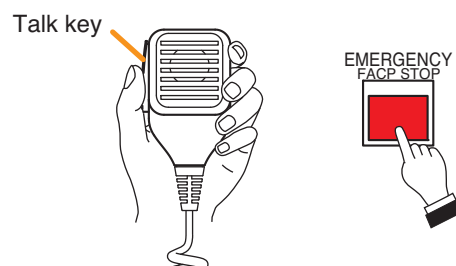
The CPU OFF function bypasses the CPU*, which the VM-3000 system uses in ordinary broadcasts, and allows all-zone calls to be made from the VM-3240VA. Use this function when ordinary broadcasts cannot be made due to system failures, etc.

* A signal processing unit installed in the VM-3240VA or VM-3240E.

8.2. Making All-Zone Calls Using the CPU OFF Function



While the Emergency Activation switch on the front panel of the VM-3240VA and the Emergency Microphone's Talk key are simultaneously held down, the Emergency indicator (red) remains lit and the amplifier is placed in CPU OFF condition, allowing all-zone calls to be made from the Emergency Microphone. Adjust the sound volume with the Emergency Microphone's volume control.



9. SURVEILLANCE

9.1. What Is the Surveillance Function?

The surveillance function continually monitors operating conditions for each piece of equipment in the system, operations between equipment components, connections and communications between equipment components, power supply conditions and other important component parts and points extending from input to output. If malfunctions or cable breakage is detected, details of such irregularities* are displayed on the VM-3240VA's LCD. At the same time, the communications failure indicator or failure indicator on the system equipment flashes to alert the system operator to such irregularities along with a buzzer tone.

The setting software is used to set surveillance time intervals, component parts to be monitored and subsequent operations when a failure is detected. (Refer to "Surveillance Settings" in the separate software instruction manual.)

Detected failures are recorded in the VM-3240VA's log, and the recorded log can be confirmed using the setting software. (Refer to "Log Display" in the separate software instruction manual.)

* For LCD failure display, refer to [page 41](#).

9.2. How to Use the Surveillance Function

Be sure to perform the following settings to enable the surveillance function. If not performed, the surveillance function cannot be used.

- Initialize surveillance settings using the setting menu displayed on the VM-3240VA's LCD. (Refer to ["Surveillance Settings" on page 65](#).)

Note

Be sure to perform this initialization after completing the system installation and connections.

- Use the setting software to set the surveillance function. (Refer to "Surveillance Settings" in the separate software instruction manual.)

9.3. Monitored VM-3000 System Components

Shown below are the monitored component parts and points:

- VM-3240VA
- Automatic emergency announcement
- Expansion amplifier (VM-3240E)
- Battery
- Speaker (short or open circuit)
- Speaker (ground fault)
- Charging device (VX-2000DS)
- Emergency control terminal
- General-use remote microphone (RM-200M)

Using the setting software, enable or disable settings individually for each of the above items. (Refer to "Surveillance Settings" in the separate software instruction manual.)

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control and Communication Units for Mass Notification Systems, UL 2572 and CAN/ULC-S576, certain programming features or options must be limited to specific values or not used at all as indicated below.

Program feature or option	Permitted in UL 2572 and CAN/ULC-S576	Possible settings	Settings permitted in UL 2572 and CAN/ULC-S576
Time / Interval setting			
Battery Time	N	Disable / 00:00 – 23:00	Disabled
External ATT/AC Time-mains failure status	Y	Disable / 00:00 – 23:00	Time 00:00 Interval 100 sec
Surveillance group setting			
VM-300VA	Y	On / Off	On
Emergency EV	Y	On / Off	On
VM-3000E	Y	On / Off	On
Battery	Y	On / Off	On
Speaker (Open/Short)	Y	On / Off	On* ¹
Speaker (Earth Fault)	Y	On / Off	On
Charging Equipment	Y	On / Off	On* ²
Emergency Control Input	Y	On / Off	On
General RM	Y	On / Off	On

*¹ Off when no speaker is connected to the VM-3240VA or VM-3240E.

*² Off when no VM-3240VA or VM-3240E is connected to the VX-2000DS through DS LINK.

9.4. Equipment Operation upon Failure Detection and Recovery Procedure

If any malfunction is detected within the system, the buzzer sounds, the failure indicator flashes and failure information* is displayed on the VM-3240VA's LCD screen. The operations of other system equipment differ when a communications error or other failures occur. The following are rough guidelines on actions to take after such failures have been detected.

The procedure for recovery from irregularities other than communications failures is:

1. Perform failure acknowledgment.
2. Remedy the cause.
3. Perform failure reset.

Recovering from communications failures:

When a failure is detected in communications between an individual component and the VM-3240VA, component operation can no longer be performed. First, remedy the cause of the failure.

If communication returns to normal, the original condition will automatically be restored.

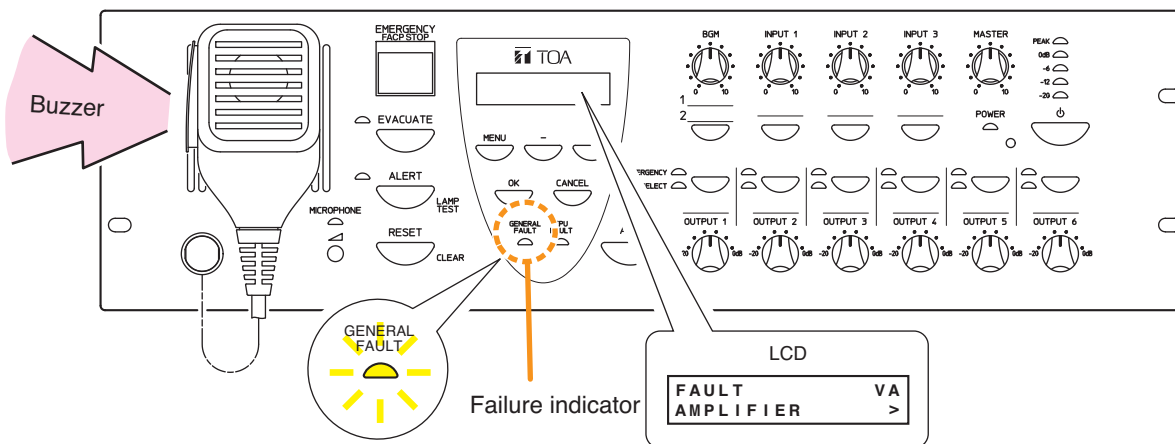
* For LCD failure display, refer to [page 41](#).

9.4.1. Equipment operation upon failure detection

[VM-3240VA]

Equipment operation upon failure detection

The buzzer sounds, the failure indicator flashes yellow and failure information is displayed on the LCD screen.



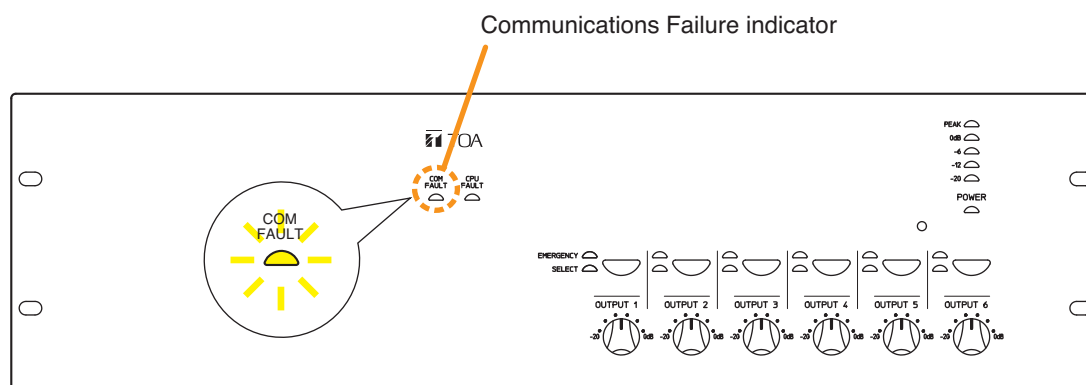
In this event, a failure of the contents shown on the LCD screen has occurred within the system. Pressing the amplifier's [OK] key to acknowledge the failure stops the buzzer and switches the yellow failure indicator from flashing to steady-on mode. (Refer to "Failure Acknowledgement" on [page 36](#)).

If the failure is reset at the amplifier, the failure indicator goes out. However, if the cause of the failure has not been remedied, the unit will return to failure status. (Refer to "Failure Reset Operation" on [page 37](#)).

[VM-3240E]

Equipment operation upon failure detection

The Communications Failure indicator flashes yellow.

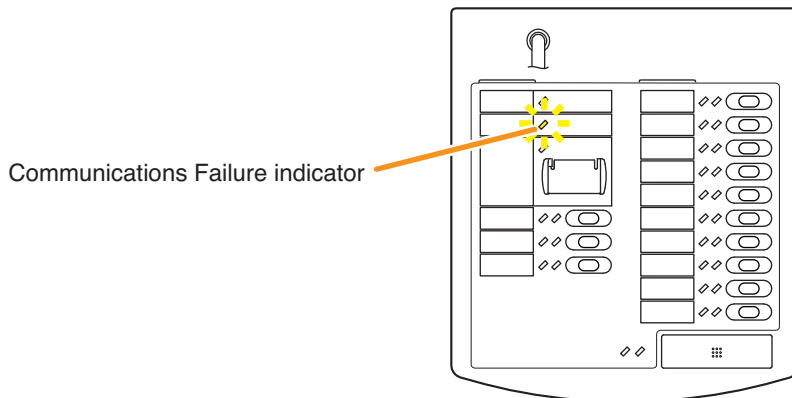


A failure has occurred in communications between the unit and the VM-3240VA.

The previous status is automatically restored if communications return to normal.

Equipment Operation Upon Failure Detection

The Communications Failure indicator flashes yellow.



A failure has occurred in communications between the RM-200M and the VM-3240VA. The previous status is automatically restored if communications return to normal.

9.4.2. Failure acknowledgment

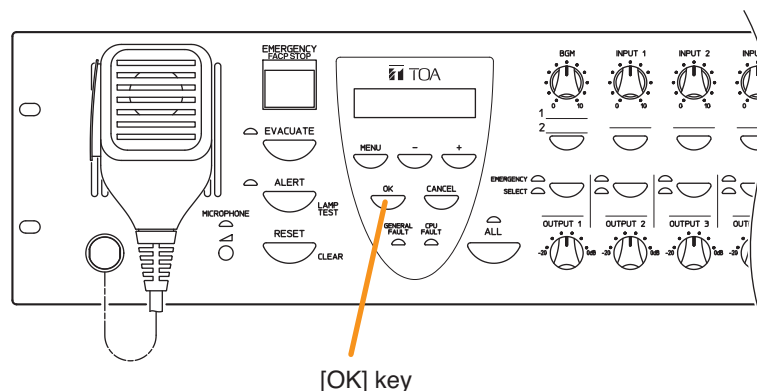
Perform failure acknowledgment at the VM-3240VA or by use of the control input. Acknowledging a failure causes all currently sounding buzzers to stop. At the same time, the flashing yellow Failure indicator on the VM-3240VA will switch to steady on mode. If the failure having been already acknowledged still remains more than 24 hours, the buzzer sound is automatically restarted.

Note

Only the Failure indicator is switched from flashing to steady on mode when failures are acknowledged. The Communications Failure indicator that flashes when a communications-related failure occurs will remain flashing.

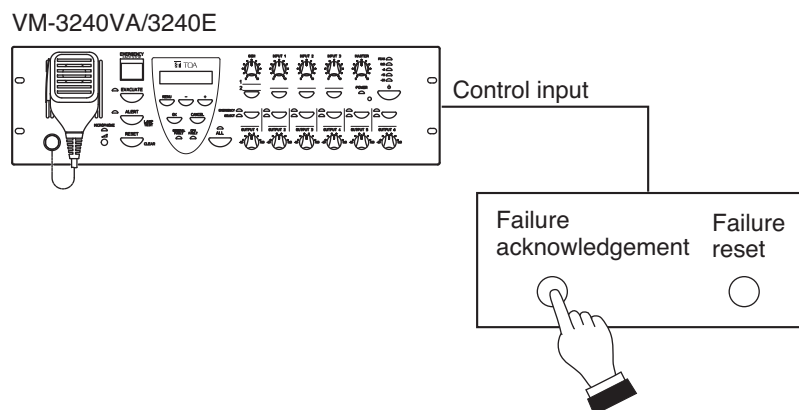
[Acknowledging failures at the VM-3240VA]

Press the [OK] key.



[Acknowledging failures by the control input]

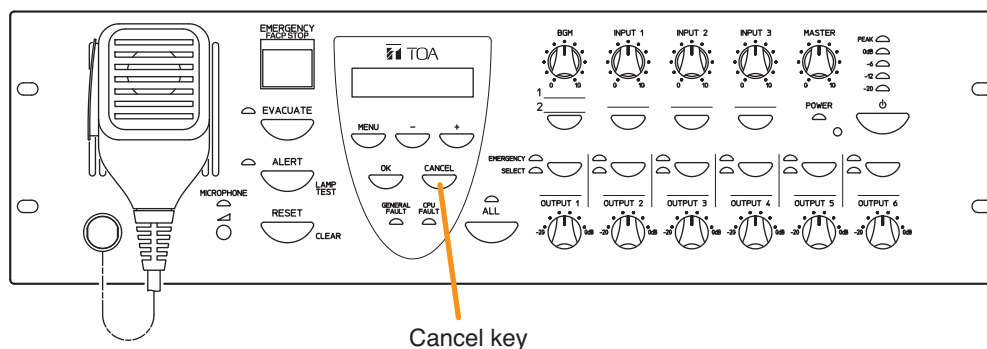
Failure acknowledgment can also be performed by using the control inputs of the VM-3240VA and VM-3240E. (Refer to "Event Settings" → "General Control Input Settings" in the separate software instruction manual.)



9.4.3. Failure reset operation

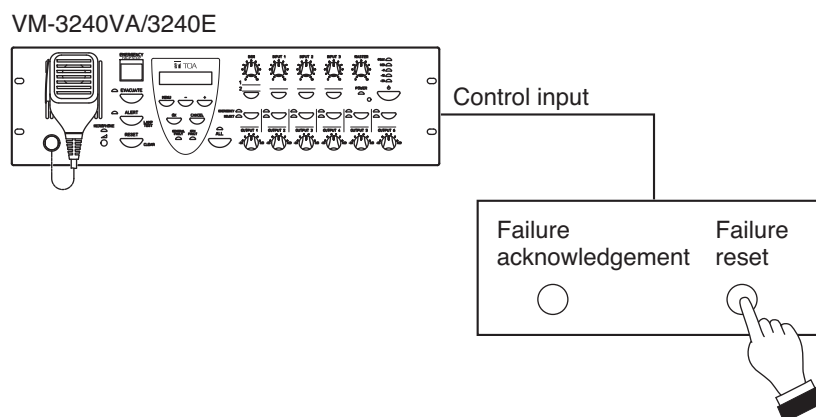
Perform failure reset at the VM-3240VA or by use of the control input.

Resetting failures causes all currently lit or flashing yellow Failure and Communications Failure indicators to go out and returns the system to normal status. However, if the cause of the failure has not been remedied, the system will again return to failure mode.



[Resetting failures by the control input]

Failure reset can also be performed by using the control inputs of the VM-3240VA and VM-3240E. (Refer to "Event Settings" → "General Control Input Settings" in the separate software instruction manual.)



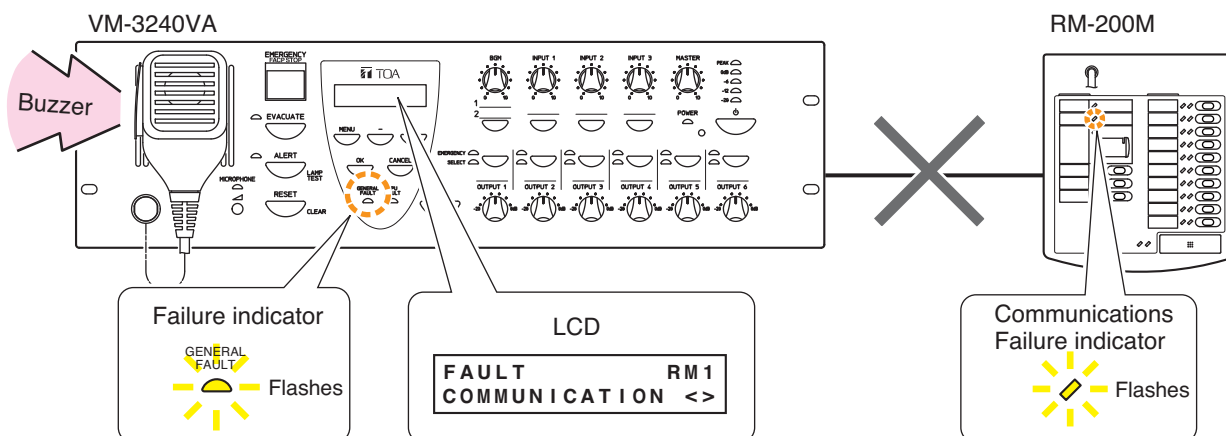
9.5. Examples

Procedures for acknowledging and resetting failures are explained here.

9.5.1. Failure example 1: Communications failure

Assuming that the RM-200M's connection is disconnected within the VM-3000 system, when the failure is detected, the equipment operates as follows:

VM-3240VA	The buzzer sounds, the Failure indicator flashes yellow and failure information is displayed on the LCD screen.
RM-200M	The Communications Failure indicator flashes yellow.



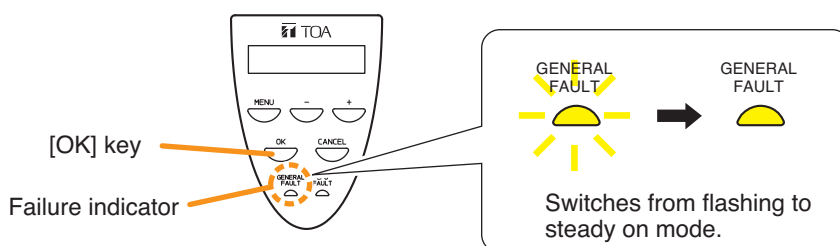
[Operation examples when a failure occurs]

Note

The RM-200M cannot be used.

Step 1. Press the VM-3240VA's [OK] key (to acknowledge the failure).

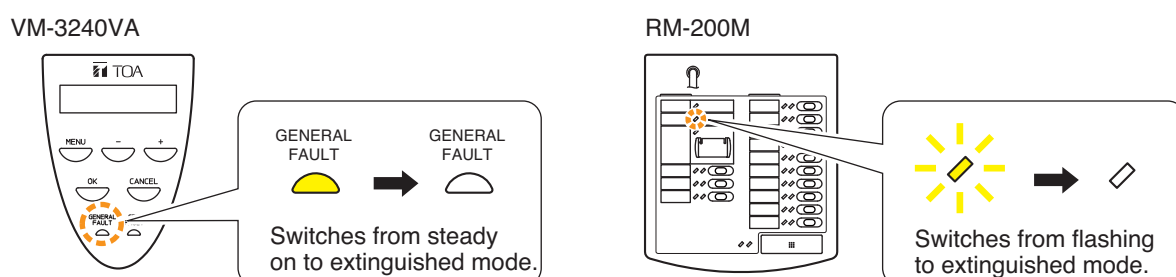
The buzzer stops and the yellow Failure indicator light switches from flashing to steady on mode.



Step 2. Determine the cause and remedy it.

Then correctly reconnect the cables between the RM-200M and the VM-3240VA.

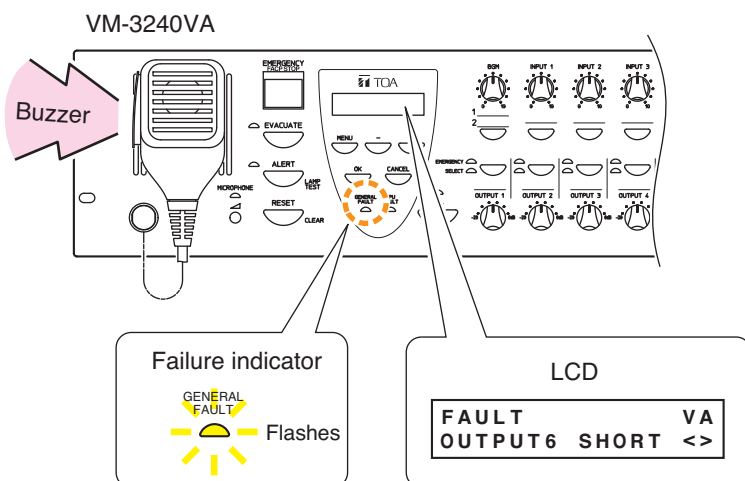
Step 3. If communications are restored, the system automatically returns to the previous status, causing the VM-3240VA's Failure indicator and the RM-200M's Communications Failure indicator to go out.



9.5.2. Failure example 2: Short circuit of speaker line 6

Assuming that Speaker Line 6 connected to the VM-3240VA is shorted, when the failure is detected, the equipment operates as follows.

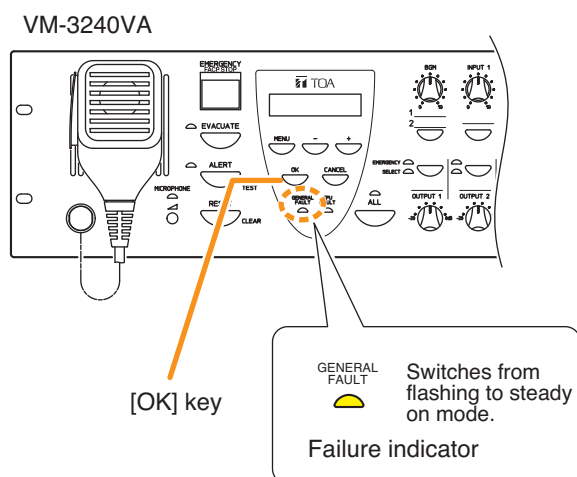
VM-3240VA	The buzzer sounds, the Failure indicator flashes yellow and failure information is displayed on the LCD screen.
-----------	---



[Operation example when a failure occurs]

Step 1. Press the VM-3240VA's [OK] key (to acknowledge the failure).

The buzzer on the VM-3240VA stops and the yellow Failure indicator on the VM-3240VA switches from flashing to steady on mode.

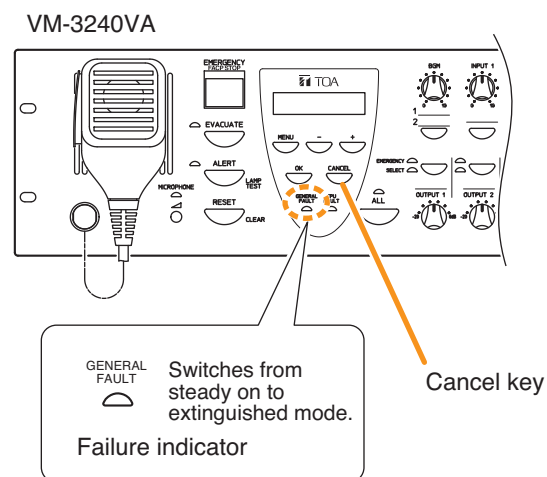


Step 2. Determine and remedy the cause.

If the cause cannot be determined from the VM-3240VA's on-screen display, connect a PC and load the log data using the setting software. (For log data loading, refer to "Log Display" in the separate software instruction manual.)

Step 3. Press the VM-3240VA's [CANCEL] key (to reset the failure).

The Failure indicator on the VM-3240VA goes out, allowing normal system operation to be restored.



9.6. LCD Failure Messages

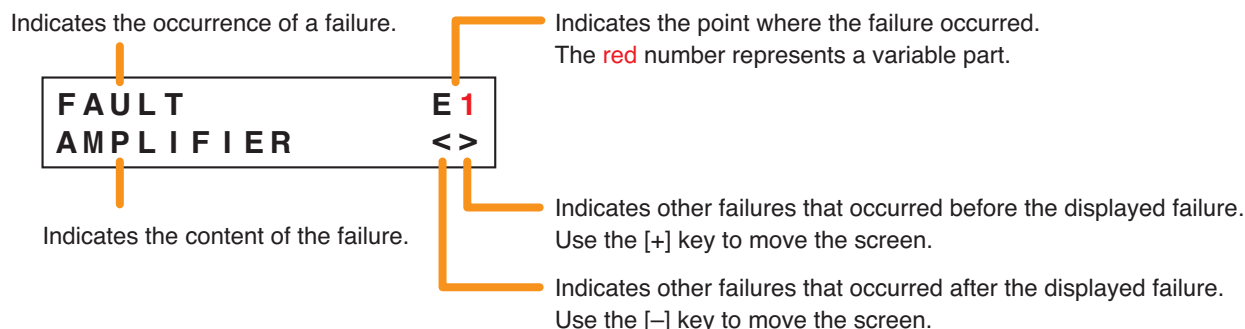
If a failure occurs, its information, including the failure point, is displayed on the VM-3240VA's front panel-mounted LCD screen.

In this event, the display alternates between "Failure information" and "BGM status" except in Emergency mode. Pressing the OK key sets the display to "Failure status."

The latest information is displayed on the LCD screen.

The ">" indication is displayed if failures occurred before the currently displayed failure, and the "<" indication is displayed if failures occurred after the currently displayed failure.

To confirm other failures not displayed on the screen, move the display using the [+] or [-] key.



Failure Location: Voice Alarm System Amplifier (VM-3240VA)		
FAULT AMPLIFIER VA >	The VM-3240VA has overheated or its fuse has blown.	
FAULT AUDIO LINE VA <>	Failure detected in the VM-3240VA's audio lines.	
FAULT MICROPHONE VA <	Failure detected in the VM-3240VA's front panel-mounted emergency microphone.	
FAULT TALK SW VA <>	Failure detected in the talk switch of the VM-3240VA's front panel-mounted emergency microphone.	
FAULT SETTING DATA VA >	Failure detected in the VM-3240VA's set files.	
FAULT LOG DATA VA >	Failure detected in the VM-3240VA's log files.	
FAULT EMERGENCY SW VA >	Failure detected in the VM-3240VA's Emergency Activation switch.	
FAULT POWER VA <>	Failure detected in the VM-3240VA's power supply.	

Failure Location: Automatic Emergency Announcement

FAULT **VA**
EMERGENCY EV **>**

Failure detected in the VM-3240VA's internal automatic emergency announcement device.

Failure Location: VM Extension Amplifier (VM-3240E)

FAULT **E 1**
AMPLIFIER **>**

The VM-3240E has overheated or its fuse has blown.

FAULT **E 2**
AUDIO LINE **<>**

Failure detected in the audio lines between the VM-3240VA and the VM-3240E.

FAULT **E 3**
COMMUNICATION **<>**

Failure detected in communications between the VM-3240VA and the VM-3240E.

FAULT **E 8**
POWER **<>**

Failure detected in the power supply of the VM-3240E.

Failure Location: Battery

FAULT **VA**
BATTERY **>**

Failure detected in the battery.

Failure Location: Speaker Line (Open or Short Circuit)

FAULT **VA**
OUTPUT OPEN **3 >**

Open circuit caused in speaker Line 3 of the VM-3240VA.

FAULT **VA**
OUTPUT SHORT **6 <>**

Speaker Line 6 of the VM-3240VA is short-circuited.

Failure Location: Speaker Line (Ground Fault)

FAULT	VA
GROUND FAULT	<

Ground fault caused in a speaker connected to the VM-3240VA.

FAULT	E 1
GROUND FAULT	<>

Ground fault caused in a speaker connected to the VM-3240E.

Failure Location: Emergency Power Supply (VX-2000DS)

FAULT	VA
DS	>

VX-2000DS has failed or is not connected.

FAULT	E 2
DS DC	>

Failure detected in the VX-2000DS' DC output.

Failure Location: Emergency Control Input Terminal

FAULT	E 3
EMG CTRL IN 4	>

Failure detected in the VM-3240E's emergency control input Terminal 4.

Failure Location: General-Use Remote Microphone (RM-200M)

FAULT	RM 1
COMMUNICATION	<>

Failure detected in communications between the RM-200M and the VM-3240VA.

External Failure Detected by the Control Inputs

FAULT	VA
EXTERNAL ERR 1	<>

Failure detected in the control input connected to the external equipment of VM-3240VA or VM-3240E.
The displayed error number indicates the control input 1 – 8 in failure state.

10. SETTINGS

Perform settings using the VM-3240VA's LCD screen.

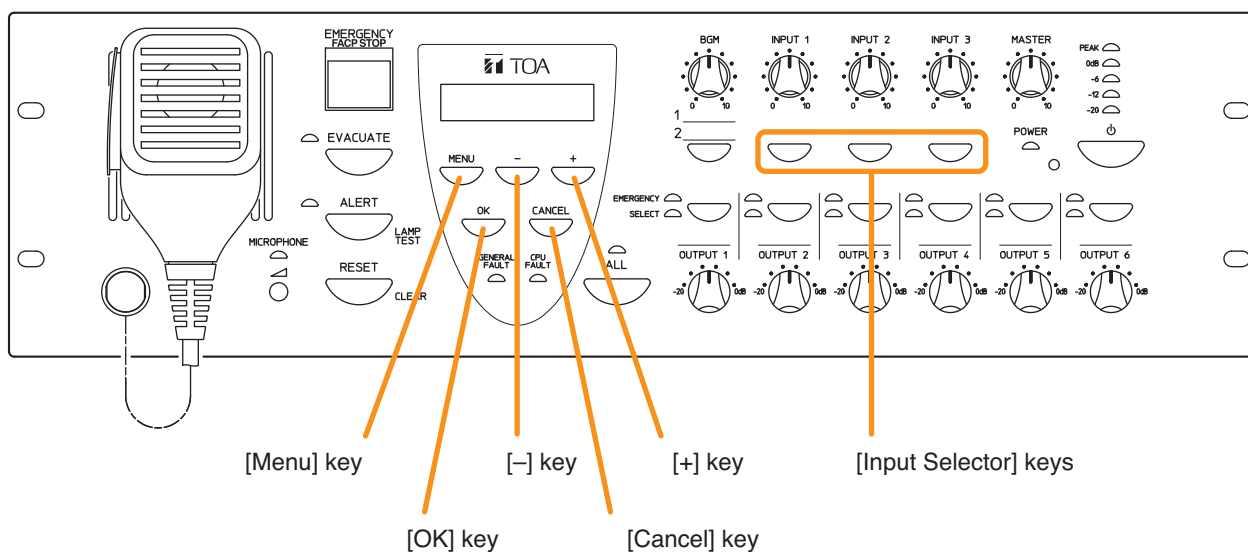
To set, select the desired item after entering the setting mode, then advance to the corresponding screen.

Even if the setting menu screen is selected by pressing the Menu key during normal operating status, current broadcasts are not interrupted. Entering a setting screen by pressing the OK key on the setting menu screen will, however, interrupt the broadcast.

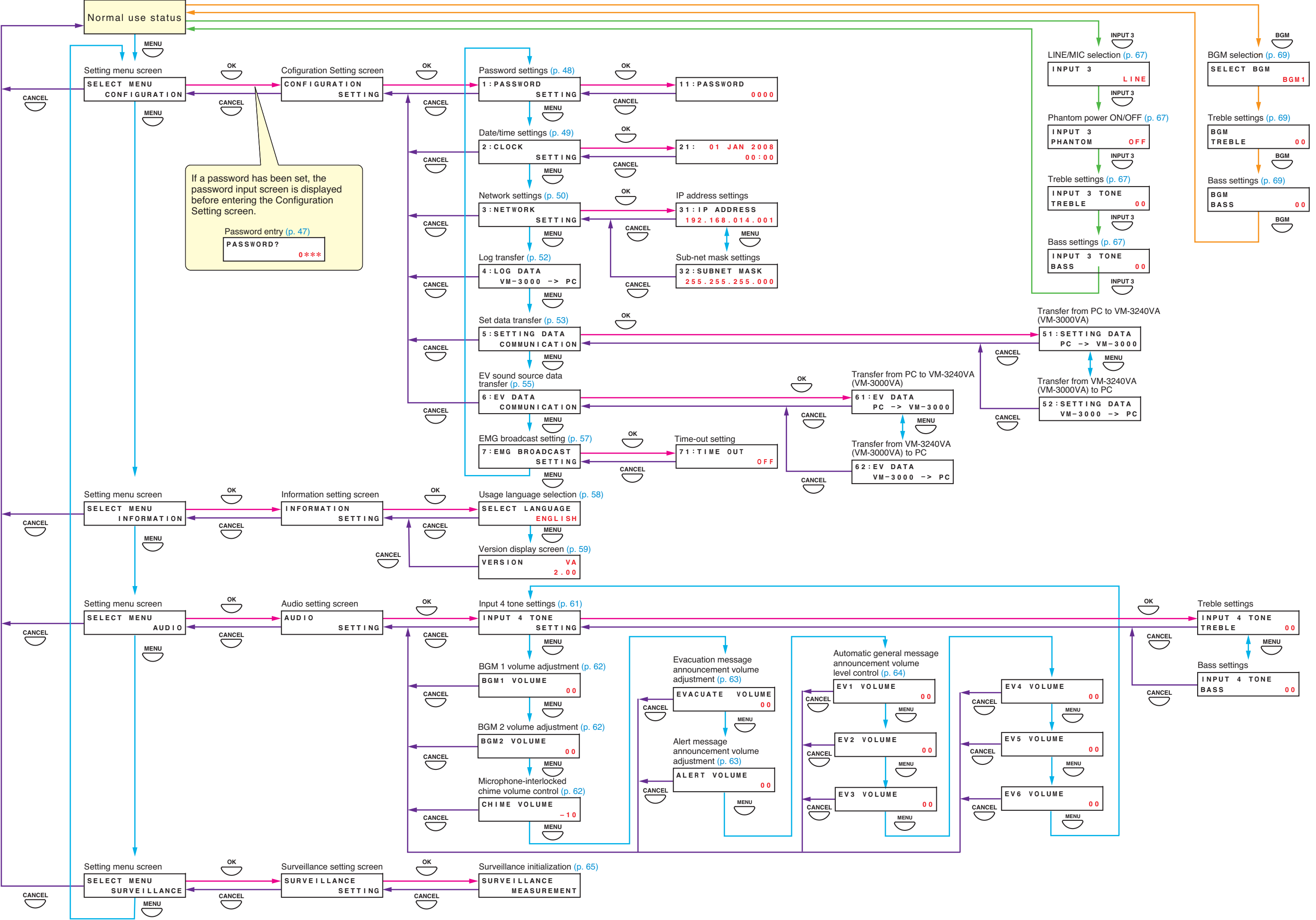
If the AC power supply is cut off during setting, all parameters currently being set will be cancelled.

10.1. Keys Used for Settings

VM-3240VA Front panel

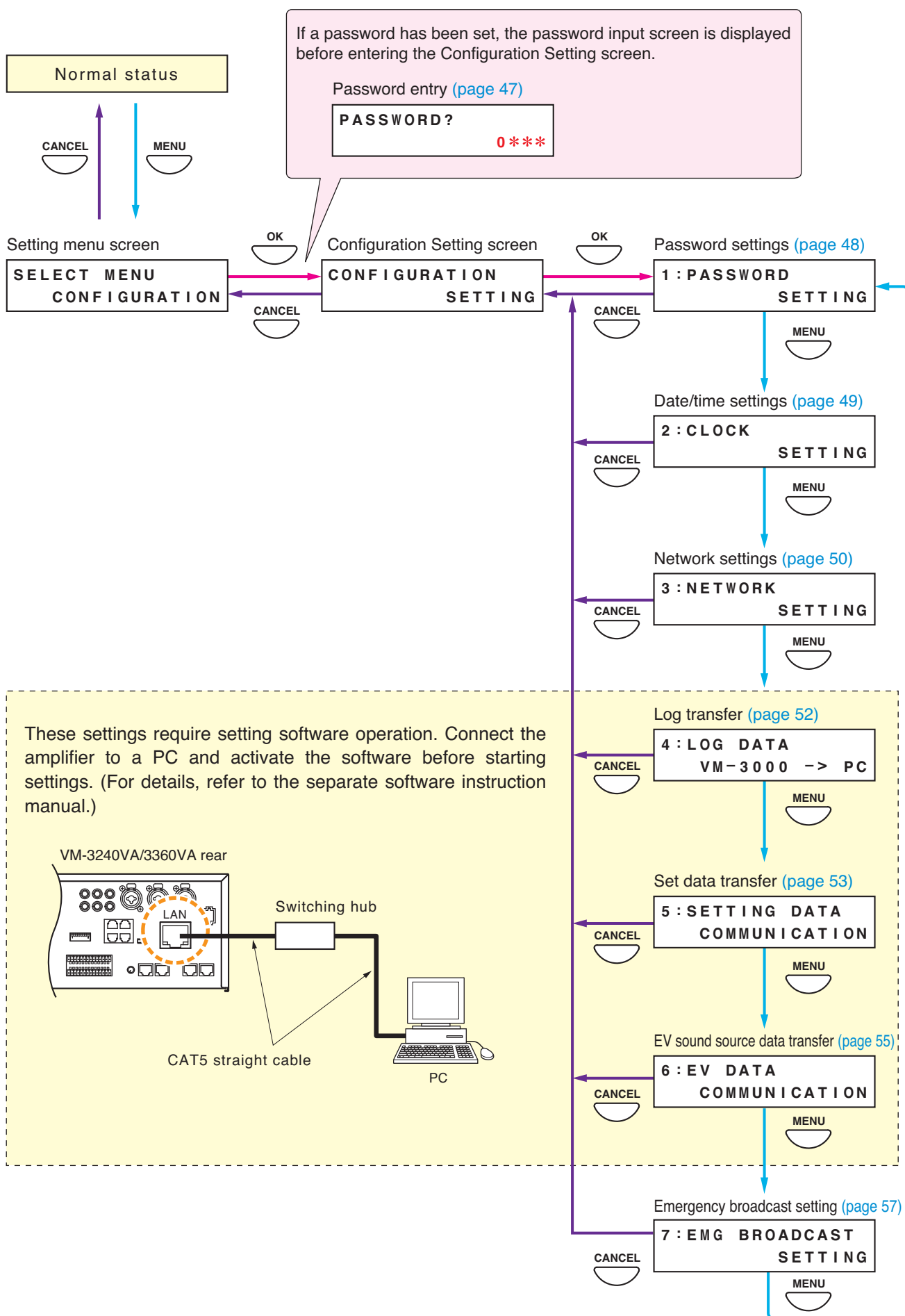


10.2. Setting Hierarchical Chart



10.3. Configuration Settings

10.3.1. Configuration settings hierarchical chart



10.3.2. Password entry

If a password has been set, the password entry screen is displayed before entering the Configuration Setting screen. (For password settings, refer to [page 48](#).)

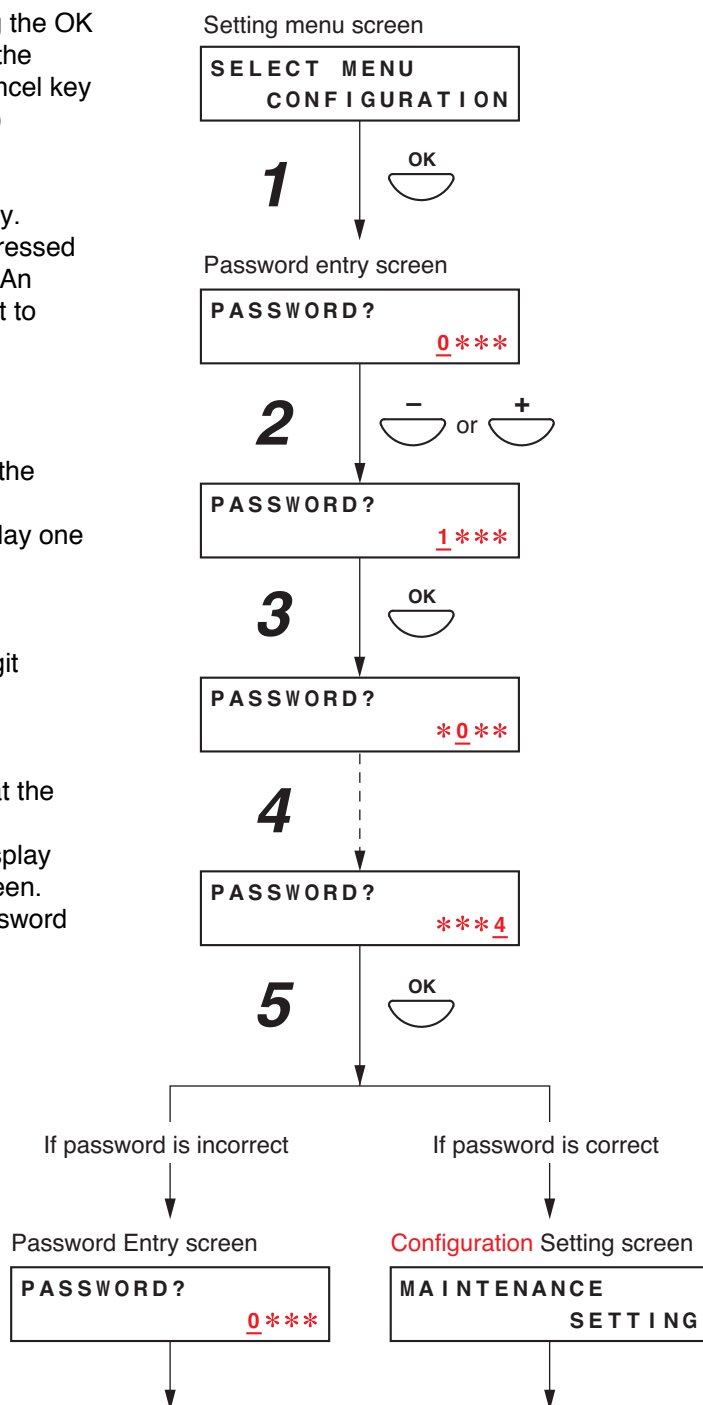
Step 1. When a password has been set, pressing the OK key on the setting menu screen displays the password input screen. (Pressing the Cancel key returns the display to the original screen.)

Step 2. Enter the password using the [+] or [-] key. The number increases as the [+] key is pressed and decreases as the [-] key is pressed. An underline () is shown at the leftmost digit to indicate entry position.

Step 3. Press the OK key. The underline moves to the next digit (to the right). (Pressing the Cancel key moves the display one screen back.)

Step 4. Repeat Steps 2 and 3 to complete a 4-digit number.

Step 5. Press the OK key when the underline is at the fourth digit. If the entered password is correct, the display switches to the Configuration Setting screen. If incorrect, the display returns to the password entry screen.



10.3.3. Configuration setting items

The screens shown here are only examples and may differ from the actual displays.

The sections in red are the setting items or contents that vary with the operation of the [+] or [-] key.

[Password settings]

Passwords must be set.

Use only a 4-digit (numerical) number (0001 – 9999) when setting.

No password (display: "0000") is set by default.

Step 1. Press the OK key on the password setting screen.

The screen for setting the password will be displayed.

If a password has already been set, the set password is displayed.

Note

Pressing the Cancel key returns the display to the original screen.

Step 2. Enter a password using the [+] and [-] keys.

The underline () shown at the leftmost digit indicates the entry point.

The number increases with the [+] key and decreases with the [-] key.

Note

Enter "0000" when not using a password.

Step 3. Press the OK key.

The underline moves to the next (right side) digit.

Note

Pressing the Cancel key returns the display to the previous screen.

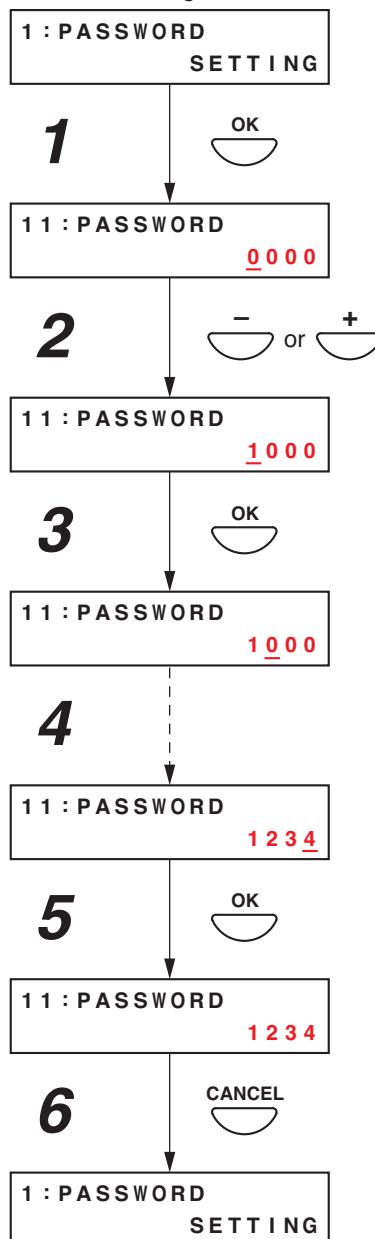
Step 4. Repeat Steps 2 and 3 to complete a 4-digit number.

Step 5. Press the OK key when the underline is at the fourth digit to register the password.

Step 6. Press the Cancel key after setting is complete.

The display reverts to the setting screen.

Password settings



[Date/time settings]

Set the date and time.

Default setting: "2008 JAN 01, 00:00"

- Step 1.** Press the OK key on the Clock Setting screen.
The setting screen for date and time is displayed.

Note

Pressing the Cancel key returns the display to the original screen.

- Step 2.** Enter the "year" using the [+] and [-] keys.
The number increases with the [+] key and decreases with the [-] key.
The underline () shown at the "2008" digits indicates the entry point.

- Step 3.** Press the OK key.
The underline moves to the right.

Note

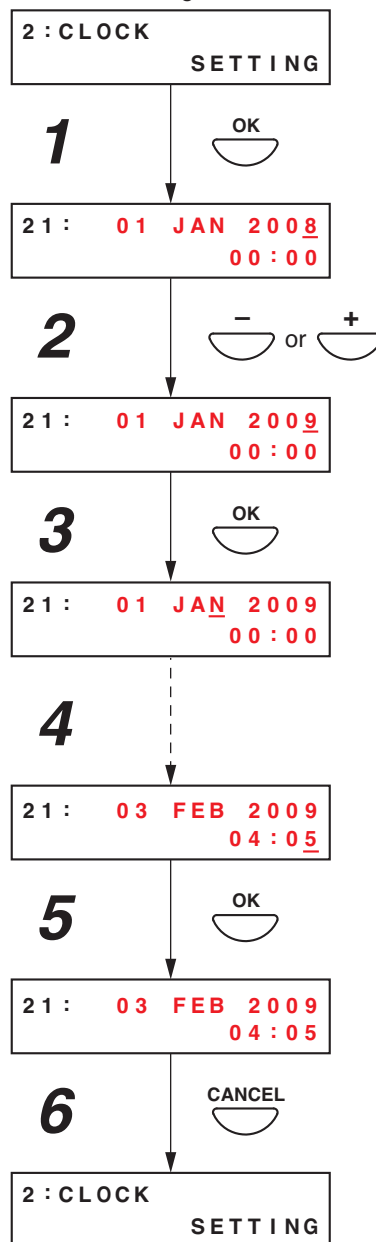
Pressing the Cancel key returns the display to the previous screen.

- Step 4.** Repeat Steps 2 and 3 to enter the date (day, month, and year) and time (hour and minute).

- Step 5.** Press the OK key when the underline is at the "minute" digits to register the date and time.
The time starts counting from 00 seconds when the OK key is pressed.

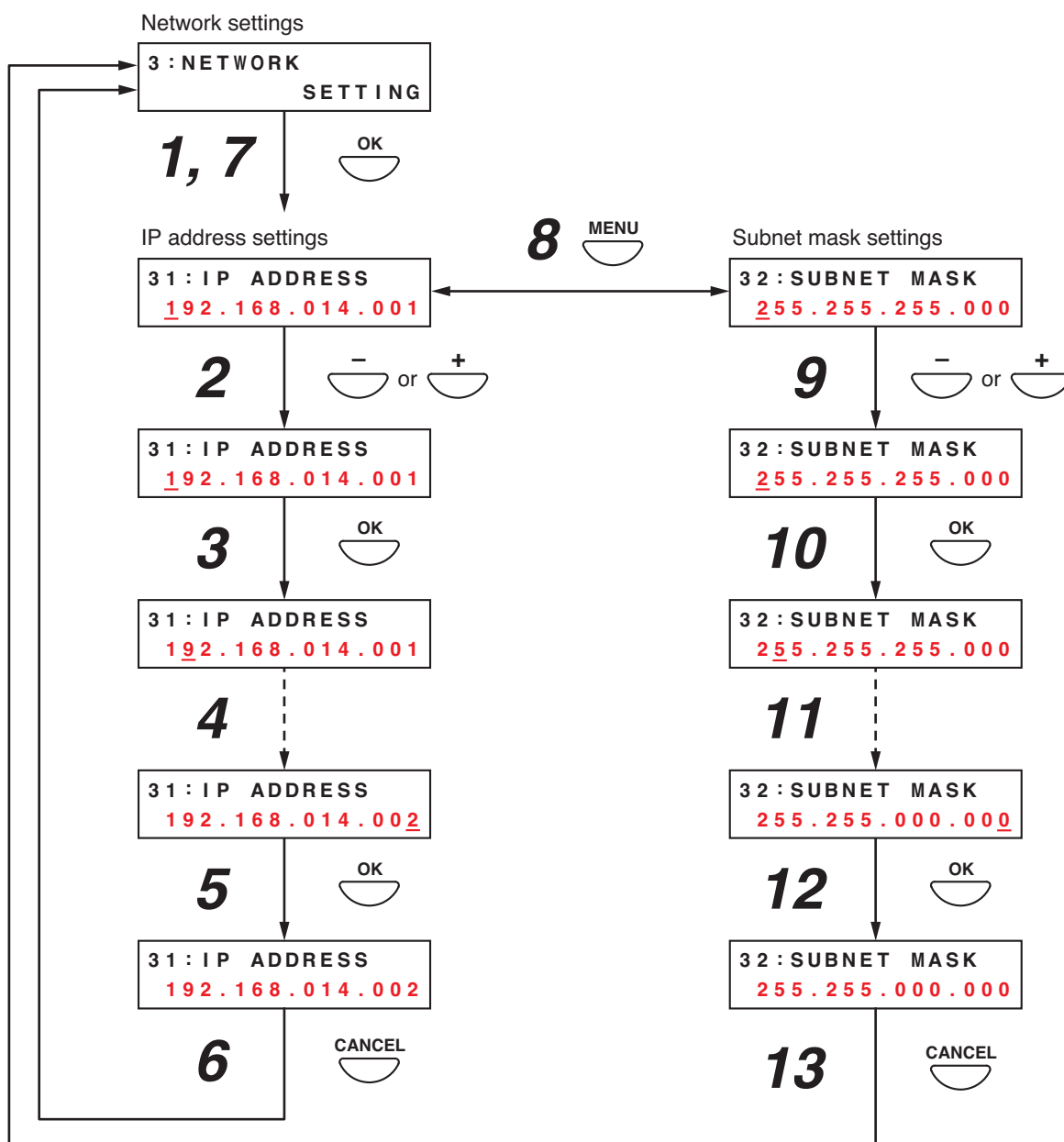
- Step 6.** Press the Cancel key after setting is complete.
The display reverts to the setting screen.

Date/time settings



[Network settings]

Set the IP address and subnet mask.



<IP address settings>

Step 1. Press the OK key on the Network Settings screen.
The IP Address settings screen is displayed.

Note

Pressing the Cancel key returns the display to the original screen.

Step 2. Enter an IP address using the [+] and [-] keys.
The number increases with the [+] key and decreases with the [-] key.
The underline () shown at the leftmost digit indicates the entry point.

Step 3. Press the OK key. The underline moves to the next (right side) digit.

Note

Pressing the Cancel key returns the display to the previous screen.

Step 4. Repeat Steps 2 and 3 to complete the IP address.

Step 5. Press the OK key when the underline is at the rightmost digit to register the IP address.

Step 6. Press the Cancel key after setting is complete.
The display reverts to the Network Settings screen.

<Subnet mask settings>

Step 7. Press the OK key on the Network Settings screen.
The IP Address settings screen is displayed.

Step 8. Press the Menu key.
The Subnet Mask Settings screen is displayed.

Step 9. Enter the subnet mask using the [+] and [-] keys.
The underline () shown at the leftmost digit indicates the entry point.

Step 10. Press the OK key. The underline moves to the next (right side) digit.

Note

Pressing the Cancel key returns the display to the previous screen.

Step 11. Repeat Steps 9 and 10 to complete the subnet mask.

Step 12. Press the OK key when the underline is at the rightmost digit to register the subnet mask.

Step 13. Press the Cancel key after setting is complete.
The display reverts to the Network Settings screen.

[Log transmission]

Transmit logs from the VM-3240VA to a PC.

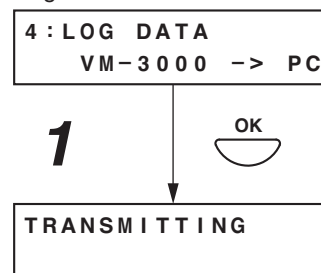
Step 1. Press the OK key on the Log Transmission screen.

The indication "TRANSMITTING" is displayed on the screen.

Note

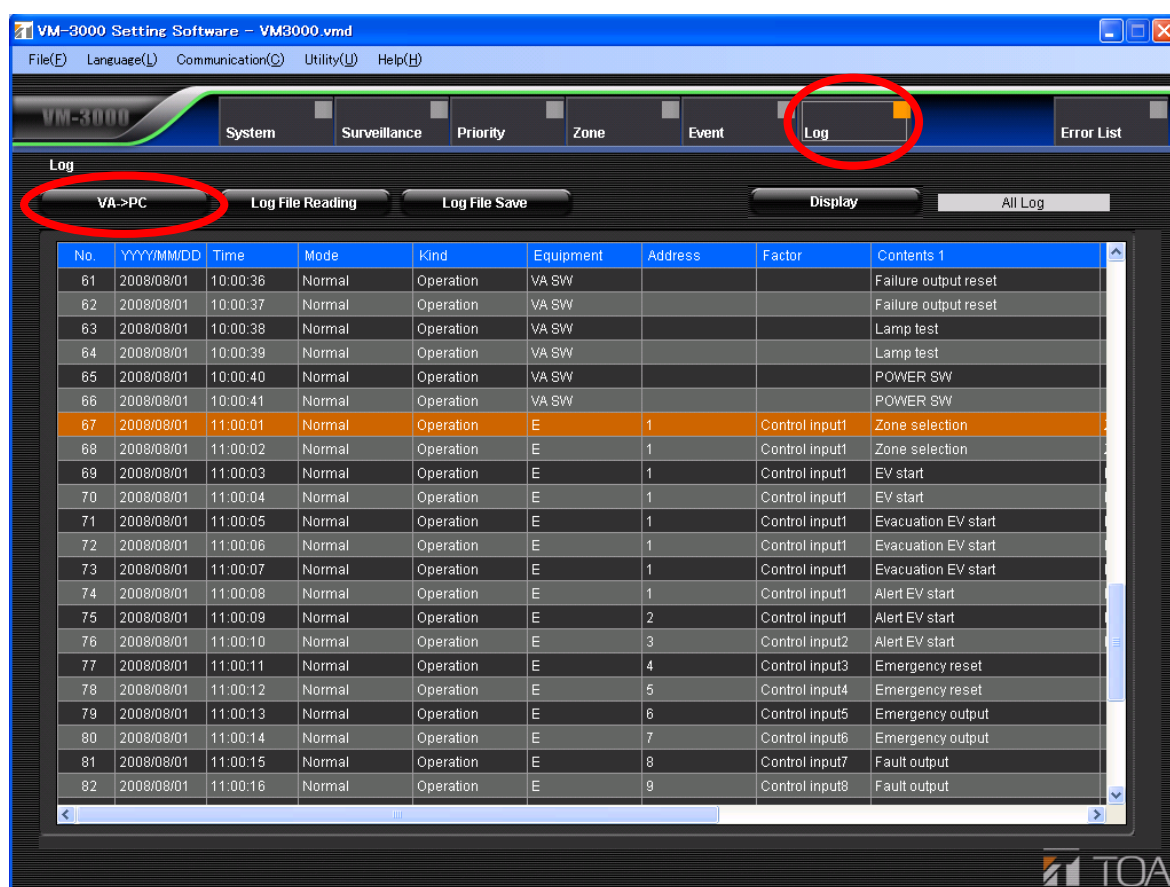
Pressing the Cancel key returns the display to the original screen.

Log transmission



Step 2. Activate the setting software and click the [Log] menu item.

The following log display screen is displayed.

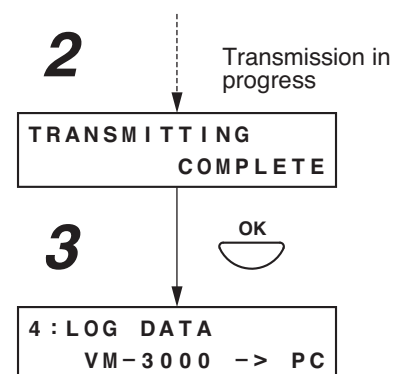


Pressing the [VA ⇒ PC] button starts the transmission of log data from the VM-3240VA to the PC.

The indication "TRANSMITTING COMPLETE" is displayed on the screen of the VM-3240VA after the transmission is completed.

Step 3. Press the OK key.

The display reverts to the setting screen.



Note

If the PC is not correctly connected, the display will not change from the "TRANSMITTING" screen. In such cases, press the Cancel key to return to the log transmission screen, correctly reconnect the PC, and then press the OK key again.

[Transmission of PC-set data]

Transmit data set by a PC to the VM-3240VA from the PC or conversely from the VM-3240VA to the PC.

Step 1. Press the OK key on the Set Data Transmission screen.

The screen for selecting the transmission source and transmission destination is displayed.

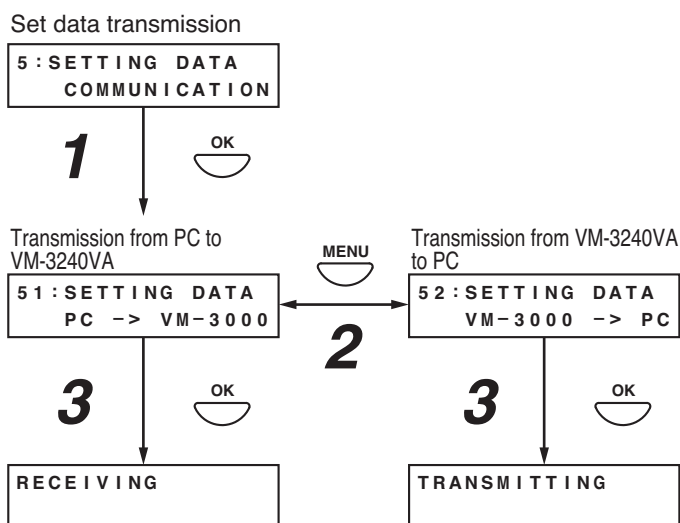
Note

Pressing the Cancel key returns the display to the original screen.

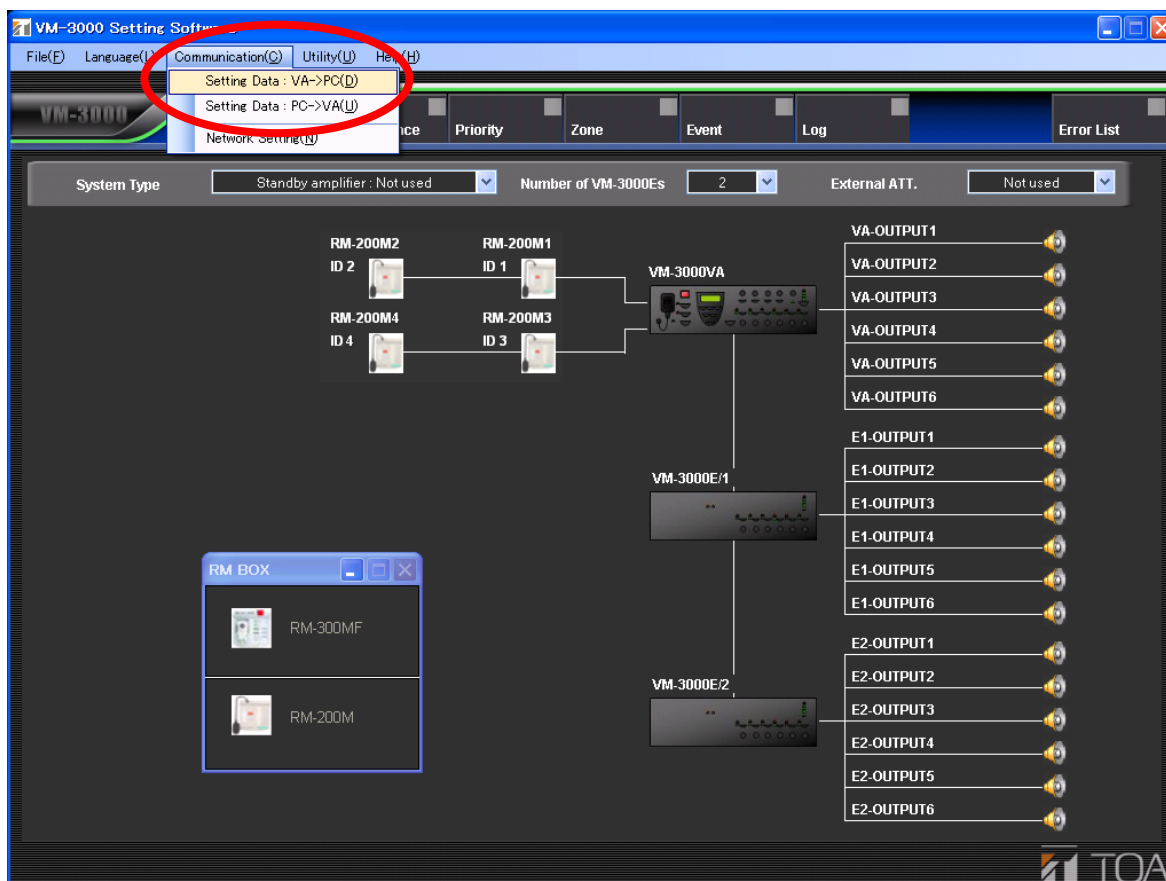
Step 2. Press the Menu key to switch the source and destination.

Step 3. Press the OK key.

The "RECEIVING" or "TRANSMITTING" indication is displayed on the screen.



Step 4. Activate the setting software to transmit set data from the VM-3240VA to the PC or from the PC to the VM-3240VA. Click "Communication" on the menu bar and select "Setting Data: VA->PC" or "Setting Data: PC->VA" on the pull-down menu.



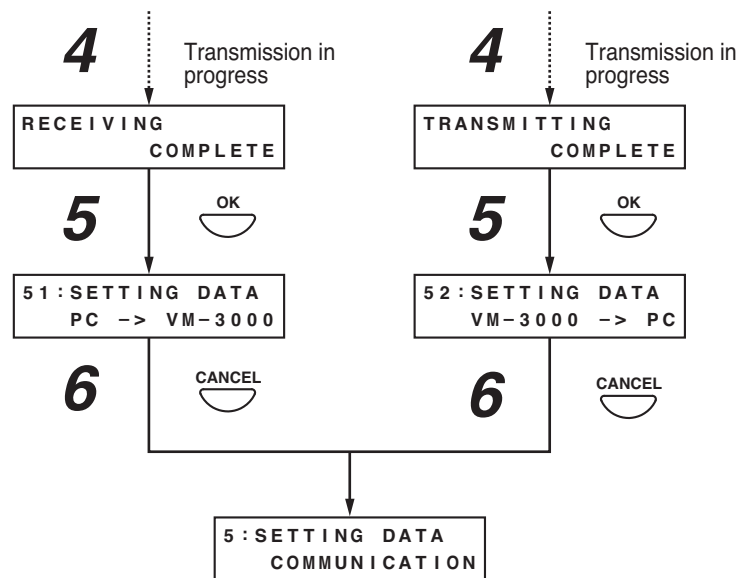
Selecting "Setting Data: VA->PC" allows PC-set data written to the VM-3240VA to be read into the software.

Selecting "Setting Data: PC->VA" transmits the data currently being set in the software to the VM-3240VA.

The indication "RECEIVING COMPLETE" or "TRANSMITTING COMPLETE" is displayed on the screen after the transmission is completed.

Step 5. Press the OK key.
The display reverts to the source and destination selection screen.

Step 6. Press the Cancel key.
The display reverts to the Set Data Transmission screen.



Note

If the PC is not correctly connected, the display will not change from the "RECEIVING" or "TRANSMITTING" screen.

In such cases, press the Cancel key to return to the set data transfer screen, correctly reconnect the PC, and then press the OK key again.

[Transmission of EV sound source data]

Transmit EV sound source data from a PC to the VM-3240VA or conversely from the VM-3240VA to the PC.

Step 1. Press the OK key on the EV sound source transmission screen.

The screen for selecting the transmission source and destination is displayed.

Note

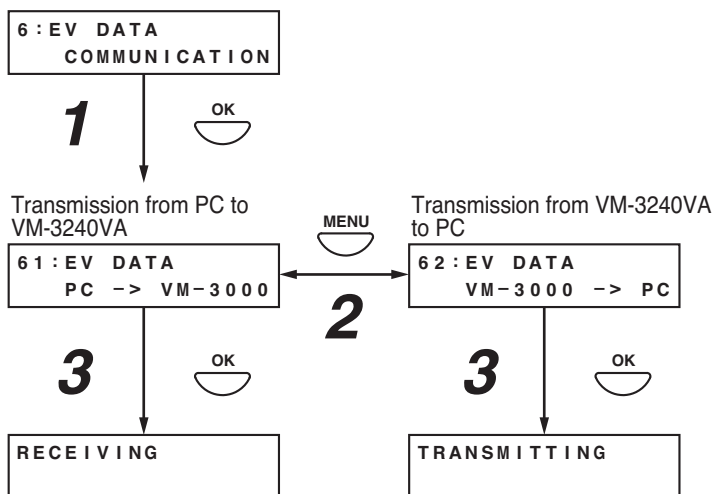
Pressing the Cancel key returns the display to the original screen.

Step 2. Press the Menu key to switch the source and destination.

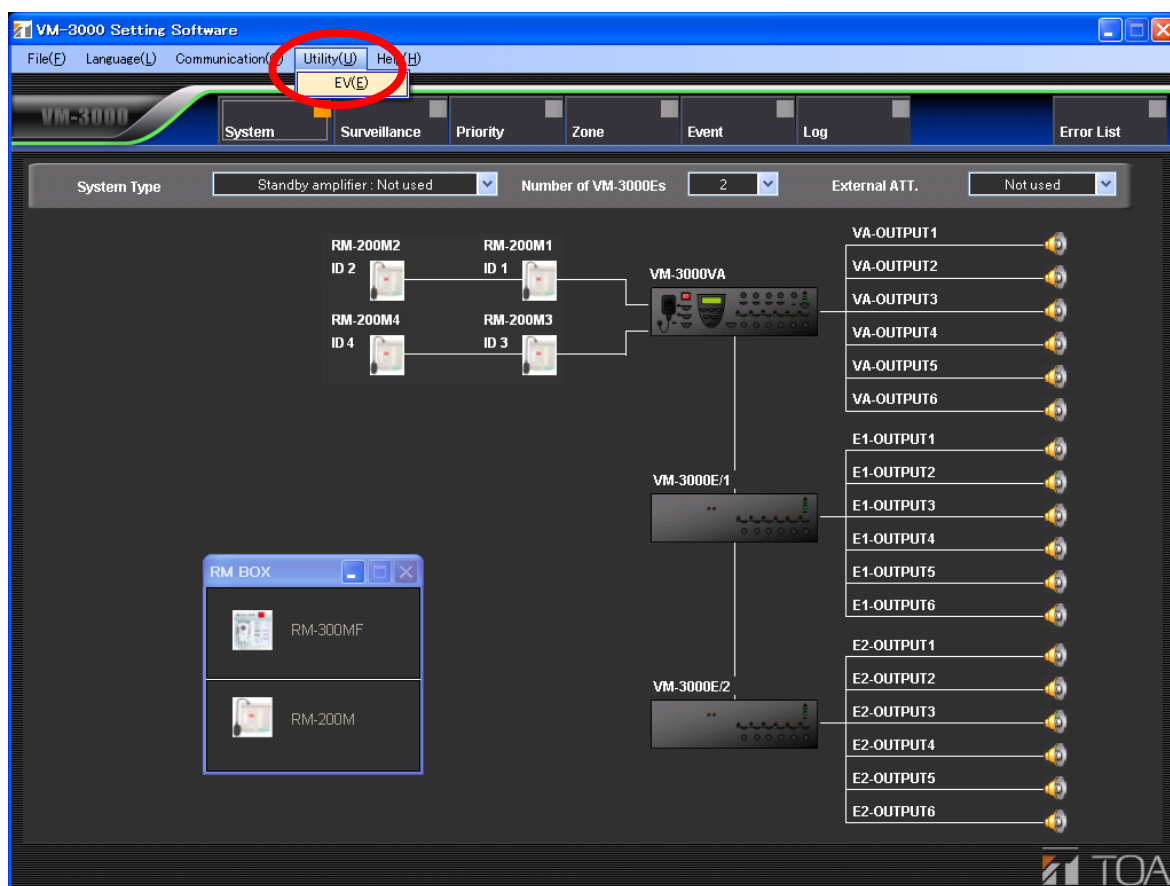
Step 3. Press the OK key.

The "RECEIVING" or "TRANSMITTING" indication is displayed on the screen and the transmission begins.

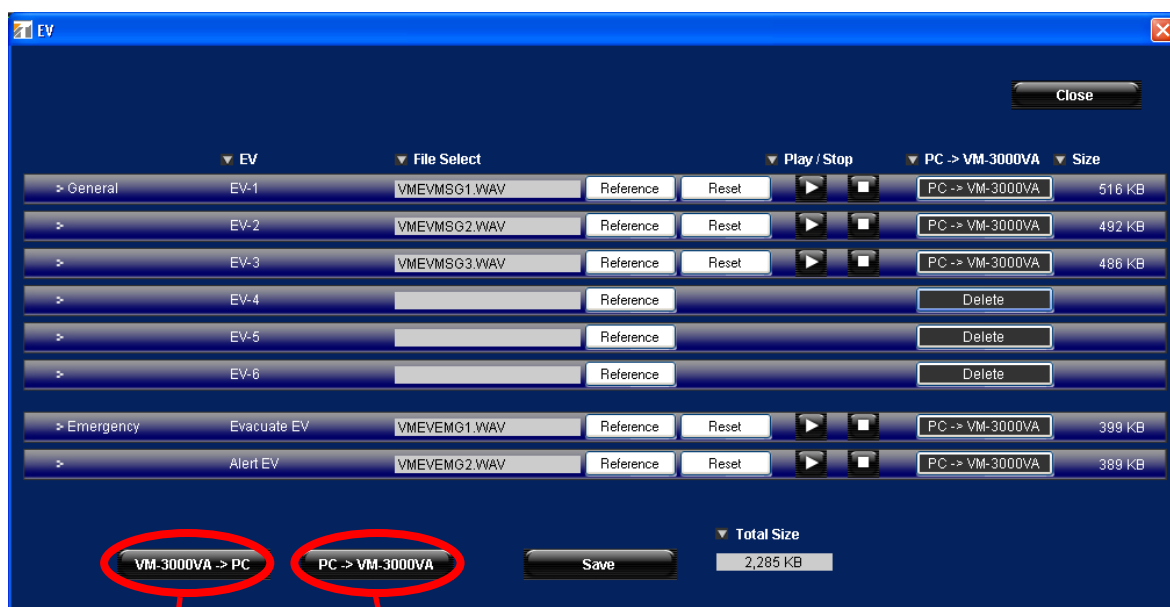
EV sound source data transmission



Step 4. Activate the setting software to transmit the EV sound source data from the VM-3240VA to the PC or from the PC to the VM-3240VA, then click "Utility->EV" on the menu bar.



The EV message sound source file registration screen is displayed.

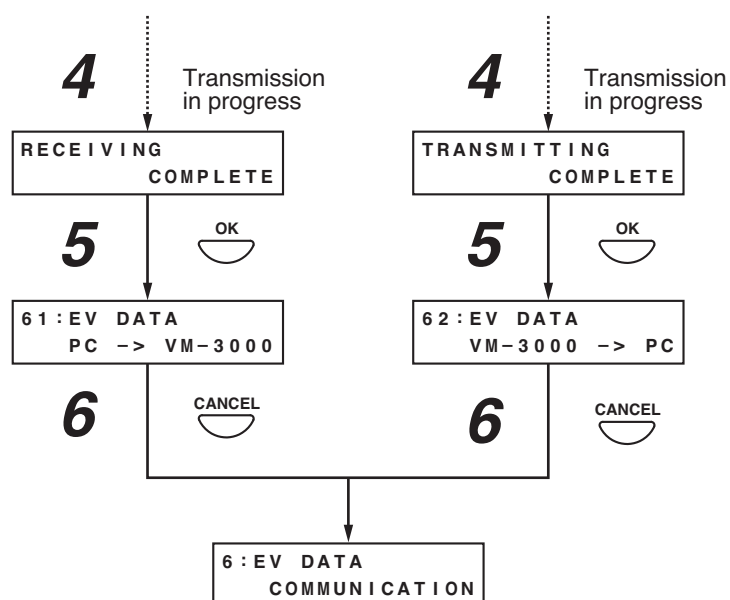


Press the [PC->VM-3000VA] button to transmit sound source data from the PC to the VM-3240VA after reading the sound source data into the above screen.

Press the [VM-3000VA->PC] button to transmit sound source data from the VM-3240VA to the PC. Sound source data written into the VM-3240VA is read into the current registration screen.

Step 5. Press the OK key.
The display reverts to the transmission source and transmission destination selection screen.

Step 6. Press the Cancel key.
The display reverts to the Set Data Transmission screen.



Note

If the PC is not correctly connected, the display will not change from the "RECEIVING" or "TRANSMITTING" screen. In such cases, press the Cancel key to return to the EV sound source data transfer screen, correctly reconnect the PC, and then press the OK key again.

[Emergency broadcast setting]

Set the Emergency broadcast function following the procedure below.

Step 1. Press the OK key on the Emergency broadcast setting screen.
The setting screen for the Emergency broadcast function is displayed.

Note

Pressing the cancel key returns the display to the original screen.

Step 2. Set the Emergency manual control time-out period using the [+] or [-] key.

OFF (default): No time-out control

1 – 99 SEC: Time-out period

Step 3. Press the OK key.

Note

Pressing the Cancel key before registering the time-out value by pressing the OK key cancels the set contents and returns the display to the Emergency broadcast setting screen.

Step 4. Press the Cancel key.

The display reverts to the configuration setting screen.

Emergency broadcast setting

7 : EMG BROADCAST
SETTING

1

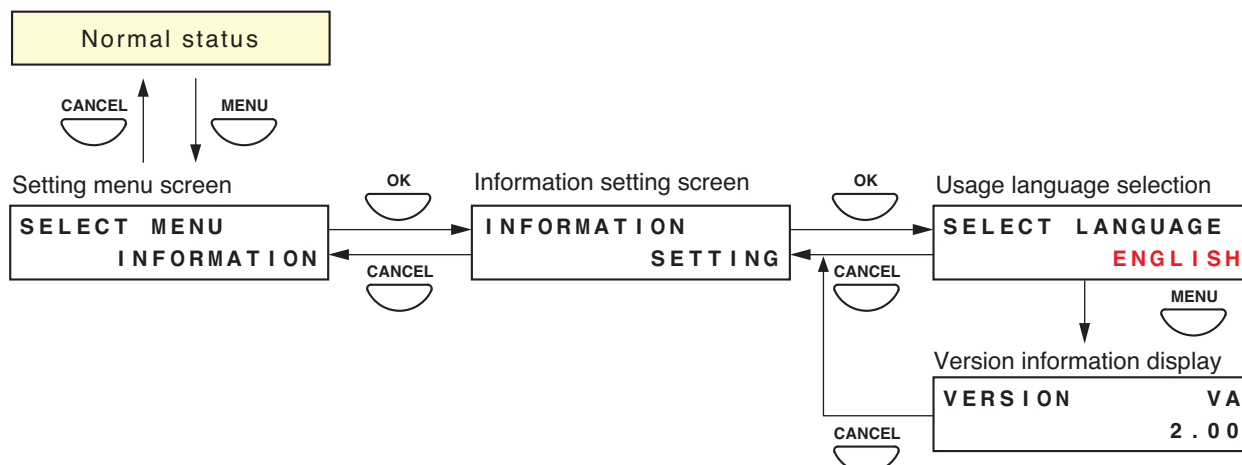


Time-out setting

71 : TIME OUT
OFF

10.4. Information Settings

10.4.1. Information setting hierarchical chart



10.4.2. Information setting items

The screens shown here are only examples and may differ from the actual displays.
The sections in **red** are the setting items or contents that vary with the operation of the [+] or [-] key.

[Usage language selection]

Select the language to be displayed on the VM-3240VA's LCD screen.

Setting range	ENGLISH (default) and DEUTSCH (German)
---------------	--

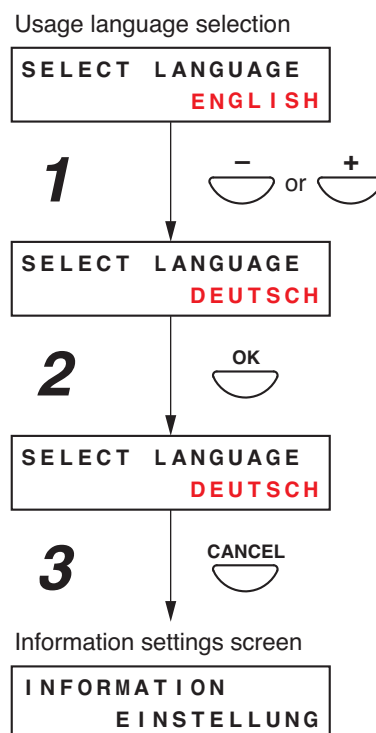
Step 1. Using the [+] and [-] keys, select the language to be used on the language selection screen.

Step 2. Press the OK key to register the language.

Note

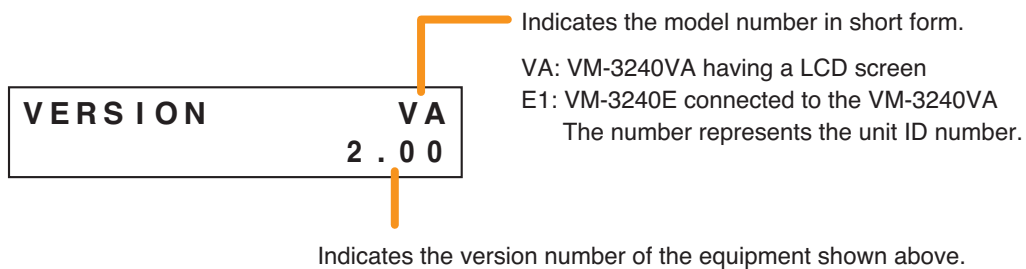
Pressing the Cancel key before registering the language by pressing the OK key cancels the set contents and returns the display to the Information Setting screen.

Step 3. Press the Cancel key to return to the Information Setting screen.
The screen is displayed in the selected language.



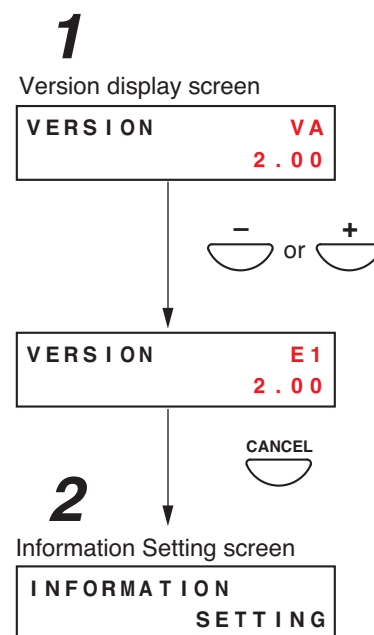
[Version information display]

Version information is displayed on the VM-3240VA's front panel-mounted LCD screen.



Step 1. Using the [+] or [-] key, select the desired equipment on the Version display screen.
The version number of the corresponding equipment is displayed.

Step 2. Press the Cancel key to return to the Information Setting screen.



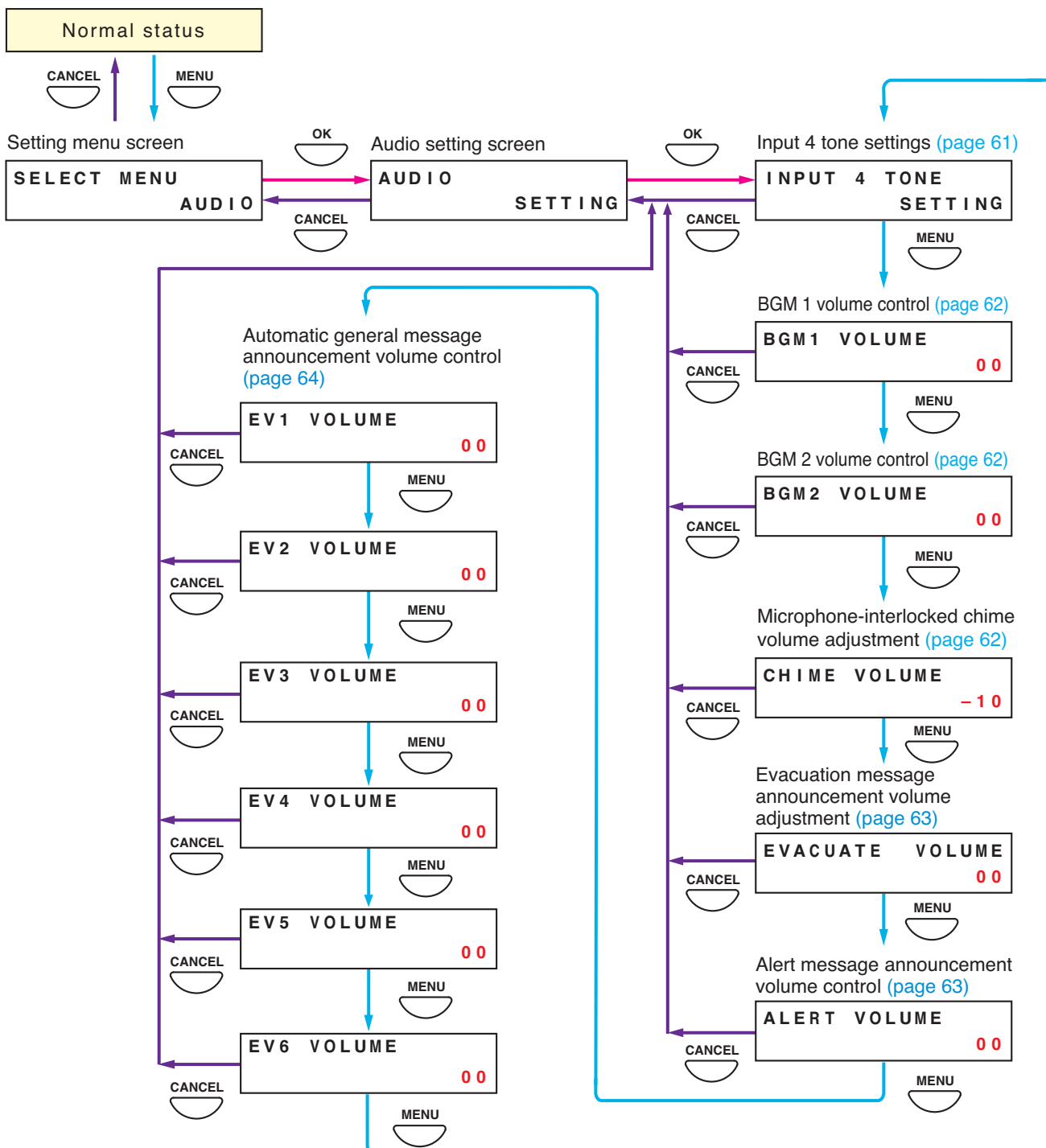
10.5. Audio Settings

This function is used to adjust the audio setting parameters.

Tone settings can be adjusted for Input 4 and volume adjusted for BGM 1 and 2 as well as for the chime interlocked with the microphone, Alert/Evacuation message announcements, and automatic general announcements.

Perform each setting after the system installation and connections have been completed.

10.5.1. Audio settings hierarchical chart



10.5.2. Audio setting items

The screens shown here are only examples and may differ from the actual displays.

The sections in **red** are the setting items or contents that vary with the operation of the [+] or [-] key.

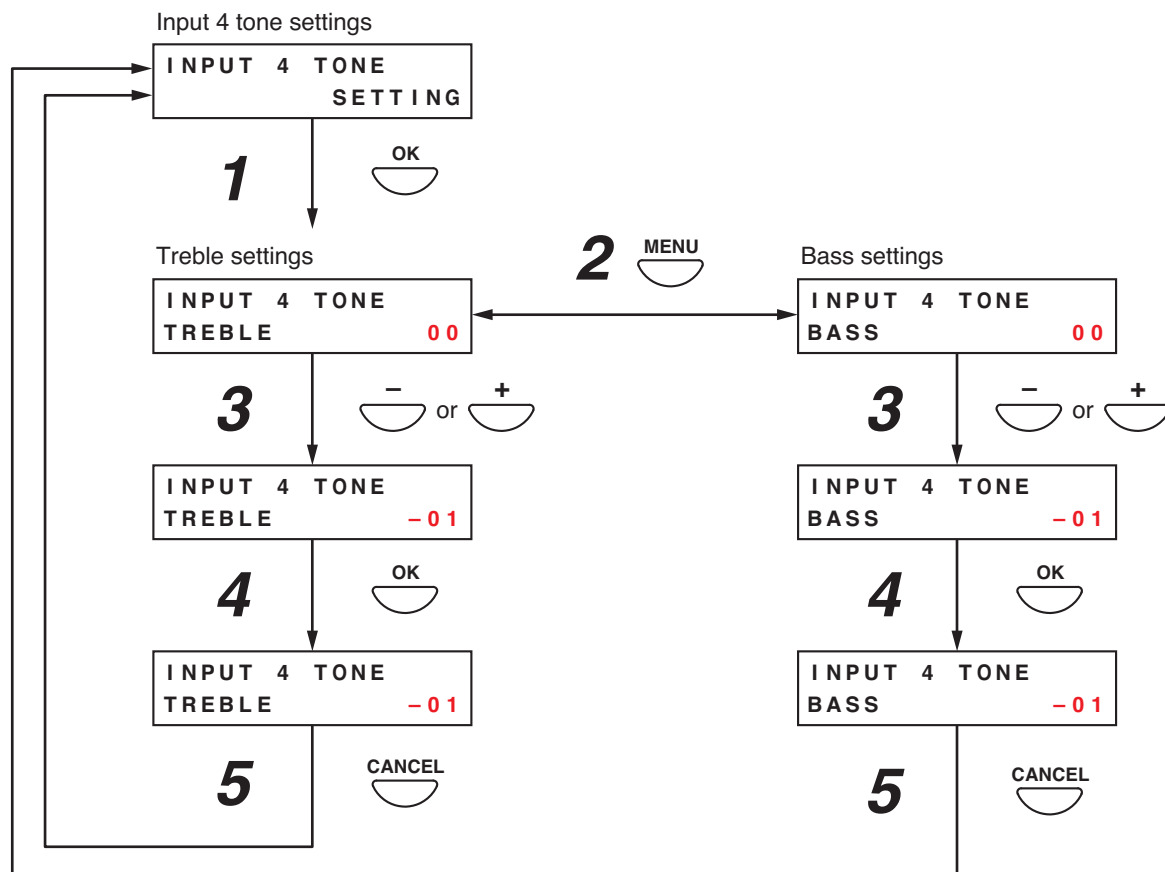
[Input 4 tone settings]

Set the tone (bass and treble) for Input 4.

Setting range	+10 dB to -10 dB (default: 00)
---------------	--------------------------------

Note

To set Inputs 1 – 3, use the Input Selector key (Input 1 – 3) on the front panel of the VM-3240VA. (Refer to [page 66.](#))



Step 1. Press the OK key on the Input 4 Tone Settings screen.
The Treble Settings screen is displayed.

Note

Pressing the Cancel key returns the display to the original screen.

Step 2. Press the Menu key to switch between the Treble and Bass settings screens.

Step 3. Set the treble or bass level using the [+] or [-] key.
The level increases with the [+] key and decreases with the [-] key.

Step 4. Press the OK key to register the set level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Input 4 Tone Settings screen.

Step 5. Press the Cancel key to return to the Input 4 Tone Settings screen.

[BGM 1 and BGM 2 volume adjustment]

Adjust the volume of BGM1 and BGM2.

Setting range	+10 dB to -10 dB (default: 00)
---------------	--------------------------------

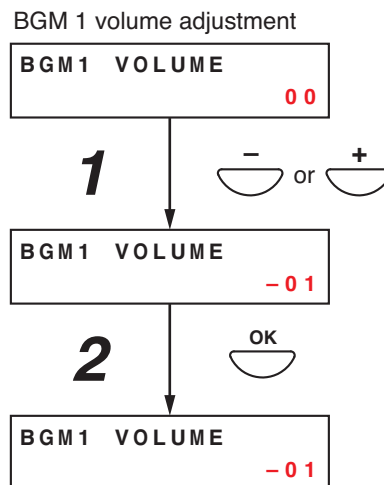
Step 1. Using the [+] and [-] keys, adjust the volume on the BGM 1 or BGM 2 Volume Settings screen. The volume increases with the [+] key and decreases with the [-] key.

Step 2. Press the OK key to register the set volume level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Audio Settings screen.

(Example. When adjusting BGM 1 volume:)



[Microphone-interlocked chime volume adjustment]

Adjust the volume of the chime that is interlocked with the microphone.

Setting range	+10 dB to -10 dB (default: 00)
---------------	--------------------------------

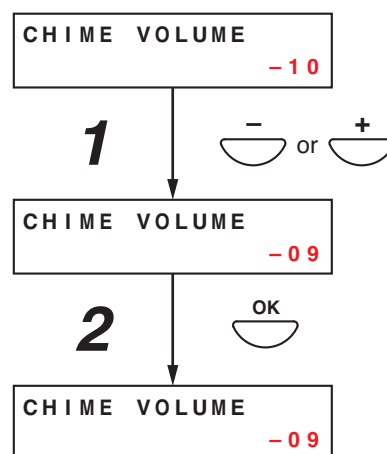
Step 1. Using the [+] and [-] key, adjust the volume on the Microphone-Interlocked Chime Volume Adjustment screen.

Step 2. Press the OK key to register the set volume level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Audio Settings screen.

Microphone-interlocked chime volume control



[Evacuation message announcement volume adjustment]

Adjust the volume of Evacuation message announcement internally pre-recorded on the VM-3240VA.

Setting range	+10 dB to -10 dB (default: 00)
---------------	--------------------------------

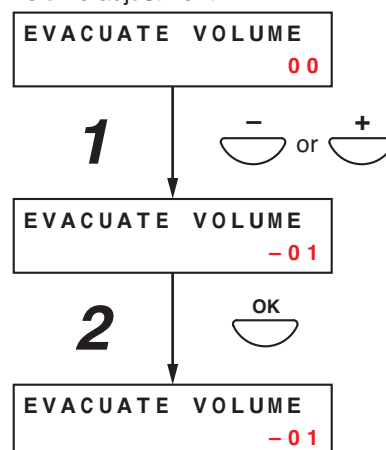
Step 1. Using the [+] or [-] key, adjust the volume on the Evacuation Message Announcement Volume Adjustment screen.

Step 2. Press the OK key to register the set volume level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Audio Setting screen.

Evacuation message announcement
volume adjustment



[Alert message announcement volume adjustment]

Adjust the volume of Alert message announcement internally pre-recorded on the VM-3240VA.

Setting range	+10 dB to -10 dB (default: 00)
---------------	--------------------------------

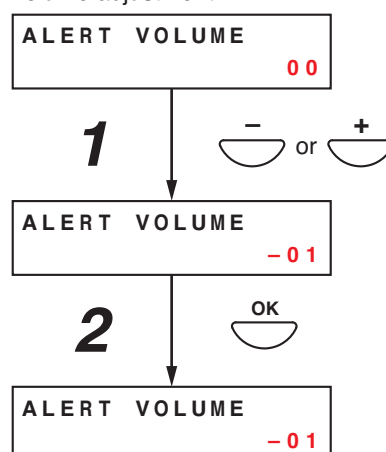
Step 1. Using the [+] or [-] key, adjust the volume on the Alert Message Announcement Volume Adjustment screen.

Step 2. Press the OK key to register the set volume level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Audio Setting screen.

Alert message announcement
volume adjustment



[Automatic general message announcement volume control]

Adjust the volume of Automatic general message announcements (EV1 – 6).

Setting range	+10 dB to –10 dB (Default: 00)
---------------	--------------------------------

EV1 - 6 represent the Automatic general message announcement numbers. For details, refer to the separate software instruction manual.

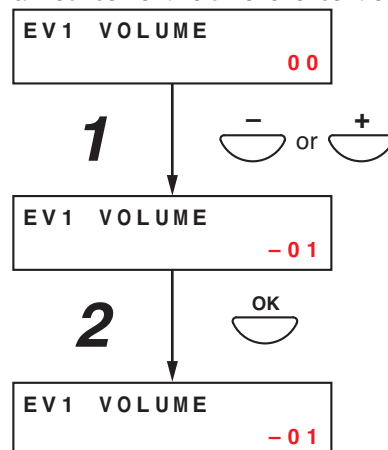
Step 1. Using the [+] or [–] key, adjust the volume on the Volume Adjustment screen for the EV1 – 6.

Step 2. Press the OK key to register the set volume level.

Note

Pressing the Cancel key before registering the level by pressing the OK key cancels the set contents and returns the display to the Audio Setting screen.

Automatic general message
announcement volume level control

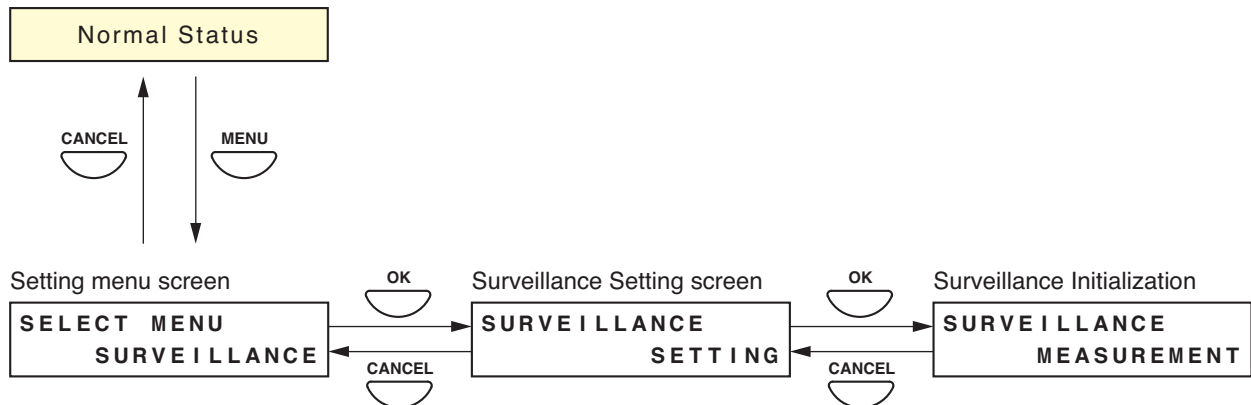


10.6. Surveillance Settings

Notes

- When using the Surveillance function (refer to ["What Is the Surveillance Function?" on page 33](#)), be sure to perform this setting after system installation and connections have been completed. Also, be sure to perform this setting when the number of connected speakers has been changed.
If this setting is not performed, the surveillance function will not operate correctly.
- When initializing the surveillance settings, be sure to set all the attenuators connected for maximum output. Doing otherwise may cause false detection.

10.6.1. Surveillance setting hierarchical chart



10.6.2. Surveillance setting items

[Surveillance initialization]

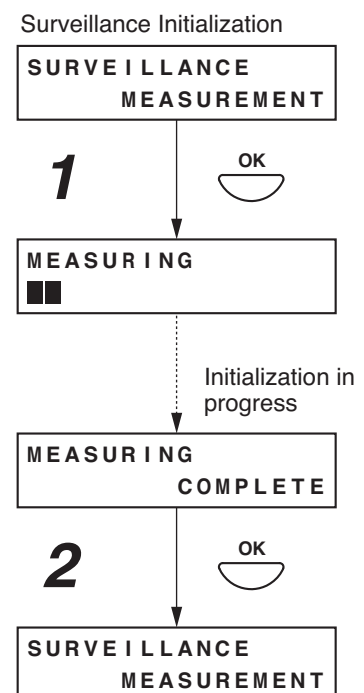
Initialize the surveillance function.

Note

Do not start initializing the surveillance function for 1 minute after system reset.

Step 1. Press the OK key on the surveillance initialization screen.
The "MEASURING" indication is displayed on the screen and initialization begins.
After initialization is complete, the "MEASURING COMPLETE" indication is displayed on the screen.

Step 2. Press the OK key to return to the Surveillance Initialization screen.



10.7. Inputs 1 – 3 Settings

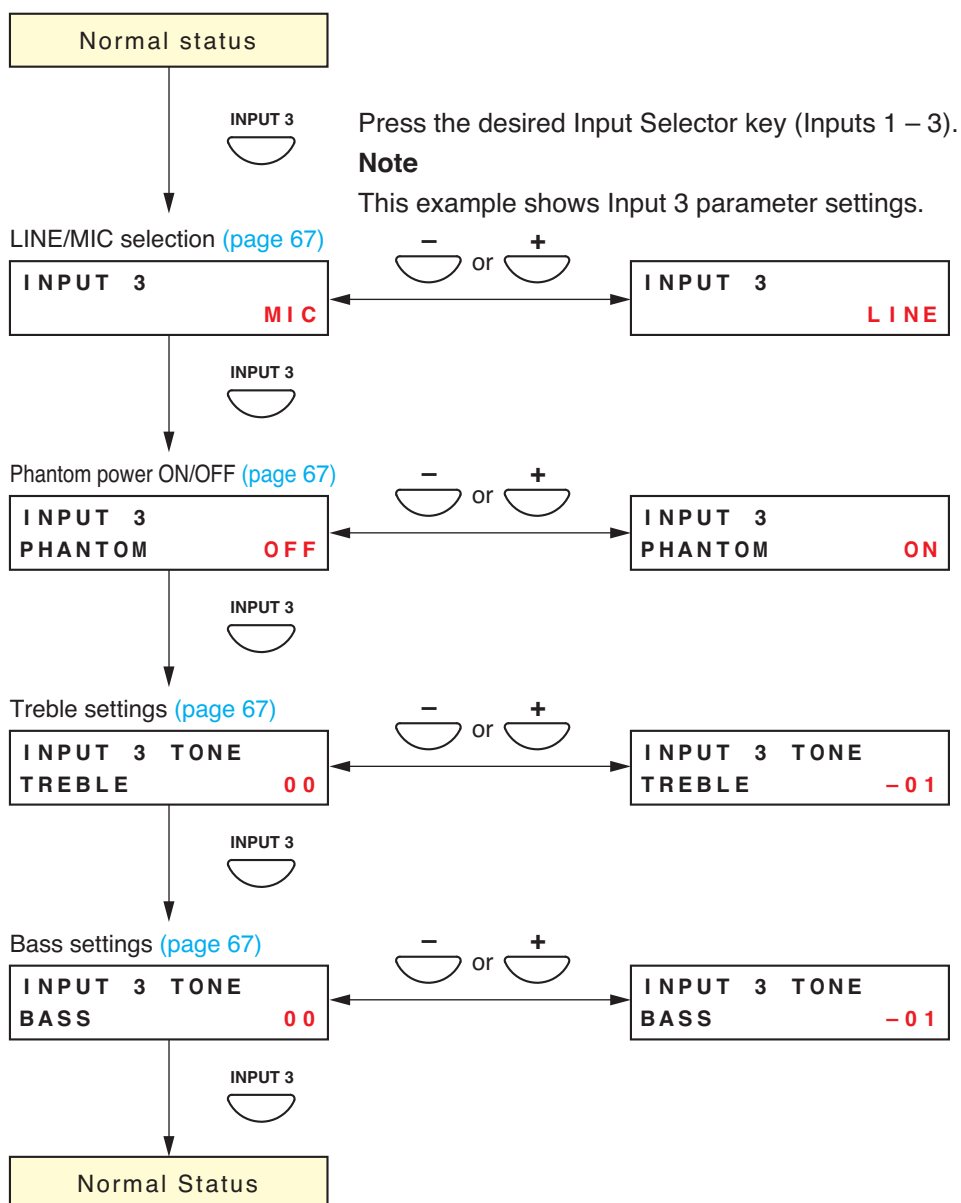
LINE/MIC input can be selected, phantom power turned ON/OFF, and treble and bass set for Inputs 1 – 3 during actual sound output.

Perform this setting after system installation and connections have been completed.

The screens shown here are only examples and may differ from the actual displays.

The sections in **red** are the setting items or contents that vary with the operation of the [+] or [-] key.

10.7.1. Inputs 1 – 3 setting hierarchical chart



10.7.2. Inputs 1 – 3 setting items

[LINE/MIC selection settings]

Select either LINE or MIC input.

Setting range	Line and Mic (Default: LINE)
---------------	------------------------------

[Phantom ON/OFF settings]

This setting item will not appear when "LINE" is selected at the LINE/MIC selection setting item.
Set whether to enable or disable the phantom power.

Setting range	ON and OFF (Default: OFF)
---------------	---------------------------

[Treble settings]

Perform treble settings.

Setting range	+10 dB to –10 dB (Default: 00)
---------------	--------------------------------

[Bass settings]

Perform bass settings.

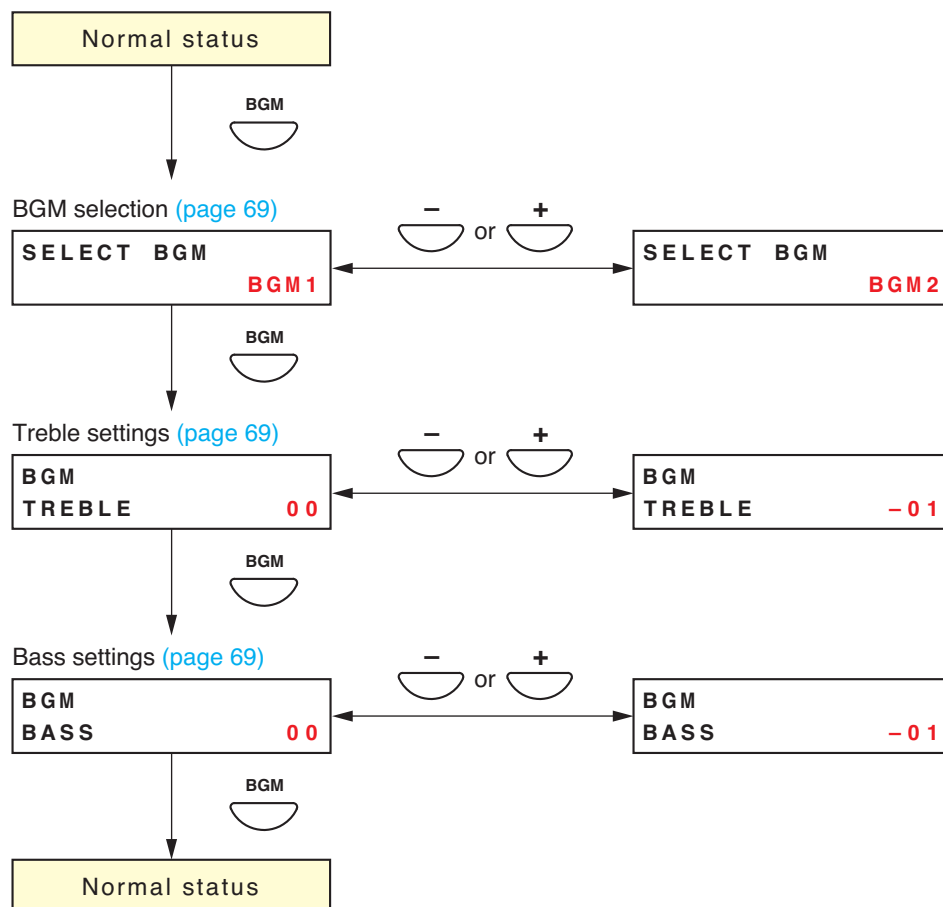
Setting range	+10 dB to –10 dB (Default: 00)
---------------	--------------------------------

10.8. BGM Settings

Bass and treble of BGM can all be set during actual sound output.
Perform this setting after system installation and connections have been completed.

The screens shown on the previous page are only examples and may differ from the actual displays.
The sections in **red** are the setting items or contents that vary with the operation of the [+] or [-] keys.

10.8.1. BGM setting hierarchical chart



10.8.2. BGM setting items

[BGM selection]

Select BGM 1 or 2. Press the OK key to confirm the selected BGM output and commence BGM broadcasting. (For details, refer to ["BGM Broadcasts"](#) in ["Making General Broadcasts"](#) on page 18.)

Setting range	BGM 1, BGM 2 and OFF (default)
---------------	--------------------------------

[Treble settings]

Perform treble settings.

Setting range	+10 dB to –10 dB (Default: 00)
---------------	--------------------------------

[Bass settings]

Perform bass settings.

Setting range	+10 dB to –10 dB (Default: 00)
---------------	--------------------------------

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control and Communication Units for Mass Notification Systems, UL 2572 and CAN/ULC-S576, certain programming features or options must be limited to specific values or not used at all as indicated below.

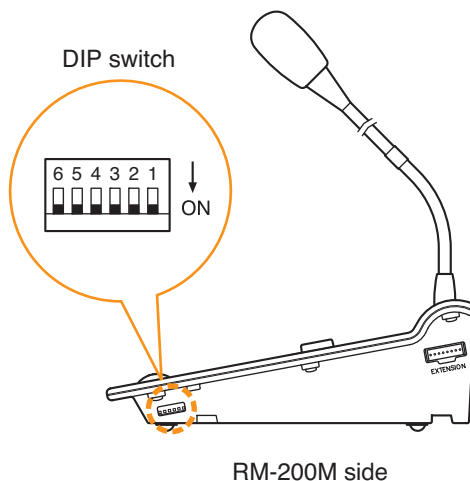
Program feature or option	Permitted in UL 2572 and CAN/ULC-S576	Possible settings	Settings permitted in UL 2572 and CAN/ULC-S576
Time / Interval setting			
Battery Time	N	Disable / 00:00 – 23:00	Disabled
External ATT/AC Time-mains failure status	Y	Disable / 00:00 – 23:00	Time 00:00 Interval 100 sec
Surveillance group setting			
VM-300VA	Y	On / Off	On
Emergency EV	Y	On / Off	On
VM-3000E	Y	On / Off	On
Battery	Y	On / Off	On
Speaker (Open/Short)	Y	On / Off	On ^{*1}
Speaker (Earth Fault)	Y	On / Off	On
Charging Equipment	Y	On / Off	On ^{*2}
Emergency Control Input	Y	On / Off	On
General RM	Y	On / Off	On

^{*1} Off when no speaker is connected to the VM-3240VA or VM-3240E.

^{*2} Off when no VM-3240VA or VM-3240E is connected to the VX-2000DS through DS LINK.

11. RM-200M REMOTE MICROPHONE SETTINGS

11.1. DIP Switch Functions



Switch No.	Function	Factory-preset
1	Unit ID No. setting	ON
2		
3	—	
4	Talk key operation	
5	—	
6	Compression ON/OFF	

11.2. Unit ID Number Settings (Switches 1 and 2 operation)

To set the unit ID number of the RM-200M, use the DIP switches 1 and 2.

Make the Setting Software-assigned ID numbers for these units and the ID numbers set by their DIP switches identical. (All DIP switches set to ON by default)

(For setting instructions using the Setting Software, refer to the separate Setting Software Instructions, "RM function key settings.")

Unit ID No.	Switch No. 1	Switch No. 2
1	ON	ON
2	OFF	ON
3	ON	OFF
4	OFF	OFF

Note

Be sure to press the VM reset switch located on the VM-3240VA's front panel to cycle the system power when the unit ID has been changed with the system power switch turned on.

11.3. Talk Key Settings (Switch 4 operation)

Set the operating system of the RM-200M's front-mounted Talk key.

Setting the DIP switch 4 to ON enables announcement to be broadcast while the Talk key is held down. Releasing the Talk key terminates the broadcast. (Press-To-Talk or PTT mode)

Setting the DIP switch 4 to OFF enables a broadcast to initiate and pressing the key again terminates the broadcast. (Lock mode)

(Default: ON)

11.4. Compression Settings (Switch 6 operation)

To perform compression settings, use the DIP switch No. 6.

Setting the DIP switch 6 to ON enables announcements to be broadcast without distortion even if excessive input signal is applied to the microphone. (Default: ON)

12. INSTALLATION

12.1. Installing the RM-200M on a Wall

To mount the RM-200M on the wall, the following parts are required.

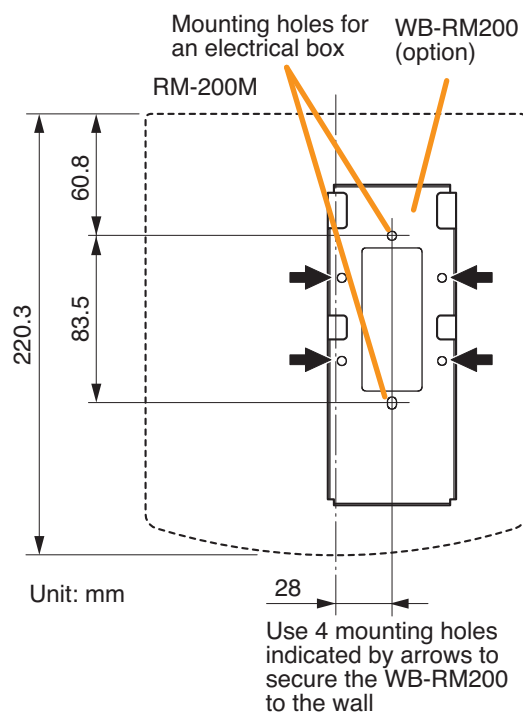
WB-RM200 Wall Mounting Bracket for the RM-210	1 (option)
Machine screw M3.5 x 20 (for an electrical box mounting)	2 (supplied with the WB-RM200)
Tapping screw 4 x 25 (for direct wall mounting)	2 (supplied with the WB-RM200)

- Step 1.** Install the optional WB-RM200 bracket on the wall.
 Pull out the link cable through the bracket's notch.
 As 2 types of supplied screws are available for electrical box mounting and direct wall mounting, use appropriate ones for mounting method.

WARNING

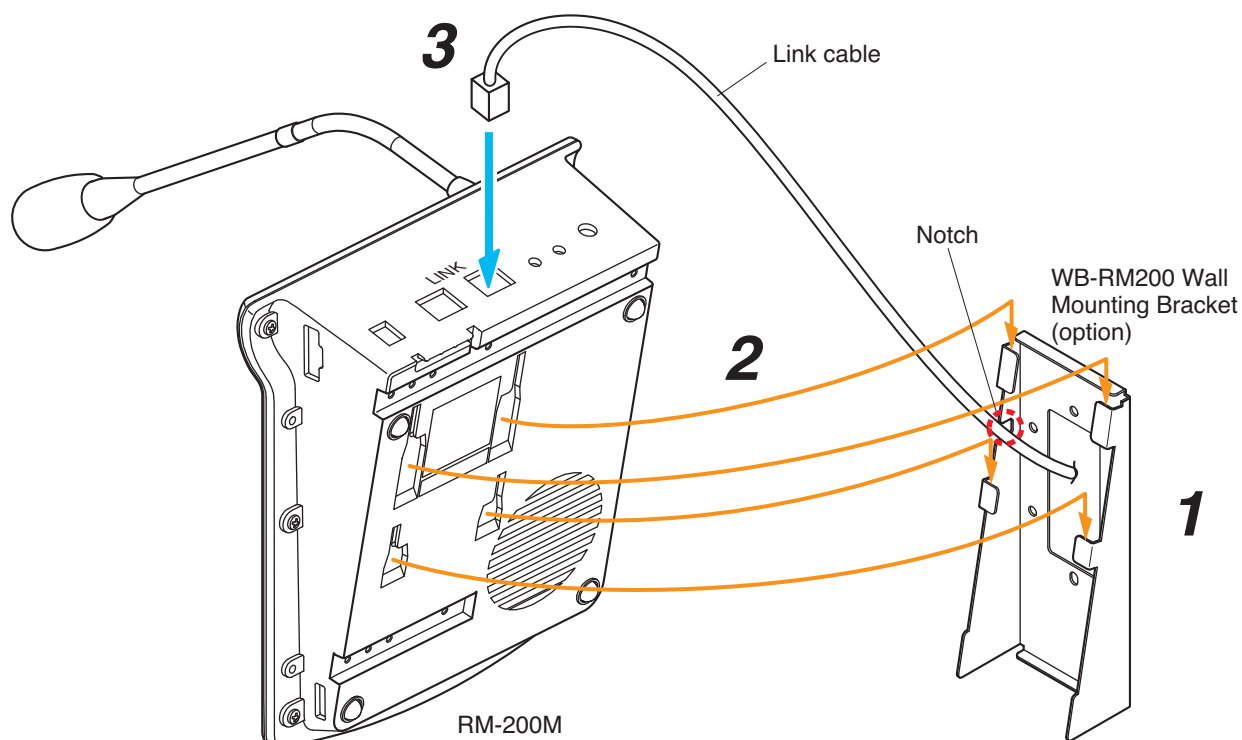
- Install the RM-200M only in a location that can structurally support the weight of the unit and the WB-RM200 bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Use 2 or more screws to fix the WB-RM200 to the wall.

[Positional dimensions of the WB-RM200]



- Step 2.** Hook the RM-200M's bottom onto the WB-RM200.

- Step 3.** Connect the link cable to the RM-200M's link connector.



12.2. Creating Remote Microphone Name Labels

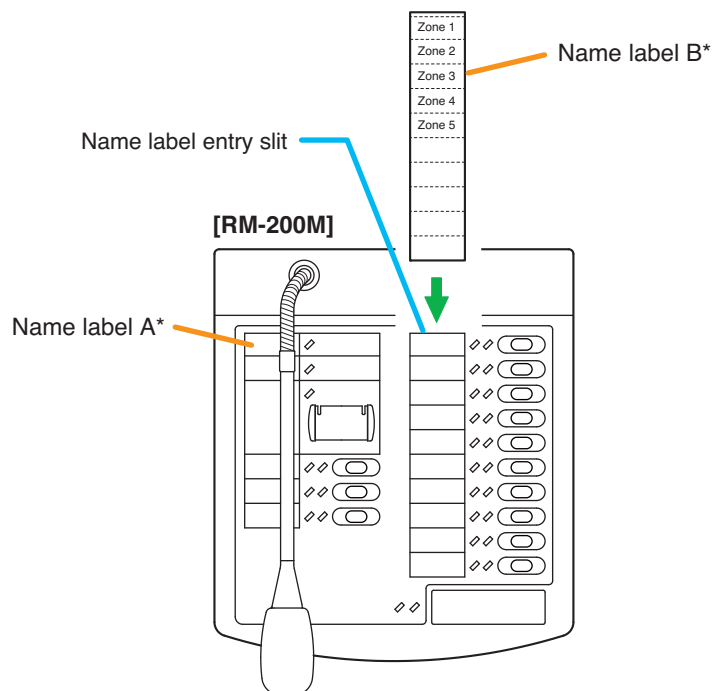
Using the VM-3000 Setting Software function, assigned names of preset RM-200M Function keys can be printed out. Once printed, cut out the printed names with scissors to use them as corresponding name labels. The paper used for the name label must be under 0.2 mm in thickness.

Note

For creating and printing name labels using the VM-3000 Setting Software, see the separate Setting Software Instructions, "Labels for Remote Microphones."

12.2.1. Inserting the name label

- Fully insert the name label cut to the instructed size into the label entry slit.
- To remove the label, pull it out of the slit using the tip of knife blade.



* Created and printed using the VM-3000 Setting Software.

12.2.2. If the name label is not printed correctly

The name label created using the VM-3000 Setting Software may not be printed in correct size depending on the configuration environment of your PC. In such cases, try one of the methods described below.

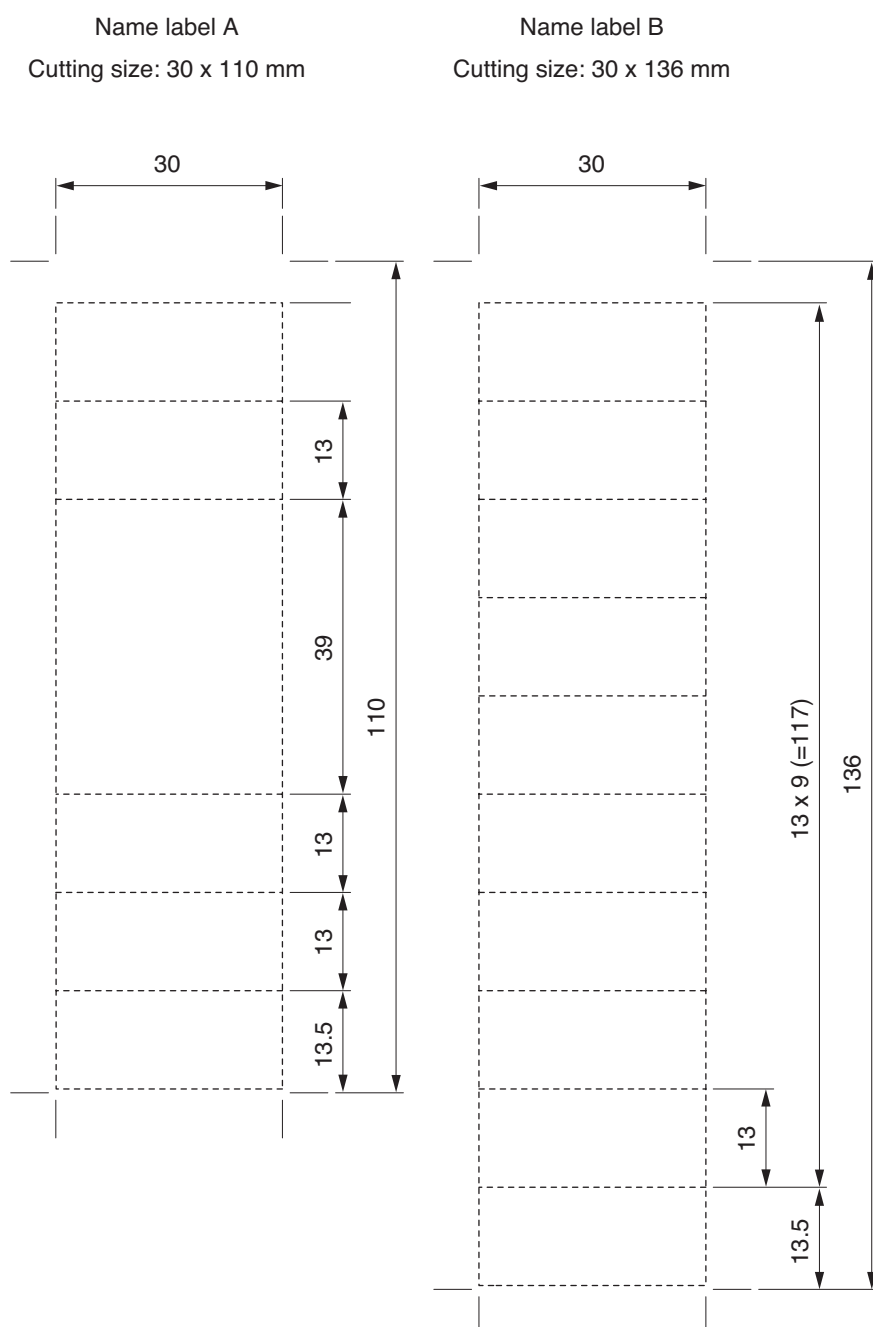
(1) Preparation by hand

Copy the "Pattern paper for hand writing" on [the next page](#). After writing a name, cut out the pattern paper aligning it with the cutting guidelines.

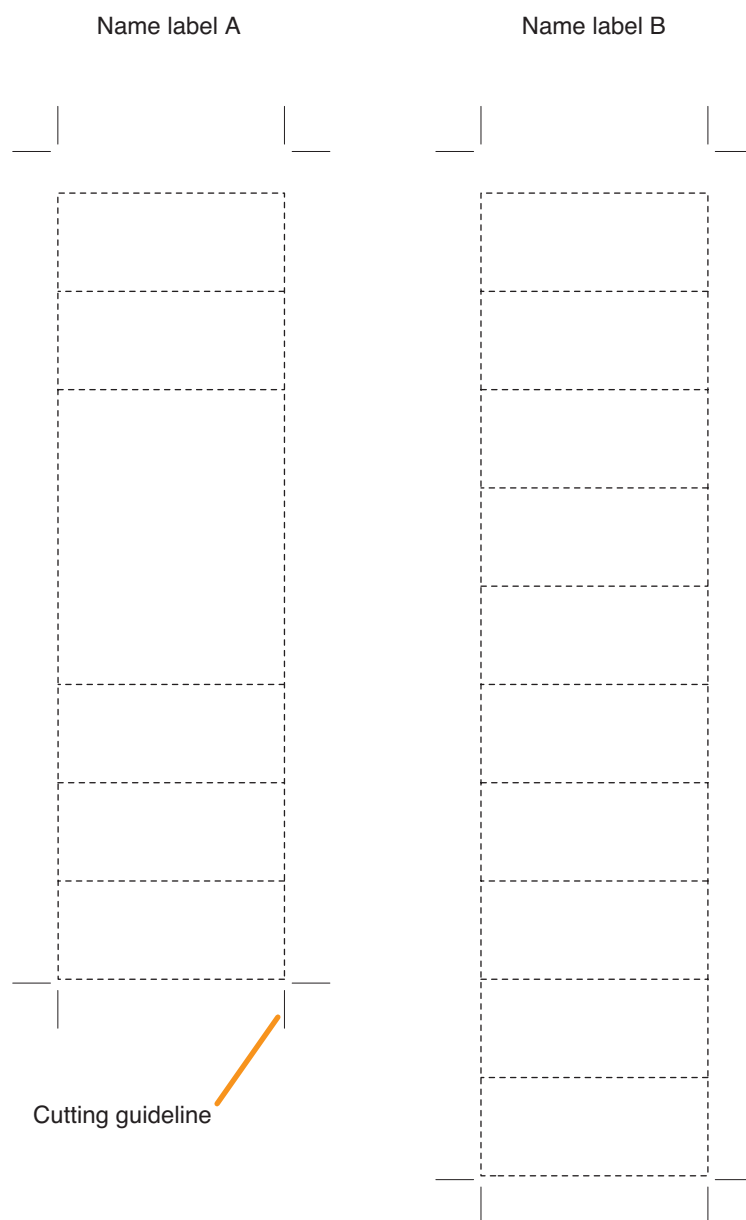
(2) Preparation by using a PC or word processor

Prepare and print according to the instructions given in the "Dimensional diagram for printing devices." Then cut out to the instructed size.

12.2.3. Dimensional diagram for printing devices



12.2.4. Pattern paper for hand writing



Shown in actual size

Name label B

Name label B

Name label B

Name label B

Cutting guideline

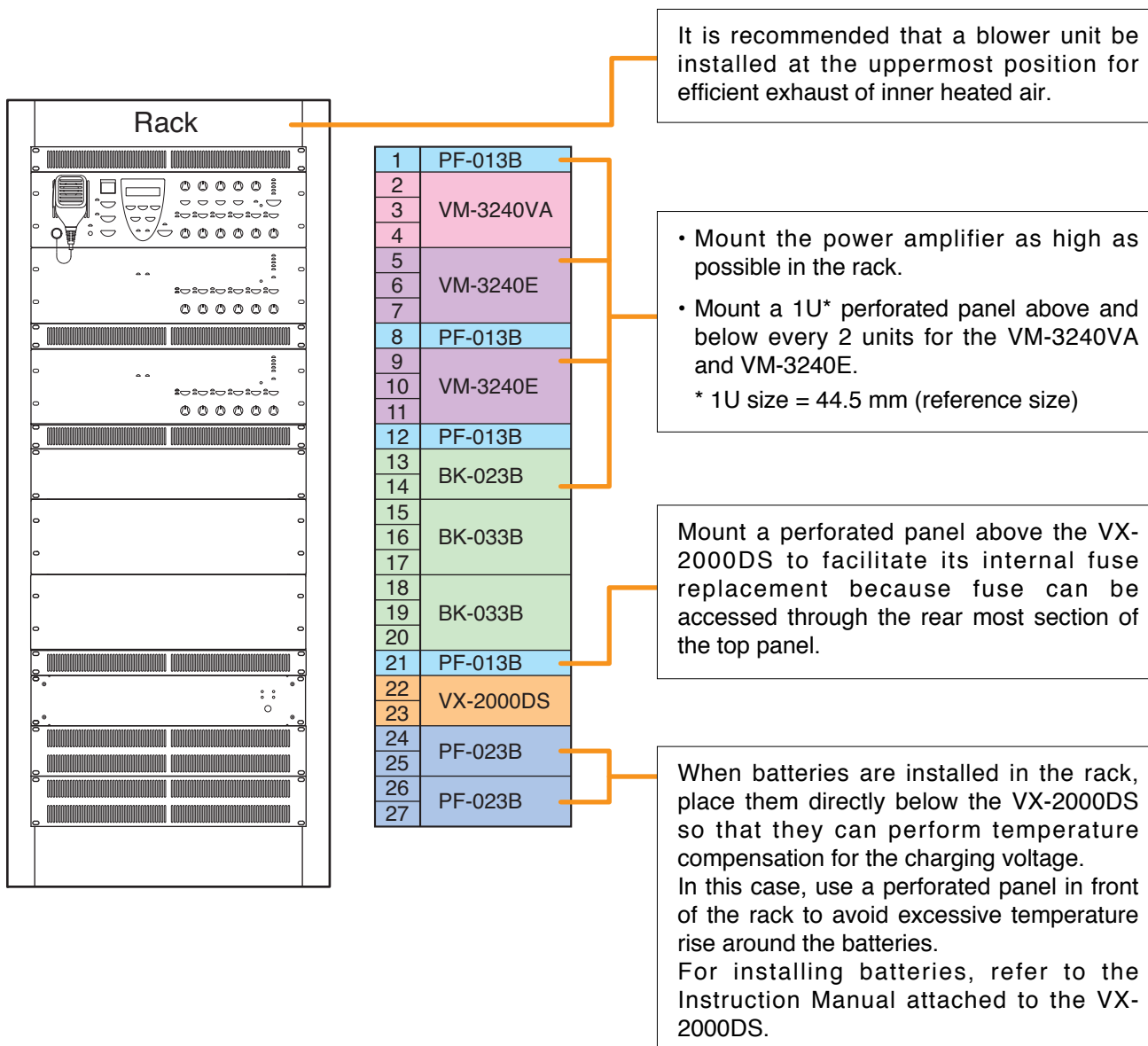


Shown in actual size

12.3. Rack Mounting

Observing the following precautions, mount the equipment in the rack.

All the system equipment shall be installed in the equipment rack and permanently connected to the branch circuit. Cord connection is permitted within the rack.



CAUTION

Follow the instructions below. Doing otherwise may cause the unit to fall, possibly resulting in personal injury.

- As the VM amplifiers do not come with rack-mounting screws, prepare locally the screws that are appropriate for the equipment rack.
- The VM-3240VA and VM-3240E can be mounted in an EIA-Standard equipment rack (3 U* size).
* 3 U size = 133.5 mm (reference size)
- The rack-mounting screws supplied with the units other than the VM amplifiers are dedicated for the TOA racks. Never use them for any other rack.

Notes

- Because the VM-3240VA, VM-3240E, and VX-2000DS are heavy, use guide rails (separately prepared) in the rack to safely mount and securely support the units.
- The perforated panel is recommended in place of space.

13. CONNECTIONS

13.1. Removable Terminal Plug Connection

Notes

- Do not use a micro screwdriver. Sufficient torque is not given to the screws when tightening them, and connections may not be secured.
- Avoid soldering stranded or shielded cable, as contact resistance may increase when the cable is tightened and the solder is crushed, possibly resulting in an excessive rise in joint temperatures.
- When connecting 2 cables or a shielded cable to a single terminal, use a ferrule terminal with an insulation sleeve to crimp the cables because such cable conductors could become loose.

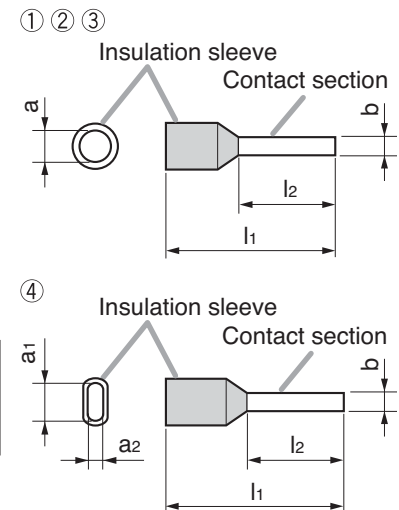
Recommended ferrule terminals for signal cables
(made by Phoenix Contact)

	Model Number	a	b	l ₁	l ₂
①	AI 0,34-8 TQ	2 mm	0.8 mm	12.5 mm	8 mm
②	AI 0,5-8 WH	2.5 mm	1.1 mm	14 mm	8 mm

Recommended ferrule terminals for power supply cables
(made by Phoenix Contact)

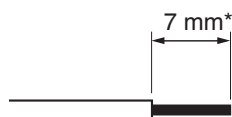
	Model Number	a	a ₁	a ₂	b	l ₁	l ₂
③	AI 1,5-8 BK	3.4 mm	—	—	1.8 mm	14 mm	8 mm
④	AI-TWIN 2 x 1,5-8 BK	—	6.6 mm	3.6 mm	2.3 mm	16 mm	8 mm

Crimping tool: CRIMPFOX UD6-4 (made by Phoenix Contact)

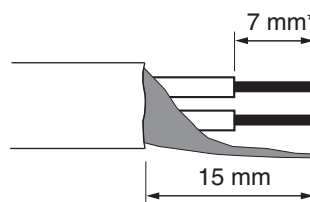


Cable sheath to trim

Solid cable and stranded cable



Shielded cable



* Expose 8 mm or more when using the above ferrule terminal, and cut off an extra conductor protruding from the sleeve.

Wiring procedures

Procedures below are for the removable terminal plug with fixing screws.

Step 1. Loosen the terminal screw and insert the cable lead.

Step 2. Tighten the screw.

Pull on the cable lead to ensure it is securely connected.

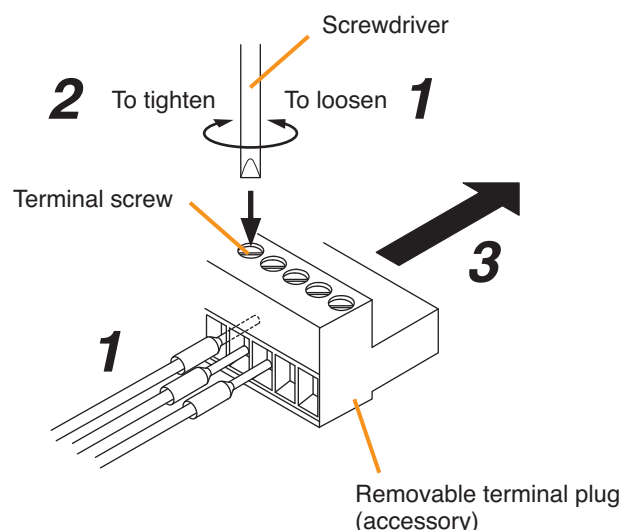
If the lead pulls out, loosen the screw and follow the above procedures again.

Step 3. Insert the terminal plug into the corresponding terminal block in the unit's rear panel.

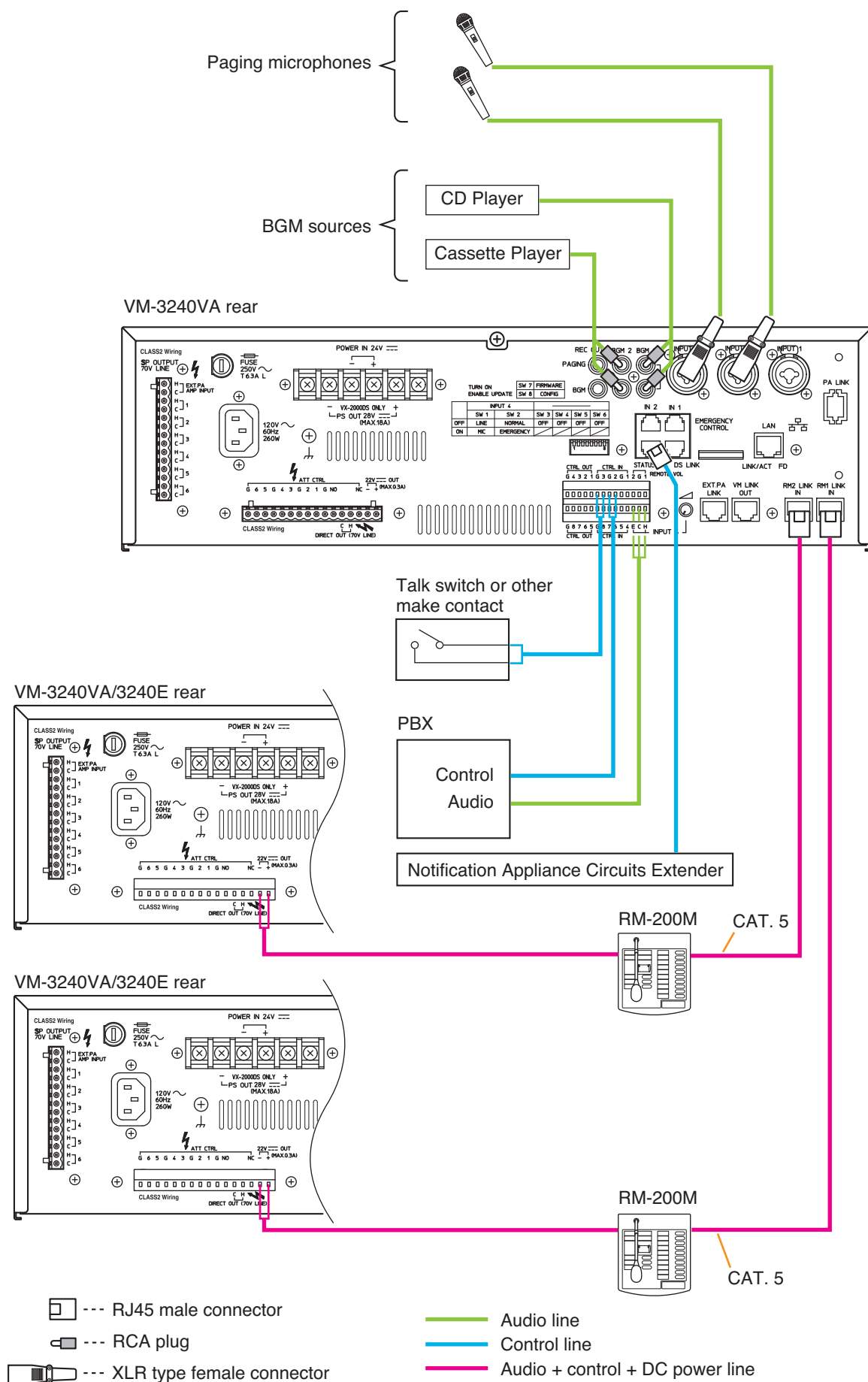
Note

Do not reverse Steps 1 – 2 and 3 above.

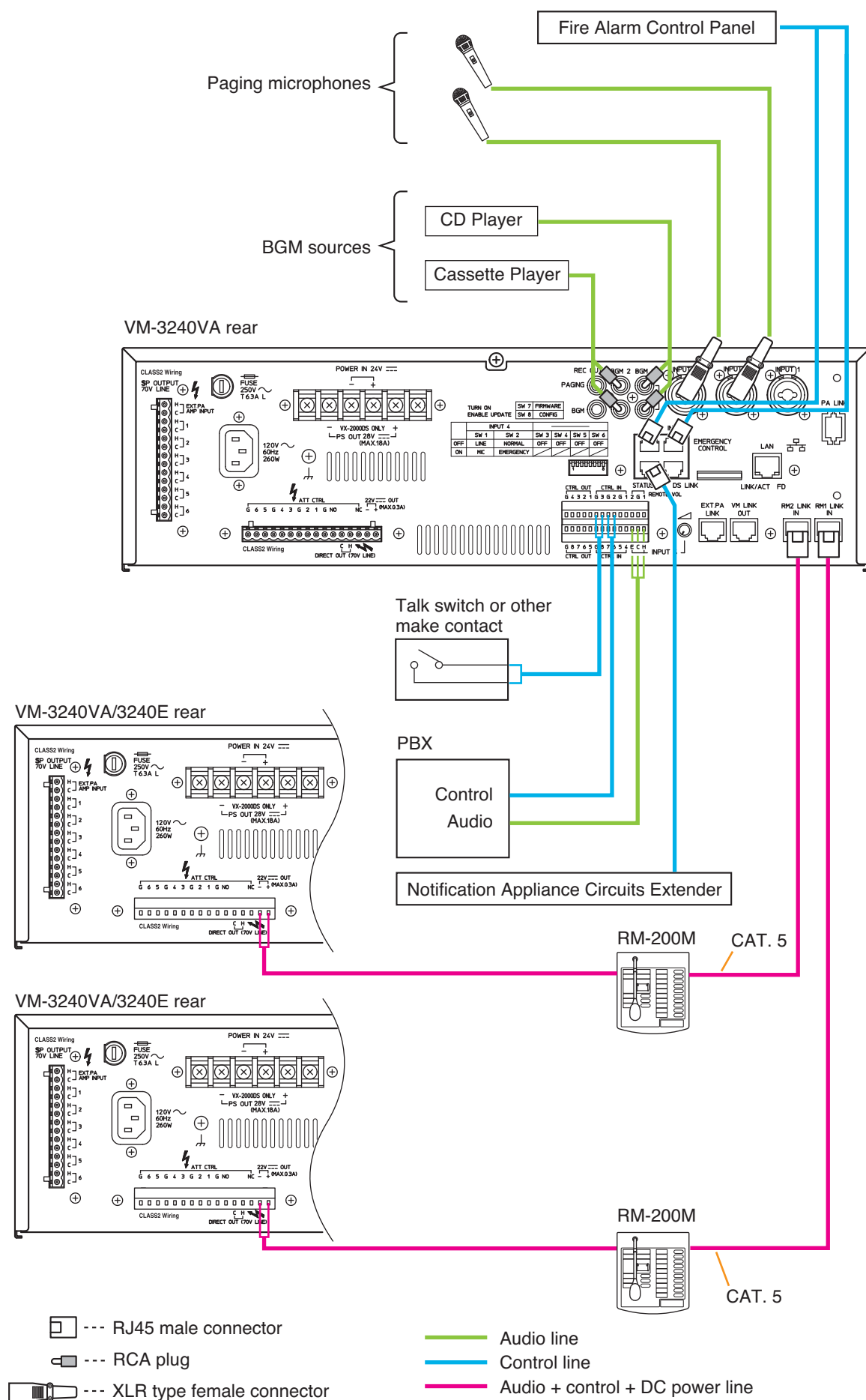
Force is applied to the connected receptacle pins while tightening the terminal screw and they may be damaged, resulting in bad connector contact.



13.2. Audio and Control Connection Example



[Fire Alarm Control Panel Connection Example]

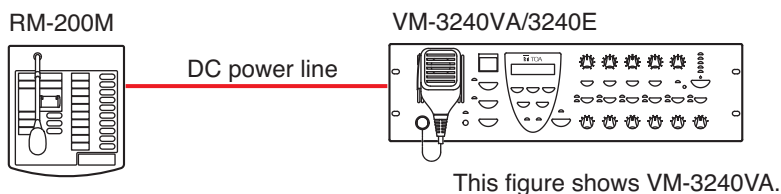


13.3. RM-200M Remote Microphone Connections

13.3.1. Power supply from VM-3240VA or VM-3240E

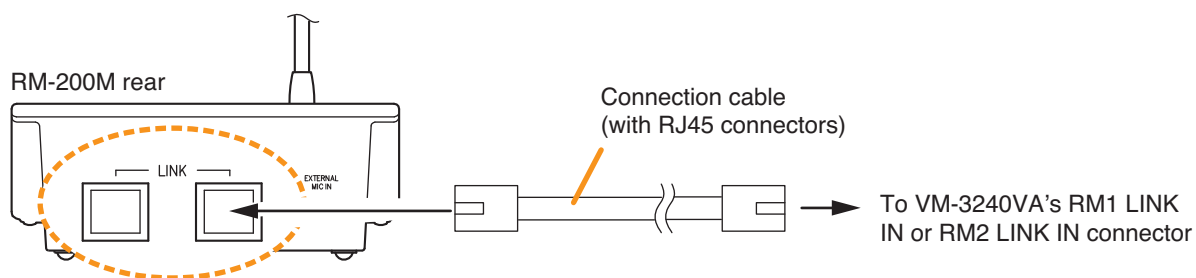
Up to 4 RM-200Ms can be used in a system.

The VM-3240VA or VM-3240E can supply power to a single RM-200M only.



13.3.2. Link connection to VM-3240VA

- The RM-200M is equipped with 2 link connectors, either of which can be used for connection.
- To connect an additional RM-200M, use either link connector.
- When connecting only RM-200Ms to the VM-3240VA, a total of 4 RM-200Ms can be connected to the VM-3240VA's RM1 LINK IN and RM2 LINK IN connectors.



- The following table shows the maximum cable distance when STP Category 5 straight cable (with RJ45 connectors) is used.

No. of expansion units	
Cable	RM-200M alone
STP Category 5	140 m

- To make longer cable lengths than those shown in the above table, use over 4-pair shielded CPEV cable. (For the cable connection, see below.)

The relationship of the CPEV cable conductor diameter to the maximum cable distance is as follows:

No. of expansion units	
Conductor diameter	RM-200M alone
ø0.65 mm	230 m
ø0.9 mm	460 m
ø1.2 mm	800 m

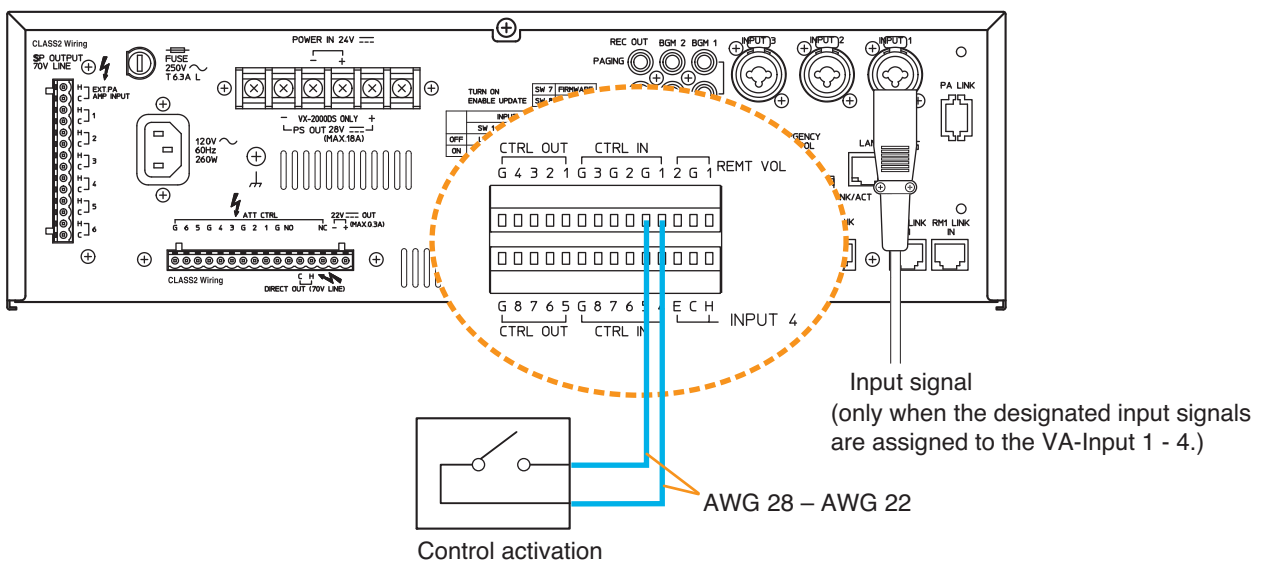
13.4. General Control Input Terminal Connections

13.4.1. Controlling functions assigned to the General Control Input terminals from the external equipment

Following are assignable functions to the General Control Input terminals. (For the function assignments, refer to "General control input settings" in "Event Settings" in the separate software instruction manual.)

- VA-INPUT 1 – 4: Allows general broadcast received from the designated input to the designated output (zone).
- EV 1 – 6: The designated pre-recorded general message announcement is automatically broadcast to the designated output (zone).
- Power ON/OFF: Functions as the front-panel mounted Power switch by use of the control input.
- Failure Receipt: Acknowledges a failure and causes all currently sounding buzzers to stop. At the same time, it switches the Failure indicator from flashing to steady on mode.
- Failure output reset: Resets the failure status.
- External failure input: Captures failure information having occurred outside the system by use of the control input, causing the buzzers to sound in the VM-3000 system, and displaying the information on the LCD screen.

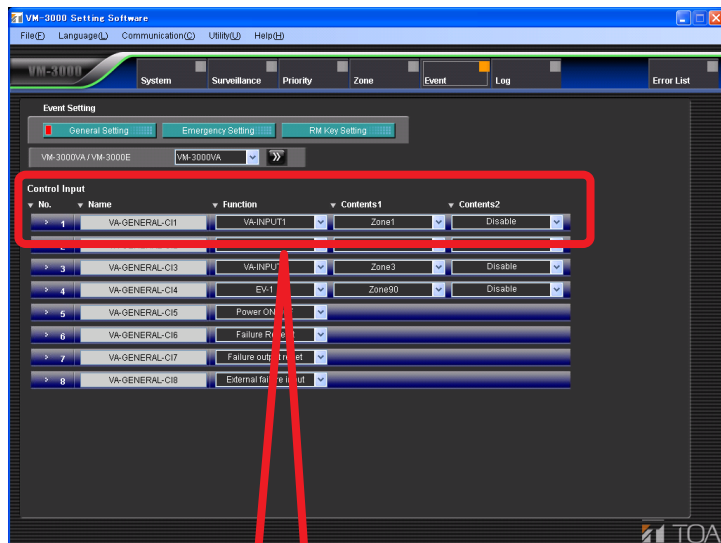
VM-3240VA/3240E rear



Note: This figure shows the VM-3240VA.

[Setting example]

Shown below is a general control input setting screen in the setting software.
The figure shows an example when performing a general broadcast by way of the contact activation.



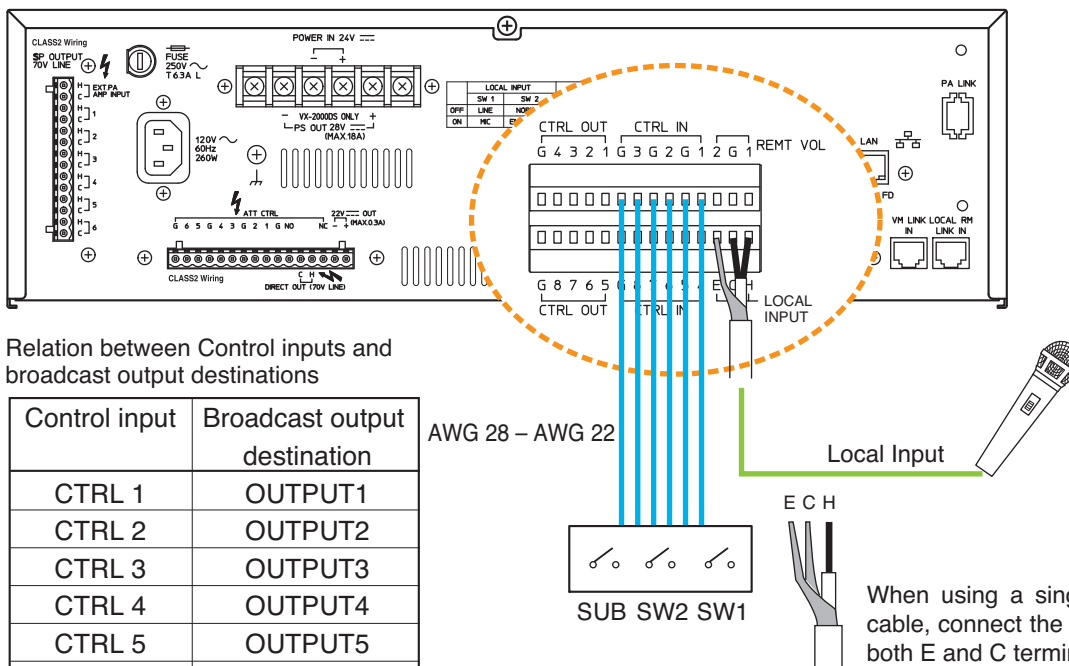
Control input	No. 1
Sound source input	VA-INPUT 1
Broadcast zone	Zone 1



13.4.2. Using the local input

Local broadcasts can be performed within the area where the unit covers using the VM-3240E's Local input. To use this function, refer to "Local input settings" in "System settings" in the separate software instruction manual.

VM-3240E rear

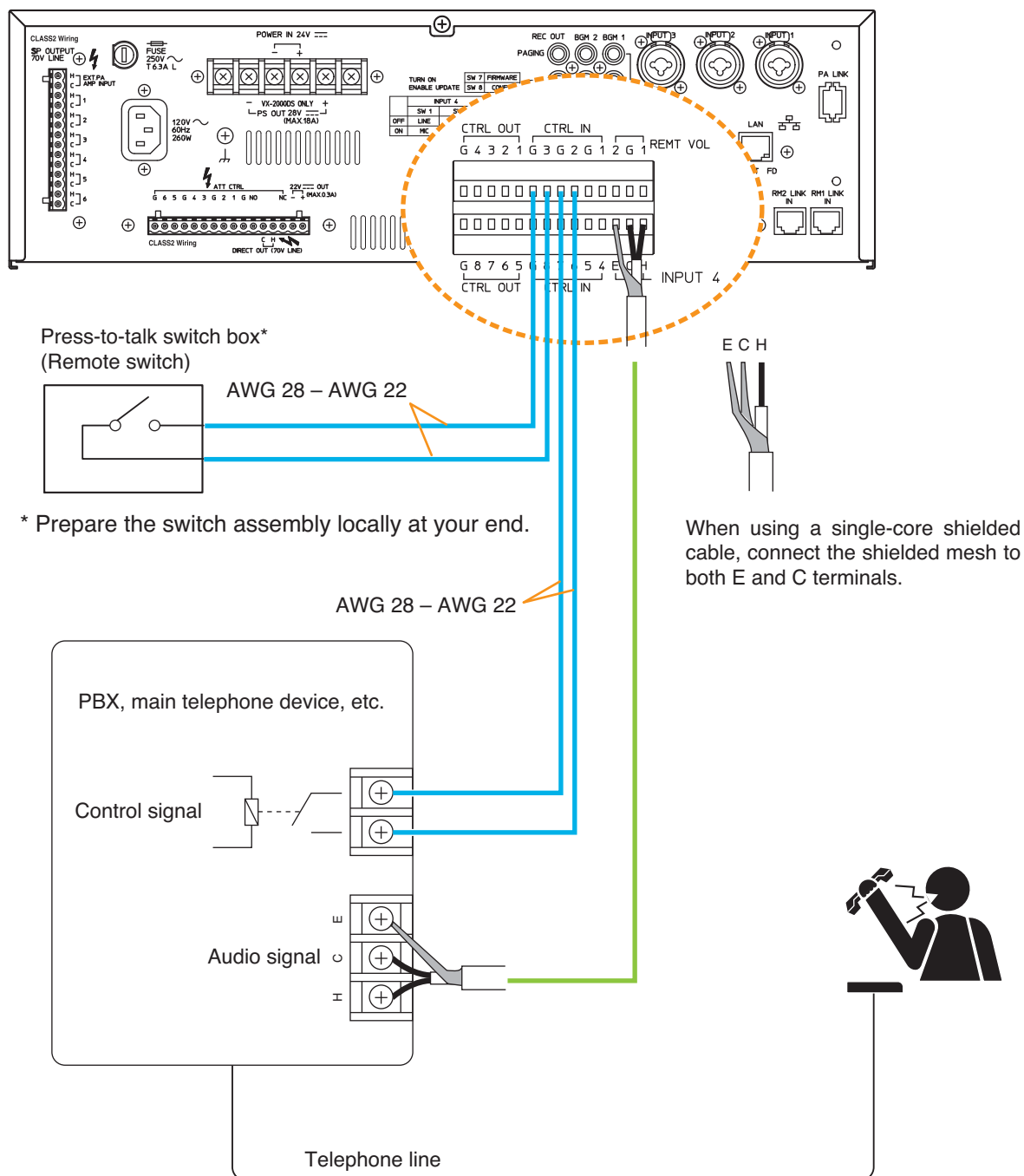


Relation between Control inputs and broadcast output destinations

Control input	Broadcast output destination
CTRL 1	OUTPUT1
CTRL 2	OUTPUT2
CTRL 3	OUTPUT3
CTRL 4	OUTPUT4
CTRL 5	OUTPUT5
CTRL 6	OUTPUT6
CTRL 7	OUTPUT1-6
CTRL 8	Not used.

13.4.3. Example of connection to external equipment

VM-3240VA rear



13.5. Emergency Control Input Terminal Connections

Following are assignable functions to the Emergency Control Input terminals. (For the function assignments, refer to "Emergency control input settings" in "Event settings" in the separate software instruction manual.

Evacuation EV broadcast: This function cannot be used.

Evacuation EV stop: This function cannot be used.

Alert EV broadcast: This function cannot be used.

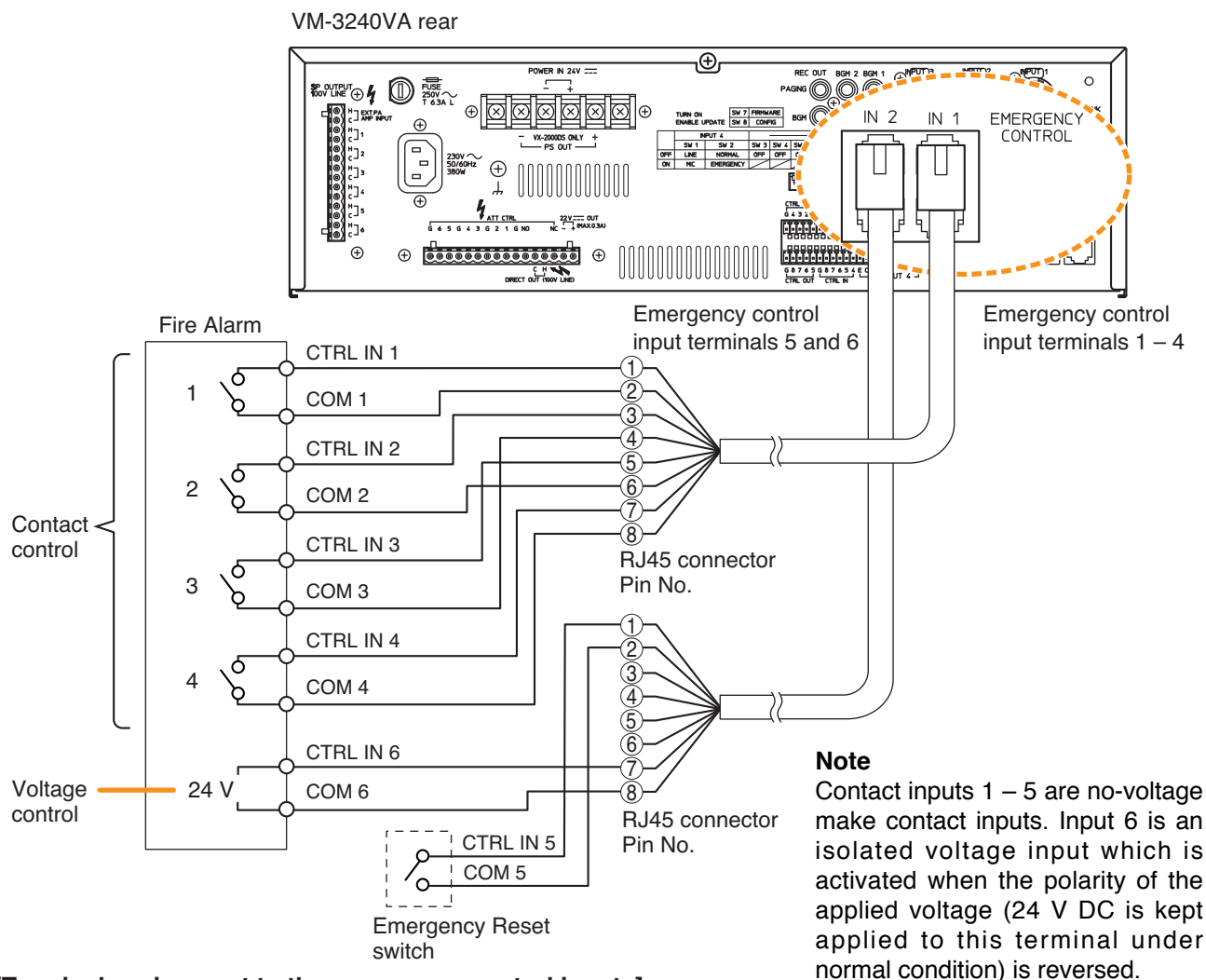
Alert EV stop: This function cannot be used.

Emergency Reset: This function cannot be used.

Amplifier Cut off: This function cannot be used.

End of line: This function cannot be used.

13.5.1. External emergency control equipment connection



[Terminal assignment to the emergency control inputs]

Connector name	RJ45 connector pin No.	Cable color (T568B type)	Cable color (T568A type)	Pair	Assignment
CTRL IN 1 – 4	①	Orange/White	Green/White	1	CTRL IN 1
	②	Orange	Green		COM 1
	③	Green/White	Orange/White	2	CTRL IN 2
	④	Blue	Blue		COM 3
	⑤	Blue/White	Blue/White	3	CTRL IN 3
	⑥	Green	Orange		COM 2
	⑦	Brown/White	Brown/White	4	CTRL IN 4
	⑧	Brown	Brown		COM 4
	Shield	—	—		NC
CTRL IN 5 – 6	①	Orange/White	Green/White	1	CTRL IN 5
	②	Orange	Green		COM 5
	③	Green/White	Orange/White	2	Not used
	④	Blue	Blue		Not used
	⑤	Blue/White	Blue/White	3	Not used
	⑥	Green	Orange		Not used
	⑦	Brown/White	Brown/White	4	CTRL IN 6
	⑧	Brown	Brown		COM 6
	Shield	—	—		NC

13.5.2. Connections to detect failures on the emergency control input lines

Two types of control methods are available for the Emergency control input in the VM-3000 system: Contact control input (Emergency control input terminals 1 – 5) and Voltage control input (Emergency control input terminal 6).

Failures on each control input line can be detected in the following connections.

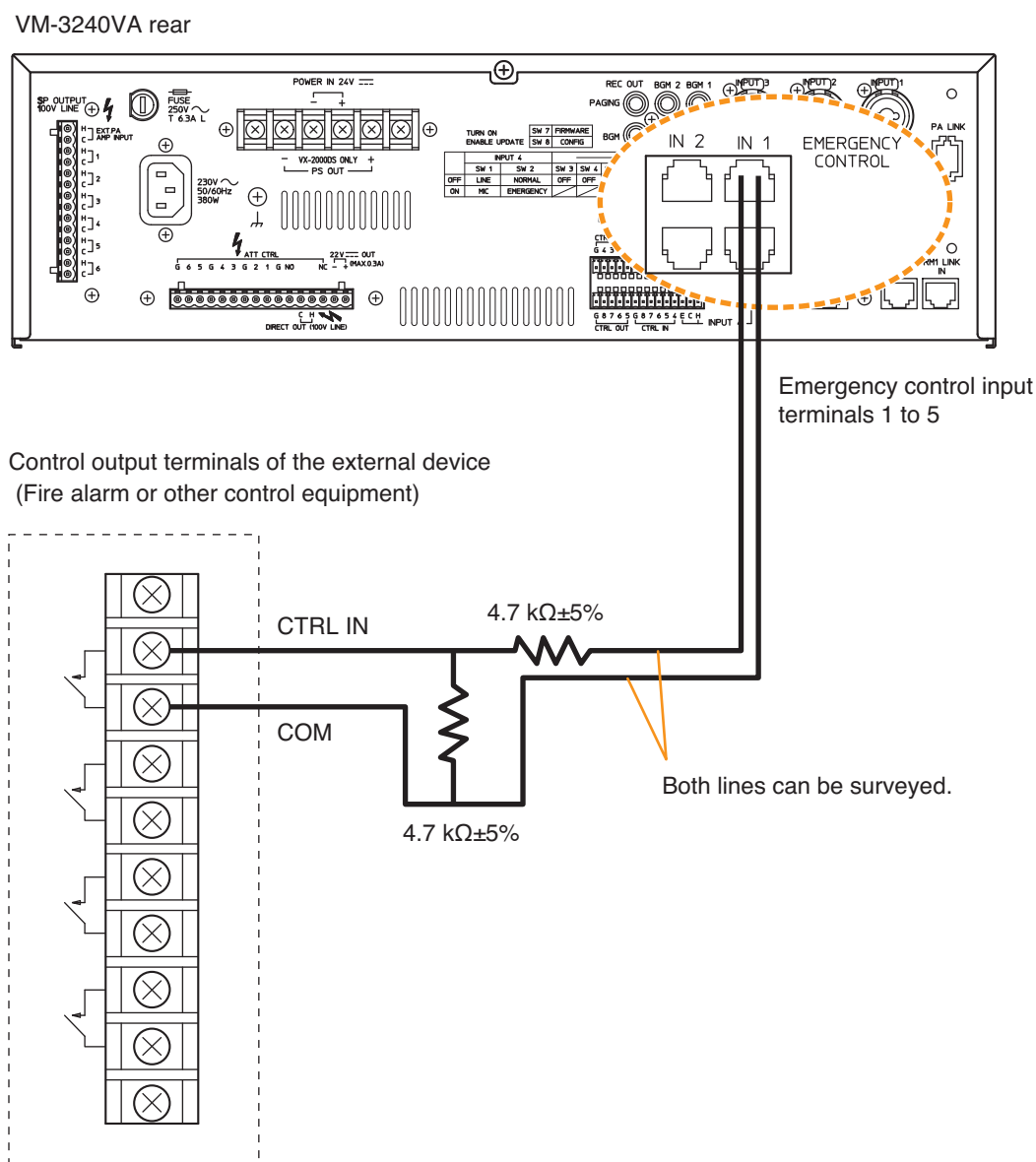
The control input terminals to be surveyed should be set by the setting software. (Refer to "Surveillance Settings" in the separate software manual.)

* For the surveillance function, refer to [page 33](#).

[Contact control input terminals (EMERGENCY CONTROL 1 – 5)]

Receive emergency control output (contact output) from external equipment, then reset an emergency broadcast.

Connect the lines to be surveyed as shown below.



[Voltage control input terminal (EMERGENCY CONTROL 6)]

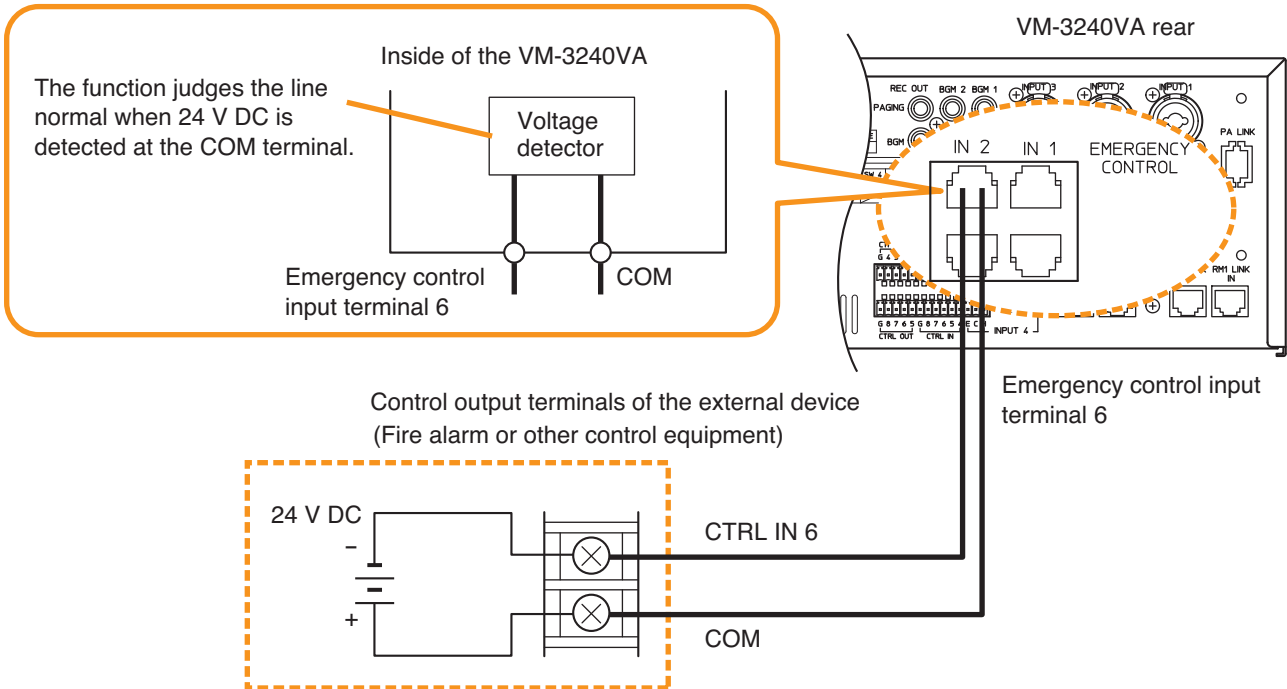
24 V DC is kept applied to the COM terminal under normal condition. Reversing this applied voltage polarity resets an emergency broadcast.

The surveillance function judges the line normal when 24 V DC is detected at the COM terminal under normal condition and when 24 V DC is detected at the emergency control input terminal 6 under emergency condition.

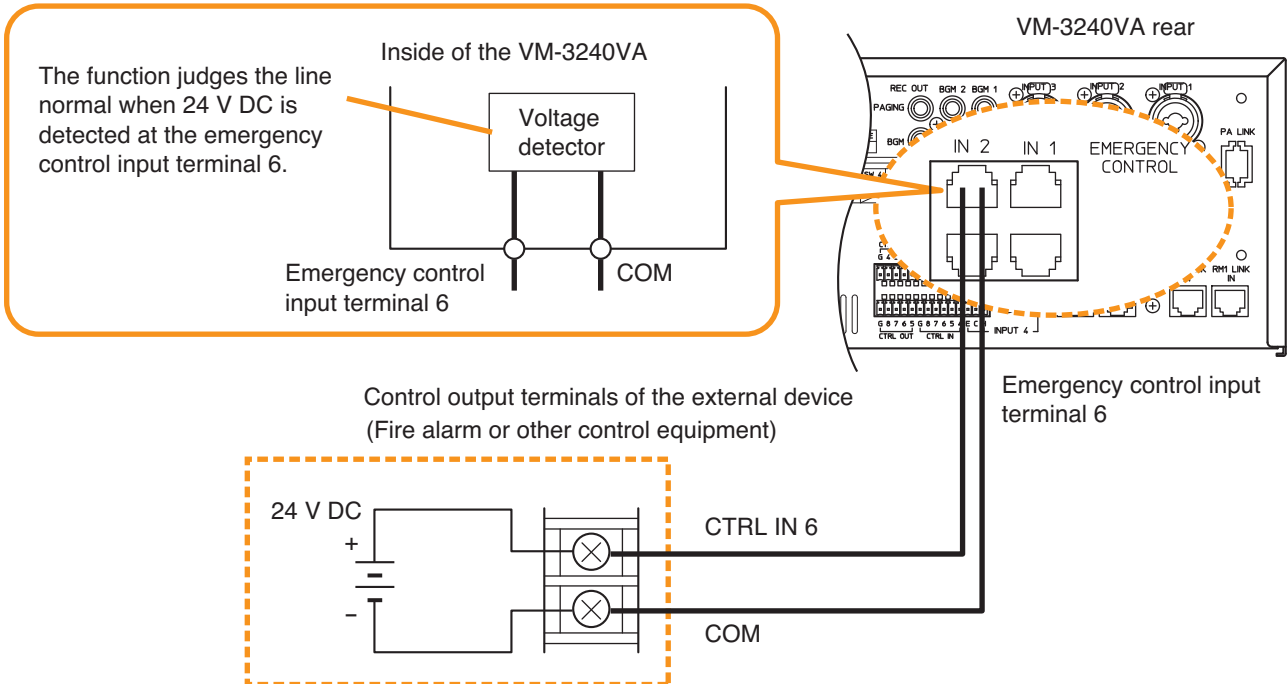
It judges the line open if no voltage is detected under any condition.

The figures below show the line surveillance methods under normal and emergency conditions.

How the surveillance function works under normal condition



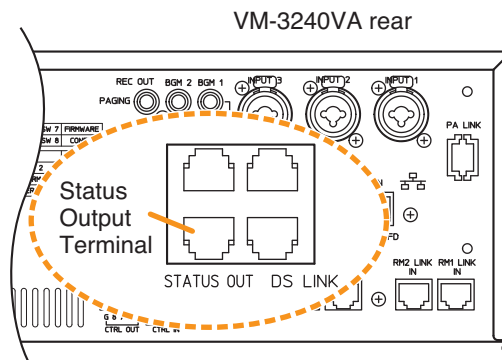
How the surveillance function works under emergency condition



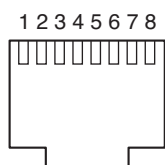
13.6. Status Output Terminal Connections

These terminals provide control outputs of relay contact type.

Control signals (make contact) are output in synchronization with unit operation.



The RJ45's pin arrangement and pin functions are shown below.

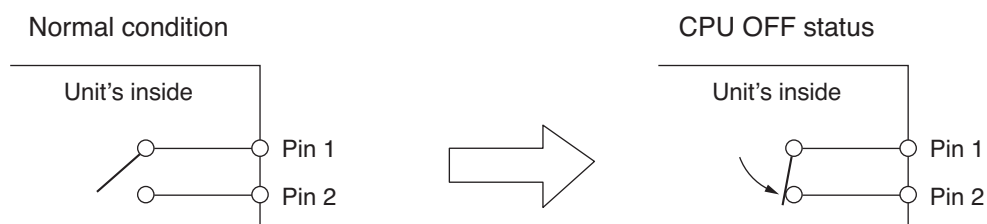


Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
CPU OFF STATUS OUT		FAULT STATUS OUT			EMERGENCY STATUS OUT		
COM	NO*1	COM	NO*1	NC*2	COM	NO*1	NC*2

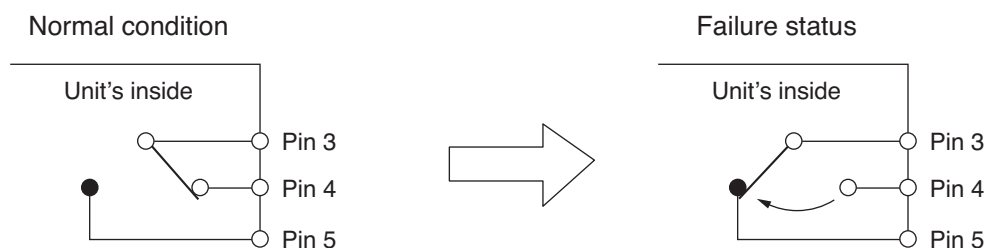
*1 NO: Normally Open

*2 NC: Normally Closed

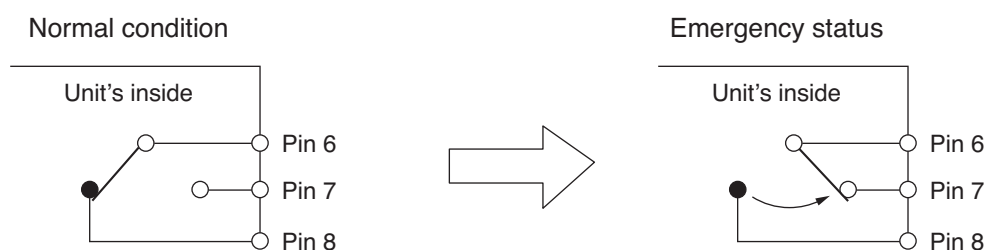
[Operation at CPU OFF status output]



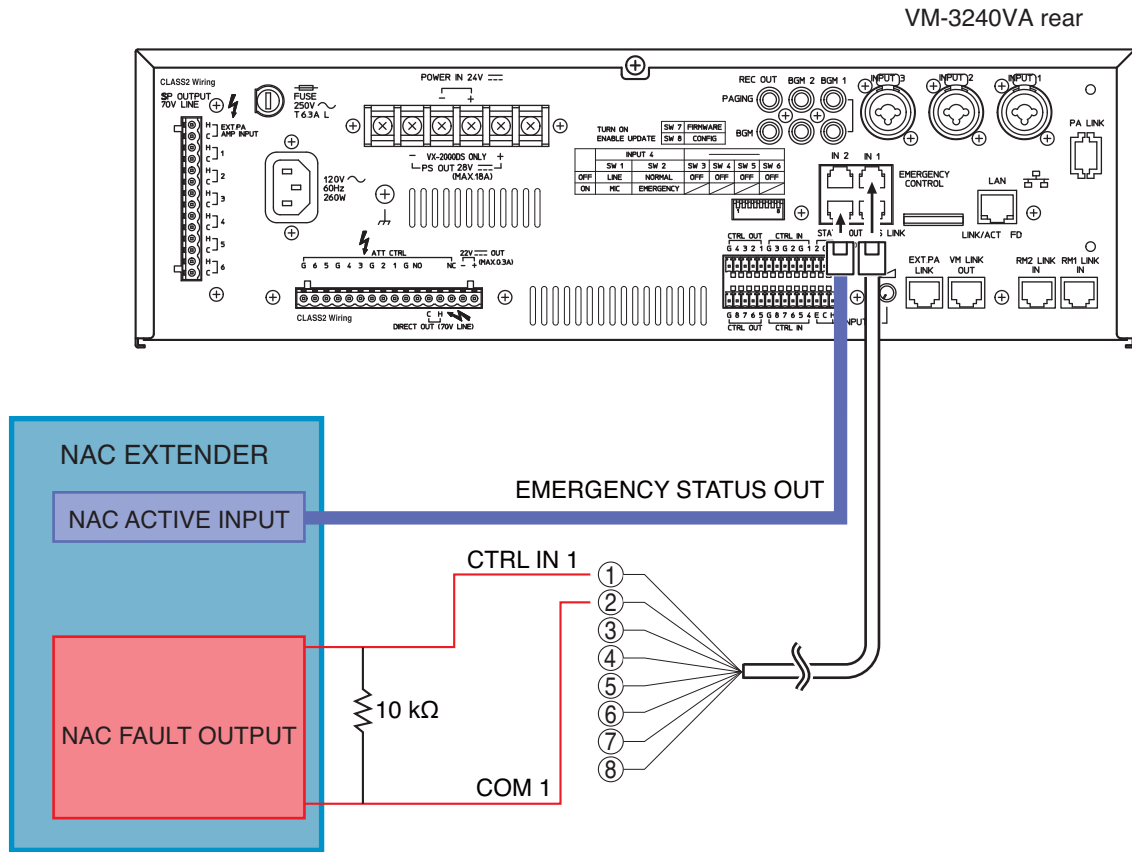
[Operation at failure status output]



[Operation at emergency status output]

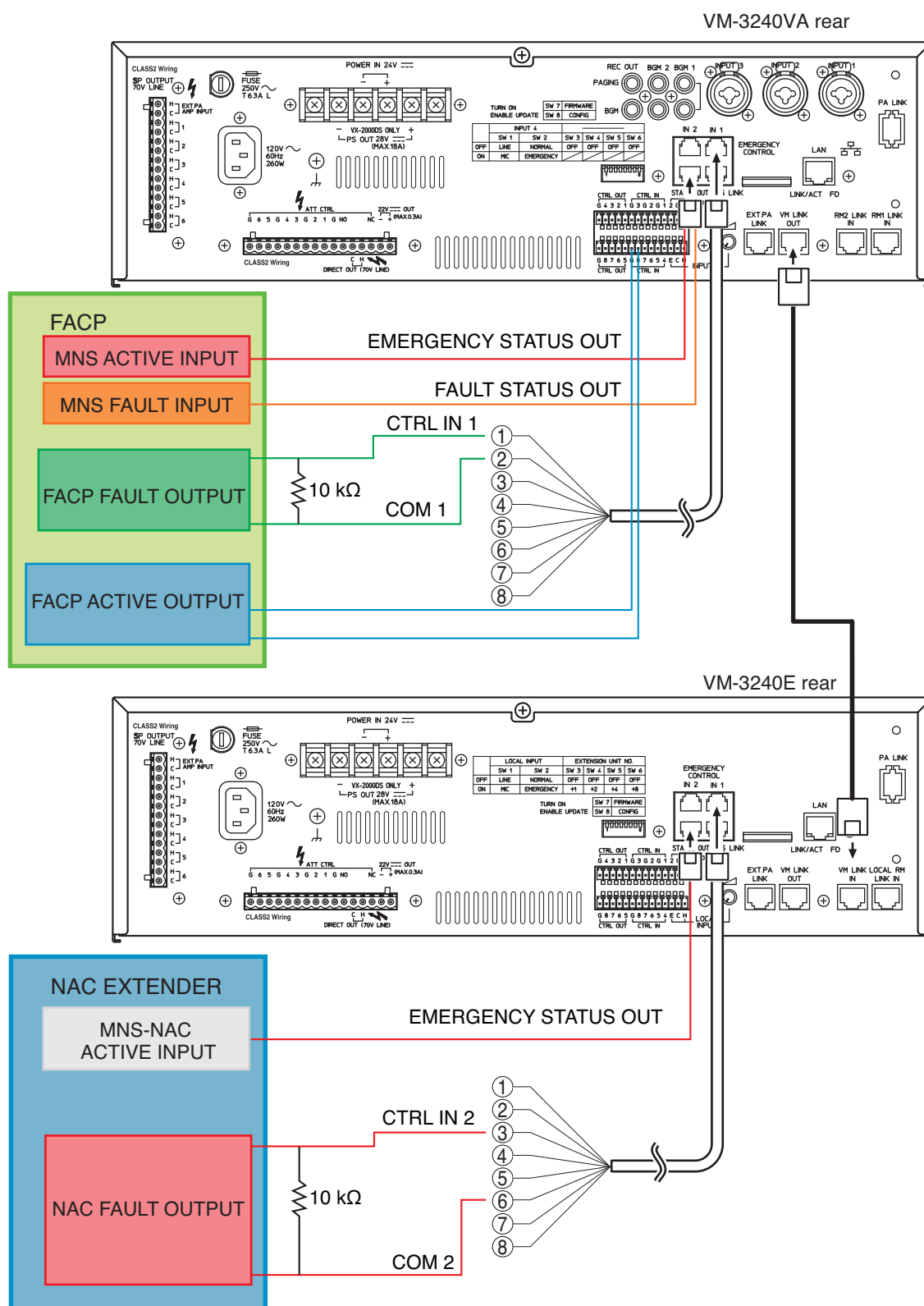


[NAC Extender connection]



[FACP and NAC Extender connection A]

For operating system with a Fire Alarm Control Panel and MNS system has higher priority.



(A) MNS is Higher Priority

FACP with FACP-Strobe for FACP use only + separate MNS-Strobe for MNS use only.

(a) When FACP goes into Evacuation mode

The fire alarm audible notification starts.

MNS stops all general broadcast.

MNS-Strobe is not energized.

(b) When MNS goes into Emergency Mode

(Active) Leave FACP audible

notification off. FACP-Strobe is not lit.

MNS-Strobe is lit.

FACP shall visually indicate and log that the MNS system is active

(c) When MNS goes into Emergency Mode while the FACP is in

Evacuation Mode, the FACP audible notification stops.

FACP-Strobe is not lit.

MNS-Strobe is lit.

FACP-Strobe is not lit. MNS-Strobe is lit.

FACP shall visually indicate and log that the MNS system is active

(d) When MNS Emergency Mode is canceled, and the FACP is in

Evacuation Mode, the MNS stops all general broadcast.

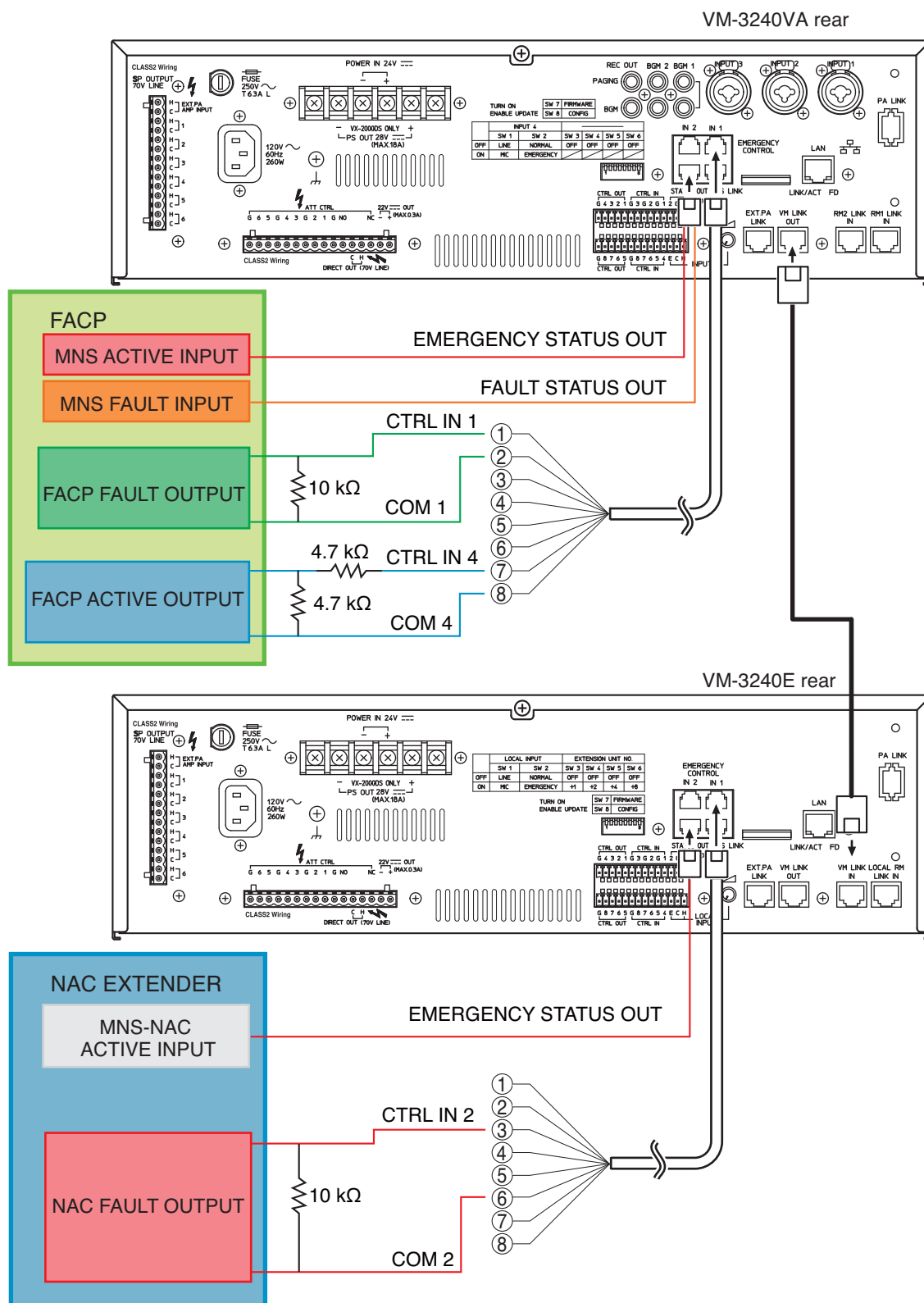
MNS-Strobe is not lit.

The FACP audible notifications
are active.

FACP-Strobe is lit.

[FACP and NAC Extender connection B]

MNS System has lower Priority.



(B) MNS is Lower Priority

FACP with FACP-Strobe for FACP use only + Separate MNS-Strobe for MNS use only with MNS is Lower Priority.

(a) When MNS goes into Emergency Mode.

MNS-Strobe is lit.

FACP shall visually indicate and log that the MNS is active.

(b) When FACP goes into Emergency mode

The fire alarm audible notification starts.

MNS stops all general broadcast.

MNS can not go into Emergency Mode.

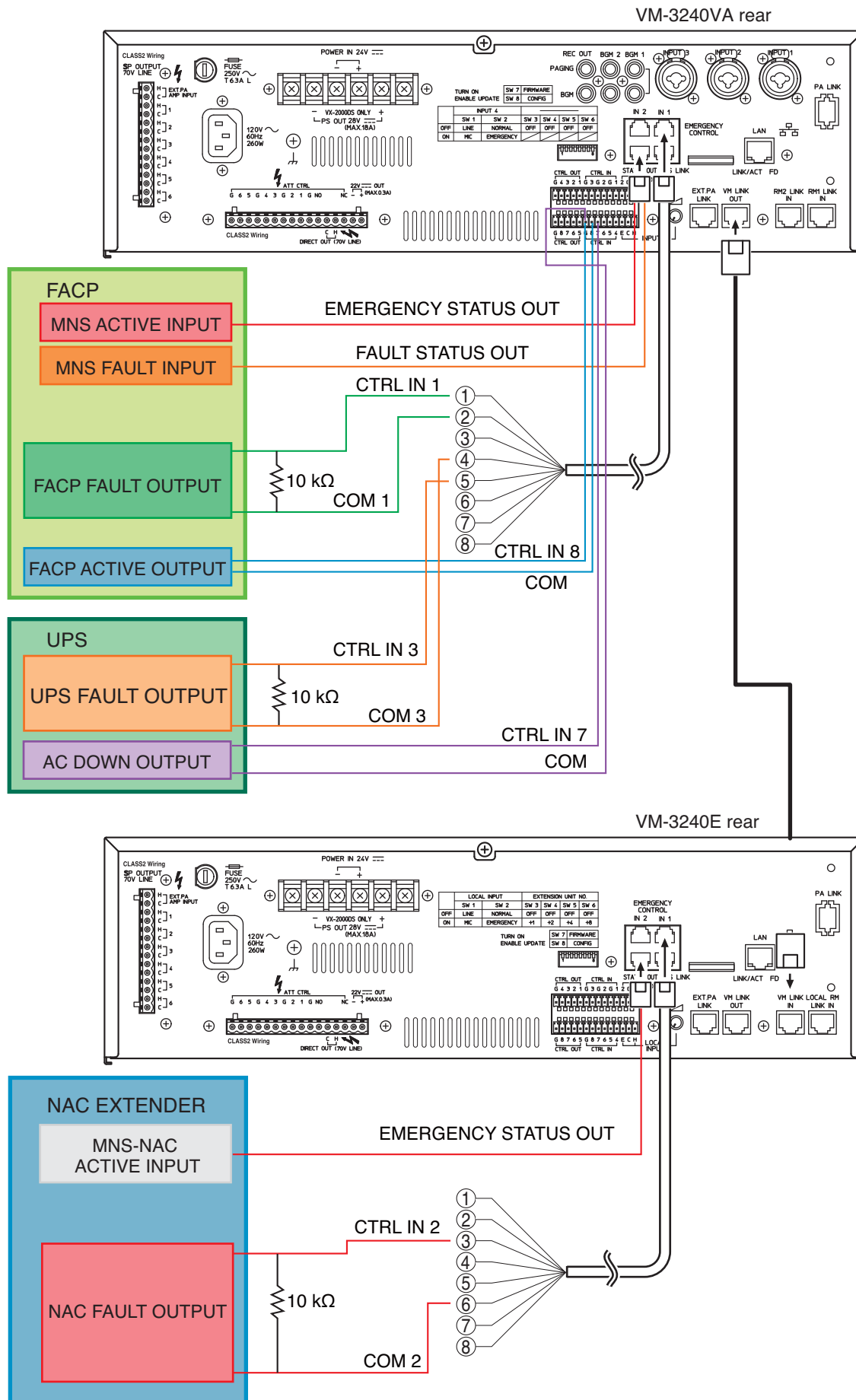
(c) When FACP goes into Emergency mode while the MNS is in Emergency mode,

The MNS audible notification stops.

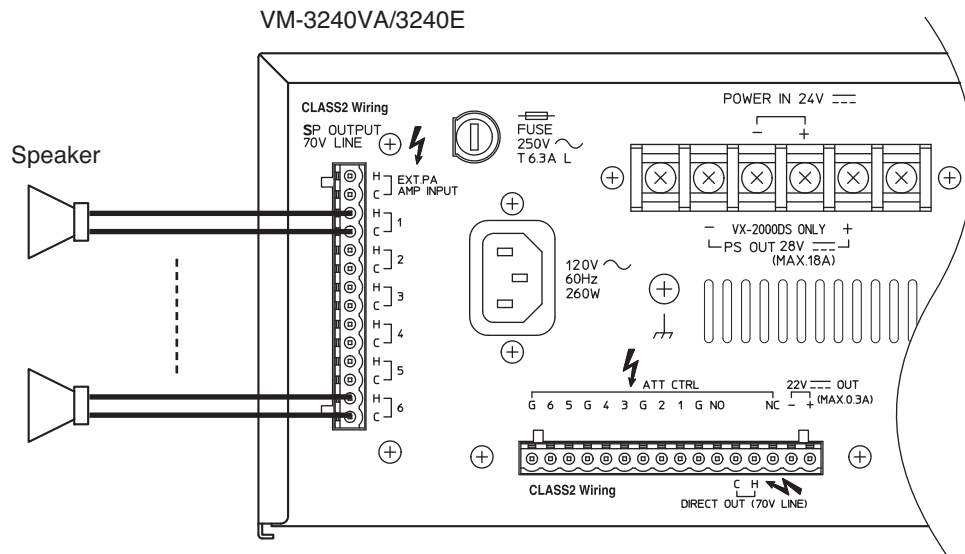
MNS-Strobe is not lit.

FACP-Strobe is lit.

[FACP and NAC and UPS connection]

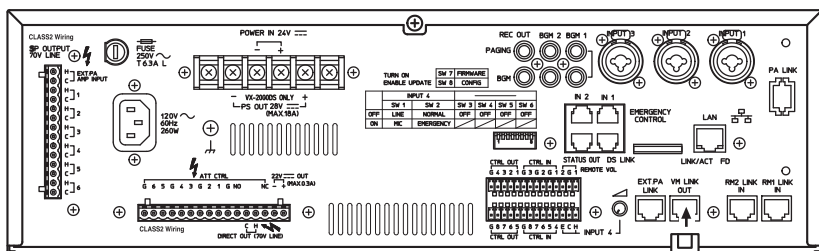


13.7. Power Amplifier and Speaker Connections



13.8. Connections between VM Amplifiers

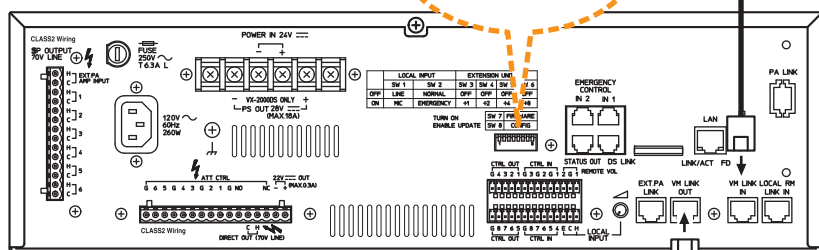
VM-3240VA



Unit ID No. 1

Cat. 5 STP

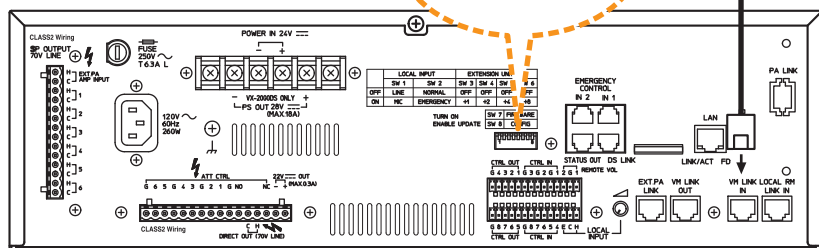
VM-3240E



Unit ID No. 2

Cat. 5 STP

VM-3240E



--- RJ45 male connector

Notes

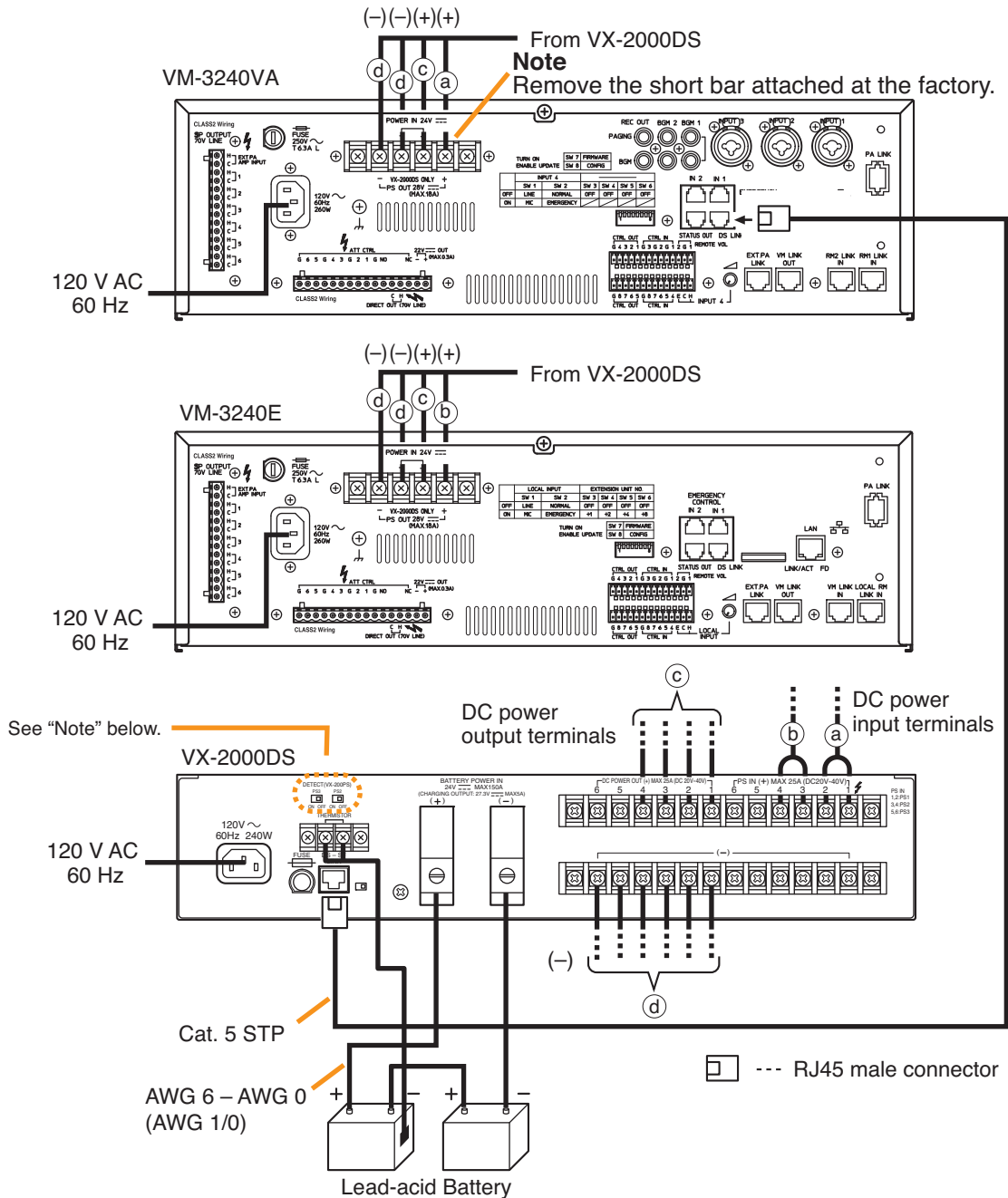
- When connecting 2 VM-3240E units or more in a system, set the Unit ID with the DIP switch located on each unit's rear panel. Make individual Unit ID numbers different because duplicating ID numbers causes unit malfunction.
- When the Unit ID of VM-3240E has been changed while the system power is on, be sure to restart the system by pushing the front-mounted reset switch on the VM-3240VA.

ID No.	DIP switch	SW 3 (+1)	SW 4 (+2)	SW 5 (+4)	SW 6 (+8)
ID No. 1	ON	ON	OFF	OFF	OFF
ID No. 2	ON	OFF	ON	OFF	OFF
ID No. 3	ON	ON	ON	OFF	OFF
ID No. 4	ON	OFF	OFF	ON	OFF
ID No. 5	ON	ON	OFF	ON	OFF

ID No.	DIP switch	SW 3 (+1)	SW 4 (+2)	SW 5 (+4)	SW 6 (+8)
ID No. 6	ON	OFF	ON	ON	OFF
ID No. 7	ON	ON	ON	ON	OFF
ID No. 8	ON	OFF	OFF	OFF	ON
ID No. 9	ON	ON	OFF	OFF	ON

Note
SW 3 – 6 are DIP switch numbers.

13.9. Connecting Power Supply Equipment



Caution

The charging current from the VX-2000DS is 5 A maximum.

Note

Make PS2 and PS3 switch settings according to the total number of connected power supply units VM-3240VA and VM-3240E (power supply unit incorporated); set PS2 to ON for 2 units, and PS2 and PS3 to ON for 3 units.

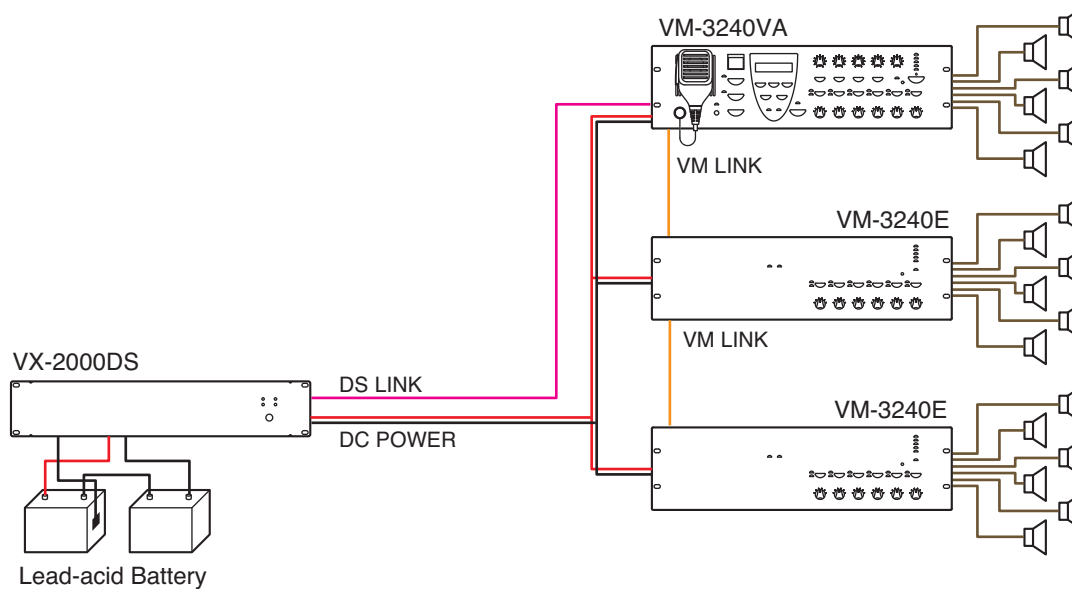
Note that these power supply units should be connected to the PS IN (+) terminals 1 and 2 for the 1st unit, 3 and 4 for the 2nd unit, and 5 and 6 for the 3rd unit.

[Required number of VX-2000DS units]

One VX-2000DS is required every 3 VM amplifiers.

Number of VM amplifiers	1	2	3	4	5	6	7	8	9	10
Number of VX-2000DS'	1			2			3			4

Below is an example showing that one VX-2000DS is required in a system including 3 VM amplifiers.



14. VM-3000 CABLE USAGE TABLE

This table shows the cables to be used in the VM-3000 and their connection locations.

[VM-3240VA]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment Receptacle	Terminal Name	Equipment
AC IN	3P inlet	AC plug	Supplied cable	AC plug	AC OUTLET AC 120 V, 60 Hz		
POWER IN 24 V	Screw terminal	Round terminal	AWG 10 – AWG 8 5.5 – 8.0 mm ²	Round terminal	Screw terminal	DC POWER OUT	VX-2000DS
PS OUT	Screw terminal	Round terminal	AWG 10 – AWG 8 5.5 – 8.0 mm ²	Round terminal	Screw terminal	PS IN	VX-2000DS
CTRL IN	Screw terminal block	Unprocessed cable end	AWG 28 – AWG 22 0.1 – 0.3 mm ²	—	—	—	Fire Alarm Control Panel/Other control unit
VM LINK OUT	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	VM LINK IN	VM-3240E
EMERGENCY CONTROL IN	RJ45 (female)	RJ45 (male)	Cat. 5 STP	—	—	—	Fire Alarm Control Panel/Other control unit
DS LINK	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	DS SF LINK	VX-2000DS
STATUS OUT	RJ45 (female)	RJ45 (male)	Cat. 5 STP	—	—	—	Fire Alarm Control Panel/Other control unit
LAN	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	—	HUB
RM LINK IN	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	LINK	RM-200M

[VM-3240E]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment Receptacle	Terminal Name	Equipment
AC IN	3P inlet	AC plug	Supplied cable	AC plug	AC OUTLET AC 120 V, 60 Hz		
POWER IN 24 V	Screw terminal	Round terminal	AWG 10 – AWG 8 5.5 – 8.0 mm ²	Round terminal	Screw terminal	DC POWER OUT	VX-2000DS
PS OUT	Screw terminal	Round terminal	AWG 10 – AWG 8 5.5 – 8.0 mm ²	Round terminal	Screw terminal	PS IN	VX-2000DS
CTRL IN	Screw terminal block	Unprocessed cable end	AWG 28 – AWG 22 0.1 – 0.3 mm ²	—	—	—	Fire Alarm Control Panel/Other control unit
VM LINK OUT	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	VM LINK IN	VM-3240E
VM LINK IN	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	VM LINK OUT	VM-3240VA /3240E
EMERGENCY CONTROL IN	RJ45 (female)	RJ45 (male)	Cat. 5 STP	—	—	—	Fire Alarm Control Panel/Other control unit
DS LINK	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	DS SF LINK	VX-2000DS
STATUS OUT	RJ45 (female)	RJ45 (male)	Cat. 5 STP	—	—	—	Fire Alarm Control Panel/Other control unit

[VX-2000DS]

Terminal to Connect		Cable Type			Equipment to be Connected to		
Terminal Name	Equipment Receptacle	Plug	Cable Type	Plug	Equipment Receptacle	Terminal Name	Equipment
AC IN	3P inlet	AC plug	Supplied cable	AC plug	AC OUTLET AC 120 V, 60 Hz		
DS-SF LINK	RJ45 (female)	RJ45 (male)	Cat. 5 STP	RJ45 (male)	RJ45 (female)	DS LINK	VM-3240VA /3240E
BATTERY POWER IN	Screw terminal	Unprocessed cable end	AWG 6 – AWG 0 (AWG 1/0) 16 – 50 mm ²	Unprocessed cable end	Electrode (+,-)		Lead-acid battery
DC POWER OUT	Screw terminal	Round terminal	AWG 10 – AWG 8 5.5 – 8.0 mm ²	Round terminal	2P screw terminal	DC POWER IN	VM-3240VA /3240E

15. SPECIFICATIONS

15.1. VM-3240VA Voice Alarm System Amplifier

Power Source	120 V AC, 60 Hz
Power Consumption	690 VA (at rated output), 260 W (according to UL60065), 63 W (at no signal)
Rated Output	240 W, 21 Ω (according to UL60065) 200 W, 25 Ω (according to UL2572) 200 W, 25 Ω (according to CAN/ULC-S576 with separate UPS) 100 W, 50 Ω (according to CAN/ULC-S576) (All total of Speaker output 1 – 6 and Direct Output)
Frequency Response	50 Hz – 20 kHz, ± 3 dB (at 1/3 rated output), 800 Hz – 2.8 kHz (according to UL2572) 400 Hz – 4 kHz (according to CAN/ULC-S576)
Distortion	0.7% or less (at rated output, 1 kHz)
S/N Ratio	85 dB or more
Audio Input/Output Characteristic	Sampling frequency: 48 kHz A/D D/A converter: 24 bit
Input	Input 1 – 3: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω , electronically balanced, combined XLR connector (female) / phone jack Input 4: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω , electronically balanced, removable terminal block (14 pins) BGM 1 – 2: –10 dB*, 10 k Ω , unbalanced, RCA pin jack External AMP Input: 70 V line, removable terminal block (14 pins)
Output	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (100 W) per output Speaker output 1 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 245 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins) Recording output BGM/Paging: 0 dB*, 10 k Ω , unbalanced, RCA pin jack Ground faults detection: 0 Ω Wire to wire faults detection: 0 Ω
RM Link	Input 1 – 2: Connecting the RM-300MF/200M Remote Microphone, RJ45 female connector Maximum distance: Total 800 m between this unit and remote microphones Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
Network I/F	10BASE-T/100BASE-TX (selectable by automatic negotiation), RJ45 female connector Maximum distance: 100 m between this unit and a switching hub Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
VM Link	Output: Connecting the VM-3240E, RJ45 female connector Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
General Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, withstand voltage: 30 V DC, operating current: 10 mA or less, removable terminal block (14 pins)
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, RJ45 female connector Input 6: Isolated voltage input, Inactive: –24 V $\pm 20\%$, Active: +24 V $\pm 20\%$, RJ45 female connector Status out: Relay contact output, withstand voltage: 40 V DC, operating current: 2 – 300 mA, RJ45 female connector
Power Input/Output	Power in: Connecting the VX-2000DS only (operating range: 20 – 40 V DC) PS out: 28 V DC / 18 A M4 screw terminal, distance between barriers: 11 mm
22 V DC Output	22 V DC Special Application, Maximum feeding current 0.3 A (for RM-200M only)

DS Link	Connecting the VX-2000DS, RJ45 female connector Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
Operating Temperature	0 to 49°C (32 to 120°F)
Operating Humidity	5% to 95% RH (no condensation)
Finish	Panel: Aluminum, hair-line, black Case: Surface-treated steel plate, black, paint
Dimensions	482 (w) x 132.6 (h) x 431.2 (d) mm (18.98" x 5.22" x 16.98")
Weight	16.5 kg (36.38 lb)

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

AC power cord (2 m)	1
Emergency microphone (hand-held type)	1
Plastic foot	4
Plastic foot mounting screw	4
Removable terminal plug (14 pins)	3
Removable terminal plug (16 pins)	1
Link cable (3 m)	1
Setting software-CD	1

• **Optional product**

Input transformer: IT-450

15.2. VM-3240E VM Extension Amplifier

Power Source	120 V AC, 60 Hz
Power Consumption	690 VA (at rated output), 260 W (according to UL60065), 63 W (at no signal)
Rated Output	240 W, 21 Ω (according to UL60065) 200 W, 25 Ω (according to UL2572) 200 W, 25 Ω (according to CAN/ULC-S576 with separate UPS) 100 W, 50 Ω (according to CAN/ULC-S576) (Total of Speaker output 1 – 6 Direct Output)
Frequency Response	50 Hz – 20 kHz, ± 3 dB (at 1/3 rated output), 800 Hz – 2.8 kHz (according to UL2572) 400 Hz – 4 kHz (according to CAN/ULC-S576)
Distortion	0.7% or less (at rated output, 1 kHz)
S/N Ratio	85 dB or more
Input	External amplifier Input: 70 V line, removable terminal block (14 pins) Local Input: –50 dB* (MIC) / –10 dB* (LINE) (changeable), 600 Ω , electronically balanced, removable terminal block (14 pins)
Output	Speaker output 1 – 2: Max. (240 W) per output Speaker output 3 – 6: Max. (100 W) per output Speaker output 2 – 6: Total within rated output, removable terminal block (14 pins) Allowable minimum load: 245 Ω (20 W) at 70 V line for speaker line failure detection Direct output: Direct output from internal or external amplifier, removable terminal block (16 pins)
VM Link	Input: Connecting the VM-3240VA RJ45 female connector Output: Connecting the VM-3240E RJ45 female connector Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
General Control	Input 1 – 8: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, removable terminal block (14 pins) Output 1 – 8: Isolated open collector output, withstand voltage: 30 V DC, operating current: 10 mA or less, removable terminal block (14 pins)
Emergency Control	Input 1 – 5: No-Voltage make contact input, open voltage: 24 V DC, short-circuit current: 2 mA or less, RJ45 female connector Input 6: Isolated voltage input, Inactive: –24 V $\pm 20\%$, Active: +24 V $\pm 20\%$, RJ45 female connector Status out: Relay contact output, withstand voltage: 40 V DC, operating current: 2 – 300 mA, RJ45 female connector
Power Input/Output	Power in: Connecting the VX-2000DS only (operating range: 20 – 40 V DC) PS out: 28 V DC / 18 A M4 screw terminal, distance between barriers: 11 mm
22 V DC Output	22 V DC Special Application, Maximum feeding current 0.3 A (for RM-200M only)
DS Link	Connecting the VX-2000DS, RJ45 female connector Link cable: Category 5 Shielded Twisted-Pair straight cable (CAT5-STP)
Operating Temperature	0 to 49°C (32 to 120°F)
Operating Humidity	5% to 95% RH (no condensation)
Finish	Panel: Aluminum, hair-line, black Case: Surface-treated steel plate, black, paint
Dimensions	482 (w) x 132.6 (h) x 407 (d) mm (18.98" x 5.22" x 16.02")
Weight	16.5 kg (36.38 lb)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m)	1	Removable terminal plug (14 pins)	3
Plastic foot	4	Removable terminal plug (16 pins)	1
Plastic foot mounting screw	4	Link cable (3 m)	1

15.3. RM-200M Remote Microphone

Power Source	22 V DC Power input jack: Non-polarity type Usable power input plug: Outer diameter ø5.5 mm, inner diameter ø2.1 mm, length 9.5 mm
Current Consumption	100 mA or less
Audio Output	0 dB*, 600 Ω, balanced
Frequency Response	100 Hz – 20 kHz
Distortion	1% or less
S/N Ratio	60 dB or more
Microphone	Unidirectional electret condenser microphone
Function Key	Number of keys: 10 Function: "Broadcast zone selector" or "Automatic general broadcast Announcement Start" (Either function is assigned to individual keys by the dedicated software.)
Volume Control	Microphone volume control
Connection and Cable Connector	Category 5 Shielded Twisted-Pair straight cable, RJ45 connector
Finish	ABS resin, blueish gray (PANTONE 538 or its equivalent)
Dimensions	190 (w) x 76.5 (h) x 215 (d) mm or 7.48" x 3.01" x 8.46" (Gooseneck microphone excluded)
Weight	750 g (1.65 lb)

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessory

Link cable (3 m) 1

