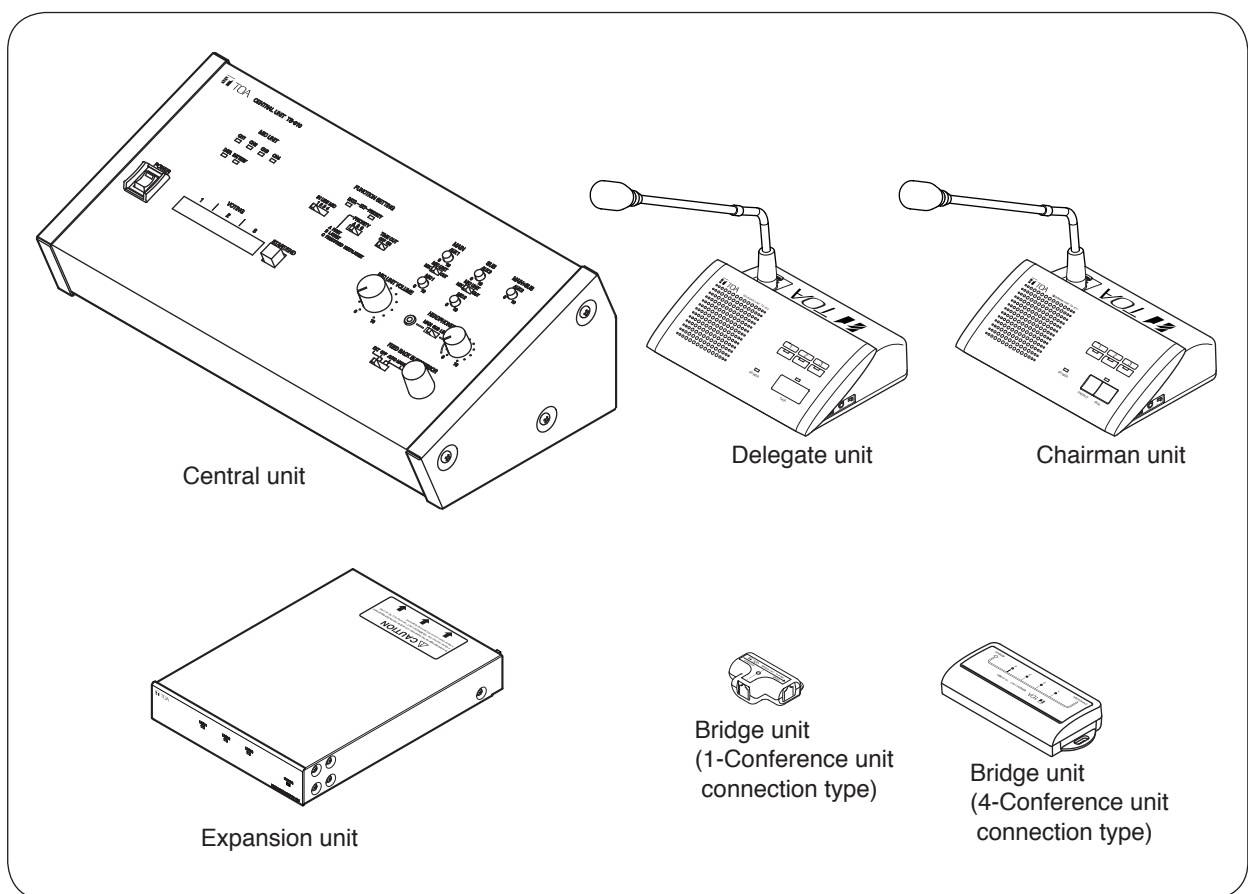


CONFERENCE SYSTEM**TS-910 SERIES**

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

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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 symbols 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.

Applicable to Central unit and Expansion unit

- 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.
- 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.
- Do not touch a plug during thunder and lightning, as this may result in electric shock.

Applicable to Central unit, Conference unit, and Expansion unit

- 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.
- 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.
- Should the following irregularity be found during use, immediately switch off the power, 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
 - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
 - If it is malfunctioning (no tone sounds.)
- 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 your nearest TOA dealer.
- 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.
- Do not insert nor drop metallic objects or flammable materials inside the unit, as this may result in fire or electric shock.

Applicable to Central unit and Conference unit



- To prevent possible hearing damage, do not listen at high volume levels for long periods.



CAUTION

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

- These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

Applicable to Central unit

- 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.
 - To rack-mount the unit, use the supplied rack mounting hardware.
 - When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.

Applicable to Central unit and Expansion unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- 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.
- 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.
- 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.
- Switch off 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.
- Use the dedicated AC adapter for the unit. Note that the use of other adapter may cause a fire.

Applicable to Central unit, Conference unit, and Expansion unit

- 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.
- 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 Central unit and Conference unit

- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.

Applicable to Central unit, Conference unit, and Expansion unit

This is a class A product.

In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

2. GENERAL DESCRIPTION

The TOA TS-910 Series conference system permits wired system unit via CAT-5 LAN cable connections to be used in combination.

The Chairman and Delegate units (collectively referred to as "Conference units") are connected to the Central unit via the Expansion unit and Bridge unit.

A total of up to 192 Conference units can be connected to the Central unit of each system.

The Expansion unit and Bridge unit are necessary for connection of the Conference units. (Refer to p. 22.)

The Central unit is used to perform system function settings, status display, etc.

3. FEATURES

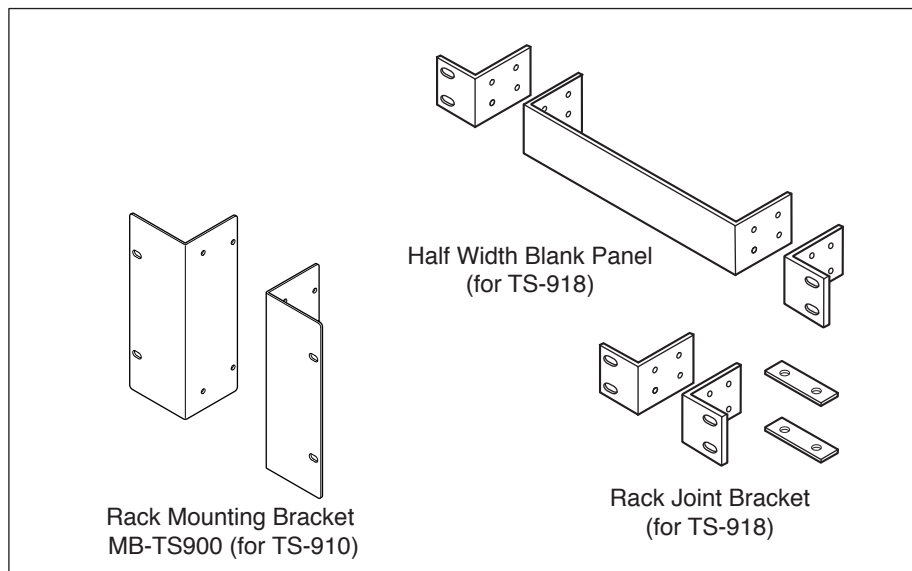
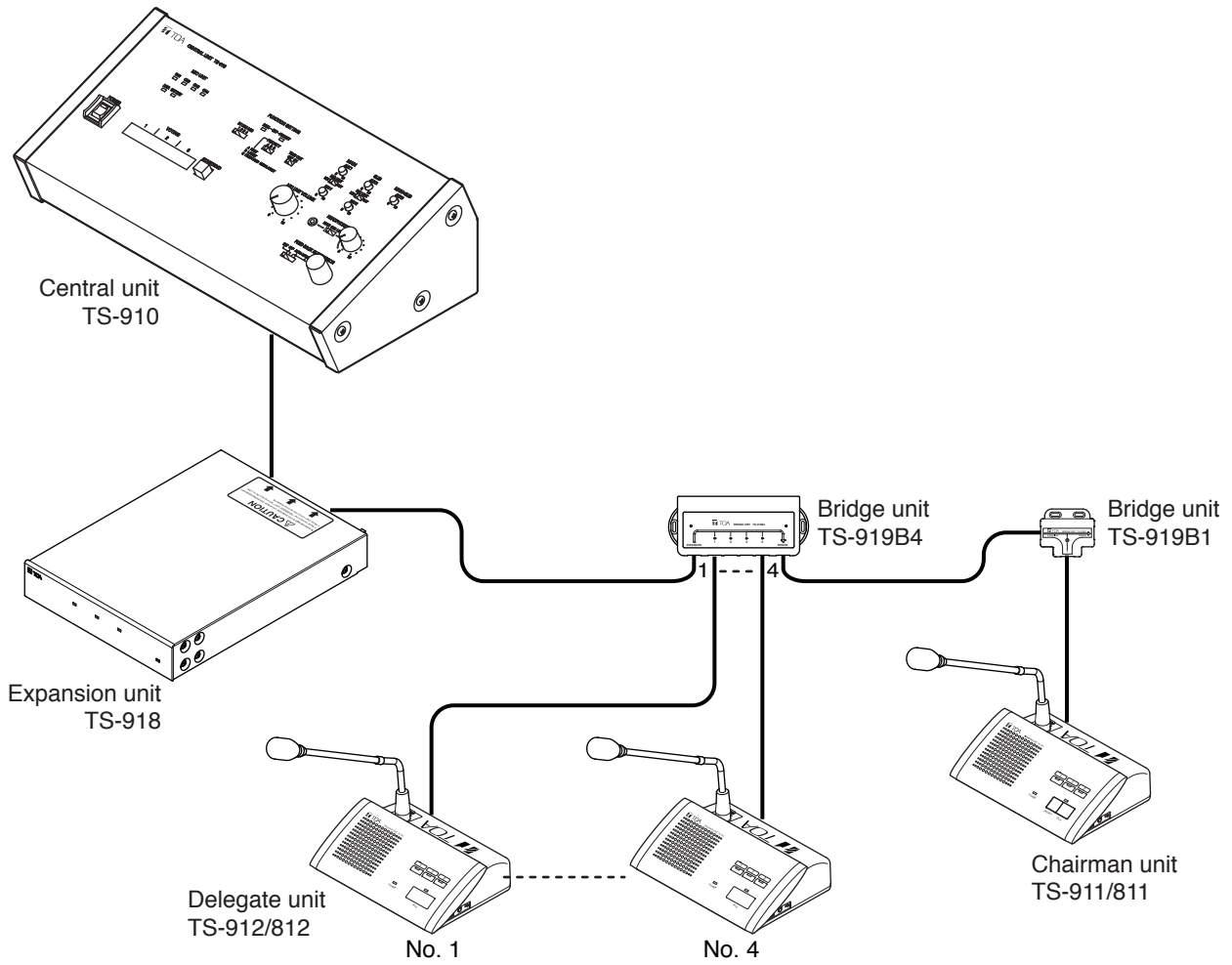
- The number of Conference units to be used can be freely selected depending on the number of participants. A total of up to 192 Conference units can be installed in a single system.
- A Simultaneous Speaker Number Restrictor function reduces the chance of chaos and confusion that can result from too many speakers trying to talk simultaneously.
- A Speech Priority Selector function permits selection of operating priority (first-in-first-out or last-in-first-out) when the speech key is pressed.
- If any microphones are not manually turned off after speaking, the system's Mic-Off function automatically switches them off if not in use for approximately 30 seconds.
- A built-in Feedback Suppression Function (FBS) ensures more efficient reduction of acoustic feedback*. When Conference units are in use, their monitor speakers are automatically turned off, eliminating concerns about acoustic feedback.
- Depending on installation requirements, wired microphones, music playing equipment and other devices can be freely combined and used within the system.
- Recording equipment can be easily connected to the Central unit, making it ideal for preparing conference minutes.

* Acoustic feedback: The squeal or howl of a sound loop created when speaker output is picked up by a microphone, amplified by an amplifier and further output from the speaker again.

[Conference unit]

- Both 900 Series Conference units equipped with Voting and base/translation language selection functions and 800 Series units designed primarily for speaking and monitoring can be freely used. In the case of the 800 Series Conference units, they can monitor the base language only.
- Each 900 Series and 800 Series feature a selection of both Conference units.
- Chairman units feature a Priority Speech Key Operation function that allows the Chairman unit to take speech priority over the Delegate units with the simple press of a button.
- Conference unit microphones are attached via XLR connectors that permit easy detachment for more space-saving convenience in storage.
- Two types of Conference unit microphones are made available and freely interchangeable: Standard type and Long type.
- Connections between wired Conference units and the Expansion unit (or Bridge unit) can be made using a single CAT-5 LAN cable, facilitating installation and construction work.
- A total of up to 24 Conference units can be connected per TS-918 Expansion unit.
- Up to 8 TS-918 Expansion units can be installed.
- Two types of Bridge units are available: single-Conference unit connection type and 4-Conference unit connection type, either of which is freely selectable depending on installation conditions.

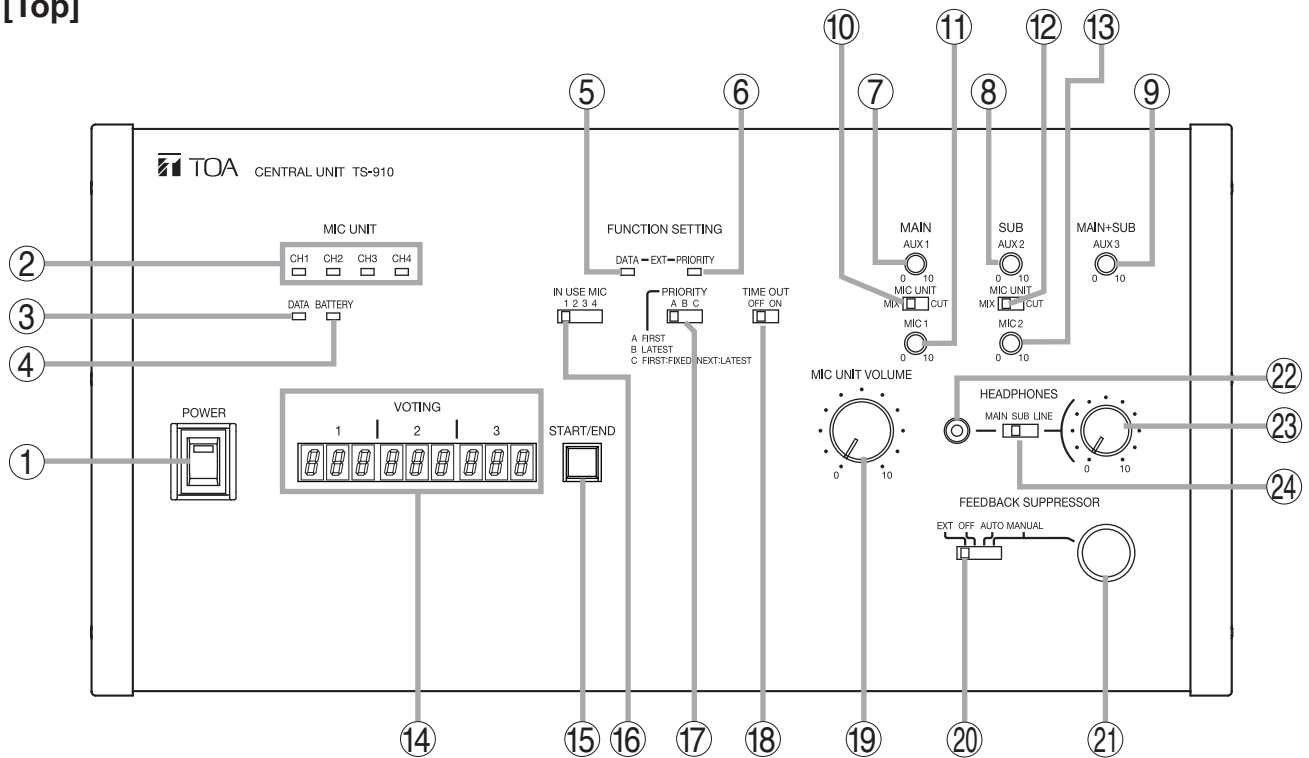
4. SYSTEM EQUIPMENT CONFIGURATION



5. NOMENCLATURE AND FUNCTIONS

5.1. Central Unit TS-910

[Top]



1. Power switch

Setting this switch to the ON position causes the Power indicator to light.

2. Audio signal receiving indicators

Light up when audio signals are received from Conference units. Audio signals are transmitted or received through 4 channels. The number of channels to be used can be set with the Simultaneous Speaker No. Setting switch (16). These indicators light in the same number as that of the Conference units currently being used for speech. (Which indicator will light is not specified.)

3. Data signal receiving indicator

Lights when control data is received from the Conference unit.

4. Battery indicator

Not used.

5. External control communication indicator

Remains lit during communications with a computer (PC) or operation panel connected to the External Control terminal (30) or (32).

6. External control priority indicator

Either lights or flashes when a PC or operation panel connected to the External Control terminal (30) or (32) performs priority operation. In this event, three function setting switches (16), (17), and (18) cannot be used.

7. AUX 1 input volume control

Adjusts the input signal level of the AUX 1 Input Terminal (28) located on the rear panel. Speech input to the AUX 1 terminal is output to the base language channel*1.

8. AUX 2 input volume control

Adjusts the input signal level of the AUX 2 Input Terminal (26) located on the rear panel. Speech input to the AUX 2 terminal is output to the translation language channel*2.

9. AUX 3 input volume control

Adjusts the input signal level of the AUX 3 Input Terminal (25) located on the rear panel. Speech input to the AUX 3 terminal is output to both the base language*1 and translation language*2 channels.

10. Microphone Mix/Cut switch

(for the base language channel)

MIX: Speech input from the Conference units, and AUX 1 and MIC 1 input signals are output to the base language channel*1, and recording and line outputs.

CUT: Speech input from the Conference units is not output to the base language channel*1. The AUX 1 and MIC 1 input signals are not delivered to the recording and line outputs.

Note

This switch is factory-preset to the MIX position.

11. MIC 1 input volume control

Adjusts the input level of the MIC 1 Input Terminal (29) on the rear panel. Signals input to the MIC 1 terminal are output to the base language channel*1.

12. Microphone Mix/Cut switch (for the translation language channel)

MIX: Speech input from the Conference units is output to the translation language channel*2.

CUT: Speech input from the Conference units is not output to the translation language channel*2.

Note

This switch is factory-preset to the MIX position.

13. MIC 2 input volume control

Adjusts the input level of the MIC 2 Input Terminal (27) on the rear panel. Signals input to the MIC 2 terminal are output to the translation language channel*2.

14. Voting result display

Computes the number of votes cast by individual Conference units for categories 1 – 3 and displays the result after voting completion.

15. Voting start/end button

Holding down this button for 1 second or more permits the Central unit to accept voting. To terminate voting, hold down the button again for 1 second or more. If this button is held down for 1 second or more once again, the Voting Result Display (14) is turned off. (Refer to p. 41.)

This button is also used to confirm installation conditions for the Conference unit. (Refer to p. 33.)

16. Simultaneous speaker No. setting switch

Used to set the number of Conference units that can be simultaneously operated. The indications [1], [2], [3], and [4] represent the number of simultaneously operable units. (Refer to p. 35.)

Note

This switch is factory-preset to the [1] position.

17. Speech priority selector switch

Determines the priority mode when the Talk key of the Conference unit is pressed. (Refer to p. 35.)

A: First-in-first-out priority

B: Last-in-first-out priority

C: Priority fixed for the first unit, and last-in-first-out priority for all other subsequent units.

Note

This switch is factory-preset to the [A] position.

18. Mic-off setting switch

Automatically turns off Conference unit microphones 30 seconds after speech is completed if the user should neglect to turn off the microphone. (Refer to p. 36.)

Note

This switch is factory-preset to the OFF position.

19. Speech volume control

Adjusts the microphone volume of the Conference unit.

20. FBS (Feedback Suppressor) Switch

Use to set FBS operation.

EXT: Select when using an external graphic equalizer.

OFF: Select when not using the FBS function.

AUTO: Select to suppress acoustic feedback by automatically searching for a frequency generating acoustic feedback.

MANUAL: Select to manually search for a feedback-generating frequency.

For details, refer to p. 42.

21. FBS (Feedback Suppressor) control

Rotate to search for a frequency generating acoustic feedback when the FBS switch (20) is set to "MANUAL."

For details, refer to p. 43.

22. Headphone jack (Mini-jack)

Connects to headphones.

23. Headphone volume control

Adjusts the sound volume of the headphones.

24. Headphone channel selector switch

Used to choose the output to be monitored by a connected headphones from the following three sources: Base language (MAIN), Translation language (SUB), and Line (LINE) channels.

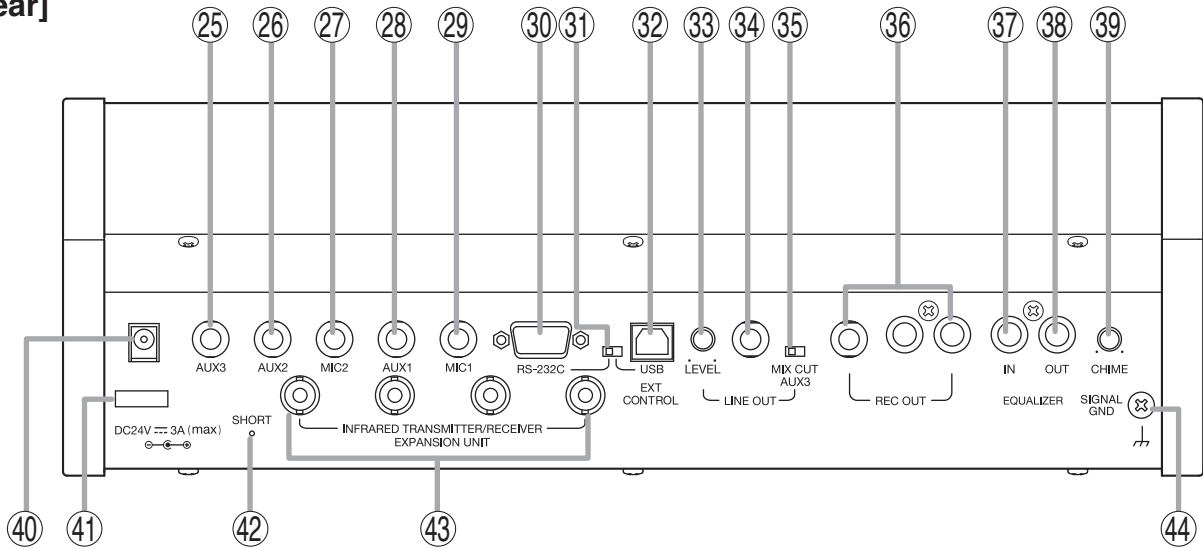
Note

This switch is factory-preset to the MAIN position.

*1 Base Language: Mixed audio signals from the AUX 1 input, MIC 1 input, and in-use Conference units.

*2 Translation Language: Mixed audio signals from the AUX 2 input, MIC 2 input, and in-use Conference units.

[Rear]



25. AUX 3 input terminal

–20 dB*, 10 k Ω , unbalanced, phone jack.
Connect a CD player, tape recorder, or other similar equipment to this terminal. Speech input connected to this terminal is relayed to both the base and translation language channels.

26. AUX 2 input terminal

–20 dB*, 10 k Ω , unbalanced, phone jack.
Connect a CD player, tape recorder, or other similar equipment to this terminal. Speech input connected to this terminal is relayed to the translation language channel.

27. MIC 2 input terminal

–60 dB*, 600 Ω , unbalanced, phone jack.
Connect a wired microphone to this terminal. Speech input from the microphone connected to this terminal is relayed to the translation language channel.

28. AUX 1 input terminal

–20 dB*, 10 k Ω , unbalanced, phone jack.
Connect a CD player, tape recorder, or other similar equipment to this terminal. Speech input connected to this terminal is relayed to the base language channel.

29. MIC 1 input terminal

–60 dB*, 600 Ω , unbalanced, phone jack.
Connect a wired microphone to this terminal. Speech input from the microphone connected to this terminal is relayed to the base language channel.

30. External control terminal [RS-232C]

Connect this terminal to the serial port of a PC, operation panel, or other external control equipment.

31. External control terminal selection switch

Used to select either RS-232C (30) or USB (32) external control terminals.

32. External control terminal [USB]

Connects to the external control terminal of a PC, operation panel or other connected external equipment.

33. Level volume control

Adjusts the line output (34) volume.

34. Line output terminal

–20 dB*, 10 k Ω , unbalanced, phone jack.
Connect an amplifier, etc. for public address applications. Speech input from the Conference unit, or MIC 1, AUX 1, or AUX 3 terminals is output to this terminal. The settings of Microphone Mix/Cut switch (10) and AUX 3 Output Mix/Cut switch (35) determine whether or not such speech input is output.

35. AUX 3 output Mix/Cut switch

Determines whether or not speech input is relayed from AUX 3 terminal to the line output (34). Set this switch to MIX in normal use, and to CUT to enable conference participants in other rooms to avoid potential audio feedback while speaking.

36. Recording output terminal

–20 dB*, 10 k Ω , unbalanced, phone jack, RCA jacks.
Connect an Alternate Recording Deck or MD recorder. An amplifier can also be connected for public address applications. The same speech signal as the line output and that of AUX 3 terminal are output to this terminal.

37. Graphic equalizer input terminal

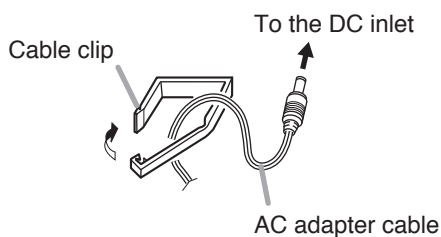
–20 dB*, 10 k Ω , unbalanced, RCA jack.
Connect this terminal to the graphic equalizer's output terminal.

38. Graphic equalizer output terminal
–20 dB*, 10 kΩ, unbalanced, RCA jack.
Connect this terminal to the graphic equalizer's input terminal.

39. Priority chime volume control
Adjusts the output volume of the chime tone that sounds when the Priority Speech key on the Chairman unit is pressed.

40. DC inlet
Connect the supplied AC adapter to this terminal.

41. Cable clip
Run the AC adapter cable through this clip to prevent its plug from being removed from the DC inlet.



42. Short circuit indicator
Lights when the Expansion unit or its connected cable is shorted.

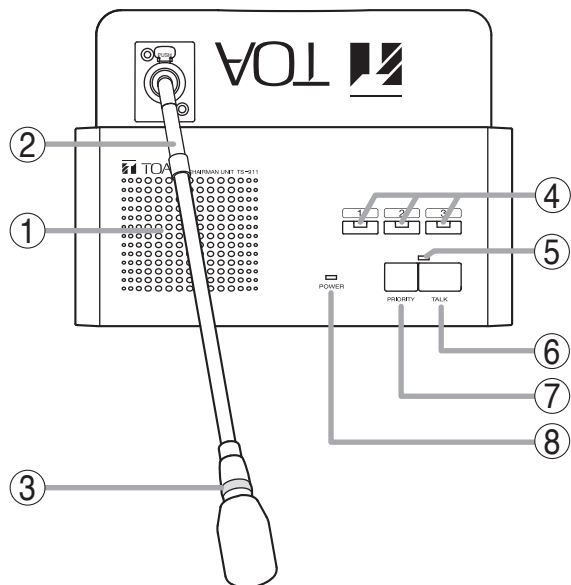
43. Expansion unit I/O terminals
Connect the Expansion unit or Distributor to these terminals.
By using the YW-1022 (2-branch distributor) and/or YW-1024 (4-branch distributor), up to 8 TS-918 Expansion units can be connected.

44. Functional earth terminal
Hum noise may be generated when external equipment is connected to the unit. Connecting this terminal to the functional earth terminal of the external equipment may reduce the hum noise.
Note: This terminal is not for protective earth.

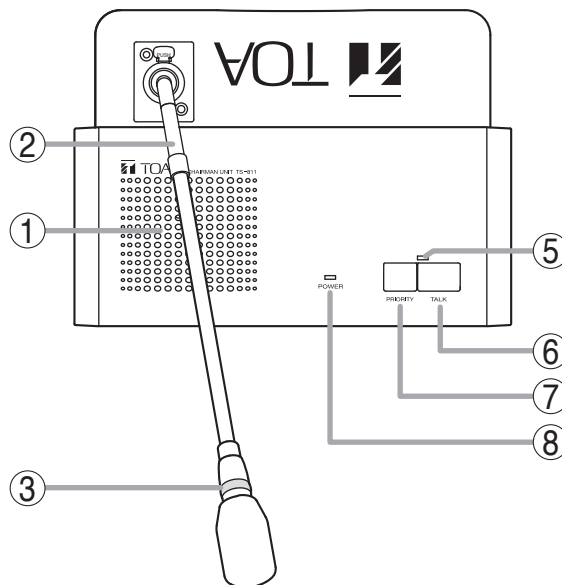
* 0 dB = 1 V

5.2. Chairman Units TS-911 and TS-811

[TS-911 Top]



[TS-811 Top]



Note

No microphone is supplied with the TS-911/811.

1. Monitor speaker

Speech signals from other Conference units and other audio signals from the Central unit are output from this speaker. (Refer to the table below.)

Model	Output signal
TS-911	Base language or Translation language Note: Switchable by the Monitor selector switch (16).
TS-811	Base language

Use the right-side Monitor Volume Control (14) to adjust the volume. No sound is output from the speaker of the unit in use while speaking.

2. Microphone

Use either the TS-903 (Standard) or TS-904 (Long) dedicated microphone.

3. Microphone in-use indicator

Lights when the microphone is turned on (for speech).

4. Voting keys (TS-911 only)

Use these keys to start, end, and cast voting. The voting status indicator is provided above each key.

5. Speech indicator

Remains lit while the microphone is in use (during speech). The indicator flashes when the unit is out of the communications service area.

6. Talk key

When this key is pressed, both the Microphone In-Use indicator (3) and the Speech indicator (5) light, and the microphone turns on. Pressing this key again turns off both indicators and the microphone.

7. Priority speech key

Gives speaking priority to the current speaker. When this key is used for speech, no other delegate units can be used. Also, only the current speech made with the Priority speech key is output at the Central Unit's recording and line outputs. The key has 2 different operating modes, PTT and ALT, which can be selected with the Priority speech key operation setting switch (12).

- When PTT mode is selected, the microphone only turns on while the key is pressed, during which time the Speech (5) and Microphone in-use (3) indicators remain lit.
- When ALT mode is selected, pressing the key turns on the microphone and causes the Speech (5) and Microphone in-use (3) indicators to light. Pressing the key again turns off the microphone and these indicators.

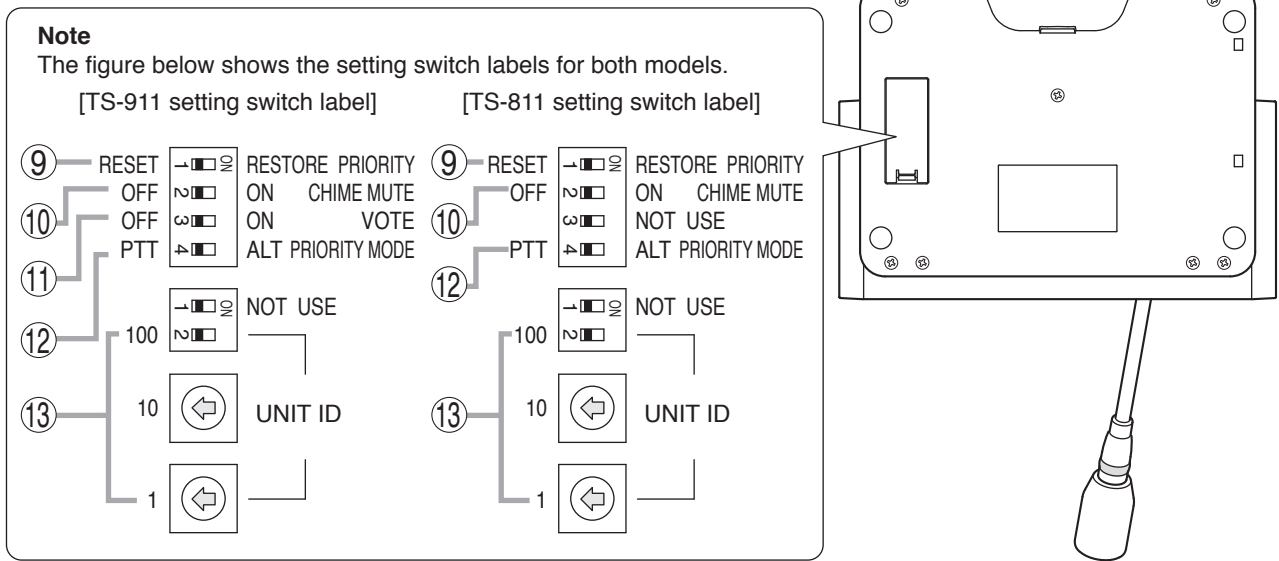
If Chime is set to sound, a chime tone sounds when the key is pressed. For the chime setting, use the Priority chime mute switch (10).

8. Power indicator

Lights when power is supplied from the TS-910 Central unit via the TS-918 Expansion unit.

[Bottom]

Remove the cover on the bottom side of the unit to expose its setting switches.



9. Priority operation setting switch

Following completion of a priority speech, this switch is used to reset the operating status of Conference units whose operations were interrupted by the depression of a Priority Speech key (7).

Set the switch to RESTORE in order to resume the mode in operation prior to initiation of the priority speech, and to RESET when resumption is not desired.

Note

This switch is factory-preset to the RESET position.

10. Priority chime mute switch

Disables the chime that sounds when the Priority Speech key is pressed.

Set this switch to OFF when sound output is desired, and to ON when no sound is desired.

Note

This switch is factory-preset to the OFF position.

11. Voting activation switch (TS-911 only)

Determines whether or not to start and terminate voting from the Chairman unit.

Set the switch to ON to enable voting, or to OFF to disable voting.

Note

This switch is factory-preset to the OFF position.

12. Priority speech key operation setting switch

Use to set the Priority speech key operation mode.

PTT: Speech only possible while the Priority speech key is being pressed.

ALT: Speech enabled when the Priority speech key is pressed, and disabled when the key is pressed again.

Note

The switch is factory-preset to PTT.

13. Unit address number setting switch

Set the unit address number (001 – 192), taking care to ensure that the same number is not duplicated in the system.

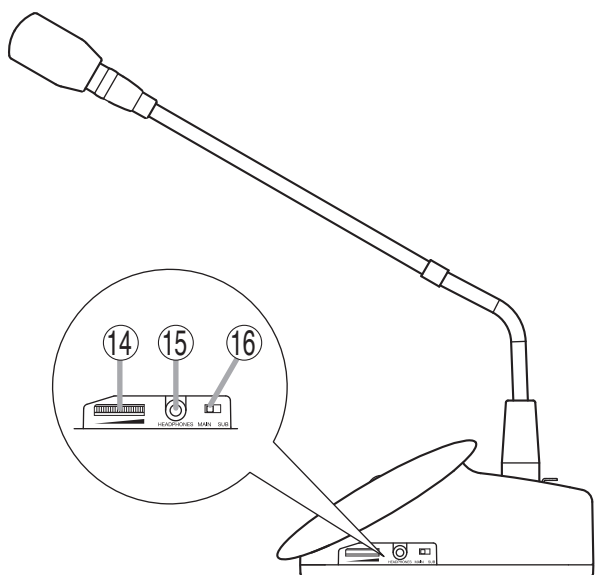
If the number [000] is assigned to a unit, the user of that unit cannot speak. However, the unit can be used for monitoring.

Set a numeral for the ones place and tens place. Set this switch to OFF to set the hundreds place to “0” and to ON to set it to “1.”

Note

This number is factory-preset to [000].

[Right side]



14. Monitor volume control

Adjusts the output volume of the monitor speaker and right-side headphone output.

15. Headphone jack

Connect headphones to this jack (mini-jack). Connecting the headphone cuts off the output from the monitor speaker. (Refer to the table below.)

Model	Output signal
TS-911	Base language or Translation language Note: Switchable by the Monitor selector switch (16).
TS-811	Base language

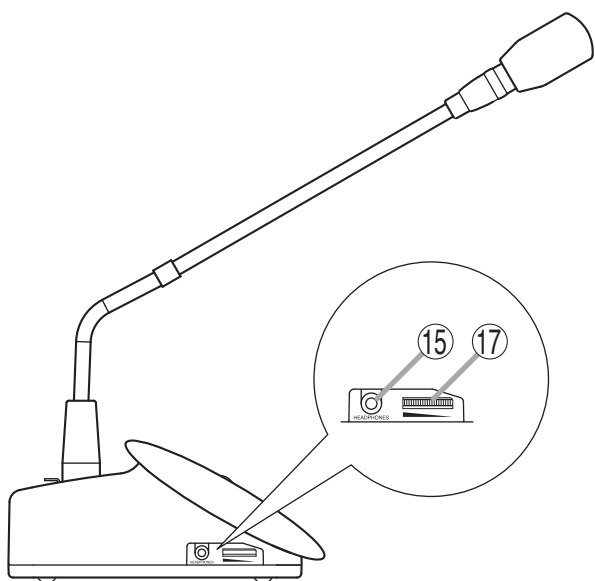
Note

A headphone jack is located on both the left and right side panels.

16. Monitor selector switch (TS-911 only)

Selects either Base Language or Translation Language for the source to be output to the monitor speaker and headphone.

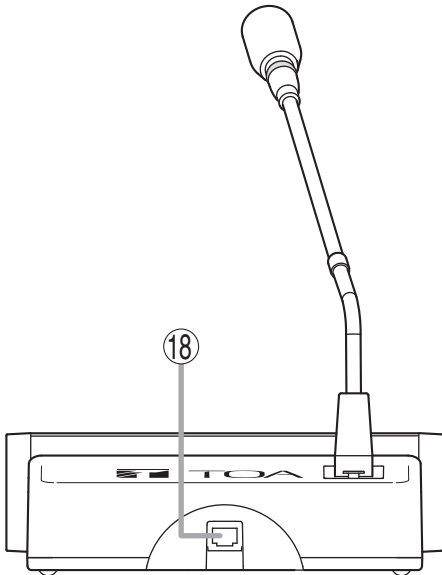
[Left side]



17. Headphone volume control

Adjusts the output volume of the left-side headphone output.

[Rear]

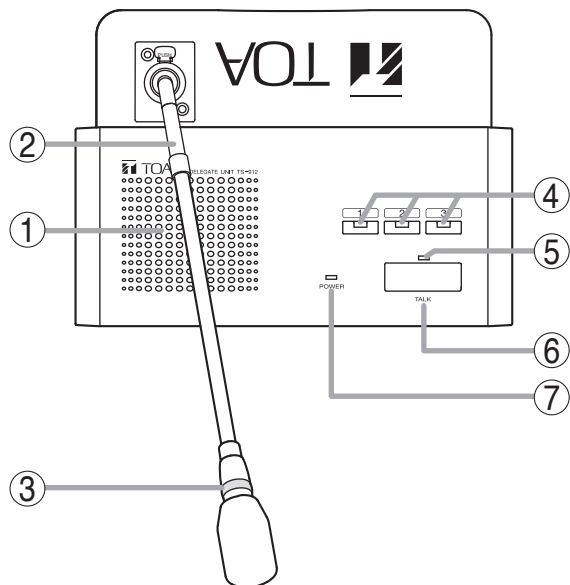


18. Communication cable connection terminal

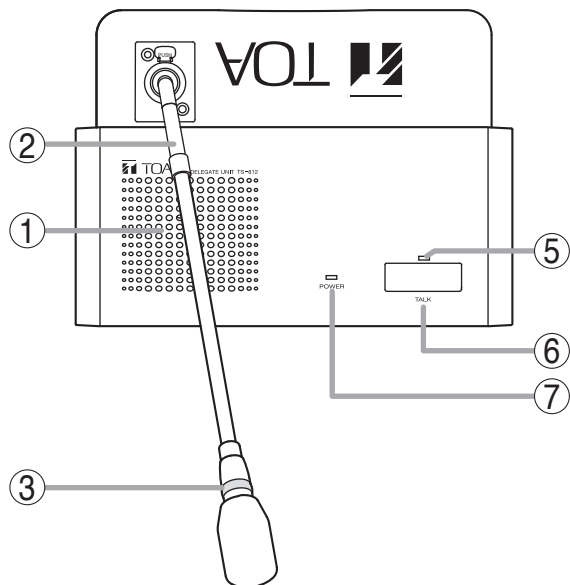
Connects to the TS-919B4 or TS-919B1 Bridge unit with a CAT-5 LAN cable.

5.3. Delegate Units TS-912 and TS-812

[TS-912 Top]



[TS-812 Top]



Note
No microphone is supplied with the TS-912/812.

1. Monitor speaker

Speech signals from other Conference units and other audio signals from the Central unit are output from this speaker. (Refer to the table below.)

Model	Output signal
TS-912	Base language or Translation language Note: Switchable by the Monitor selector switch (11).
TS-812	Base language

Use the right-side Monitor Volume Control (9) to adjust the volume. No sound is output from the speaker of the unit in use while speaking.

2. Microphone

Use either the TS-903 (Standard) or TS-904 (Long) dedicated microphone.

3. Microphone in-use indicator

Lights when the microphone is turned on (for speech).

4. Voting keys (TS-912 only)

Use these keys to start, end, and cast voting. The voting status indicator is provided on each key.

5. Speech indicator

Remains lit while the microphone is in use (during speech). The indicator flashes when the unit is out of the communications service area.

6. Talk key

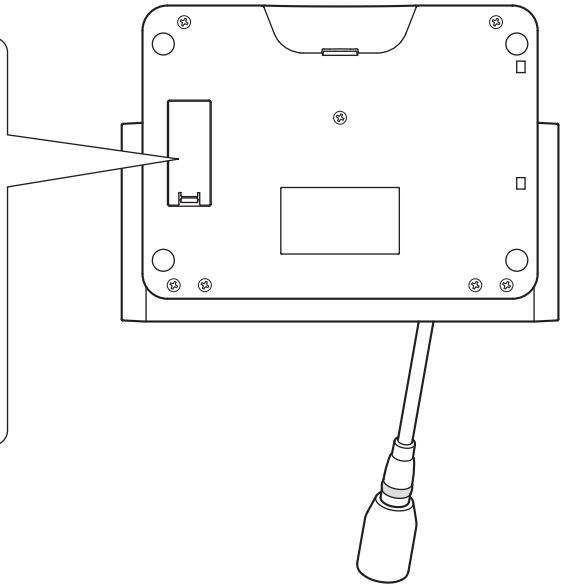
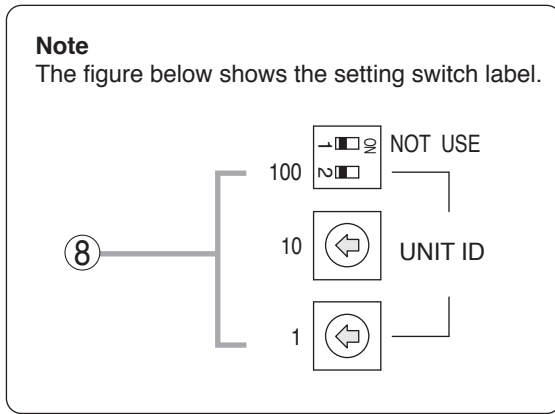
When this key is pressed, both the Microphone In-Use indicator (3) and the Speech indicator (5) light, and the microphone turns on. Pressing this key again turns off both indicators and the microphone.

7. Power indicator

Lights when power is supplied from the TS-910 Central unit via the TS-918 Expansion unit.

[Bottom]

Remove the cover on the bottom side of the unit to expose its setting switches.



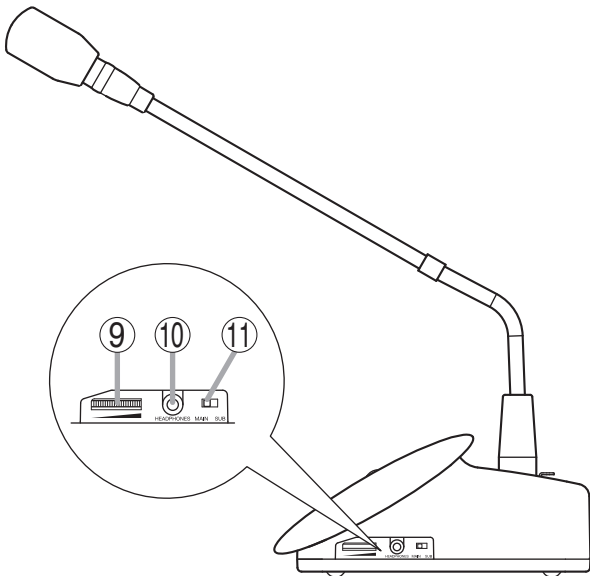
8. Unit address number setting switch

Set the unit address number (001 – 192), taking care to ensure that the same number is not duplicated in the system.
If the number [000] is assigned to a unit, the user of that unit cannot speak. However, the unit can be used for monitoring.

Set a numeral for the ones place and tens place. Set this switch to OFF to set the hundreds place to “0” and to ON to set it to “1.”

Note
This number is factory-preset to [000].

[Right side]



9. Monitor volume control

Adjusts the output volume of the monitor speaker and right-side headphone output.

10. Headphone jack

Connect headphones to this jack (mini-jack). Connecting the headphone cuts off the output from the monitor speaker. (Refer to the table below.)

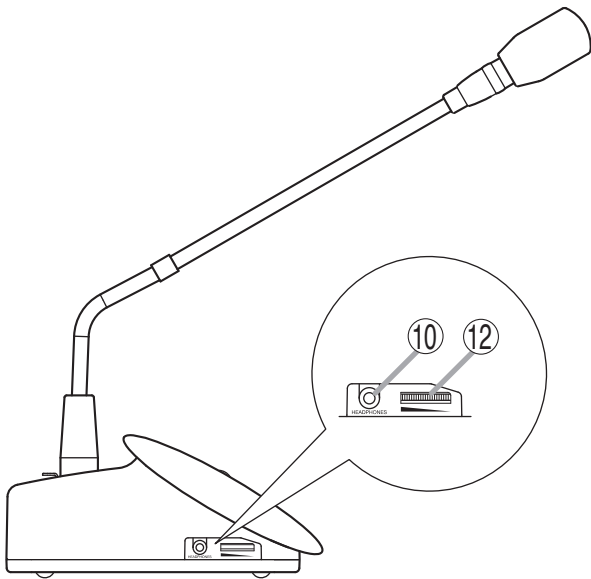
Model	Output signal
TS-912	Base language or Translation language Note: Switchable by the Monitor selector switch (11).
TS-812	Base language

Note
A headphone jack is located on both the left and right side panels.

11. Monitor selector switch (TS-912 only)

Selects either Base Language or Translation Language for the source to be output to the monitor speaker and headphone.

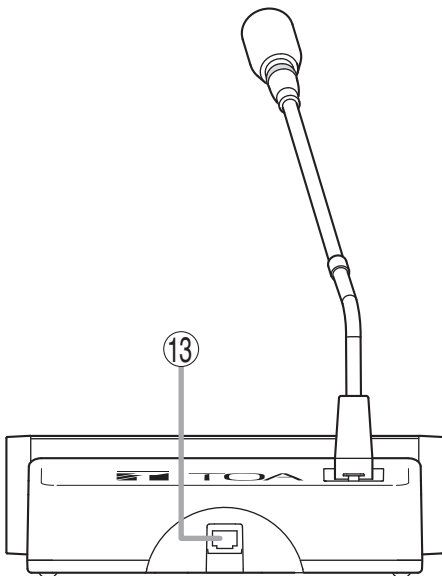
[Left side]



12. Headphone volume control

Adjusts the output volume of the left-side headphone output.

[Rear]

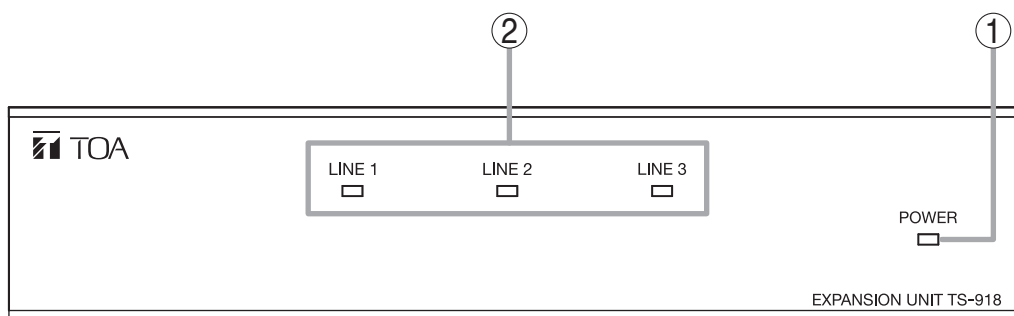


13. Communication cable connection terminal

Connects to the TS-919B4 or TS-919B1 Bridge unit with a CAT-5 LAN cable.

5.4. Expansion Unit TS-918

[Front]



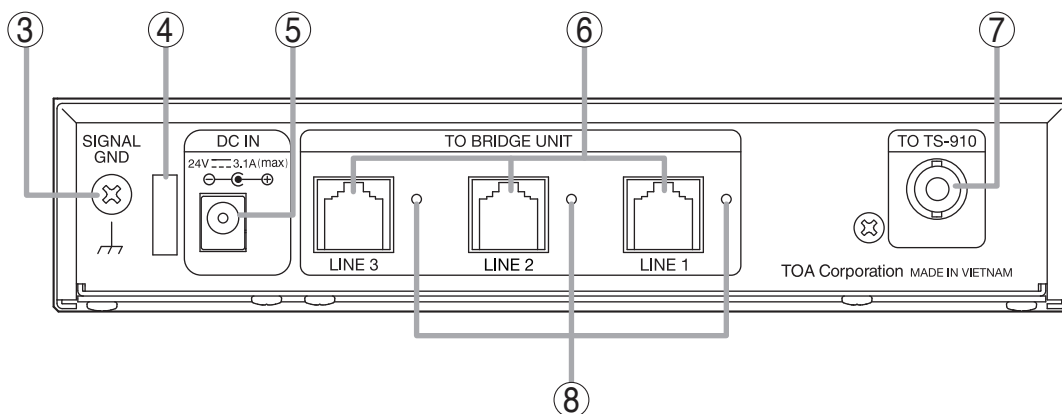
1. Power indicator

Lights when connecting the supplied AC adapter to the DC inlet (5).

2. Connection status indicators

The corresponding LINE indicator lights when the TS-919B4 or TS-919B1 Bridge unit is connected to the Bridge unit connection terminal (6) and power is supplied to it.

[Rear]



3. Functional earth terminal

Hum noise may be generated when external equipment is connected to the unit. Connecting this terminal to the functional earth terminal of the external equipment may reduce the hum noise.

Note: This terminal is not for protective earth.

4. Cable clip

Run the AC adapter cable through this clip to prevent its plug from being removed from the DC inlet.

5. DC inlet

Connect the supplied AC adapter to this terminal.

6. Bridge unit connection terminals

Connect the TS-919B4 or TS-99B1 Bridge unit to this terminal with a CAT-5 LAN cable.

7. Central unit connection terminal

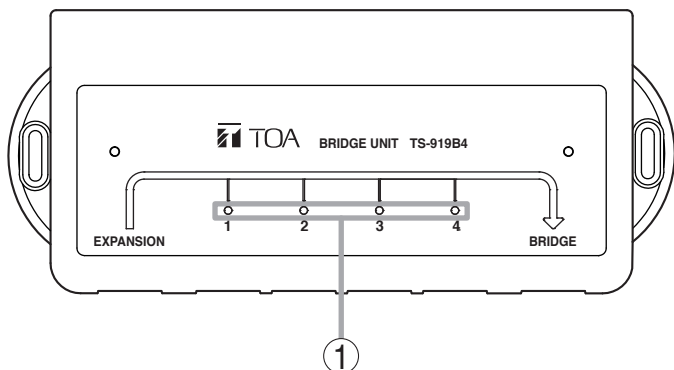
Connect the TS-910 Central unit, or YW-1022 or YW-1024 Distributor to this terminal with a coaxial cable.

8. Connection status indicators

The corresponding LINE indicator lights when the TS-919B4 or TS-919B1 Bridge unit is connected to the Bridge unit connection terminal (6) and power is supplied to it.

5.5. Bridge Unit (4-Conference unit connection type) TS-919B4

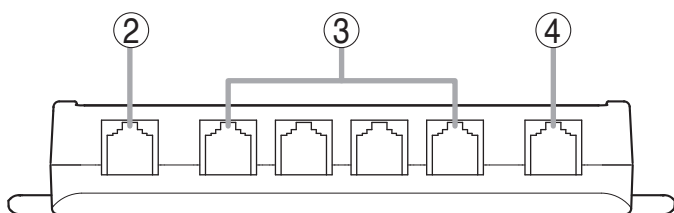
[Front]



1. Connection status indicators

The corresponding LINE indicator lights when the Conference unit is connected to the Conference unit connection terminal (3) and power is supplied to it.

[Bottom]



2. Communication cable connection terminal (Expansion unit side)

Connects to the TS-918 Expansion unit, or TS-919B4 or TS-919B1 Bridge unit.

3. Conference unit connection terminals

Connect to the Conference units.

4. Communication cable connection terminal (Bridge unit side)

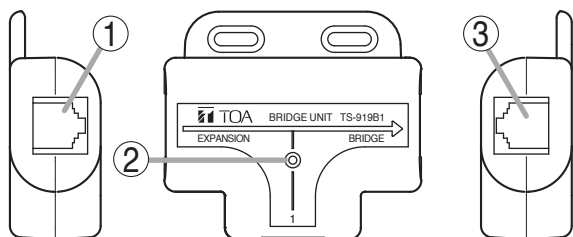
Connects to the TS-919B4 or TS-919B1 Bridge unit.

5.6. Bridge Unit (1-Conference unit connection type) TS-919B1

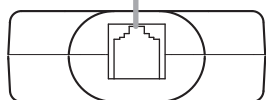
[Left side]

[Front]

[Right side]



[Bottom]



1. Communication cable connection terminal (Expansion unit side)

Connects to the TS-918 Expansion unit, or TS-919B4 or TS-919B1 Bridge unit.

2. Connection status indicator

Lights when the Conference unit is connected to the Conference unit connection terminal (4) and power is supplied to it.

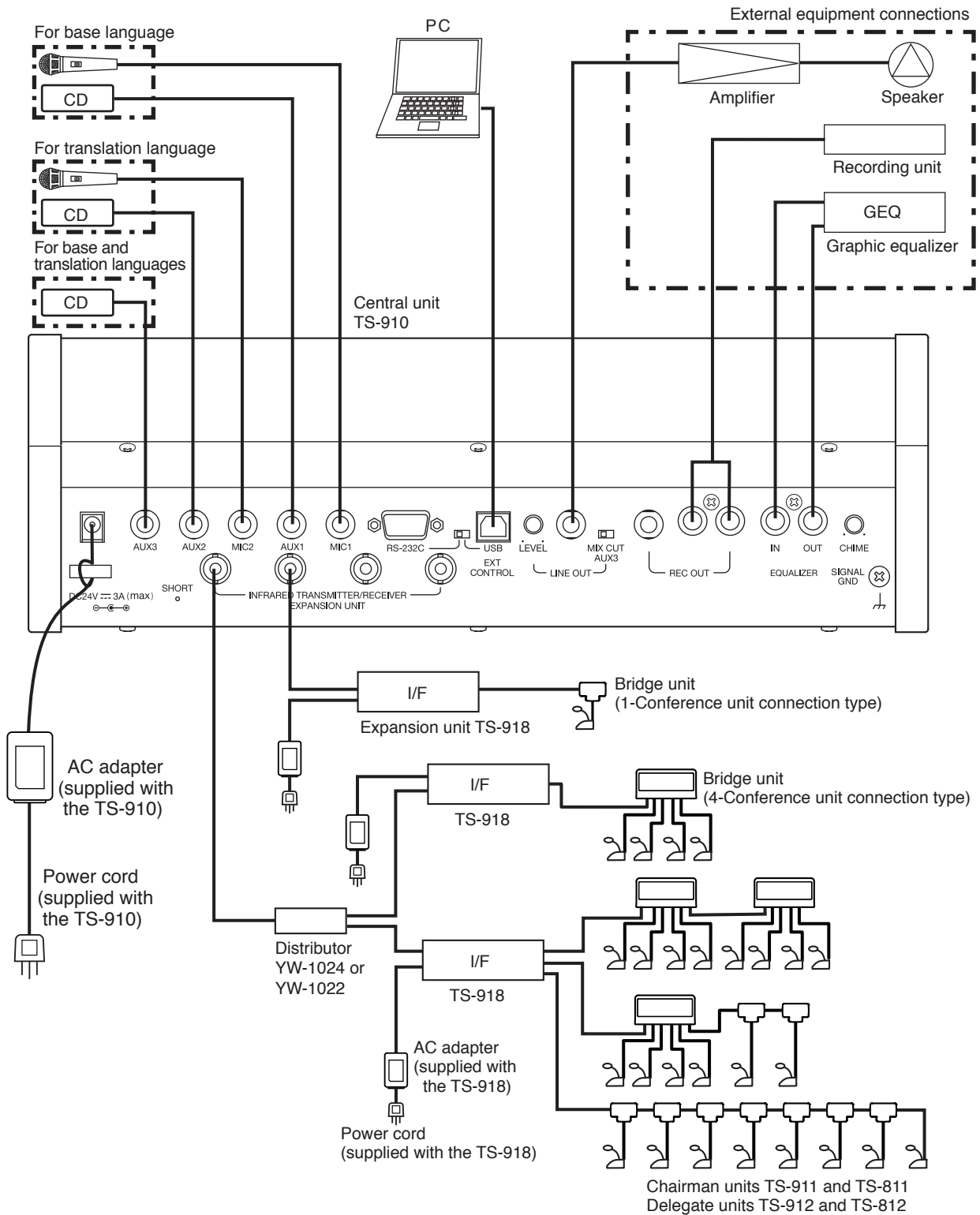
3. Communication cable connection terminal (Bridge unit side)

Connects to the TS-919B4 or TS-919B1 Bridge unit.

4. Conference unit connection terminal

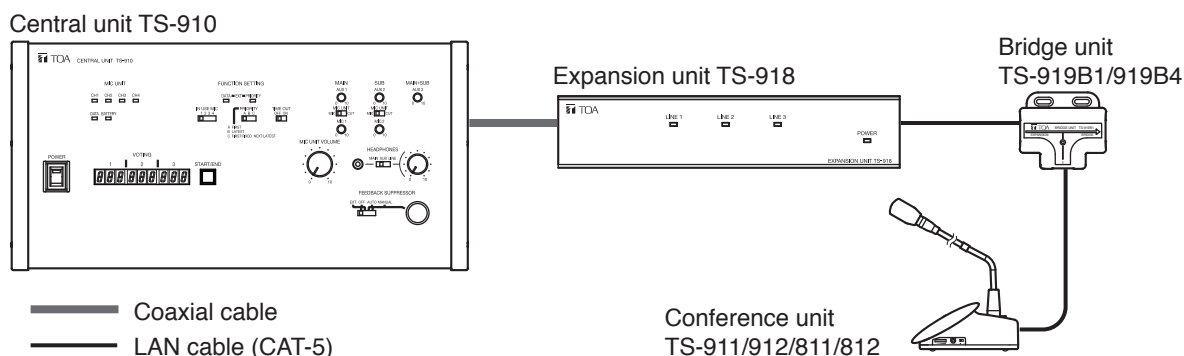
Connects to the Conference unit.

6. SYSTEM CONNECTION EXAMPLES



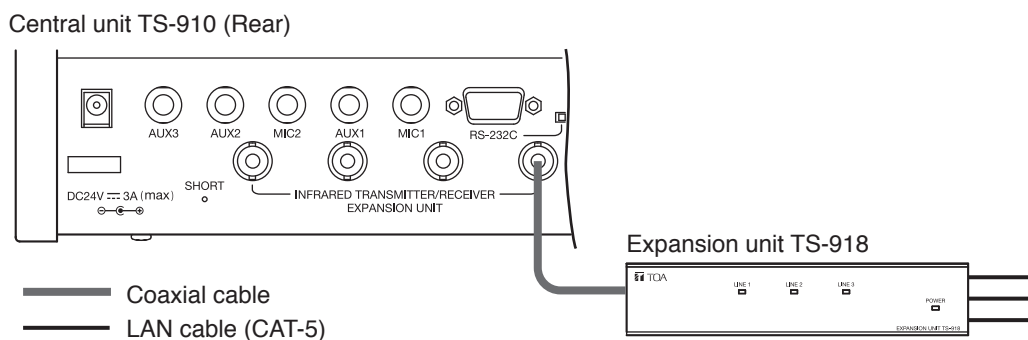
7. CONFERENCE UNIT CONNECTION

When connecting the Conference units to the Central unit, the Expansion unit and the Bridge unit must be installed between them.



7.1. Central Unit and Expansion Unit Connection

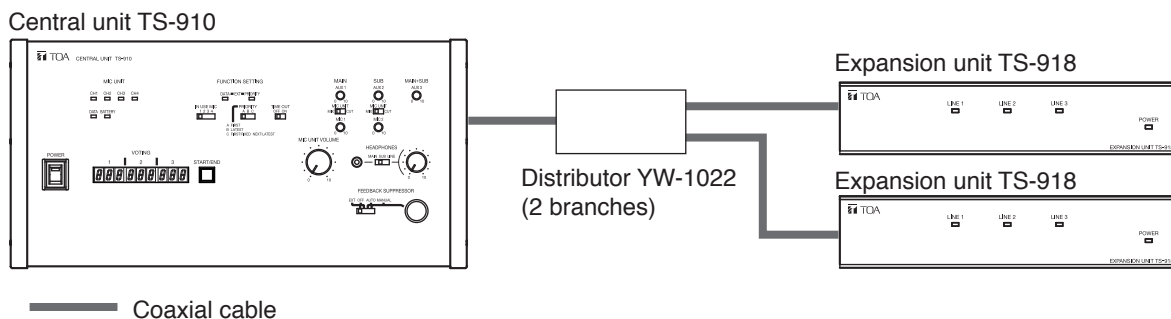
Use a coaxial cable to connect the Expansion unit to the Central unit's Expansion unit input/output terminal. One Expansion unit can be connected per Expansion unit input/output terminal.



When connecting 2 – 4 Expansion units to a single Expansion unit input/output terminal, follow the instructions below.

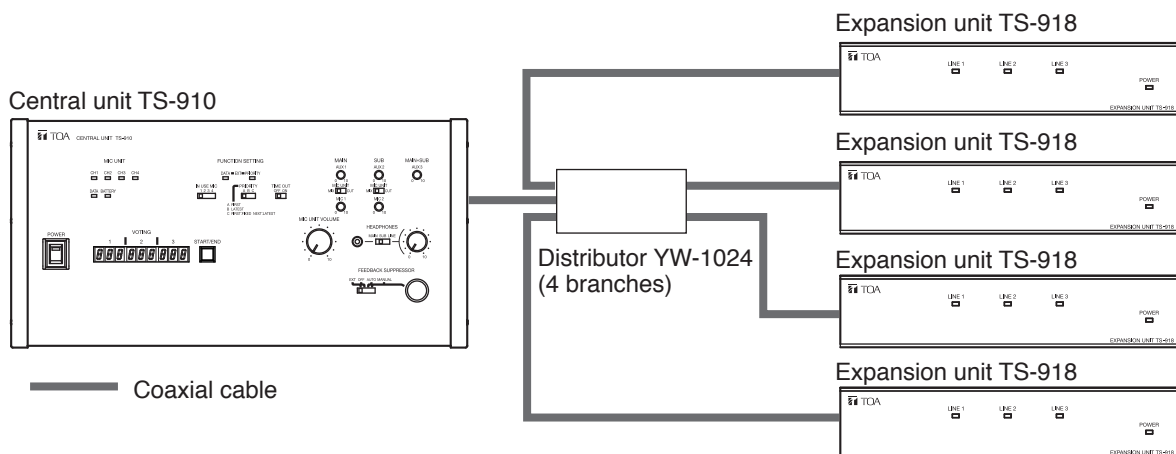
7.1.1. Connecting 2 Expansion units

Make connections as follows using the YW-1022 Distributor (2-branch distribution).



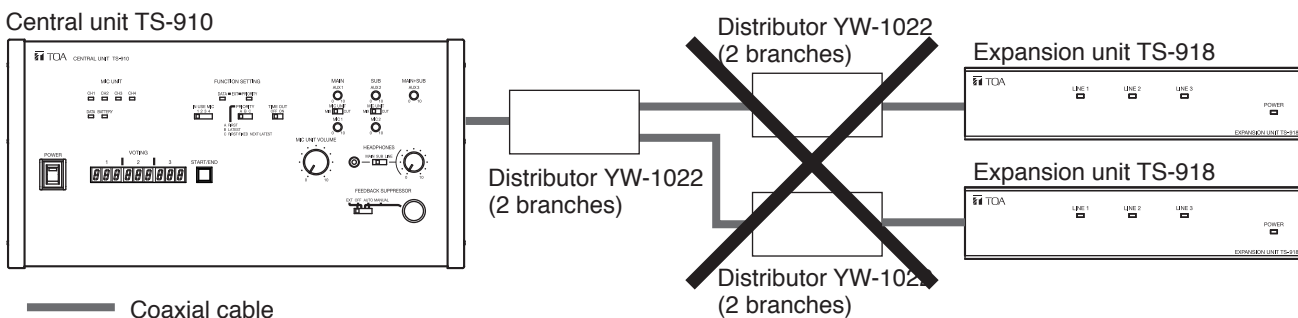
7.1.2. Connecting 3 or 4 Expansion units

Use the YW-1024 Distributor (4-branch distribution). Connection of 3 Expansion units will leave one of the four terminals idle, however no problems will result.



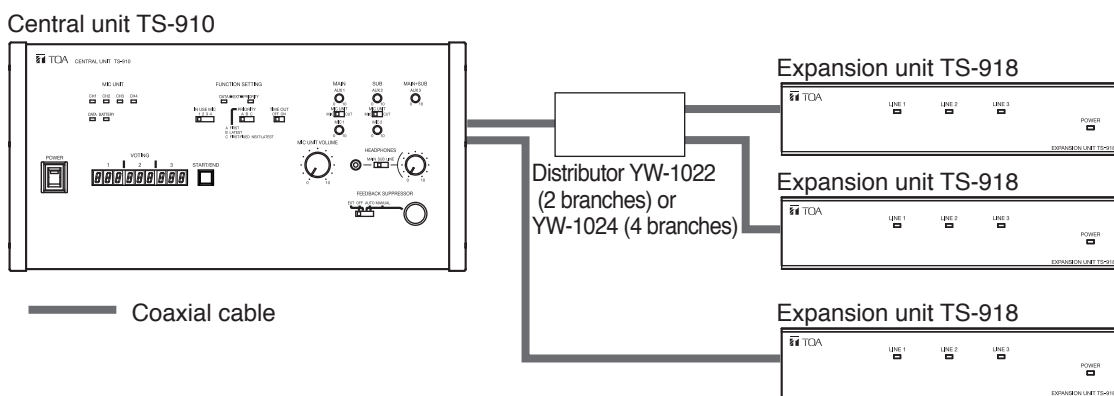
Note

Only one Distributor at a time can be connected between the Central unit and the Expansion unit. Do not connect Distributors in series to each other.



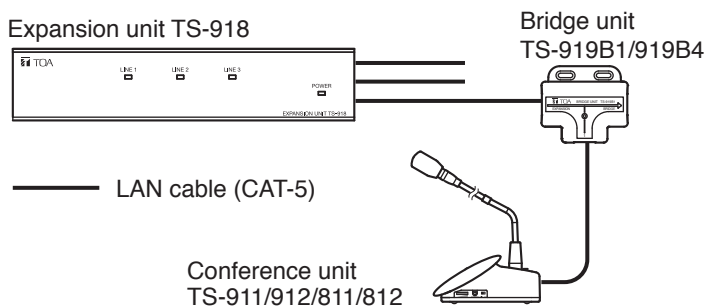
Tip

A system may have Expansion units that both pass through and do not pass through the Distributor.



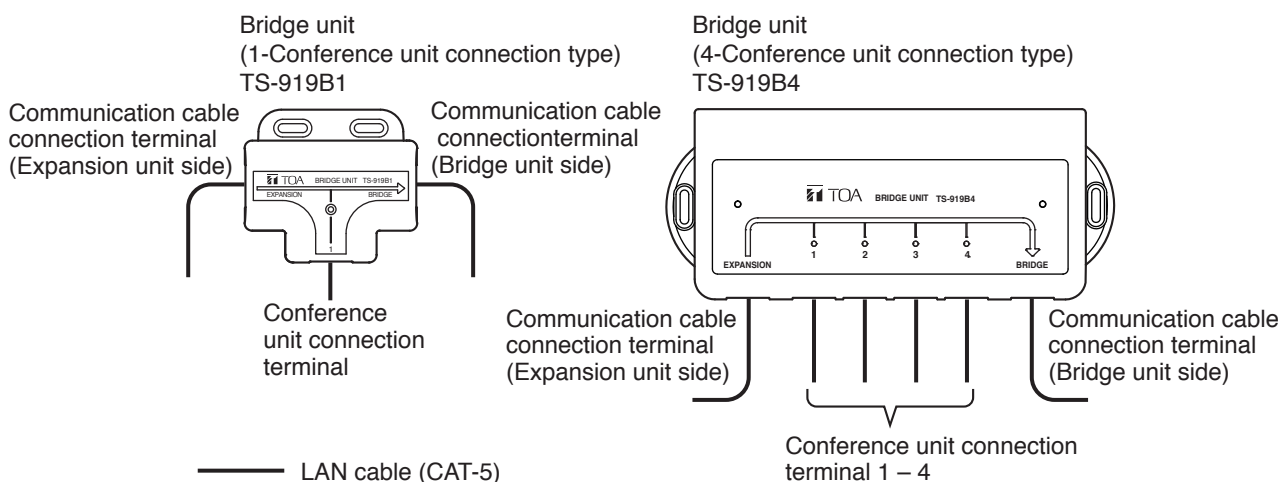
7.2. Expansion unit, Bridge Unit, and Conference Unit Connections

When connecting the Expansion unit to the Conference Unit, the Bridge unit must be installed between the two.



The Expansion unit is equipped with 3 Bridge unit connection terminals. When Bridge units are connected to them, up to 8 Conference units can be connected for each terminal, and up to 24 units per Expansion unit. Two types of Bridge units are available, the 1-Conference unit connection type and the 4-Conference unit connection type.

The number of connection terminals for each type is as follows.



[Number of Bridge unit's connection terminals]

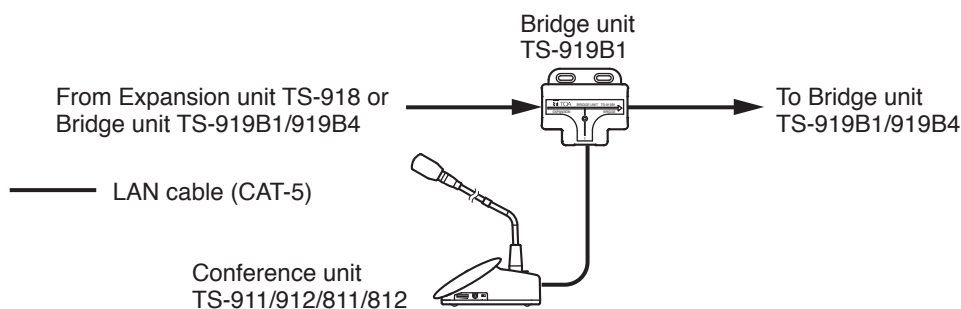
Model No.	Communication cable connection terminal (Expansion unit side)	Conference unit connection terminal*1	Communication cable connection terminal (Bridge unit side)
TS-919B1	1	1	1*2
TS-919B4	1	4	1*3

*1 One Conference unit can be connected to each Conference unit connection terminal.

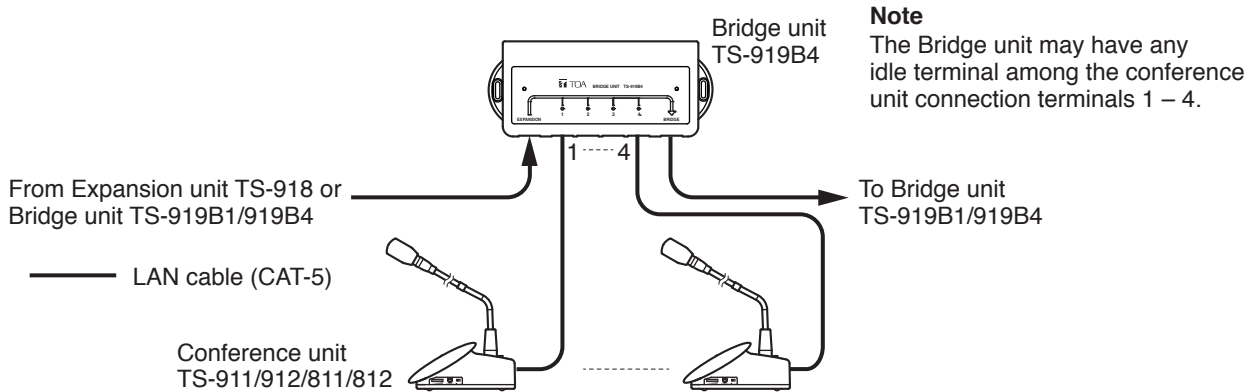
*2 Either a TS-919B1 or TS-919B4 Bridge unit can be connected. In an exceptional case where 7 Bridge units of 1-Conference unit connection type are connected to one of the Expansion unit's Bridge unit connection terminals, connect the 8th Conference unit, if needed, to the last-connected 1-Conference unit type Bridge unit's communication cable connection terminal (Bridge unit side).

*3 Can be connected to a TS-919B1 or TS-919B4 Bridge unit. However, the Conference unit cannot be connected.

7.2.1. Bridge unit TS-919B1 connection



7.2.2. Bridge unit TS-919B4 connection



Note
The Bridge unit may have any idle terminal among the conference unit connection terminals 1 – 4.

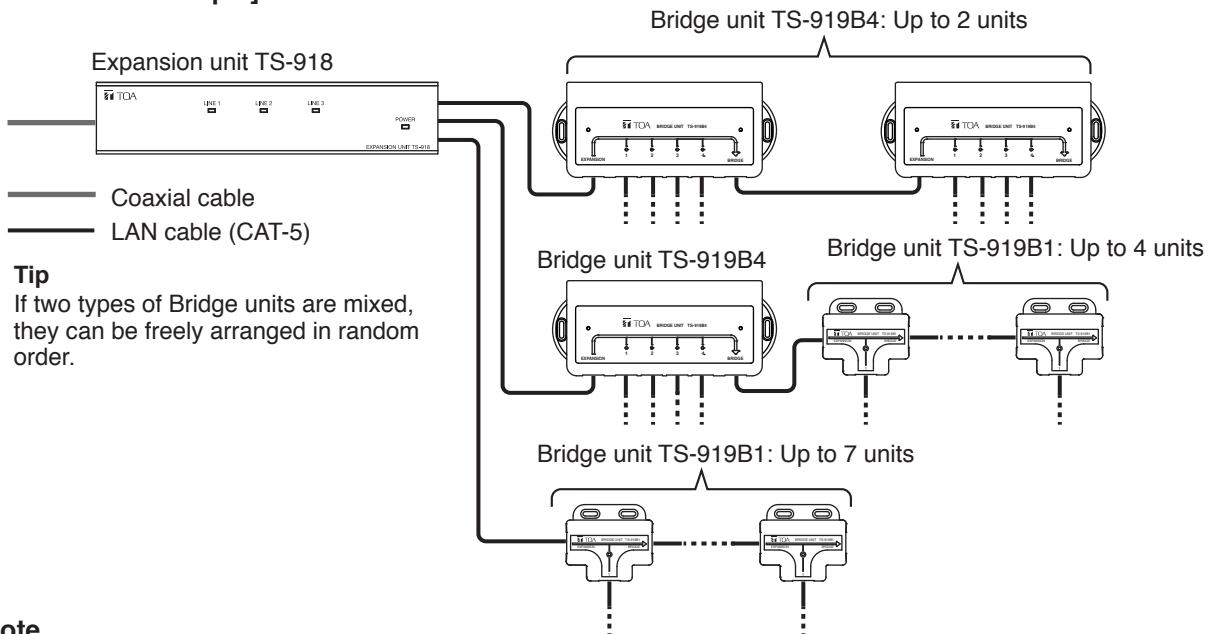
Note
Properly connect the equipment taking care that the Bridge unit's each terminal is designed to connect the designated equipment.
Misconnection may cause the Expansion unit malfunction.

7.2.3. Bridge unit connectable to one of the Expansion unit's terminals

When connecting the Bridge unit to the Expansion unit, the number of Bridge units connectable per Bridge unit connection terminal of the Expansion unit differs as shown below depending on the combination of two types of Bridge units.

Combination of Bridge units	Number of connectable units
TS-919B4 only	One or two TS-919B4s
TS-919B4 and TS-919B1 mixed	One TS-919B4 and up to four TS-919B1s
TS-919B1 only	Up to seven TS-919B1s

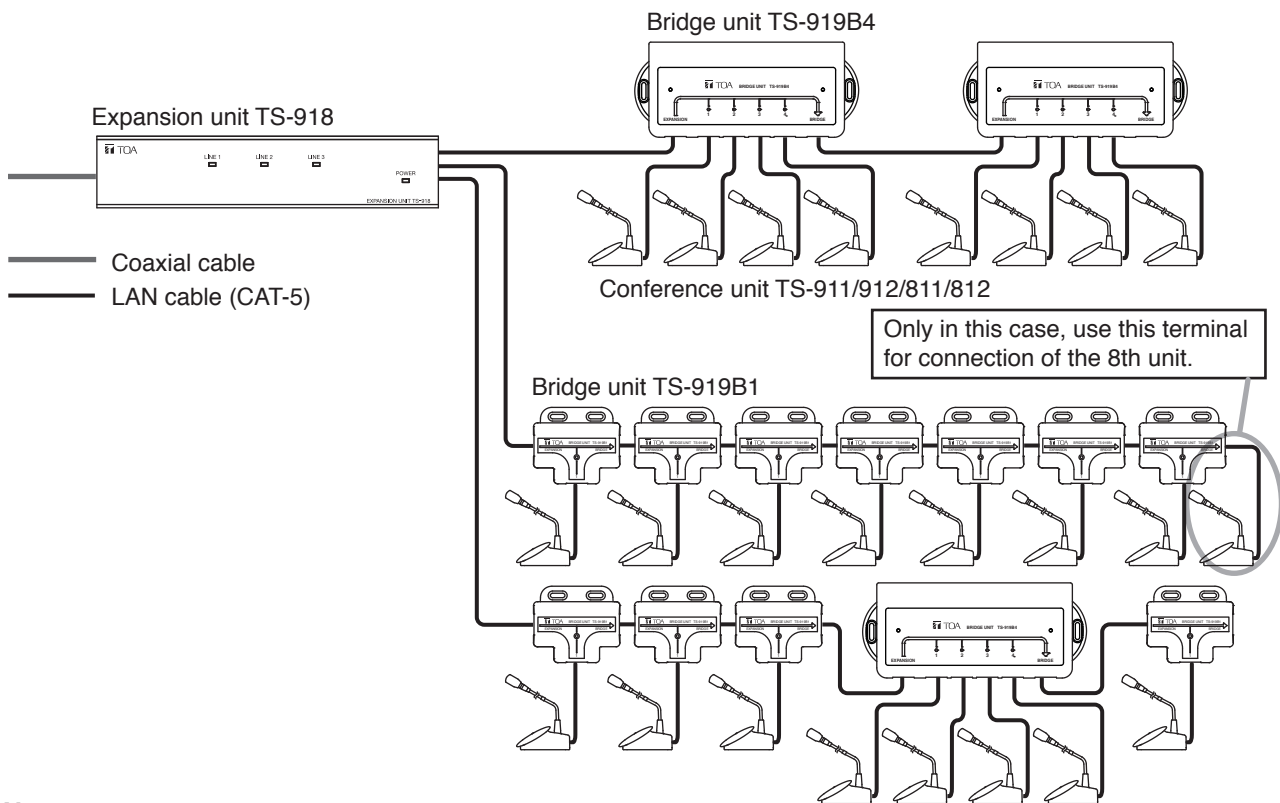
[Connection example]



Tip
If two types of Bridge units are mixed, they can be freely arranged in random order.

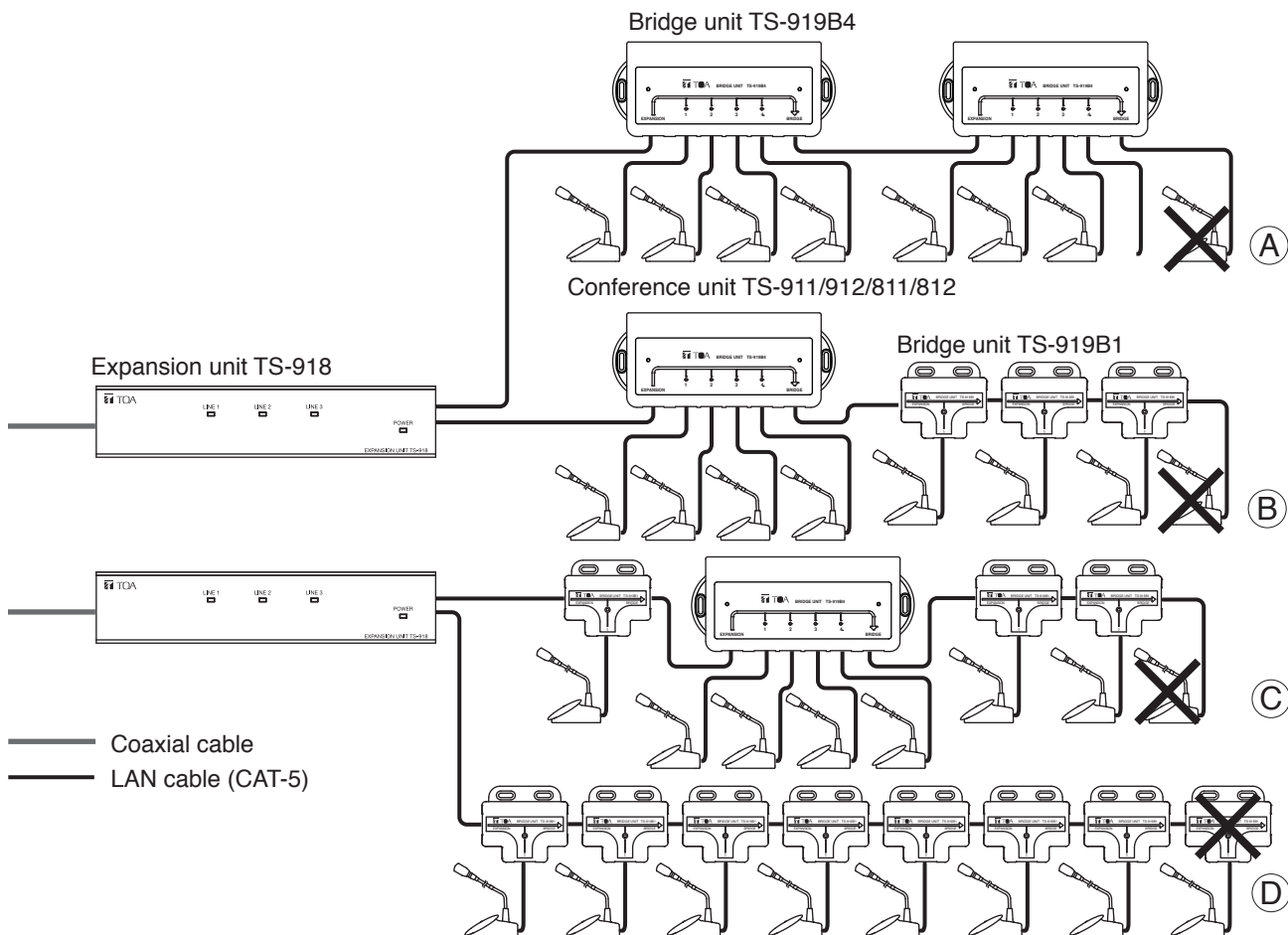
Note
When the units are connected beyond the maximum number of units, this may cause the Conference units to malfunction.

7.2.4. Connecting 8 Conference units to one of the Expansion unit's terminals

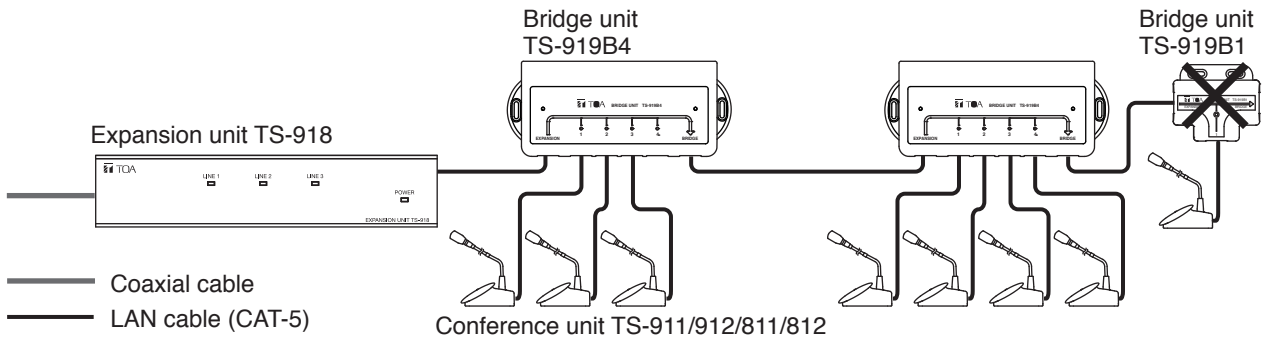


Notes

- The Conference units cannot be connected to the TS919B4's Bridge output terminal. (Refer to the example A.)
- When both the TS-919B4 and TS-919B1 are used in the same system, the Conference units cannot be connected to the TS-919B1's Bridge output terminal. (Refer to the examples B and C.)
- Only when all the connected Bridge units are TS-919B1s, up to 7 TS-919B1s can be connected to a single terminal of the Expansion unit. The 8th TS-919B1 cannot be connected. (Refer to the example D.)



- There is restriction on the number of the Bridge units that can be connected to one of the Expansion unit's Bridge unit connection terminals. (Refer to p. 25.)



7.3. Wiring

7.3.1. Type of cable used

Connection	Cable	
Between the Central unit and the Expansion unit	Coaxial cable	Use one of the following types: RG-59/U, RG-6/U, and RG-11/U.
Between the Expansion unit and the Conference units	LAN cable	Use LAN cables that are compatible with UTP Category 5 (straight cable) or that can support transmission speeds exceeding that of Category 5 cable.

7.3.2. Extendable cable distances

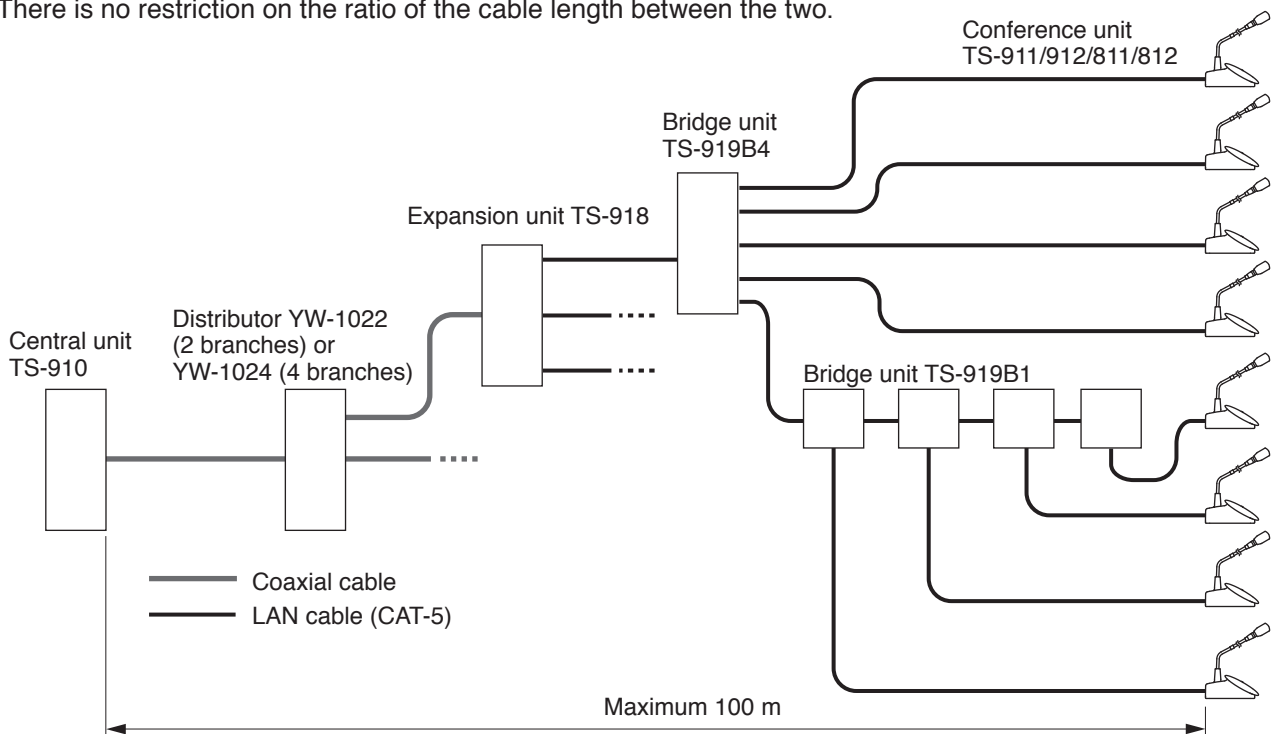
The extendable distance differs depending on whether or not a Distributor is used.

[When using the Distributor (Maximum cable distance: 100 m)]

Distance between the Central unit and each Conference unit: 100 m* max.

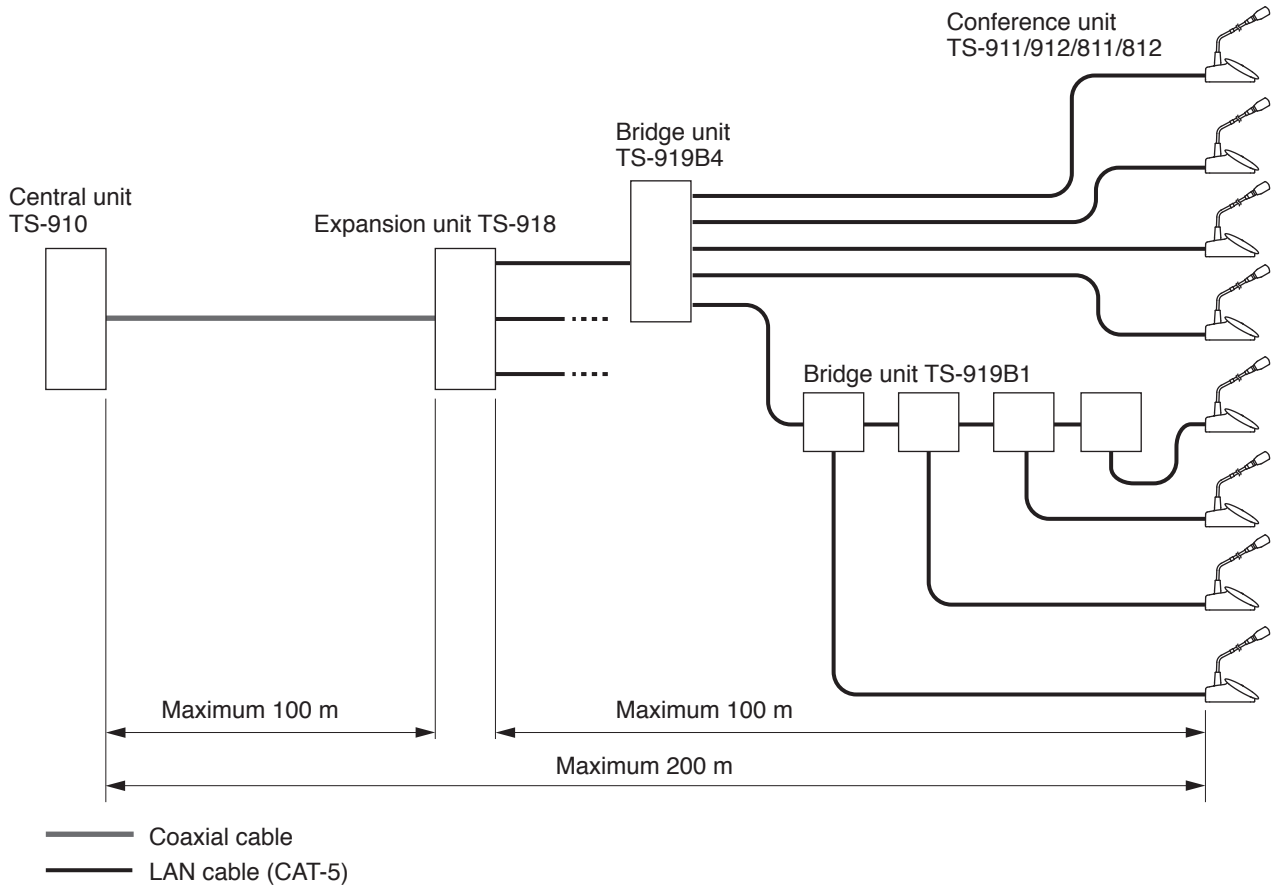
* Total distance of coaxial cable and LAN cable.

There is no restriction on the ratio of the cable length between the two.



[When using no Distributor (Maximum cable distance: 200 m)]

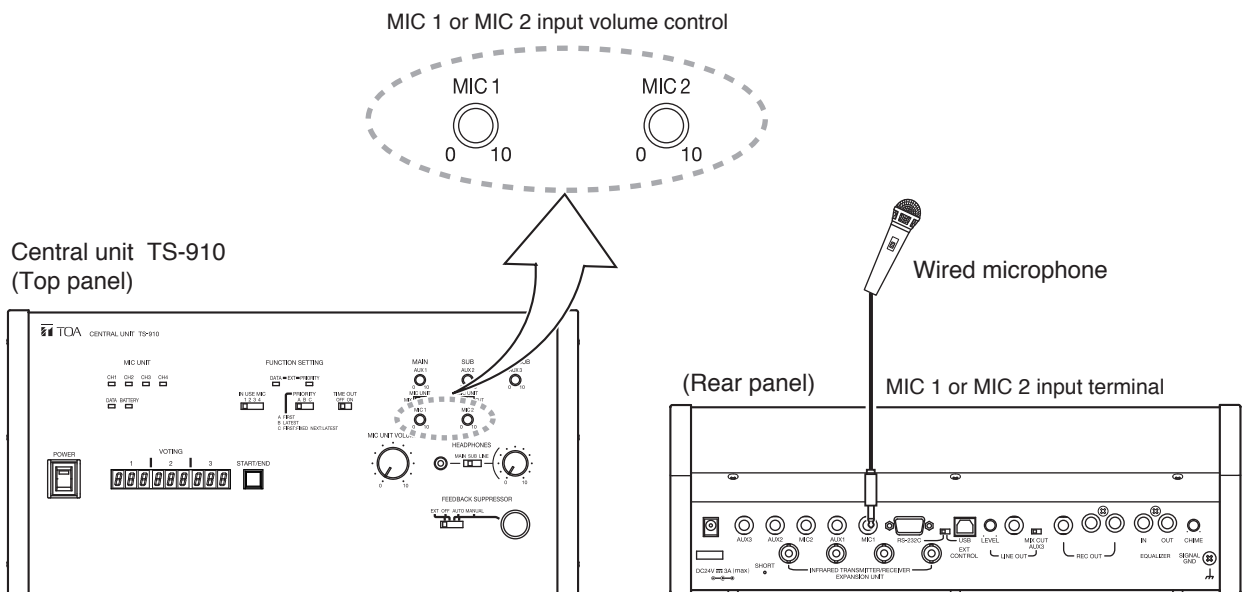
Distance between the Central unit and Expansion unit: 100 m max.
 Distance between the Expansion unit and each Conference unit: 100 m max.
 Distance between the Central unit and each Conference unit: 200 m max.



8. USING WIRED MICROPHONES AND SOUND SOURCE EQUIPMENT

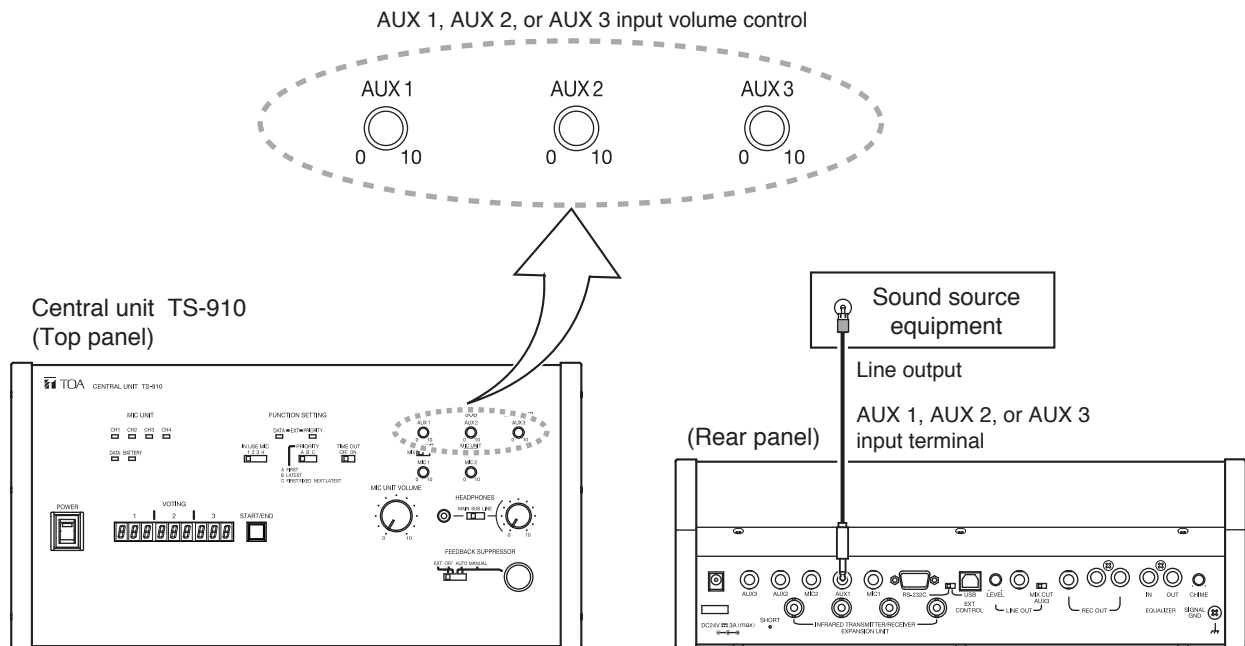
8.1. Wired microphone use

Connect a wired microphone to the Central unit's MIC input and adjust its volume with the corresponding MIC input volume control.



8.2. Sound source equipment use

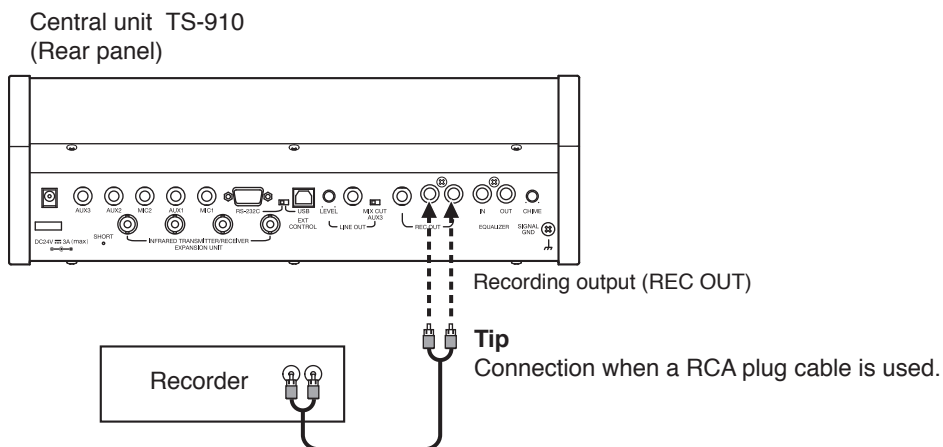
Connect sound source equipment to the Central unit's AUX input and adjust its volume with the corresponding AUX input volume control.



9. RECORDING EQUIPMENT CONNECTION

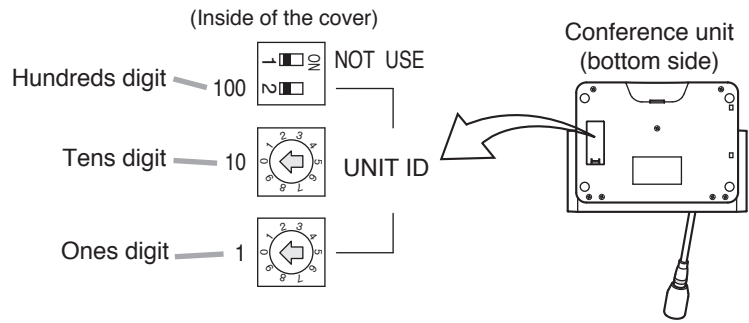
Connect the recorder's recording input terminal to the Central unit's recording output terminal. If the recorder has its recording level control, adjust it to an appropriate recording level.

Tip: For operation of the recorder, refer to the instruction manual included with the recorder.



10. CONFERENCE UNIT INSTALLATION AND SETTINGS

Step 1. Use a screwdriver to set the Unit address number setting switch located on the unit's bottom side. Set a numeral for the ones place and tens place. As for the hundreds place, shift this switch to OFF for a numeral "0" and to ON for "1." Set the unit address number (001 – 192), taking care to ensure that the same number is not duplicated in the system.

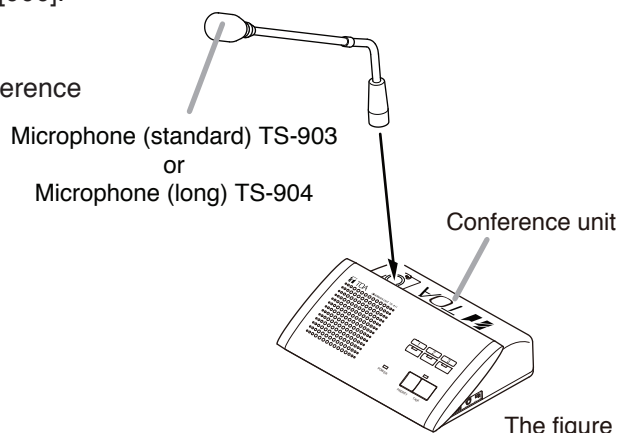


If the number [000] is assigned to a unit, the user of that unit cannot speak. However, the unit can be used for monitoring.

Note

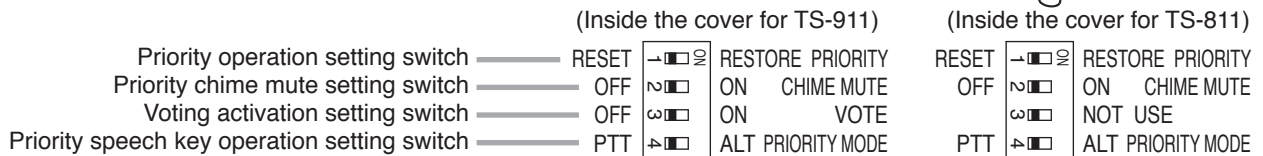
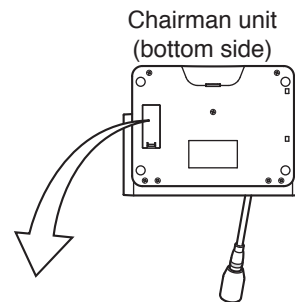
This number is factory-preset to [000].

Step 2. Mount the microphone to the Conference unit.



Step 3. Set the Priority operation, Priority chime mute, Voting activation, and Priority speech key operation functions using the DIP switch located on the Chairman unit's bottom side.

Setting switch	Factory-preset position
Priority operation setting switch	RESET
Priority chime mute setting switch	OFF
Voting activation setting switch	OFF
Priority speech key operation setting switch	PTT



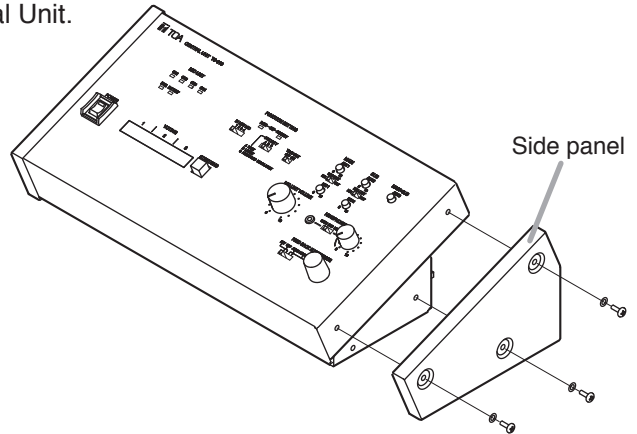
Step 4. Turn on the same number of microphones on the Conference units as the maximum number of simultaneous speakers set at the Central unit. Speaking into the microphone, adjust the Central unit's Speech volume control to an appropriate level.

Step 5. Initiate speech from the microphones of all Conference units, and confirm that acoustic feedback is not produced. If feedback occurs, widen the distance between the Chairman unit and the Delegate unit or reduce the output volume to prevent feedback. When feedback still remains, use the FBS function built in the Central unit, or an external graphic equalizer to suppress it. (Refer to "IF ACOUSTIC FEEDBACK OCCURS" on p. 42.)

11. RACK MOUNTING

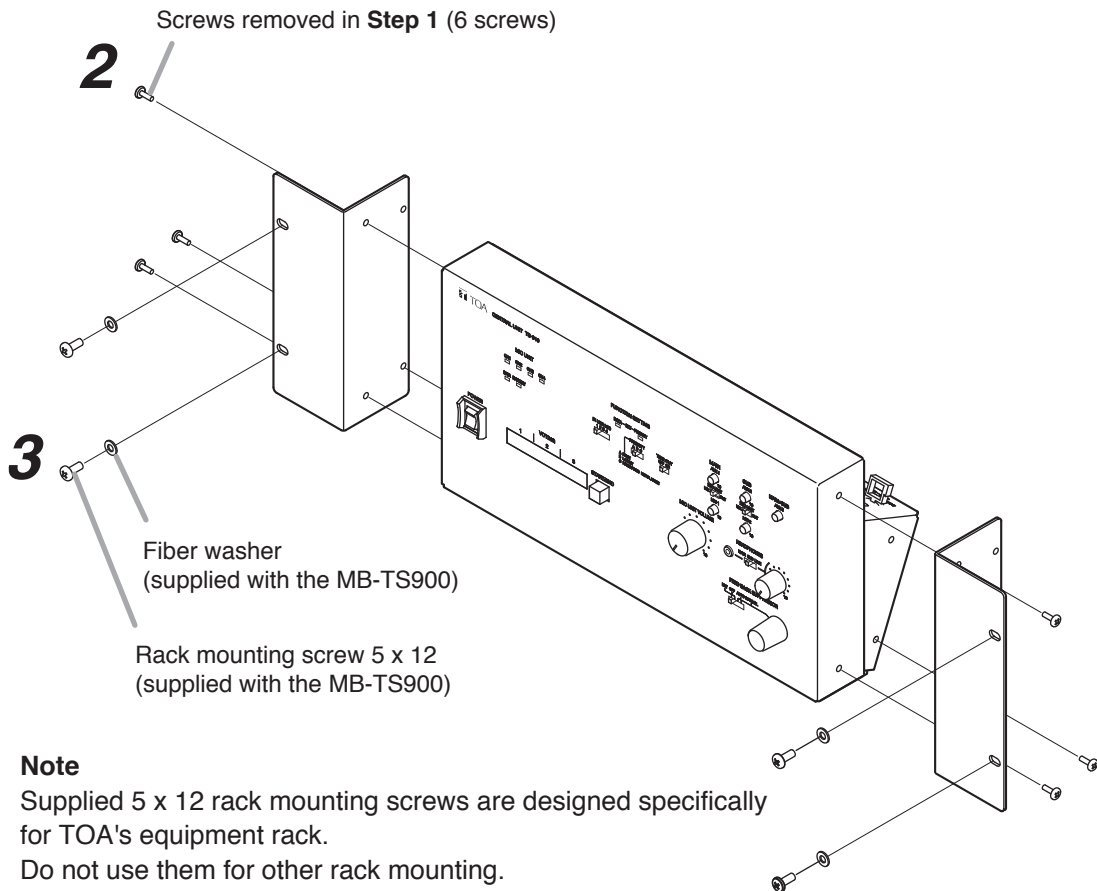
11.1. Mounting the Central Unit on a Rack

Step 1. Detach both side panels of the TS-910 Central Unit.
Removed screws are used in **Step 2**.



Step 2. Attach the MB-TS900 Rack Mounting Bracket to both sides of the Central Unit.
Use the screws removed in **Step 1**.

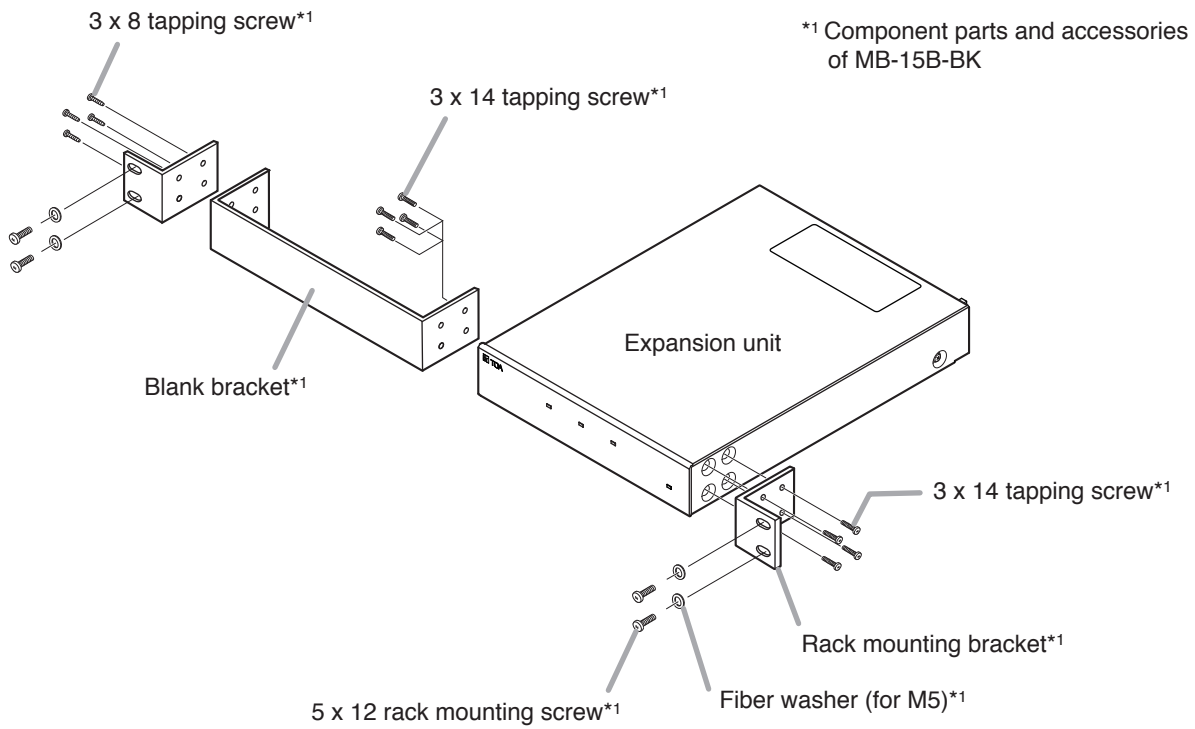
Step 3. Mount the Central unit equipped with the mounting brackets in the rack.
Use the rack mounting screws and fiber washers supplied with the rack mounting bracket.



11.2. Mounting the Expansion Unit on a Rack

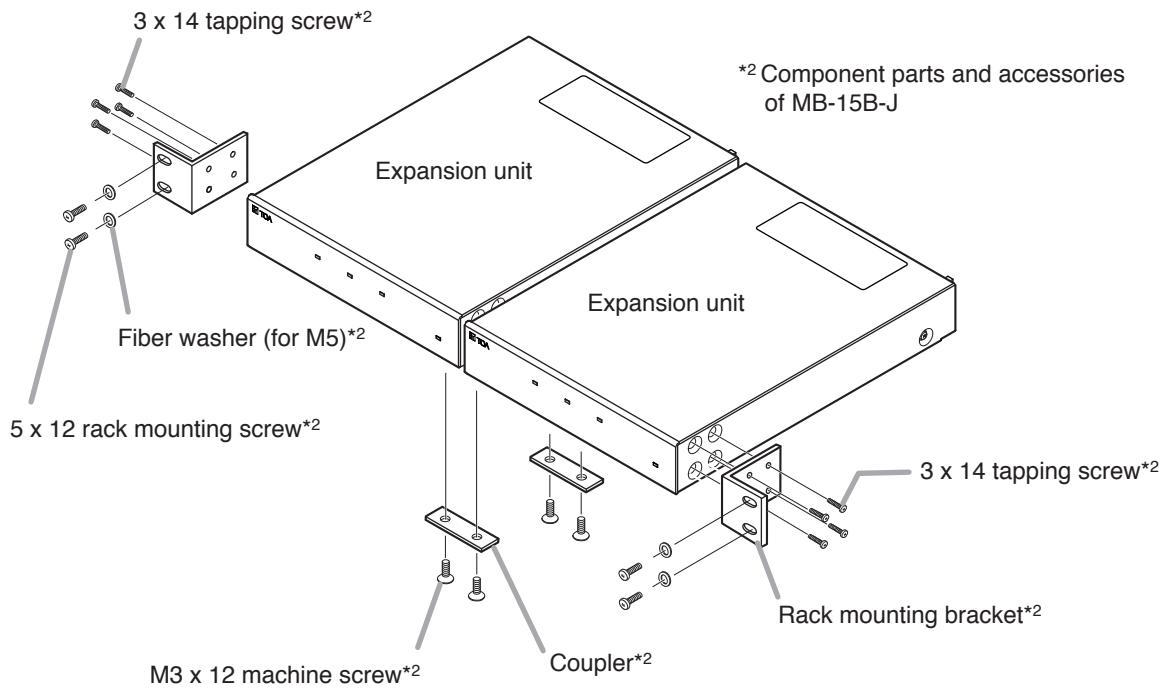
- Use the optional MB-15B-BK hardware set when mounting a single unit.

Remove 8 screws located on both sides of the unit, then attach the optional hardware as shown below.



- Use the optional MB-15B-J hardware set when mounting 2 units.

Remove 4 screws each located on left or right side of the unit, then attach the optional hardware as shown below.



12. INSTALLATION STATUS CONFIRMATION

Installation status for the Expansion unit, Bridge unit, and Conference units can be checked from the Central unit. Confirm their installation status after completing installation and connection.

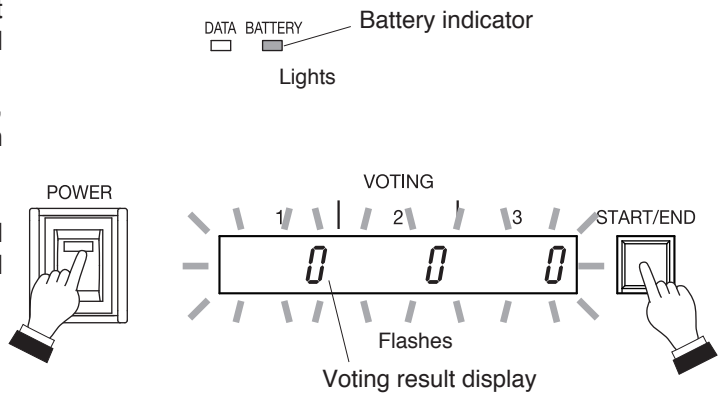
Note

None of the unit's functions can be used while in installation status confirmation mode, except Priority Speech initiated from the Chairman unit.

Step 1. Switch on the power to the Central unit while holding down its Voting Start/End button.

The Central unit's Battery indicator lights, placing the unit in installation confirmation mode.

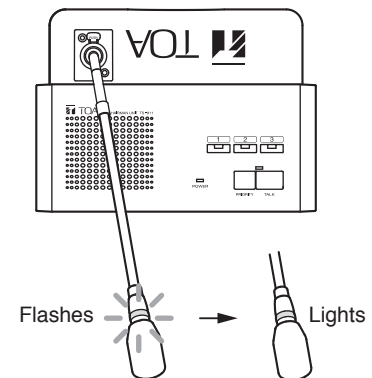
1-1. Each segment (1 – 3) of The Central unit's Voting Result display shows [0] and flashes.



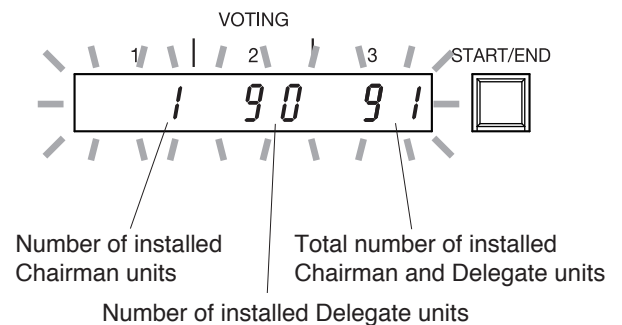
1-2. When a connection check signal is output from the Central unit, the microphone in-use indicator on the Conference unit that has received the signal flashes.

1-3. An acknowledgement signal is transmitted from each Conference unit.

1-4. A response confirmation signal is output from the Central unit that has received the acknowledgement signal, and the microphone in-use indicator on the Conference unit that has received the signal changes from flashing to steady ON.

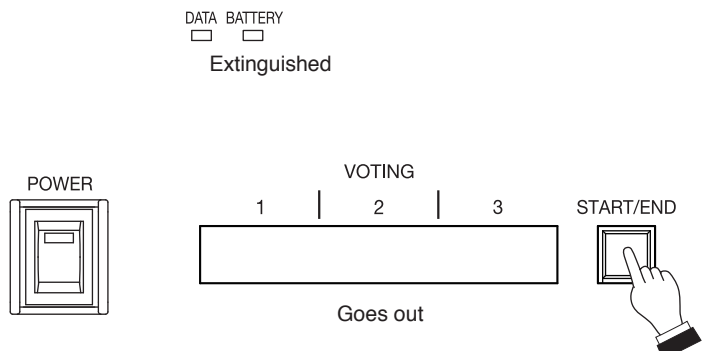


1-5. Each segment (1 – 3) of the Voting Result display provides a flashing indication of [the number of installed Chairman units], [the number of installed Delegate units], and [the total number of installed Chairman and Delegate units], respectively.

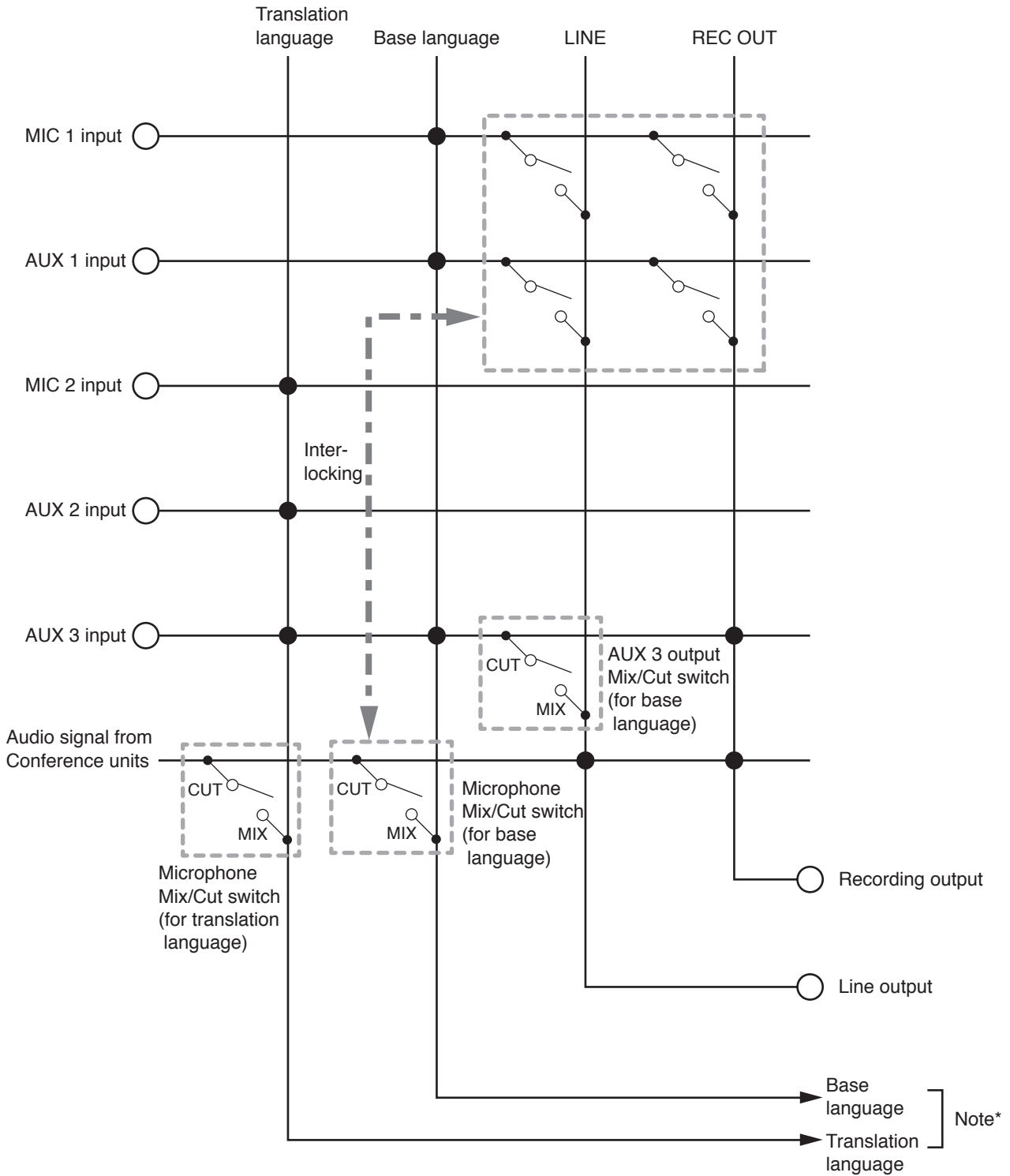


Step 2. Press the Voting Start/End button for 1 second or more after confirming the indication.

The Central unit's Battery indicator and Voting Result display (1 – 3) turn off. The microphone in-use indicators on the Conference units also go out, and the installation status confirmation mode is terminated, returning the system to normal operation mode.



13. SIGNAL FLOW DIAGRAM INSIDE THE CENTRAL UNIT



* Sent to each Conference unit via Expansion unit.

14. FUNCTION SETTINGS

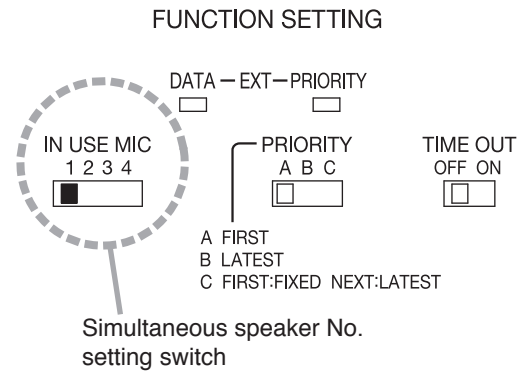
14.1. Setting the Maximum Number of Simultaneous Speakers

Using the Simultaneous Speaker No. Setting switch on the TS-910 Central Unit, set the maximum total number of Conference units that can simultaneously initiate speech.

Set the switch to [1], [2], [3], or [4] depending on the type of the conference. These numbers indicate the number of units that can simultaneously initiate speech. (This switch is factory-pretset to the [1] position.)

Note

When the Talk key is pressed at a unit exceeding the set maximum number, how the corresponding unit operates can be determined in the speech priority settings referred to in the next section.



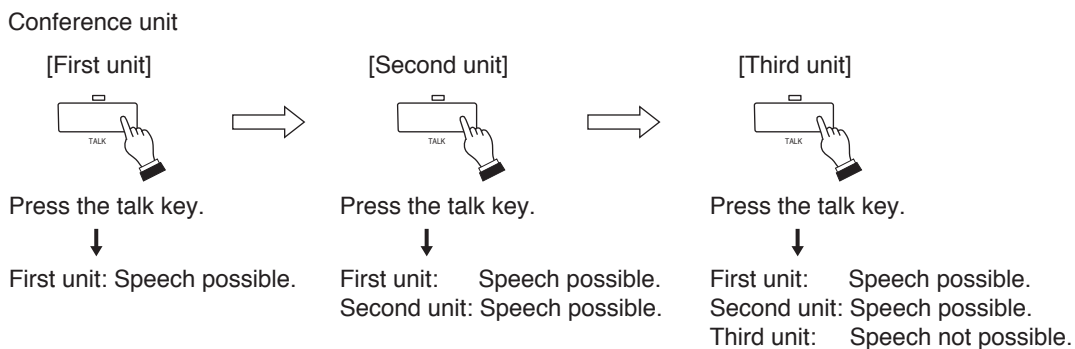
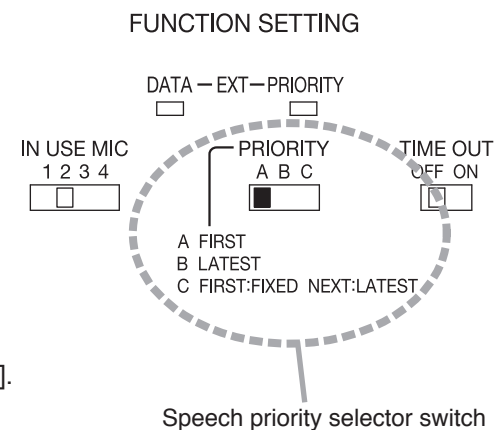
14.2. Speech Priority Settings

Operation following the depression of the Talk key on a Conference unit, when the maximum number of speakers that can be simultaneously initiated is reached, can be selected with the Speech Priority Selector switch on the TS-910 Central unit.

14.2.1. Mode A: First-in/first-out priority (factory-pretset switch position)

Speech is initiated on a first-come/first-served basis. When the maximum number of speakers is reached, subsequent speech requests cannot be accepted, even if the Talk key is pressed.

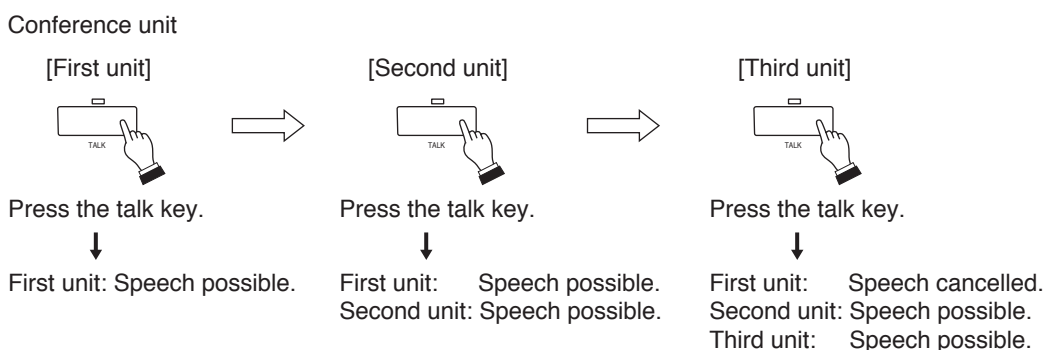
- Example showing the number of simultaneous speakers set to [2].



14.2.2. Mode B: Last-in/first-out priority

When the maximum number of simultaneous speakers is reached, input from the most recent subsequent Talk key-pressed Conference unit takes precedence, thus rendering earlier speaking units inoperable.

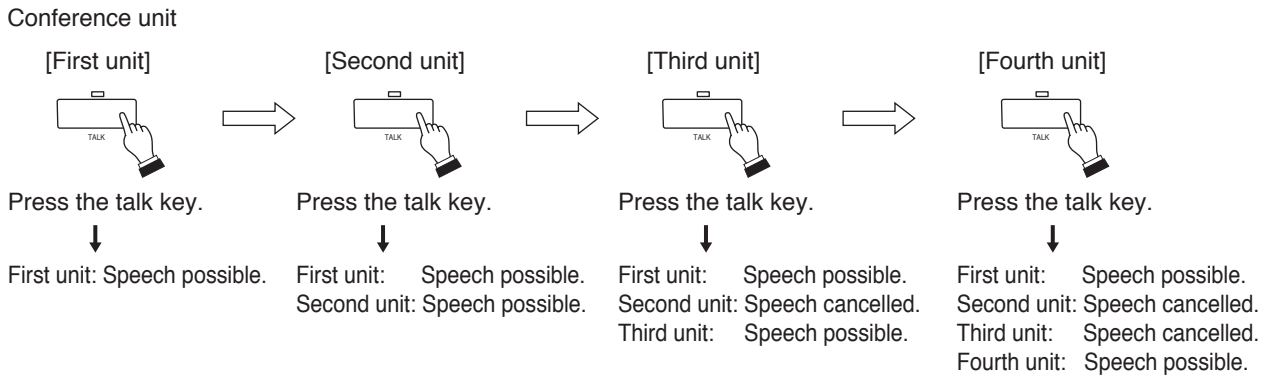
- Example showing the number of simultaneous speakers set to [2].



14.2.3. Mode C: Priority fixed for first-enabled unit, and last-in/first-out priority for all subsequent units

The first-enabled Conference unit is given fixed speech priority until its Talk key is pressed again. All subsequent Talk key-pressed units are given last-in/first-out priority, as in Mode B.

- Example showing the number of simultaneous speakers set to [2].



14.3. Mic-Off Function

This function automatically turns off the microphone if the user neglects to turn it off following speech completion.

This function is enabled when the Mic-Off Setting switch on the TS-910 Central Unit is set to the ON position.

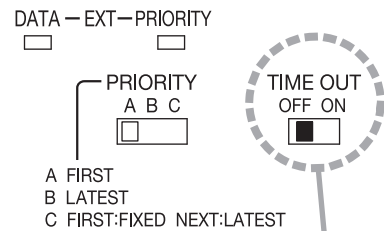
The microphone automatically turns off if a duration of silence lasts for about 30 seconds.

It is recommended that the Mic-Off switch be set to the OFF position when not specifically using this function. (The Mic-Off switch is factory-preset to the OFF position.)

Notes

- When the Mic-Off switch is set to the ON position, the microphone automatically turns off if there is a silent interval of about 30 seconds, even though a speech may be in progress. In conferences, where long pauses during speeches can be experienced, set the switch to the OFF position.
- The Mic-Off function may not be operated correctly in high-noise areas.

FUNCTION SETTING

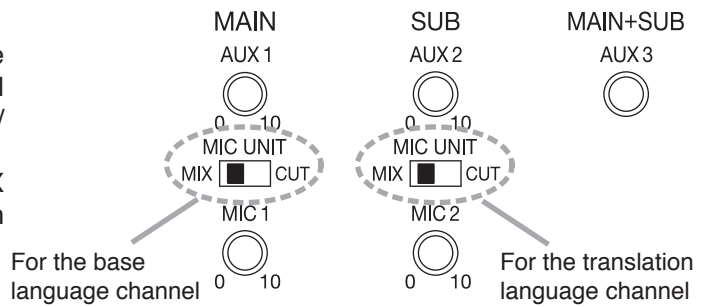


Mic-off setting switch

15. MICROPHONE MIX/CUT SWITCH SETTINGS

Whether to output voice signals from Conference units to the base or translation language channel can be determined by setting the Microphone Mix/Cut switch on the TS-910 Central unit.

Outputs for individual inputs (MIC 1 – 2, and AUX 1 – 3) to the Central Unit also change depending on the switch setting.



[Switch Setting Relationship of Input to Base/Translation Language Channel]

- Speech output from Conference units depends on the switch setting. When the MAIN switch is set to the MIX position, speech is output to the base language channel. When the SUB switch is set to the MIX position, speech is output to the translation language channel.
- Inputs to the MIC 1 and AUX 1 terminals are output to the base language channel, except during priority speech from the Chairman unit, regardless of the switch setting.
- Inputs to the MIC 2 and AUX 2 terminals are output to the translation language channel, except during priority speech from the Chairman unit, regardless of the switch setting.
- Inputs to the AUX 3 terminal are always relayed to both the base and translation language channels regardless of the switch setting.

[Input/Output Relationship to Switch Settings]

Microphone Mix/Cut switch		Input	Output			
			Monitor speaker on the Conference unit Headphones* on the Central unit		Central unit	
MAIN	SUB		Base language	Translation language	Line output Headphone*	Recording output
MIX	MIX	Conference unit	✓	✓	✓	✓
		MIC 1	✓	—	✓	✓
		AUX 1	✓	—	✓	✓
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
MIX	CUT	Conference unit	✓	—	✓	✓
		MIC 1	✓	—	✓	✓
		AUX 1	✓	—	✓	✓
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	MIX	Conference unit	—	✓	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—
CUT	CUT	Conference unit	—	—	✓	✓
		MIC 1	✓	—	—	—
		AUX 1	✓	—	—	—
		MIC 2	—	✓	—	—
		AUX 2	—	✓	—	—

✓ : Indicates that individual inputs are output.

— : Indicates that individual inputs are not output.

△ : Indicates that output can be determined by the setting of the AUX 3 Output Mix/Cut switch (located on the TS-910's rear panel).

* Select output from MAIN (base language), SUB (translation language), and LINE (line output) sources using the Headphone Channel Selector switch.

16. OPERATION

16.1. Initiating Speech

Step 1. Press the Talk key on the Conference unit.

The Speech indicator and Microphone In-Use indicator light, placing the unit in speech mode.

No sound is output from the monitor speaker while both indicators are continuously lit.

Note

The unit cannot be used for speech if the indicators do not light.

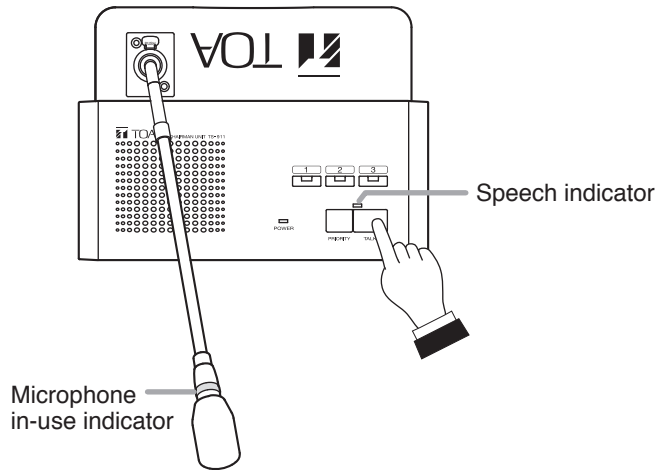
Step 2. Speak into the microphone.

Step 3. Press the Talk key again after speech completion.

The indicators go out, and sound can be output from the monitor speaker.

Note

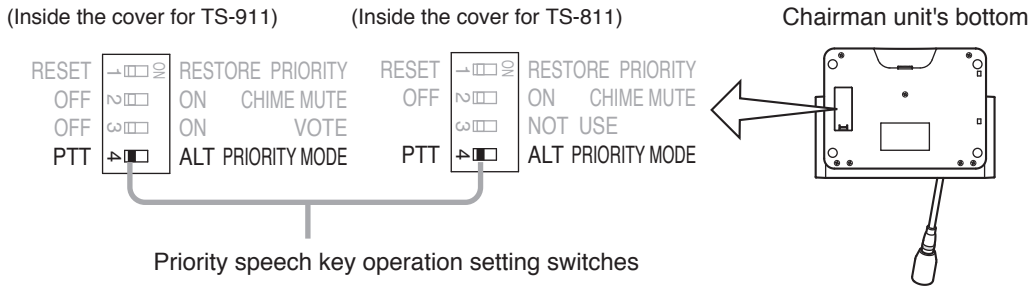
When the user forgets to turn off the microphone, the Mic-Off function automatically turns off the microphone approximately 30 seconds after speech completion. (Refer to p. 36.)



The figure shows the TS-911.

16.2. Initiating Priority Speech (TS-911 and TS-811 only)

The Chairman unit features the function that allows its speech to take precedence over that of the Delegate unit. The Chairman unit's speech is prior to the AUX 1, AUX 2, AUX 3, MIC 1, and MIC 2 inputs. The priority speech method can be determined by the Priority speech key operation setting switch built in the Chairman unit's bottom.



16.2.1. When the Priority Speech key is set to PTT type (Factory-preset)

Step 1. Speak while holding down the Priority Speech key. Both the Speech indicator and the Microphone In-Use indicator light, placing the unit in priority speech mode. No sound is output from the monitor speaker while both indicators are continuously lit. A chime tone* sounds at other units, preventing them from being used for speaking.

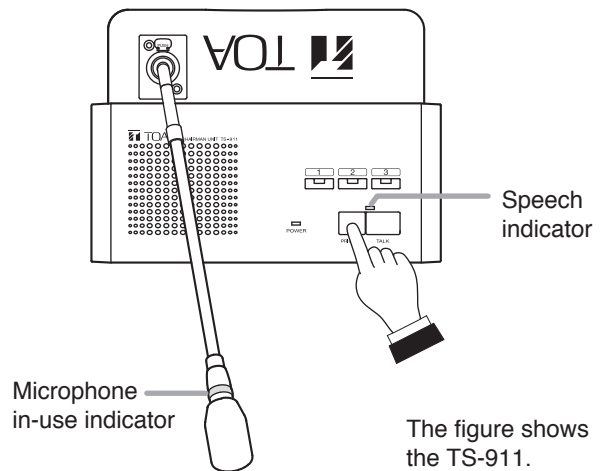
* The chime tone can be enabled or disabled using the Priority Chime Mute switch located on the bottom side of the unit.

ON: No chime sounds.

OFF: Chime sounds. (Factory-preset position)

Note

When two or more Chairman units are used in a system, a priority speech currently in progress from one unit can be interrupted by pressing the Priority Speech key of another Chairman unit, allowing the latter unit to go through. (Last-in-first-out priority)



Step 2. Release the Priority Speech key after speech completion.

Both indicators go out, and sound can be output from the monitor speaker.

Note

After the priority speech is completed, the other interrupted unit resumes operation as predetermined by the setting of the Interrupted Priority Operation Setting switch located on the bottom side of the unit.

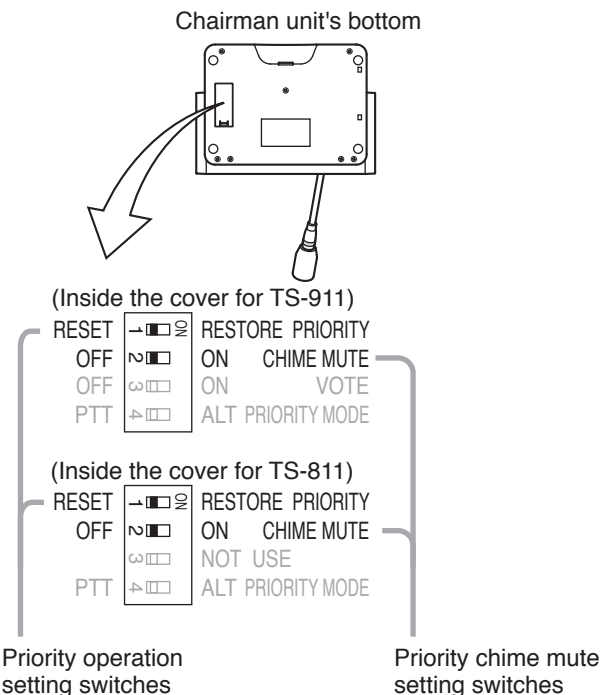
RESTORE: Resumes the unit's mode prior to being interrupted by the priority speech.

RESET: Resets all units currently being used for speech (Factory-preset position).

When an interrupted party wishes to continue to speak, the Speech key must again be pressed.

Note

The Chairman unit that initiated the priority speech automatically returns to its original mode following priority speech completion, regardless of its priority Operation Setting switch setting.



16.2.2. When the Priority Speech key is set to ALT type

Step 1. Press the Priority Speech key.

Both the Speech indicator and the Microphone In-Use indicator light, placing the unit in priority speech mode. No sound is output from the monitor speaker while both indicators are continuously lit. A chime tone* sounds at other units, preventing them from being used for speaking.

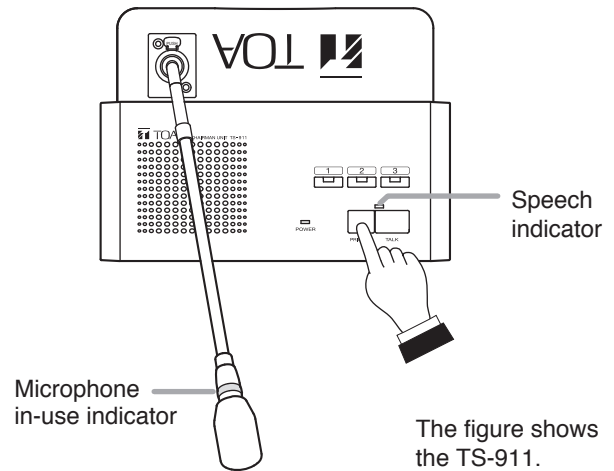
* The chime tone can be enabled or disabled using the Priority Chime Mute switch located on the bottom side of the unit.

ON: No chime sounds.

OFF: Chime sounds. (Factory-preset position)

Note

When two or more Chairman units are used in a system, a priority speech currently in progress from one unit can be interrupted by pressing the Priority Speech key of another Chairman unit, allowing the latter unit to go through. (Last-in-first-out priority)



The figure shows the TS-911.

Step 2. Speak into the microphone.

Step 3. Press the Priority Speech key again after speech completion.

Both indicators go out, and sound can be output from the monitor speaker.

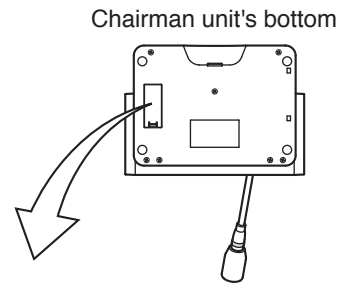
Note

After the priority speech is completed, the other interrupted unit resumes operation as predetermined by the setting of the Interrupted Priority Operation Setting switch located on the bottom side of the unit.

RESTORE: Resumes the unit's mode prior to being interrupted by the priority speech.

RESET: Resets all units currently being used for speech (Factory-preset position).

When an interrupted party wishes to continue to speak, the Speech key must again be pressed.



(Inside the cover for TS-901/911)

RESET		RESTORE PRIORITY
OFF		ON CHIME MUTE
OFF		ON VOTE
PTT		ALT PRIORITY MODE

(Inside the cover for TS-801/811)

RESET		RESTORE PRIORITY
OFF		ON CHIME MUTE
		NOT USE
PTT		ALT PRIORITY MODE

Priority operation setting switches

Priority chime mute setting switches

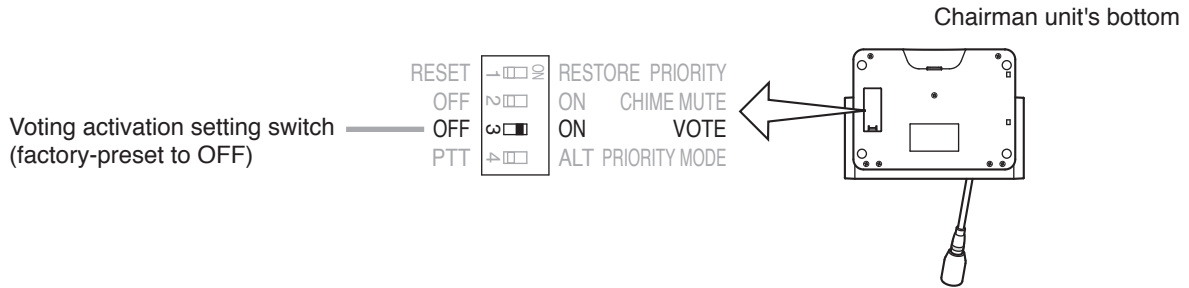
Note

The Chairman unit that initiated the priority speech automatically returns to its original mode following priority speech completion, regardless of its priority Operation Setting switch setting.

16.3. Voting (TS-911 and TS-912 only)

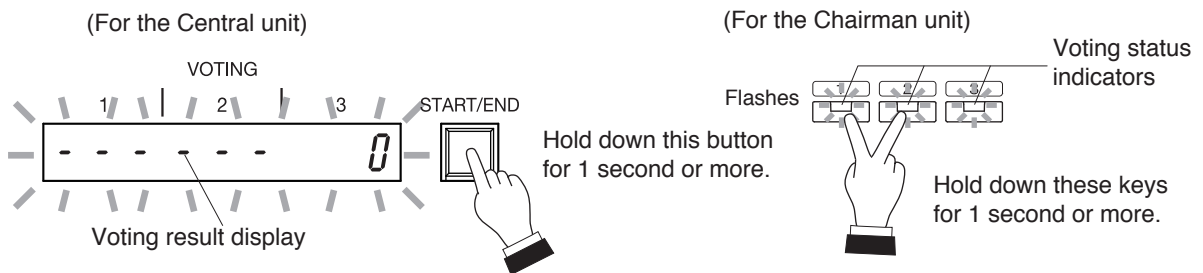
Voting can be started and terminated from the Central unit or the Chairman unit.

To perform this operation from the Chairman unit, set the Voting activation setting switch to ON as shown in the figure.



Step 1. Place the system in voting mode.

On the Central unit, hold down the Voting Start/End button for 1 second or more. On the Chairman Unit, simultaneously press Voting keys [1] and [2] for 1 second or more.



The Voting Result display (1 – 3) on the Central unit, and the Voting Status indicators on the Conference units flash, enabling voting.

(In this event, the Voting Result Display shows [--- --- 0].)

Only a priority speech can be initiated by way of the Chairman unit's priority speech key during voting operation, and the currently used microphones of all other units are turned off.

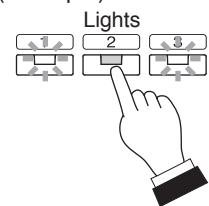
Step 2. Vote.

Press the desired Voting key on the Conference unit, and the corresponding Voting Status indicator lights.

(Other Voting Status indicators remain flashing.)

The totaled number of votes polled with the press of the vote keys is instantly displayed on the Central unit's voting result display.

(Example)



Tips

- To cancel voting
Press the lit key (initially pressed for voting) again.
All keys will flash, indicating that voting is cancelled.
- To change voting
Press any flashing key (to use in voting).
The first key pressed is cancelled, and the last key pressed is enabled and continuously lit.

Step 3. Terminate voting.

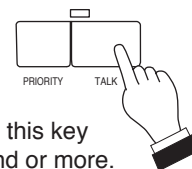
Again hold down the Voting Start/End button on the Central unit for 1 second or more or alternatively the Chairman unit's Talk key.

Voting operations from the Conference units are confirmed and Voting Status indicators [1] through [3] go out. The result of computed votes is displayed on Voting Result displays [1] through [3] on the Central unit.

Note

If voting operation was activated by the Central unit, this operation cannot be terminated by the Chairman unit. However, if it was activated by the Chairman unit, it can be terminated by the Central unit as well.

(For the Chairman unit)



Hold down this key for 1 second or more.

Step 4. Clear the Voting Result display.

Press the Voting Start/End button on the Central unit for 1 second or more once again. The display contents are cleared from the Central unit's Voting Result display.

17. IF ACOUSTIC FEEDBACK OCCURS

An annoying screeching sound may be produced when using a public address system. It is referred to as "Acoustic feedback*" that will occur at various frequencies depending on the surrounding environment.

The TS-910's built-in Feedback suppressor (FBS) function effectively suppresses acoustic feedback through simple operation (depresses the volume level at the feedback frequency). If the built-in FBS function cannot deal with the acoustic feedback, an external graphic equalizer (prepare separately) can be used for more effective feedback suppression.

Note

The following measures against acoustic feedback are effective for suppressing feedback only caused by the Conference unit, but not effective for the feedback caused by the external microphone.

If acoustic feedback stops by fully turning down the volume of the external microphone, you will find that the external microphone is the cause of the feedback.

In this case, decrease the external microphone's volume to a level that feedback does not occur or use the external microphone away from the speaker.

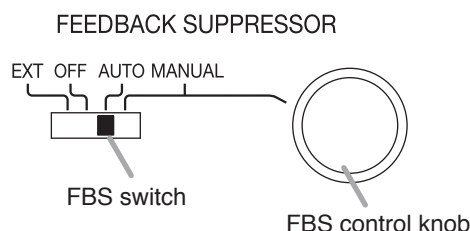
* It will occur when a feedback loop is formed in the process that sound from a speaker is picked up by a microphone, re-amplified, and output through the speaker.

17.1. Using the Built-in FBS function

To perform the FBS function, use the FBS switch and FBS control knob. When using the built-in FBS function, perform it in automatic operation mode first.

Note

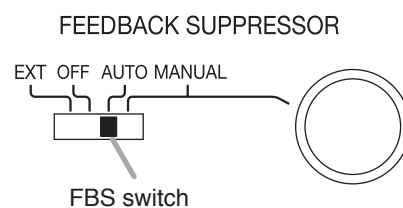
If acoustic feedback cannot be suppressed with the built-in FBS function, widen the distance between the Chairman unit and Delegate units, reduce the output volume, or use an external graphic equalizer. (Refer to p. 43.)



17.1.1. Using in automatic operation mode (AUTO mode)

Set the Feedback suppressor switch to the AUTO position.

The FBS function automatically searches a frequency that will cause acoustic feedback and suppresses the feedback by decreasing the volume level at such frequency.



17.1.2. Using in manual operation mode (MANUAL mode)

If acoustic feedback does not stop even using the FBS function in automatic operation mode, follow the procedure below to search the frequency that caused feedback, then suppress the feedback.

Step 1. Set the Feedback suppressor switch to the MANUAL position.

Step 2. While gradually rotating the Feedback suppressor control knob counterclockwise until it stops, seek the feedback point.

If acoustic feedback point is found, stop rotating the knob and do not touch it any more.

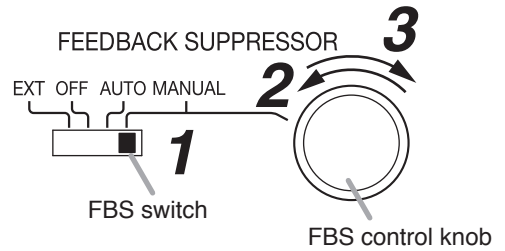
Note

Do not apply excessive force to the knob when it comes to a stop, as doing so may cause damage to the knob.

Step 3. If acoustic feedback does not stop even when the knob reaches the immovable position, seek the feedback point by gradually rotating the FBS control knob clockwise to its stop. If acoustic feedback point is found, stop rotating the Knob and do not touch it any more.

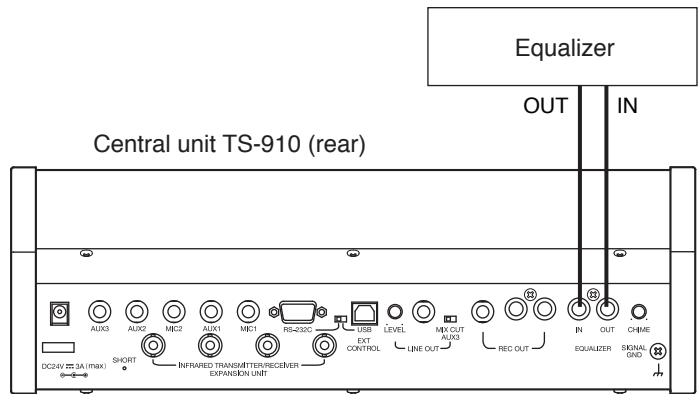
Note

When feedback occurs again, repeat **Steps 2 and 3** to find the feedback point once again.

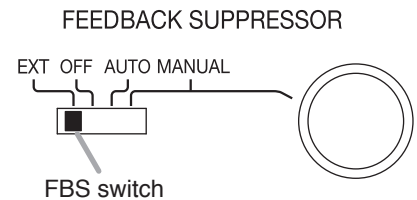


17.2. Using an External Graphic Equalizer

Step 1. Connect an external equalizer to the unit as shown below.



Step 2. Set the FBS switch to the EXT position.



Step 3. Take measures against acoustic feedback using the graphic equalizer. For operation method of the graphic equalizer, read the instruction manual supplied with it.

18. IF A FAILURE IS DETECTED

18.1. Chairman Unit TS-911/811 and Delegate Unit TS-912/812

Symptom	Cause and Points to Check	Remedy
Cannot turn ON power.	Both the Central unit and the Expansion unit are not powered up.	Switch on the Central unit's power and power up the Expansion unit through the AC adapter.
	They are not connected properly.	Check all connections. (Refer to the "CONFERENCE UNIT CONNECTION" on p. 22.)
No sound output from the speaker or headphone.	Monitor Selector switch not correctly set. (TS-911/912 only)	Set the switch to the position where sound can be heard.
	Central unit's Microphone Mix/Cut switch not correctly set.	
	Monitor volume control not correctly adjusted.	Adjust the volume to an appropriate level.
	Headphone plug not fully inserted.	Insert the headphone plug fully into the jack.
Cannot initiate speech.	Central Unit's rear panel-mounted Short Circuit indicator remains lit.	Check the cable connected to the Central Unit's Expansion unit I/O terminals.
Cannot operate the Talk key.	Unit address numbers outside range of 001 – 192.	Set the unit address number within the range of 001 – 192. (Refer to the "CONFERENCE UNIT INSTALLATION AND SETTINGS" on p. 30.)
	They are not connected properly.	Check all connections. (Refer to the "CONFERENCE UNIT CONNECTION" on p. 22.)
	Priority speech is in progress.	Operate the key after the priority speech is completed.
Indicator on the microphone goes out during speech.	Mic-Off function set to ON.	Disable the Mic-Off function if a long pause is made during speech.
Chime does not sound when the Priority Speech key is pressed.	Central unit's rear panel-mounted Priority Chime volume control is set to the minimum volume position.	Adjust the volume control to an appropriate level.
	The Priority chime mute switch in the Chairman unit's bottom is set to ON.	Set the Priority chime mute switch to OFF.
Mic-Off function does not work.	High background noise level generated by such equipment as air conditioners.	In areas where the background noise level is high, the Mic-Off function may not work. Reposition in a low-noise location or turn off the Mic-Off function.

18.2. Central Unit TS-910

Symptom	Cause and Points to Check	Remedy
Cannot switch ON the power.	Power cord or DC plug not connected.	Correctly connect the power cord and DC plug supplied with the Central unit. (Refer to the "SYSTEM CONNECTION EXAMPLES" on p. 21.)

19. SPECIFICATIONS

19.1. Central Unit TS-910

Power Source	100 – 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	72 W
Current Consumption	Max. 3 A DC (when 24 V DC is supplied from the supplied AC adapter)
Carrier Frequency	Reception: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Transmission: Base language channel: 1.95 MHz Translation language channel: 2.25 MHz
Input	MIC 1 (Base Language): –60 dB*, 600 Ω, unbalanced, ø6.3 mm phone jack (2P) MIC 2 (Translation Language): –60 dB*, 600 Ω, unbalanced, ø6.3 mm phone jack (2P) AUX 1 (Base Language): –20 dB*, 10 kΩ, unbalanced, ø6.3 mm phone jack (2P) AUX 2 (Translation Language): –20 dB*, 10 kΩ, unbalanced, ø6.3 mm phone jack (2P) AUX 3 (Bass and Translation Language): –20 dB*, 10 kΩ, unbalanced, ø6.3 mm phone jack (2P)
Output	LINE: –20 dB*, 10 kΩ, unbalanced, ø6.3 mm phone jack (2P) REC: –20 dB*, 10 kΩ, unbalanced, ø6.3 mm phone jack (2P), RCA pin jack HEADPHONES: ø3.5 mm mini jack (3P: monaural)
External Equalizer	Input: –20 dB*, 10 kΩ, unbalanced, RCA pin jack Output: –20 dB*, 10 kΩ, unbalanced, RCA pin jack
Number of Connectable Chairman/Delegate Units	192 units
Expansion unit I/O Terminal	BNC jack
Number of Connectable Expansion Units	4 units (Up to 8 units connectable when using a distributor)
LED Indicator	Voting result indicators 1 – 3 (7-segment LED, 3 digits), Audio signal receiving indicators 1 – 4 CH, Data signal receiving indicator, External control priority indicator, External control communication indicator, Battery indicator, Short-circuit indicator
External Control Terminal Connection	D-sub connector (9P, male)/USB-B selectable
Function Switch	Simultaneous speaker No. setting switch: 1/2/3/4 Mic-off setting switch: TIME OUT ON/OFF Speech priority selector switch: A/B/C (A: First-in-first-out priority, B: Last-in-first-out priority, C: Fixed for the first unit, and last-in-first-out for the subsequent units) FBS switch: External equalizer/OFF/Auto/Manual
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Panel: Surface-treated steel plate, gray metallic, paint, semi-gloss
Dimensions	359 (w) x 118.8 (h) x 138.2 (d) mm (14.13" x 4.68" x 5.44")
Weight	2.8 kg (6.17 lb)

* 0 dB = 1 V

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

• **Accessory**

AC adapter* (DC cord: 1.8 m or 5.91 ft, Detachable AC cord: 2 m or 6.56 ft) 1

* Not supplied with the TS-918 (KR). For the usable power supply cord and AC adapter, consult your nearest TOA dealer.

19.2. Chairman Unit TS-911, Delegate Unit TS-912

Model No.	TS-911	TS-912
Power Source	24 V DC (supplied from the optional TS-918 Expansion unit)	
Current Consumption	Max. 60 mA	
Modulation Method	Frequency modulation	
Carrier Frequency	Transmission: Audio channel 1 Audio channel 2 Audio channel 3 Audio channel 4 Control channel Reception: Base language channel Translation language channel	7.35 MHz 8.10 MHz 8.55 MHz 9.15 MHz 6.45 MHz 1.95 MHz 2.25 MHz
Input	Microphone terminal: XLR-4-31 type (dedicated for connecting the optional TS-903 or TS-904)	
Output	Monitor speaker: 8 Ω, 0.2 W Headphones: ø3.5 mm mini jack (3P: monaural) x 2	
Connection Terminal	RJ45 connector	
LED Indicator	Speech indicator (flashes at communication failure), Voting status indicators 1 – 3, Power indicator (flashes at communication failure)	
Function	Monitor volume control Headphone volume control Priority speech function Voting function Monitor selector switch (MAIN/SUB)	Monitor volume control Headphone volume control Voting function Monitor selector switch (MAIN/SUB)
Operating Temperature	0 to 40 °C (32 to 104 °F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	Top panel: ABS resin, gray metallic, paint, semi-gloss	
Dimensions	210 (w) x 68.6 (h) x 152 (d) mm (8.27" x 2.7" x 5.98")	
Weight	570 g (1.26 lb)	

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

19.3. Chairman Unit TS-811, Delegate Unit TS-812

Model No.	TS-811	TS-812
Power Source	24 V DC (supplied from the optional TS-918 Expansion unit)	
Current Consumption	Max. 60 mA	
Modulation Method	Frequency modulation	
Carrier Frequency	Transmission: Audio channel 1: 7.35 MHz Audio channel 2: 8.10 MHz Audio channel 3: 8.55 MHz Audio channel 4: 9.15 MHz Control channel: 6.45 MHz Reception: Audio channel: 1.95 MHz	
Input	Microphone terminal: XLR-4-31 type (dedicated for connecting the optional TS-903 or TS-904)	
Output	Monitor speaker: 8 Ω , 0.2 W Headphones: ϕ 3.5 mm mini jack (3P: monaural) x 2	
Connection Terminal	RJ45 connector	
LED Indicator	Speech indicator (flashes at communication failure), Power indicator (flashes at communication failure)	
Function	Monitor volume control Headphone volume control Priority speech function	Monitor volume control Headphone volume control
Operating Temperature	0 to 40 °C (32 to 104 °F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	Top panel: ABS resin, gray metallic, paint, semi-gloss	
Dimensions	210 (w) x 68.6 (h) x 152 (d) mm (8.27" x 2.7" x 5.98")	
Weight	560 g (1.23 lb)	

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

19.4. Microphone (standard) TS-903, Microphone (long) TS-904

Model No.	TS-903	TS-904
Type	Electret condenser microphone	
Directivity	Unidirectional	
Rated Impedance	1.8 k Ω	
Rated Sensitivity	-37 dB (1 kHz, 0 dB = 1 V/Pa)	
LED Indicator	Speech indicator (ring type)	
Frequency Response	100 Hz – 13 kHz	
Output Connector	Equivalent to XLR-4-12C type	
Operating Temperature	0 to 40 °C (32 to 104 °F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	Gooseneck: Stainless steel, black Other: ABS resin, black	
Length	368 mm (1.21 ft)	518 mm (1.7 ft)
Weight	90 g (0.2 lb)	105 g (0.23 lb)
Applicable Unit (Option)	Chairman unit: TS-811, TS-911 Delegate unit: TS-812, TS-912	

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

19.5. Expansion Unit TS-918

Power Source	100 – 240 V AC, 50/60 Hz (use of the supplied AC adapter)
Power Consumption	74.4 W
Current Consumption	Max. 3.1 A DC (when 24 V DC is supplied from the supplied AC adapter)
Gain	Upstream: 16.5 dB Downstream: 12.5 dB
Connection Terminal	Central unit connection terminal: BNC jack Bridge unit connection terminal: RJ45 connector
LED Indicator	Connection status indicators (3 LEDs each on the front and rear panels), Power indicator
Number of Connectable Chairman/Delegate Units	Up to 24 units (when using 21 units of TS-919B1 or 6 units of TS-919B4, both optional Bridge units)
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Panel: Aluminum, black, 30 % gloss, melamine-baked paint Case: Pre-coated steel plate, black
Dimensions	210 (w) x 44 (h) x 296.5 (d) mm (8.27" x 1.73" x 11.67")
Weight	1.6 kg (3.53 lb)

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

• Accessories

AC adapter* (DC cord: 1.8 m or 5.91 ft, Detachable AC cord: 2 m or 6.56 ft) 1

BNC plug-to BNC plug cord (50 cm or 1.64 ft) 1

* Not supplied with the TS-918 (KR). For the usable power supply cord and AC adapter, consult your nearest TOA dealer.

19.6. Bridge Unit TS-919B1, TS-919B4

Model No.	TS-919B1	TS-919B4
Power Source	24 V DC (supplied from the optional TS-918 Expansion Unit)	
Current Consumption	Max. 16 mA	Max. 26 mA
Branching Loss	Upstream: 16.5 dB Downstream: 16 dB	Upstream: 17.5 dB Downstream: 16.5 dB
Insertion Loss	Upstream: 1 dB Downstream: 0.5 dB	Upstream: 3 dB Downstream: 2 dB
Connection Terminal	Communication cable connection terminal: RJ45 connector x 2 Conference unit connection terminal: RJ45 connector	Communication cable connection terminal: RJ45 connector x 2 Conference unit connection terminal: RJ45 connector x 4
LED Indicator	Connection status indicator	Connection status indicator x 4
Number of Connectable Chairman/Delegate Units	1 unit	4 units
Operating Temperature	0 to 40 °C (32 to 104 °F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	ABS resin, black	
Dimensions	68 (w) x 60.3 (h) x 24 (d) mm (2.68" x 2.37" x 0.94")	176.2 (w) x 75 (h) x 29.8 (d) mm (6.94" x 2.95" x 1.17")
Weight	40 g (1.41 oz)	160 g (0.35 lb)

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

19.7. Distributor YW-1022 (2-branch distributor), YW-1024 (4-branch distributor)

Model No.	YW-1022	YW-1024
Frequency Range	1.6 – 1000 MHz (excluding 50 – 70 MHz)	
Distribution Loss	4.5 dB ±3 dB (between the Mixing and each Distribution terminals)	8.5 dB ±3 dB (between the Mixing and each Distribution terminals)
Input/Output Impedance	75 Ω	
Coaxial Connector	Mixing terminal: BNC jack, power passing type (30 V DC or less, 2 A or less) Distribution 1 and 2 terminals: BNC jack, power passing type (30 V DC or less, 1 A or less)	Mixing terminal: BNC jack, power passing type (30 V DC or less, 2 A or less) Distribution 1 – 4 terminals: BNC jack, power passing type (30 V DC or less, 1 A or less)
Operating Temperature	–10 to +50 °C (14 to 122 °F)	
Operating Humidity	90 %RH or less (no condensation)	
Finish	ABS resin, gray	
Dimensions	75 (w) x 122 (h) x 34 (d) mm (2.95" x 4.8" x 1.34")	
Weight	105 g (0.23 lb)	120 g (0.26 lb)

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

• Accessories

Wood screw 4.1 x 25 (for fixing the unit) 2

19.8. Rack Mounting Bracket MB-TS900

Finish	Surface-treated steel plate, gray metallic, paint, semi-gloss
Dimensions	65.5 (w) x 177 (h) x 61 (d) mm (2.58" x 6.97" x 2.4")
Weight	680 g (1.5 lb)

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

• Accessories

Rack mounting screw 5 x 12 4

Rack mounting washer (for M5) 4

19.9. Half Width Blank Panel MB-15B-BK

Finish	Surface-treated steel plate, black, paint, 30% gloss
Weight	330 g (0.73 lb)
Set Composition	Rack mounting bracket 2, Blank bracket 1

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

• Accessories

Rack mounting screw 5 x 12 4

Fiber washer (for M5) 4

Tapping screw 3 x 14 12

Tapping screw 3 x 8 9

Machine screw M3 x 12 6

19.10. Rack Joint Bracket MB-15B-J

Finish	Rack mounting bracket: Surface-treated steel plate, black, paint, 30% gloss Coupler: Steel plate, nickel plating
Weight	120 g (0.26 lb)
Set Composition	Mounting bracket 2, Coupler 2

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

• Accessories

Rack mounting screw 5 x 12	4
Fiber washer (for M5)	4
Tapping screw 3 x 14	8
Tapping screw 3 x 8	6
Machine screw M3 x 12	6
Machine screw M3 x 6	4

Traceability Information for Europe

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