**TOA**

# IP COMMUNICATION SYSTEM
## CX-1000 SERIES

Thank you for purchasing TOA's IP Communication System.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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# Chapter 1

## GENERAL DESCRIPTION

# 1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

## Safety Symbol and Message Conventions

Safety symbol and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

⚠ **WARNING** Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

⚠ **CAUTION** Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

⚠ **WARNING**

### When Installing the Unit

- (Except CX-CL1750/CL1550)
  Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.

- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.

- (Applicable to CX-PA1120/PA1240)
  Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.

- (Applicable to CX-PA1120/PA1240)
  The equipment shall be connected to a mains socket outlet with a protective earthing connection.

- (Desk-top installations only)
  Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.

- (Wall mounting)
  Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.

- (Except CX-CL1750/CL1550)
  Since the unit is designed for indoor use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury. Also, when it gets wet with rain, there is a danger of electric shock.

- (Applicable to CX-CL1750/CL1550)
  Avoid installing the unit in locations close to the seashore or in indoor swimming facilities that are not well ventilated. In such locations, the bracket may be vulnerable to corrosion, eventually allowing the unit to fall resulting in personal injury.

### When the Unit is in Use

- Should the following irregularity be found during use, immediately disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.

  · If you detect smoke or a strange smell coming from the unit
  · If water or any metallic object gets into the unit
  · If the unit falls, or the unit case breaks
  · (Applicable to CX-PA1120/PA1240)
    If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  · If it is malfunctioning (no tone sounds)
  · If it is malfunctioning (no image appears)

- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.

- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire

or electric shock.

• (Applicable to CX-PA1120/PA1240)
Do not touch a power supply plug during thunder and lightning, as this may result in electric shock.

## ⚠ CAUTION

**When Installing the Unit**

• (Applicable to CX-PA1120/PA1240)
When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.

• (Applicable to CX-PA1120/PA1240)
When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.

• (Applicable to CX-PA1120/PA1240)
Do not block the ventilation slots in the unit's cover. Doing so may cause heat to build up inside the unit and result in fire. Also, periodically clean the ventilation slots of dust.

• Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

• (Applicable to CX-PA1120/PA1240)
To avoid electric shocks, be sure to cut off the unit's power when connecting speakers.

• (Applicable to CX-SM1000/AF1062/PA1120/ PA1240/CC1016)
Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.

· Install the equipment rack on a stable, hard floor. Fix it with anchor bolts or take other arrangements to prevent it from falling down.
· When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.
· Rack-mounting screws are not supplied with the unit. Prepare them that are appropriate for the equipment rack.

**When the Unit is in Use**

• (Wall mounting)
Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.

• (Applicable to CX-PA1120/PA1240)
Make sure that the volume control is set to minimum position before power is applied to the unit. Loud noise produced at high volume when power is switched on can impair hearing.

• (Applicable to CX-PA1120/PA1240)
Do not operate the unit for an extended period of time with the sound distorting. Doing so may cause the connected speakers to heat, resulting in a fire.

• (Except CX-PA1120/PA1240)
Use the specified AC adapter for the unit. Note that the use of other adapter may cause a fire.

• (Applicable to CX-PA1120/PA1240)
Contact your TOA dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.

• (Applicable to CX-PA1120/PA1240)
If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.

• (Applicable to CX-PA1120/PA1240)
Disconnect the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

• (Wall mounting)
Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

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**Warning:** Operation of this equipment in a residential environment could cause radio interference.

**Warning** (Applicable to CX-PA1120/PA1240)
Because the terminals marked with the symbol ⚠ are a high-voltage type, an electrical shock could result if touched.

(Applicable to CX-PA1120/PA1240)
The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

(Applicable to CX-OP1700/CL1750/OP1500/CL1550/RM1700)
If using a device in an area where corrosive gases are present, please use only PoE to power the device.

## 2. GENERAL DESCRIPTION

TOA's CX-1000 Series IP network communication system integrates both video call and general broadcasting capabilities, combining a video intercom system with a multi-channel general-purpose broadcast system.

## 3. FEATURES

- The multi-channel general-purpose broadcast system is capable of providing up to 3000 lines of output.
- As many as 3000 devices can be included in the system.
- The system can also be distributed through the use of a general-purpose IP network.
- The fault detection function ensures highly reliable system operation.
- SIP protocol supports calls to be made from general-purpose SIP phones.
- Network cameras compatible with a general-purpose IP camera protocol can be monitored on any video stations.
- A multi-line broadcast system can be constructed with the additional use of a speaker selector unit with an amplifier.

# 4. SYSTEM EXAMPLE

## 4.1. General Description of the System Components

| Model Number | Model Name | Function Summary | Max. Number of Connectable Units per System |
|---|---|---|---|
| CX-SM1000 | System Manager | A central control unit. One CX-SM1000 must be installed in every CX-1000 system. | 1 |
| CX-OP1700 | Video Operation Station | Equipped with an LCD touch screen for display of camera images during calls between stations, while permitting control of broadcasts and external devices. | 100 |
| CX-CL1750 | Video Call Station | A camera-equipped door station featuring a camera for realtime video calls, displaying its live image on the call destination's Video operation station. | 3000 |
| CX-OP1500 | Operation Station | Enables key-operated calls. In addition to making inter-station calls, it also provides control of broadcasts and external devices. | 3000 |
| CX-CL1550 | Call Station | A standard door station. | 3000 |
| CX-RM1700 | Touch Screen Remote Microphone | A remote broadcasting microphone equipped with an LCD touch screen. | 100 |
| CX-AF1062 | Audio Interface 6in2out | An audio interface having 6 audio inputs and 2 audio outputs for connection to external sound sources or amplifiers. Also, its front panel-mounted Direct key permits activation of broadcasts or control of external devices. | 300 |
| CX-PA1120 | Power Amplifier 120W 10SS | An audio output interface featuring a built-in 120 W amplifier, a 10-zone speaker selector, while front panel-mounted Direct key operation for activation of broadcasts or control of external devices. | 300 |
| CX-PA1240 | Power Amplifier 240W 10SS | An audio output interface featuring a built-in 240 W amplifier, a 10-zone speaker selector, while front panel-mounted Direct key operation for activation of broadcasts or control of external devices. | 300 |
| CX-CC1016 | Control I/O Unit | Equipped with 16 control inputs and 16 control outputs. Broadcasting can be activated or external devices can be controlled through the connection of external devices. | 100 |

The entire system above (including all devices) can accommodate configurations with a total of 3000 audio inputs, 3000 audio outputs, 12000 control inputs,15000 control outputs, and 3000 speaker line outputs, not exceeding the maximum number of the connectable devices to each device.

**Note**
Depending on the combination of devices, it may not be possible to configure the system, even if the maximum number of devices is not exceeded.
For details, see the separate Setting software instructions, "Registering Devices Other Than the System Manager."

## 4.2.  System Example

**CX-SM1000**

**System Manager**

The System manager controls the entire system.
One unit is required per system.

**CX-OP1700**

**CX-CL1750**

**Intercom Function**

These are intercom call stations.
Calls can also be made to the broadcast system.

**CX-OP1500**

**CX-CL1550**

Network
(LAN)

**CX-RM1700**

**CX-PA1120**

**CX-PA1240**

**CX-CC1016**

Control I/O

BGM device

**CX-AF1062**

Amplifier

Amplifier

Announcement device

Playback equipment

**Broadcast Function**

These are general broadcast devices.
Intercom call stations can also be used as broadcast destinations.
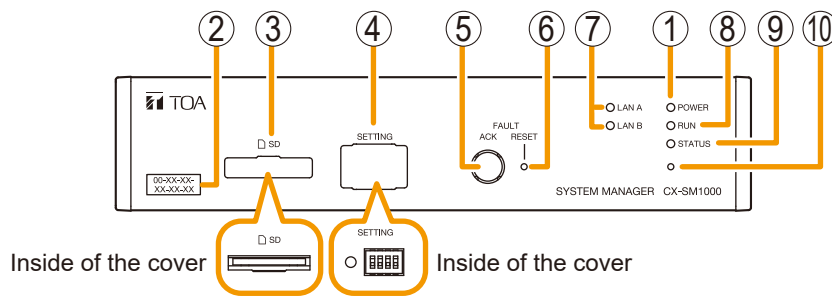
# Chapter 2

## NOMENCLATURE AND FUNCTIONS

# 1. CX-SM1000 SYSTEM MANAGER

## [Front]



## 1. Power indicator (green)
Lights when power is supplied to the unit.

## 2. MAC address
This is the MAC address for the unit.
Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.
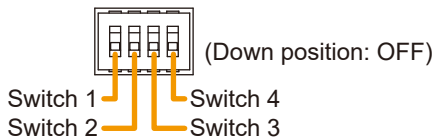
## 3. SD card slot
Insert an SD card here.
Used to transfer setting data or read the operation history or failure history from the CX-SM1000 unit.
(See the separate Operating instructions, "REGISTERING AND EXPORTING DATA.")

## 4. Setting switch

SETTING



(Down position: OFF)

Switch 1
Switch 2
Switch 4
Switch 3

(Factory default setting: All set to OFF)

**Note**
Do not use excessive force when removing the cover to avoid the risk of the cover falling off or being damaged.

### • Switch 1
Used to save logs and setting data with the SD card inserted to the unit.
(See the separate Operating instructions, "REGISTERING AND EXPORTING DATA.")

### • Switch 2
Used to upload setting data to the unit with the SD card inserted to this unit.
(See the separate Operating instructions, "REGISTERING AND EXPORTING DATA.")

### • Switch 3
Used to set buzzer to turn on at and during failure occurrence within the CX-1000 system.
OFF: Enables the buzzer. (Factory default setting)
ON: Disables the buzzer.

### • Switch 4
Not used.

## 5. Fault ACK key
When a system failure is detected, a buzzer sounds. Pressing this key stops the buzzer.
The buzzer can be disabled at switch 3 of the Setting switch (4).

## 6. Fault reset key
Pressing this key resets the failure information (the buzzer and fault indicators) for the system.

## 7. LAN A/B indicator (green)
Lights up when the unit is connected to a network, and flashes when data is being transmitted or received.

## 8. RUN indicator (green)
Displays whether or not the unit is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

## 9. Status indicator (green, red, yellow)
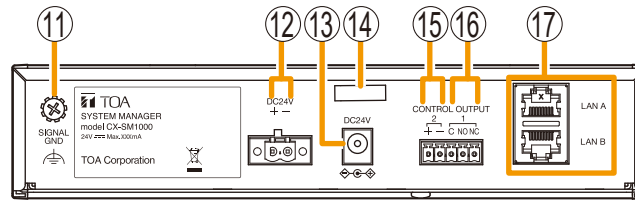Displays the unit's current event status.
(See the separate Operating instructions, "The Status Indicator of the CX-SM1000/RM1700/AF1062/PA1120/PA1240/CC1016.")

## 10. Reset key
Pressing this key restarts the unit.
**Note**
If the unit is restarted while the system is running, all system operations will stop during the restart interval.

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**[Rear]**



**11. Signal ground terminal**
Be sure to ground this terminal.
**Note:** This terminal is not for protective ground.

**12. DC power input terminal**
Removable terminal block*
Uses a 24 V power source.

**13. AC adapter connection terminal**
Connect an optional AD-246 AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

**14. Cord clamp**
Used to secure cables and wiring. Route cables through the cord clamp and secure them in place.
(See "CX-SM1000 Connection" on p. 3-32.)

**15. Control output terminal (2)**
Removable terminal block*
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA
Can be connected to external devices, such as an indicator.

**16. Control output terminal (1)**
Removable terminal block*
Relay contact outputs (Form C contacts)
Withstand voltage: 30 V DC
Allowable current:  1 A
Connect an external device to this terminal when wishing to output the system status to the external device.

**17. Network connection terminal**
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.

* Use the supplied removable terminal plug for connection. See p. 3-29 regarding how to connect the removable terminal plug.

**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| ⏚ | Rear | Shows a signal ground terminal.<br>**IMPORTANT NOTE:** This is not a protective ground! |
| ◇⊝◇ | Rear | Shows the polarity of the AC Adapter connection terminal.<br>The center pin is positive and its surrounding surface is negative. |
| ⎓ | Rear | Shows a DC power supply. |
| 🗑 | Rear | Do not trash this device into normal waste.<br>Use the foreseen electric waste collection places. |

## 2. CX-OP1700 VIDEO OPERATION STATION

### [Operation Panel]
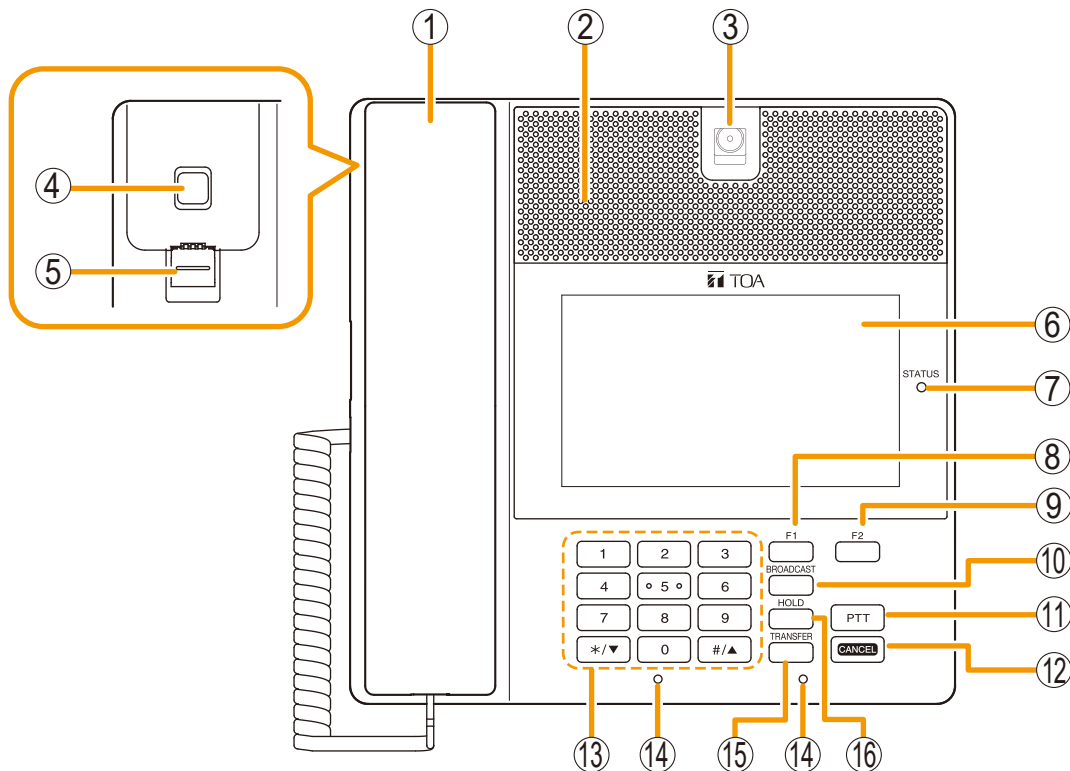


### 1. Handset
Used for handset conversations or microphone broadcasts.

### 2. Speaker
Intended for broadcasts and conversations. Used to amplify received broadcasts, signal tones, or perform hands-free conversations.

### 3. Camera
Displays the video images to the other party during calls depending on settings.

### 4. Hook switch
Detects whether the handset is on-hook or off-hook.

### 5. Handset hook
Provides a place to hang the handset when not in use. Hook can be slid out to change orientation. If this station is tilted upward, the handset is less likely to fall by facing the tab end upward.
(See "Changing the handset hook's orientation" on p. 3-10.)

### 6. LCD
This LCD supports touch operation.
Displays text, images (video) and device status, and activates various events with touch operation.

### 7. Status indicator (green, red, yellow)
Displays the station's current event status.
(See the separate Operating instructions, "THE STATUS OF THE STATUS INDICATOR.")

### 8. Function 1 key
Used when setting transfer destinations or during door remote operation.

### 9. Function 2 key
Used to display menus on the LCD (6).

### 10. Broadcast key
Used for broadcasting.

### 11. PTT key
Pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key.
Press this key to initiate conversations while receiving calls.
(See the separate Operating instructions, "CONVERSATION FUNCTIONS AND OPERATION.")

### 12. Cancel key
Press this key to cancel operations or terminate conversations.

2-4

**13. Dial keys**

Used to call other stations or set functions.

**14. Microphone**

Used for hands-free conversation or microphone broadcast.

**Note**

Do not block the microphone. Doing so may interfere with conversation quality.

**15. Transfer key**

Used to transfer the current conversation to another station.
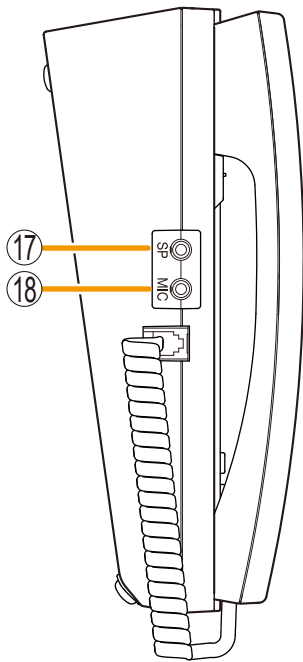
(See the separate Operating instructions, "CONVERSATION FUNCTIONS AND OPERATION.")

**16. Hold key**

Places the conversation on hold.

(See the separate Operating instructions, "HOLD (CX-OP1700/OP1500 ONLY).")
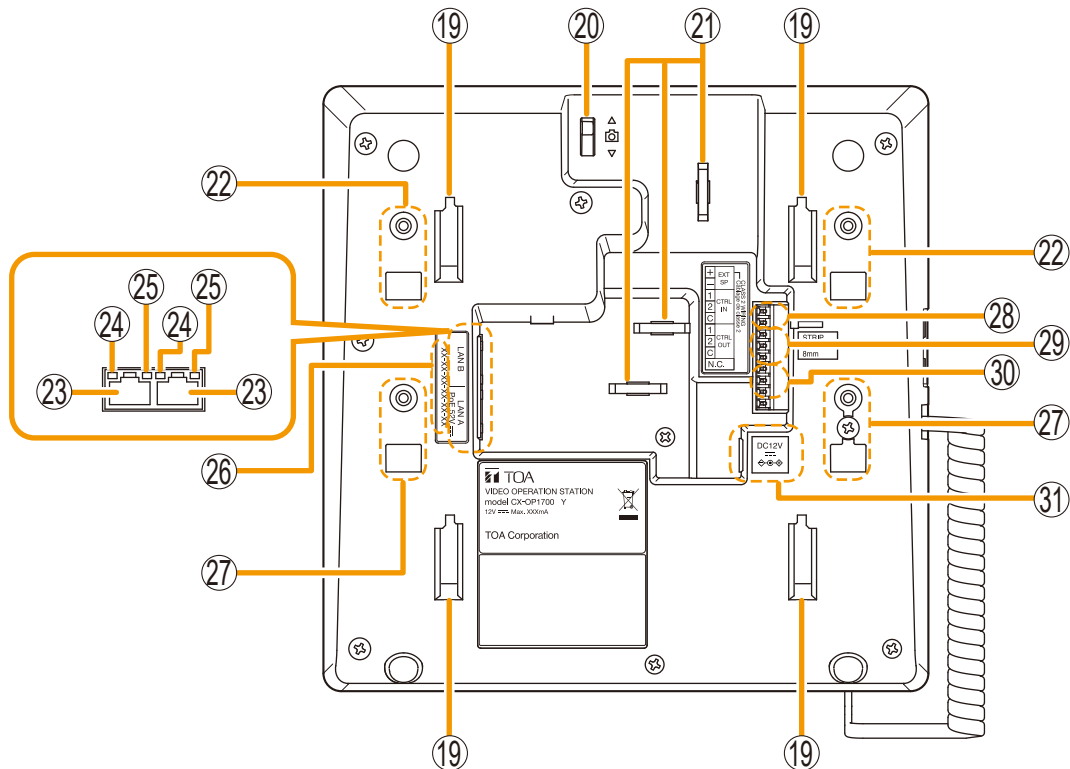
## [Left Side]

**17. Headset speaker connection terminal**

Insert a 3.5 mm headset speaker plug here.

**18. Headset microphone connection terminal**

Insert a 3.5 mm headset microphone plug here.

2-5

**[Bottom]**



**19. Wall mounting bracket fixing hole**
Insert the hook of the optional YC-1001 Wall mounting bracket here.
(See "Mounting the CX-OP1700 on the wall" on p. 3-11.)

**20. Camera angle adjustment lever**
Allows adjustment of camera angles.
(See "Camera Angle Adjustment" on p. 3-6.)

**21. Wiring fixing holes**
Use these holes to secure all related wiring.
(See "Wiring" on p. 3-7 and "When making exposed wiring" on p. 3-12.)

**22. Stand mounting section (45° upward direction)**
Used for securing the supplied stand.
The station can be angled upward by 45° by attaching the stand to this position.
(See "Attaching the stand" on p. 3-8.)

**23. Network connection terminal**
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.
Only LAN A supports PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.

**24. LINK/ACT indicator (green)**
Flashes when data is being transmitted or received.

**25. Speed indicator (green)**
Lights when a connection is made via 100BASE-TX.

**26. MAC address**
This is the MAC address for the station.
Since the relationship of each station location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

**27. Stand mounting section (60° upward direction)**
Used for securing the supplied stand.
The station can be angled upward by 60° by attaching the stand to this position.
(See "Attaching the stand" on p. 3-8.)

**28. External speaker output terminal**
Push-in terminal block*
An external speaker (8 Ω, 2 W or more) can be connected to this terminal.
(See "CX-OP1700 Connection" on p. 3-33.)

**29. Control input terminal (1/2)**
Push-in terminal block*
No-voltage make contact input
Open voltage:         12 V DC
Short-circuit current: 5 mA
Can be connected to external devices, such as switches and sensors.

**30. Control output terminal (1/2)**
    Push-in terminal block*
    Open collector output (polarized)
    Withstand voltage: 30 V DC
    Allowable current:  100 mA
    Can be connected to external devices, such as indicators.

**31. AC adapter connection terminal**
    Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
    As for the usable adapter, consult your TOA dealer.

\* For the cable connection to the push-in terminal block, see .

**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| ◇━ⓒ━◇ | Bottom | Shows the polarity of the AC Adapter connection terminal. The center pin is positive and its surrounding surface is negative. |
| --- | Bottom | Shows a DC power supply. |
| ♻ | Bottom | Do not trash this device into normal waste. Use the foreseen electric waste collection places. |

# 3. CX-CL1750 VIDEO CALL STATION

## [Front]
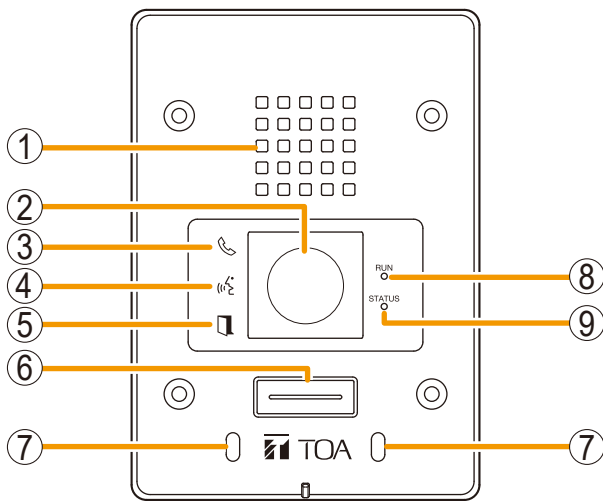
## [Right Side]

### 1. Speaker

Intended for broadcasts and conversations. Used to amplify received broadcasts, signal tones, or perform hands-free conversations.

### 2. Camera

Displays the video images to the other party during calls depending on settings.

### 3. Calling indicator (yellow)

Lights continuously while making a call.
(See the separate Operating instructions, "ICON LIST.")
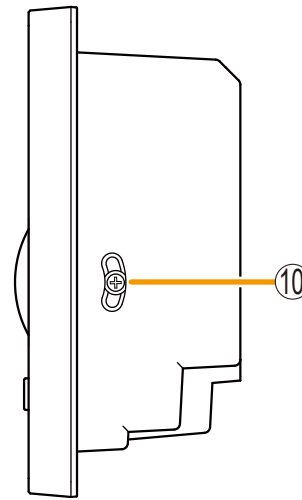Set station number and register the call destination to Direct key in advance.

### 4. Conversation indicator (green)

Lights continuously while a conversation is currently in progress.
(See the separate Operating instructions, "ICON LIST.")

### 5. Unlock indicator (green)

Lights up when the corresponding door is unlocked.
(See the separate Operating instructions, "ICON LIST.")

### 6. Direct key/Lighting for camera

Press this key to perform its assigned function. Depending on the setting, the caller can be illuminated as needed.
Use the CX-1000 Setting software to assign the functions to the key and assign the camera lighting function to the key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS" and "Lighting Settings.")

### 7. Microphone

Used for hands-free conversation.
**Note**
Do not block the microphone. Doing so may interfere with conversation quality.

### 8. RUN indicator (green)

Displays whether or not the station is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 9. Status indicator (green, red, yellow)

Displays the station's current event status.
(See the separate Operating instructions, "THE STATUS OF THE STATUS INDICATOR.")

### 10. Camera angle adjustment screw

Adjusts the camera angle. See .
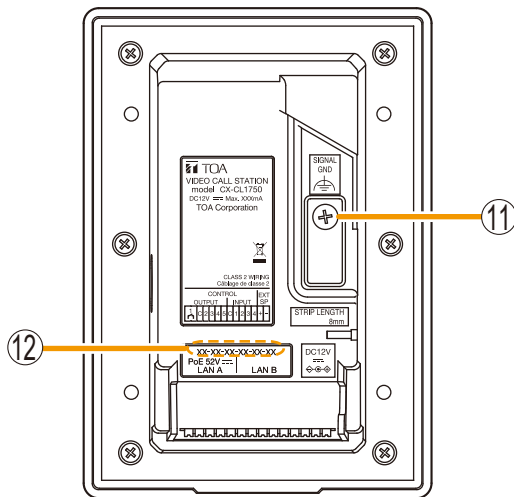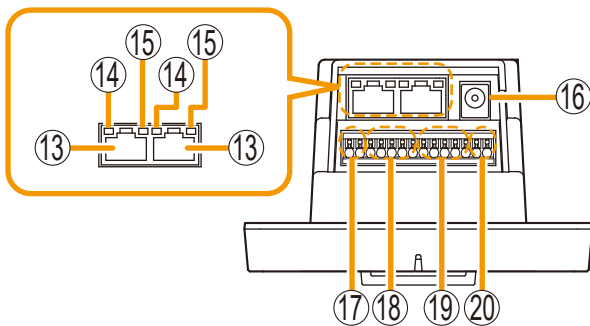
2-8

## [Rear]



**11. Signal ground terminal**
Be sure to ground this terminal.
**Note:** This terminal is not a protective ground.

**12. MAC address**
This is the MAC address for the station.
Since the relationship of each station location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

## [Bottom]



**13. Network connection terminal**
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.
Only LAN A supports PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.

**14. LINK/ACT indicator (green)**
Flashes when data is being transmitted or received.

**15. Speed indicator (green)**
Lights when a connection is made via 100BASE-TX.

**16. AC adapter connection terminal**
Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

**17. Control output terminal (1)**
Push-in terminal block*
Relay contact output
Withstand voltage: 30 V DC
Allowable current:  1 A
Can be connected to external devices, such as electric locks.

**18. Control output terminal (2 – 5)**
Push-in terminal block*
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA
Can be connected to external devices, such as indicators.

**19. Control input terminal**
Push-in terminal block*
No-voltage make contact input
Open voltage:          12 V DC
Short-circuit current: 5 mA
Can be connected to external devices, such as switches and sensors.

**20. External speaker output terminal**
Push-in terminal block*
An external speaker (8 Ω, 2 W or more) can be connected to this terminal.

2-9

**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| 📞 | Front | Indicates a call is being made before connection. |
| | Front | Indicates that a conversation is currently in progress. |
| | Front | Indicates whether or not the corresponding door is locked. |
| | Rear | Shows a signal ground terminal.<br>**IMPORTANT NOTE:** This is not a protective ground! |
| | Rear | Shows the polarity of the AC Adapter connection terminal.<br>The center pin is positive and its surrounding surface is negative. |
| | Rear | Shows a DC power supply. |
| | Rear | Do not trash this device into normal waste.<br>Use the foreseen electric waste collection places. |

# 4. CX-OP1500 OPERATION STATION

## [Operation Panel]
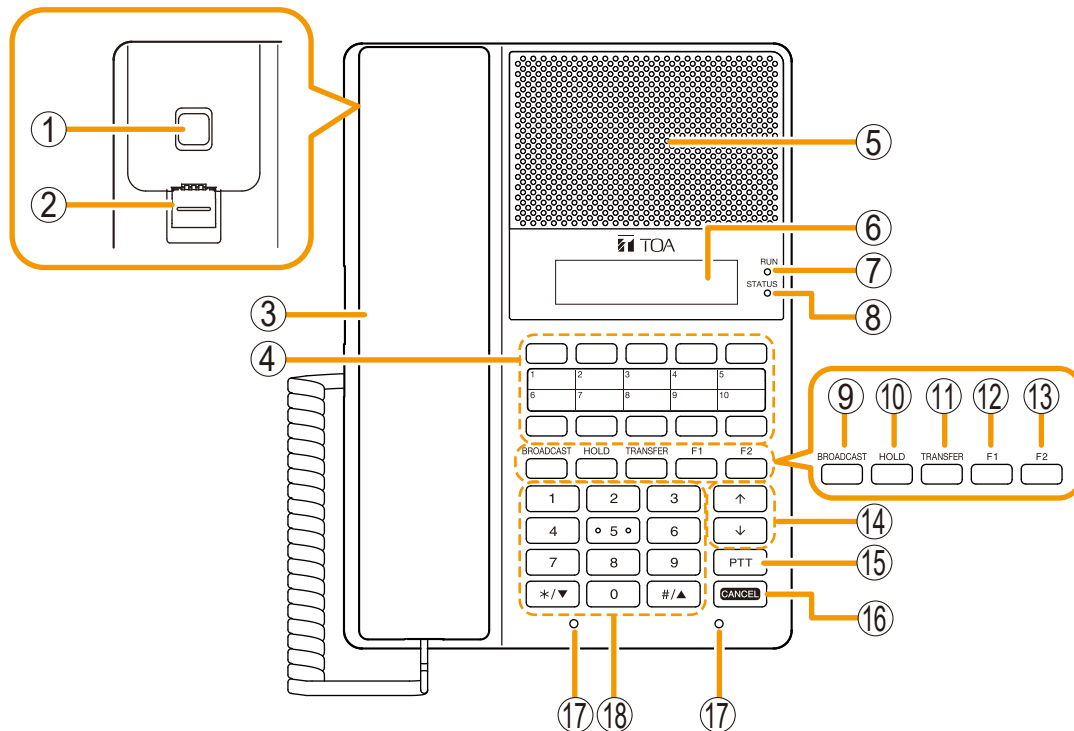


### 1. Hook switch
Detects whether the handset is on-hook or off-hook.

### 2. Handset hook
Provides a place to hang the handset when not in use. Hook can be slid out to change orientation. If this station is tilted upward, the handset is less likely to fall by facing the tab end upward.
(See "Changing the handset hook's orientation" on p. 3-17.)

### 3. Handset
Used for handset conversations or microphone broadcasts.

### 4. Direct keys
When pressed, each key executes the function assigned to it. Use the CX-1000 Setting software to assign specific functions to each key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS.")

### 5. Speaker
Intended for broadcasts and conversations. Used to amplify received broadcasts, signal tones, or perform hands-free conversations.

### 6. LCD
Displays the dialed number or the number of a call received in 2 lines of 16 digits.

### 7. Run indicator (green)
Displays whether or not the station is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 8. Status indicator (green, red, yellow)
Displays the station's current event status.
(See the separate Operating instructions, "THE STATUS OF THE STATUS INDICATOR.")

### 9. Broadcast key
Used for broadcasting.

### 10. Hold key
Places the conversation on hold.
(See the separate Operating instructions, "HOLD (CX-OP1700/OP1500 ONLY).")

### 11. Transfer key
Used to transfer the current conversation to another station.
(See the separate Operating instructions, "CONVERSATION FUNCTIONS AND OPERATION.")

### 12. Function 1 key
Used when setting transfer destinations or during remote door operation.

### 13. Function 2 key
Used to display menus on the LCD (6).

**14. Arrow keys**

Used for system settings ("CX-OP1500 Menu Screen" in the separate Operation Instructions).

**15. PTT key**

Pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key.

Press this key to initiate conversations while receiving calls.

(See the separate Operating instructions, "CONVERSATION FUNCTIONS AND OPERATION.")

**16. Cancel key**

Press this key to cancel operations or terminate conversations.

**17. Microphone**

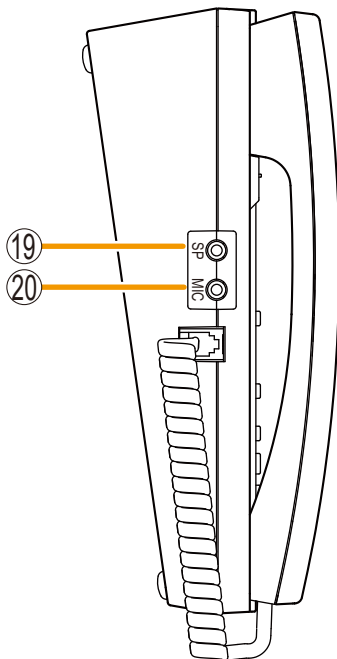Used for hands-free conversation or microphone broadcast.

**Note**

Do not block the microphone. Doing so may interfere with conversation quality.

**18. Dial keys**

Used to call other stations or set functions.
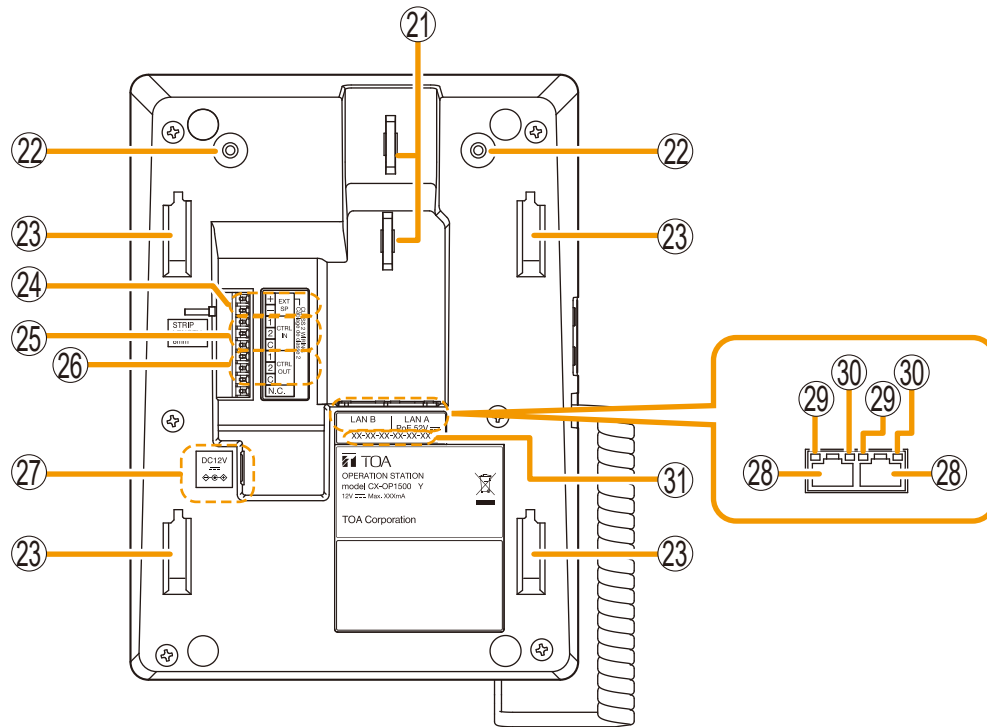
## [Left Side]



**19. Headset speaker connection terminal**

Insert a 3.5 mm headset speaker plug here.

**20. Headset microphone connection terminal**

Insert a 3.5 mm headset microphone plug here.

**[Bottom]**



**21. Wiring holes**
Use these holes to secure all related wiring.
(See "Wiring" on p. 3-16 and "When making exposed wiring" on p. 3-19.)

**22. Stand mounting section**
Used for securing the supplied stand.
The station's angle can be adjusted by attaching the stand to the station's bottom side.
(See "Attaching the stand" on p. 3-16.)

**23. Wall mounting bracket fixing holes**
Insert the hook of the optional YC-1001 Wall Mounting Bracket here.
(See "Mounting the CX-OP1500 on the wall" on p. 3-18.)

**24. External speaker output terminal**
Push-in terminal block*
An external speaker (8 Ω, 2 W or more) can be connected to this terminal.
(See "CX-OP1500 Connection" on p. 3-37.)

**25. Control input terminal (1/2)**
Push-in terminal block*
No-voltage make contact input
Open voltage:　　　12 V DC
Short-circuit current: 5 mA
Can be connected to external devices, such as switches and sensors.

**26. Control output terminal (1/2)**
Push-in terminal block*
Open collector output (polarized)
Withstand voltage: 30 V DC

Allowable current: 100 mA
Can be connected to external devices, such as indicators.

**27. AC adapter connection terminal**
Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

**28. Network connection terminal**
Ethernet RJ45 jack
Connects a 100BASE-TX-compatible network.
Only LAN A supports PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.

**29. LINK/ACT indicator (green)**
Flashes when data is being transmitted or received.

**30. Speed indicator (green)**
Lights when a connection is made via 100BASE-TX.

**31. MAC address**
This is the MAC address for the station.
Since the relationship of each station location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

\* For the cable connection to the push-in terminal block, see p. 3-31.

2-13

**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| ◇–ⓒ–◈ | Bottom | Shows the polarity of the AC Adapter connection terminal.<br>The center pin is positive and its surrounding surface is negative. |
| --- | Bottom | Shows a DC power supply. |
| 🚮 | Bottom | Do not trash this device into normal waste.<br>Use the foreseen electric waste collection places. |

# 5. CX-CL1550 CALL STATION

## [Front]
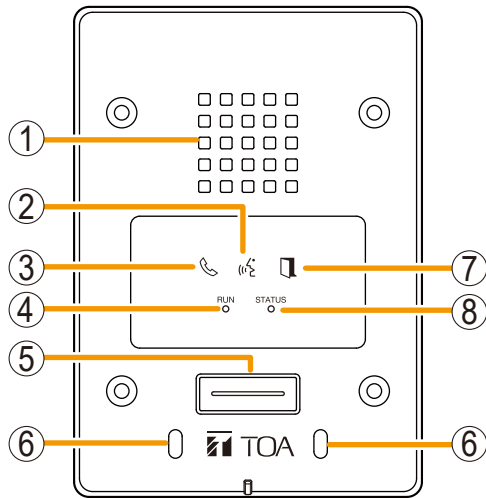


## [Rear]



### 1. Speaker
Intended for broadcasts and conversations. Used to amplify received broadcasts, signal tones, or perform hands-free conversations.

### 2. Conversation indicator (green)
Lights continuously while a conversation is currently in progress.
(See the separate Operating instructions, "ICON LIST.")

### 3. Calling indicator (yellow)
Lights continuously while making a call.
(See the separate Operating instructions, "ICON LIST.")
Set station number and register the call destination to Direct key in advance.

### 4. Run indicator (green)
Displays whether or not the station is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 5. Direct key
Press this key to perform its assigned function. Use the CX-1000 Setting software to assign the function to the key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS.")
This key can be made be illuminated by setting. Use the CX-1000 Setting software for setting.
(See the separate Setting software instructions, "Lighting Settings.")
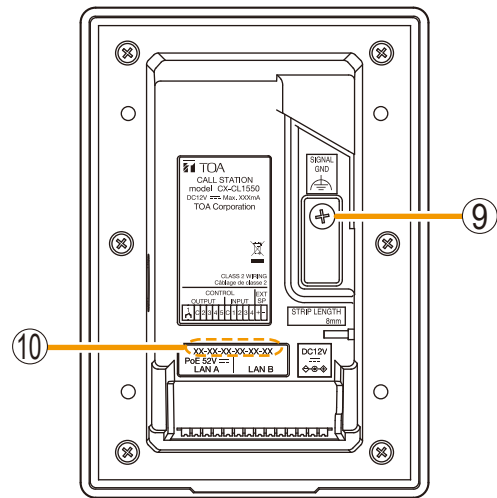
### 6. Microphone
Used for hands-free conversation.
**Note**
Do not block the microphone. Doing so may interfere with conversation quality.

### 7. Unlock indicator (green)
Lights up when the corresponding door is unlocked.
(See the separate Operating instructions, "ICON LIST.")

### 8. Status indicator (green, red, yellow)
Displays the station's current event status.
(See the separate Operating instructions, "THE STATUS OF THE STATUS INDICATOR.")

### 9. Signal ground terminal
Be sure to ground this terminal.
**Note:** This terminal is not a protective ground.

### 10. MAC address
This is the MAC address for the station.
Since the relationship of each station location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

2-15

**[Bottom]**



**11. Network connection terminal**
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.
Only LAN A supports PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables terminal operation without an AC adapter.

**12. LINK/ACT indicator (green)**
Flashes when data is being transmitted or received.

**13. Speed indicator (green)**
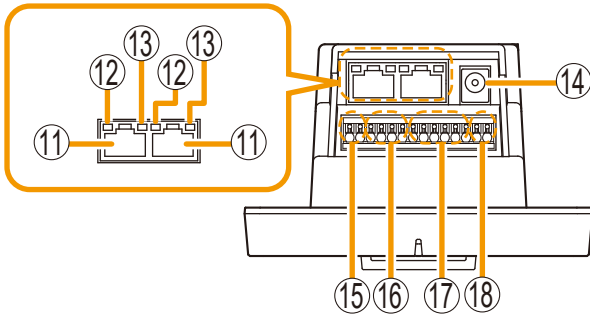Lights when a connection is made via 100BASE-TX.

**14. AC adapter connection terminal**
Connect an optional AD-1210P/1215P AC adapter to this terminal.
As for the usable adapter, consult your TOA dealer.

**15. Control output terminal (1)**
Push-in terminal block*
Relay contact output
Withstand voltage: 30 V DC
Allowable current:  1 A
Can be connected to external devices, such as electric locks.

**16. Control output terminal (2 – 5)**
Push-in terminal block*
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA
Can be connected to external devices, such as indicators.

**17. Control input terminal**
Push-in terminal block*
No-voltage make contact input
Open voltage:         12 V DC
Short-circuit current:  5 mA
Can be connected to external devices, such as switches and sensors.

**18. External speaker output terminal**
Push-in terminal block*
An external speaker (8 Ω, 2 W or more) can be connected to this terminal.
(See "CX-CL1750/CL1550 Connection" on p. 3-35.)

* For the cable connection to the push-in terminal block, see p. 3-31.

**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| 📞 | Front | Indicates a call is being made before connection. |
| 🗣 | Front | Indicates that a conversation is currently in progress. |
| 🚪 | Front | Indicates whether or not the corresponding door is locked. |
| ⏚ | Rear | Shows a signal ground terminal. **IMPORTANT NOTE:** This is not a protective ground! |
| ◇-©-◈ | Rear | Shows the polarity of the AC Adapter connection terminal. The center pin is positive and its surrounding surface is negative. |
| ⎓ | Rear | Shows a DC power supply. |
| 🗑 | Rear | Do not trash this device into normal waste. Use the foreseen electric waste collection places. |

# 6. CX-RM1700 TOUCH SCREEN REMOTE MICROPHONE

## [Operation Panel]
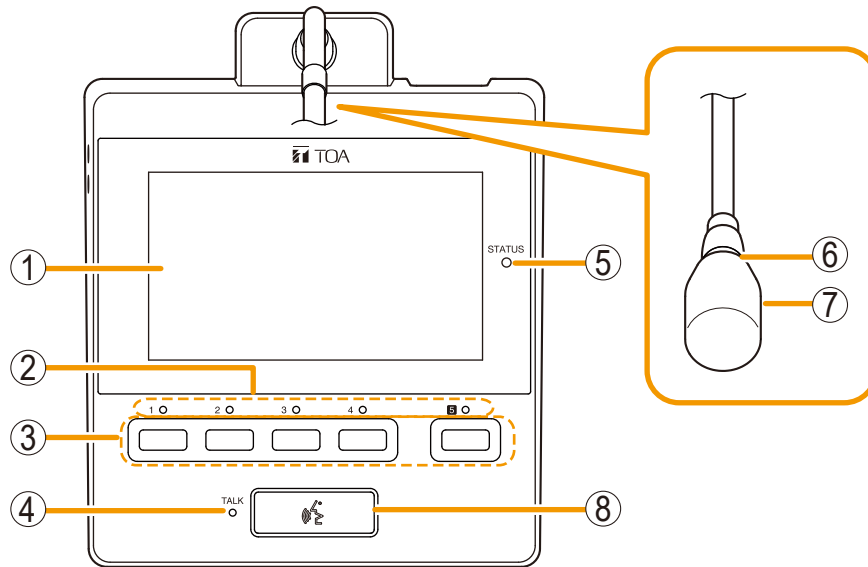


### 1. LCD
This LCD supports touch operation.
Displays text, images (still and video) and device status, and activates various events with touch operation.

### 2. Selection indicators (green)
Lights up, flashes or goes off, depending on the operating status of the corresponding Direct key.
(See the separate Operating instructions, "DIRECT AND BROADCAST KEYS INDICATOR STATUS.")

### 3. Direct keys
When pressed, each key executes the function assigned to it. Use the CX-1000 Setting software to assign specific functions to each key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS.")
**Note**
Direct keys 1 through 5 correspond to "Direct keys 101 to 105" in the CX-1000 Setting software.

### 4. Talk indicator (green)
Lights or goes off depending on the current operation state of the Talk key.
(See the separate Operating instructions, "Talk Key Indicator (CX-RM1700 only)."

### 5. Status indicator (green, red, yellow)
Displays the station's current event status.
(See the separate Operating instructions, "The Status Indicator of the CX-SM1000/RM1700/AF1062/PA1120/PA1240/CC1016.")

### 6. Microphone indicator (green)
Can be linked to the Talk indicator (4) in settings. Perform settings on the station's LCD. (See the separate Operating instructions, "Volume Control Setting Screen (CX-RM1700 only).")

### 7. Microphone
Used for microphone broadcasts.
Microphone volume can be adjusted using the Microphone volume control (10).

### 8. Talk key
Used for microphone broadcast.
If the Talk key is set to "PTT" mode, then it must be pressed continuously for the duration of the broadcast.
If the Talk key is set to "Lock" mode, then it must be pressed once to turn the microphone on at the beginning of a broadcast, then pressed again to turn the microphone off once the broadcast is finished.
Set Talk key operation using the CX-1000 Setting software. (See the separate Setting software instructions, "Setting the Basic Operations for Each Device.")

## [Left Side]
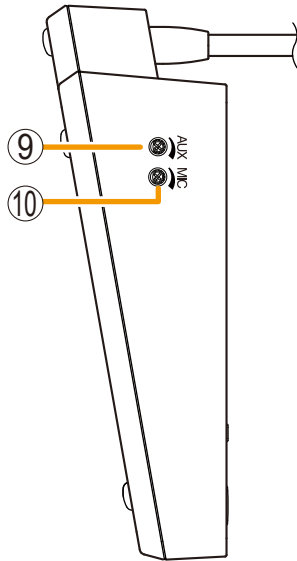


### 9. AUX volume control

Adjusts the volume of AUX input (12).
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it. The input level is set on the menu of the LCD (1). See the separate Operating instructions, "CX-OP1700 and CX-RM1700 Menu Screens."

### 10. Microphone volume control

Adjusts the volume of the Microphone (7).
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

## [Bottom]
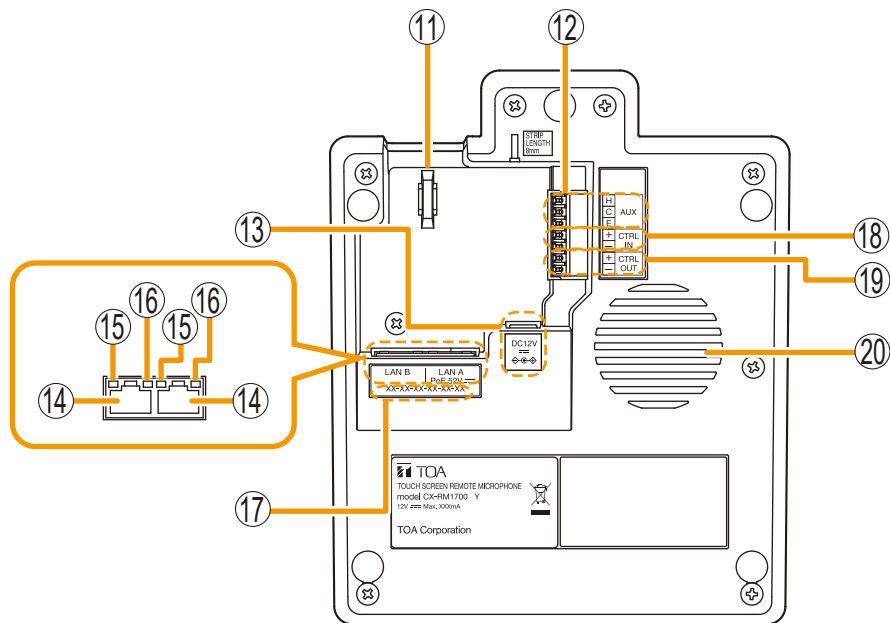


### 11. Wiring hole

Use this hole to secure all related wiring.

### 12. AUX input terminal

Push-in terminal block[*1]
When set to Line level input:  −20 dB[*2]
When set to Microphone level input: −60 dB[*2]
600 Ω, transformer-balanced
The input level is set on the menu of the LCD (1). (Factory default setting: Line level)
Connect such external equipment as a sound source station or microphone to this terminal.

### 13. AC adapter connection terminal

Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

### 14. Network connection terminal

Ethernet RJ45 jack
Connects a 100BASE-TX-compatible network.
Only LAN A supports PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables terminal operation without an AC adapter.

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**15. LINK/ACT indicator (green)**
Flashes when data is being transmitted or received.

**16. Speed indicator (green)**
Lights when a connection is made via 100BASE-TX.

**17. MAC address**
This is the MAC address for the station.
Since the relationship of each station location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

**18. Control input terminal**
Push-in terminal block[*1]
No-voltage make contact input
Open voltage: 12 V DC
Short-circuit current: 5 mA
Can be connected to external devices, such as switches and sensors.

**19. Control output terminal**
Push-in terminal block[*1]
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current: 100 mA
Can be connected to external devices, such as indicators.

**20. Speaker**
Sounds a key operation or buzzer tone when a failure occurs.

[*1] For the cable connection to the push-in terminal block, see .
[*2] 0 dB = 1 V

## [Explanation of symbols]

| Symbol | Display Position | Explanation |
|---|---|---|
| | Operation panel | Shows the mark for making microphone announcements. |
| | Left side | Volume control: Turn it clockwise with a screw driver to increase the volume, and turn it counter-clockwise to decrease the volume. |
| | Bottom | Shows the polarity of the AC Adapter connection terminal. The center pin is positive and its surrounding surface is negative. |
| | Bottom | Shows a DC power supply. |
| | Bottom | Do not trash this device into normal waste. Use the foreseen electric waste collection places. |

2-19

# 7. CX-AF1062 AUDIO INTERFACE 6IN2OUT

## [Front]



Inside of the cover          Inside of the cover
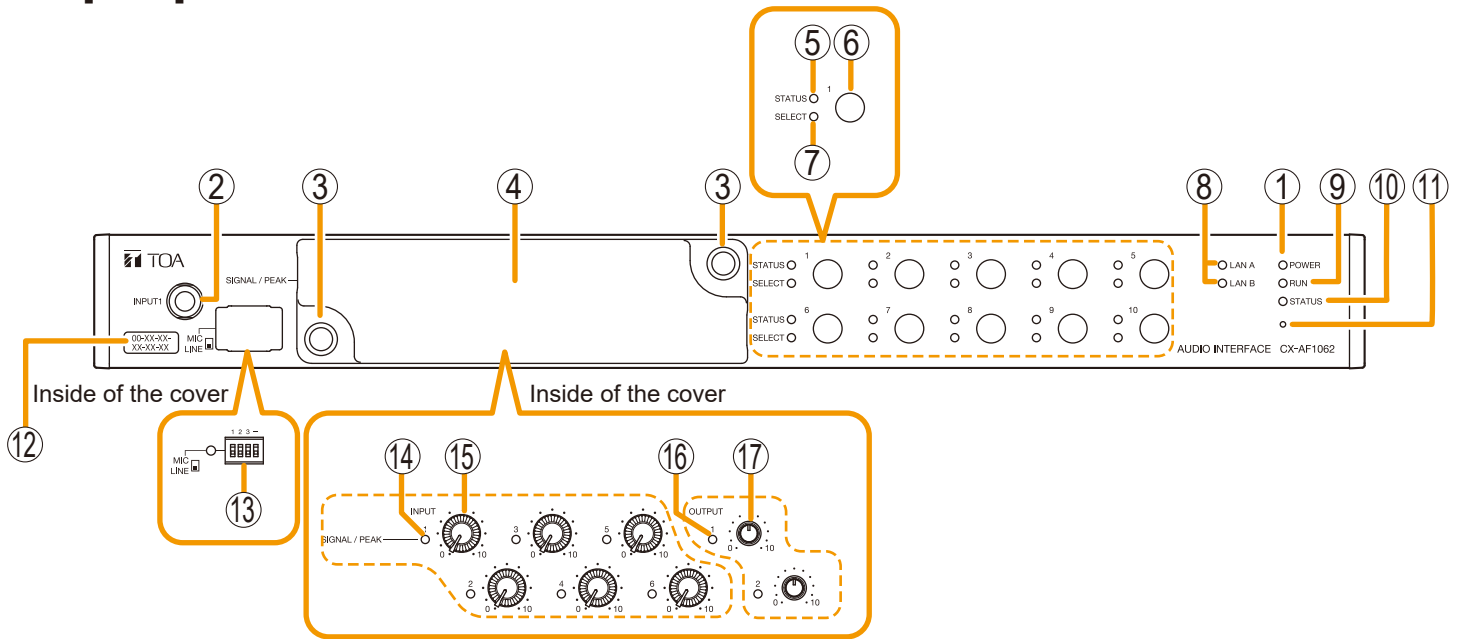
### 1. Power indicator (green)
Lights when power is supplied to the unit.

### 2. Input 1 jack
Insert the microphone's phone plug into this jack. This Input 1 jack takes precedence over the rear mounted Audio input terminal 1 (27).
Inserting a phone plug into this jack disables the audio connected to Audio Input 1 (27) on the rear panel.

### 3. Volume control section cover knob
The Volume control section cover (4) can be removed by pulling the both knobs.

### 4. Volume control section cover
The volume controls for all input channels are located inside this cover.

### 5. Status indictors (green, red, yellow)
Lights, flashes or goes off, in synchronization with the function status assigned to the Direct key (6).
(See the separate Operating instructions, "DIRECT AND BROADCAST KEYS INDICATOR STATUS.")

### 6. Direct keys
When pressed, each key executes the function assigned to it. Use the CX-1000 Setting software to assign specific functions to each key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS.")

### 7. Selection indicators (green)
Lights or goes off depending on the current operation state of the Direct key (6).
(See the separate Operating instructions, "DIRECT AND BROADCAST KEYS INDICATOR STATUS.")

### 8. LAN A/B indicators (green)
Lights up when the unit is connected to a network, and flashes when data is being transmitted or received.

### 9. Run indicator (green)
Displays whether or not the unit is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 10. Status indictor (green, red, yellow)
Displays the unit's current event status.
(See the separate Operating instructions, "The Status Indicator of the CX-SM1000/RM1700/AF1062/PA1120/PA1240/CC1016.")

### 11. Reset key
Pressing this key restarts the unit.

### 12. MAC address
This is the MAC address for the unit.
Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

### 13. Input level setting switches
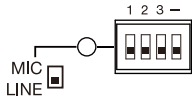


The input level of Audio inputs 1 to 3 can be switched between line level (0 dB*) and microphone level (–60 dB*).
Switch 4 is not used.
(Factory setting: All switches set to lower position.)

**Note**

Do not use excessive force when removing the cover to avoid the risk of falling off or being damaged.

### 14. Audio input signal indicators (green, red)

Displays the input status of Audio input volume controls (15).
Lights green when audio is input to the input channel, and red when over-input is applied to the audio input.

### 15. Audio input volume controls

Volume controls for each audio input. These are arranged (left-to-right) as Audio input 1 – 6.
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

### 16. Audio output signal indicators (green, red)

Displays the output status of Audio output volume controls (17).
Lights green when audio is output from the output channel, and red when audio output is above the rated output level.

### 17. Audio output volume controls

Volume controls for each audio output. These are arranged (left-to-right) as Audio output 1 – 2.
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

* 0 dB = 1 V

## [Rear]
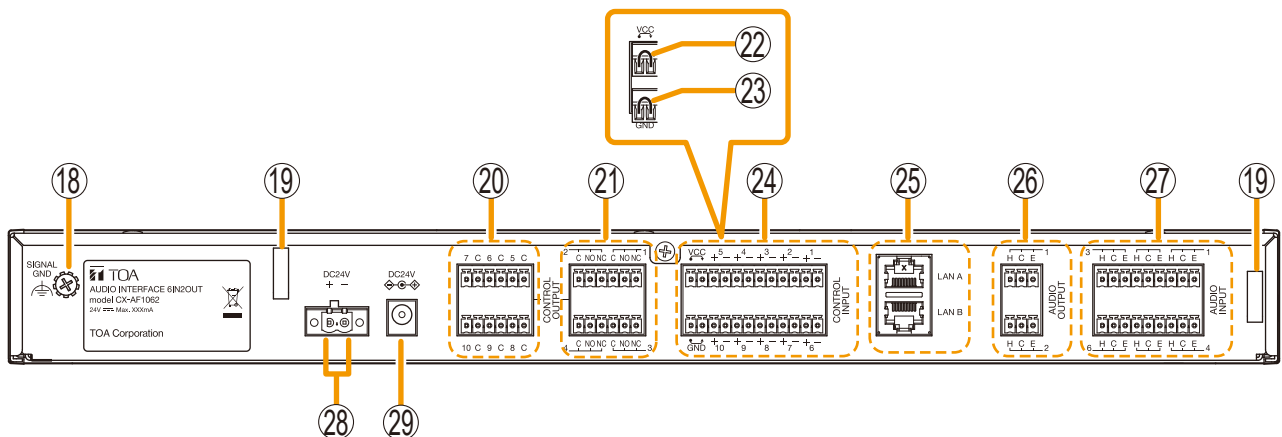


### 18. Signal ground terminal

Be sure to ground this terminal.
**Note:** This terminal is not a protective ground.

### 19. Cord clamp

Used to secure cables and wiring. Route cables through the cord clamp and secure in place.
(See "CX-AF1062 Connection" on p. 3-41.)

### 20. Control output terminal (5 – 10)

Removable terminal block*[1]
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA
Can be connected to external devices, such as indicators.

### 21. Control output terminal (1 – 4)

Removable terminal block*[1]
Relay contact outputs (Form C contacts)
Withstand voltage: 30 V DC
Allowable current:  1 A
Can be connected to external devices, such as electric locks.

### 22. Power feed jumper

A jumper is installed on the removable terminal plug by default.
(See "CX-AF1062 Connection" on p. 3-41.)

### 23. Isolation jumper

A jumper is installed on the removable terminal plug by default.
(See "CX-AF1062 Connection" on p. 3-41.)

**24. Control input terminal**
Removable terminal block[1]
No-voltage make contact input
Open voltage:          24 V DC
Short-circuit current: 5 mA
Used in general-purpose broadcasts by connecting the control outputs of playback equipment and other similar devices.
   **Note**
   The "–" (negative) terminals of the Control input terminal 1 through 10 are interconnected.

**25. Network connection terminal**
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.

**26. Audio output terminal**
Removable terminal block[1]
The audio signal is a balanced type with a maximum output of 0 dB[2] and impedance of under 10 kΩ. External devices such as recording equipment and amplifiers can be connected.

**27. Audio input terminal**
Removable terminal block[1]
Audio input 1 – 3: –60/0 dB[2] changeable, 600 Ω, transformer-balanced
Audio input 4 – 6: 0 dB[2], 10 kΩ, electronically-balanced
Connect such external equipment as a sound source unit or microphone to this terminal.
Audio input 1 – 3 can be switched between line and microphone input using Input Level Setting Switch (13).

**28. DC power input terminal**
Removable terminal block[1]
Uses a 24 V power source.

**29. AC adapter connection terminal**
Connect an optional AD-246 AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

[1] Use the supplied removable terminal plug for connection. See regarding how to connect the removable terminal plug.
[2] 0 dB = 1 V

## [Explanation of symbols]

| Symbol | Display Position | Explanation |
|---|---|---|
|  | Rear | Shows a signal ground terminal.<br>**IMPORTANT NOTE:** This is not a protective ground! |
|  | Rear | Shows the polarity of the AC Adapter connection terminal.<br>The center pin is positive and its surrounding surface is negative. |
| --- | Rear | Shows a DC power supply. |
|  | Rear | Do not trash this device into normal waste.<br>Use the foreseen electric waste collection places. |

2-22

# 8. CX-PA1120/PA1240 POWER AMPLIFIER 120W/240W 10SS

## [Front]
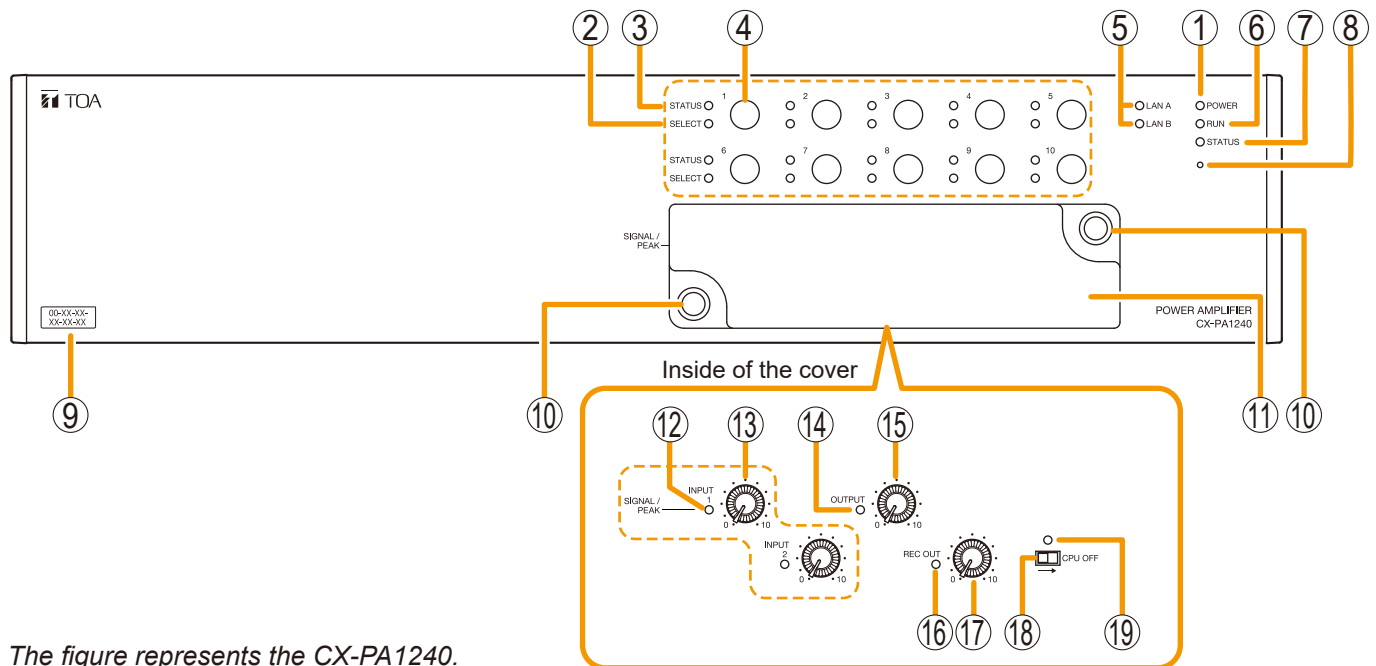


*The figure represents the CX-PA1240.*

### 1. Power indicator (green)
Lights when power is supplied to the unit.

### 2. Selection indicators (green)
Lights or goes off depending on the current operation state of the Direct key (4).
(See the separate Operating instructions, "DIRECT AND BROADCAST KEYS INDICATOR STATUS.")

### 3. Status indictors (green, red, yellow)
Lights, flashes or goes off, in synchronization with the function status assigned to the Direct key (4).
(See the separate Operating instructions, "DIRECT AND BROADCAST KEYS INDICATOR STATUS.")

### 4. Direct keys
When pressed, each key executes the function assigned to it. Use the CX-1000 Setting software to assign specific functions to each key.
(See the separate Setting software instructions, "EVENT ACTIVATION SETTINGS.")

### 5. LAN A/B indicators (green)
Lights up when the unit is connected to a network, and flashes when data is being transmitted or received.

### 6. Run indicator (green)
Displays whether or not the unit is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 7. Status indictor (green, red, yellow)
Displays the unit's current event status.
(See the separate Operating instructions, "The Status Indicator of the CX-SM1000/RM1700/AF1062/PA1120/PA1240/CC1016.")

### 8. Reset key
Pressing this key restarts the unit.

### 9. MAC address
This is the MAC address for the unit.
Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

### 10. Volume control section cover knob
The cover over the volume control section can be removed by pulling the both knobs.

### 11. Volume control section cover
The volume controls for all input channels are located inside this cover.

### 12. Audio input signal indicators (green, red)
Displays the input status set to Audio input volume controls (13).
Lights green when audio is input to the input channel, and red when over-input is applied to the audio input.

### 13. Audio input volume controls
Volume controls for each audio input. These are arranged (left-to-right) as Audio input 1 – 2.
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

2-23

**14. Speaker output signal indicator (green, red)**
Displays the speaker output status set to this Speaker output volume control (15).
Lights green when audio is output from speaker output, and red when audio output is above the rated output level.

**15. Speaker output volume control**
Volume controls for speaker audio output.
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

**16. Recording output signal indicator (green, red)**
Displays the recording output status set to the Recording output volume control (17).
Lights green when audio is output from recording output, and red when audio output is above the rated output level.

**17. Recording output volume control**
Volume controls for recording output.
Rotate this control clockwise to increase the volume level and counterclockwise to decrease it.

**18. CPU OFF selector switch**
Normally, use this switch with the factory default settings, as shown in the figure below.

CPU OFF selector switch ——— CPU OFF
(Factory-preset position)
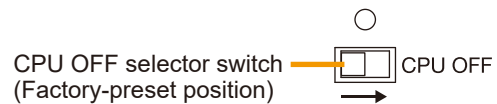
Sliding this switch to the CPU OFF position, as indicated by the arrow, permits all-call broadcasts using the sound source connected to Audio input 1 of Audio input terminal (29) via non-CPU analog control.
(See the separate Operating instructions, "ALL-CALL BROADCASTS USING THE CPU OFF SELECTOR SWITCH.")

**19. CPU OFF indicator (red)**
Lights continuously while the CPU OFF switch (18) is set to CPU OFF position.

2-24

# [Rear]



*The figure represents the CX-PA1240.*

## 20. AC inlet
Connect the supplied power cord to this receptacle.

## ⚠ WARNING

Be sure to use the supplied power cord or its equivalent.
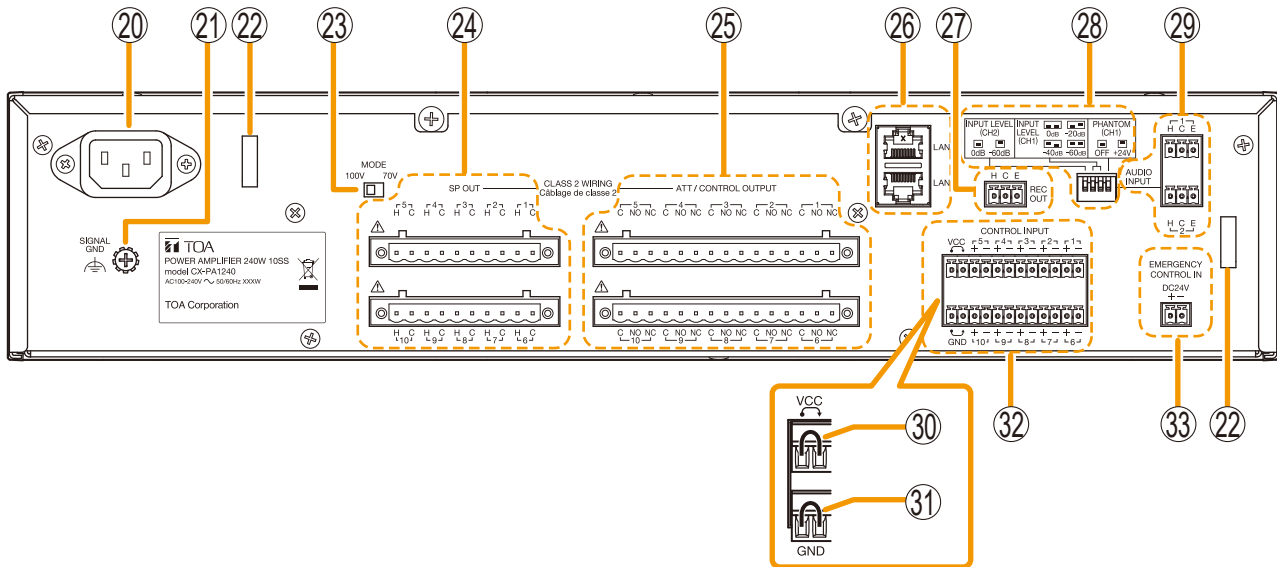Using any other power cord may cause electric shock.

### Notes
- If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.
- A power cord is not supplied with the W version of the CX-PA1120 and CX-PA1240.
  For usable power cord, contact your nearest TOA dealer.

## 21. Signal ground terminal
Be sure to ground this terminal.
**Note:** This terminal is not a protective ground.

## 22. Cord clamp
Used to secure cables and wiring. Route cables through the cord clamp and secure them in place.
(See .)

## 23. Output voltage selection switch
Switches the speaker output voltage to either 100 V or 70 V.
### Notes
- Be sure the main power to the unit is switched OFF first when operating this switch. Voltage cannot be switched if the power is ON.
- If this switch is operated while the power is ON, the setting will not be changed until the power is turned OFF and then ON again.

## 24. Speaker output terminal
Removable terminal block[1]
For high impedance 100 V lines
CX-PA1120: Max. 120 W for all lines combined
CX-PA1240: Max. 240 W for all lines combined
Connect speakers to these outputs.

## 25. ATT/Control output terminal
Removable terminal block[1]
Relay contact outputs (Form C contacts)
Allowable current:  4 A
Withstand voltage: 125 V AC/24 V DC
This terminal permits the CX-1000 system to control other connected external equipment.
Alternatively, this terminal becomes attenuator control outputs by setting.
(See the separate Setting software instructions, "Audio Output Settings.")

## 26. Network connection terminal
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.

## 27. Recording output terminal
Removable terminal block[1]
Audio signals: maximum 0 dB[2], 10 kΩ, balanced
External devices such as recording equipment or amplifiers can be connected.

**28. Input setting switches**

Switches the input levels of Audio input 1 and 2 (29). Phantom power can be set to turn ON/OFF for Audio input 1 only.



Sets phantom power for Audio input 1.
Sets input level for Audio input 1.
Sets input level for Audio input 2.
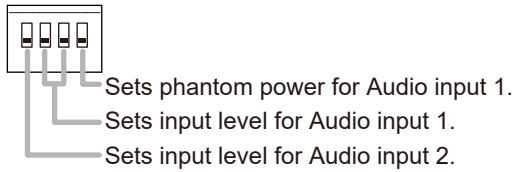
| Audio input | Switch setting | Setting contents |
|---|---|---|
| Audio input 1 | | Phantom power off |
| | | Phantom power on |
| | | Input level 0 dB*2 |
| | | Input level –20 dB*2 |
| | | Input level –40 dB*2 |
| | | Input level –60 dB*2 |
| Audio input 2 | | Input level 0 dB*2 |
| | | Input level –60 dB*2 |

(Factory setting: All switches set to lower position.)
**Tip**
Phantom power is 24 V DC.

**29. Audio input terminal**

Audio input 1: –60/–40/–20/0 dB*2 changeable, 10 kΩ, electronically-balanced
Audio input 2: –60/0 dB*2 changeable, 10 kΩ, electronically-balanced

Connect such external equipment as a sound source unit or microphone to this terminal.

Input levels can be selected using the Input setting switch (28). Audio input 1 can be set to provide phantom power. Use this terminal to connect the ANC sensor microphone.

Additionally, the broadcast destination pattern for Audio Input 1 can only be set for the audio output of each individual device.

**30. Power feed jumper**

A jumper is installed on the removable terminal plug by default.
(See .)

**31. Isolation jumper**

A jumper is installed on the removable terminal plug by default.
(See .)

**32. Control input terminal**

Removable terminal block*1
No-voltage make contact input
Open voltage:          24 V DC
Short-circuit current: 5 mA
Use this terminal to perform general-purpose broadcasts by connecting the control output of the playback equipment or the like, or a contact-type remote controller.
**Note**
The "–" (negative) terminals of the Control input terminal 1 through 10 are interconnected.

**33. Emergency control input terminal**

Connects to the emergency cutoff 24 V output terminal of the emergency broadcast equipment. When the emergency broadcast is activated and the 24 V DC power supply is stopped, the unit's speaker output terminal (24) and recording output terminal (27) volumes can be attenuated to $-\infty$dB*2

*1 Use the supplied removable terminal plug for connection. See regarding how to connect the removable terminal plug.
*2 0 dB = 1 V

## [Explanation of symbols]

| Symbol | Display Position | Explanation |
|---|---|---|
|  | Rear | Shows a signal ground terminal. **IMPORTANT NOTE:** This is not a protective ground! |
|  | Rear | Because the terminals marked with the symbol ⚠ are a high-voltage type, an electrical shock could result if touched. |
| ~ | Rear | Shows an AC power supply. |
|  | Rear | (1CE and 4CE version only) Do not trash this device into normal waste. Use the foreseen electric waste collection places. |

# 9. CX-CC1016 CONTROL I/O UNIT

## [Front]
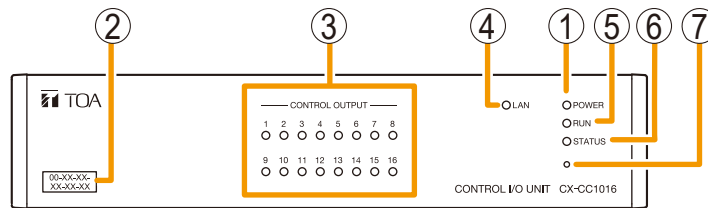


### 1. Power indicator (green)
Lights when power is supplied to the unit.

### 2. MAC address
This is the MAC address for the unit.
Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

### 3. Control output indicators (green)
Lights when the control output turns ON.

### 4. LAN indicator (green)
Lights up when the unit is connected to a network, and flashes when data is being transmitted or received.

### 5. RUN indicator (green)
Displays whether or not the unit is operating correctly.
(See the separate Operating instructions, "THE STATUS OF THE RUN INDICATOR.")

### 6. Status indictor (green, red, yellow)
Displays the unit's current event status.
(See the separate Operating instructions, "The Status Indicator of the CX-SM1000/RM1700/AF1062/PA1120/PA1240/CC1016.")

### 7. Reset key
Pressing this key restarts the unit.

## [Rear]
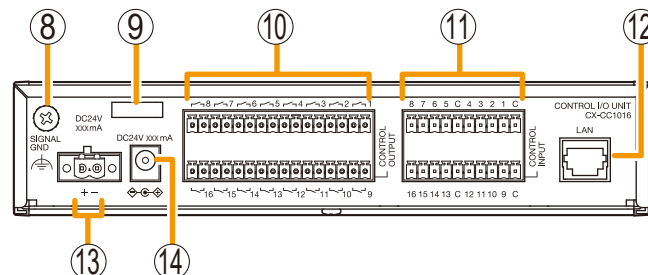


### 8. Signal ground terminal
Be sure to ground this terminal.
**Note:** This terminal is not a protective ground.

### 9. Cord clamp
Used to secure cables and wiring. Route cables through the cord clamp and secure in place.
(See .)

### 10. Control output terminal
Removable terminal block*
Relay contact outputs
Withstand voltage: 30 V DC
Allowable current:  1 A
Used to control external devices. Used only when connected to external devices or systems.

### 11. Control input terminal
Removable terminal block*
No-voltage make contact input
Open voltage:          24 V DC
Short-circuit current: 5 mA
Use this terminal to perform general broadcasts by connecting the control output of the playback equipment or the like.
**Note**
The 4 C terminals of the Control input terminal 1 through 16 are interconnected.

### 12. Network connection terminal
Ethernet RJ45 jack
Connects to a 100BASE-TX-compatible network.

### 13. DC power input terminal
Removable terminal block*
Uses a 24 V power source.

**14. AC adapter connection terminal**
Connect an optional AD-246 AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

\* Connect using the supplied removable terminal plug. For the connection of the removable terminal plug, see .
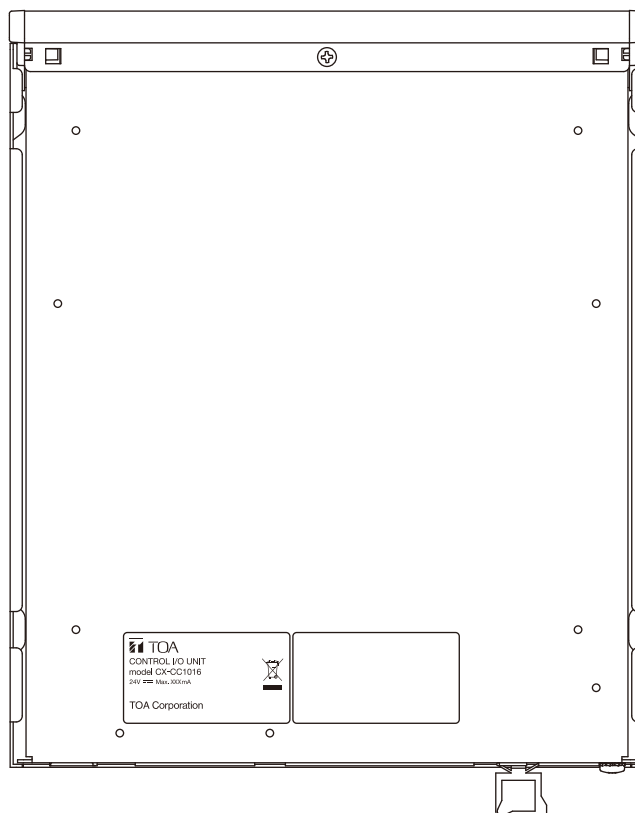
**[Bottom]**



**[Explanation of symbols]**

| Symbol | Display Position | Explanation |
|---|---|---|
| | Rear | Shows a signal ground terminal.<br>**IMPORTANT NOTE:** This is not a protective ground! |
| | Rear | Shows the polarity of the AC Adapter connection terminal.<br>The center pin is positive and its surrounding surface is negative. |
| | Bottom | Shows a DC power supply. |
| | Bottom | Do not trash this device into normal waste.<br>Use the foreseen electric waste collection places. |

# Chapter 3

## INSTALLATION AND CONNECTIONS

# 1. EQUIPMENT RACK MOUNTING

## 1.1.  Usable Equipment Rack

The CX-1000 Series can be mounted on the CR-273, CR-413, or standard EIA 19" Equipment rack. For the CR-273 and CR-413 Equipment rack assembly, read the installation manual supplied with the rack.
**Tip**
When installing the units in the Equipment rack, lay the equipment rack down face-up to do installation work safely.

## 1.2.  Work Space

For maintenance works, allow sufficient space between the wall and Equipment rack.
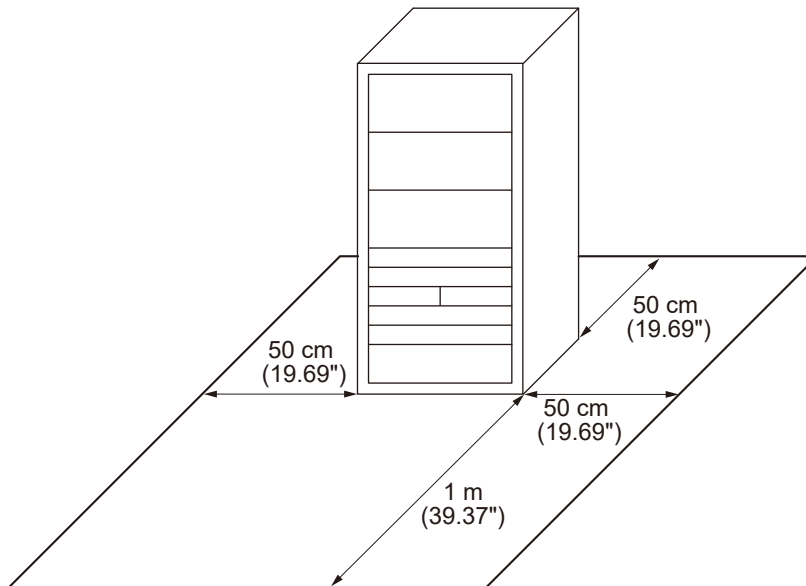
# 2. INSTALLATION OF THE CX-SM1000

The CX-SM1000 System Manager can be installed in any of three ways: (1) equipment rack mounting, (2) desk-top installation, and (3) wall mounting.

## 2.1. Equipment Rack Mounting
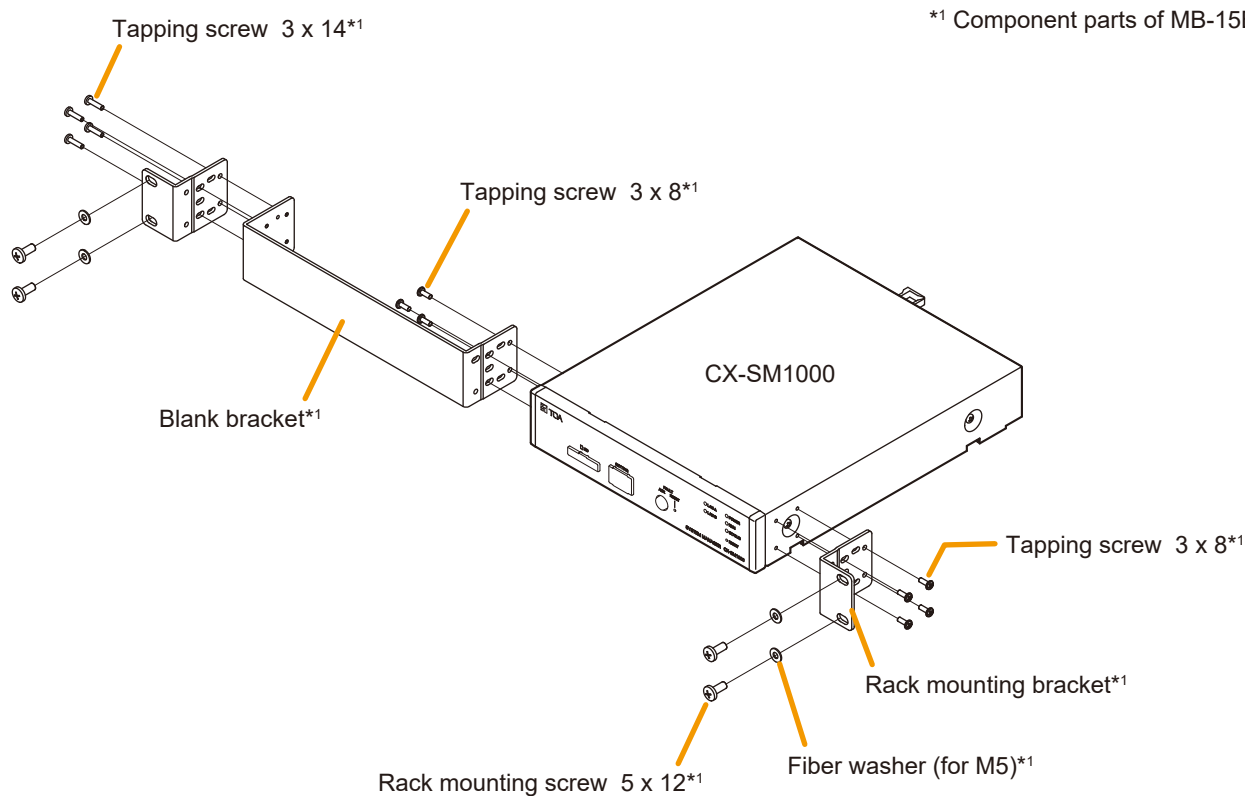
| ⚠ **CAUTION** | The rack-mounting screws supplied with the optional MB-15B-BK or MB-15B-J hardware set can be used for the TOA equipment rack only. Do not use them for other racks. |
| --- | --- |

**Note**
Use the optional mounting hardware set when installing the unit in an equipment rack.

### 2.1.1. When mounting a single unit

Use the optional MB-15B-BK hardware set.



Tapping screw  3 x 14*1

*1 Component parts of MB-15B-BK

Tapping screw  3 x 8*1

Blank bracket*1

CX-SM1000

Tapping screw  3 x 8*1

Rack mounting bracket*1

Rack mounting screw  5 x 12*1
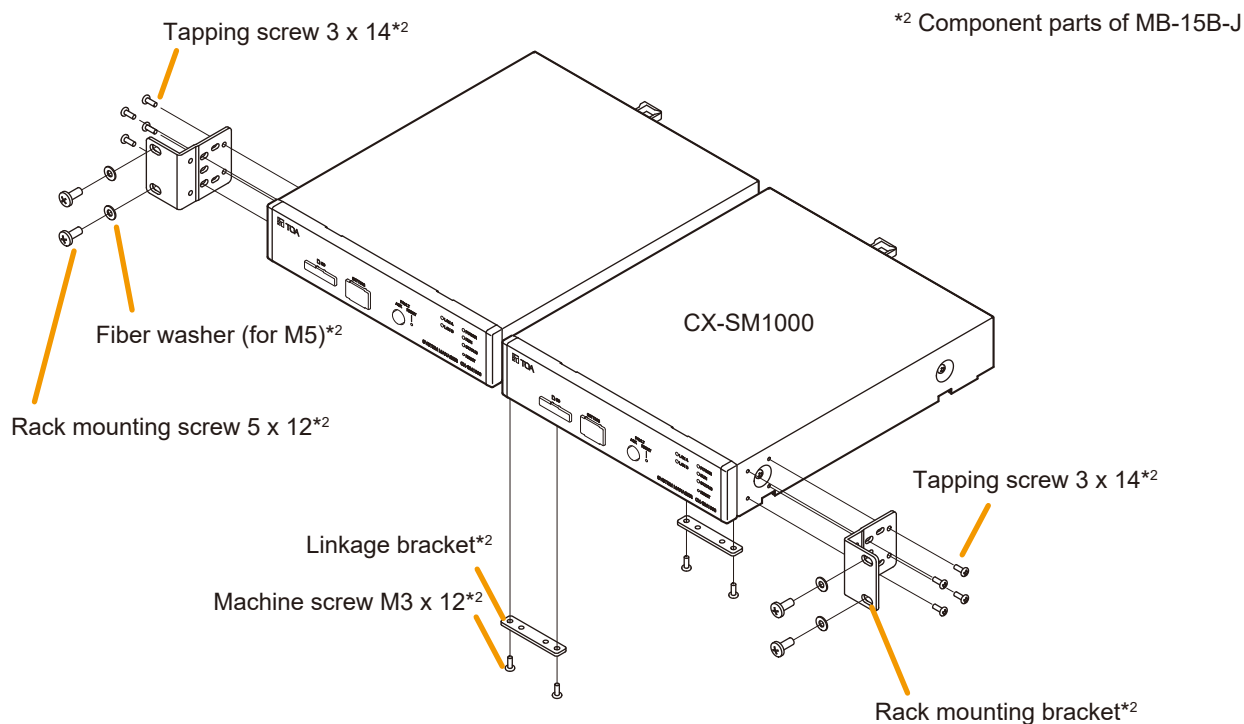
Fiber washer (for M5)*1

3-3

### 2.1.2. When mounting 2 units

Use the optional MB-15B-J Rack joint bracket.
**Note**
When installing two units in a rack, insert them slowly paying special attention not to let the screw tips protruded from the units' bottom scratch the top surface of the device installed under the unit.



Tapping screw 3 x 14*2

*2 Component parts of MB-15B-J

Fiber washer (for M5)*2

Rack mounting screw 5 x 12*2

CX-SM1000

Tapping screw 3 x 14*2

Linkage bracket*2

Machine screw M3 x 12*2

Rack mounting bracket*2

## 2.2. Desk-top Installation

When installing the CX-SM1000 on a desk, secure the supplied plastic feet to the unit's bottom.



Machine screw M3 x 8
(supplied with the CX-SM1000)

Plastic foot
(supplied with the CX-SM1000)

CX-SM1000

3-4
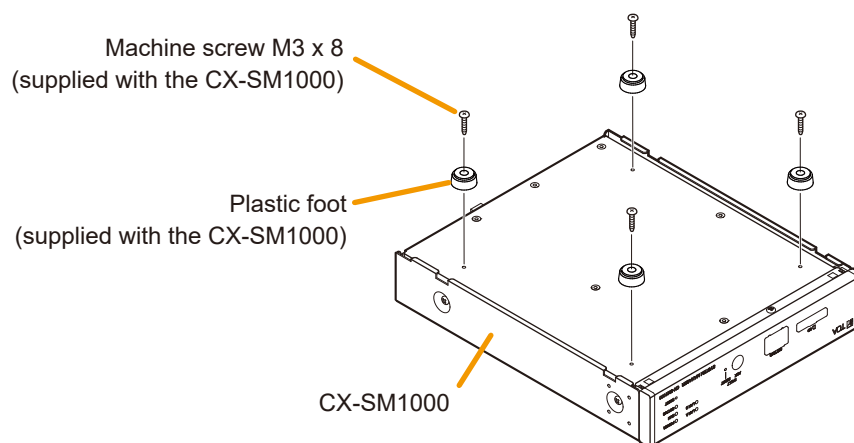
## 2.3. Wall Mounting

**Step 1.** Install the optional YC-850 Wall mounting bracket to the CX-SM1000.



YC-850 Wall mounting bracket

Machine screw M3 x 6
(supplied with the YC-850)
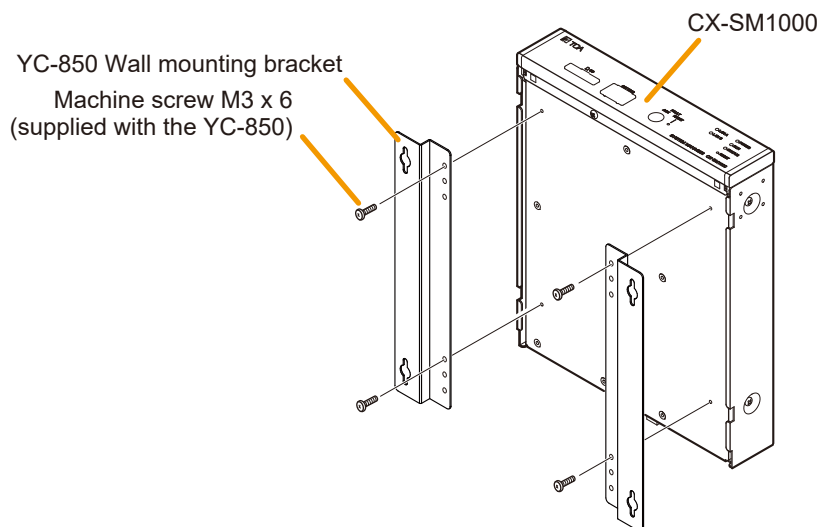
CX-SM1000

**Step 2.** Mount the CX-SM1000 on the wall.
Install with the front panel side facing up.

⚠ **WARNING** Failure to observe the following instructions could cause the unit to fall, resulting in injury.
• Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket.
• Use appropriate screws for the construction of wall.
  Wood screws 3.5 x 20 are supplied with the YC-850.
  Separately prepare the appropriate screws, If necessary.



Wall surface

CX-SM1000

Wood screw 3.5 x 20
(supplied with the YC-850)

3-5
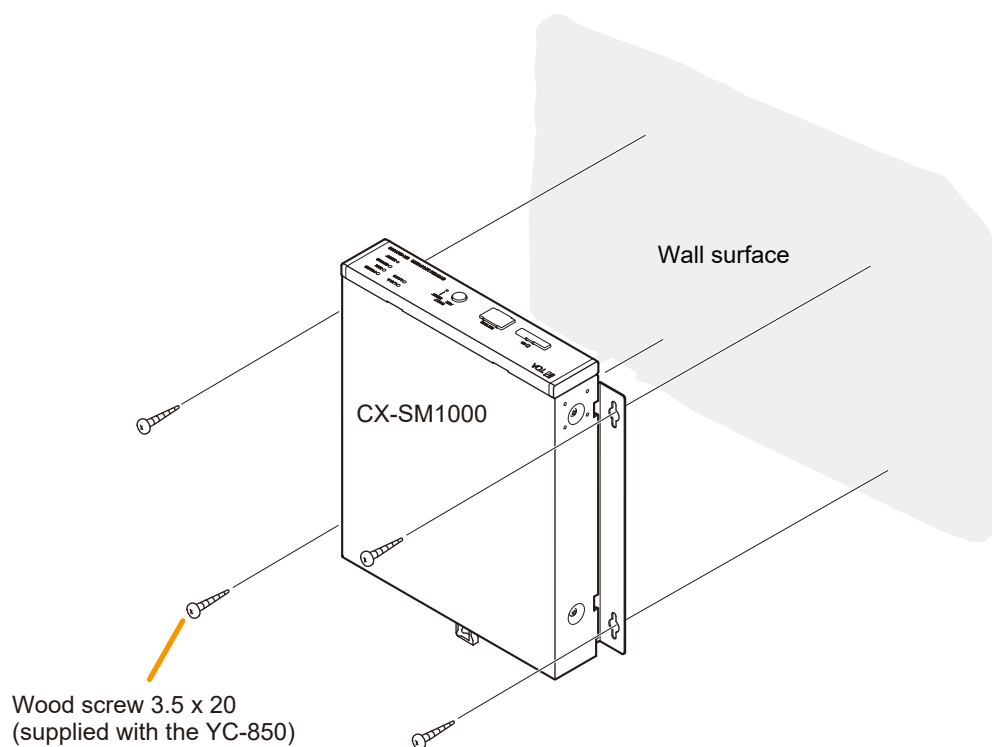
# 3. INSTALLATION OF THE CX-OP1700

The CX-OP1700 Video Operation Station can be installed in any of two ways: (1) desk-top installation and (2) wall mounting.

**Note**

When broadcasting from the CX-OP1700, install the CX-OP1700 as far away from the loudspeaker as possible to prevent acoustic feedback from the loudspeaker.

## 3.1. Camera Angle Adjustment

### 3.1.1. Adjustment method

Adjust the camera angle to suit the installation location. The camera angle can be adjusted within the vertical range of –20° to 0°.

Use the Camera angle adjustment lever for adjustment.
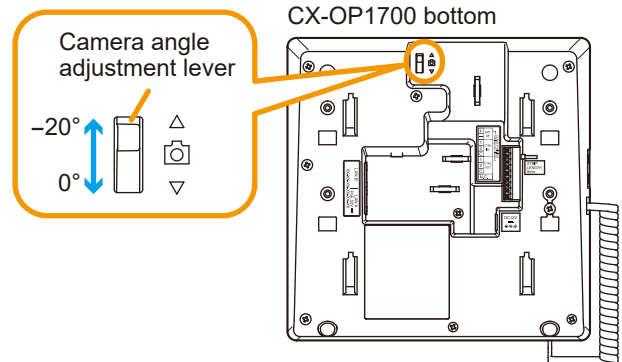


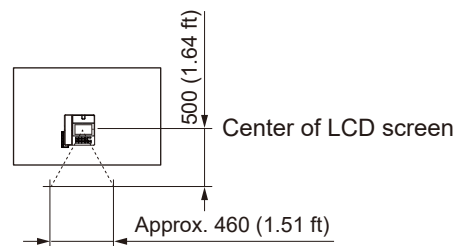### 3.1.2. Imaging range when installed on a tabletop (example shows the operating surface tilted 45° upward from the horizontal and the camera angle set at –20°)
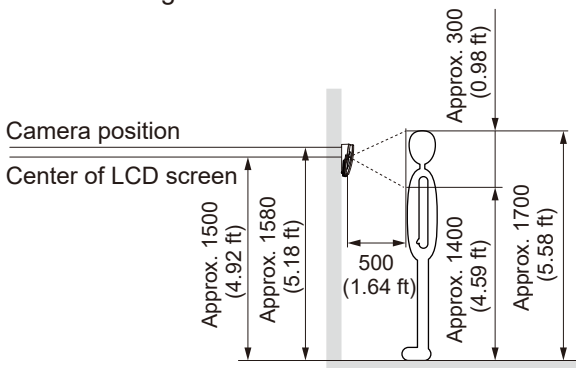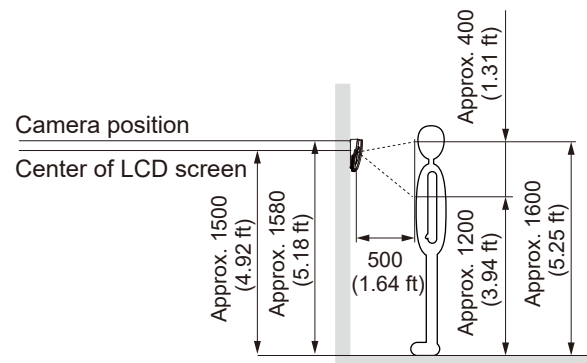
**[Vertical direction]**
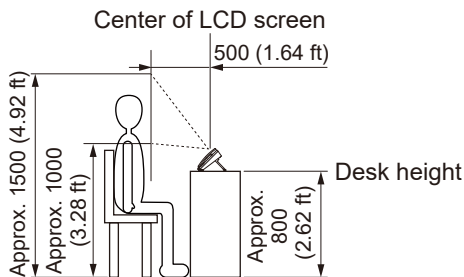


**[Horizontal direction]**



### 3.1.3. Imaging range when installed on a wall

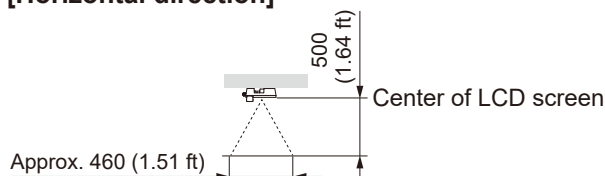**[Vertical direction]**

• Camera angle set to 0°



• Camera angle set to –20°



**[Horizontal direction]**



Unit: mm

3-6

## 3.2. Desk-top Installation

The CX-OP1700 can be placed directly on the desktop for use.
The operating surface can also be tilted either 45°or 60° upward from the horizontal by attaching the supplied stand to the bottom surface of the CX-OP1700. If the operating surface angle is set at 60°, change the orientation of the handset hook to prevent the handset from falling off. See "Changing the handset hook's orientation" on p. 3-10.

### 3.2.1. Wiring

After all cables are connected to the CX-OP1700 terminals, bundle and secure the cables as shown in the diagram below, and then pull them out.

**[When not using the stand]**

Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1700
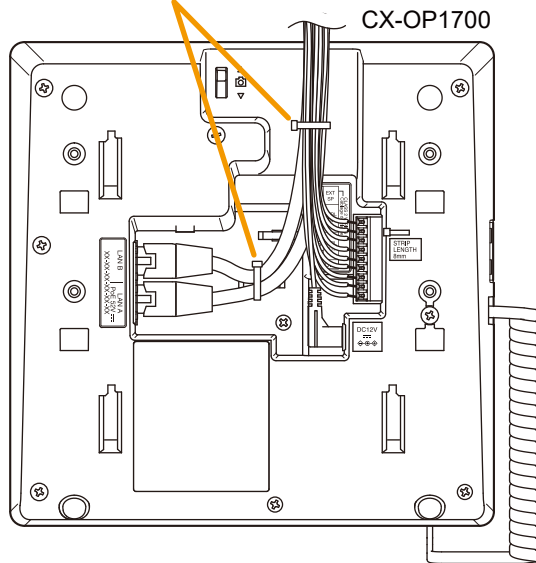
CX-OP1700

**[When using the stand]**

Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1700

CX-OP1700

### 3.2.2. Attaching the stand

After connecting the cables, attach the supplied stand.

**Step 1.** Hook the supplied stand's hooks into the corresponding square holes in the bottom surface of the CX-OP1700.
Note that the position of the stand mounts to be used differs depending on whether the operating surface will be tilted 45° or 60° upward from the horizontal.
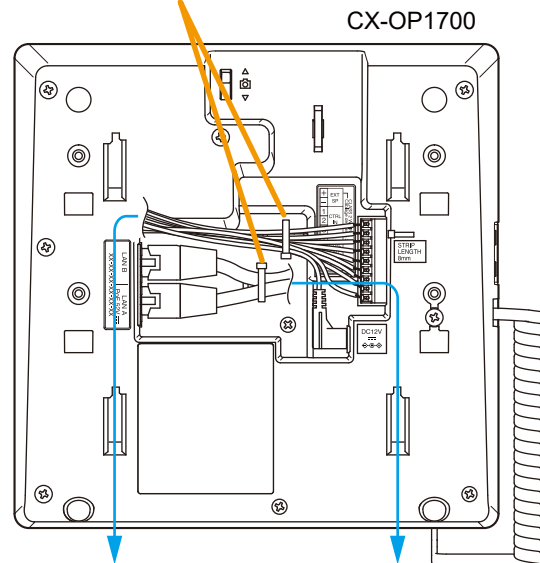
**Step 2.** Rotate the stand while hooked into the square holes, and align the stand's screw holes with the screw positions on the bottom surface of the CX-OP1700.

**[When tilting the operating surface 45° upward from the horizontal]**



CX-OP1700

Stand mount section
(for 45°upward)

Screw hole    Hook

**2**

**1**

Stand
(supplied with the CX-OP1700)

**[When tilting the operating surface 60° upward from the horizontal]**



Stand mount section
(for 60°upward)

Screw hole    Hook

**2**

**1**
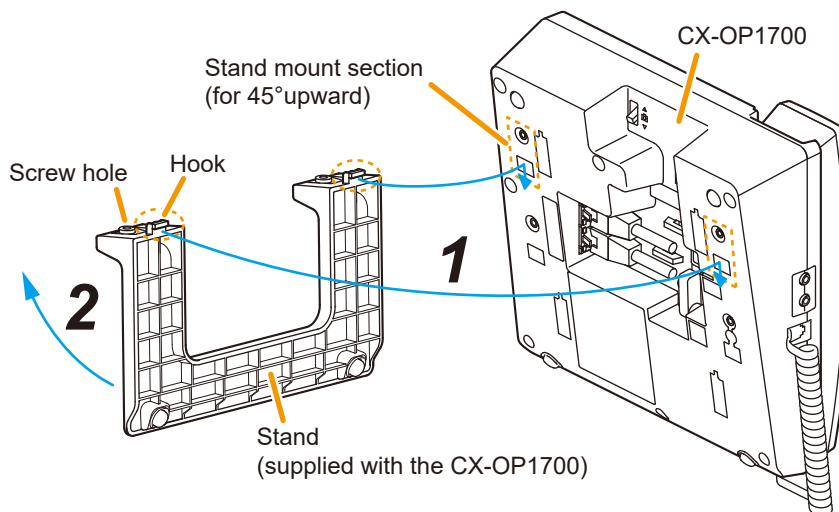
CX-OP1700

Stand
(supplied with the CX-OP1700)
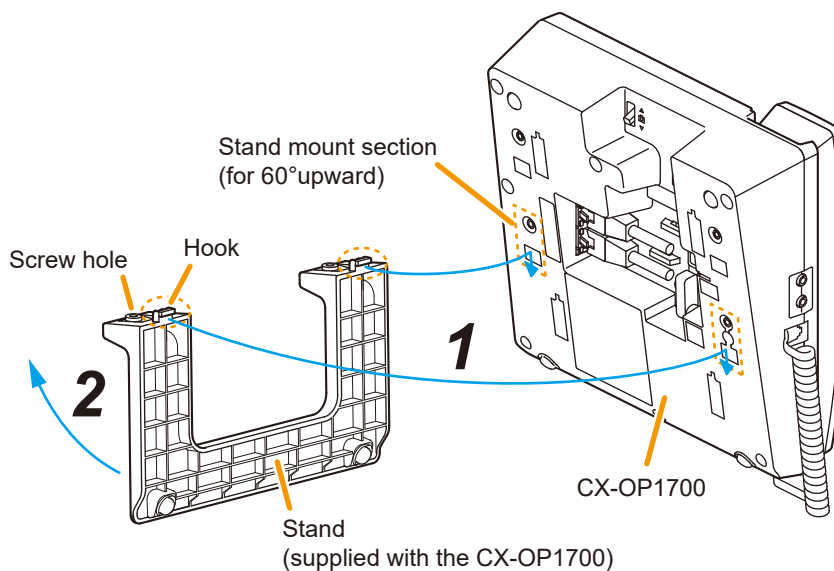
**Step 3.** Secure the stand to the bottom surface of the CX-OP1700 with the two supplied screws.

**[When tilting the operating surface 45° upward from the horizontal]**
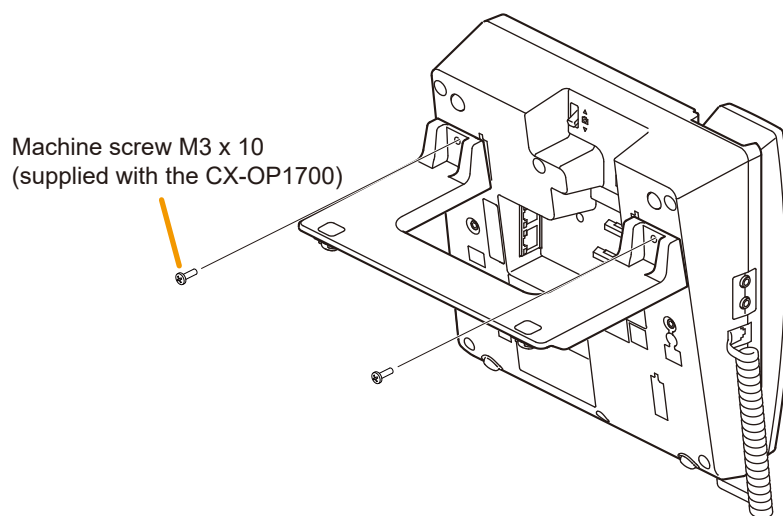
Machine screw M3 x 10
(supplied with the CX-OP1700)

**[When tilting the operating surface 60° upward from the horizontal]**

Machine screw M3 x 10
(supplied with the CX-OP1700)
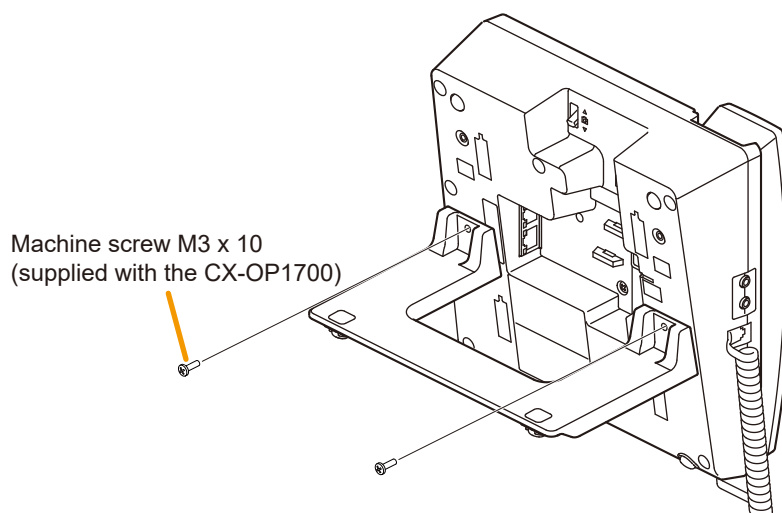
**[Installation completion drawing (45° upward)]**   **[Installation completion drawing (60° upward)]**

217.4 (8.56)*

CX-OP1700

45°

173.5 (6.83)*

Stand (supplied with the CX-OP1700)

182.1 (7.17)*

CX-OP1700

60°

193.6 (7.62)*

Stand (supplied with the CX-OP1700)
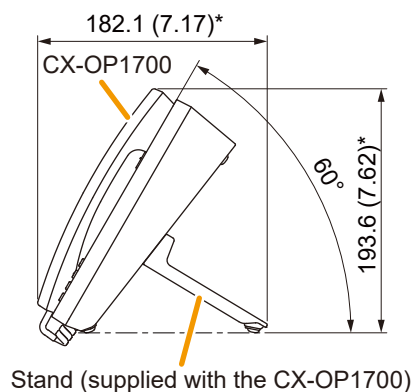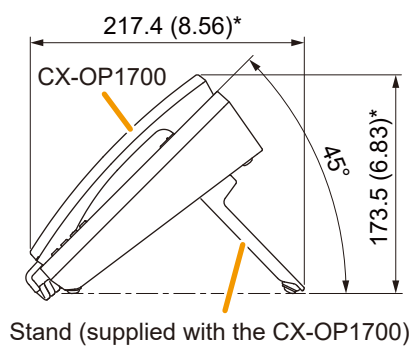
* Only for reference

Unit: mm (in)

3-9

### 3.3.2. Changing the handset hook's orientation

When the supplied stand is used to tilt the operating surface 60˚ upward from the horizontal, be sure to change the orientation of the handset hook in order to prevent the handset from falling off.

**Note**

The handset is secured by the handset hook, therefore when lifting the handset after flipping the orientation of the handset hook, be sure to slide it upward first.

**Step 1.** Slide the handset hook forward to lift it out of its slot.



Handset hook
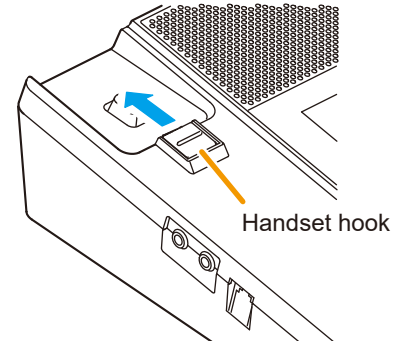
**Step 2.** Reverse the orientation of the handset hook so that its tab faces upward, then reinsert the hook into its slot in the station.



Reverse the orientation.
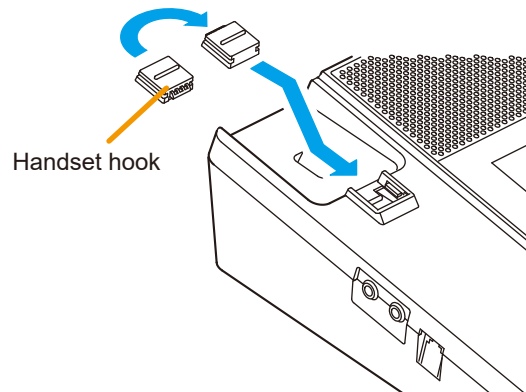
Handset hook

## 3.3. Wall Mounting

### 3.3.1. Changing the handset hook's orientation

When mounting the CX-OP1700 on a wall, be sure to change the orientation of the handset hook in order to prevent the handset from falling off. You can change the hook's orientation using the same procedure as when attaching the stand (see previous section).

**Note**

The handset is secured by the handset hook, therefore when lifting the handset after flipping the orientation of the handset hook, be sure to slide it upward first.

### 3.3.3. Mounting the CX-OP1700 on the wall

Install the CX-OP1700 on the wall using the YC-1001 Wall mounting bracket.

**Step 1.** Install the YC-1001 Wall mounting bracket on the wall.
Use 2 or more screws to install the YC-1001 on the wall depending on the installation location.
The YC-1001 comes with 3.5 x 25 tapping screws (2 pcs.) for direct wall mounting.

> ⚠ **WARNING**
>
> • Install the station only in a location that can structurally support the weight of the station and the mounting bracket. Doing otherwise may result in the station falling down and causing personal injury and/or property damage.
> • Be sure to use 2 or more screws to secure the mounting bracket on the wall.

**Notes**
• Install the YC-1001 taking at least 110 mm (4.33") long space up from its direct wall mounting hole. Insufficient space will not allow the installation of the CX-OP1700.
• Secure the YC-1001 using 2 direct wall mounting holes or 2 wall mounting holes in the figure below.
• Install the YC-1001 with the arrow mark printed on the label facing upward.

**[Mounting dimensions]**



3-11
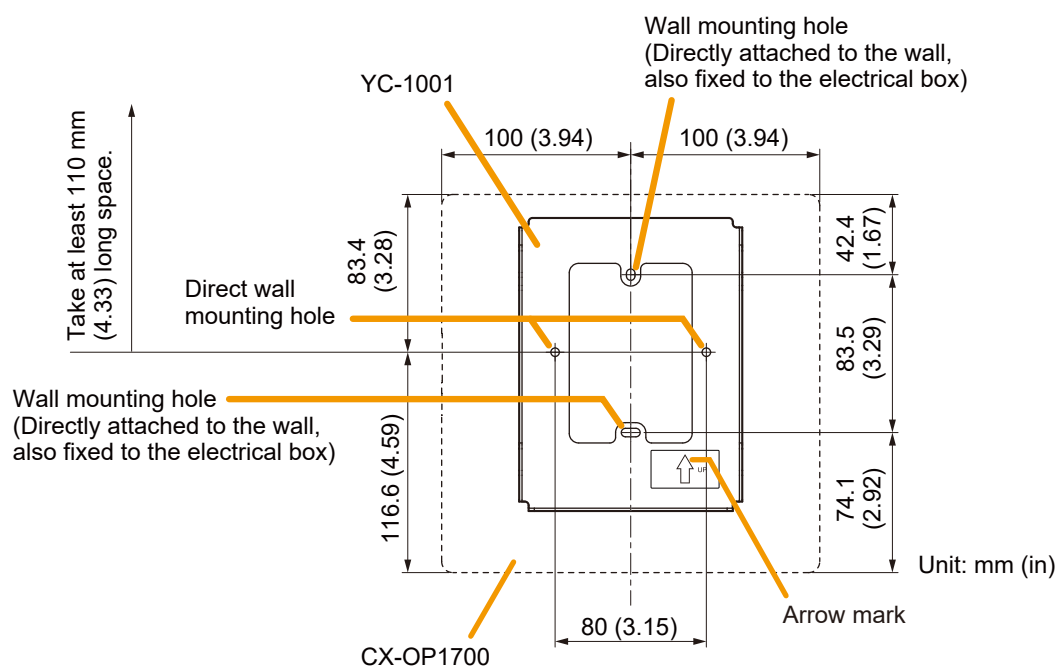
**Step 2.** Connect the cable to the CX-OP1700.

Two methods are available for cable wiring: Wiring through the wall and Exposed wiring from the upper side of the CX-OP1700.

For the cable connection to the push-in terminal block, see .

**[When wiring through the wall]**

Extract the cable from the wall, pass it through the opening in the YC-1001, then connect it to each terminal.

After finishing the cable connections to all the terminals, bundle the cables with the zip tie supplied with the CX-OP1700.

To the CX-OP1700's each terminal
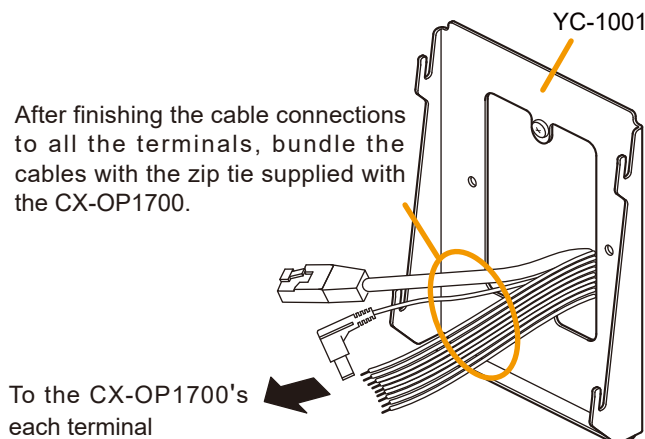
**[When making exposed wiring]**

Connect the cable to the CX-OP1700's each terminal, then extract it through the gap between the CX-OP1700 and the YC-1001.

Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1700
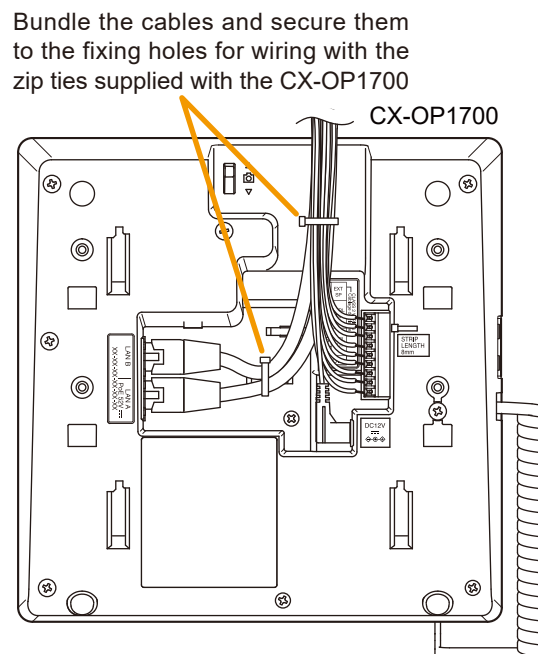


YC-1001

CX-OP1700

**Step 3.** Hang the CX-OP1700 onto the YC-1001.

Securely insert 4 mounting holes in the CX-OP1700 into 4 protrusions of the YC-1001 aligning them with each other.
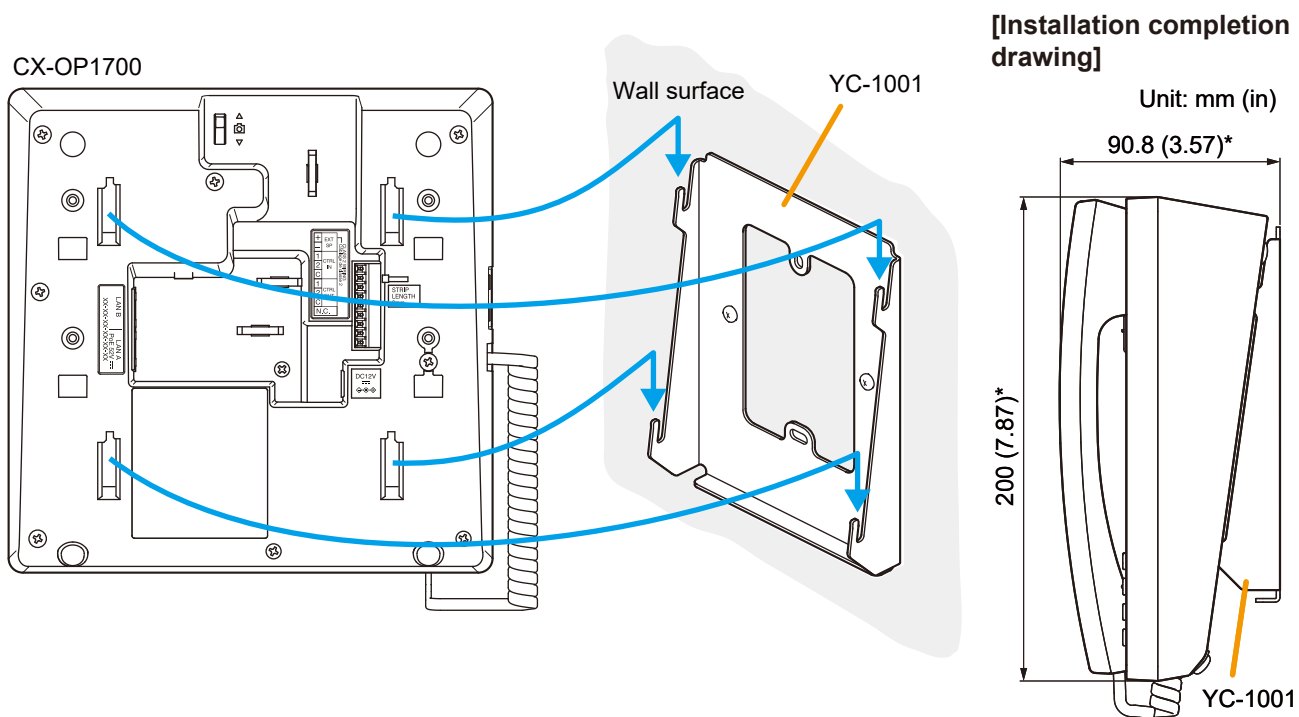


CX-OP1700

Wall surface

YC-1001

**[Installation completion drawing]**

Unit: mm (in)

90.8 (3.57)*

200 (7.87)*

YC-1001

* Only for reference

**Note**

After installation, make sure that the joints at all 4 places are correctly fit and have no looseness or rattling.

# 4. INSTALLATION OF THE CX-CL1750/CL1550

CX-CL1750 Video Call Station and CX-CL1550 Call Station can be installed in either of two ways: (1) flush mounting using the 3-gang electrical box or (2) wall surface mounting using the exposed box.

## 4.1. Camera Angle Adjustment (applicable to CX-CL1750)

### 4.1.1. Adjustment method

Adjust the camera angle to suit the installation location.
The camera angle can be adjusted within the vertical range of –20° to +20°.
Loosen the camera angle adjustment screw to adjust the camera angle, retighten the screw, then attach the supplied protective seal.

Camera angle adjustment screw

CX-CL1750 right side
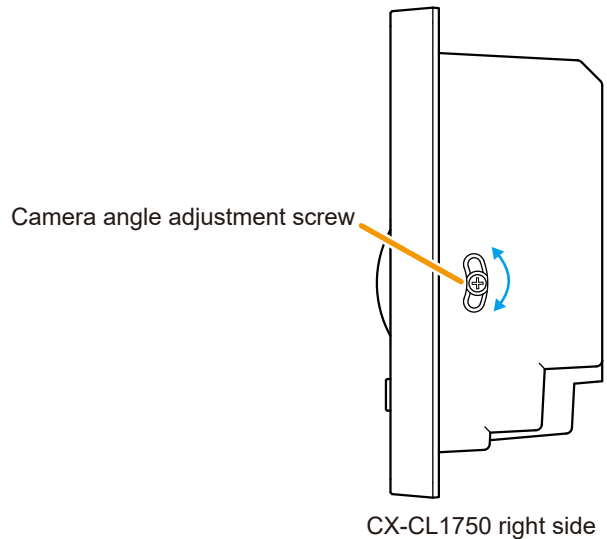
### 4.1.2. Imaging range and mounting position

[Vertical direction]

• Camera angle set at 0°        • Camera angle set at +20°        • Camera angle set at –20°
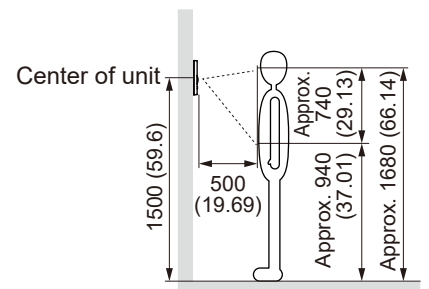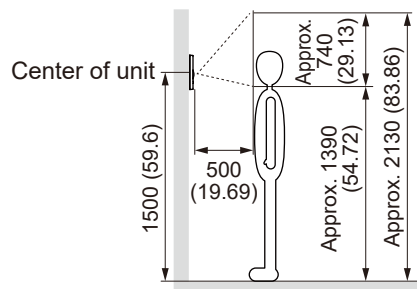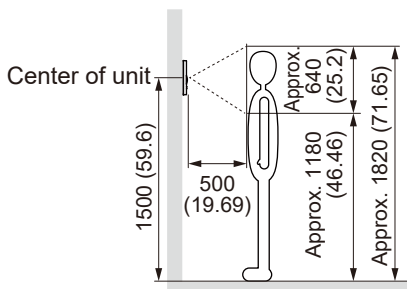
Unit: mm (in)

[Horizontal direction]

Approx.1440
(56.69)

500
(19.69)

Unit: mm (in)

3-13
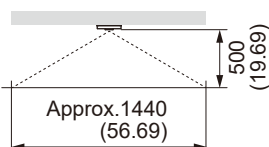
## 4.2. Flush Mounting Using the 3-gang Electrical Box

Attach the CX-CL1750/CL1550 to the YC-150 Back box or 3-gang electrical box installed in a wall.



**[Installation completion drawing]**

Unit: mm (in)
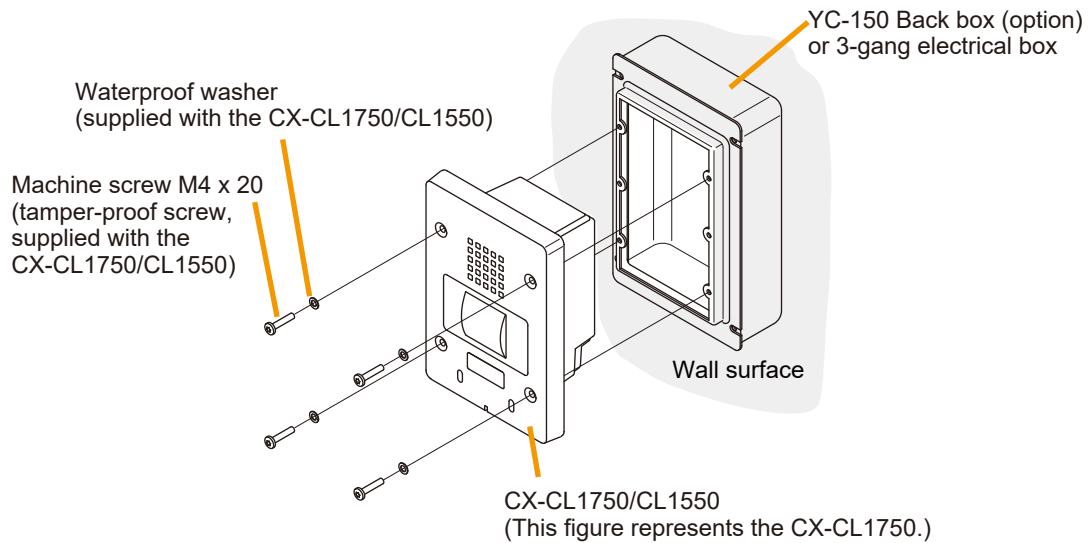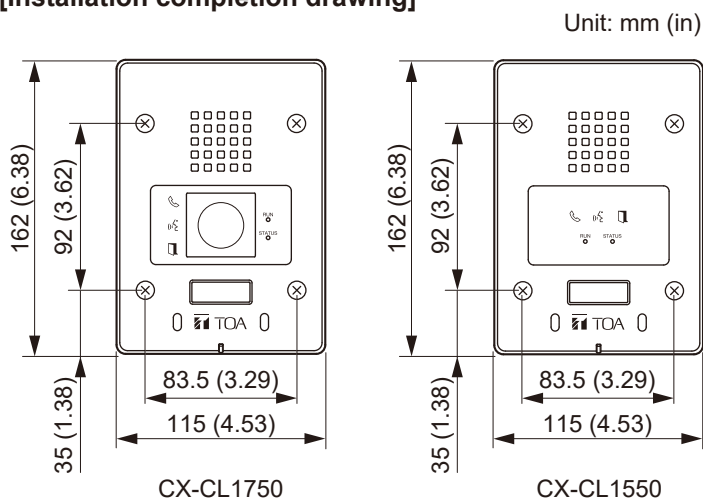
**[Side view of installed station]**
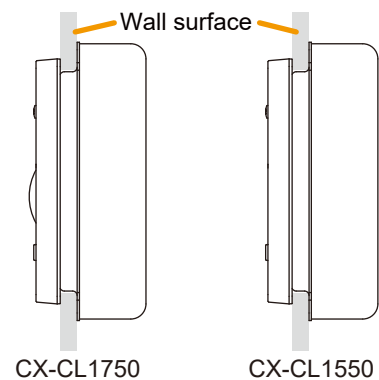


CX-CL1750

CX-CL1550

**Notes**
- For the CX-CL1750/CL1550 installation, be sure to ground both the YC-150 or electrical box, and the signal ground terminal on the station's rear (p. 3-35).
- Install the CX-CL1750/CL1550 indoors or under eaves so it will not be exposed to direct rain or wind at any time. When installing the CX-CL1750/CL1550 in a location where it may be exposed to water, be sure to seal the front cover's outer edges. Besides, provide a weep hole at the underside of the mounting box to permit water to drain off.

Seal the front cover's outer edges.
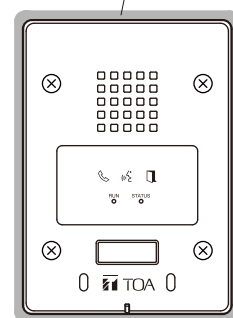
## 4.3. Wall Surface Mounting Using the Exposed Box

Attach the CX-CL1750/CL1550 to the YS-13A Wall-mount box installed on a wall.



CX-CL1750/CL1550
(This figure represents
the CX-CL1750.)

Install the YS-13A with its rear plate removed.

Rear plate

**Note**
Make a weep hole (to allow water to exit)
in the bottom.

Waterproof washer
(supplied with the CX-CL1750/CL1550)

Machine screw M4 x 20 (tamper-proof screw,
supplied with the CX-CL1750/CL1550)

**[Installation completion drawing]**

Unit: mm (in)
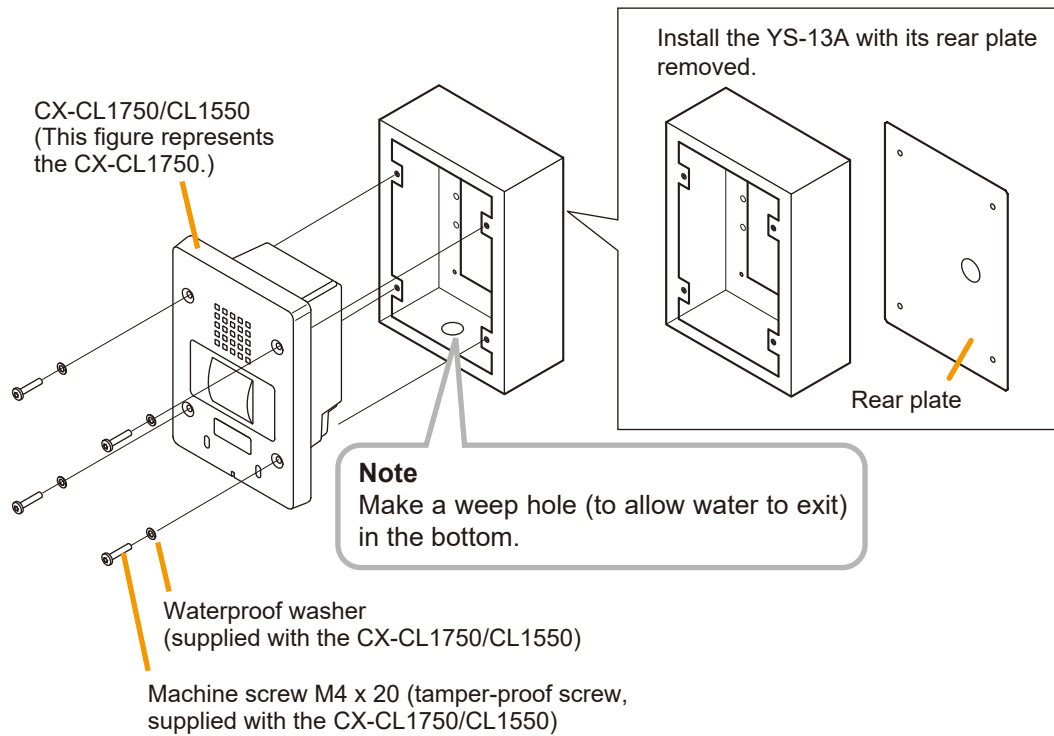


CX-CL1750

CX-CL1550

**[YS-13A dimensional drawing]**

Unit: mm (in)

4-M4 (for the CX-CL1750/CL1550 mounting)
6-ø4.5 (for wall mounting)
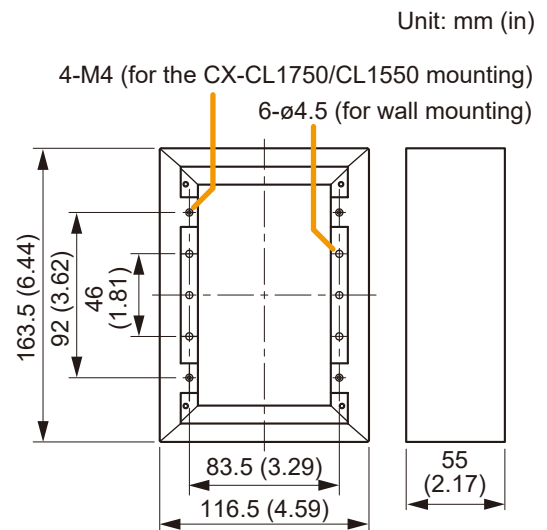


**Note**
Install the CX-CL1750/CL1550 indoors or under eaves so it will not be exposed to direct rain or wind at any time. When installing the CX-CL1750/CL1550 in a location where it may be exposed to water, tightly seal the edges of the front panel and those of the box's rear surface in contact with the wall surface.

Seal all the edges of the front cover and the rear box.

Wall surface

Wall surface

CX-CL1750

CX-CL1550

3-15
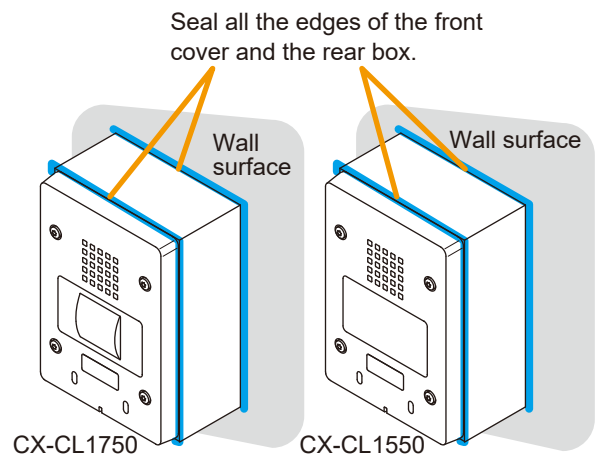
# 5. INSTALLATION OF THE CX-OP1500

The CX-OP1500 Operation Station can be installed in any of two ways: (1) desk-top installation and (2) wall mounting.
**Note**
When broadcasting from the CX-OP1500, install the CX-OP1500 as far away from the loudspeaker as possible to prevent acoustic feedback from the loudspeaker.

## 5.1. Desk-top Installation

The CX-OP1500 can be placed directly on the desktop for use.
The operating surface can also be tilted 15° upward from the horizontal by attaching the supplied stand to the bottom surface of the CX-OP1500.

### 5.1.1. Wiring

After all cables are connected to the CX-OP1500 terminals, bundle and secure the cables as shown in the diagram below, and then pull them out.



Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1500
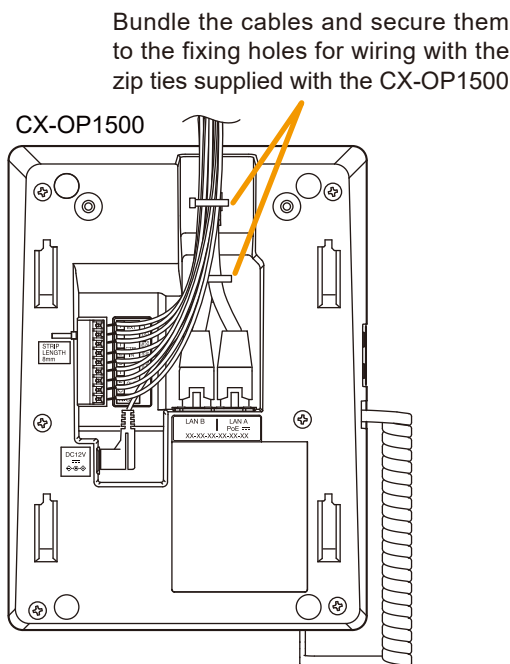
CX-OP1500

### 5.1.2. Attaching the stand

**Step:** Attach the supplied stand to the bottom surface of the CX-OP1500.
Using the two supplied screws, attach the stand to its corresponding mounting holes on the bottom surface of the CX-OP1500.



Stand (supplied with the CX-OP1500)

CX-OP1500

Machine screw M3 x 10 (supplied with the CX-OP1500)

**[Installation completion drawing]**

Unit: mm (in)

202.1 (7.96)*

99.6 (3.92)*

15°

Stand (supplied with the CX-OP1500)

* Only for reference

3-16
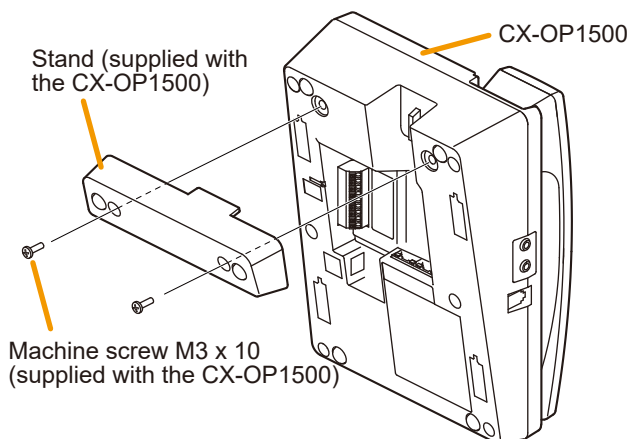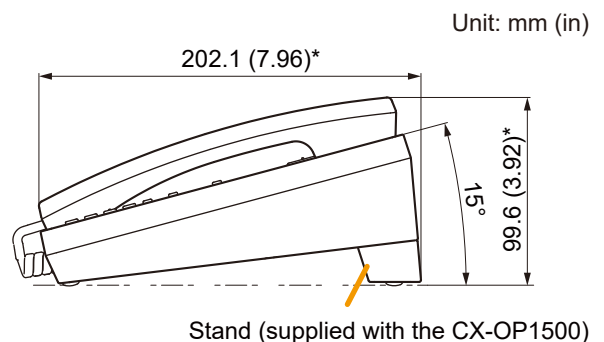
## 5.2. Wall Mounting

### 5.2.1. Changing the handset hook's orientation

When mounting the CX-OP1500 Operation station on a wall, be sure to change the orientation of the handset hook in order to prevent the handset from falling off.

**Note**
The handset is secured by the handset hook, therefore when lifting the handset after flipping the orientation of the handset hook, be sure to slide it upward first.

**Step 1.** Slide the handset hook forward to lift it out of its slot.

Handset hook

**Step 2.** Reverse the orientation of the handset hook so that its tab faces upward, then reinsert the hook into its slot in the station.
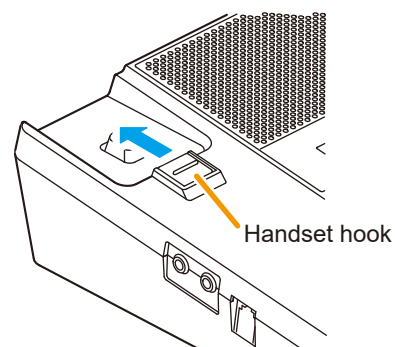
Reverse the orientation.

Handset hook
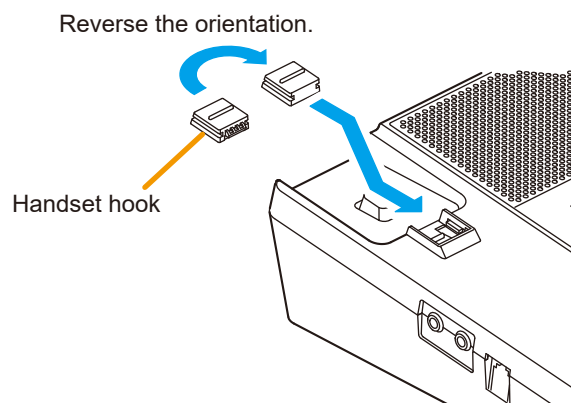
### 5.2.2. Mounting the CX-OP1500 on the wall

Install the CX-OP1500 on the wall using the YC-1001 Wall mounting bracket.

**Step 1.** Install the YC-1001 Wall mounting bracket on the wall.
Use 2 or more screws to install the YC-1001 on the wall depending on the installation location.
The YC-1001 comes with 3.5 x 25 tapping screws (2 pcs.) for direct wall mounting.

> ⚠ **WARNING**
>
> • Install the station only in a location that can structurally support the weight of the station and the mounting bracket. Doing otherwise may result in the station falling down and causing personal injury and/or property damage.
> • Be sure to use 2 or more screws to secure the mounting bracket on the wall.

**Notes**
• Install the YC-1001 taking at least 110 mm long space up from its direct wall mounting hole. Insufficient space will not allow the installation of the CX-OP1500.
• Secure the YC-1001 using 2 direct wall mounting holes or 2 wall mounting holes in the figure below.
• Install the YC-1001 with the arrow mark printed on the label facing upward.

**[Mounting dimensions]**
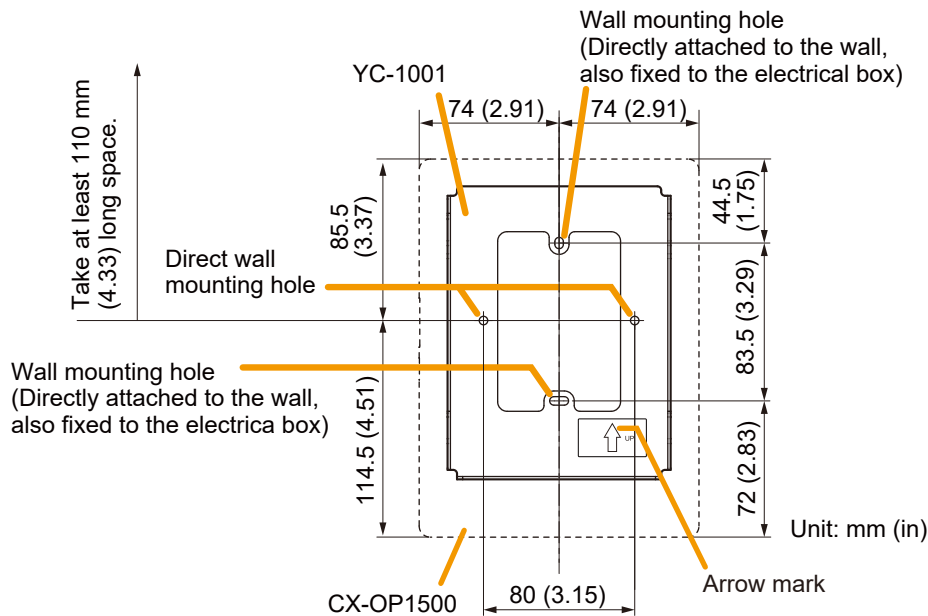
**Step 2.** Connect the cable to the CX-OP1500.

Two methods are available for cable wiring: Wiring through the wall and Exposed wiring from the upper side of the CX-OP1500.

For the cable connection to the push-in terminal block, see .

**[When wiring through the wall]**

Extract the cable from the wall, pass it through the opening in the YC-1001, then connect it to each terminal.

After finishing the cable connections to all the terminals, bundle the cables with the zip tie supplied with the CX-OP1500.

To the CX-OP1500's each terminal
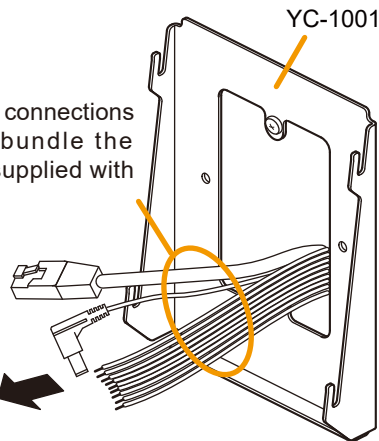
**[When making exposed wiring]**

Connect the cable to the CX-OP1500's each terminal, then extract it through the gap between the CX-OP1500 and the YC-1001.

Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1500
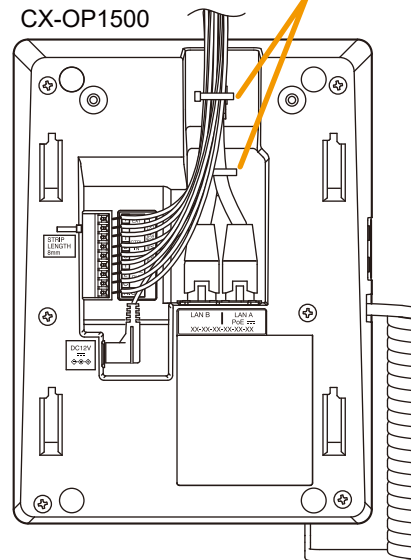


**Step 3.** Hang the CX-OP1500 onto the YC-1001.

Securely insert 4 mounting holes in the CX-OP1500 into 4 protrusions of the YC-1001 aligning them with each other.
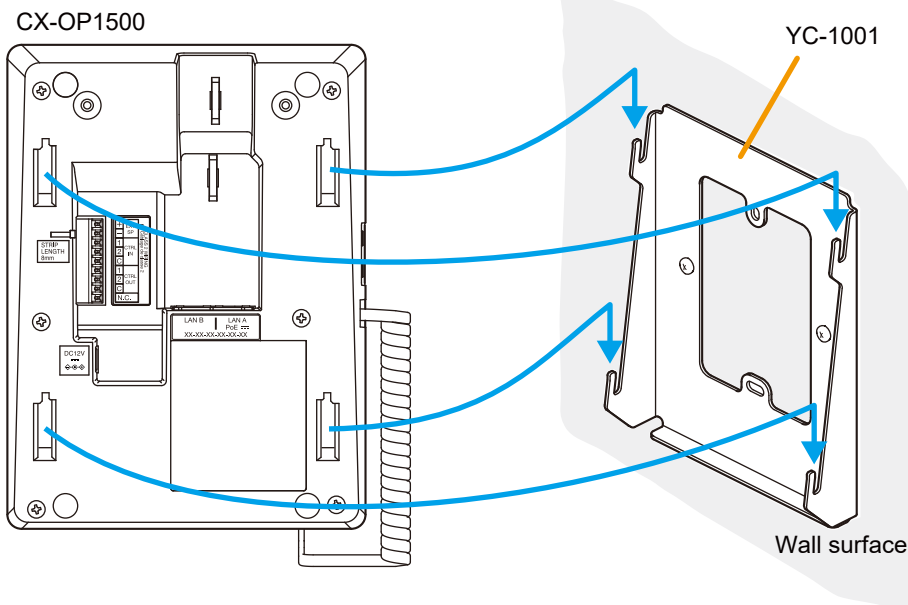
**[Installation completion drawing]**
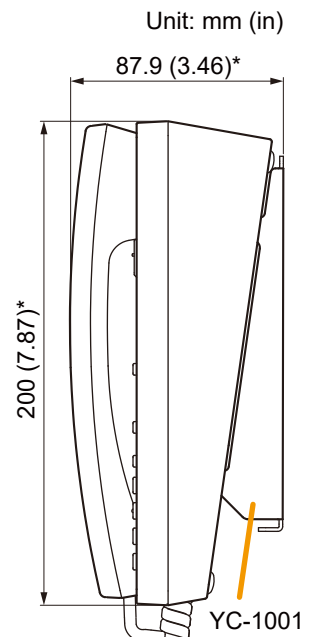
Unit: mm (in)

87.9 (3.46)*

200 (7.87)*

* Only for reference



**Note**

After installation, make sure that the joints at all 4 places are correctly fit and have no looseness or rattling.

# 6. INSTALLATION OF THE CX-AF1062

The CX-AF1062 Audio Interface 6in2out can be installed in any of three ways: (1) equipment rack mounting, (2) desk-top installation, and (3) wall mounting.

## 6.1. Equipment Rack Mounting

Use the optional MB-15B Rack mounting bracket.

MB-15B Rack mounting bracket
(option)

CX-AF1062

Tapping screw 3 x 8
(supplied with the MB-15B)

Rack mounting screw 5 x 12 with plain washer
(supplied with the MB-15B)
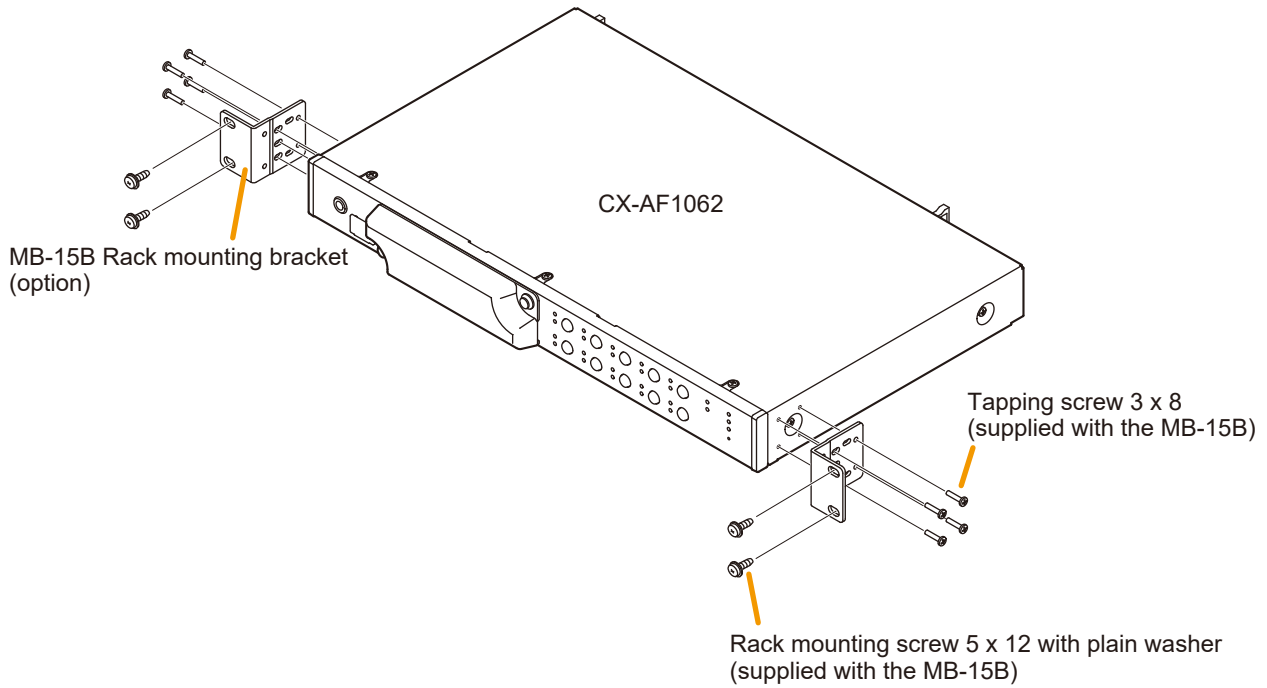
⚠ **CAUTION**    The rack-mounting screws supplied with the optional MB-15B hardware set can be used for the TOA equipment rack only.
Do not use them for other racks.

3-20

## 6.2. Desk-top Installation

When installing the CX-AF1062 on a desk, secure the supplied plastic feet to the unit's bottom.

Machine screw M3 x 8
(supplied with the CX-AF1062)

Plastic foot
(supplied with the CX-AF1062)
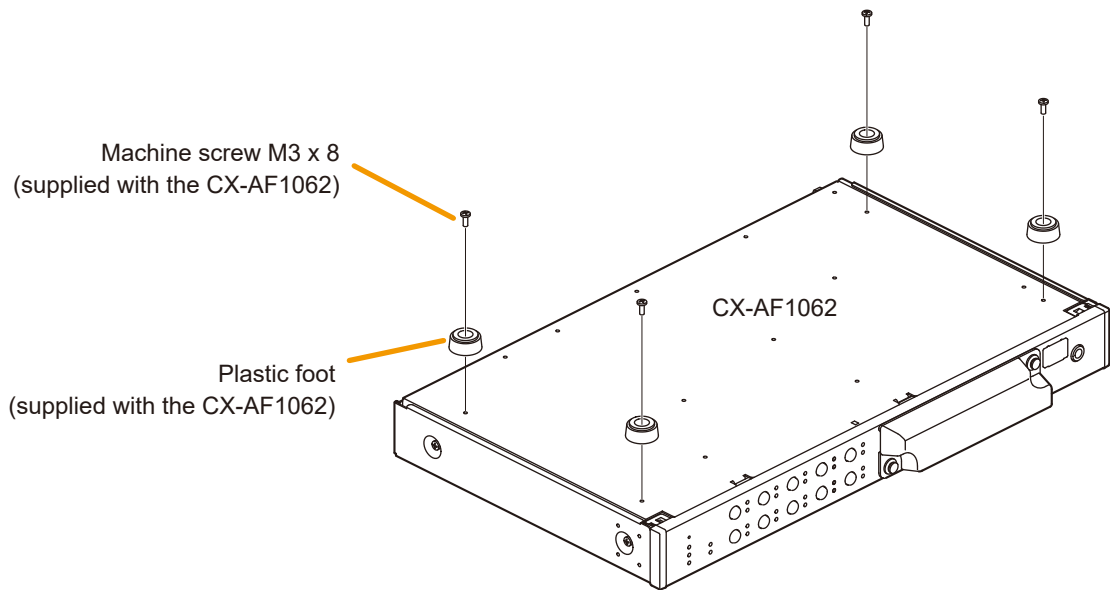
CX-AF1062

## 6.3. Wall Mounting

**Step 1.** Install the optional YC-850 Wall mounting bracket to the CX-AF1062.

YC-850 wall mounting bracket

CX-AF1062

Machine screw M3 x 6
(supplied with the YC-850)

3-21
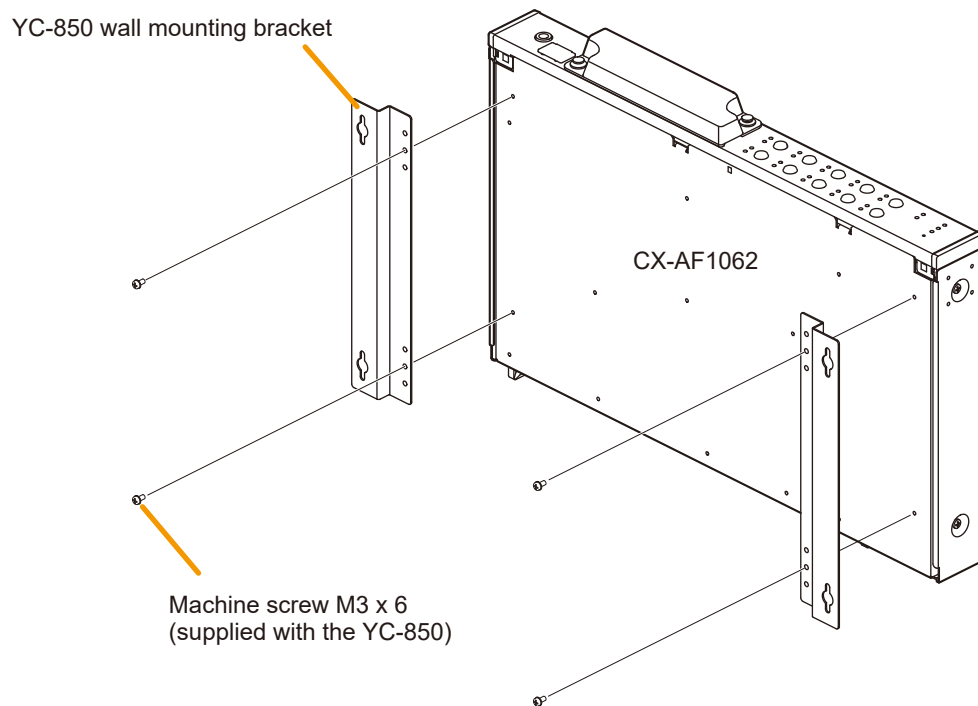
**Step 2.** Mount the CX-AF1062 on the wall.
Install with the front panel side facing up.

⚠ **WARNING**    Failure to observe the following instructions could cause the unit to fall, resulting in injury.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket.
- Use appropriate screws for the construction of wall.
  Wood screws 3.5 x 20 are supplied with the YC-850.
  Separately prepare the appropriate screws, If necessary.

Wall surface

CX-AF1062

Wood screw 3.5 x 20
(supplied with the YC-850)
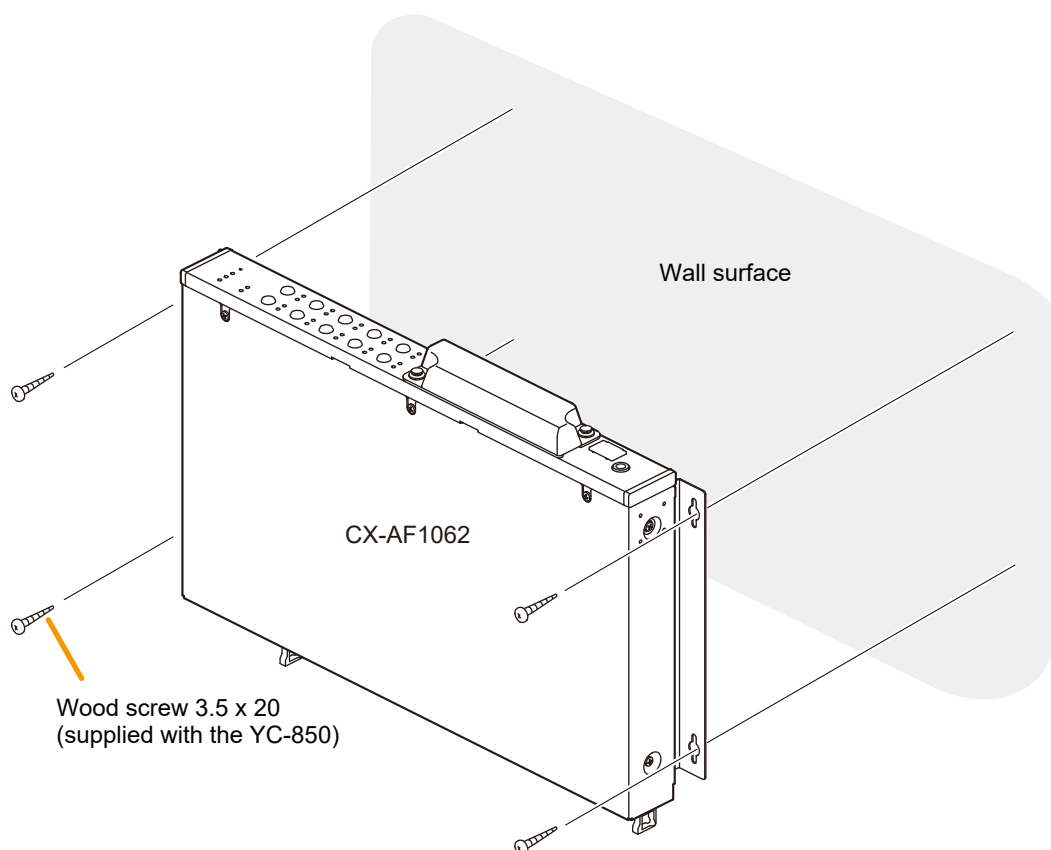
**Note**
When mounting the unit on a wall, be sure to take such measures as covering the phone jack with a cap or tape to prevent dust from entering.

3-22

# 7. INSTALLATION OF THE CX-PA1120/PA1240

The CX-PA1120 Power Amplifier 120W 10SS and CX-PA1240 Power Amplifier 240W 10SS can be installed in any of three ways: (1) equipment rack mounting, (2) desk-top installation, and (3) wall mounting.

## 7.1. Installation Precautions

> ⚠ **CAUTION**  Do not block the ventilation slots in the unit's cover.
> Doing so may cause heat to build up inside the unit and result in fire.

• Ensure that the CX-PA1120/PA1240 is located at least 1 cm (0.39") away from objects, as shown in the figure below, to allow adequate cooling and thus prevent extreme increases in temperature inside the unit.
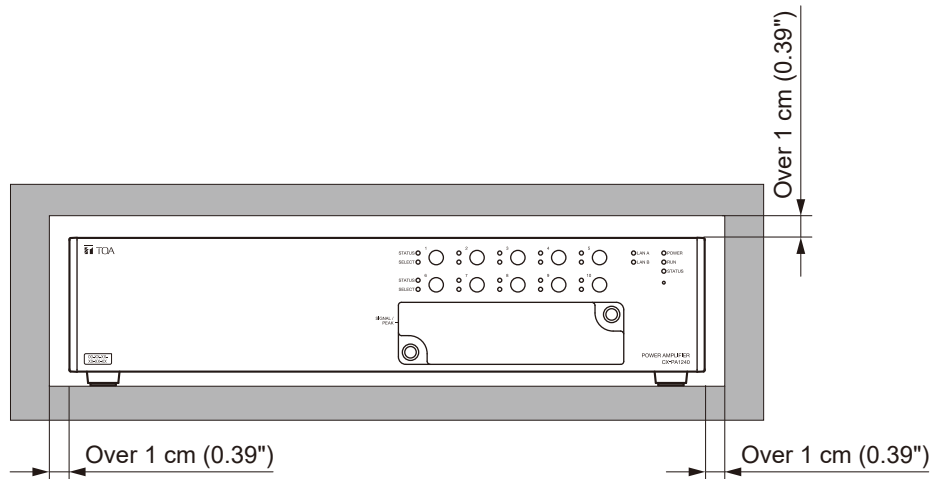


• When mounting the CX-PA1120/PA1240 in the rack, mount a Perforated panel larger than 1U in size* above every 1 unit.

  * 1U size = 44.5 mm or 1.75" (standard size)



3-23

### 7.1.1. Rack Mounting

Use the optional MB-25B rack mounting bracket.

Machine screw 4 x 16
(supplied with the MB-25B)

plain washer (for M4)
(supplied with the MB-25B)

MB-25B
Rack mounting bracket
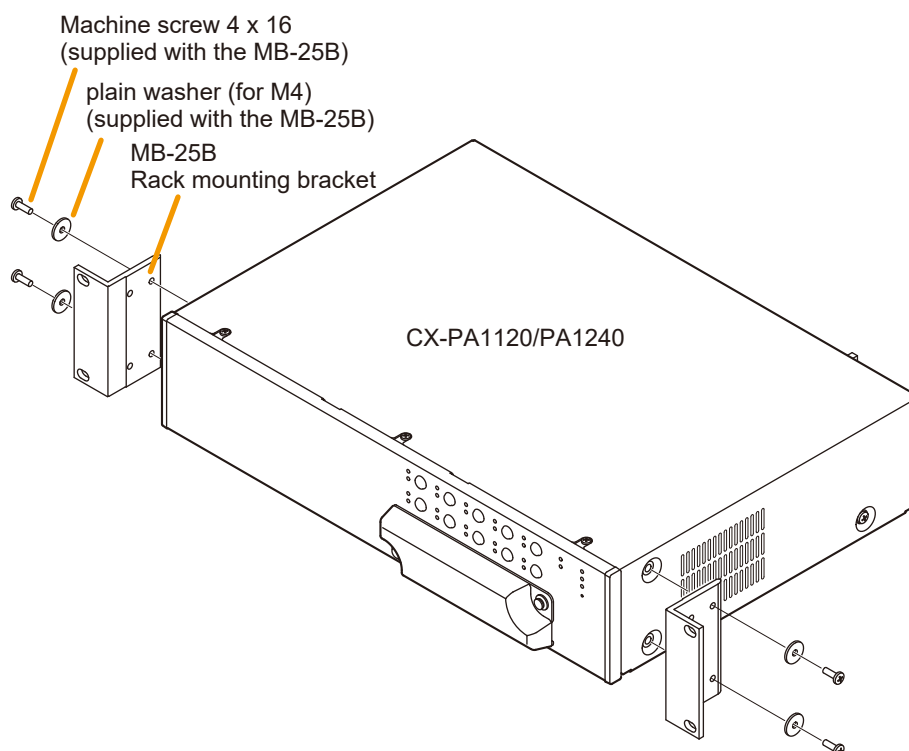
CX-PA1120/PA1240



| ⚠ **CAUTION** | Rack-mounting screws are not supplied with the optional MB-25B Rack mounting bracket. Prepare them that are appropriate for the equipment rack. |

## 7.2. Desk-top Installation

When installing the CX-PA1120/PA1240 on a desk, secure the supplied plastic feet to the unit's bottom.
**Note**
Do not attach the rubber feet to any other mounting holes than those shown in the figure below.

Machine screw M3 x 8
(supplied with the CX-PA1120/PA1240)

Plastic foot
(supplied with the CX-PA1120/PA1240)
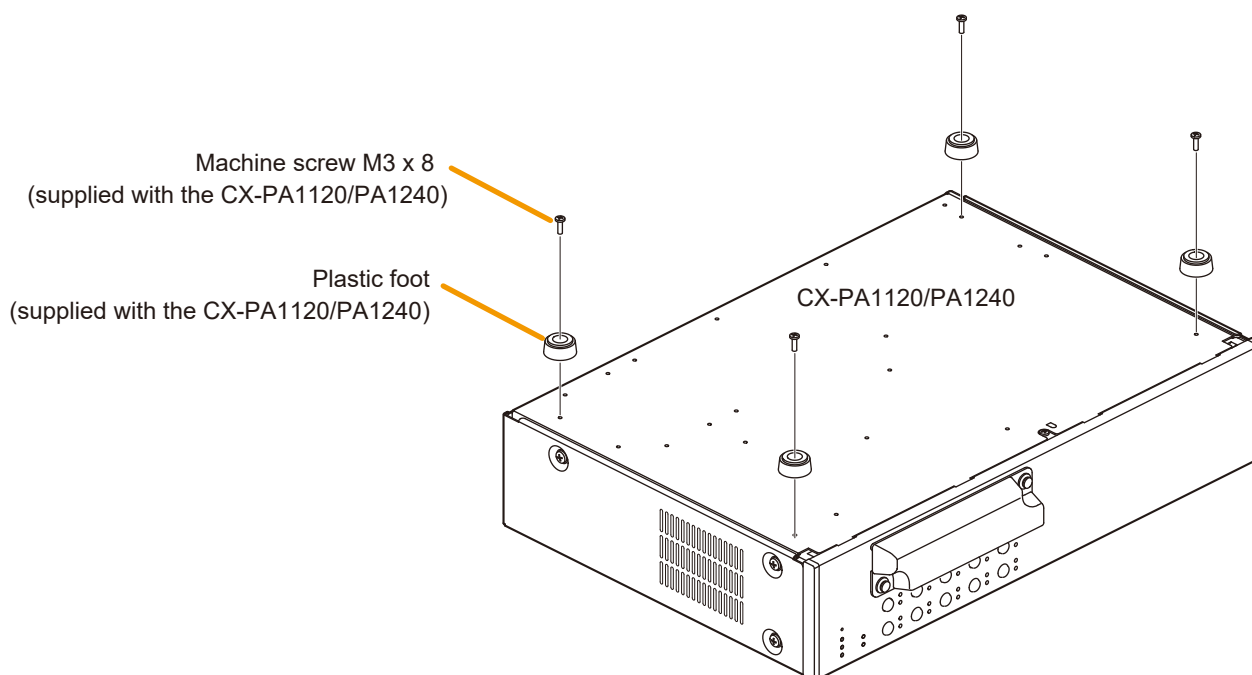
CX-PA1120/PA1240

## 7.3. Wall Mounting

**Step 1.** Install the optional YC-850 Wall mounting bracket to the CX-PA1120/PA1240.

YC-850 Wall mounting bracket
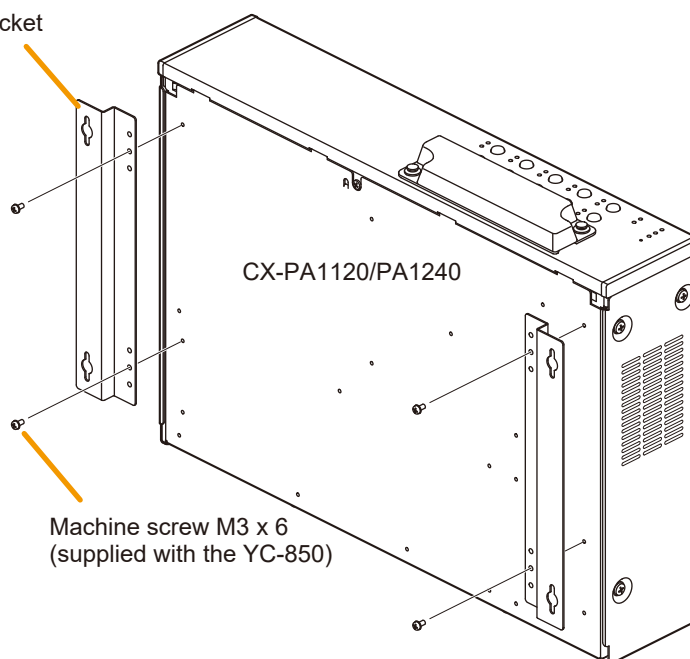
CX-PA1120/PA1240

Machine screw M3 x 6
(supplied with the YC-850)

**Step 2.** Mount the CX-PA1120/PA1240 on the wall.
Install with the front panel side facing up.

⚠ **WARNING**   Failure to observe the following instructions could cause the unit to fall, resulting in injury.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket.
- Use appropriate screws for the construction of wall.
  Wood screws 3.5 x 20 are supplied with the YC-850.
  Separately prepare the appropriate screws, If necessary.

Wall surface

CX-PA1120/PA1240

Wood screw 3.5 x 20
(supplied with the YC-850)

3-25
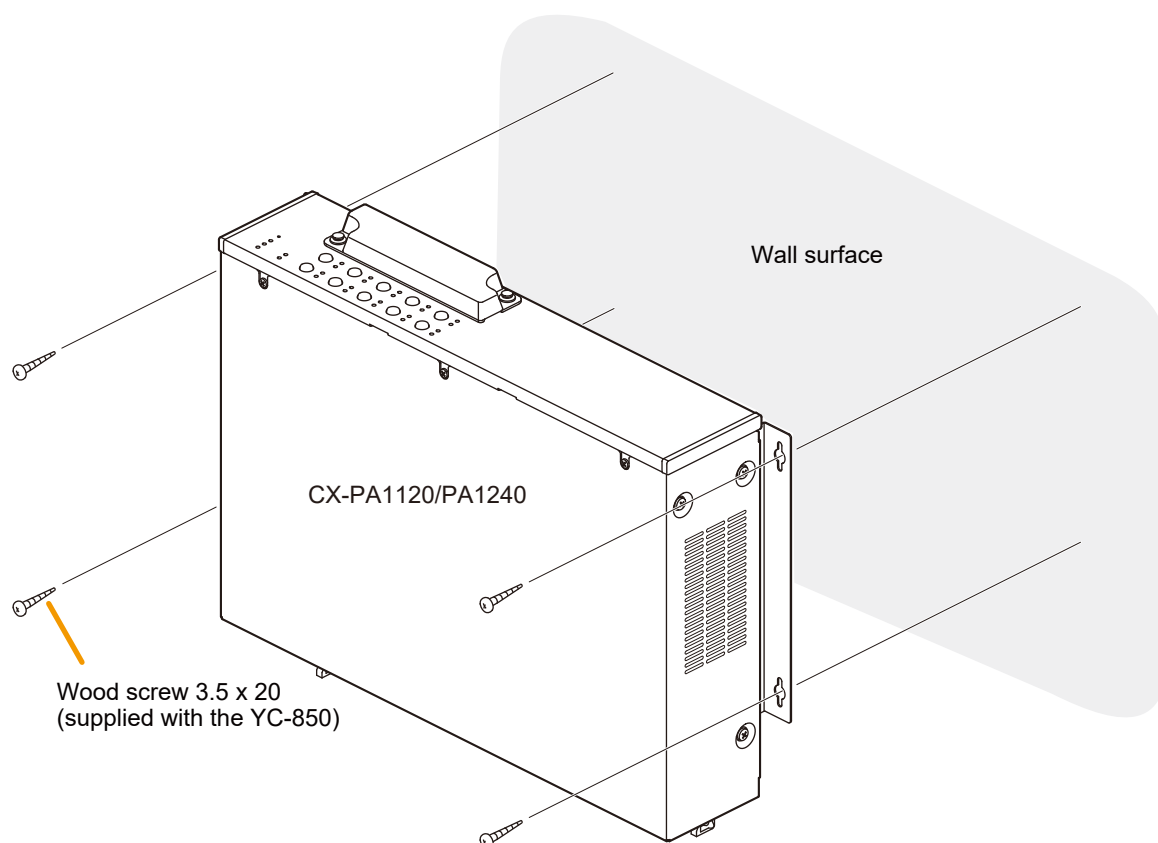
# 8. INSTALLATION OF THE CX-CC1016

The CX-CC1016 Control I/O Unit can be installed in any of three ways: (1) equipment rack mounting, (2) desktop installation, and (3) wall mounting.

## 8.1. Equipment Rack Mounting
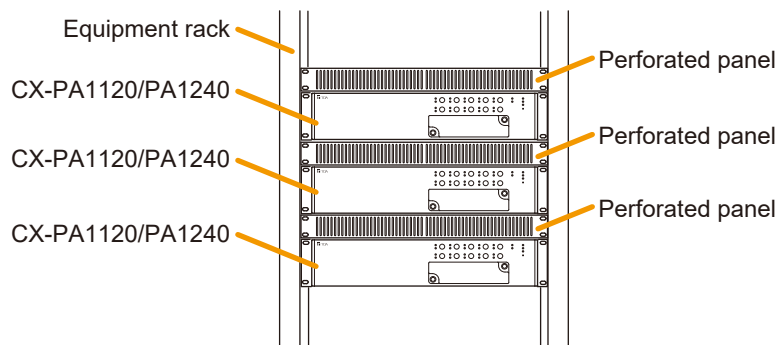
### 8.1.1. When mounting a single unit

Use the optional MB-15B-BK hardware set.

*1 Component parts of MB-15B-BK



Tapping screw  3 x 14*1

Tapping screw  3 x 8*1

Blank bracket*1

CX-CC1016

Tapping screw  3 x 8*1

Rack mounting bracket*1

Rack mounting screw  5 x 12*1

Fiber washer (for M5)*1

⚠ **CAUTION**   The rack-mounting screws supplied with the optional MB-15B-BK hardware set can be used for the TOA equipment rack only.
Do not use them for other racks.

### 8.1.2. When mounting 2 units

Use the optional MB-15B-J hardware set.
**Note**
When installing two units in a rack, insert them slowly paying special attention not to let the screw tips protruded from the units' bottom scratch the top surface of the device installed under the unit.



Tapping screw 3 x 14*2

*2 Component parts of MB-15B-J

CX-CC1016

CX-CC1016

Fiber washer (for M5)*2

Rack mounting screw 5 x 12*2

Tapping screw 3 x 14*2

Linkage bracket*2

Machine screw M3 x 12*2

Rack mounting bracket*2
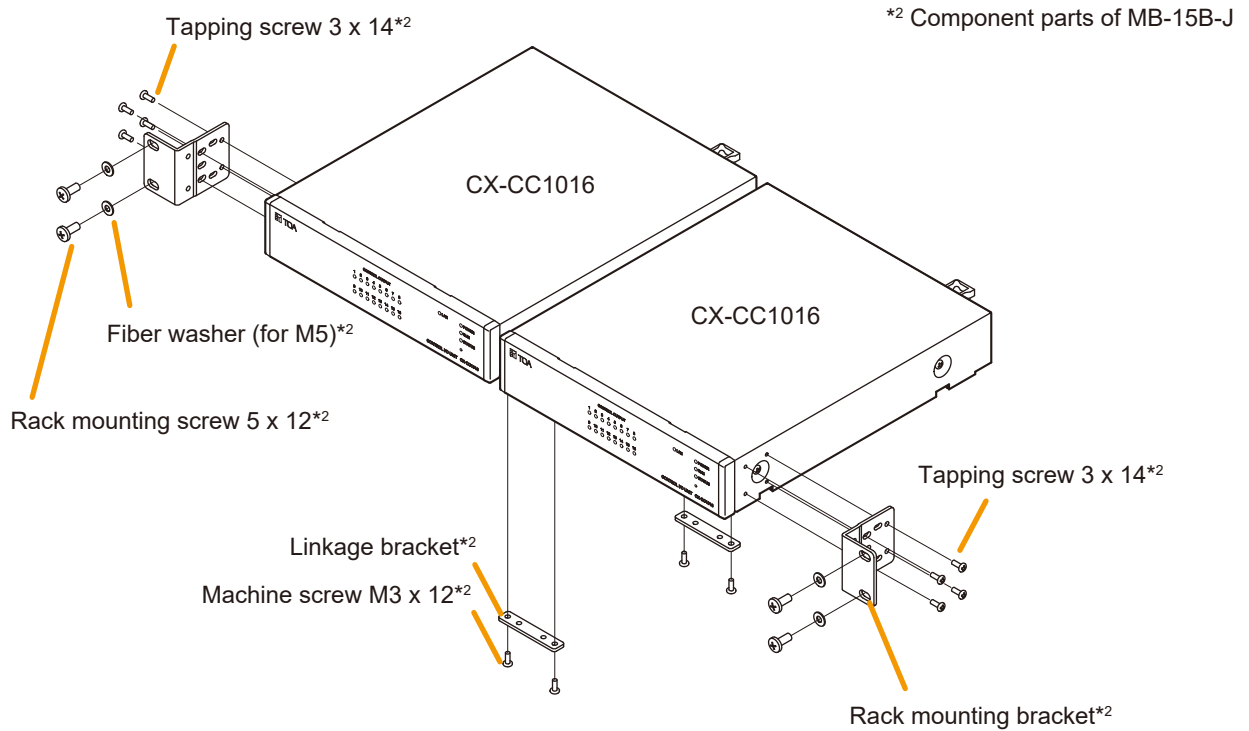
## 8.2. Desk-top Installation

When installing the CX-CC1016 on a desk, secure the supplied plastic feet to the unit's bottom.



Machine screw M3 x 8
(supplied with the CX-CC1016)

Plastic foot
(supplied with the CX-CC1016)

CX-CC1016

3-27
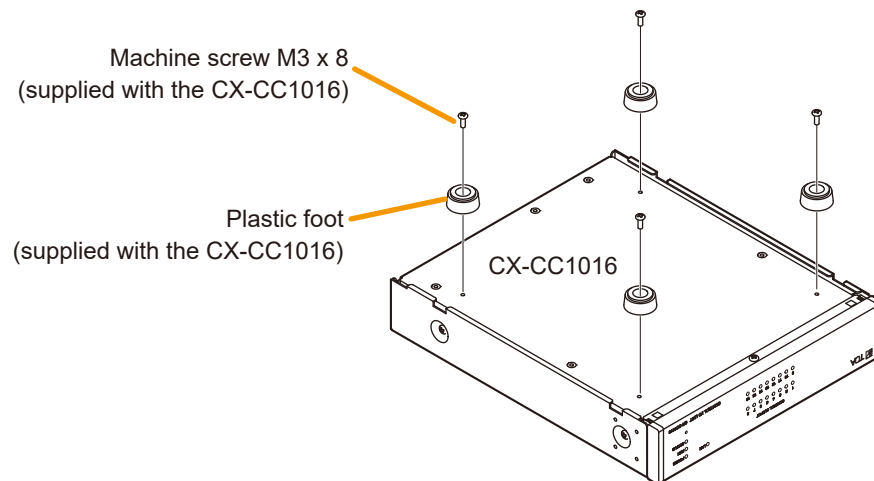
## 8.3. Wall Mounting

**Step 1.** Install the optional YC-850 Wall mounting bracket to the CX-CC1016.

YC-850 Wall mounting bracket

Machine screw M3 x 6
(supplied with the YC-850)
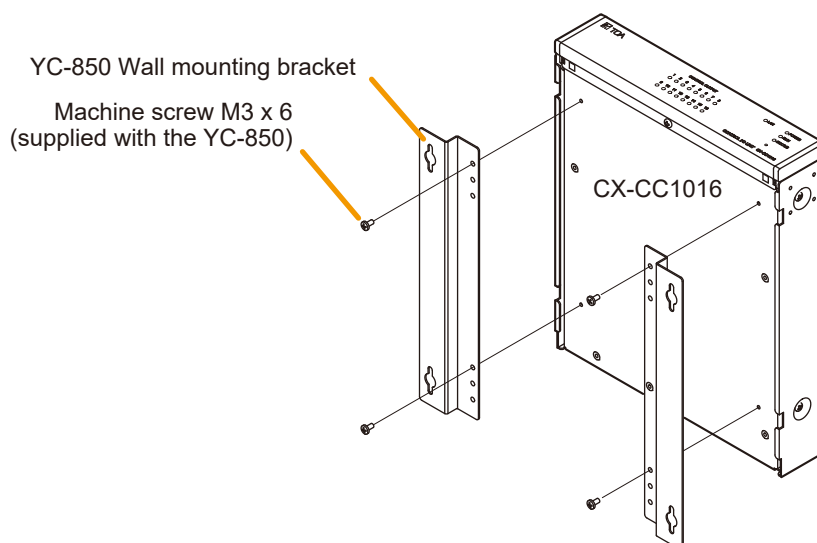
CX-CC1016

**Step 2.** Mount the CX-CC1016 on the wall.
Install with the front panel side facing up.

⚠ **WARNING** Failure to observe the following instructions could cause the unit to fall, resulting in injury.
• Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket.
• Use appropriate screws for the construction of wall.
Wood screws 3.5 x 20 are supplied with the YC-850.
Separately prepare the appropriate screws, If necessary.

Wall surface

Wood screw 3.5 x 20
(supplied with the YC-850)
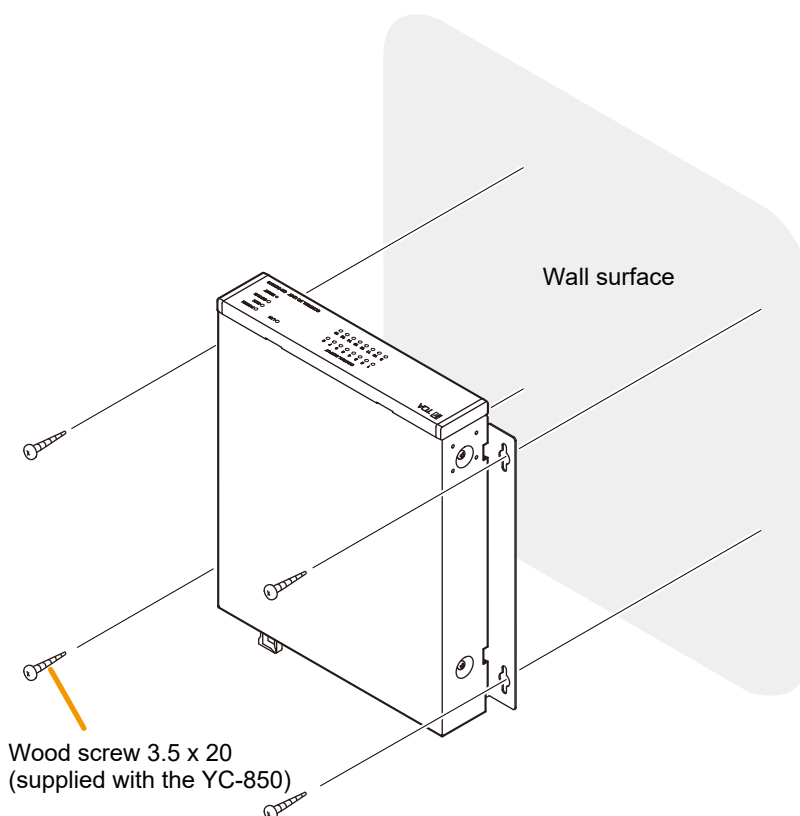
# 9. CONNECTIONS

## 9.1. Removable Terminal Plug Connection
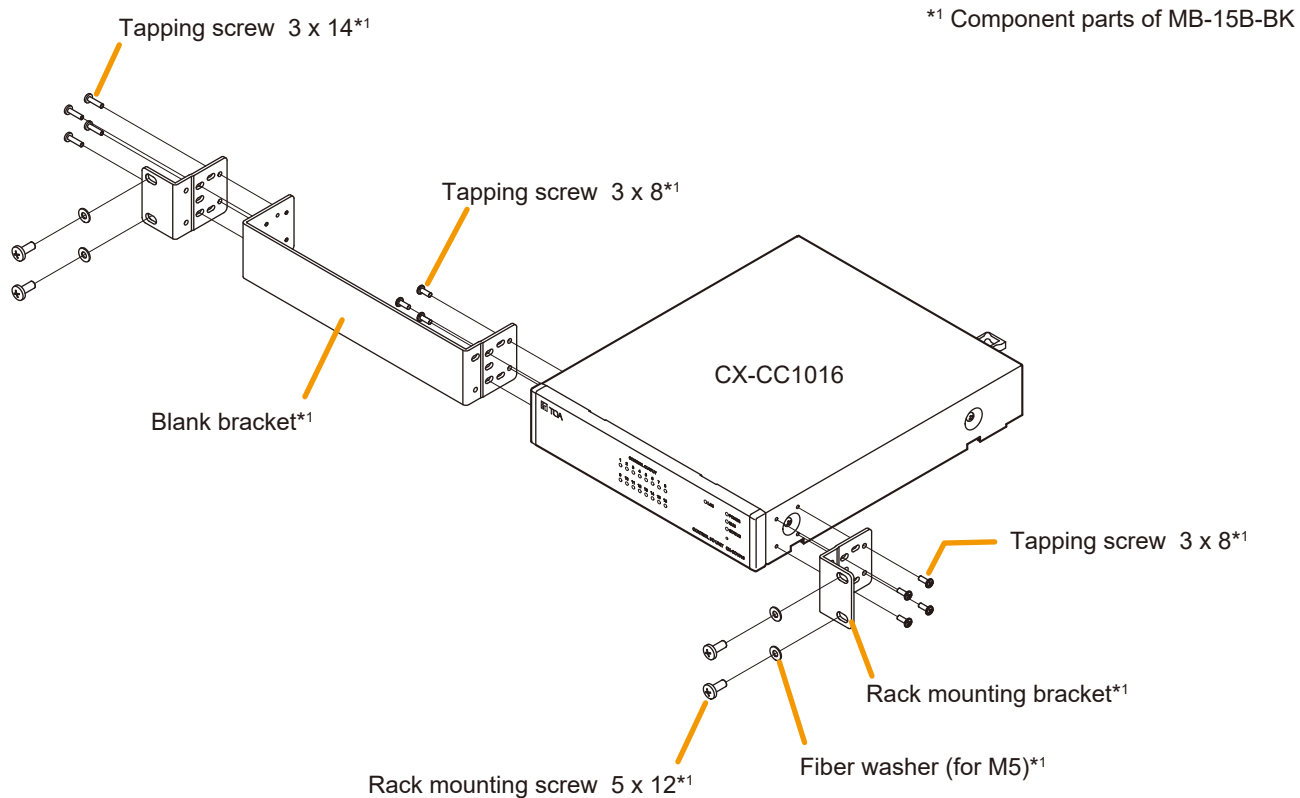
### 9.1.1. Wire selection and preparation

• Outdoor wires should be used where wiring passes through inaccessible areas such as ceilings or under floors where the maintenance is not performed. Indoor wires may also be used, however, in case where there is no risk of deterioration due to exposure to heat, etc.

• Applicable cable size

| Terminal | For DC power input terminal, Speaker output terminal, and ATT/Control output terminal | For other terminals |
|---|---|---|
| Conductor diameter | ø0.6 − 1.6 mm | ø0.6 − 1.2 mm |
| AWG | AWG 24 − 14 or equivalent | AWG 24 − 16 or equivalent |

• Cable sheath to strip
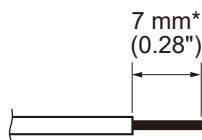
[Solid cable and stranded cable]  [Shielded cable]
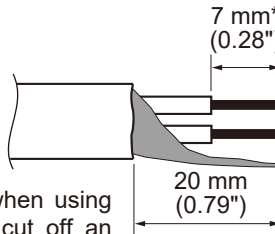


\* Expose 8 mm (0.31") or more when using the above ferrule terminal, and cut off an extra conductor protruding from the sleeve.

**Note**
Avoid soldering the stripped sheathing of the 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.

• For stranded cable, crimp the tip of the cable with a ferrule terminal.
• 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 (0.08") | 0.8 mm (0.03") | 12.5 mm (0.49") | 8 mm (0.31") |
| (2) | AI 0,5-8 WH | 2.5 mm (0.1") | 1.1 mm (0.04") | 14 mm (0.55") | 8 mm (0.31") |

Recommended ferrule terminals for power 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 (0.13") | – | – | 1.8 mm (0.07") | 14 mm (0.55") | 8 mm (0.31") |
| (4) | AI TWIN 2X 1,5 - 8 BK | – | 6.6 mm (0.26") | 3.6 mm (0.14") | 2.3 mm (0.09") | 16 mm (0.63") | 8 mm (0.31") |
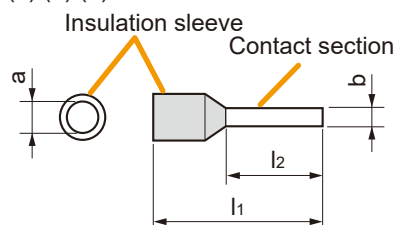
(1) (2) (3)  (4)
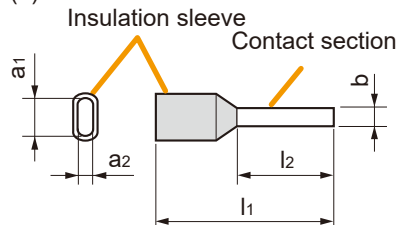
### 9.1.2. Connector connection

**Step 1.** Connect the cable to the removable terminal plug.

    **1-1.** Loosen the terminal screw and insert the cable lead.

    **1-2.** 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 2.** Insert the terminal plug into the corresponding terminal block on the unit's rear panel.

**Step 3.** For the removable terminal plug with the fixing screws, tighten the fixing screws.

**Notes**
* Do not reverse Steps 1 and 2 above. Force is applied to the connected receptacle pins while tightening the terminal screw and they may be damaged, resulting in bad connector contact.
* When detaching the terminal plug, pull it straight out. Pulling it out at an angle may cause the terminal plug or terminal block to break.

\* For DC power input terminal, Speaker output terminal, and ATT/Control output terminal: About 3.5 mm (0.14")
  For other terminals: About 2.5 mm (0.1")

[Recommended type of screwdriver ]

Blade width\*

Slotted screwdriver

Tightens  Loosens

Terminal screw

**2**

Removable terminal plug (accessory)

**3**

Fixing screw

**1**
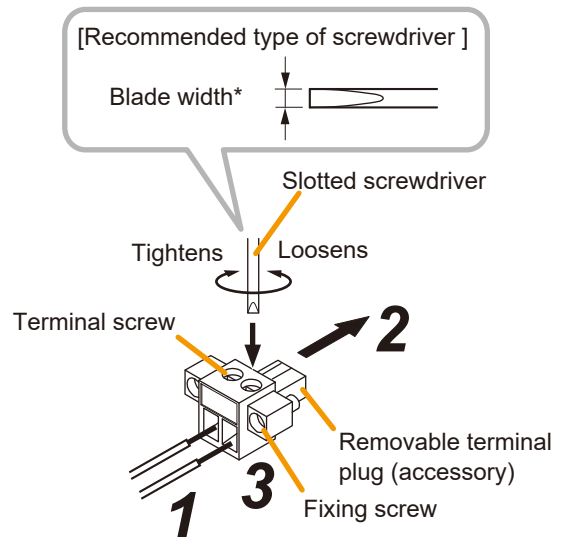
## 9.2.  Push-in Terminal Block Connection

### 9.2.1.  Wire selection and preparation

• Outdoor wires should be used where wiring passes through inaccessible areas such as ceilings or under floors where the maintenance is not performed. Indoor wires may also be used, however, in case where there is no risk of deterioration due to exposure to heat, etc.

• Applicable cable size
   For solid wire:          Diameter of core wire (copper wire): ø0.4 – 1.1 mm (AWG 26 – 17)
   For stranded cable: Note the applicable wire gauge of the ferrule terminal being used.

• Cable sheath to strip
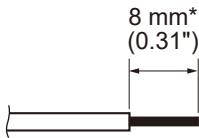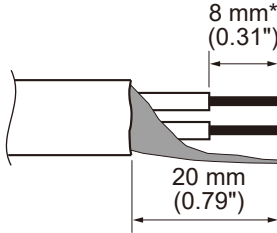
[Solid cable and stranded cable]

8 mm*
(0.31")

[Shielded cable]

8 mm*
(0.31")

20 mm
(0.79")

**Note**
Avoid soldering the stripped sheathing of the 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.

**Tip**
Use the strip gauge in the bottom or rear surface of each station.

• For stranded cable, crimp the tip of the cable with a ferrule terminal.
   [Recommended ferrule terminals]

| Manufacturer | Model Number | Specification | Wire guage |
|---|---|---|---|
| Weidmuller | H0,75/14T HBL | 8 mm (0.31")  14 mm (0.55") | AWG 18 |
| Phoenix Contact | AI 0.75-8 BU - 320027 | | |

### 9.2.2.  Connection

**Step:** While pressing the lock switch on the upper side of the push-in terminal block, insert the cable fully into the hole of the terminal block to the root of the bare wire. Then, release the lock switch keeping the cable inserted.
**Note**
Do not press the lock switch by excessive force.
**Tip**
To remove the cable, pull it out holding down the lock switch.

Lock switch
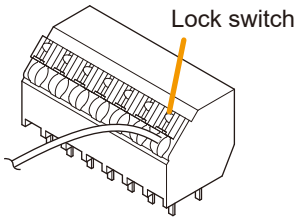
## 9.3. CX-SM1000 Connection



**(1) DC power input terminal connection**
If using a 24 V DC power supply, connect it to this terminal.
(See p. 3-29 regarding how to connect the removable terminal plug.)
**Notes**
• The DC power supply must have a capacity of over 400 mA.
• The range of input voltage to be fed to the DC power input terminal should be between 21.6 V and 26.4 V DC. If the input voltage is out of this range, the unit may malfunction or fail.
• If there is a danger of lightning strikes, insert an appropriate power gap arrester into the power line.
**Tip**
If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-SM1000 from the terminal having the higher voltage.

**(2) AC adapter connection terminal connection**
When using an AC adapter, use the optional AD-246 or the equivalent. As for the usable adapter, consult your TOA dealer.
Route the adapter's cable through the cord clamp and secure in place.
**Tip**
If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-SM1000 from the terminal having the higher voltage.

**(3) Control output terminal 2 connection**
Connect the controlled external devices to this terminal.
[Specifications]
Open collector output (polarized)
Withstand voltage:   30 V DC
Allowable current:  100 mA

**(4) Control output terminal 1 connection**
Connect the controlled external devices to this terminal.
[Specifications]
Relay contact outputs (Form C contacts)
Withstand voltage: 30 V DC
Allowable current:  1 A

**(5) Network connection terminal connection**
Connects to a 100BASE-TX-compatible network.
Use a cable of category 5 or more for this connection.
**Note**
When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.
Use of a non-compliant switching hub may cause packet loops.
**Tip**
If redundant configuration is not required, connect only LAN A or LAN B.

## 9.4. CX-OP1700 Connection

CX-OP1700 bottom

CX-OP1700 left side

Wiring hole*1

② To network

① AD-1210P/1215P AC adapter or the equivalent → To AC mains

Strip gauge*2

③ ④ ⑤ Control output signal

Control input signal

To external speaker

⑥ To headset microphone

⑦ To headset speaker

---

*1 Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1700. (See p. 3-7 and p. 3-12.)

*2 It may be convenient to measure the length of the stripped sheathing of speaker and control wires using a strip gauge.

### (1) AC adapter connection terminal connection

Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

### (2) Network connection terminal connection

Connects to a 100BASE-TX-compatible network.
Only LAN A supports an IEEE802.3af compliant PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.
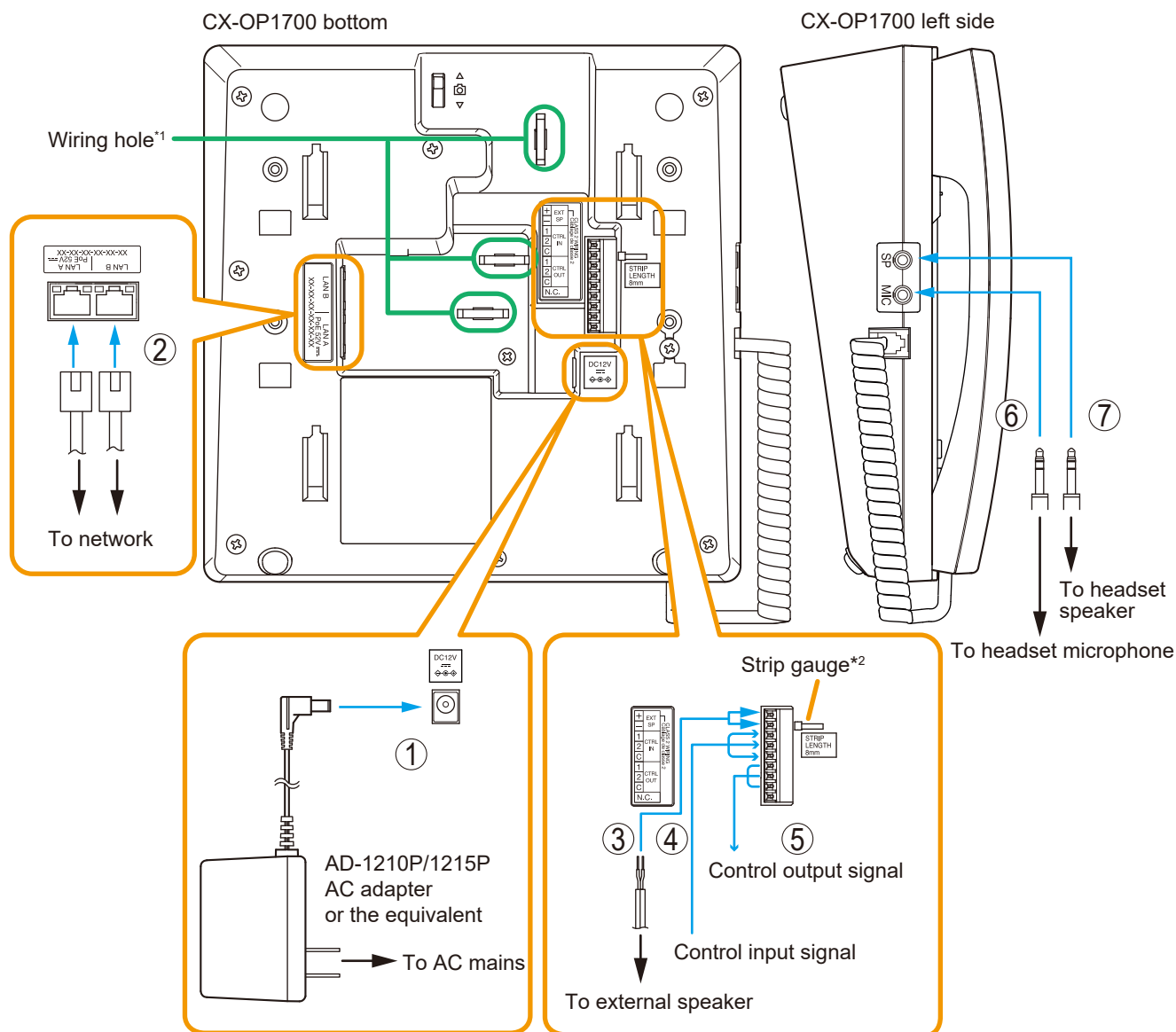Use a cable of category 5 or more for this connection.
**Note**
When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.
Use of a non-compliant switching hub may cause packet loops.
**Tip**
If redundant configuration is not required, connect only LAN A or LAN B.

**(3) External speaker output terminal connection**

An external speaker (8 Ω, 2 W or more) can be connected to this terminal. (For the cable connection to the push-in terminal block, see .)

In order to use external speakers, presets will need to be performed using the CX-1000 Setting software. For the setting procedure using the CX-1000 Setting software, see the separate Setting software instructions, "Audio Output Settings."

**(4) Control input terminal connection**

Can be connected to external devices, such as switches and sensors.

(For the cable connection to the push-in terminal block, see .)

[Specifications]

No-voltage make contact input

Open voltage:                12 V DC

Short-circuit current:  5 mA

**(5) Control output terminal connection**

Can be connected to external devices, such as indicators.

(For the cable connection to the push-in terminal block, see .)

[Specifications]

Open collector output (polarized)

Withstand voltage: 30 V DC

Allowable current:  100 mA

**(6) Headset microphone terminal connection**
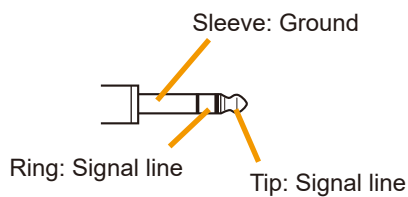
ø3.5 mm mini-jack

Connect a headset microphone.



Sleeve: Ground

Ring: Signal line

Tip: Signal line

**(7) Headset speaker terminal connection**

ø3.5 mm mini-jack

Connect a headset speaker.



Sleeve: Ground

Ring: Signal line

Tip: Signal line

## 9.5.  CX-CL1750/CL1550 Connection

CX-CL1750/CL1550 rear

Be sure to ground.

Strip gauge*

AD-1210P/1215P
AC adapter
or the equivalent

① AC adapter

⑥

To network

To AC mains

AC adapter retaining socket
(side view)

Insert the AC adapter
plug into this socket.

② Control output
signal

③

④ Control input
signal

⑤

To external speaker

AC adapter retaining socket
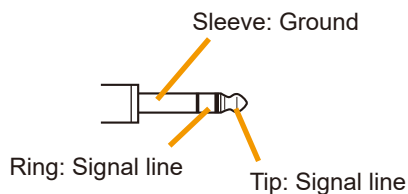
CX-CL1750/CL1550 bottom
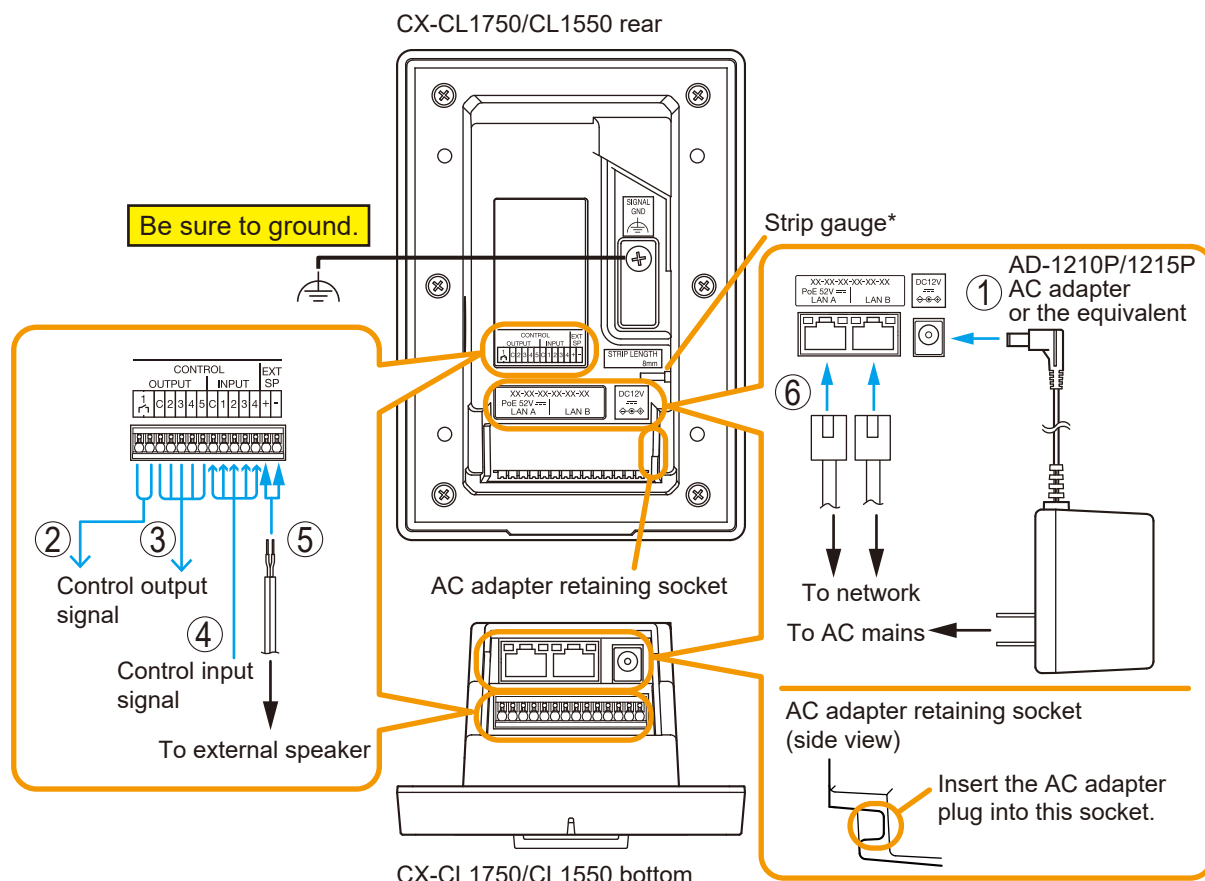
*  It may be convenient to measure the length of the stripped sheathing of speaker and control wires using a strip gauge.

### (1) AC adapter connection terminal connection
Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.
To prevent the AC adapter plug from being disconnected, secure it by inserting it into the side retaining socket.

### (2) Control output terminal (1) connection
Can be connected to external devices, such as electric locks.
(For the cable connection to the push-in terminal block, see .)
[Specifications]
Relay contact output
Withstand voltage: 30 V DC
Allowable current:  1 A

### (3) Control output terminal (2 – 5) connection
Can be connected to external devices, such as indicators.
(For the cable connection to the push-in terminal block, see .)
[Specifications]
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA

**(4) Control input terminal connection**

Can be connected to external devices, such as switches and sensors.

(For the cable connection to the push-in terminal block, see p. 3-31.)

[Specifications]

No-voltage make contact input

Open voltage:          12 V DC

Short-circuit current: 5 mA

**(5) External speaker output terminal connection**

An external speaker (8 Ω, 2 W or more) can be connected to this terminal.

(For the cable connection to the push-in terminal block, see p. 3-31.)

In order to use external speakers, presets will need to be performed using the CX-1000 Setting software.

For the setting procedure using the CX-1000 Setting software, see the separate Setting software instructions, "Audio Output Settings."

**(6) Network connection terminal connection**

Connects to a 100BASE-TX-compatible network.

Only LAN A supports an IEEE802.3af compliant PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.

Use a cable of category 5 or more for this connection.

**Notes**

• When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.

  Use of a non-compliant switching hub may cause packet loops.

• Depending on the shape of the LAN cable's latch breakage prevention cover, it may not be possible to properly insert the cable into the LAN connector, or remove it.

  Make sure that the LAN cable can be properly connected and disconnected before use.

**Tip**

If redundant configuration is not required, connect only LAN A or LAN B.

## 9.6. CX-OP1500 Connection
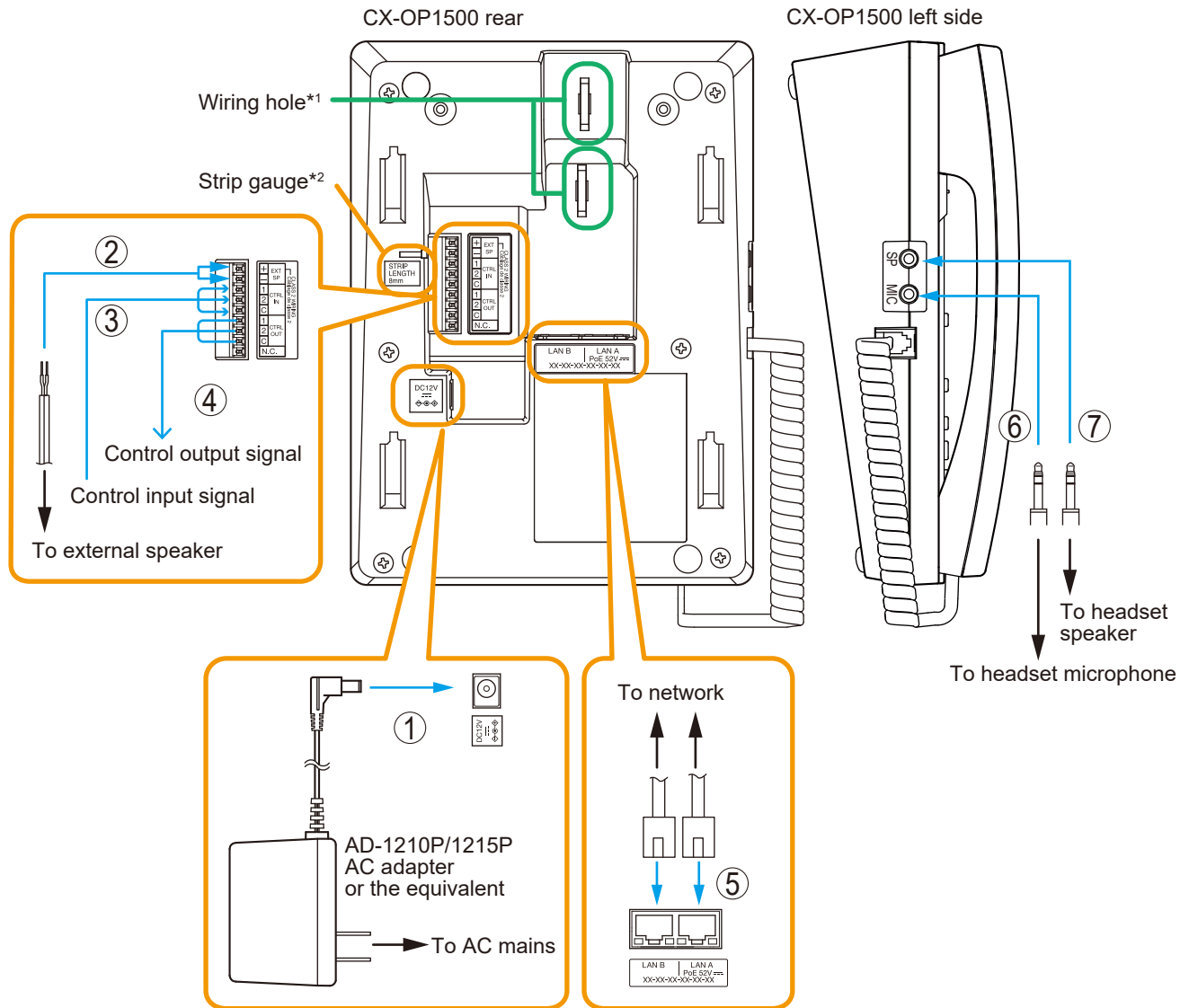
CX-OP1500 rear                    CX-OP1500 left side

Wiring hole*1

Strip gauge*2

② ③ ④

Control output signal

Control input signal

To external speaker

⑥ ⑦

To headset speaker

To headset microphone

① AD-1210P/1215P AC adapter or the equivalent

To AC mains

To network

⑤

LAN B LAN A PoE 52V
XX-XX-XX-XX-XX-XX

*1  Bundle the cables and secure them to the fixing holes for wiring with the zip ties supplied with the CX-OP1500. See p. 3-16 and p. 3-19.

*2  It may be convenient to measure the length of the stripped sheathing of speaker and control wires using a strip gauge.

### (1) AC adapter connection terminal connection
Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

### (2) External speaker output terminal connection
An external speaker (8 Ω, 2 W or more) can be connected to this terminal. For the cable connection to the push-in terminal block, see p. 3-31.
In order to use external speakers, presets will need to be performed using the CX-1000 Setting software.
For the setting procedure using the CX-1000 Setting software, see the separate Setting software instructions, "Audio Output Settings."

### (3) Control input terminal connection
Can be connected to external devices, such as switches and sensors.
(For the cable connection to the push-in terminal block, see p. 3-31.)
[Specifications]
No-voltage make contact input
Open voltage:          12 V DC
Short-circuit current:  5 mA

**(4) Control output terminal connection**

Can be connected to external devices, such as indicators.

(For the cable connection to the push-in terminal block, see )

[Specifications]

Open collector output

Withstand voltage: 30 V DC (polarized)

Allowable current:  100 mA

**(5) Network connection terminal connection**

Connects to a 100BASE-TX-compatible network.

Only LAN A supports an IEEE802.3af compliant PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.

Use a cable of category 5 or more for this connection.

**Note**

When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.

Use of a non-compliant switching hub may cause packet loops.

**Tip**

If redundant configuration is not required, connect only LAN A or LAN B.

**(6) Headset microphone terminal connection**
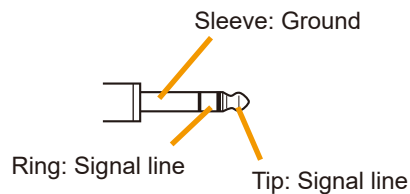
ø3.5 mm mini-jack

Connect a headset microphone.

Sleeve: Ground

Ring: Signal line

Tip: Signal line

**(7) Headset speaker terminal connection**

ø3.5 mm mini-jack

Connect a headset speaker.

Sleeve: Ground

Ring: Signal line

Tip: Signal line

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## 9.7. CX-RM1700 Connection



CX-RM1700 bottom

Wiring hole*1

Strip gauge*2

Control output signal

Control input signal

To playing equipment, etc.*3

To network

⑤

①

AD-1210P/1215P
AC adapter
or the equivalent

To AC mains

*1    Bundle the cables and secure them to the fixing holes for wiring with the zip tie supplied with the CX-RM1700.

After finishing the cable connections to all the terminals, bundle the cables with the zip tie supplied with the CX-RM1700.

Zip tie is more easily inserted at an angle, as shown in the figure below:

Zip tie

CX-RM1700 bottom
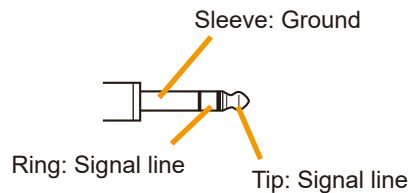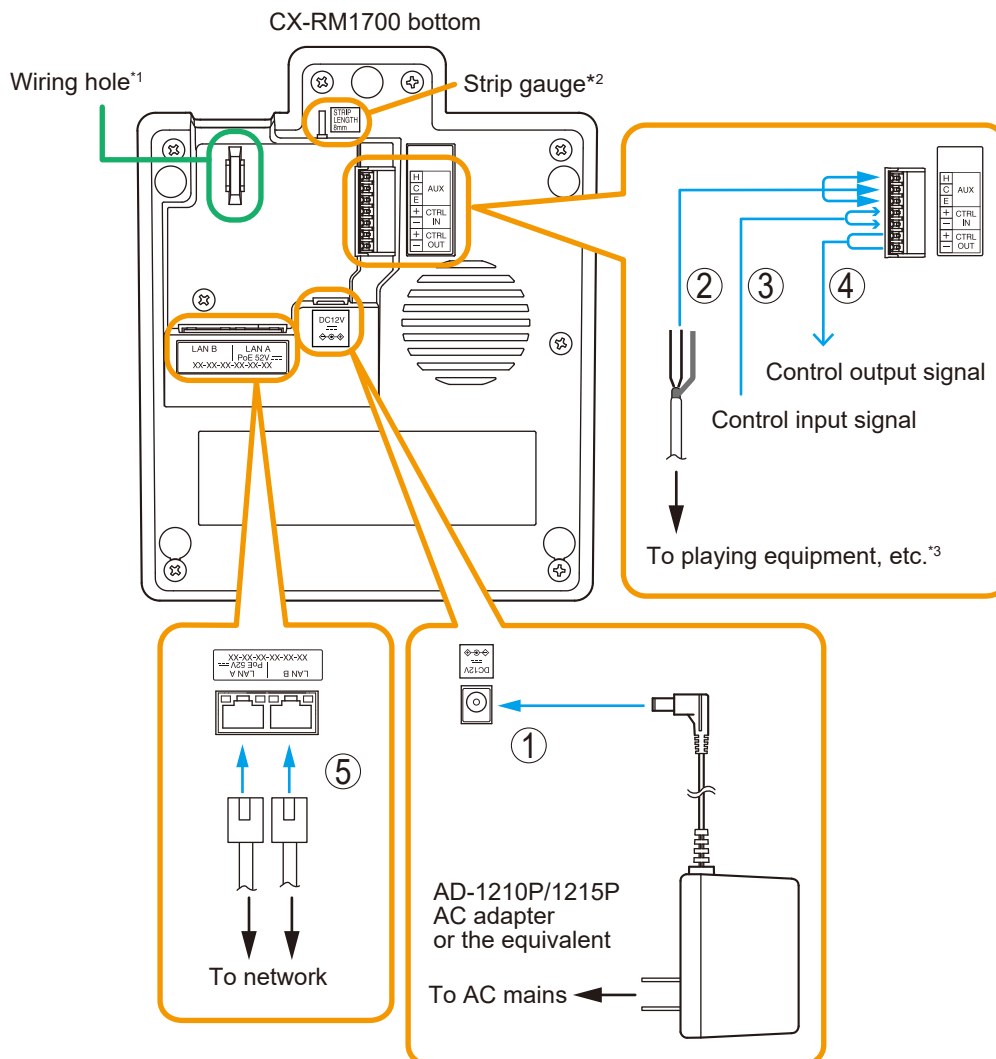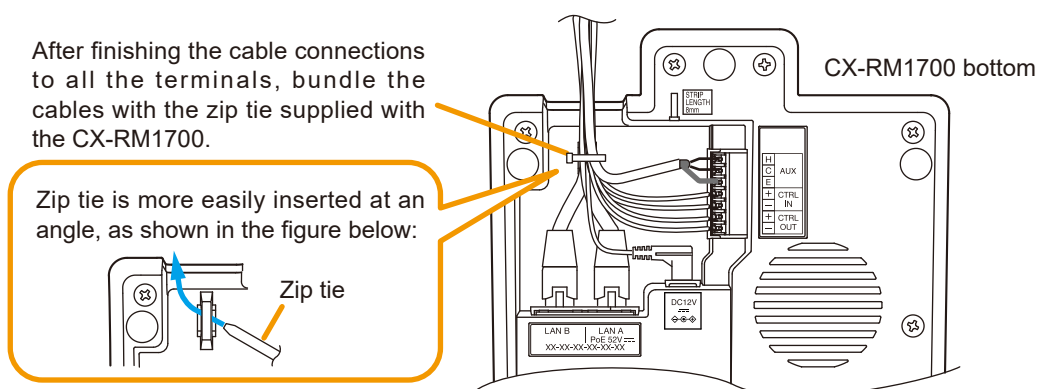
*2    It may be convenient to measure the length of the stripped sheathing of audio and control wires using a strip gauge.

*3    When the connected unit has an unbalanced input, make the connections as follows:
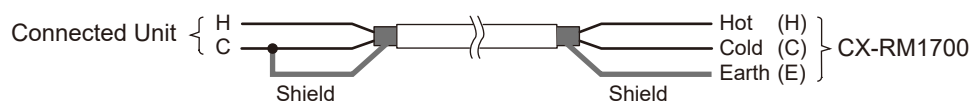
Connected Unit    H — Hot (H)
                  C — Cold (C)    CX-RM1700
                      Earth (E)

Shield            Shield

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**(1) AC adapter connection terminal connection**
Connect an optional AD-1210P/1215P AC adapter or the equivalent to this terminal.
As for the usable adapter, consult your TOA dealer.

**(2) AUX input terminal connection**
Can be connected to external devices, such as microphone and playing equipment.
(For the cable connection to the push-in terminal block, see .)
When set to Line level input:          −20 dB[4]
When set to Microphone level input: −60 dB[4]
600 Ω, transformer-balanced

[4] 0 dB = 1 V

**(3) Control input terminal connection**
Can be connected to external devices, such as switches and sensors.
(For the cable connection to the push-in terminal block, see .)
[Specifications]
No-voltage make contact input
Open voltage:          12 V DC
Short-circuit current: 5 mA

**(4) Control output terminal connection**
Can be connected to external devices, such as indicators.
(For the cable connection to the push-in terminal block, see )
[Specifications]
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA

**(5) Network connection terminal connection**
Connects to a 100BASE-TX-compatible network.
Only LAN A supports an IEEE802.3af compliant PoE (Power over Ethernet) power supply. Connecting LAN A to a PoE-compatible switching hub enables operation without an AC adapter.
Use a cable of category 5 or more for this connection.
**Note**
When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.
Use of a non-compliant switching hub may cause packet loops.
**Tip**
If redundant configuration is not required, connect only LAN A or LAN B.

## 9.8. CX-AF1062 Connection



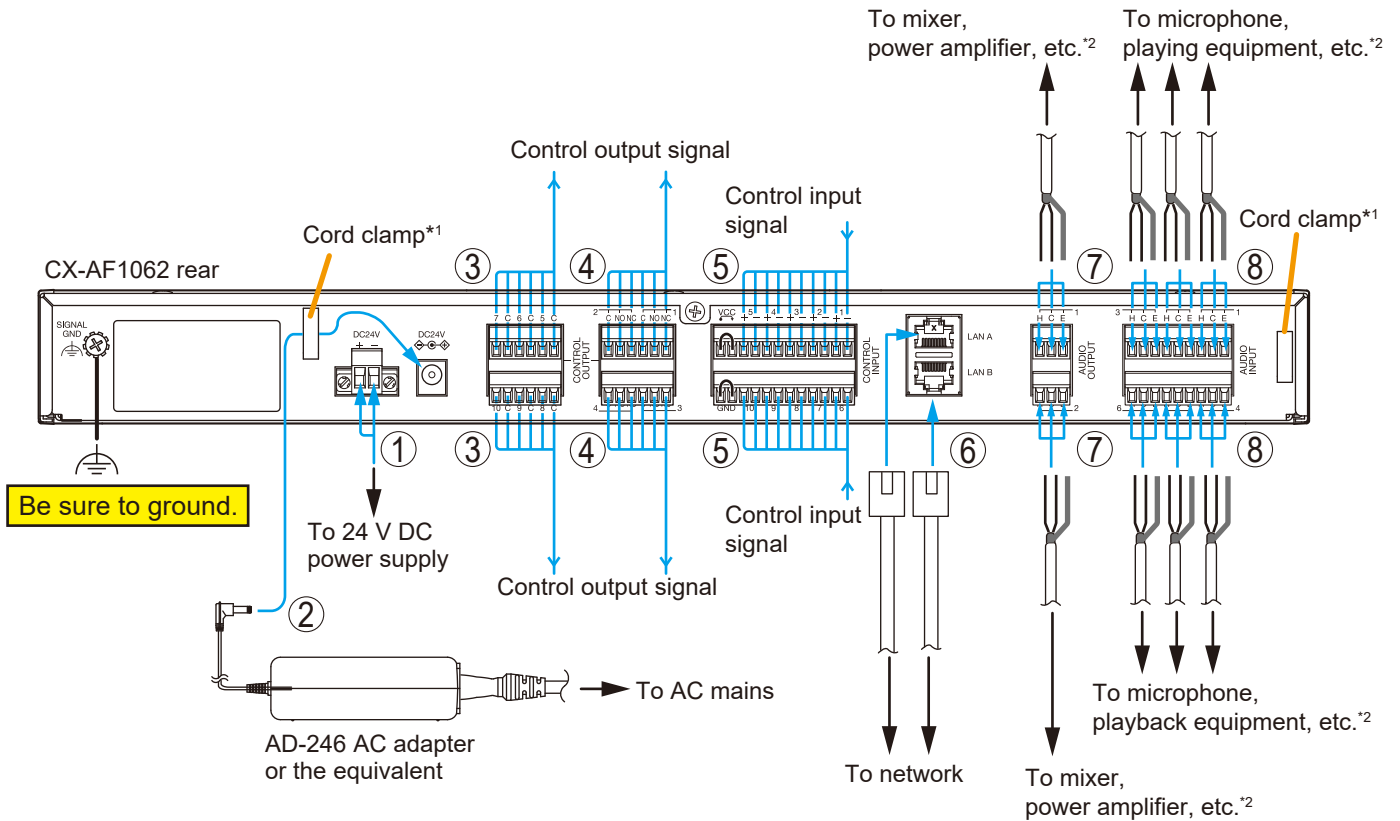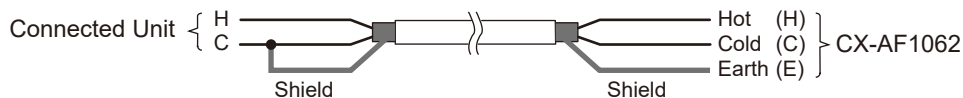*1  Used to secure cables and wiring.
*2  When the connected unit has an unbalanced input, make the connections as follows:



### (1) DC power input terminal connection

If using a 24 V DC power supply, connect it to this terminal.
(See p. 3-29 regarding how to connect the removable terminal plug.)

**Notes**
- The DC power supply must have a capacity of over 400 mA.
- The range of input voltage to be fed to the DC power input terminal should be between 21.6 V and 26.4 V DC. If the input voltage is out of this range, the unit may malfunction or fail.
- If there is a danger of lightning strikes, insert an appropriate power gap arrester into the power line.

**Tip**
If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-AF1062 from the terminal having the higher voltage.

### (2) AC adapter connection terminal connection

When using an AC adapter, use the optional AD-246 or the equivalent. As for the usable adapter, consult your TOA dealer.
Route cables through the cord clamp and secure in place.

**Tip**
If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-AF1062 from the terminal having the higher voltage.

### (3) Control output terminal (5 – 10) connection

Can be connected to external devices, such as indicators.
(See p. 3-29 regarding how to connect the removable terminal plug.)
[Specifications]
Open collector output (polarized)
Withstand voltage: 30 V DC
Allowable current:  100 mA

**(4) Control output terminal (1 – 4) connection**
Relay contact outputs (Form C contacts)
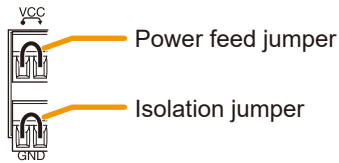Withstand voltage: 30 V DC
Allowable current:  1 A

**(5) Control input terminal connection**
Can be connected to external devices, such as switches and sensors.
(See p. 3-29 regarding how to connect the removable terminal plug.)
A power feed jumper and an isolation jumper are installed on the removable terminal plug by default.


Power feed jumper
Isolation jumper

With the power feed jumper installed, power is supplied from the unit's inside to the circuit of the Control input terminal 1 through 10. Detaching this jumper disconnects the internal power supply, necessitating an external power supply instead.
With the isolation jumper installed, "–" (negative) terminals of the Control input terminal 1 through 10 are connected to the power supply (Ground). Detaching this jumper disconnects the "–" terminals from the unit, isolating the unit.

[Operation of the power feed jumper and the isolation jumper]



[Specifications]
No-voltage make contact input
Open voltage:          24 V DC
Short-circuit current:  5 mA

**(6) Network connection terminal connection**
Connects to a 100BASE-TX-compatible network.
Use a cable of category 5 or more for this connection.
**Note**
When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.
Use of a non-compliant switching hub may cause packet loops.
**Tip**
If redundant configuration is not required, connect only LAN A or LAN B.

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**(7) Audio output terminal connection**

Connect to a mixer, power amplifier or the like using a 2-core shielded wire.

Audio outputs 1 and 2 can be individually adjusted for volume using the audio output volume controls found inside the front panel volume control cover.

[Specifications]

Max. 0 dB*[3], 10 kΩ, balanced

A line-level audio signal is output.

  H: Hot

  C: Cold

  E: Earth (shield)

**(8) Audio input terminal connection**

Playback equipment can be connected for broadcasting.

Input signal levels for Audio inputs 1 – 3 can be switched using the front panel Input level setting switch. Additionally, Audio inputs 1– 6 can be individually adjusted for volume using the audio input volume controls found inside the front panel volume control cover.

[Specifications]

Audio input 1 – 3: –60/0 dB*[3] changeable, 600 Ω, transformer-balanced

Audio input 4 – 6: 0 dB*[3], 10 kΩ, electronically-balanced
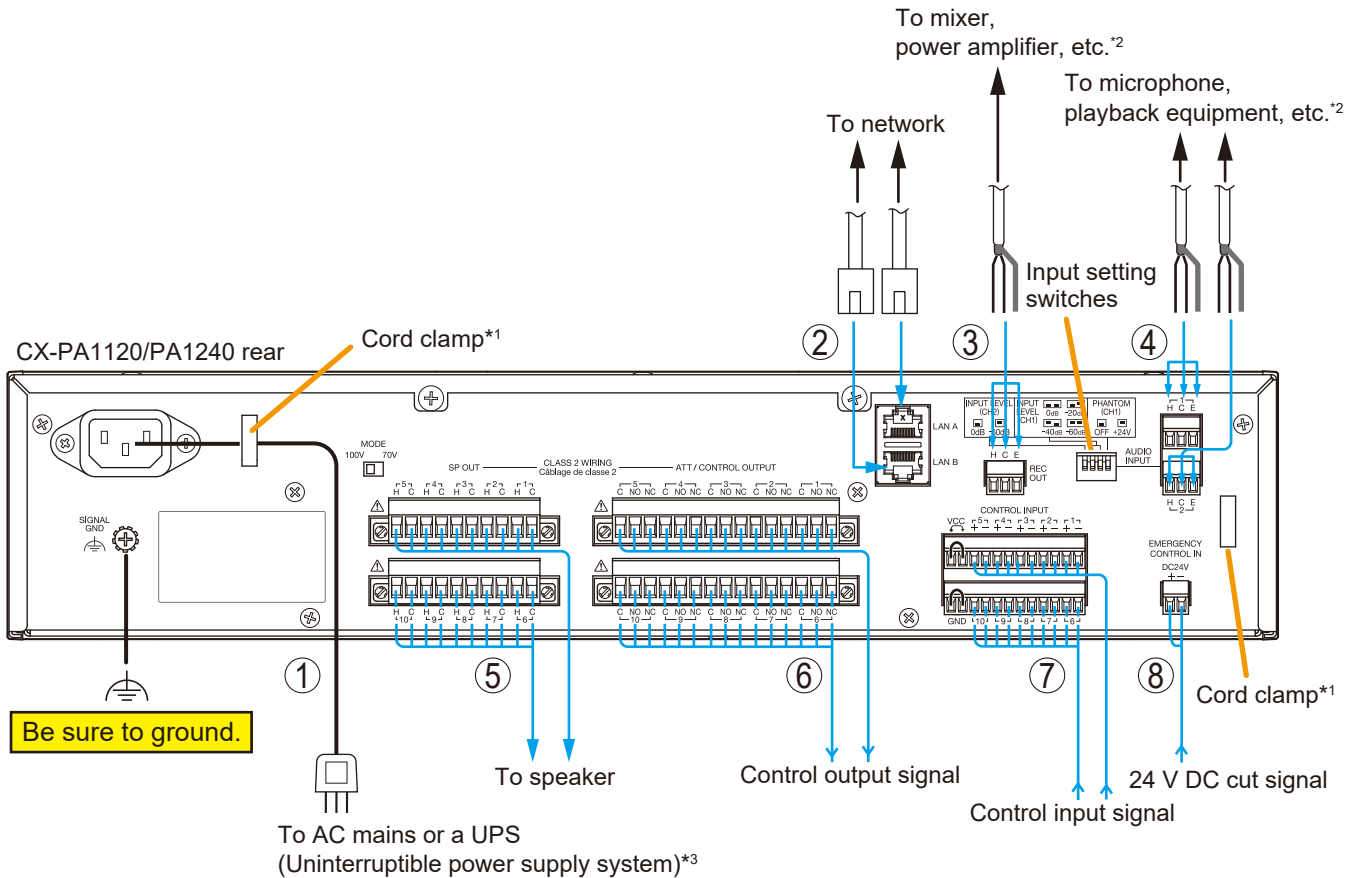
  H: Hot

  C: Cold

  E: Earth (shield)

**Note**

Inserting the phone plug into the front-mounted Input 1 jack disconnects the input of the rear-mounted Audio input terminal 1.

*[3] 0 dB = 1 V

## 9.9. CX-PA1120/PA1240 Connection



*1 Used to secure cables and wiring.
*2 When the connected unit has an unbalanced input and output, make the connections as follows:
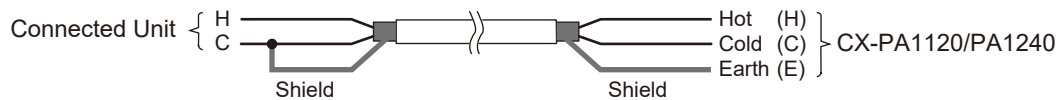


*3 Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.
(Reference)
CX-PA1120 Power amplifier 120W 10SS: 180 W (rated)
CX-PA1240 Power amplifier 240W 10SS: 330 W (rated)

### (1) Power supply connection
Connect the supplied power supply cord* to AC Mains or a UPS (Uninterruptible power supply feeder).
* Not supplied with the W version of the CX-PA1120 and CX-PA1240.
For usable power cord, contact your nearest TOA dealer.
**Note**
If there is a danger of lightning strikes, insert an appropriate power gap arrester into the power line.

### (2) Network connection terminal connection
Connects to a 100BASE-TX-compatible network.
Use a cable of category 5 or more for this connection.
**Note**
When configuring a redundant LAN using a switching hub and LAN A/B, be sure that the switching hub being used is RSTP-compliant.
Use of a non-compliant switching hub may cause packet loops.
**Tip**
If redundant configuration is not required, connect only LAN A or LAN B.

**(3) Recording output terminal connection**

Connect to a mixer, power amplifier or the like using a 2-core shielded wire.

[Specifications]

0 dB*[4], 10 kΩ, balanced

A line-level audio signal is output.

  H: Hot

  C: Cold

  E: Earth (shield)

**(4) Audio input terminal connection**

Playback equipment can be connected for broadcasting.

Input signal levels for Audio inputs 1 and 2 can be switched using the rear panel Input setting switches. (See .)

Additionally, Audio inputs 1 and 2 can be individually adjusted for volume using the audio input volume controls found inside the front panel volume control cover.

Audio input 1 can be set to provide phantom power. Use Audio input 1 terminal to connect the ANC sensor microphone.

Additionally, the broadcast destination pattern for Audio Input 1 can only be set for the audio output of each individual device.

[Specifications]

Audio input 1: –60/–40/–20/0 dB*[4] changeable, 10 kΩ, electronically-balanced

Audio input 2: –60/0 dB*[4] changeable, 10 kΩ, electronically-balanced

  H: Hot

  C: Cold

  E: Earth (shield)

**Note**

When the Jitter Buffer is set to "Low latency," only the ANC microphone can be used with Audio Input 1, while Audio Input 2 will be disabled.
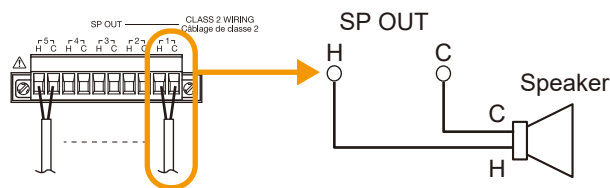
For details, see the separate Setting software instructions, "GENERAL SETTINGS" and "Audio Input Setting."

**(5) Speaker output terminal connection**

Connect speakers to these outputs.

(a) In 2-wire system wiring, connect as shown in the figure below.



*[4] 0 dB = 1 V

(b) In 3-wire system wiring, if an attenuator is provided, use the Attenuator/control output terminal and connect as shown in the figure below.

As for the Attenuator/control output terminal used in this connection, use the CX-1000 Setting software to perform settings that will allow it to be used as an attenuator control output. See the separate Setting software instructions, "Audio Output Settings."
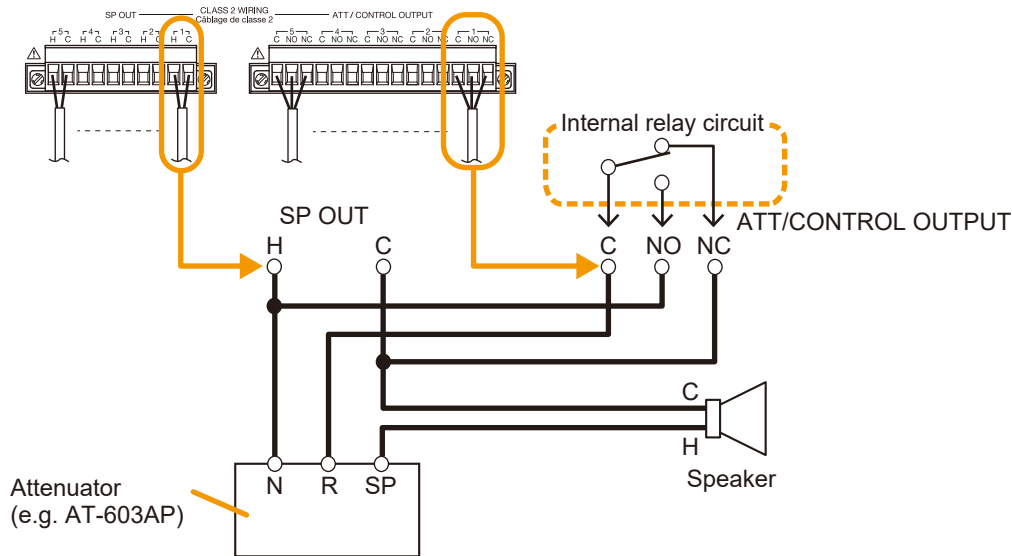


(c) When using a speaker equipped with an attenuator in 3-wire system wiring, also use the Attenuator/control output terminal to connect as shown in the figure below.

As for the Attenuator/control output terminal used in this connection, use the CX-1000 Setting software to perform settings that will allow it to be used as an attenuator control output. See the separate Setting software instructions, "Audio Output Settings."



Speaker equipped with an attenuator
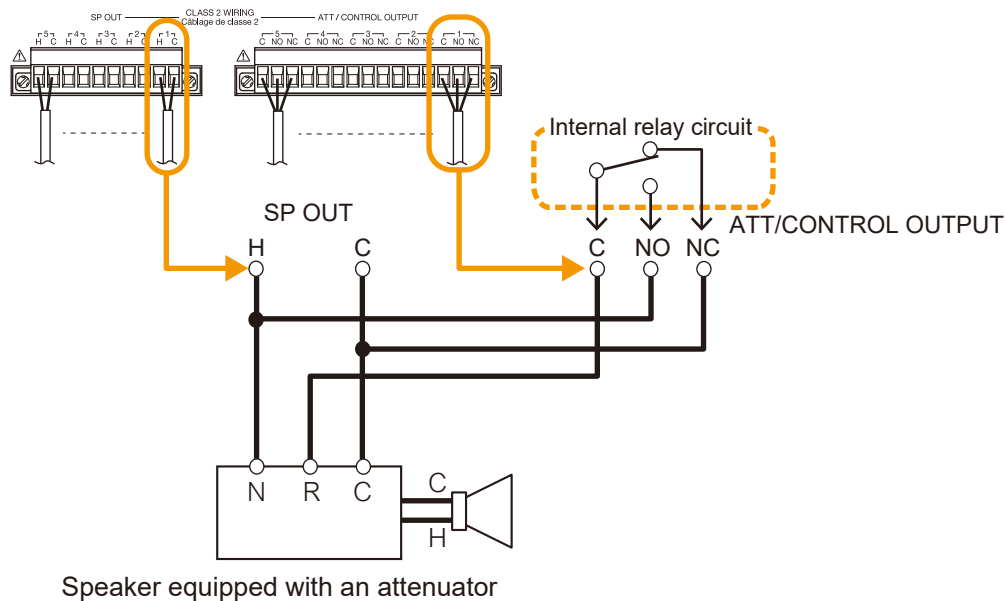
**(6) ATT/Control output terminal connection**

This terminal permits the CX-1000 system to control other connected external equipment.

Alternatively, this terminal becomes an attenuator control output by setting. See (b) and (c) of

[Specifications]

Relay contact outputs (Form C contacts)

Allowable current:  4 A

Withstand voltage: 125 V AC/24 V DC

**(7) Control input terminal connection**

Can be connected to external devices, such as switches and sensors.

A power feed jumper and an isolation jumper are installed on the removable terminal plug by default.



With the power feed jumper installed, power is supplied from the unit's inside to the circuit of the Control input terminal 1 through 10. Detaching this jumper disconnects the internal power supply, necessitating an external power supply instead.

With the isolation jumper installed, "–" (negative) terminals of the Control input terminal 1 through 10 are connected to the power supply (Ground). Detaching this jumper disconnects the "–" terminals from the unit, isolating the unit.

[Operation of the power feed jumper and the isolation jumper]



[Specifications]

No-voltage make contact input

Open voltage:          24 V DC

Short-circuit current:  5 mA

**(8) Emergency control input terminal connection**

Connects to the emergency cutoff 24 V output terminal of the emergency broadcast equipment.

## 9.10. CX-CC1016 Connection



**(1) DC power input terminal connection**

If using a 24 V DC power supply, connect it to this terminal.
(See p. 3-29 regarding how to connect the removable terminal plug.)

**Notes**

- The DC power supply must have a capacity of over 400 mA.
- The range of input voltage to be fed to the DC power input terminal should be between 21.6 V and 26.4 V DC. If the input voltage is out of this range, the unit may malfunction or fail.
- If there is a danger of lightning strikes, insert an appropriate power gap arrester into the power line.

**Tip**

If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-CC1016 from the terminal having the higher voltage.

**(2) AC adapter connection terminal connection**

When using an AC adapter, use the optional AD-246 or the equivalent. As for the usable adapter, consult your TOA dealer.
Route cables through the cord clamp and secure in place.

**Tip**

If power is sent to both the AC adapter connection terminal and DC power input terminal, power is supplied to the CX-CC1016 from the terminal having the higher voltage.

**(3) Control output terminal connection**

Can be connected to external devices, such as indicators.
(See p. 3-29 regarding how to connect the removable terminal plug.)
[Specifications]
Relay contact outputs
Withstand voltage: 30 V DC
Allowable current:  1 A
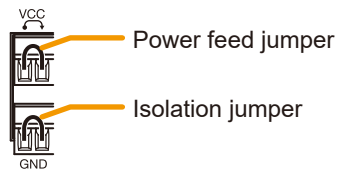
**(4) Control input terminal connection**

Can be connected to external devices, such as switches and sensors.
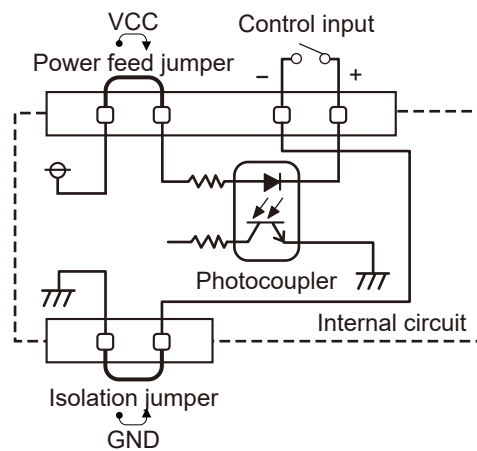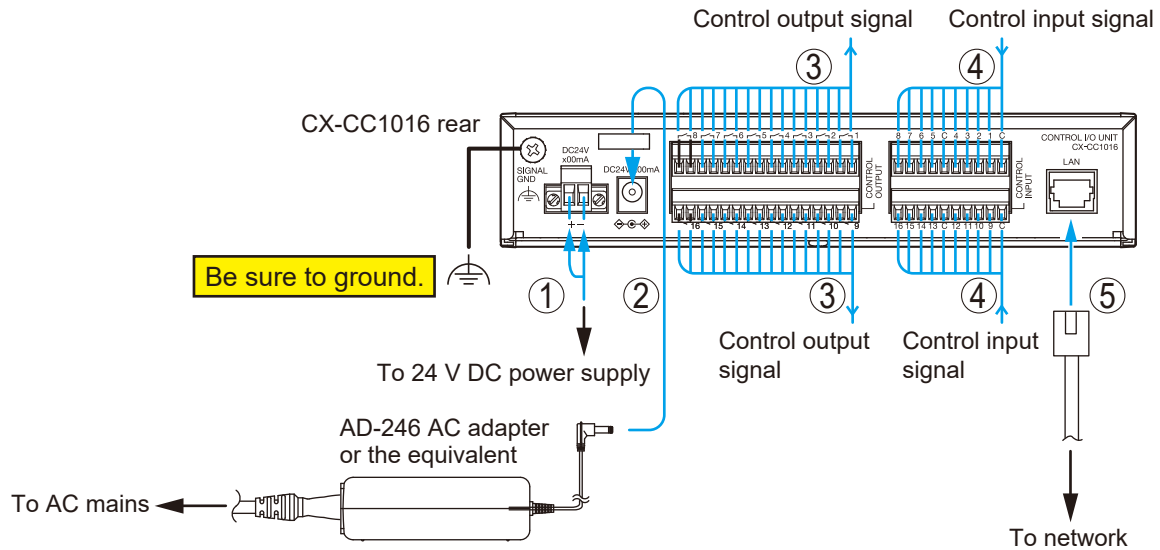(See p. 3-29 regarding how to connect the removable terminal plug.)
[Specifications]
No-voltage make contact input
Open voltage:        24 V DC
Short-circuit current:  5 mA

**(5) Network connection terminal connection**

Connects to a 100BASE-TX-compatible network.
Use a cable of category 5 or more for this connection.

# Chapter 4

## APPENDIX

# 1. ACCESSORIES

| Model Number | Accessory |
|---|---|
| CX-SM1000 | Plastic foot ........................................................ 4 |
| | Machine screw M3 x 8 ....................................... 4 |
| | Removable terminal plug (2 pins) ....................... 1 |
| | Removable terminal plug (5 pins) ....................... 1 |
| CX-OP1700 | Stand ................................................................ 1 |
| | Machine screw M3 x 10 ..................................... 2 |
| | Zip tie ............................................................... 2 |
| CX-CL1750 | Machine screw M4 x 20 (tamper-proof screw) .... 4 |
| | Waterproof washer ............................................ 4 |
| | Protective seal .................................................. 2 |
| CX-OP1500 | Stand ................................................................ 1 |
| | Machine screw M3 x 10 ..................................... 2 |
| | Zip tie ............................................................... 2 |
| CX-CL1550 | Machine screw M4 x 20 (tamper-proof screw) .... 4 |
| | Waterproof washer ............................................ 4 |
| CX-RM1700 | Zip tie ............................................................... 1 |
| CX-AF1062 | Plastic foot ........................................................ 4 |
| | Machine screw M3 x 8 ....................................... 4 |
| | Removable terminal plug (2 pins) ....................... 1 |
| | Removable terminal plug (12 pins) ..................... 2 |
| | Removable terminal plug (9 pins) ....................... 2 |
| | Removable terminal plug (6 pins) ....................... 4 |
| | Removable terminal plug (3 pins) ....................... 2 |
| CX-PA1120, CX-PA1240 | Power cord (2 m or 6.56 ft) ................................ 1<br>**Note**<br>Not supplied with the W version of the CX-PA1120 and CX-PA1240.<br>For usable power cord, contact your nearest TOA dealer. |
| | Plastic foot ........................................................ 4 |
| | Machine screw M3 x 8 ....................................... 4 |
| | Removable terminal plug (15 pins) ..................... 2 |
| | Removable terminal plug (10 pins) ..................... 2 |
| | Removable terminal plug (12 pins) ..................... 2 |
| | Removable terminal plug (3 pins) ....................... 3 |
| | Removable terminal plug (2 pins) ....................... 1 |
| CX-CC1016 | Plastic foot ........................................................ 4 |
| | Machine screw M3 x 8 ....................................... 4 |
| | Removable terminal plug (2 pins) ....................... 1 |
| | Removable terminal plug (16 pins) ..................... 2 |
| | Removable terminal plug (10 pins) ..................... 2 |
| YC-1001 (Wall Mounting Bracket for CX-OP1500/ OP1700) | Tapping screw 3.5 x 25 ...................................... 2 |