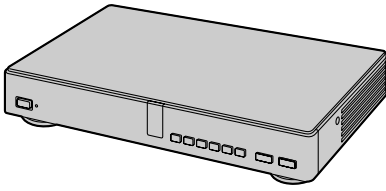# Panasonic®

Operating Manual
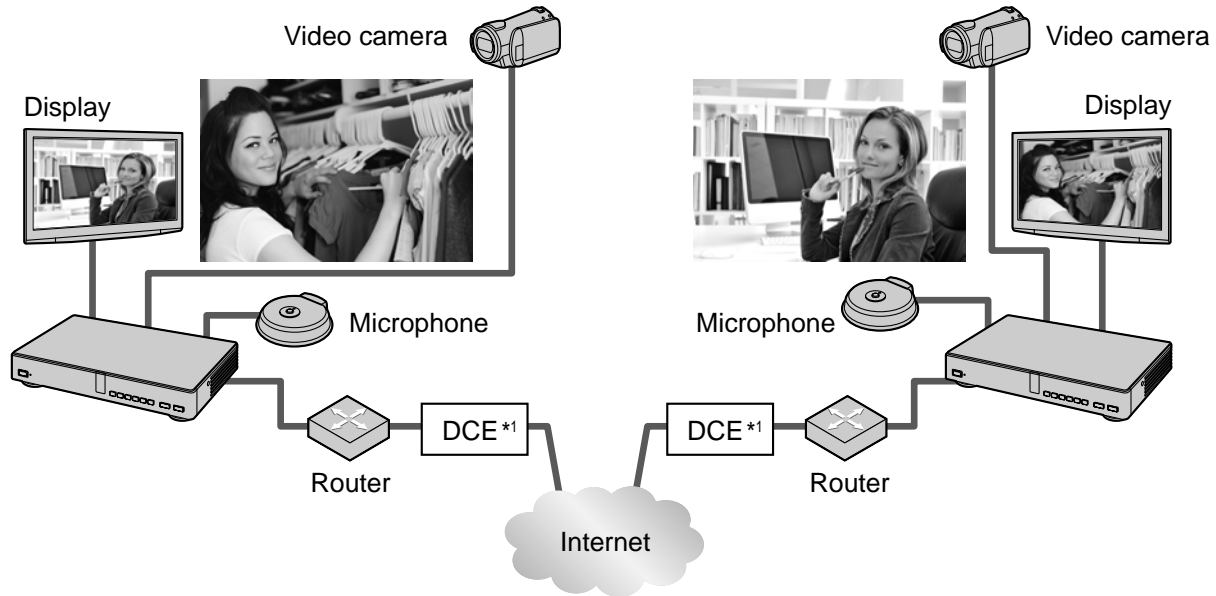
HD Visual Communication Unit

Model No. KX-VC500

Thank you for purchasing a Panasonic HD Visual Communication Unit.
Please read this manual carefully before using this product and save this manual for future use.

KX-VC500: Software File Version 2.40 or later

In this manual, the suffix of each model number (e.g., KX-VC500**NA**) is omitted unless necessary.

Document Version: 2012-04

Introduction

Feature Highlights

*1 DCE: Data Circuit-terminating Equipment

Lifelike Visual Communication

You can experience lifelike visual communication with smooth, high-quality video and clear stereo[1] sound.

[1]   If using 2 or more Boundary Microphones, stereo output can be enabled through system settings (Page 89).

Simply Operated Visual Communication

You can easily begin a video conference call by pressing the unit's One-Touch Connection button followed by the Start button (Page 35).

Home Electronics-style Remote Control Operation and Simple, Easy to Understand Graphical User Interface

You can make settings and perform operations using familiar remote control operations and a simple, easy to understand interface.

Stabilized Communication Quality

In periods of network congestion, automatic packet transmission rate quality control prevents packet loss to maintain a video conference call's image and sound quality. This allows visual communication with stabilized communication quality even over an internet connection.

Remote Video Camera Operation via Remote Control

You can move the other party's video camera up, down, left, and right as well as zoom in and out (Page 55).

Selectable Video Source

By connecting your computer or video camera to the unit, you can show your computer's screen or video camera image to video conference call participants (Page 64, Page 68).

Encrypted Communication

Packets sent for video conference calls can be encrypted to prevent packet leaks, tampering, or eavesdropping.

KX-VC Series NAT Traversal Service

"KX-VC Series NAT Traversal Service" is a service that allows you to easily and affordably set up and operate a communication environment for the HD Visual Communication Unit.[1][2] Also, complicated router configuration is unnecessary, which allows even people who are not network administrators set up a communication environment. Furthermore, you can assign the unit a unique number (Terminal ID), which allows the unit to be called not by IP address, but with the unique 7-digit number. This means communication can be initiated as if calling a telephone. Communication can also be encrypted, so that you can communicate over the Internet safely and securely.

For details about KX-VC Series NAT Traversal Service, refer to the following web site:
http://panasonic.net/psn/products/hdvc/nat_traversal/index.html

[1]   This service may be unavailable depending on the country/area of use. For details, contact your dealer.
[2]   This service may be unavailable depending on your router's type or your Internet connection environment. For details, contact your dealer.

Making Video Conference Calls via SIP Server

By using a SIP server, you can establish video conference calls not just by IP address, but also by specifying a SIP URI (SIP user name@SIP domain name) instead. If the other party uses the same SIP domain name as you, you can make a video conference call by specifying only the SIP user name (Page 99). For information about supported SIP servers, contact your dealer.

Enhanced Features through the Use of Activation Keys

By using an activation key (sold separately), you can enable connection to MCUs (multipoint control units) and non-Panasonic video conference systems (Page 75). Features enabled through activation keys are available even after performing a system initialization (Page 101). For details about the activation key, contact your dealer.

Connection to non-Panasonic Video Conference Systems

You can connect to a non-Panasonic video conference system and have a 2-party video conference call.[1] This feature must be enabled with an activation key (Page 76, Page 101).

[1]   For details about the types of non-Panasonic video conference systems you can connect to, contact your dealer. Communication cannot be encrypted when you connect to a non-Panasonic video conference system. Instead, connect over an intranet or via a VPN (Virtual Private Network).

MCU Connection

By connecting to an MCU (multipoint control unit), you can make multiple-party video conference calls with 5 or more parties, rather than the normal maximum of 4 parties.[*1] This feature must be enabled with an activation key (Page 77, Page 101).

[*1] For details about the types of MCUs you can connect to, contact your dealer. Communication cannot be encrypted when you connect to an MCU. Instead, connect over an intranet or via a VPN (Virtual Private Network).

Trademarks

- HDMI is a trademark or registered trademark of HDMI Licensing LLC in the United States and other countries.
- Polycom® is a trademark owned by Polycom, Inc. in the US and other countries.
- All other trademarks identified herein are the property of their respective owners.

Licenses

- This product is licensed under the AVC Patent Portfolio License. This license permits the end user to perform, for personal and non-commercial use, only the following actions:
  - Encode video in compliance with the AVC Standard (below, "AVC Video").
  - Decode AVC Video that was encoded by a consumer engaged in both personal and non-commercial activity.
  - Decode AVC Video obtained from a video provider licensed to provide AVC Video.
  Additional information may be obtained from MPEG LA, LLC. See http://www.mpegla.com.
- This product incorporates G.722.1 and G.722.1 Annex C licensed by Polycom®.

Open Source Software

Parts of this product use Open Source Software supplied based on the conditions of the Free Software Foundation's GPLs and/or LGPLs and other conditions. Relevant conditions apply to this software. Therefore, please read license information about GPLs and LGPLs, and information about other Open Source Software in the included CD-ROM before using this product. Also, some software parts of this product are licensed under the MOZILLA PUBLIC LICENSE (MPL). At least three (3) years from delivery of products, Panasonic will give to any third party who contacts us at the contact information provided below, for a charge of no more than the cost of physically distributing source code, a complete machine-readable copy of the corresponding source code and the copyright notices covered under GPL, LGPL, and MPL. Please note that software licensed under GPL, LGPL, and MPL is not under warranty.

Contact Information
http://www.panasonic.net/corporate/global_network/

Precaution

<div style="border: 2px solid black; border-radius: 10px;">

<u>Notice for users in California</u>

This product contains a CR coin cell lithium battery that contains perchlorate material—special handling may apply.

See <u>www.dtsc.ca.gov/hazardouswaste/perchlorate</u>

</div>

Information on disposal in other countries outside the European Union

Cd

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Table of Contents

For Your Safety

To prevent personal injury and/or damage to property, be sure to observe the following safety precautions.

The following symbols classify and describe the level of hazard and injury caused when this unit is operated or handled improperly.

⚠	WARNING

Denotes a potential hazard that could result in serious injury or death.

⚠	CAUTION

Denotes a hazard that could result in minor injury or damage to the unit or other equipment.

The following types of symbols are used to classify and describe the type of instructions to be observed. (The following symbols are examples.)

🚫

This symbol is used to alert users to a specific operating procedure that must not be performed.

❗

This symbol is used to alert users to a specific operating procedure that must be followed in order to operate the unit safely.

⚠	WARNING

General

❗ Follow all warnings and instructions marked on the unit.

Power and Ground Connection

❗ The power source voltage of this unit is listed on the nameplate. Only plug the unit into an AC outlet with the proper voltage. If you use a cord with an unspecified current rating, the unit or plug may emit smoke or become hot to the touch.

🚫 Do not connect the unit to the AC outlet, AC extension cords, etc., in a way that exceeds the power rating of, or does not comply with the instructions provided with, the AC outlet, AC extension cords, etc.

⏚ To ensure safe operation the power cord supplied must be inserted into a standard three-prong AC outlet which is effectively grounded through the normal wiring.

⏚ The fact that the equipment operates satisfactorily does not imply that the power point is grounded and that the installation is completely safe. For your safety, if in any doubt about the effective grounding of the power point, consult a qualified electrician.

❗ Plug the power cord firmly into an AC outlet. Otherwise, it can cause fire or electric shock.

🚫 Do not pull, bend, rest objects on, or chafe the power cord and plug. Damage to the power cord or plug can cause fire or electric shock.

To prevent fires, electric shock, injury, or damage to the unit, be sure to follow these guidelines when performing any wiring or cabling:

a. Before performing any wiring or cabling, unplug the unit's power cord from the outlet. After completing all wiring and cabling, plug the power cord back into the outlet.

b. Do not place any objects on top of the cables connected to the unit.

c. When running cables along the floor, use protectors to prevent the cables from being stepped on.

d. Do not run any cables under carpeting.

Do not attempt to repair the power cord, or plug. If the power cord or plug is damaged or frayed, contact an authorized service representative for a replacement.

Ensure that the plug connection is free of dust. In a damp environment, a contaminated connector can draw a significant amount of current that can generate heat, and eventually cause fire if left unattended over an extended period of time.

Stop operation immediately if the unit emits smoke, excessive heat, abnormal smell or unusual noise. These conditions can cause fire or electric shock. Immediately turn the unit off, and unplug the power cord, and contact your dealer for service.

Do not connect or disconnect the AC plug with wet hands. Danger of electric shock exists.

When disconnecting the unit, grasp the plug instead of the cord. Pulling on a cord forcibly can damage it, and cause fire or electric shock.

During thunderstorms, do not touch the unit and plug. It may cause an electric shock.

Operating Safeguards

Do not disassemble this unit. Only qualified personnel should service this unit. Disassembling the unit may expose you to dangerous voltages or other risks. Incorrect reassembly can cause electric shock.

Do not alter the unit or modify any parts. Alteration or modification can cause fire or electric shock.

If metal fragments or water gets into the unit, turn the unit off and unplug the unit immediately. Contact your dealer for service. Operating the contaminated unit can cause fire or electric shock.

Do not insert objects of any kind into this unit, as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock.

Do not use a unit in the vicinity of a gas leak to report the leak.

Do not place the remote control in microwave ovens or on induction cookware.

Clean the AC plug periodically with a soft, dry cloth to remove dust and other debris.

Do not use the supplied power cord with any other device. It may cause fire or electric shock.

Never open or remove unit covers that are screwed with screws. A high-voltage component can cause electric shock.

Unplug the unit from the AC outlet and have it serviced by qualified service personnel in the following cases:

a. If the unit does not operate according to the operating instructions. Adjust only the controls that are explained in the operating instructions. Improper adjustment of other controls may result in damage and may require service by a qualified technician to restore the unit to normal operation.

b. If the unit has been dropped or the cabinet has been damaged.

c. If unit performance deteriorates.

If damage to the unit exposes any internal parts, disconnect the power cord immediately and return the unit to your dealer.

Installation

Do not install the unit in any other way than described in relevant manuals.

Do not touch the unit, AC adaptor, AC adaptor cord, or AC cord during a lightning storm.

The AC adaptor should be connected to a vertically oriented or floor-mounted AC outlet. Do not connect the AC adaptor to a ceiling-mounted AC outlet, as the weight of the adaptor may cause it to become disconnected.

Only connect the unit to the type of electric power specified on the label affixed to the unit. Confirm the type of electric power supplied to the installation site if necessary.

Battery

The battery contains diluted sulfuric acid, a very toxic substance. If the battery leaks and the liquid inside spills on the skin or clothing, immediately wash it off with plenty of clean water. If the liquid splashes into eyes, immediately flush the eyes with plenty of clean water and consult a doctor. Sulfuric acid in the eyes may cause loss of eyesight and acid on the skin will cause burns.

Do not charge, short, heat, break or throw in a fire, as it may result in the battery leaking, generating heat, or bursting.

Do not connect the positive terminal and the negative terminal of the battery to each other with any metal object (such as wire).

Do not carry or store the batteries together with necklaces, hairpins, or other metal objects.

Do not mix old and new batteries or different types of batteries.

Batteries that seem worn down or damaged should not be used. Using worn down or damaged batteries may result in leaking.

Do not use rechargeable batteries.

Take the depleted batteries out of the remote control. Otherwise, the batteries may leak.

⚠ **CAUTION**

Power

When the unit is not used over an extended period of time, take the batteries out of the remote control. Otherwise, the batteries may leak. Do not use the leaked batteries.

When the unit is not used over an extended period of time, switch it off and unplug it. If an unused unit is left connected to a power source for a long period, degraded insulation may cause electric shock, current leakage, or fire.

The unit should be used only with the power cord enclosed with the unit.

Installation

The unit should be kept free of dust, moisture, high temperature (more than 40 °C [104 °F]) and vibration, and should not be exposed to direct sunlight.

Place this unit on a flat surface. Serious damage and/or injury may result if the unit falls.

Allow 10 cm (4 in) clearance around the unit for proper ventilation.

Do not place the unit in an area close to fire. Doing so may cause fire.

Battery

Be sure to use the specified type of batteries only.

Ensure that batteries are installed with correct polarity. Incorrectly installed batteries can burst or leak, resulting in spillage or injuries.

This product contains batteries. Replace only with the same or equivalent type. Improper use or replacement may cause overheating, rupture or explosion resulting in injury or fire. Dispose of used batteries according to the instructions of your local solid waste officials and local regulations.

When replace the batteries for the remote control, use AA/R6 type dry cell.

Do not install the battery backwards so that the polarity is reversed.

Notes about Operation

Please pay attention to the following points when using this device:

1. **Please contact your dealer for installing, upgrading, or repairing this device.**

2. **Do not forcefully hit or shake this device.**
Dropping or bumping this device can damage or break this device.

3. **Do not place this device in a freezer or other location where it is exposed to cold temperatures.**
Doing so may result in damage or malfunctions.

4. **Place this device at least 2 m (6 ft) away from radios, office equipment, microwave ovens, air conditioning units, etc.**
Noise from electronic devices can cause static and interference in other devices.

5. **Do not place this device in a location where it is exposed to hydrogen sulfide, phosphorous, ammonia, sulfur, carbon, acid, dirt, toxic gas, etc.**
Doing so may result in damage, and the usable life-span of the device may decrease.

6. **Do not apply insecticides or other volatile liquids to the device, nor leave rubber bands or vinyl objects on the device for extended periods of time.**
Doing so may result in alterations to the material or paint peeling off the device.

7. **Do not bring cards with magnetic strips, such as credit cards and telephone cards, near the microphone.**
Cards might become unusable.

8. **Do not bring the device near items that emit electromagnetic waves or that are magnetized (high-frequency sewing machines, electric welders, magnets, etc.).**
Doing so may result in static noise or damage.

9. **Keep the device at least 10 cm (4 in) away from all walls.**
If placed against a wall, the device may not be able to ventilate properly, which may lead to a system malfunction due to overheating.

10. **Avoid placing the device in areas with high humidity, and exposing it to rain.**
Neither the main unit nor the power plug is water resistant.

11. **The power outlet should be near the product and easily accessible.**

About the Operating Environment

This device includes a feature that automatically adjusts voice transmissions to improve clarity. After beginning a video conference call, adjustments to the call environment may not complete immediately, and as a result voices may cut out or echo. In such cases, at the beginning of the video conference call, be sure to speak in turn with other parties.

About Moving the Device

Do not move this device while cords are still connected. Doing so may result in damage to the cords.

Other

- This device is a class A information technology device. Using this device in a residential setting can cause radio wave interference. In these cases, the user may be responsible for taking appropriate measures to prevent the interference.
- The unit may not operate in the event of a power failure.
- The illustrations and screenshots in this manual are for reference only and may vary from the actual product.

Data Security

We recommend observing the security precautions described in this section, in order to prevent the disclosure of sensitive information.
Panasonic is not responsible for any damages caused by improper use of this device.

Preventing Data Loss

Keep a separate record of the encryption key and all information stored in the contact list.

Preventing Data Disclosure

- Do not place this device in a location that can be accessed or removed without authorization.
- If important information is saved on this device, store it in an appropriate location.
- Do not store sensitive personal information in the unit.
- In the following situations, make a record of the encryption key and the information stored in the contact list and return the unit to the state it was in when purchased (Page 101).
  - Before lending or disposing of the unit
  - Before handing the unit over to a third party
  - Before having the unit serviced
- Make sure the unit is serviced by only a certified technician.

This device can register and store personal data (the contact list, encryption key, connection history, etc.). In order to prevent the disclosure of data stored on this device, make sure to delete all data that is registered and stored on this device prior to disposing of, lending, or returning this device (Page 101).

Preventing Data Disclosure over the Network

- To ensure the security of private conversations, only connect the unit to a secure network.
- To prevent unauthorized access, only connect the unit to a network that is properly managed.
- Make sure all computers connected to the unit employ up-to-date security measures.
- To prevent illegal access from the Internet, activate a Firewall.

Privacy and Right of Publicity

By installing and using this device, you are responsible for maintaining the privacy and usage rights of images and other data (including sound picked up by the microphone). Use this device accordingly.

- Privacy is generally said to be, "A legal guarantee and right not to have the details of one's personal life unreasonably publicized, and the right to be able to control information about oneself. In addition, right of publicity is a right not to have a likeness of one's face or figure photographed and publicized without consent".
- When the Automatic Answer feature is enabled, transmission begins as soon as a video conference call is received. The receiver of the video conference call will begin transmitting as soon as the video conference call is received at any time, from any caller. Please be aware when the Automatic Answer feature is enabled, there is a risk that due to an unexpected, automatically answered video conference call, privacy rights may be violated or sensitive information may be transmitted to unauthorized parties.

Federal Communications Commission Requirements

Federal Communications Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution

To assure continued compliance, (example - use only shielded interface cables when connecting to other devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Accessory Information

The following accessories are included:

Included Accessories

Accessories	Quantity
Power cord (ground terminal included)	1
Remote control (Part No.: N2QAYB000674)	1
Batteries (AA dry cell)	2
CD-ROM (included manuals, etc.)	1

Note

- Product documentation may vary depending on the country/area of use.

Part Names and Usage

Main Unit (Front)
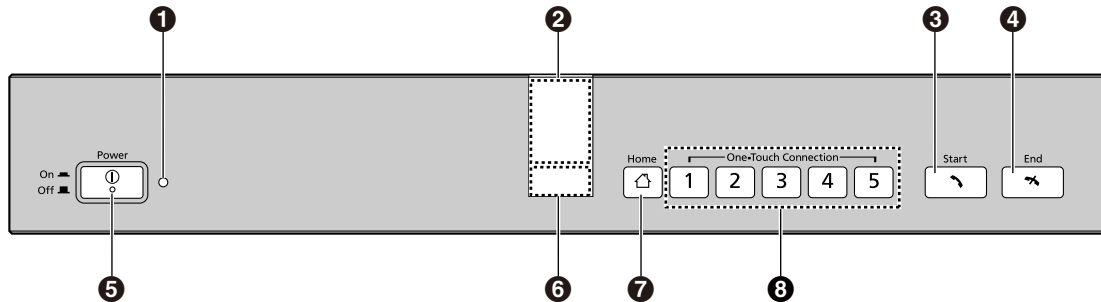
❶ **Power LED**

Shows the power status. The LED is red when the power is on and off when the power is off.

❷ **Remote Control Signal Receiver**

Receives Remote Control signals. The maximum range of reception is approximately 8 m (26.2 ft) from front of the unit, and approximately 3 m (9.8 ft) from 20° on each side, total 40°.

❸ **Start button**

Press to make or manually answer video conference calls (Page 34, Page 45).

❹ **End button**

Press to end a video conference call.

❺ **Power button**

Turns the power on and off (Page 28).

❻ **Status LED**

Shows the operational status of the unit (Page 22).

❼ **Home button**

Press to display the Home screen (Page 29).

❽ **One-Touch Connection buttons (LED lit)**

Press to select a dial destination from up to 5 destinations displayed on the Home screen (Page 35).

Note

- During a video conference call, buttons other than **[Power]** and **[End]** cannot be used.

Main Unit (Back)
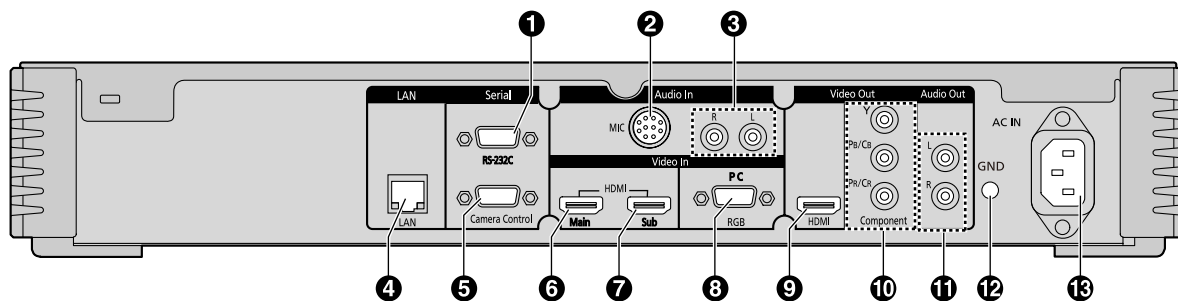
① **RS-232C terminal**

This terminal is not available for use.

② **MIC jack (Page 24)**

Used to connect the Boundary Microphone (optional) (Page 21).

③ **Audio In L/R jack (Page 24)**

Used to connect general-purpose microphones (not for the Boundary Microphone).

④ **LAN jack (Page 24)**

Connect a LAN cable.

⑤ **Camera Control terminal**

Not used.

⑥ **Main Camera terminal (Page 24)**

Connect the main video camera with an HDMI cable.

⑦ **Sub Camera terminal (Page 68)**

Used to connect a second, sub video camera with an HDMI cable for sharing video contents apart from the main video camera.

⑧ **RGB terminal (Page 64)**

Used to connect a computer for sending screens to participants.

⑨ **HDMI terminal (Page 24)**

Used to connect to the display with an HDMI cable.

⑩ **Component terminal (Page 27)**

Used to connect to the display with a component video cable.

⑪ **Audio Out L/R jack**

Used to connect an amplifier or active speaker (Page 27). Also used to connect the speakers of a display without an HDMI terminal for audio output (Page 27).

⑫ **GND terminal**

Used to connect a grounding wire when the power cord's ground terminal connection is not available.

⑬ **AC IN (Page 24)**

Connect the power cord.

Remote Control

Press to show the sub video camera's images on your and the other party's display during a video conference call. When not on a video conference call, the sub video camera's images are shown on your display only (Page 69).

Press to show your computer's screen on your and the other party's display during a video conference call. When not on a video conference call, the computer screen is shown on your display only (Page 65).

Press to enter screen standby mode (Page 22).

Press to display/hide information about the other party, guide area and duration, during a call (Page 33).

Press to change the layout of the screen during a call (Page 47).

Press to return to the main video camera after showing images from a computer or sub video camera (Page 66, 70).

Press to make or manually answer video conference calls (Page 35, 45).

Press to display the Menu screen (Page 30).

Press to end a call.

Press to move the cursor and select items.

Press to confirm the selected item or entered information.

Press to display the Home screen (Page 29).

Press to return to the previous screen.

Press to select the feature assigned to each color. Available features are displayed in the guide area (Page 29).

Press to adjust the volume during a call. Press [+] to increase and [–] to decrease the volume (Page 60).

Press to select a tone (equalizer) setting during a call (Page 63).

Press to operate the other party's PTZ (Pan, Tilt, Zoom) camera when on a video conference call (Page 55).

Press to mute the microphone during a call, so that the other party cannot hear your voice (Page 61).

Press to display the connection status of the network and peripheral devices (Page 72).

Press to display your contact list. This can be pressed while the following screens are displayed:
• Home screen
• Menu screen
• Computer's screen/sub video camera's image (when not on a video conference call)

Press to dial or perform settings where inputting digits/characters is required (Page 110).
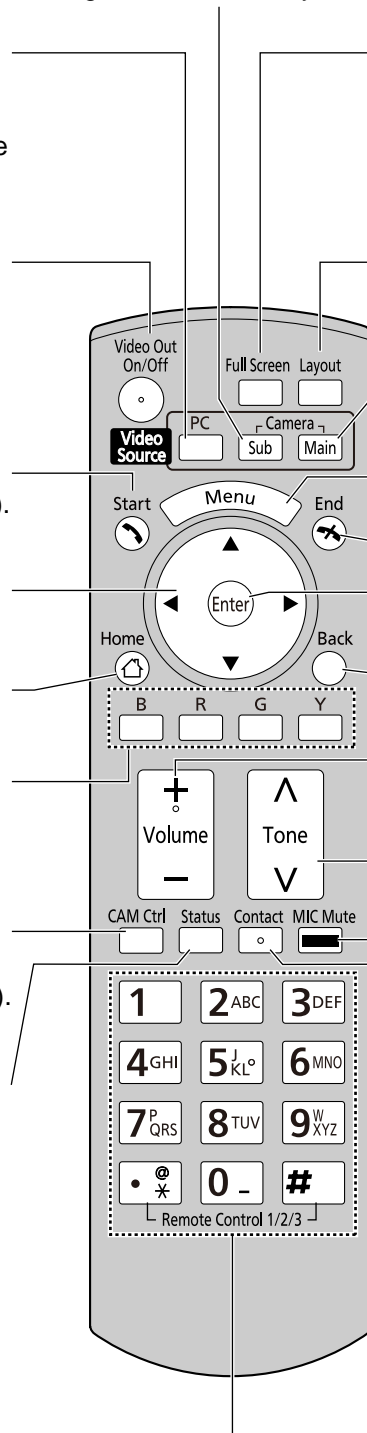
Boundary Microphone (Optional Accessory)

Boundary Microphone (Digital Interface Type) (Proprietary cable included. Cable length: approx. 8.5 m [approx. 28 ft])
❶ ❷
Model No.: KX-VCA001

❶ **MIC Mute button**

Press to mute your own voice so that other video conference call participants cannot hear you (Page 61).

❷ **LED**

Indicate the operational status of the Boundary Microphone.

Red (on): Microphone is muted.

Green (on): Transmitting

Orange (blinking in 1 second intervals): Starting up

Off: No transmission in progress or microphone disabled because the unit is receiving a multicast call.

Note

- Up to 4 Boundary Microphones can be connected in cascade.
- Contact your dealer for purchase information.

Federal Communications Commission Requirements

Federal Communications Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is lik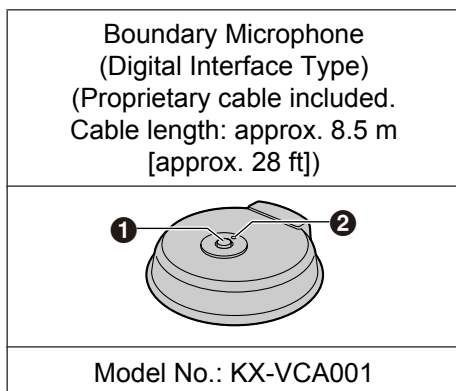ely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

> **FCC Caution**
> To assure continued compliance, (example - use only shielded interface cables when connecting to other devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For Canada Users

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

LED Patterns

LEDs indicate the operational status of the unit, as follows:

LED pattern	Status
Slow blue flashing	• Starting up • Idle state
Blue on	• In a video conference call (including when dialing, receiving a video conference call, and being disconnected)
Orange on	• Self diagnosis is being performed.
Orange flashing	• Mismatch of field frequency[1] between the unit and display. (After 30 seconds the flashing will stop and the unit will restart in safe mode.)
Red on	• An error has occurred. • Maintenance is being performed.
Red flashing	• A serious error has occurred.
Off	• Power is off. • In screen standby mode

[1]   Devices such as the display or video camera operate with a particular field frequency, depending on their video format. For details on the field frequency, contact your dealer.

Screen Standby

When there is no video conference call transmission, and the unit or remote control is not operated for more than 10 minutes (default), or when the remote control's **[Video Out On/Off]** button is pressed, the unit enters screen standby mode. Video out to the display is suspended and the status LED turns off.
Screen standby mode ends when the unit or remote control is operated, or when a video conference call is received.

Notice

- If screen standby mode ends and no image is visible, check to see if the display or video camera's power saving settings are enabled. Check each device's manual for more information about its power saving settings.

Note

- You can change the length of time until the unit enters screen standby mode (Page 87).
- The unit will not enter screen standby mode while displaying a computer's screen or a sub video camera's image, even if the unit or remote control is not operated for a period of time.
- When the unit or remote control is operated and screen standby mode ends, the Home screen will be displayed.
- If a button is pressed on the unit or remote control to end screen standby mode, that button's operation is not performed in that case.
- If screen standby mode begins while editing information in the contact list or other screen, any unsaved changes will be lost.

- It takes about 7 seconds to return from screen standby mode. (The length of time may vary depending on the type of display you are using.)

Connecting the Unit

This section describes how to connect the main video camera, display, microphone, LAN cable and power cord.

To a router

To grounded AC outlet

To each device   To a display
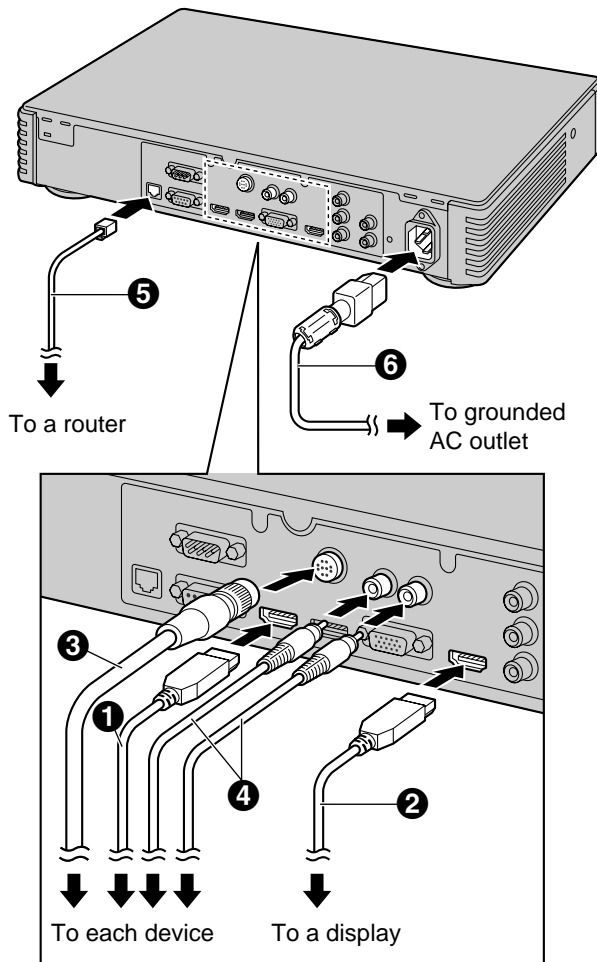
Notice

- Use only the included power cord.

Note

- Make sure to read the instruction manuals for all devices being connected.

1. Connect the main video camera.
   - Connect the main video camera to the Main Camera terminal on the back of the unit using an HDMI cable (❶).

2. Connect the display.
   - Connect the display to the HDMI terminal on the back of the unit using an HDMI cable (❷).

Note

- If your display is not compatible with HDMI, use a component cable (Page 27). Since sound signals are not transmitted when using a component cable, connect an amplifier/active speaker (Page 27), or use the display's speakers (Page 27).

3. Connect a microphone.
   Boundary Microphone (optional)
   Connect the Boundary Microphone to the MIC jack on the back of the unit using the proprietary cable (❸).
   - Use only the included cable.
   - Push and turn the connector of the proprietary cable until it clicks. If the connector does not click, try reconnecting the cable with the top and bottom of the connector reversed.

   General-purpose microphone
   Connect the microphone to the Audio In L/R jack on the back of the unit using the stereo pin plug cable (❹) after amplifying the signal to line level using a device such as a microphone amplifier.
   - Connect the microphone correctly, as follows:
     - Left channel → L
     - Right channel → R

   Note

   - When connecting both the Boundary Microphone and a general-purpose microphone, both microphones can be used simultaneously.

4. Connect to the network.
   - Connect a router to the LAN jack on the back of the unit using a category 5 or greater LAN cable (❺).

   Note

   - Set the hub/router to Auto Negotiation mode.
   - If the system is set to 100M Full Duplex, it is necessary to change the system setting. For details, contact your dealer.
   - Do not connect to a hub/router set to Half Duplex.
   - For more details about routers and DCEs, refer to the documentation for each device.
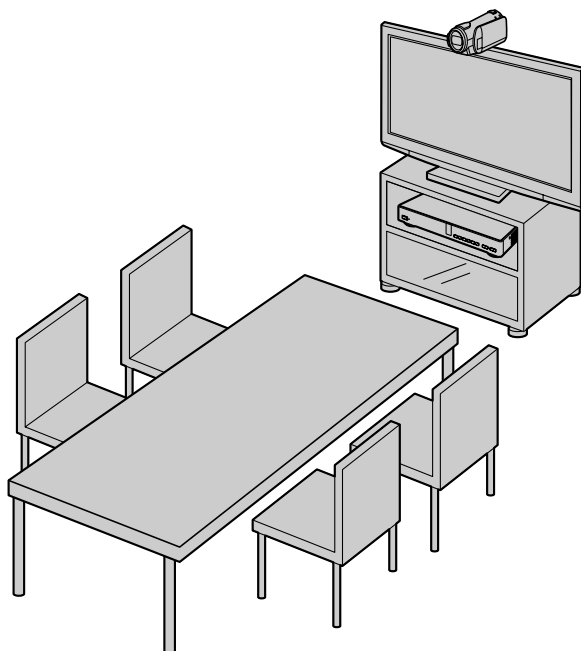
5. Insert the included power cord (❻) into the AC IN terminal on the back of the unit.
   - Use only the included power cord.

6. Plug in the power cord into the power outlet.
- Choose an outlet that is convenient for plugging/unplugging.

System Layout Examples

Display and Main Video Camera

Place the display and main video camera at the same side of the room.

Note
- If you use speakers, refer to "Amplifier/Active Speaker Connection" (Page 27).

Boundary Microphones

Up to 4 Boundary Microphones can be connected in cascade. There are no separate terminals for input and output on the Boundary Microphones.
Also, Boundary Microphones and general-purpose microphones can be used simultaneously.
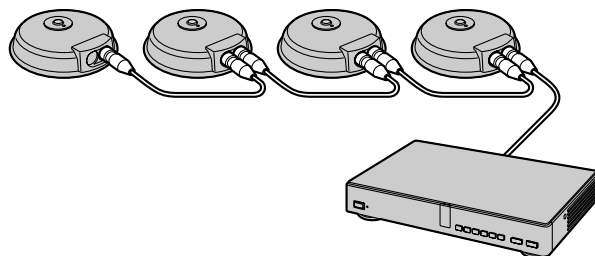
Note
- Make sure that the Boundary Microphones are placed at least 1 m (3.3 ft) away from the display and speakers.
- Do not connect more than 4 Boundary Microphones. Doing so will cause all Boundary Microphones to stop working.
- When 2 or more Boundary Microphones are connected, if you want to change the output sent to the other party to stereo, it is necessary to configure the settings manually (Page 89).
- If you are connected to an MCU or non-Panasonic video conference system, the output sent to the other party will be monaural.

The range of each microphone (the radius of the circle with a microphone at the center) varies according to the level of surrounding and the number of microphones being used. Place microphones accordingly, referring to the following table.

Noise level/ Micro–phone	A quiet room (40 dBsplA)	A regular room (45 dBsplA)	A noisy room (50 dBsplA)
1	approx. 3 m (approx. 9.8 ft)	approx. 2.2 m (approx. 7.2 ft)	approx. 1.2 m (approx. 3.9 ft)
2	approx. 2.8 m (approx. 9.2 ft)	approx. 1.5 m (approx. 4.9 ft)	approx. 1 m (approx. 3.3 ft)
3	approx. 2.3 m (approx. 7.5 ft)	approx. 1.3 m (approx. 4.3 ft)	—
4	approx. 2 m (approx. 6.6 ft)	approx. 1.1 m (approx. 3.6 ft)	—

Layout examples (a regular room)
(the grey circle indicates the microphone's range):

4 m
(13.1 ft)
Microphone
Display

4 m
(13.1 ft)
Microphone
4 m
(13.1 ft)
Microphone
Display

4 m
(13.1 ft)
Microphone
4 m
(13.1 ft)
Microphone

4 m
(13.1 ft)
Microphone
4 m
(13.1 ft)
Microphone
Display

4 m
(13.1 ft)
Microphone
4 m
(13.1 ft)
Microphone
4 m
(13.1 ft)
Microphone
Display
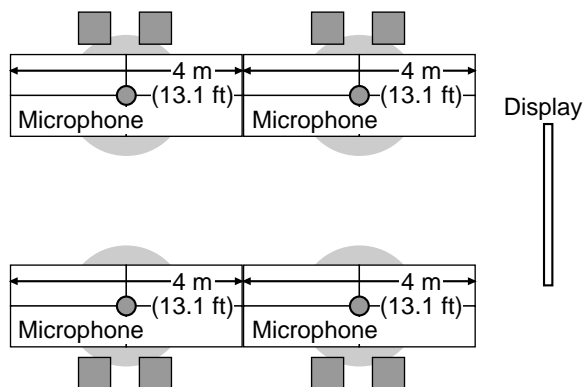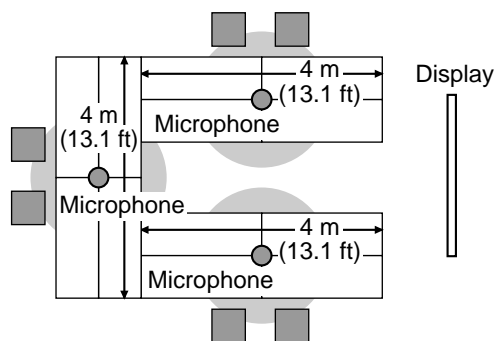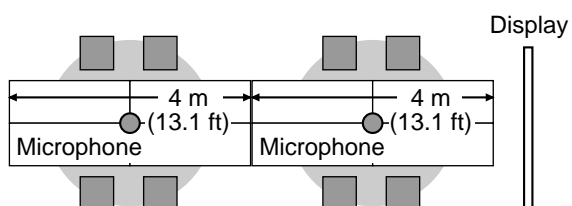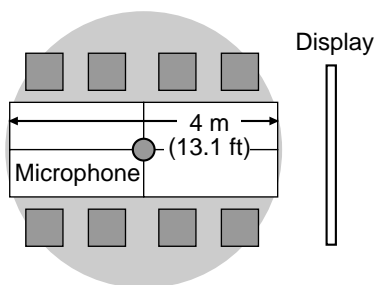
Amplifier/Active Speaker Connection

This section describes how to connect an amplifier/active speaker.
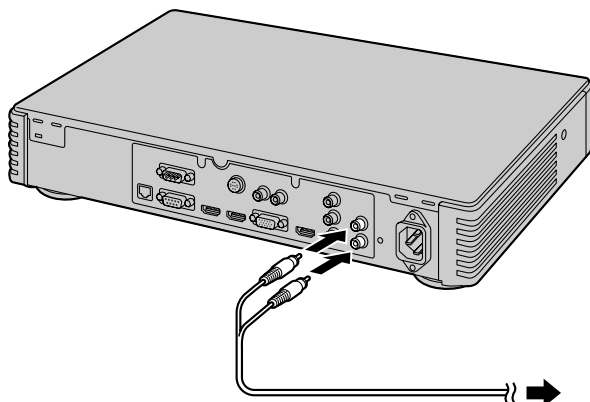
1. Connect the amplifier/active speaker to the Audio Out L/R jack on the back of the unit using a stereo pin plug cable.

Note

- Connect the amplifier/active speaker correctly, as follows:
  - Left channel → L
  - Right channel → R
- For more details about the amplifier or active speaker, refer to the documentation for the corresponding device.

Layout example:
Place the speakers either side of the display, as follows:
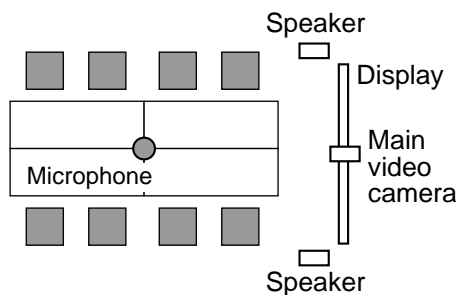
Notice

- Place the speakers either side of the display. If you place the display at the front of the room and the speakers at the back, the microphone's left/right spatial direction may be reversed, and the orientation of the image and sound will not match on the other party's side.

Connecting the Display with a Component Cable

If your display does not have an HDMI terminal, use a component cable for connection.
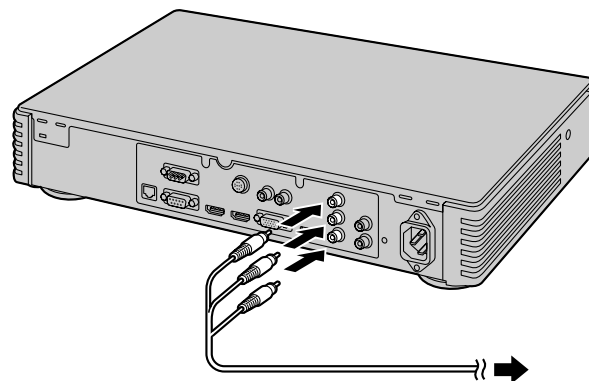
1. Connect the display to the Component terminal on the back of the unit using a component cable.

Note

- To use the display's speakers to output audio, connect the display to the Audio Out L/R jack (Page 19) on the back of the unit using a stereo pin plug cable.

Turning the Power On/Off

<u>**Note**</u>

- • Make sure that peripheral devices (e.g., display, main video camera) are turned on.

1 Press the **[Power]** button on the front of the unit.

- • The Power LED and all of the One-Touch Connection button LEDs turn on. Then, the One-Touch Connection button LEDs turn off, the Status LED starts flashing blue slowly, and the Home screen is displayed.

1

IP Mode
Tokyo
192.168.181.110
Max. Bandwidth : 9.0 Mbps
Encryption : ON

| 1 London | 2 New York | 3 Paris | 4 Board meeting | 5 Not Set |

Menu
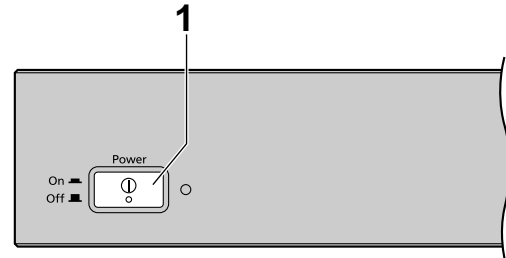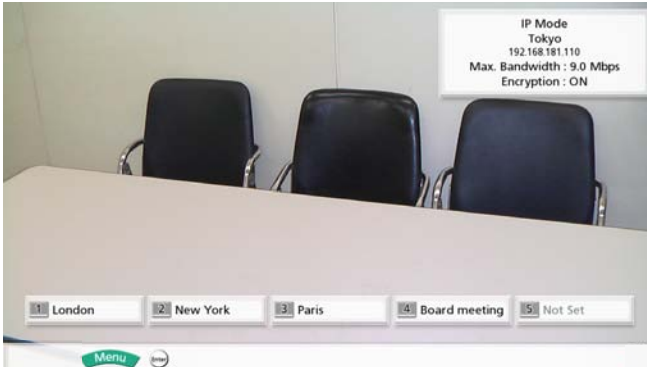
Power
On
Off

- • When the power is turned off, the Power LED turns off.

Screen Display

Home Screen (Idle Screen)

Displayed when the power is turned on. Also displayed when the **[Home]** button is pressed on the unit or on the remote control.

❶ Main Video Camera Image

Displays the video from the main video camera.

❷ Unit Information

The information displayed differs depending on the selected connection mode (Page 99).

IP mode: The connection mode, unit's name, IP address (if using a SIP server [Page 99], the SIP user name), maximum bandwidth, and encryption status.

Note

• When selecting a local site (Page 107), the selected local site's information is displayed. The information displayed differs depending on the local site's connection mode (Page 105).

IP mode: The connection mode, local site name, IP address, (if using a SIP server [Page 99], the SIP user name), maximum bandwidth, and encryption status.

• If the local site name or SIP user name is too long to display, it will be shortened and ended with "...".

❸ Group/Site

Displays the name/group name assigned to One-Touch Connection number 1 through 5. If the name is too long to display, it will be shortened and ended with "...".

❹ Remote Control ID

Displays the remote control ID of the unit when it is set (Page 91).

❺ Guide

Displays operations you can perform with the remote control.

❻ Status Indication

The status of the unit is displayed with an icon.

Icon	Status
	Microphone is muted. **Note** • If the MIC detection setting has been disabled through system settings (Page 87), the icon will not be displayed even if the Boundary Microphone is muted.
	Network, server (any kind), or peripheral connection error (no connection, device error, etc.). **Note** • If the MIC detection setting has been disabled through system settings (Page 87), the icon will not be displayed even if the Boundary Microphone is disconnected. However, if there are no connections, or there is a device error in other devices such as the LAN cable, the icon will be displayed.

Menu Screen (Idle Screen)

Displayed when **[Menu]** is pressed on the remote control. Displays operations you can perform and settings you can change.

❶ **Main Video Camera Image**

Displays the video from the main video camera.

❷ **Unit Information**

The information displayed differs depending on the selected connection mode (Page 99).

IP mode: The connection mode, unit's name, IP address (if using a SIP server [Page 99], the SIP user name), maximum bandwidth, and encryption status.

Note

• When selecting a local site (Page 107), the selected local site's information is displayed. The information displayed differs depending on the local site's connection mode (Page 105).

IP mode: The connection mode, local site name, IP address, (if using a SIP server [Page 99], the SIP user name), maximum bandwidth, and encryption status.

- If the local site name or SIP user name is too long to display, it will be shortened and ended with "...".

❸ **Guide**

Displays operations you can perform with the remote control when performing features or changing settings.

❹ **Menu List**

Displays the various functions you can use and settings available to change.

❺ **Status Indication**

The status of the unit is displayed with an icon (Page 29).

Video Conference Call Screen

❶ Other party's information

When registered in the contact list: The other party's name/group name is displayed.
When not registered in the contact list: The other party's IP address, SIP URI (SIP user name@SIP domain name), host name (e.g., www.example.com), MCU's conference room number@IP address, or MCU's SIP user name@IP address is displayed. If the other party uses the same SIP domain as you, only the SIP user name, and not the SIP URI, is displayed.

❷ Video Image

Displays the other party's video, your own video, or video from the secondary video input such as a computer display or a sub video camera (Page 64, Page 68).

❸ Subscreen

Depending on the screen layout, your own video or the other party's video is displayed here (Page 47, Page 49, Page 52).

❹ Duration

Displays the duration of the current video conference call.

> **Note**
>
> • 99h59m is displayed for the duration even if the length of the video conference call exceeds 100 hours.

❺ Guide

Displays operations you can perform with the remote control.

❻ Network Status Indication

The number of antennas in the icon indicates differing levels of network congestion.
The icon changes as follows:

0 bars ( ): The network is very congested.

1 bar ( ): The network is congested.

2 bars ( ): The network is slightly congested.

3 bars ( ): The network is not congested.

> **Note**
>
> • If the icon shows only 0–1 bars continuously, contact your network administrator.
> • During multiple-party video conference calls, the icon is displayed on each site screen, but not on your own image.

- You can set whether to display the icon. This setting affects all displayed images (excluding your own image) (Page 87). For example, if icon display has been enabled, the icon will be displayed on the image of all other parties, but not on your own image. However, if icon display has been disabled, the icon will not be displayed on any of the images.

❼ **Status Indication**

The status of the unit is displayed with an icon (Page 29).

Note

- Pressing **[Full Screen]** on the remote control will hide or unhide the other party's information, duration, network status indication[*1], and guide displays.

[*1] If the network status indication has been set to not be displayed, pressing **[Full Screen]** will not show the icon.

Making a Video Conference Call

You can make a video conference call using one of the following methods.

Note

- During a video conference call, you cannot perform the following operations:
  – Pressing **[Menu]** to display the Menu screen.
  – Pressing **[Contact]** to display the contact list screen.
- Make sure that peripheral devices (e.g., display, main video camera) are turned on.
- If a called party does not answer a video conference call within approximately 60 seconds, the call will be terminated automatically.
- 2-party/3-party/4-party video conference calls can be made using the outgoing call history.
- Only 2-party video conference calls can be made using the incoming call history.
- You cannot add parties to an existing video conference call.
- During a 3-party/4-party video conference call, even if only one party ends the video conference call, the rest of the parties will also be disconnected.
- A video conference call will start with only the parties that answered the call. For example, if only one party answers a 4-party video conference call, the video conference call will start as a 2-party video conference call.
- 3-party/4-party video conference calls may not be possible depending on bandwidth settings (Page 85, Page 105).
- Video conference calls can be made using a SIP URI through a SIP server only when in IP Mode and if SIP settings have been made correctly.
- When connecting to non-Panasonic video conference systems, you can make only 2-party video conference calls.

Calling Using Speed Dial (2-party Conference/3-party Conference/ 4-party Conference)

Note

- To call using speed dial, you need to have a speed dial number programmed in **"Speed Dial"** in the contact list (Page 79).

Calling from the Home Screen (Operation with the Main Unit)

1 Press **[Home]**.
   - The Home screen is displayed.

2 Press **[One-Touch Connection]** (**1** to **5**).
   - The LED for the One-Touch Connection number you pressed lights up.
   - The information registered to the selected One-Touch Connection number is displayed.
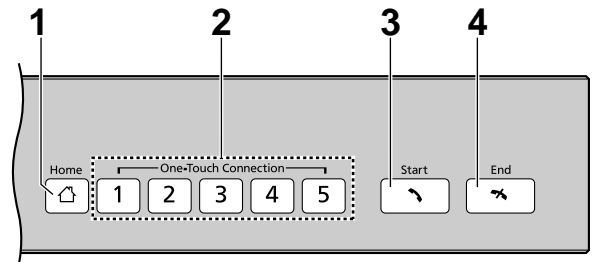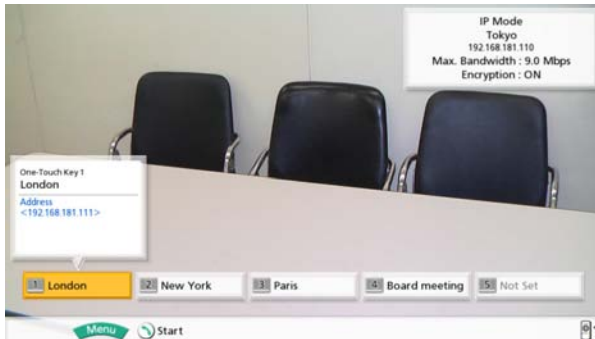
3 Press **[Start]** to start the call.

4 When you want to end the call, press **[End]**.
   - The Home screen is displayed.

Calling from the Home Screen (Operation with the Remote Control)

1 Press **[Home]**.
   - The Home screen is displayed.

2 With the dial keys, enter a One-Touch Connection number (**1** to **5**).
   - The information registered in the selected One-Touch Connection number is displayed.
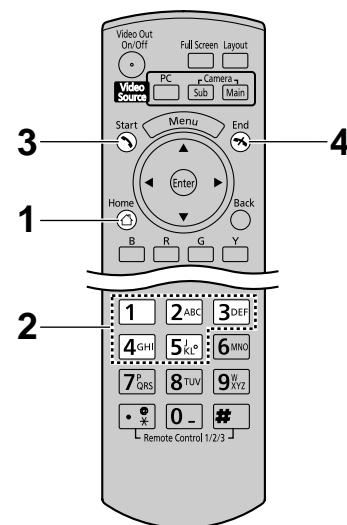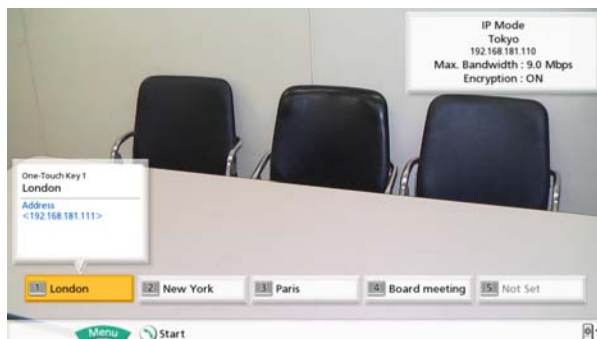
3 Press **[Start]** to start the call.
   - You can also start the call pressing **[Enter]**.

4 When you want to end the call, press **[End]**.
   - The Home screen is displayed.

Calling from the Menu Screen (Operation with the Remote Control)

<u>**Note**</u>
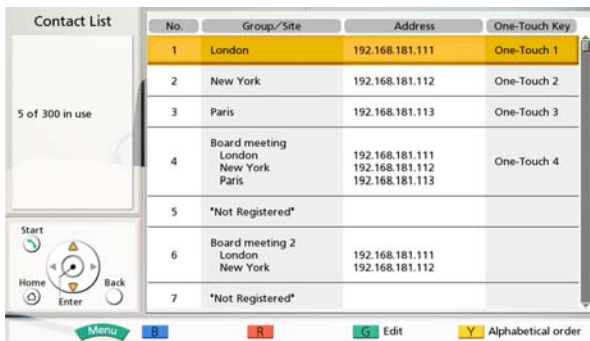
- From the Menu screen, you can make a video conference call using up to 300 speed dial numbers (**1** to **300**). (From the Home screen, you can make a video conference call using up to 5 One-Touch Connection numbers [**1** to **5**].)

1 Press **[Menu]**.
- The Menu screen is displayed.

2 Select **"Contact List"** using **[▲][▼]** and press **[Enter]**.
- The contact list screen is displayed.

  <u>**Note**</u>

  - If you press **[G]**, the contact list modification screen will be displayed and the entry can be modified (Page 80).

3 Press **[Y]**.
- The speed dial screen is displayed. Entries are displayed in speed dial number order.

Contact List	No.	Group/Site	Address	One-Touch Key
	1	London	192.168.181.111	One-Touch 1
	2	New York	192.168.181.112	One-Touch 2
5 of 300 in use	3	Paris	192.168.181.113	One-Touch 3
	4	Board meeting London New York Paris	192.168.181.111 192.168.181.112 192.168.181.113	One-Touch 4
	5	"Not Registered"		
	6	Board meeting 2 London New York	192.168.181.111 192.168.181.112	
	7	"Not Registered"		

Menu | B | R | G Edit | Y Alphabetical order
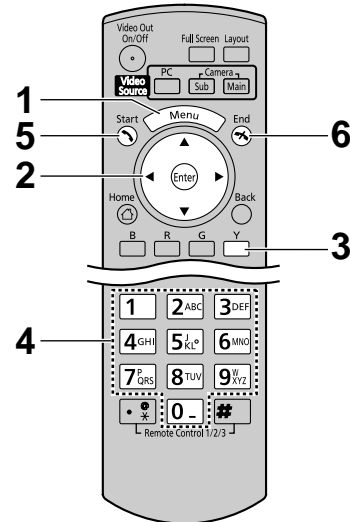
4 With the dial keys, enter a speed dial number (**1** to **300**).

5 Press **[Start]** to start the call.

6 When you want to end the call, press **[End]**.
- The Home screen is displayed.

Calling from the Contact List (2-party Conference/3-party Conference/4-party Conference)

Note

- To make a video conference call from the contact list, you must first register contacts in the contact list (Page 79).
- If **"IP Address"** is set to **"Auto"** on the network settings screen (Page 84), the unit's IP address will be automatically obtained using a DHCP server, and therefore may change to a different IP address from the one registered in the other party's contact list. In such cases, when the other party tries to call you by selecting a registered IP address from their contact list, the call will not be connected. For details, contact your network administrator.

1 Press **[Menu]**.
- The Menu screen is displayed.

2 Select **"Contact List"** using **[▲][▼]** and press **[Enter]**.
- The contact list screen is displayed. The entries are grouped in the index tabs and displayed in alphabetical order of **"Group/Site"**.
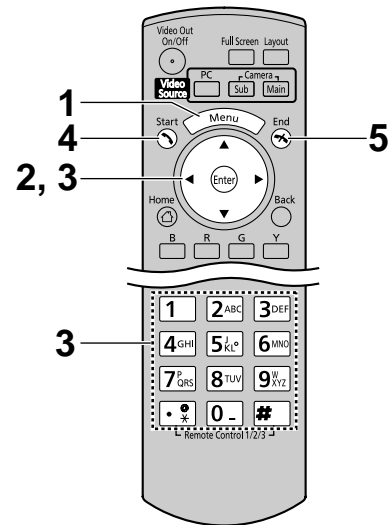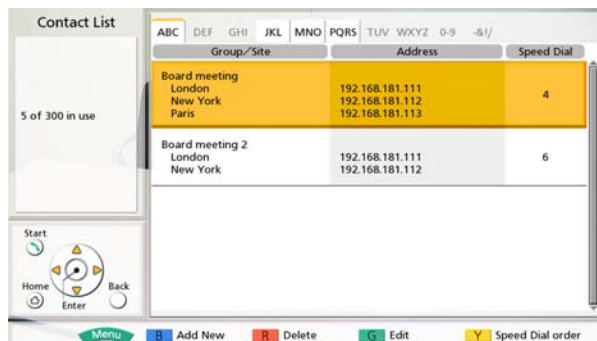
Note

- You can also open the contact list screen by pressing **[Contact]** while the following screens are displayed:
  – Home screen
  – Menu screen
  – Computer's screen/sub video camera's image (when not on a video conference call)

3   Select the entry you want to call using **[▲][▼]**.
- You can switch the index tab back and forth using **[◀][▶]**. (Index tabs in which no entries exist will be skipped.)
- Press a numeric button on the remote control to switch to the index tab assigned to that button, as shown below.

Numeric button	Index Tab
1	–
2	ABC
3	DEF
4	GHI
5	JKL
6	MNO
7	PQRS
8	TUV
9	WXYZ
0	0-9
✳	-&!/
#	–

4   Press **[Start]** to start the call.

5   When you want to end the call, press **[End]**.
- The Home screen is displayed.

Calling by Entering an Address Directly

You can make a video conference call by entering the IP address, SIP URI (or SIP user name), or MCU's conference room number@IP address.

1   Press **[Menu]**.
  • The Menu screen is displayed.

2   Select **"Manual Dial"** using **[▲][▼]** and press **[Enter]**.
  • The input screen is displayed.
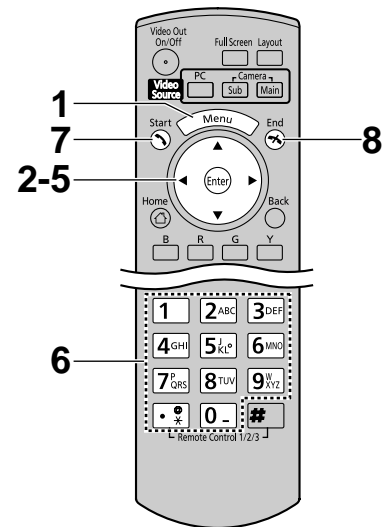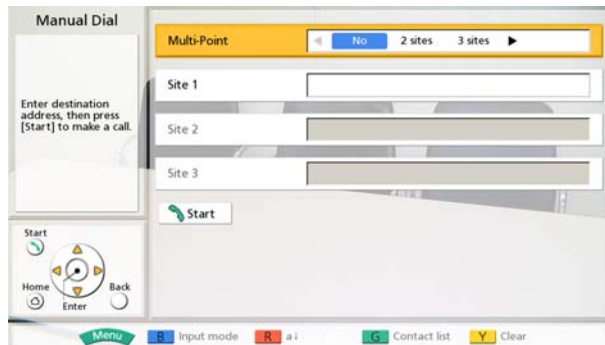
3   Select **"Multi-Point"** using **[▲][▼]**.

4   Select one of the following values using **[◀][▶]**.
2-party video conference call: **"No"**
3-party video conference call: **"2 sites"**
4-party video conference call: **"3 sites"**

  Note

  • When connecting to an MCU or non-Panasonic video conference system, you cannot make 3-party/4-party video conference calls.

5   Select **"Site 1"**, **"Site 2"**, **"Site 3"** using **[▲][▼]**.

6 Enter the IP address, SIP URI (or SIP user name), or MCU's conference room number@IP address.

Note

- If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  - Correct entry: [192.168.0.1]
  - Wrong entry: [192.168.000.001]
- To initiate a video conference call by entering a SIP URI (SIP user name@SIP domain name), you must set **"SIP Server"** to **"ON"** and specify **"SIP Server Address"**, **"SIP Username"**, and **"SIP Domain Name"**. Also, specify **"Digest Authentication"**, **"Authentication ID"**, and **"Authentication Password"** as necessary (Page 99). For details, contact your network administrator.
- When making a video conference call within your own SIP domain, you can make the call by entering the other party's SIP user name. When the other party is not within your SIP domain, you must also include their SIP domain name in addition to their SIP user name.

  When a SIP domain name is not specified, your own SIP domain name is automatically appended to the address and the call is made. Be careful as this may result in calling the wrong party.
- The characters that can be input for SIP URI entry are as follows:

  SIP user name: alphanumeric characters, symbols **. = * + _ - $ ~ ! ? / ' ( )** (up to 60 characters)
  SIP domain name: alphanumeric characters, symbols **. -** (up to 128 characters)

  Enter an RFC-compliant value. For details, contact your network administrator.
- To initiate a video conference call by entering an MCU's conference room number@IP address, **"SIP Server"** must be set to **"OFF"** (Page 99).
- The characters that can be input for an MCU's conference room number are as follows:
  Alphanumeric characters, symbols **. = * + _ - $ ~ ! ? / ' ( )** (up to 60 characters)

- You can refer to the contact list when entering the IP address, SIP URI (or SIP user name), or MCU's conference room number@IP address, by following the procedure below (You cannot enter a destination using the call history.):

  1. Press **[G]**.
     - The contact list screen is displayed.
  2. Use **[▲][▼]** to select the contact you want to refer to.
     - You can use **[◀][▶]** or the numeric buttons of the remote control to select the displayed tab (Page 38).
  3. Press **[Enter]**.
     - The display returns to the input screen.

7 Press **[Start]** to start the call.
  - You can also start the call by pressing **[Enter]**.

8 When you want to end the call, press **[End]**.
  - The Home screen is displayed.

Calling from the Call History

You can make a video conference call from the call history. The call history is divided into outgoing and incoming calls. The last 30 video conference calls made and received are stored in the outgoing and incoming call history. Information such as the contact name or IP address (or host name)/SIP URI/MCU's conference room number@IP address/MCU's SIP user name@IP address, the date and time, the duration of the call, and the result of the call is displayed for each call on the outgoing call history screen and incoming call history screen. If the IP address/SIP URI/MCU's conference room number@IP address of an entry in the call history is deleted from or edited in the contact list, the contact name in the call history entry will be replaced by the IP address/ SIP URI/MCU's conference room number@IP address.

Note

- In IP mode, to initiate a video conference call from a SIP URI (SIP user name@SIP domain name) or a SIP user name displayed in the call history, you must set **"SIP Server"** to **"ON"** and specify **"SIP Server Address"**, **"SIP Username"**, and **"SIP Domain Name"**. Also, specify **"Digest Authentication"**, **"Authentication ID"**, and **"Authentication Password"** as necessary (Page 99). For details, contact your network administrator.
- If the other party uses the same SIP domain name as you, only the SIP user name, and not the SIP URI (SIP user name@SIP domain name) will be displayed in the call history.
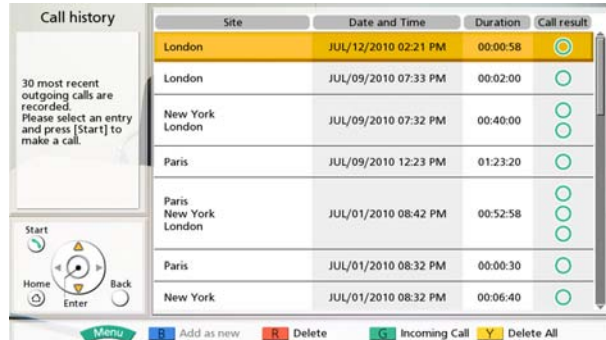
Outgoing Call History:
- 2-party/3-party/4-party video conference calls can be made using the outgoing call history.
- When connecting to non-Panasonic video conference systems, you can make only 2-party video conference calls using the outgoing call history.
- For video conference calls made using the contact list, the contact name is displayed. For video conference calls made by entering the IP address/SIP URI/MCU's conference room number@IP address directly (Page 39), that information is displayed. (That information is displayed even if a matching entry exists in the contact list.)
- If consecutive video conference calls are made to the same destination, only the latest call will appear in the outgoing call history.

Incoming Call History:
- Only 2-party video conference calls can be made using the incoming call history.
- If the calling party's IP address/SIP URI/MCU's conference room number@IP address is registered in the contact list, the contact name is displayed. Otherwise, the IP address (or host name)/SIP URI/MCU's conference room number@IP address/MCU's SIP user name@IP address is displayed.
- Depending on the type of MCU, a video conference call may be received from the MCU's SIP user name@IP address rather than the MCU's conference room number@IP address. In that case, you directly cannot call the MCU's conference room from this incoming call history.
- If consecutive unanswered video conference calls are received from the same party, only the latest call will appear in the incoming call history.
- You cannot make a video conference call to a host name displayed in the incoming call history.
- You may not be able to initiate video conference calls with SIP URIs (or SIP user names) in the incoming call history for a reason such as non-compliance with the RFC. In this case, contact your network administrator.

1 Press **[Menu]**.
  • The Menu screen is displayed.

2 Select **"Call History"** using **[▲][▼]** and press **[Enter]**.
  • The outgoing call history screen is displayed.

Call history	Site	Date and Time	Duration	Call result
	London	JUL/12/2010 02:21 PM	00:00:58	◎
30 most recent outgoing calls are recorded. Please select an entry and press [Start] to make a call.	London	JUL/09/2010 07:33 PM	00:02:00	○
	New York London	JUL/09/2010 07:32 PM	00:40:00	○ ○
	Paris	JUL/09/2010 12:23 PM	01:23:20	○
	Paris New York London	JUL/01/2010 08:42 PM	00:52:58	○ ○ ○
	Paris	JUL/01/2010 08:32 PM	00:00:30	○
	New York	JUL/01/2010 08:32 PM	00:06:40	○

Menu   B Add as new   R Delete   G Incoming Call   Y Delete All
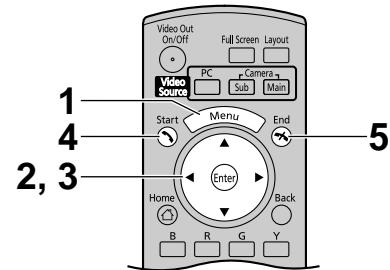
Note

  • The result of the video conference call is displayed in the **"Call result"** column as follows:
    • ○: The video conference call was established.
    • ✕: The video conference call was not established.
  • To move to the incoming call history screen, press **[G]**. You can switch between the outgoing call history screen and the incoming call history screen by pressing **[G]**.
  • In the incoming call history, if a party is not registered in your contact list, their IP address (or host name)/SIP URI (or SIP user name) will be displayed.
  • In the outgoing call history, if a party is registered in your contact list, the contact name is displayed. However, when calling by entering an IP address, SIP URI (or SIP user name), or MCU's conference room number@IP address (Page 39), even if the party is registered in your contact list, the entered information is displayed.
  • When a contact in the incoming call history is newly added to your contact list, the incoming call history will be updated to display the contact's information from the contact list.
  • When a party that is not registered in your contact list is selected, if you press **[B]**, the contact list registration screen will be displayed and a new contact can be registered (Page 81). If a host name is displayed in the **"Site"** column, the party cannot be registered in your contact list. Also, you may not be able to register a SIP URI (or SIP user name) from the incoming call history to the contact list for a reason such as non-compliance with the RFC. In this case, contact your network administrator.

3   Select the party you want to call using **[▲][▼]**.

> **Note**
> - If you press **[Enter]**, the call history details screen is displayed.
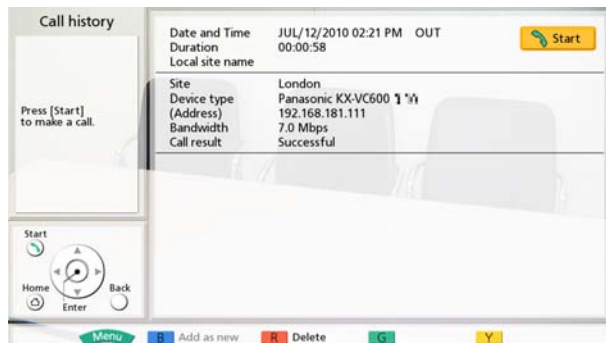
> - When not selecting a local site (Page 107), **"Local site name"** will be blank.
> - The lowest bandwidth for the maximum bandwidth setting among all participating parties is displayed in **"Bandwidth"**. If the video conference call was not established, the maximum bandwidth will be blank.
> - Depending on the other party, **"Device type"** may be blank.

4   Press **[Start]** to start the call.

5   When you want to end the call, press **[End]**.
- The Home screen is displayed.

Answering a Video Conference Call

Depending on your setting, you can either respond to a request to participate in a video conference call manually (manual answer) or automatically (automatic answer) (Page 85).

Note

- Make sure that peripheral devices (e.g., display, main video camera) are turned on.

When Manual Answer is Set

When a video conference call is incoming there will be an incoming call ring, and a dialog box is displayed.

When the caller is registered in the contact list, the caller's group/site is displayed.
When the caller is not registered, the caller's IP address (or host name)/SIP URI is displayed.

Note

- If the other party uses the same SIP domain name as you, only the SIP user name, and not the SIP URI (SIP user name@SIP domain name) is displayed.
- If the caller's group/site name, or SIP URI (or SIP user name) is too long to display, it will be shortened and ended with "..." .

Operation with the Main Unit

1   Press **[Start]**.
   - The video conference begins.
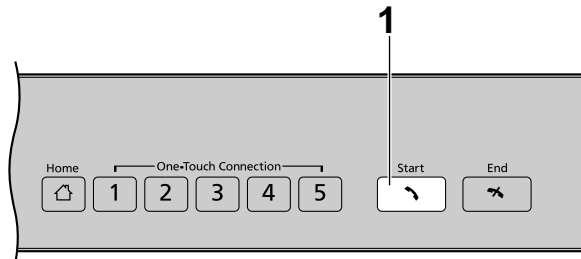
Operation with the Remote Control

1   Press **[Start]**.
   - You can also answer the video conference call by pressing **[Enter]**.
   - The video conference begins.
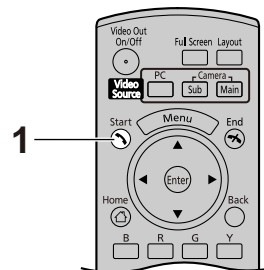
<u>**Note**</u>

- If you do not answer a video conference call within approximately 60 seconds, the call will be terminated automatically.

When Automatic Answer is Set

When a video conference call is incoming the call will be automatically answered after one ring, and transmission then begins.

Changing the Screen Layout during a 2-party Video Conference Call

You can choose from 3 different screen layouts when taking part in a 2-party video conference call.

1 Press **[Layout]**.
   - The screen will cycle through the available layouts each time you press **[Layout]**.
     - **Layout 1**: The other party's image is displayed full screen.
     - **Layout 2**: The other party's image is displayed full screen, and your own image is displayed in the upper right subscreen.
     - **Layout 3**: Your own image is displayed full screen.

Layout 1

A

Layout 2

B
A

Layout 3

B
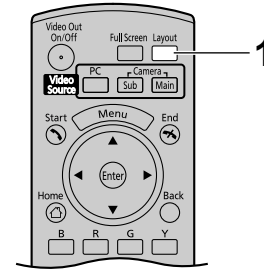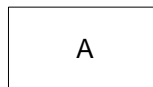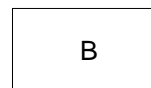
A: Other Site
B: This Site

Note

- You can press **[B]** or **[R]** to switch the screen layout to that button's pre-assigned layout.
  The layout displayed by each button depends on the screen layout currently in use.

Display	Screen Layout
Other Site	Layout 1

Display	Screen Layout
Both Sites	Layout 2
This Site	Layout 3

Example: When using Layout 2

[B]: The screen layout will be switched to Layout 3.
[R]: The screen layout will be switched to Layout 1.

- When connecting to an MCU or non-Panasonic video conference system, images received from the other party may not be displayed in the correct aspect ratio (the ratio of the width of the image to its height). In this case, perform the following operation during the video conference call. (When the video conference call ends, the aspect ratio will return to **"Auto"** [default].)

   1. Press **[G]**.
   - The aspect ratio dialog box is displayed.
   2. Use **[▲][▼]** to select **"Auto"** (default), **"16:9"**, or **"4:3"**.
   - A dialog box showing the selected aspect ratio is displayed for about 3 seconds.

- When connecting to an MCU, the MCU's screen will be displayed as the other party's image. You can change the MCU's screen layout remotely using tone signals (Page 78).

Changing the Screen Layout during a 3-party Video Conference Call

You can choose from 7 different screen layouts when taking part in a 3-party (This Site, Site 1, Site 2) video conference call.

1 Press **[Layout]**.

- The screen will cycle through the available layouts each time you press **[Layout]**.
  - – **Layout 1**: Image of Site 1 on the left and image of Site 2 on the right.
  - – **Layout 2**: The images are displayed as follows:
    Site 1: upper left
    Site 2: upper right
    This Site: bottom middle
  - – **Layout 3**: Image of Site 1 is displayed full screen and image of Site 2 is displayed in the upper right subscreen.
  - – **Layout 4**: Image of Site 2 is displayed full screen and image of Site 1 is displayed in the upper left subscreen.
  - – **Layout 5**: The image of Site 1 is displayed full screen.
  - – **Layout 6**: The image of Site 2 is displayed full screen.
  - – **Layout 7**: Your own image is displayed full screen.

Layout 1

Layout 2

Layout 7

Layout 3

Layout 6

Layout 4

Layout 5

A: Site 1
B: Site 2
C: This Site
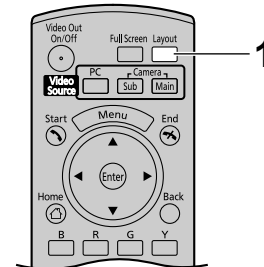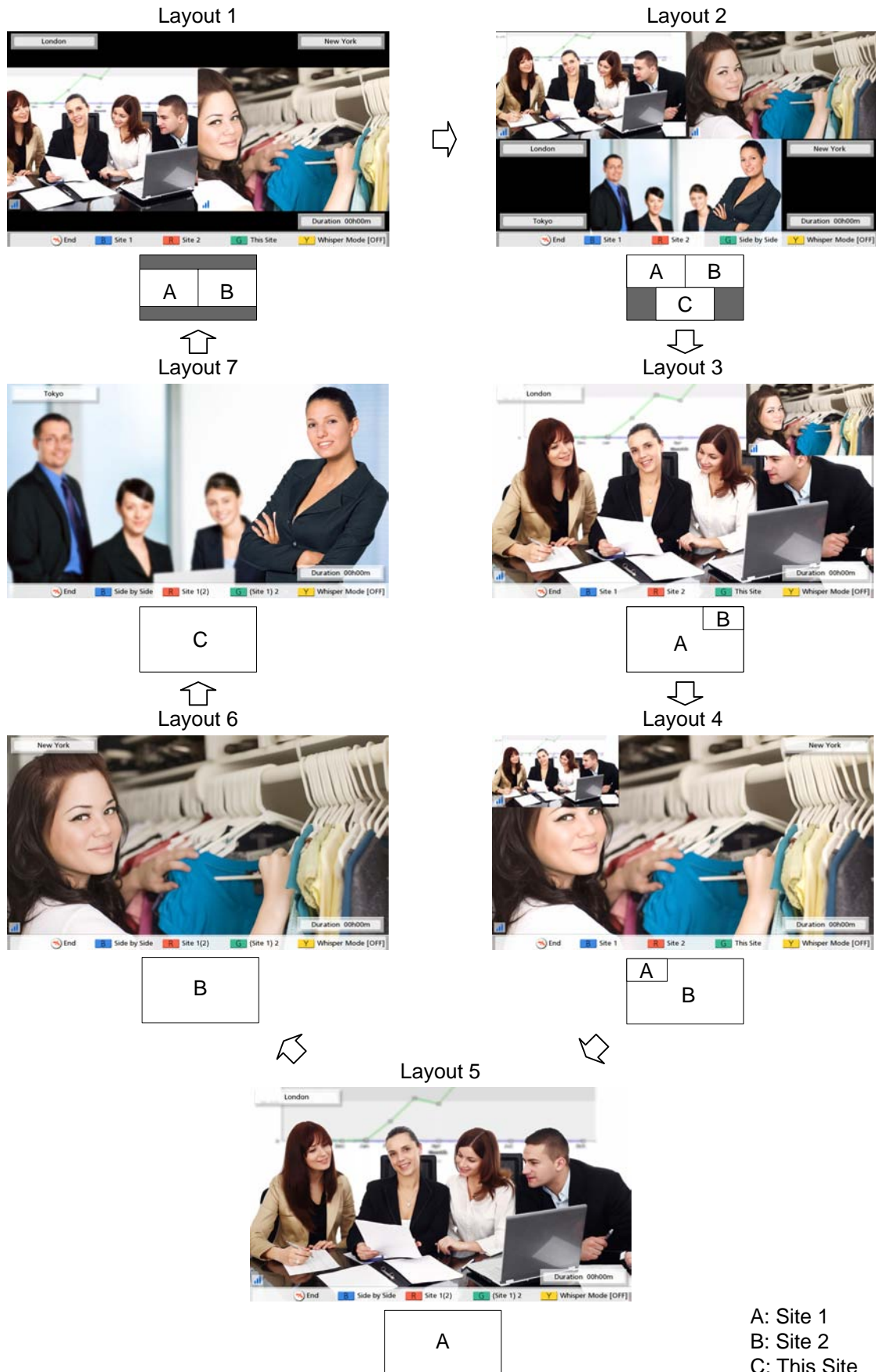
<u>**Note**</u>

• You can press **[B]**, **[R]**, or **[G]** to switch the screen layout to that button's pre-assigned layout.[1] The layout displayed by each button depends on the screen layout currently in use.

   [1]   You cannot switch the screen layout to **Layout 2** directly. However, you can switch to **Layout 2** if you press **[Layout]** first (Page 49).

Display	Screen Layout
Side by Side	Layout 1
Site 1(2)	Layout 3
(Site 1) 2	Layout 4
Site 1	Layout 5
Site 2	Layout 6
This Site	Layout 7

Example: When using Layout 3

[B]: The screen layout will be switched to Layout 5.
[R]: The screen layout will be switched to Layout 6.
[G]: The screen layout will be switched to Layout 7.

Changing the Screen Layout during a 4-party Video Conference Call

You can choose from 6 different screen layouts when taking part in a 4-party (This Site, Site 1, Site 2, Site 3) video conference call.

1   Press **[Layout]**.
   • The screen will cycle through the available layouts each time you press **[Layout]**.
      –   **Layout 1**: The images are displayed as follows:
         Site 1: upper left
         Site 2: bottom middle
         Site 3: upper right
      –   **Layout 2**: The images are displayed as follows:
         Site 1: upper left
         Site 2: lower left
         Site 3: upper right
         This Site: lower right
      –   **Layout 3**: The image of Site 1 is displayed full screen.
      –   **Layout 4**: The image of Site 2 is displayed full screen.
      –   **Layout 5**: The image of Site 3 is displayed full screen.
      –   **Layout 6**: Your own image is displayed full screen.

Layout 1   Layout 2*1

A	C
	B

A	C
B	D

Layout 6   Layout 3

D

A

Layout 5   Layout 4

C

B

A: Site 1
B: Site 2
C: Site 3
D: This site
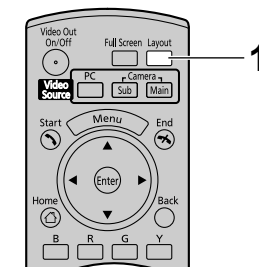
*1 Image edges are trimmed and the image is centered.

Note

- You can press **[B]**, **[R]**, or **[G]** to switch the screen layout to that button's pre-assigned layout. The layout displayed by each button depends on the screen layout currently in use.

Display	Screen Layout
Remote sites	Layout 1
All Sites	Layout 2
Site 1	Layout 3
Site 2	Layout 4
Site 3	Layout 5
This Site	Layout 6

Example: When using Layout 3

[B]: The screen layout will be switched to Layout 1.
**[R]**: The screen layout will be switched to Layout 2.
[G]: The screen layout will be switched to Layout 6.

Controlling a PTZ Camera

If a PTZ (pan, tilt, zoom) camera is connected as the main video camera to the other party's unit, you can control the pan (side-to-side movement), the tilt (up-down movement) and the zoom of the camera during a video conference call.

Note

- You cannot control your PTZ camera. If the other party is using a KX-VC300 or a KX-VC600, you will be able to control their PTZ cameras. If the other party is using a KX-VC500, you will not be able to control their PTZ cameras.
- If any of the other parties is using an older software version, you will not be able to control any of the other party's PTZ cameras.
- You will be able to control the other party's PTZ cameras only if they have set **"CAM ctrl from remote site(s)"** in their settings to **"ON"** (by default, it is set to **"OFF"**).
- For details about compatible PTZ camera models, contact your dealer.
- The features that can be used may be limited depending on your video camera model. (e.g., A video camera with only a zoom feature)
- When the other party is using a non-Panasonic video conference system, some operations may not be available, or unintended operations may occur.

1   Press **[CAM Ctrl]**.
- The site selection dialog box is displayed.
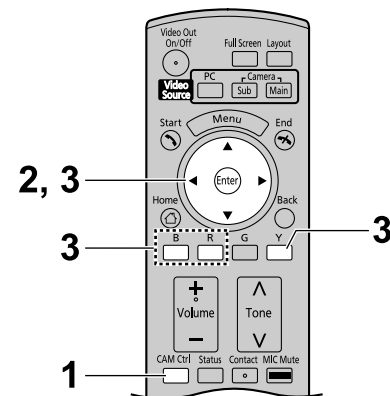
Note

- After the site selection dialog box is displayed, if no operations are performed within approximately 3 seconds, the dialog box will disappear.

2 Use **[▲][▼]** to select the site to display and press **[Enter]**.
  • The camera control screen is displayed.

3 Press the buttons of the remote control to operate the PTZ camera.
  [B]: Zoom out
  [R]: Zoom in
  [◀][▶]: Pan the camera left/right.
  [▲][▼]: Tilt the camera up/down.
  • The movement continues as long as you hold down the button, and stops when you release the button. For finer control of the movement, press the button and immediately release it, and repeat this in succession.
  • To control another site's PTZ camera, press **[Y]**. Each time **[Y]** is pressed, the order of the sites listed in the site selection dialog box will change.

  Example: During a 4-party video conference call
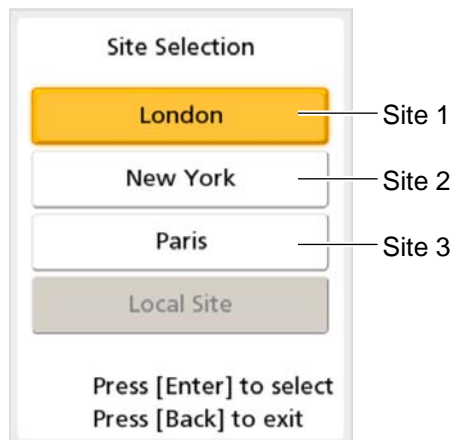
  • To return to the video conference call screen, press **[Back]**.

Note

- You can press **[Full Screen]** on the remote control to display/hide the guide area.
- In the following cases, you will not be able to control a PTZ camera, even if you press **[CAM Ctrl]**.
  - While contents are being shared.
  - While displaying the unit information screen or the connections status screen.
  - While displaying a dialog box.

Recalling a Registered Preset

During a video conference call, you can set the other party's PTZ camera's direction and zoom settings to a desired position by selecting a preset (pan, tilt, and zoom position) registered in their PTZ camera.

Note

- You cannot register a preset or recall a registered preset for your own PTZ camera. You can recall the other party's preset only if the other party is using a KX-VC300 or KX-VC600 and has registered a preset. If the other party is using a KX-VC500, you cannot recall a preset of their PTZ camera.
- For details about compatible PTZ camera models, contact your dealer.

1 Press **[CAM Ctrl]**.
- The site selection dialog box is displayed.
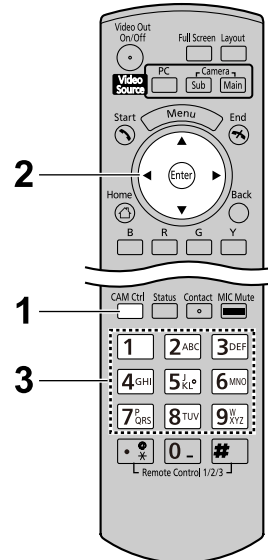
Note

- After the site selection dialog box is displayed, if no operations are performed within approximately 3 seconds, the dialog box will disappear.

2 Use **[▲][▼]** to select the desired site and press **[Enter]**.
- The camera control screen is displayed.

3 Press a numeric button (1–9) to select the preset
number that you want to recall.
- The direction and zoom of the other party's PTZ
camera will change to that of the registered preset.

Note
- If a number which has no preset registered to it
is selected, the PTZ camera's direction or zoom
will not change.

Adjusting the Volume

You can adjust the volume during a video conference call.

1   Press **[Volume (+/–)]**.
   • The volume level bar is displayed at the bottom of the screen.

2   Adjust the volume using **[Volume (+/–)]**.
   • Pressing **[+]** will increase the volume of the other party's voice.
   • Pressing **[–]** will decrease the volume of the other party's voice.

   After about 3 seconds, the volume level bar disappears.
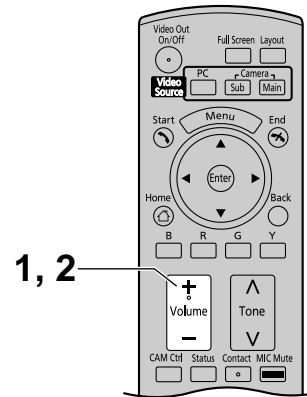
Note

   • You can set the volume level of a video conference call before starting the call (Page 88).
   • After ending a video conference call, the volume level returns to the volume level set before starting the call.
   • You cannot adjust the display's volume.

Muting the Microphone

During a video conference call, you can mute the microphone so that your voice cannot be heard by the other party. You will be able to hear the other party's voice, but they will not be able to hear you.

Note

- You can set the microphone(s) to be mute at the start of a received video conference call (Page 86).

Muting the Microphone (Operation with the Remote Control)

1   Press **[MIC Mute]**.
   - An icon appears in the status display area of the screen (Page 29), and the LED light on the Boundary Microphone (Page 21) becomes red. Make sure the color of the LED changes.
   - Pressing **[MIC Mute]** again will unmute the microphone. The LED light on the Boundary Microphone (Page 21) becomes green. Make sure the color of the LED changes.
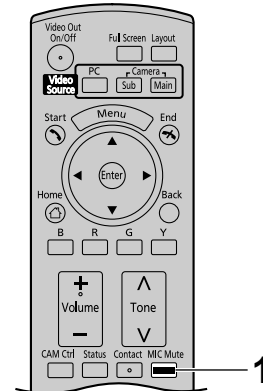
Muting the Microphone (Operation with the Boundary Microphone)

1   Press the MIC Mute button.
   - An icon appears in the status display area of the screen (Page 29), and the LED light on the Boundary Microphone (Page 21) becomes red. Make sure the color of the LED changes.
   - Pressing the MIC Mute button again will unmute the microphone. The LED light on the Boundary Microphone (Page 21) becomes green. Make sure the color of the LED changes.
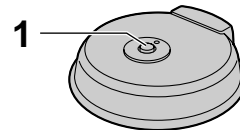
   Note

   - When multiple Boundary Microphones are connected, pressing the MIC Mute button of one Boundary Microphone will mute all Boundary Microphones.

Reducing Microphone Noise

You can reduce the amount of ambient noise picked up by the microphone (shuffling of papers, etc.) during a video conference call. When noise reduction is in effect, the volume level of voices may also be reduced.

1 Press **[Y]**.
- **"Whisper Mode [ON]"** is displayed, and noise reduction is enabled.
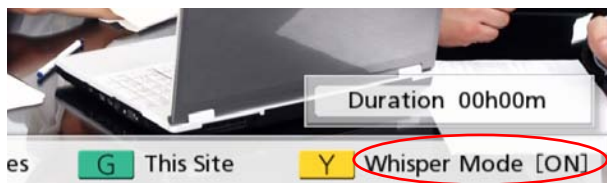
- Pressing **[Y]** again will display **"Whisper Mode [OFF]",** and noise reduction is disabled.
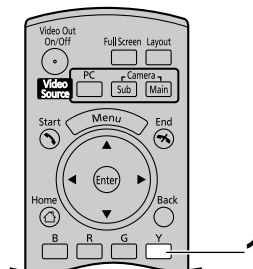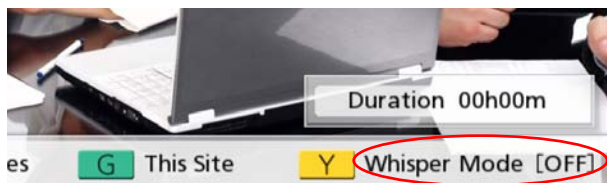
Note

- You can set whether to enable noise reduction for a video conference call before starting the call (Page 87).
- After a video conference call is finished, the noise reduction setting returns to the value set before starting the call.

Adjusting the Tone

You can adjust the tone during a video conference call.

1 Press **[Tone (∧/∨)]**.
- The tone control dialog box appears, and the current tone setting is displayed.

Tone (EQ) Control

- More Highs
- **Standard**
- More Lows
- Voice
- Music

1, 2
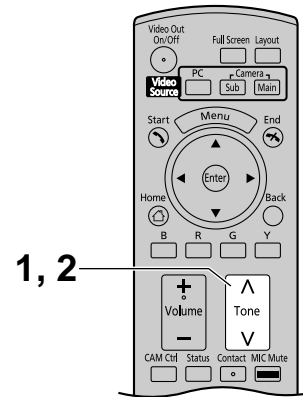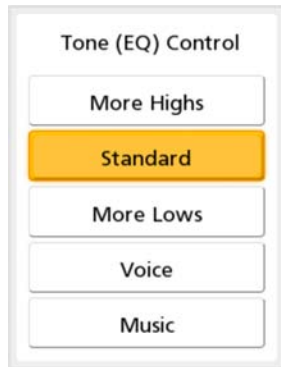
2 Press **[Tone (∧/∨)]** to select a tone setting.
- **"More Highs"**: high-pitched sounds are amplified.
- **"Standard"**: regular (default) sound.
- **"More Lows"**: low-pitched sounds are amplified.
- **"Voice"**: makes voices easier to hear when there is a high level of ambient noise.
- **"Music"**: makes sounds with a broad frequency, such as music, easier to hear.

After about 3 seconds, the tone control dialog box disappears.

Note

- You can set the tone of a video conference call before starting the call (Page 88).
- After a video conference call is finished, the tone setting returns to the value set before starting the call.
- When connecting to an MCU or non-Panasonic video conference system, the tone is set to **"Standard"** and cannot be changed.

Displaying a Computer's Screen

You can display a computer's screen on your display and to other parties by connecting the computer to the unit.
This is convenient when explaining something on the computer's screen while showing it to others, for example.
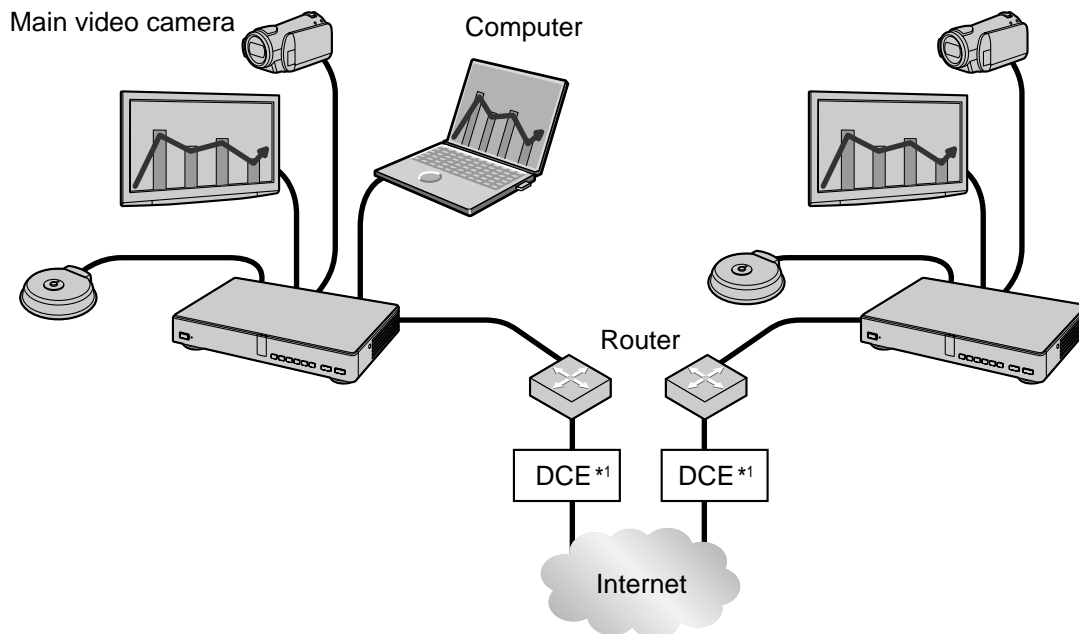
*1   DCE: Data Circuit-terminating Equipment

Connecting the Computer
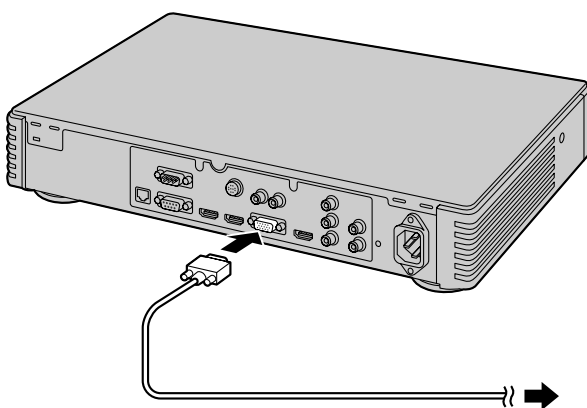
- Connect your computer's monitor output to the back of the unit using a VGA cable (Page 19).
- Make sure the cable used has the correct connector shapes to connect to both your computer and to the unit.
- You can connect or disconnect the computer during a video conference call.
- You can only display one computer's screen at a time.

- The computer screen resolutions supported by the unit are VGA (640 × 480), SVGA (800 × 600), and XGA (1024 × 768).
  SXGA (1280 × 1024) is not supported. For each resolution, the following settings are supported:

Resolution	Refresh Rate (Hz)
VGA	60/72/75/85
SVGA	60/72/75/85
XGA	60/70/75/85

Displaying the Computer's Screen

You can switch the display from the main video camera to the computer screen during a video conference call.

1 Press **[PC]**.
  - The computer's screen is displayed. The computer screen is also shown on the other party's display.
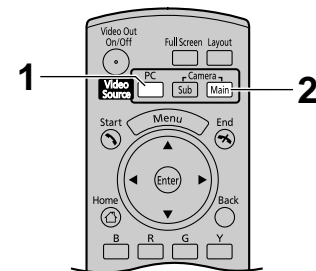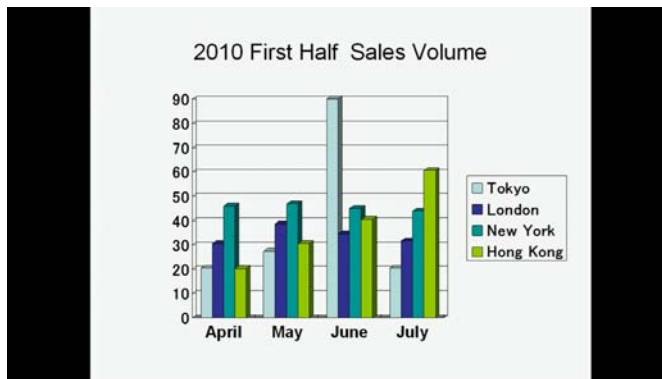
Note

  - When connecting to an MCU or non-Panasonic video conference system, the same screen may not be shown on the other party's display depending on the other party's screen layout. Ask the other party to change their screen layout to display your computer's screen.
  - When connecting to an MCU or non-Panasonic video conference system, you may not be able to display the computer's screen on the other party's display. An error message is displayed. To return to displaying your main video camera's image, press **[Enter]**.

- Pressing **[Full Screen]** on the remote control will hide or unhide the other party's information, duration, and guide displays.
- When connecting to another Panasonic HD Visual Communication Unit:
  - While displaying your computer's screen, the other party cannot press **[PC]** to display their own computer's screen.
  - If a sub video camera is connected, you can also switch to the sub video camera's image by pressing **[Camera Sub]** (Page 68). Only the party that pressed **[PC]** can perform this operation. To return to displaying your computer's screen, press **[PC]**.
  - While displaying your computer's screen, you can switch to displaying the other party's image in **Layout 1** by pressing **[B]** (Page 47, Page 49, Page 52). However, the other party cannot perform this operation, and the other party cannot confirm if you are viewing your computer's screen or the other party's image. When viewing the other party's image, the screen layout is fixed to **Layout 1**. To return to displaying your computer's screen, press **[B]**.
- When connecting to an MCU or non-Panasonic video conference system:
  - Even while displaying your computer's screen, it is also possible for the other party to start sharing their computer's screen. In this case, note that the other party's computer screen will be displayed as the other party's image on your screen.
  - If a sub video camera is connected, you can also switch to the sub video camera's image by pressing **[Camera Sub]** (Page 68). To return to displaying your computer's screen, press **[PC]**. It is also possible for the other party to start sharing their sub video camera's image. In this case, note that the other party's sub video camera's image will be displayed as the other party's image on your screen.
  - While displaying your computer's screen, you can switch to displaying the other party's image in **Layout 1** by pressing **[B]** (Page 47). To return to displaying your computer's screen, press **[R]**.

2 Press **[Camera Main]** to return to showing the main video camera's image.

Note

- Only the party that pressed the **[PC]** button can perform this operation.

Note

- On the Home screen, you can also display the computer's screen on your display by pressing **[PC]**. While the computer's screen is displayed, the unit will not enter screen standby mode.
  To return to the Home screen, press **[Camera Main]**.

Displaying the Sub Video Camera's Image

When a sub video camera is connected to the unit, you can display the sub video camera's image on your display and to other parties.
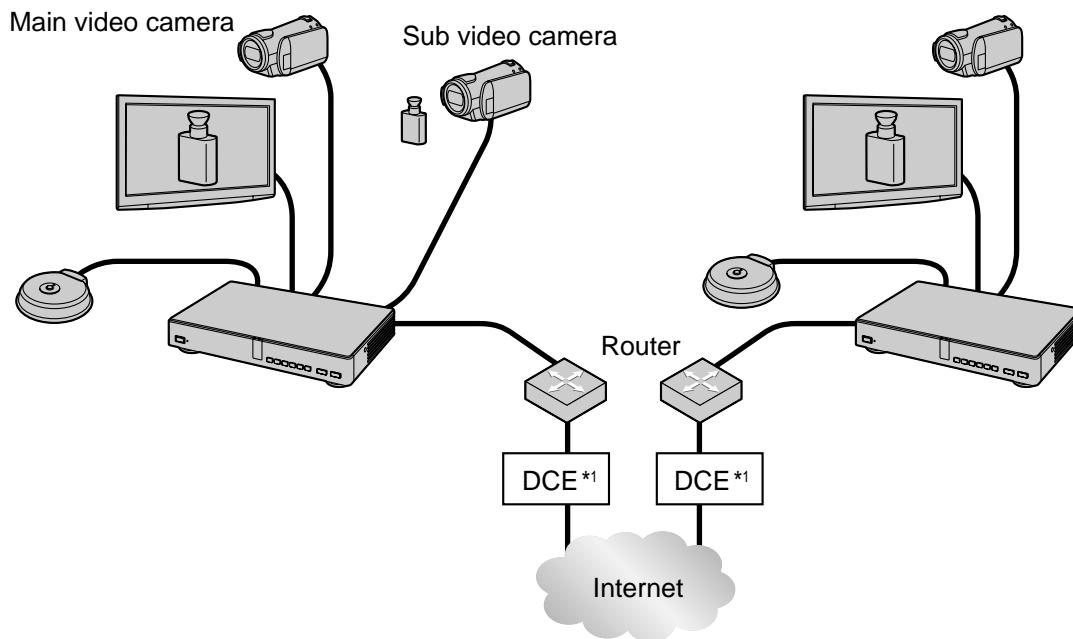
[1]   DCE: Data Circuit-terminating Equipment

Connecting the Sub Video Camera
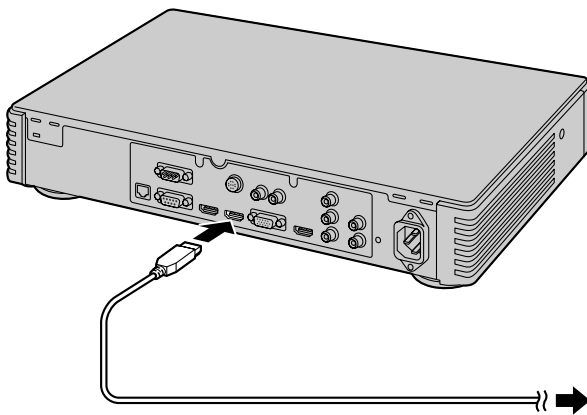
- Connect a video camera to the back of the unit using an HDMI cable (Page 19).
- You can connect or disconnect the sub video camera during a video conference call.
- You can only display the image of one sub video camera at a time.
- Only video cameras that can output 1080i resolution using HDMI can be used.

Displaying the Sub Video Camera's Image

You can switch the display from the main video camera to a sub video camera during a video conference call.

1 Press **[Camera Sub]**.
- The sub video camera's image is displayed. The image is also visible on the other party's display.

Note

- When connecting to an MCU or non-Panasonic video conference system, the same image may not be shown on the other party's display depending on the other party's screen layout. Ask the other party to change their screen layout to display your sub video camera's image.

- Pressing **[Full Screen]** on the remote control will hide or unhide the other party's information, duration, and guide displays.
- When connecting to another Panasonic HD Visual Communication Unit:
  - While displaying your sub video camera's image, the other party cannot press **[Camera Sub]** to display their own sub video camera's image.
  - If a computer is connected you can also switch to the computer screen's image by pressing **[PC]** (Page 64). Only the party that pressed **[Camera Sub]** can perform this operation. To return to displaying your sub video camera's image, press **[Camera Sub]**.
  - While displaying your sub video camera's image, you can switch to displaying the other party's image in **Layout 1** by pressing **[B]** (Page 47, Page 49, Page 52). However, the other party cannot perform this operation, and the other party cannot confirm if you are viewing your sub video camera's image or the other party's image. When viewing the other party's image, the screen layout is fixed to **Layout 1**. To return to displaying your sub video camera's image, press **[B]**.
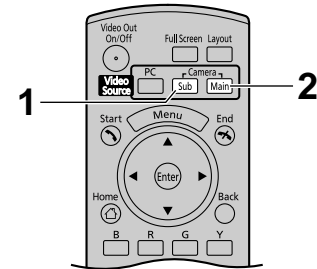
- When connecting to an MCU or non-Panasonic video conference system:
  – Even while displaying your sub video camera's image, it is also possible for the other party to start sharing their sub video camera's image. In this case, note that the other party's sub video camera's image will be displayed as the other party's image on your screen.
  – If a computer is connected, you can also switch to the computer screen's image by pressing **[PC]** (Page 64). To return to displaying your sub video camera's image, press **[Camera Sub]**. It is also possible for the other party to start sharing their computer's screen. In this case, note that the other party's computer screen will be displayed as the other party's image on your screen.
  – While displaying your sub video camera's image, you can switch to displaying the other party's image in **Layout 1** by pressing **[B]** (Page 47). To return to displaying your sub video camera's image, press **[R]**.

2   Press **[Camera Main]** to return to showing the main video camera's image.

Note

- Only the party that pressed **[Camera Sub]** can perform this operation.

Note

- On the Home screen, you can also display the sub video camera's image on your display by pressing **[Camera Sub]**. While the sub video camera's image is displayed, the unit will not enter screen standby mode. To return to the Home screen, press **[Camera Main]**.

Displaying a Still Image from the Sub Video Camera

You can display a still image from the sub video camera during a video conference call.

Note

- Fix your sub video camera and the object so that the image is not blurred.
- You cannot perform this operation when connecting to an MCU or non-Panasonic video conference system.

1 Press **[Camera Sub]**.
- The sub video camera's image is displayed.

2 Press **[R]**.
- The still image from your sub video camera is displayed on your display and the other party's display.

Note

- The image becomes gradually clear after a black screen is displayed for about 1 second.
- If you press **[R]** while the still image is being sent, the image taken when you pressed **[R]** the second time is sent to other party's display again.
- If the network has low bandwidth and a high rate of packet loss, either it will take a long time to display a clear image, or a blurred image will be displayed.

3 Press **[G]**.
- The display switches from the still image back to the normal sub video camera image.

Note

- A black screen is displayed for about 1 second after you press **[G]**.

4 Press **[Camera Main]**.
- The screen returns to the main video camera's image.
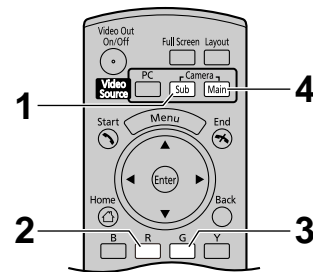
Displaying the Connection Status

You can confirm the connection status of the network and peripheral devices.

1 Press **[Status]**.

- The connections status screen is displayed. An **"X"** mark is displayed next to any network or peripheral devices connection that is not in normal operation or not connected.

Example: The Boundary Microphone connection is not normally operating.
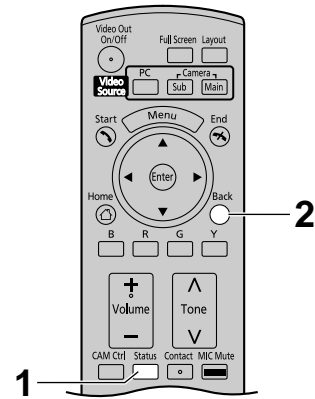
Note

- **"MIC"** displays the connection status of the Boundary Microphone only. The connection status of general-purpose microphones is not displayed.
- If the MIC detection setting has been disabled through system settings, the connection status of the Boundary Microphone will not be displayed (Page 87).

2 Press **[Back]**.

- The display returns to the screen in use before the connections status screen was viewed.

Displaying Unit Information

1 Press **[Status]** twice.
   - The unit information screen is displayed.

Name	: Tokyo
MAC address	: ▓▓:▓▓:▓▓:▓▓
SIP Username	:
IP Address	: 192.168.181.110
Subnet mask	: 255.255.255.0
Default Gateway	: 192.168.181.1
DNS Server Addr.	: 203.119.1.1
SIP Domain Name	:
Max. Bandwidth	: 9.0 Mbps
Resolution (send)	: 1024x768
Encryption	: OFF
Software version	: 1.5
Frequency	: 60 Hz

B		R	Next	G		Y	Whisper Mode [OFF]
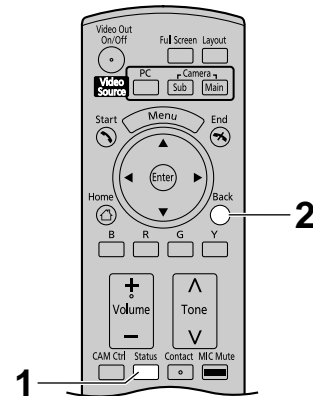
Note

   - When you are not using a SIP server, **"SIP Username"** and **"SIP Domain Name"** will be blank.
   - The status of communication encryption is displayed under **"Encryption"** and the resolution for sending images is displayed under **"Resolution (send)"**. This information is not displayed when communication is not occurring.

• If **[Status]** is pressed twice during a video conference call, you can press **[R]** to switch to the next screen. That screen displays the unit name, IP address/SIP URI (or SIP user name)/MCU's conference room number@IP address/MCU's SIP user name@IP address, packet loss rate, connection bandwidth, resolution, frame rate and field frequency for the 3 parties displayed under **"Site 1"**, **"Site 2"** and **"Site 3"**.[*1*2]

   [*1]   **"Frequency"** is not displayed when connecting to an MCU or non-Panasonic video conference system.

   [*2]   Depending on the other party, **"Name"** may be blank.

Site 1	Name	: Panasonic KX-VC600		
	Address	: 192.168.181.111		
	Loss	: 1.6 %	Bandwidth	: 3.5 Mbps
	Resolution	: 1024x768	Frame rate	: 60 fps
	Frequency	: 60 Hz		
Site 2	Name	: Panasonic KX-VC600		
	Address	: 192.168.181.112		
	Loss	: 1.6 %	Bandwidth	: 3.5 Mbps
	Resolution	: 1024x768	Frame rate	: 60 fps
	Frequency	: 60 Hz		
Site 3	Name	:		
	Address	:		
	Loss	:	Bandwidth	:
	Resolution	:	Frame rate	:
	Frequency	:		

| B | Prev | R | G | Y | Whisper Mode [OFF] |

2 Press **[Back]**.

• The display returns to the screen in use before the step 1 was performed.

Activating Enhanced Features

Overview of Activation Keys

You can enhance the following types of features with an activation key (sold separately). For details about the settings, refer to Page 101.

Model No.	Product Name	Activation Key Type	Description
KX-VCS101	Activation Key Card (Connection Enhancement)	Connection Enhancement	Enables the connection to MCUs and non-Panasonic video conference systems.

Note

- Once you have activated new features (Page 101), they remain activated even after software updates or a system initialization.
- If the hardware changes, for example if you exchange the unit, you must reacquire the registration key and activate the features again. In this case, the registration key can be reacquired free of charge.

Enabling Connection to Non-Panasonic Video Conference Systems

You can connect to a non-Panasonic video conference system and have a 2-party video conference call.

Note

- To connect to non-Panasonic video conference systems, you must purchase an activation key card (KX-VCS101) and activate this feature beforehand (Page 101). For details about the activation key, contact your dealer.
- Non-Panasonic video conference systems you want to connect to must meet the following criteria. Confirm the settings of the non-Panasonic video conference system.
    - Supports SIP communication
    - Supports communication with the H.264 Baseline Profile
    - Supports communication with the G.722, G.722.1, and G.722.1 Annex C voice codecs
- For details about the types of non-Panasonic video conference systems you can connect to, contact your dealer.
- Video conference calls to a non-Panasonic video conference system through a SIP server using a SIP URI are not guaranteed (Page 99). IP addresses must be specified to make calls.
- The connection specifications (e.g., resolution) and available functions (e.g., content sharing) differ depending on the model type you connect to. For details, contact your dealer.
- When connecting to non-Panasonic video conference systems, only 2-party video conference calls are possible.
- You cannot adjust the tone during a video conference call.
- Audio sent to the other party is monaural.
- While you are displaying a sub video camera's image, you cannot send a still image from the sub video camera.
- Encrypted communication is not supported. When connecting to a non-Panasonic video conference system, both you and the other party must have encryption disabled (Page 85, Page 97, Page 97).
- Communication cannot be encrypted when you connect to a non-Panasonic video conference system. Instead, connect over an intranet or via a VPN.
- The maximum bandwidth specified in the settings at the beginning of the connection is applied for the duration of the connection to non-Panasonic video conference system. Depending on the network conditions, you must specify an appropriate bandwidth setting (Page 85, Page 105).
- It may be necessary to change your maximum bandwidth depending on the non-Panasonic video conference system you are connecting to. If this is necessary, you can register a maximum bandwidth in local site settings (Page 105).

Enabling Connection to an MCU

Connecting to an MCU allows you to have a video conference call with 5 or more parties.
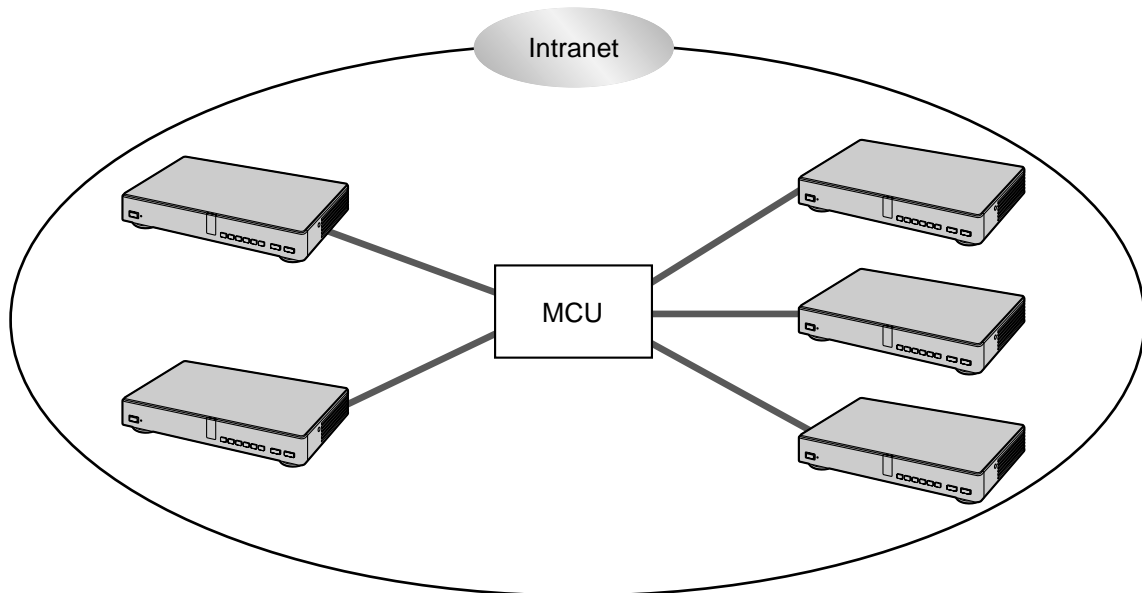
Note

- To connect to an MCU, you must purchase an activation key card (KX-VCS101) and activate this feature beforehand (Page 101). For details about the activation key, contact your dealer.
- MCUs you want to connect to must meet the following criteria. Confirm the settings of the MCU.
  - Supports SIP communication
  - Supports communication with the H.264 Baseline Profile
  - Supports communication with the G.722, G.722.1, and G.722.1 Annex C voice codecs
- For details about the types of MCUs you can connect to, contact your dealer.
- Video conference calls to an MCU through a SIP server using a SIP URI are not guaranteed (Page 99). IP addresses must be specified to make calls.
- The connection specifications (e.g., resolution) and available functions (e.g., content sharing) differ depending on the MCU you connect to. For details, contact your dealer.
- The procedure for connecting to an MCU differs depending on the MCU. For details, contact your dealer.
- You cannot adjust the tone during a video conference call.
- Audio sent to the other party is monaural.
- While you are displaying a sub video camera's image, you cannot send a still image from the sub video camera.
- Encrypted communication is not supported. When connecting to an MCU, encryption must be disabled on both sides (Page 85, Page 97, Page 97).
- Communication cannot be encrypted when you connect to an MCU. Instead, connect over an intranet or via a VPN.
- The maximum bandwidth specified in the settings at the beginning of the connection is applied for the duration of the connection to an MCU. Depending on the network conditions, you must specify an appropriate bandwidth setting (Page 85, Page 105).

Operating an MCU Remotely using Tone Signals

When connecting to an MCU, you can send tone signals by pressing buttons (0–9, #, or ✳) on the remote control. Doing so allows you to operate (e.g., change the screen layout) the MCU remotely.

Note

- Tone signals can only be sent when connecting to an MCU. They cannot be sent between Panasonic HD Visual Communication Units.
- Features and operations that can be performed remotely will vary depending on the MCU.
- If the MCU you are connecting to does not support tone signals, an error message is displayed.
- If the other party sends tone signals to you, sound may be interrupted or a ringing noise may occur.

1 Enter a tone signal (0–9, #, or ✳).
- The input field (❶) is displayed.
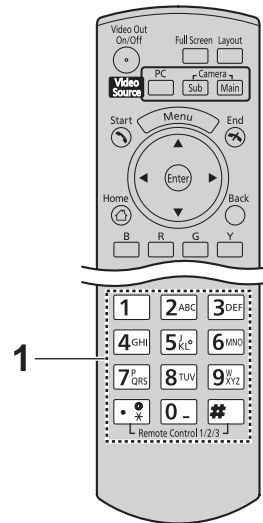
Note

- The input field can only contain up to 16 characters. If you input 17 characters, the first character input will not be displayed in the input field but all tone signals will be sent.
- The input field is not displayed until a tone signal is entered.
- If a tone signal is not entered for about 3 seconds, the input field disappears.
- If you enter further tone signals after the input field has disappeared, the tone signals entered the previous time are also displayed.

Adding Contacts to the Contact List

You can register the information of up to 300 contacts in the contact list.

Note

- If a video conference call is received while data is being entered, a dialog box to confirm if you answer a video conference call is displayed.
  Use **[◀][▶]** to select **"Yes"** or **"No"** and press **[Enter]**.
  - When **"Yes"** is selected, you can answer a video conference call while any unsaved data is lost.
  - When **"No"** is selected, you can continue entering the data.

Registering a New Contact

Registering a Single-party Contact

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"New Contact"** and press **[Enter]**.
   - The contact list registration screen is displayed.

3. Use **[▲][▼]** to select the following items for input:
   "Group/Site": Enter a name for the contact (up to 24 characters) (Page 110).
   "Speed Dial": Enter a speed dial number **(1–300)**.
   "Multi-Point": Use **[◀][▶]** to select **"No"**.
   "Address": Enter an IP address, SIP URI (or SIP user name), or MCU's conference room number@IP address.

Note

- When entering an IP address, if the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  – Correct entry: [192.168.0.1]
  – Wrong entry: [192.168.000.001]
- The characters that can be input for SIP URI entry are as follows:
  SIP user name: Alphanumeric characters and the symbols **. = * + _ - $ ~ ! ? / ' ( )** (up to 60 characters)
  SIP domain name: Alphanumeric characters and the symbols **.** and **-** (up to 128 characters)
- If the other party has the same SIP domain name as yours, you can register only their SIP user name. If the other party has a different SIP domain name from yours, their SIP domain name must be entered along with their SIP user name.
- If the SIP domain name is not entered, your own SIP domain name is automatically appended to the registered contact. This may result in a different, unintended party being registered as a contact, so be careful when entering a contact's information.
- Enter an RFC-compliant value.
  For details, contact your network administrator.
- The characters that can be input for an MCU's conference room number are as follows:
  Alphanumeric characters, symbols **. = * + _ - $ ~ ! ? / ' ( )** (up to 60 characters)

4. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The contact list screen is displayed.

Note
- To continue entering another contact, press **[B]** and repeat steps **3**–**5**.

6. Press **[Home]**.
   - The Home screen is displayed.

Registering a Multiple-party Contact

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"New Contact"** and press **[Enter]**.
   - The contact list registration screen is displayed.

Group/Site	Board meeting
Speed Dial	4
Multi-Point	◄ No 2 sites **3 sites** ►
Address	
Site 1	London
Site 2	New York
Site 3	

B Input mode	R a↓	G Save	Y Clear

3. Use **[▲][▼]** to select the following items for input:
   "Group/Site": Enter a name for the video conference call (up to 24 characters) (Page 110).
   "Speed Dial": Enter a speed dial number **(1–300)**.
   "Multi-Point": Use **[◄][►]** to select **"2 sites"** or **"3 sites"**.
   For **"Site 1"**/**"Site 2"**/**"Site 3"**: Use the following procedure to select these from the contact list screen.
   1. Use **[▲][▼]** to select **"Site 1"**, **"Site 2"** or **"Site 3"**.
   2. Press **[Enter]**.
      - The contact list screen is displayed.
   3. Select a contact using **[▲][▼]**.
      - You can use **[◄][►]** or the numeric buttons of the remote control to select the displayed tab (Page 38).
   4. Press **[Enter]**.
      - The contact list registration screen is displayed.

4. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

5. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
   - The contact list screen is displayed.

   Note
   - To continue entering another contact, press **[B]** and repeat steps **3**–**5**.

6. Press **[Home]**.
   - The Home screen is displayed.

Editing Contact Information

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Contact List"** and press **[Enter]**.
   - The contact list screen is displayed.

3. Use **[▲][▼]** to select the contact you want to edit.
   - You can use **[◄][►]** or the numeric buttons of the remote control to select the displayed tab (Page 38).

4. Press **[Enter]**.
   - The contact list details screen is displayed.

5. Press **[G]**.
   - The contact list edit screen is displayed.

Group/Site	Board meeting 2
Speed Dial	6
Multi-Point	No **2 sites** 3 sites
Address	
Site 1	London
Site 2	New York
Site 3	

B abc	R a↓	G Save	Y Clear

6. Use **[▲][▼]** to select the item you want to edit and make any changes (Page 110).

   Note
   - When editing a single-party contact, you cannot edit **"Multi-Point"**.
   - When editing a multiple-party contact, you cannot edit **"Multi-Point"** or **"Address"**.

7. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

8. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
   - The contact list details screen is displayed.

9. Press **[Home]**.
   - The Home screen is displayed.

Deleting a Contact

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Contact List"** and press **[Enter]**.
   - The contact list screen is displayed.
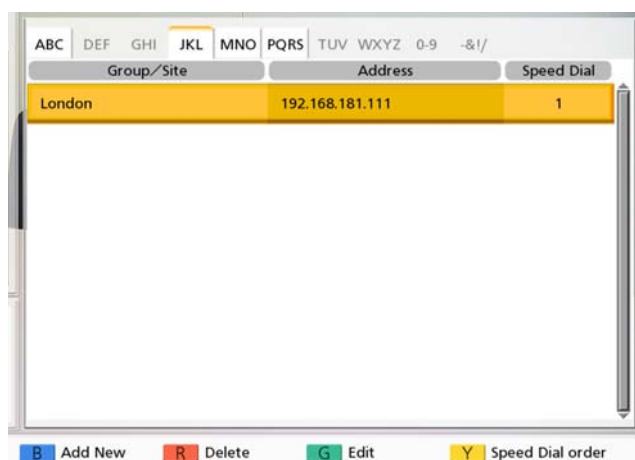
3. Use **[▲][▼]** to select the contact you want to delete.
   - You can use **[◄][►]** or the numeric buttons of the remote control to select the displayed tab (Page 38).

4. Press **[R]**.
   - A dialog box to confirm the deletion is displayed.

5. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
   - The contact list screen is displayed.

6. Press **[Home]**.
   - The Home screen is displayed.

Registering a Contact from the Call History

Registering a Single-party Contact

You can register a contact to the contact list from the call history.

Note
- If a host name is displayed in the **"Site"** column of the call history, the party cannot be registered in your contact list.
- Also, you may not be able to register a SIP URI (or SIP user name) from the incoming call history to the contact list for a reason such as non-compliance with the RFC. In this case, contact your network administrator.

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Call History"** and press **[Enter]**.
   - The outgoing call history screen is displayed.

   Note
   - To refer to the incoming call history, press **[G]**.

3. Use **[▲][▼]** to select the single-party entry you want to add as a contact, and press **[B]**.
   - The contact list registration screen is displayed.

4. Use **[▲][▼]** to select the necessary items and input information (Page 110).

   Note
   - You cannot edit **"Multi-Point"** or **"Address"**.

5. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The outgoing or incoming call history screen is displayed, depending on which of the screens you displayed in step **2**.

7. Press **[Home]**.
   - The Home screen is displayed.

Registering a Multiple-party Contact

You can register a multiple-party contact to the contact list from the outgoing call history.

Note
- When you register a multiple-party contact to the contact list from the call history, each party is also registered automatically as a single-party contact and each IP address/SIP URI (or SIP user name) is registered in **"Group/ Site"**.

- If a host name is displayed in the **"Site"** column of the call history, the party cannot be registered in your contact list.
- Also, you may not be able to register a SIP URI (or SIP user name) from the incoming call history to the contact list for a reason such as non-compliance with the RFC. In this case, contact your network administrator.

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Call History"** and press **[Enter]**.
   - The outgoing call history screen is displayed.

3. Use **[▲][▼]** to select the multiple-party entry you want to add as a multiple-party contact, and press **[B]**.
   - The contact list registration screen is displayed.

4. Use **[▲][▼]** to select the necessary items and input information (Page 110).

   Note
   - You cannot edit **"Multi-Point"** or **"Address"**.

5. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The call history screen is displayed.

7. Press **[Home]**.
   - The Home screen is displayed.

Changing System Settings

<u>**Note**</u>

- If a video conference call is received while data is being entered, a dialog box to confirm if you answer a video conference call is displayed. Use **[◀][▶]** to select **"Yes"** or **"No"** and press **[Enter]**.
  - When **"Yes"** is selected, you can answer a video conference call while any unsaved data is lost.
  - When **"No"** is selected, you can continue entering the data.

Setting the Unit Name

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Use **[▲][▼]** to select **"System Settings"** and press **[Enter]**.
   - The unit name setting screen is displayed.
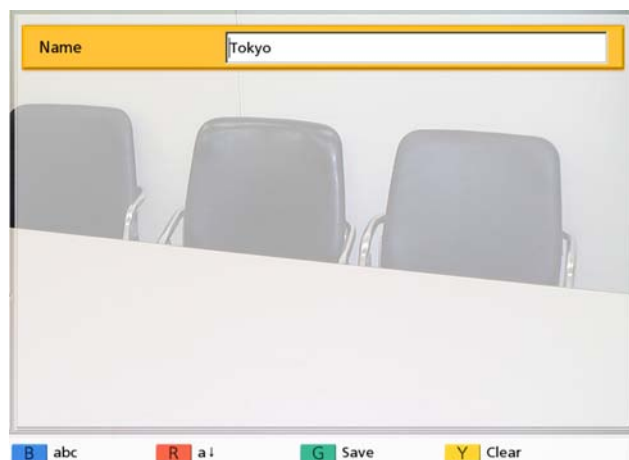
4. Enter a unit name (up to 24 characters) (Page 110).

5. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The system settings screen is displayed.

7. Press **[Home]**.
   - The Home screen is displayed.

Setting the Date and Time

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Use **[▲][▼]** to select **"Set Date/Time"** and press **[Enter]**.
   - The date/time settings screen is displayed.
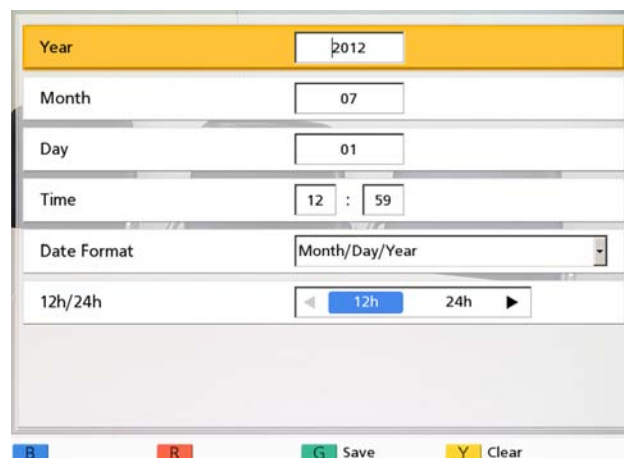
4. Use **[▲][▼]** to select the item and input information.
   - Enter the year (4 digits), month (1–2 digits), day (1–2 digits), time (24 hour display), and select the date format (Month/Day/Year, Day/Month/Year, Year/Month/Day) and hour display format (12h/24h).

5. Press **[G]**.
   - A dialog box to confirm the saving of settings and system restart after saving is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The system will automatically restart to reflect changes to system settings.

Making Network Settings

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Use **[▲][▼]** to select **"Network Settings"** and press **[Enter]**.
   - The network settings screen is displayed.

IP Address	◄ Auto Manual ►
IP Address	192.168.181.110
Subnet mask	255.255.255.0
Default Gateway	192.168.181.1
DNS Server	Auto Manual
Primary DNS Server	203.119.1.1
Secondary DNS Server	202.12.30.131

B	R	G Save	Y Clear

4. Use **[▲][▼]** to select the following items for input:
   "IP Address": Use **[◄][►]** to select whether the IP address information for this unit (**"IP Address"**, **"Subnet mask"**, **"Default Gateway"**) will be obtained automatically from a DHCP server or will be set manually.
   – **"Auto"** (default): Obtain the IP address information automatically.
   – **"Manual"**: Set the IP address information manually.

   Note
   - Even if you have selected **"Auto"**, you still may not be able to acquire an IP address due to problems such as network congestion. In this case, **"Address is not assigned"** is displayed in the upper right of the Home screen. Contact your network administrator.

   "IP Address": Enter the IP address of the unit.
   "Subnet mask": Enter the subnet mask.
   "Default Gateway": Enter the IP address of the default gateway.

   Note
   - **"IP Address"**, **"Subnet mask"**, and **"Default Gateway"** can be entered only if **"IP Address"** is set to **"Manual"**.
   - If the value for **"IP Address"**, **"Subnet mask"**, or **"Default Gateway"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
     Example: The IP address is [192.168.0.1].
     – Correct entry: [192.168.0.1]
     – Wrong entry: [192.168.000.001]

   "DNS Server": Use **[◄][►]** to select whether the IP address information for the DNS servers (**"Primary DNS Server"**, **"Secondary DNS Server"**) will be obtained automatically from a DHCP server or will be set manually.
   – **"Auto"** (default): Obtain the IP address information automatically.
   – **"Manual"**: Set the IP address information manually.

   Note
   - To select **"Auto"**, **"IP Address"** must be set to **"Auto"**.
   - The DNS server setting is necessary to check for upgrades and to download the latest software.

   "Primary DNS Server": Enter the IP address of the primary DNS server.
   "Secondary DNS Server": Enter the IP address of the secondary DNS server.

   Note
   - **"Primary DNS Server"** and **"Secondary DNS Server"** can be entered only if **"DNS Server"** is set to **"Manual"**.
   - If the value for **"Primary DNS Server"** or **"Secondary DNS Server"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
     Example: The IP address is [192.168.0.1].
     – Correct entry: [192.168.0.1]
     – Wrong entry: [192.168.000.001]

5. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

6. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
   - The system settings screen is displayed.

7. Press **[Home]**.
- The Home screen is displayed.

Making Connection Settings

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
- The system settings screen is displayed.

3. Use **[▲][▼]** to select **"Call set up"** and press **[Enter]**.
- The connection settings screen is displayed.

4. Use **[▲][▼]** to select the following items for input:
- The following items are displayed over 2 pages. To view all the items, press **[R]** to move to the next page, and press **[B]** to move to the previous page. You must save the settings separately for each screen on which you changed the settings.
  "Answer Mode": Use **[◀][▶]** to select how to answer video conference calls (**"Manual"** [default] or **"Auto"**) (Page 45).
  "Max. Bandwidth": Press **[Enter]** and use **[▲] [▼]** to select the maximum allowed bandwidth to be used (**512 kbps**, **768 kbps**, **1.0 Mbps**, **1.2 Mbps**, **1.5 Mbps**, **2.0 Mbps**, **2.5 Mbps**, **3.0 Mbps**, **3.5 Mbps**, **4.0 Mbps**, **4.5 Mbps**, **5.0 Mbps**, **5.5 Mbps**, **6.0 Mbps**, **6.5 Mbps**, **7.0 Mbps**, **7.5 Mbps**, **8.0 Mbps**, **8.5 Mbps**, **9.0 Mbps** [default], **10.0 Mbps**).

Note
- The maximum bandwidth during a video conference call adjusts to that of the party that has set the lowest bandwidth for the maximum bandwidth setting among all participating parties.
- You cannot select a value that is higher than the maximum bandwidth set by the dealer. For details, contact your dealer.
- When you make a 3-party video conference call, select a value of **"1.0 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.
- When you make a 4-party video conference call, select a value of **"1.5 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.

"Encryption": Use **[◀][▶]** to select whether to enable encryption.
– **"ON"**: Encryption is enabled.
– **"OFF"** (default): Encryption is disabled.

Note
- Be careful when changing encryption settings because doing so may cause you to become unable to communicate with other parties.
- Be aware that if encryption is disabled, eavesdropping might be possible on networks that are not secured against such actions.
- If you cannot specify a value for **"Encryption"** because the setting is unavailable, contact your network administrator.
- When connecting to an MCU or non-Panasonic video conference system, set **"Encryption"** to **"OFF"** because encryption is not available. Encryption must be disabled on both sides.

"Video Quality": Use **[◀][▶]** to select between prioritizing smooth movement or image quality for video.
– **"Motion"** (default): Prioritize smooth movement.
– **"Sharpness"**: Prioritize image quality.

Note
- If one of the other parties is using an older software version, **"Motion"** will be selected.
- If **"Max Resolution"** is set to **"HD"**, and **"Video Quality"** is changed from **"Motion"** to **"Sharpness"**, the setting for

"Max Resolution" is automatically changed to **"Auto"**.

"Max Resolution": Use **[▲][▼]** to select the maximum display resolution of the main video camera and sub video camera used during a video conference call.

– **"Full HD"**: Maximum resolution: 1920 × 1080 (This mode switches the display resolution according to the condition of the network.)
– **"HD"**: Maximum resolution: 1280 × 720 (This mode switches the display resolution according to the condition of the network.)
– **"Auto"** (default): This mode selects either **"Full HD"** or **"HD"** according to the available bandwidth.

Note

- Selecting **"Auto"** or **"HD"** is recommended.
- When **"Full HD"** is selected, if the other party has a low bandwidth, the display resolution may be lower than when **"HD"** or **"Auto"** is selected.
- When making a 3-party video conference call, the main video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When making a 4-party video conference call, the main video camera and sub video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When **"Video Quality"** is set to **"Sharpness"**, only **"Full HD"** and **"Auto"** can be selected.

"Quality of Service": Use **[◀][▶]** to select between prioritizing sound or images when bandwidth is low or the network is congested.

– **"Audio"** (default): When bandwidth is low sound quality is prioritized, and when the network is congested sound disturbance is reduced.
– **"Video"**: Even when bandwidth is low or the network is congested, image quality is prioritized.

Note

- If one of the other parties is using an older software version, **"Audio"** will be selected.

"Audio only mode": Use **[◀][▶]** to select whether to use only audio communication (Audio-only mode) in periods of network congestion. When in Audio-only mode, your image is not sent to the other party. Instead, a blue screen is sent.

– **"ON"**: Communication will become audio only if there is network congestion.
– **"OFF"** (default): Communication will not become audio only, even if there is network congestion.

Note

- To select **"ON"**, **"Quality of Service"** must be set to **"Audio"**.
- Contents cannot be shared while in Audio-only mode.
- When connecting to an MCU or non-Panasonic video conference system, or when one of the other parties is using an older software version, communication will not become audio only even if **"Audio only mode"** is set to **"ON"**.
- When changing to Audio-only mode, it may take some time for the blue screen to be displayed. Until the blue screen is displayed, the image may become distorted.

"Still image quality": Use **[◀][▶]** to select the display resolution to use when you send still images from the sub video camera to other parties.

– **"Full HD"** (default): The resolution of still images is Full HD.
– **"HD"**: The resolution of still images is HD.

Note

- If the network has low bandwidth and a high rate of packet loss, selecting **"HD"** is recommended. For details, contact your dealer.
- During a 4-party video conference call, the display resolution will be **"HD"**, even if you have specified **"Full HD"**.

"Default MIC Mute set": Use **[◀][▶]** to select whether to mute the microphone(s) at the start of a received video conference call.

– **"ON"**: Mutes the microphone(s).
– **"OFF"** (default): Does not mute the microphone(s).

"Call Limit time": Enter the maximum length of time for the duration of a video conference call (in hours and minutes).

Note

- If you set 0 hours 0 minutes (default), the call time is unlimited.
- If the duration of a video conference call exceeds the specified length of time, the call will be automatically disconnected.

"MIC detection": Use **[◀][▶]** to select whether to enable the detection of the connection status of the Boundary Microphones.
– **"ON"** (default): Enables the detection of Boundary Microphones.
– **"OFF"**: Disables the detection of Boundary Microphones.

Note

• When not using Boundary Microphones, set this to **"OFF"**.

"Network Connection Status": Use **[◀][▶]** to select whether to display the network status indication.
– **"ON"** (default): Displays the network status indication.
– **"OFF"**: Hides the network status indication.

"Active call Menu": Use **[◀][▶]** to select whether to display the guide when a video conference call begins.
– **"ON"** (default): Displays the guide.
– **"OFF"**: Hides the guide.

"Noise reduction": Use **[◀][▶]** to select whether to enable noise reduction when a video conference call begins.
– **"ON"**: Enables noise reduction.
– **"OFF"** (default): Disables noise reduction.

5. Press **[G]**.
• A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
• The system settings screen is displayed.

7. Press **[Home]**.
• The Home screen is displayed.

Making Screen Standby Settings

When the unit or remote control are not operated or a video conference call is not received for a specified length of time, the unit enters standby mode. You can set the length of time here.
1. Press **[Menu]**.
• The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
• The system settings screen is displayed.

3. Use **[▲][▼]** to select **"Standby Setting"** and press **[Enter]**.
• The screen standby settings screen is displayed.

4. Enter the length of time (**0**–**99**) in minutes until the unit enters screen standby mode (default: **10**).

Note

• If you set **"0"**, the unit will not enter screen standby mode automatically. However, if you press the remote control's **[Video Out On/Off]** button, the unit will enter screen standby mode even if **"0"** is set.

5. Press **[G]**.
• A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
• The system settings screen is displayed.

7. Press **[Home]**.
• The Home screen is displayed.

Making Sound Settings

1. Press **[Menu]**.
• The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]**.
   - The second page is displayed.

4. Use **[▲][▼]** to select **"Sound Settings"** and press **[Enter]**.
   - The sound settings screen is displayed.

Welcome Screen Vol.	Medium ▾
Ringback Tone Vol.	Medium ▾
Ring Tone Vol.	Medium ▾
Default Sound Lev.	◄ 16 ►
Sound Pre-sets	Standard ▾

| B | R Play | G Save | Y |
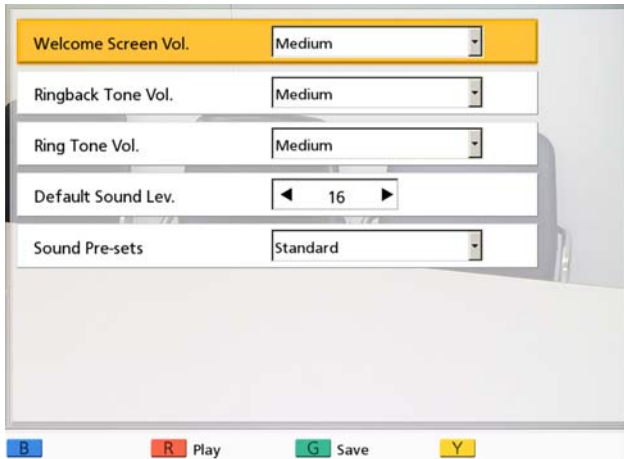
5. Use **[▲][▼]** to select the following items for input:
"Welcome Screen Vol.": Press **[Enter]** and use **[▲][▼]** to select the volume level (**"OFF"**, **"Low"**, **"Medium"** [default] or **"High"**) played at the start-up.
"Ringback Tone Vol.": Press **[Enter]** and use **[▲][▼]** to select the volume level (**"OFF"**, **"Low"**, **"Medium"** [default] or **"High"**) of an outgoing call ring.

Note
   - The volume level of the busy tone will be the same level as the ring back tone.

"Ring Tone Vol.": Press **[Enter]** and use **[▲][▼]** to select the volume level (**"OFF"**, **"Low"**, **"Medium"** [default] or **"High"**) of an incoming call ring.
"Default Sound Lev.": Use **[◄][►]** to select the volume level (**0**–**20**) at the start of a video conference call (default: **16**).
"Sound Pre-sets": Press **[Enter]** and use **[▲][▼]** to select the tone (**"More Highs"**, **"Standard"** [default], **"More Lows"**, **"Voice"** or **"Music"**) at the start of a video conference call (Page 63).

Note
   - You can listen to a sample of the following items by pressing **[R]**.
     - **"Welcome Screen Vol."**
     - **"Ringback Tone Vol."**
     - **"Ring Tone Vol."**
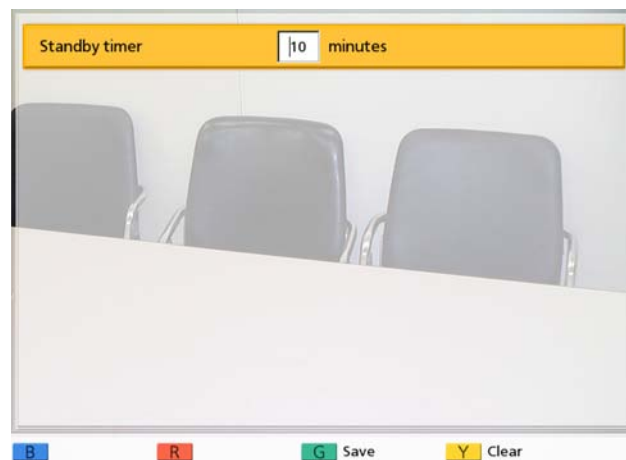
6. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

7. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
   - The system settings screen is displayed.

8. Press **[Home]**.
   - The Home screen is displayed.

Setting the MIC Position

You can specify where a Boundary Microphone is conceptually positioned relative to the display. When sounds are transmitted to another party, they are played in accordance with the specified positions, which creates a stereo environment.

Setting the MIC Position automatically

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]**.
   - The second page is displayed.

4. Use **[▲][▼]** to select **"MIC Setting"** and press **[Enter]**.
   - The auto settings screen is displayed.

Note

- If the manual settings screen is displayed, press **[B]** to return to the auto settings screen.

5. Press **[G]**.
- A dialog box to confirm the saving of settings is displayed.

6. Use **[◄][►]** to select **"Yes"** and press **[Enter]**.
- The system settings screen is displayed.

Note

- Depending on how many Boundary Microphones are connected, the output settings differ as follows:
  - 2 or more Boundary Microphones: Monaural output
  - 1 Boundary Microphone: Stereo output

7. Press **[Home]**.
- The Home screen is displayed.

Setting the MIC Position manually

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
- The system settings screen is displayed.

3. Press **[►]**.
- The second page is displayed.

4. Use **[▲][▼]** to select **"MIC Setting"** and press **[Enter]**.
- The auto settings screen is displayed.

Note

- If the manual settings screen is displayed, proceed to step **6**.

5. Press **[B]**.
- The manual settings screen is displayed.
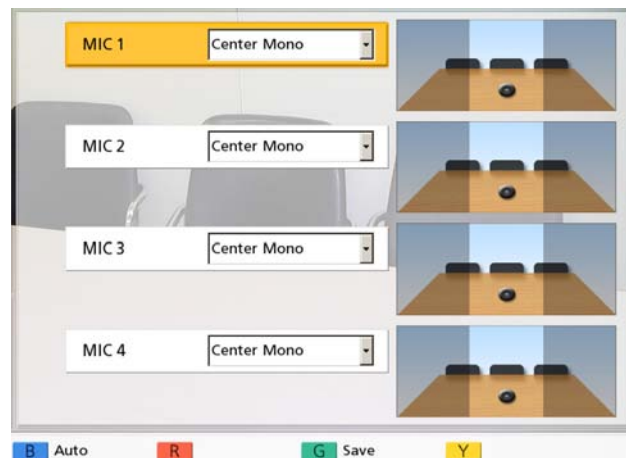
6. Use **[▲][▼]** to select the Boundary Microphone you want to configure and press **[Enter]**.

7. Use **[▲][▼]** to select the Boundary Microphone's relative position.
"Left side": Sounds on left side are played.
"Right side": Sounds on right side are played.
"Center Mono": All sounds are played through both the left and right speakers at the same volume.
"Center stereo": Sounds centered on the microphone are played through both the left and right speakers at the same volume.

Note

- When a Boundary Microphone is set to **"Center stereo"**, make sure that it is placed with its connector facing the display.
- For the settings shown in the following diagrams, the left/right channels are displayed as viewed from the side of the main video camera.

Here are examples of the relative position of Boundary Microphones.

When setting Boundary Microphones in a row perpendicular to the display:
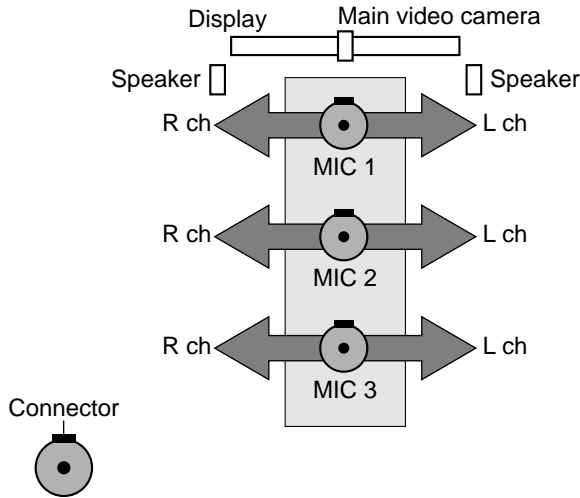
MIC 1: **"Center stereo"**
MIC 2: **"Center stereo"**
MIC 3: **"Center stereo"**

When setting Boundary Microphones parallel with the display:
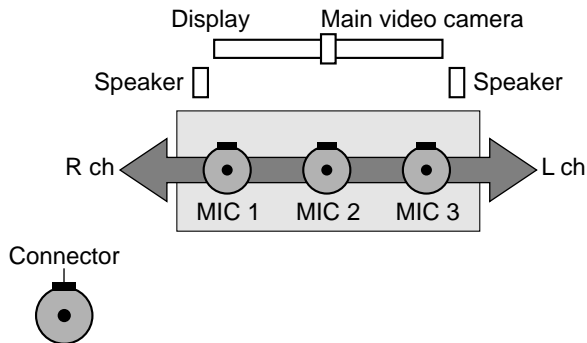
MIC 1: **"Right side"**
MIC 2: **"Center Mono"**
MIC 3: **"Left side"**

When setting Boundary Microphones as follows:
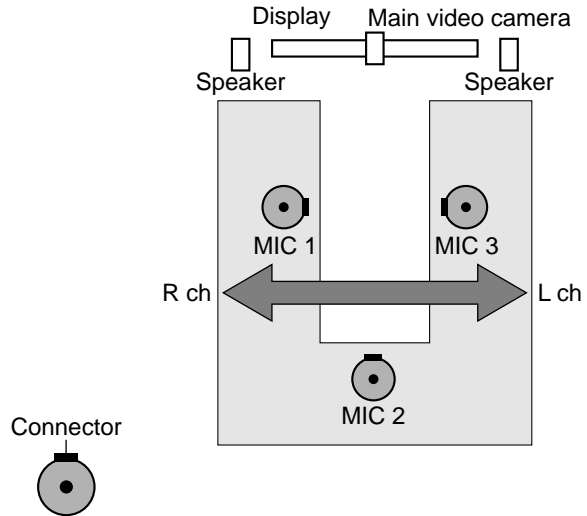
MIC 1: **"Right side"**
MIC 2: **"Center Mono"**
MIC 3: **"Left side"**

Note

- Make some noise near the Boundary Microphone. **"▶"** is displayed to indicate which Boundary Microphone picks up the noise.
- **"▶"** is not displayed when the Boundary Microphone is mute.
- **"▶"** is not displayed when multiple Boundary Microphones pick up the sound at the same time.
- When the Boundary Microphone is mute, the sound made by pressing the MIC Mute button might make **"▶"** appear.

8. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

9. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The system settings screen is displayed.

10. Press **[Home]**.
   - The Home screen is displayed.

Note

- Do not move Boundary Microphones after completing settings. Otherwise the settings will not match the location of the Boundary Microphone.

Making Remote Control Settings

You can specify a remote control ID from 1, 2, or 3 for both the remote control and the unit. The unit responds to signals from any remote control with the same remote control ID as itself. If you do not specify an ID, the unit responds to signals from all remote controls. You can confirm the remote control ID for the unit on the Home screen (Page 29).

1. Press **[Menu]**.
   • The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   • The system settings screen is displayed.

3. Press **[▶]**.
   • The second page is displayed.

4. Use **[▲][▼]** to select **"Remote Ctrl ID"** and press **[Enter]**.
   • The remote control settings screen is displayed.

5. Use **[▲][▼]** to select the following items for input:
   "Remote ID enable": Use **[◀][▶]** to select **"ON"** or **"OFF"** (default).
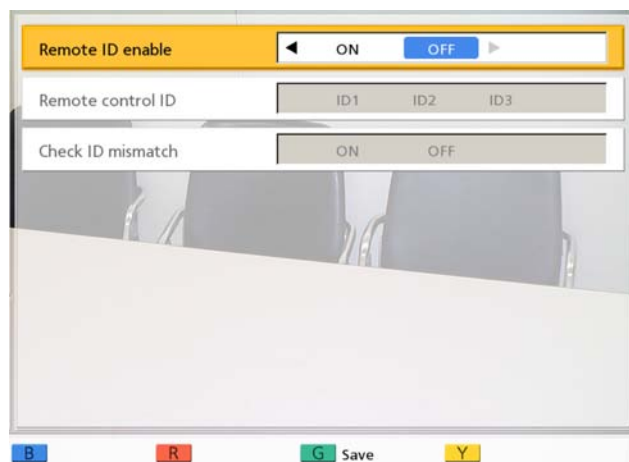   • When **"ON"** is selected, you can set a specific remote control ID for the unit.
   • When **"OFF"** is selected, the unit will respond to all remote controls.
   "Remote control ID": Use **[◀][▶]** to select a remote control ID (**"ID1"** [default]/**"ID2"**/**"ID3"**) for the unit.
   "Check ID mismatch": Use **[◀][▶]** to select **"ON"** (default) or **"OFF"**.

• When **"ON"** is selected, if the unit receives a signal from a remote control that has an ID different from the one specified on the Home screen, a warning is displayed. Follow the procedures on the screen to change the remote control ID.
• When **"OFF"** is selected, even if the unit receives a signal from a remote control that has an ID different from the one specified, no warning is displayed on the Home screen.

Note
   • If multiple remote controls with assigned IDs are being used close together, it is recommended that you select **"OFF"** for **"Check ID mismatch"**.

6. Press **[G]**.
   • A dialog box to confirm the saving of settings is displayed.

7. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.

8. **When "Remote ID enable" is set to "ON" (Page 91):**
   The dialog box for changing the ID of the remote control is displayed. Proceed to step **9**.
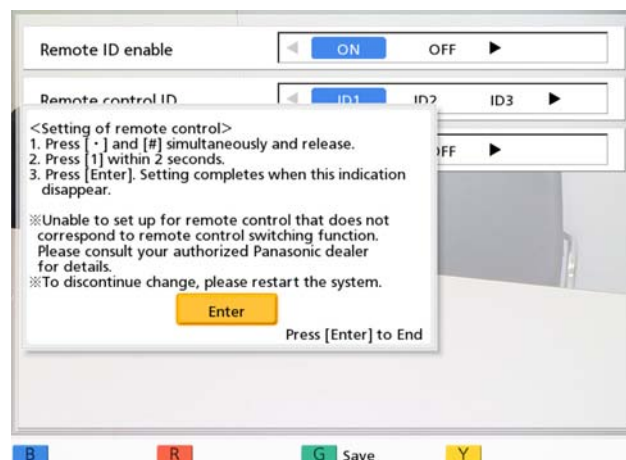
Note
   • While the dialog box is displayed, video conference calls cannot be received.

When "Remote ID enable" is set to "OFF" (Page 91):
The system settings screen is displayed. Press **[Home]** to return to the Home screen.

9. Use the following procedure to change the ID of the remote control.
   1. Press and hold **[·]** and **[#]** at the same time.
   2. Within 2 seconds after you release the buttons, press the number (**1** to **3**) corresponding to the ID that you specified for **"Remote control ID"** in step **4**.
      – **1**: ID1
      – **2**: ID2
      – **3**: ID3

10. Press **[Enter]**.
   • The dialog box disappears and the remote control ID of the unit will be saved.

   Note

      • If the dialog box does not disappear, repeat the procedure above, several times if necessary. If the dialog box still does not disappear, turn the power off and then back on to cancel the settings. For details, contact your dealer.

11. Press **[Home]**.
   • The Home screen is displayed.

Making Language Settings

1. Press **[Menu]**.
   • The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   • The system settings screen is displayed.

3. Press **[▶]**.
   • The second page is displayed.

4. Use **[▲][▼]** to select **"Language Setting"** and press **[Enter]**.
   • The language settings screen is displayed.
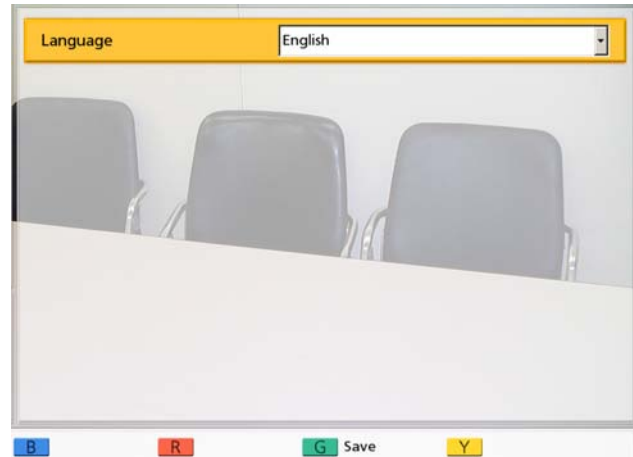
5. Press **[Enter]** and use **[▲][▼]** to select the desired language (**English** [default], **Français**, **Español**).

6. Press **[Enter]**.

7. Press **[G]**.
   • A dialog box to confirm the saving of settings is displayed.

8. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   • The system settings screen is displayed in the selected language.

   Note

      • If you accidentally choose the wrong language, follow the steps below to change the language setting.
         1. Press **[Home]**.
         2. Press **[Menu]**.
         3. Press **[▼]** four times to select the fifth item from the top, press **[Enter]**.
         4. Press **[▶]**.
            • The second page is displayed.
         5. Press **[▼]** three times to select the fourth item from the top, press **[Enter]**.
            • The language settings screen is displayed.
         6. Repeat the procedure from step **5**.

9. Press **[Home]**.
   • The Home screen is displayed.

Making Multicast Setting

Note
- This setting should not be changed by the user.

Performing System Maintenance

Display Unit Information

You can view the setting information for the unit.
1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]** twice.
   - The third page is displayed.

4. Use **[▲][▼]** to select **"System Info."** and press **[Enter]**.
   - The unit information screen is displayed (Page 73).

Name	: Tokyo
MAC address	: ▦▦▦▦ ▦▦ ▦▦ ▦▦
SIP Username	:
IP Address	: 192.168.181.110
Subnet mask	: 255.255.255.0
Default Gateway	: 192.168.181.1
DNS Server Addr.	: 203.119.1.1
SIP Domain Name	:
Max. Bandwidth	: 9.0 Mbps
Resolution (send)	:
Encryption	:
Software version	: ▦▦▦
Frequency	: 60 Hz

5. Press **[Home]**.
   - The Home screen is displayed.

Checking Enhanced Features

You can check which features have been activated due to software enhancement (Page 101).
1. Press **[Menu]**.
   - The Menu screen is displayed.

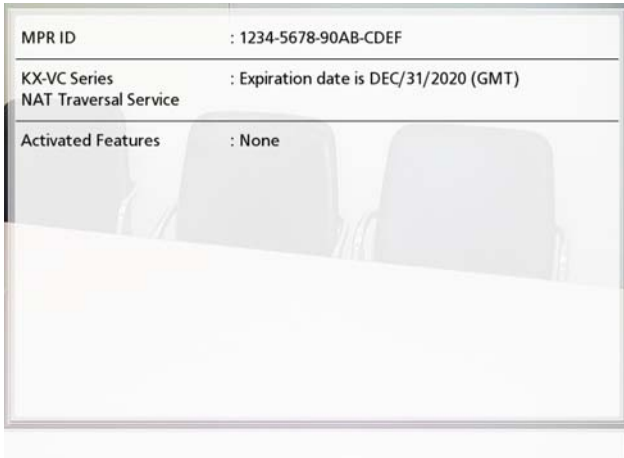2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]** twice.
- The third page is displayed.

4. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
- The enhanced feature confirmation screen is displayed.

MPR ID	: 1234-5678-90AB-CDEF
KX-VC Series NAT Traversal Service	: Expiration date is DEC/31/2020 (GMT)
Activated Features	: None

Note
- Features that have already been activated are displayed in **"Activated Features"**, as follows:
- **"Connection Enhancement"**: Connection to MCUs and non-Panasonic video conference systems is available.
- **"None"**: No features have been activated.

5. Press **[Home]**.
- The Home screen is displayed.

Performing a Network Test

You can confirm whether a network connection can be established with a particular IP address.

Note
- You cannot perform a network test from the contact list screen or the call history screen.

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
- The system settings screen is displayed.

3. Press **[▶]** twice.
- The third page is displayed.

4. Use **[▲][▼]** to select **"Network Test"** and press **[Enter]**.
- The network test screen is displayed.

IP Address	

| B | | R Start | | G | | Y Clear |
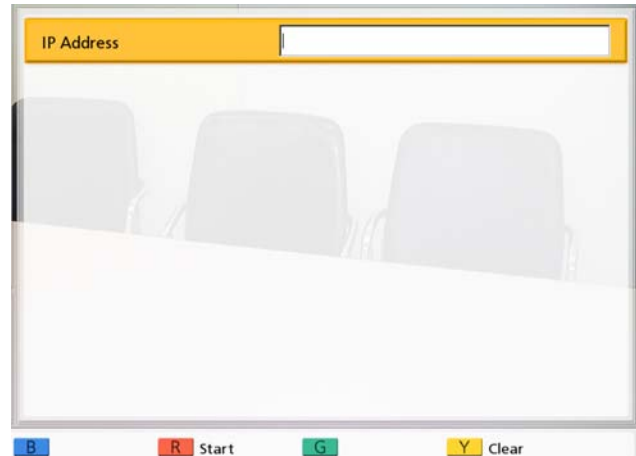
5. Enter an IP address.

Note
- If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  - Correct entry: [192.168.0.1]
  - Wrong entry: [192.168.000.001]

6. Press **[R]**.
- The network test starts. After the network test is finished, if the network test was successful or timed out, the details of the results are displayed. If the network test failed, a message indicating the failure is displayed.

7. Press **[Home]**.
- The Home screen is displayed.

Performing Self Diagnosis

You can check how your image will be displayed and how your voice will be heard to the other party before starting a video conference call, using your own display and speakers.

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   • The system settings screen is displayed.

3. Press **[▶]** twice.
   • The third page is displayed.

4. Use **[▲][▼]** to select **"Self Diag."** and press **[Enter]**.
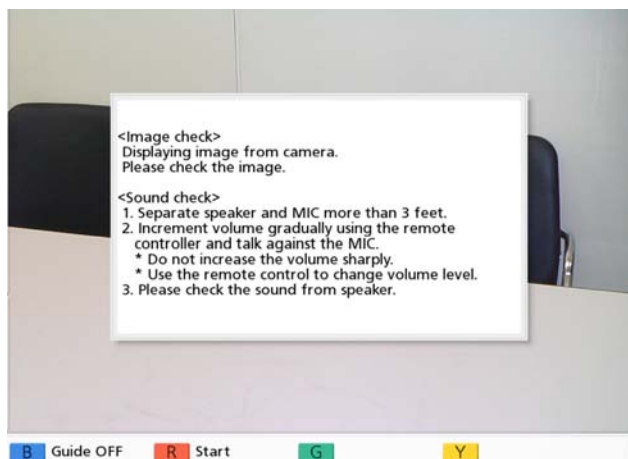   • The self diagnosis screen is displayed with the dialog box.

Note

   • You can hide or display the dialog box by pressing **[B]**.
   • Set the microphone at least 1 m (3.3 ft) away from the speakers.

5. Press **[R]**.
   • The self diagnosis starts.

Note

   • Check the image that is displayed from the main video camera.
   • To avoid feedback, slowly raise the volume using the remote control's **[+]** button.
   • When someone speaks into the microphone, confirm whether the sound plays back through the speakers.
   • During self diagnosis, all Boundary Microphones will be set to **"Center stereo"**.
   • During self diagnosis, the tone will be set to **"Standard"**.

6. Press **[R]**.
   • The self diagnosis ends.

Note

   • If you do not press **[R]**, the self diagnosis will automatically end after about 10 minutes.

7. Press **[Home]**.
   • The Home screen is displayed.

Performing Remote Maintenance

The following operation is for performing remote maintenance by your dealer. After performing the operation, you cannot use the unit until remote maintenance is finished. However, turning the power off and then back on cancels remote maintenance, and you can use the unit. For details, contact your dealer.

1. Press **[Menu]**.
   • The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   • The system settings screen is displayed.

3. Press **[▶]** three times.
   • The fourth page is displayed.

4. Use **[▲][▼]** to select **"Remote access"** and press **[Enter]**.
   • The dialog box to confirm the start of remote maintenance is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   • The remote maintenance screen is displayed.
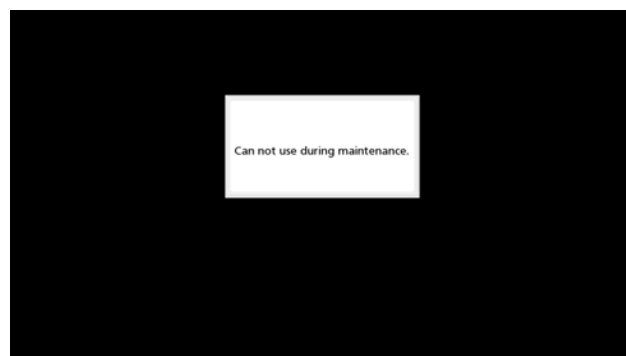
Making Administrator Menu Settings

Note

- If a video conference call is received while data is being entered, a dialog box to confirm if you answer a video conference call is displayed. Use **[◀][▶]** to select **"Yes"** or **"No"** and press **[Enter]**.
  - When **"Yes"** is selected, you can answer a video conference call while any unsaved data is lost.
  - When **"No"** is selected, you can continue entering the data.

Logging in to the Administrator Menu

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]** twice.
   - The third page is displayed.

4. Use **[▲][▼]** to select **"Admin login"** and press **[Enter]**.
   - The login screen is displayed.
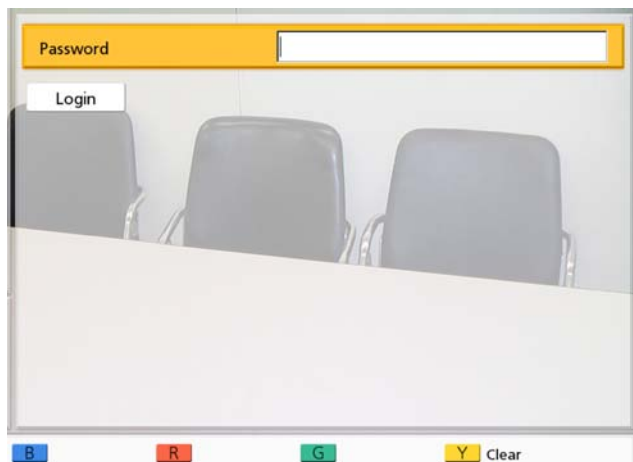
5. Use **[▲][▼]** to select **"Password"**, then enter the administrator password (4–10 digits).

   Note

   - Please enter the administrator password that was set during installation.
   - If you forget the administrator password, please contact your dealer.

6. Use **[▲][▼]** to select **"Login"** and press **[Enter]**.
   - The admin menu screen is displayed.
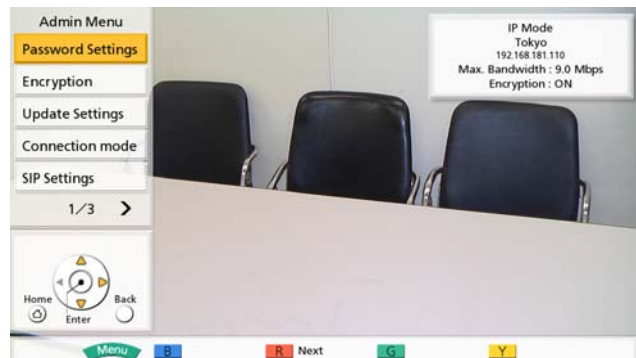
Making Administrator Password Settings

1. Login to the administrator menu (Page 96).
   - The admin menu screen is displayed.

2. Use **[▲][▼]** to select **"Password Settings"** and press **[Enter]**.
   - The password settings screen is displayed.
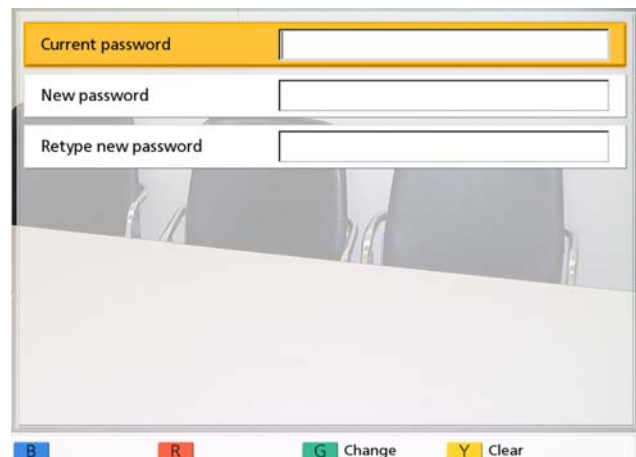
3. Use **[▲][▼]** to select the following items and enter a password (4–10 digits):
"Current password": Enter the current password (default: 00000000).
"New password": Enter the new password.
"Retype new password": Enter the new password again.

Note

- Please change the default login password the first time the unit is installed.
- Be sure to keep the password safe.

4. Press **[G]**.
- A dialog box to confirm the changing of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The admin menu screen is displayed.

6. Press **[Home]**.
- The Home screen is displayed.

Making Encryption Settings

Note

- Be careful when changing encryption settings because doing so may cause you to become unable to communicate with other parties.
- There is a danger that encryption settings will be changed by a third party. Therefore, be careful when managing the administrator password and giving users the authority to change encryption settings.
- If an encryption key is not set, you cannot enable encryption.
- Be aware that if encryption is disabled, eavesdropping might be possible on networks that are not secured against such actions.
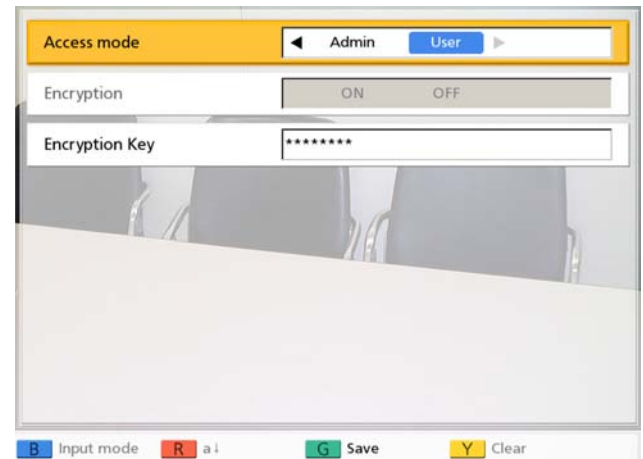
1. Login to the administrator menu (Page 96).
- The admin menu screen is displayed.

2. Use **[▲][▼]** to select **"Encryption"** and press **[Enter]**.
- The encryption settings screen is displayed.

3. Use **[▲][▼]** to select the following items for input:
"Access mode": Use **[◀][▶]** to select **"Admin"** (default) or **"User"**.
- When **"Admin"** is selected, only the network administrator can enable/disable encryption.
- When **"User"** is selected, any user can enable/disable encryption (Page 85, Page 106).
"Encryption": Use **[◀][▶]** to select whether to enable encryption.
- **"ON"**: Encryption is enabled.
- **"OFF"** (default): Encryption is disabled.

Note

- To select **"ON"**, specifying the encryption key is required (Page 97).
- If the **"Encryption"** setting does not match that of the other party in a video conference call, the video conference call will not start.
- This setting is available only when **"Admin"** is selected for **"Access mode"**.
- When connecting to an MCU or non-Panasonic video conference system, set **"Encryption"** to **"OFF"** because encryption is not available. Encryption must be disabled on both sides.

"Encryption Key": Enter an encryption key (4 to 256 characters [alphanumeric, space, symbols]) (Page 110).

Note

- &, <, >, comma (,), double quotation mark (") cannot be entered.

- While being entered, the characters of the encryption key are displayed, but once the settings are saved, all the characters will be displayed as asterisks (*), and you will no longer be able to check the encryption key on the screen. Record the encryption key beforehand, and store it in a safe location.
- If the value specified in **"Encryption Key"** does not match the other party's, the video conference call will not start even if encryption is enabled.
- When the encryption key is displayed as asterisks (*), pressing **[Y]** deletes the entire encryption key.

4. Press **[G]**.
- A dialog box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The admin menu screen is displayed.

6. Press **[Home]**.
- The Home screen is displayed.

Making Software Update Settings

Preparation settings for updating the software can be made here.

Note
- You must perform DNS server settings in order to check for and download software updates (Page 84).

1. Login to the administrator menu (Page 96).
- The admin menu screen is displayed.

2. Use **[▲][▼]** to select **"Update Settings"** and press **[Enter]**.
- The update settings screen is displayed.
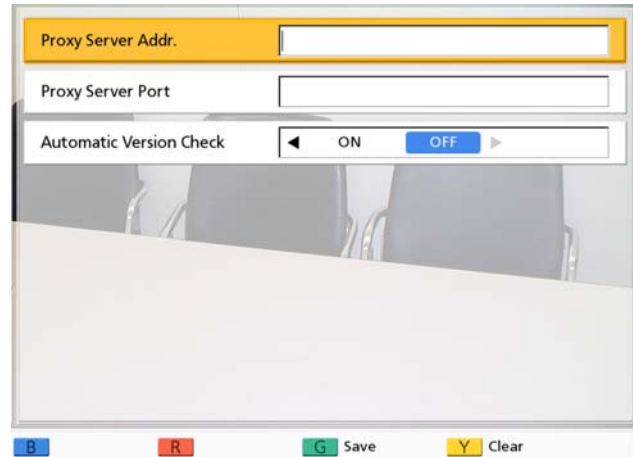
3. Use **[▲][▼]** to select the following items for input:
"Proxy Server Addr.": Enter the IP address of the proxy server.
- If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
Example: The IP address is [192.168.0.1].
  – Correct entry: [192.168.0.1]
  – Wrong entry: [192.168.000.001]
"Proxy Server Port": Enter the proxy server port number (**1**–**65535**).
"Automatic Version Check": Use **[◀][▶]** to select **"ON"** or **"OFF"** (default).
- When **"ON"** is selected, the unit will automatically look up the DNS server or proxy server to see if there are updates for your software on start-up. If updates are available, a dialog box is displayed on the Home screen.
- When **"OFF"** is selected, the unit will not automatically look up the DNS server or proxy server to see if there are updates for your software on start-up.

4. Press **[G]**.
- A dialog box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The admin menu screen is displayed.

6. Press **[Home]**.
- The Home screen is displayed.

Making Connection Mode Setting

1. Login to the administrator menu (Page 96).
   - The admin menu screen is displayed.

2. Use **[▲][▼]** to select **"Connection mode"** and press **[Enter]**.
   - The connection mode setting screen is displayed.
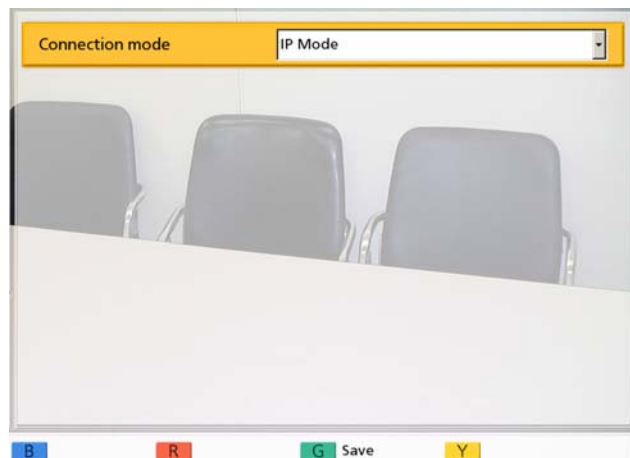
3. Use **[▲][▼]** to select the desired connection mode.
   "IP Mode": Communication is established over the Internet or an intranet.
   "NAT Traversal Mode": Communication is established using KX-VC Series NAT Traversal Service.

   Note
   - Communication cannot be established with a party whose connection mode setting differs from yours.
   - **"NAT Traversal Mode"** can be used only after activating KX-VC Series NAT Traversal Service with an activation key. For details about KX-VC Series NAT Traversal Service, refer to the following web site:
     http://panasonic.net/psn/products/hdvc/nat_traversal/index.html

4. Press **[G]**.
   - A dialog box to confirm the saving of settings and system restart after saving is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The system will automatically restart to reflect changes to system settings.

   Note
   - When changing the connection mode, the time required for a restart may depend on network conditions.

Making SIP Settings

When using a SIP server over an intranet, video conference calls can be made using SIP URIs (SIP user name@SIP domain name).

Note
- These settings can only be made in IP mode (Page 99).
- Video conference calls to an MCU or a non-Panasonic video conference system through a SIP server using a SIP URI are not guaranteed.
- When connecting to an MCU by entering the MCU's conference room number@IP address, **"SIP Server"** must be set to **"OFF"**.
- When there is a problem with the SIP server, or when SIP settings are incorrect (on the server or on the unit), etc., and video conference calls cannot be made, on the Home screen the SIP user name is not displayed, and instead **"SIP is not registered"** is displayed. In this case, you cannot make calls using IP addresses as well as SIP. Contact your network administrator.

1. Login to the administrator menu (Page 96).
   - The admin menu screen is displayed.

2. Use **[▲][▼]** to select **"SIP Settings"** and press **[Enter]**.
   • The SIP setting screen is displayed.

3. Use **[▲][▼]** to select the following items for input:
   "SIP Server": Use **[◀][▶]** to select **"ON"** or **"OFF"** (default).

   Note
   • To communicate using a SIP server, **"ON"** must be selected and **"SIP Server Address"**, **"SIP Username"**, and **"SIP Domain Name"** must be set.

   "SIP Server Address": Enter the SIP server's IP address.

   Note
   • If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
     Example: The IP address is [192.168.0.1].
     – Correct entry: [192.168.0.1]
     – Wrong entry: [192.168.000.001]

   "SIP Username": Enter the SIP user name. Alphanumeric characters and the symbols **. = * + _ - $ ~ ! ? / ' ( )** can be entered (up to 60 characters).
   "SIP Domain Name": Enter the SIP domain name. Alphanumeric characters and the symbols **.** and **-** can be entered (up to 128 characters).

   Note
   • Enter an RFC-compliant value. For details, contact your network administrator.

   "Digest Authentication": Use **[◀][▶]** to select whether to enable digest authentication.
   – **"ON"**: Enables digest authentication.
   – **"OFF"** (default): Disables digest authentication.

"Authentication ID": Enter an authentication ID (1–60 characters [alphanumeric, space, symbols]) (Page 110). **&**, **<**, **>**, comma (**,**), double quotation mark (**"**) cannot be entered.
"Authentication Password": Enter an authentication password (0–60 characters [alphanumeric, space, symbols]) (Page 110). **&**, **<**, **>**, comma (**,**), double quotation mark (**"**) cannot be entered.

Note
   • To communicate using a SIP server, **"ON"** must be selected and **"SIP Server Address"**, **"SIP Username"**, and **"SIP Domain Name"** must be set. For details, contact your network administrator.
   • **"Authentication ID"** and **"Authentication Password"** can only be set when **"Digest Authentication"** is set to **"ON"**.
   • While being entered, the characters of the authentication password are displayed, but once the settings are saved, all the characters will be displayed as asterisks (*), and you will no longer be able to check the authentication password on the screen. Record the authentication password beforehand, and store it in a safe location.
   • When the authentication password is displayed as asterisks (*), pressing **[Y]** deletes the entire authentication password.

"SIP Transport Protocol": Use **[◀][▶]** to select between protocols (**UDP**, **TCP**, or **Auto** [default]) used when communicating via SIP.

Note
   • When **"Auto"** is selected, if using a SIP server, TCP will be used for communication, and if using an IP address or MCU's conference room number@IP address, UDP will be used for communication. Normally, select **"Auto"**.

4. Press **[G]**.
   • A dialog box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   • The admin menu screen is displayed.

6. Press **[Home]**.
   • The Home screen is displayed.

Performing System Initialization

1. Login to the administrator menu (Page 96).
    • The admin menu screen is displayed.

2. Press **[▶]**.
    • The second page is displayed.

3. Use **[▲][▼]** to select **"System Initialize"** and press **[Enter]**.
    • A dialog box to confirm the start of system initialization is displayed.

IP Mode
Tokyo
192.168.181.110
Max. Bandwidth : 9.0 Mbps
Encryption : ON

Initialize all settings and contact list?

Yes   No

B Prev   R Next   G   Y
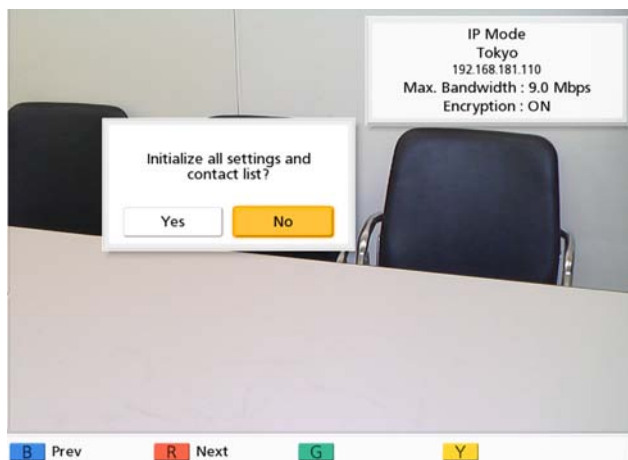
4. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
    • The system will automatically restart to complete the system initialization.

    Note
      • After initialization, all system settings previously made and information stored in the contact list and call history are cleared.
      • Features activated due to software enhancement (Page 101) are not cleared.

Activating Enhanced Features

You can activate features by enhancing the unit's software. To activate the feature, you must obtain a registration key from your dealer. Fi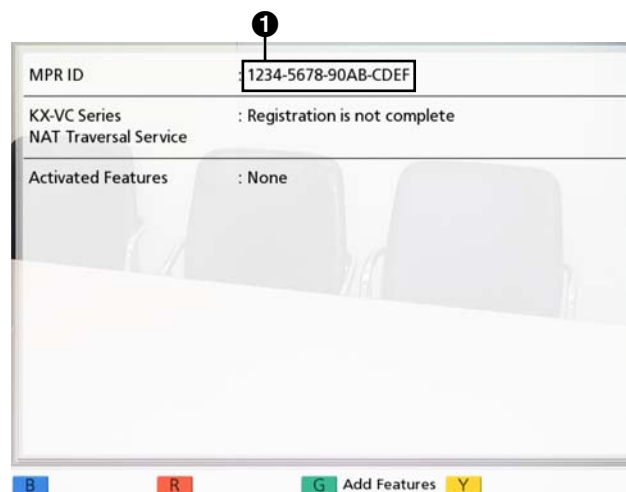rst, provide your dealer with the Activation Key No. and Registration ID written on the activation key card, and the unit's MPR ID. The dealer will enter this information into the Key Management System and then issue you with the registration key.

To Confirm the MPR ID

1. Login to the administrator menu (Page 96).
    • The admin menu screen is displayed.

2. Press **[▶]**.
    • The second page is displayed.

3. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
    • The software enhancement screen is displayed. Check the field **"MPR ID"** (❶).

❶

MPR ID	: 1234-5678-90AB-CDEF
KX-VC Series NAT Traversal Service	: Registration is not complete
Activated Features	: None

B   R   G Add Features Y

To Register the Registration Key

Registering the registration key you acquired activates the enhanced features.

1. Login to the administrator menu (Page 96).
    • The admin menu screen is displayed.

2. Press **[▶]**.
    • The second page is displayed.

3. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
   - The software enhancement screen is displayed.

| MPR ID	: 1234-5678-90AB-CDEF
KX-VC Series NAT Traversal Service	: Registration is not complete
Activated Features	: None

B   R   G Add Features Y

Note
   - Features that have already been activated are displayed in **"Activated Features"**, as follows:
   – **"Connection Enhancement"**: Connection to MCUs and non-Panasonic video conference systems is available.
   – **"None"**: No features have been activated.

4. Press **[G]**.
   - The registration key input screen is displayed.

Registration Key □ - □ - □ - □

B   R   G Register Y Clear
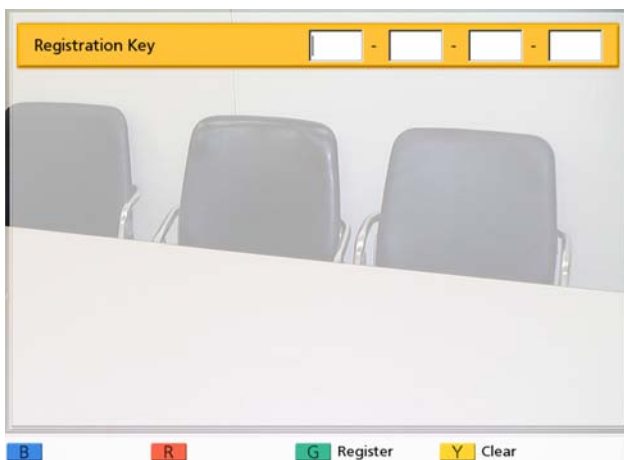
5. Enter the 16-digit registration key.

6. Press **[G]**.
   - A dialog box to confirm the saving of settings and system restart after saving is displayed.

7. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The system will automatically restart to reflect changes to system settings.

Note
   - If the registration key you entered is invalid, **"Failed Registration Key code authentication."** is displayed. Repeat the procedure from step **5**. If this message is displayed even when you have correctly input the registration key that was issued, contact your dealer.
   - Only one registration key can be registered at once.
   - Activated features can also be checked on the enhanced feature confirmation screen (Page 93).

Updating Software

1. Login to the administrator menu (Page 96).
   - The admin menu screen is displayed.

2. Press **[▶]**.
   - The second page is displayed.

3. Use **[▲][▼]** to select **"Software update"** and press **[Enter]**.
   - The software update screen is displayed.

Software updates
Update Software Now
Current Software version : 2.40
Available Software version : —

B   R Abort   G   Y

4. **When "Automatic Version Check" is set to "ON" (Page 98):**
   The latest software version is displayed next to **"Available Software version :"**. Proceed to step **5** if there is an update available.

When "Automatic Version Check" is set to "OFF" (Page 98):
Use **[▲][▼]** to select **"Software updates"** and press **[Enter]**.

• The system checks for version updates. The latest software version will be displayed next to **"Available Software version :"**. Proceed to step **5** if there is an update available.

5. Use **[▲][▼]** to select **"Update Software Now"** and press **[Enter]**.
   • A dialog box to confirm the updating of your software is displayed.
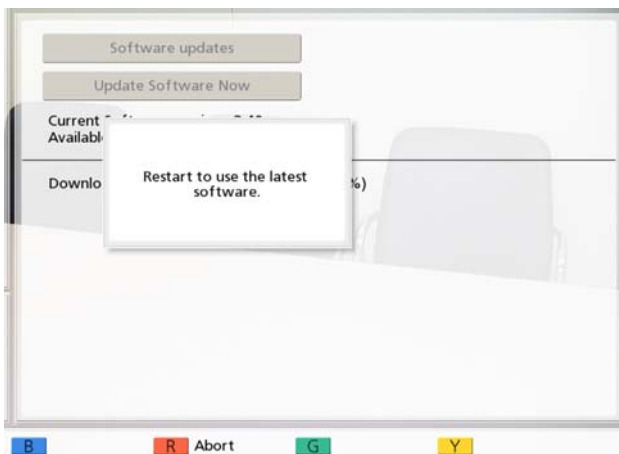
   Note
   • Please carefully read and confirm the cautions in the dialog box before proceeding to the next step.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   • The update is automatically downloaded and installed.
   • To complete the update, the system will automatically restart twice. Before each restart, a message will be displayed as detailed below.

The message displayed before the first restart

The message displayed before the second restart

After the second restart, the system will start up with the latest software.

Note
• Contact your dealer for more information on obtaining the latest firmware and Operating Manual.
• If the checking, downloading, or installing of a software update fails, an error message is displayed. Press **[Enter]** to restart the system.
  Please try the following:
  a. Set **"DNS Server"** or **"Primary DNS Server"** in network settings (Page 84) (or local site settings when a local site is selected [Page 105]). Then, try updating the software again.

  When **"DNS Server"** is set to **"Auto"**, the DHCP server may be the cause of the problem. In this case, contact your network administrator.
  b. If the above step is unsuccessful, try updating the software again later. The network may be currently very busy.
  If the retry fails several times, there might be a problem with your communication lines. Please contact your dealer.

Making Audio Input Settings

Note
• These settings are for adjusting the input audio handling.
• Changing either of these settings to **"OFF"** may result in degradation of the sound quality during a video conference call.

1. Login to the administrator menu (Page 96).
   • The admin menu screen is displayed.

2. Press **[▶]**.
- The second page is displayed.

3. Use **[▲][▼]** to select **"Audio Input"** and press **[Enter]**.
- The audio input settings screen is displayed.
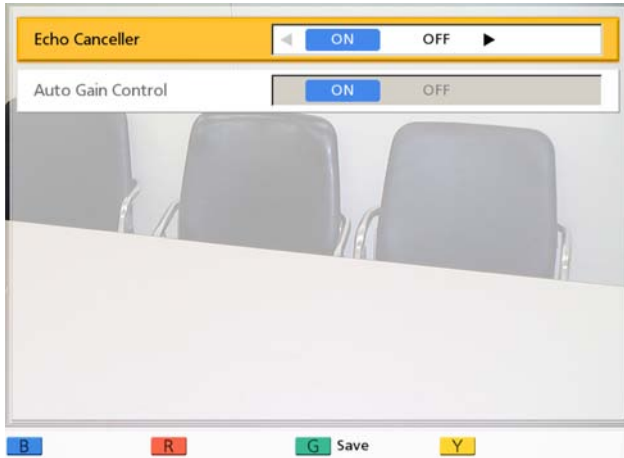
4. Use **[▲][▼]** to select the following items for input:
"Echo Canceller": Use **[◀][▶]** to select whether to enable the echo canceller feature.
- **"ON"** (default): Enables the echo canceller feature.
- **"OFF"**: Disables the echo canceller feature.

"Auto Gain Control": Use **[◀][▶]** to select whether to enable the auto gain control feature.
- **"ON"** (default): Enables the auto gain control feature.
- **"OFF"**: Disables the auto gain control feature.

5. Press **[G]**.
- A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The admin menu screen is displayed.

7. Press **[Home]**.
- The Home screen is displayed.

Making HDMI Settings (for Checking Operation)

Note
- This setting is for verifying HDMI operation. This setting does not need to be changed usually.

Making Local Site Settings

You can register up to 10 local sites. The same unit can be used in multiple meeting rooms without the need to change the network or connection mode settings.

Registering a Local Site

1. Press **[Menu]**.
   • The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
   • The select local site screen is displayed.

3. Use **[▲][▼]** to select **"Not Registered"** and press **[B]**.
   • The local site settings screen is displayed.

4. Use **[▲][▼]** to select the following items for input:
   • The following items are displayed over 2 pages. To view all the items, press **[R]** to move to the next page, and press **[B]** to move to the previous page.
   • If you press **[G]** on the first or second pages, the settings for both screens will be saved.

   Note
   • If any required settings are not specified on either of the screens, the settings will not be saved even if you press **[G]** on either of the screens. Save the settings only after you have specified all the required settings. The following settings are required:

   – **"Local site name"**
   – **"IP Address"** (when **"Manual"** is selected for **"IP Address"**)
   – **"Subnet mask"** (when **"Manual"** is selected for **"IP Address"**)
   • If you are currently entering **"Local site name"**, the next screen will not be displayed even if you press **[R]**.
   • In IP mode, you cannot configure the **"Encryption Key"** setting. This setting is available only in NAT Traversal mode. For details, refer to the following web site: http://panasonic.net/psn/products/hdvc/nat_traversal/index.html

"Connection mode": Use **[▲][▼]** to select a connection mode (**IP Mode** or **NAT Traversal Mode**).

Note
• If a connection mode is selected without completing network settings, the settings cannot be saved. Before making local site settings, change the connection mode (Page 99) and make network settings (Page 84).

"Local site name": Enter a name for the local site.
"Max. Bandwidth": Press **[Enter]** and use **[▲] [▼]** to select the maximum allowed bandwidth to be used (**512 kbps**, **768 kbps**, **1.0 Mbps**, **1.2 Mbps**, **1.5 Mbps**, **2.0 Mbps**, **2.5 Mbps**, **3.0 Mbps**, **3.5 Mbps**, **4.0 Mbps**, **4.5 Mbps**, **5.0 Mbps**, **5.5 Mbps**, **6.0 Mbps**, **6.5 Mbps**, **7.0 Mbps**, **7.5 Mbps**, **8.0 Mbps**, **8.5 Mbps**, **9.0 Mbps** [default], **10.0 Mbps**).

Note
• The maximum bandwidth during a video conference call adjusts to that of the party that has set the lowest bandwidth for the maximum bandwidth setting among all participating parties.
• You cannot select a value that is higher than the maximum bandwidth set by the dealer. For details, contact your dealer.
• When you make a 3-party video conference call, select a value of **"1.0 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.
• When you make a 4-party video conference call, select a value of **"1.5 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.

"Encryption": Use **[◀][▶]** to select whether to enable encryption.
– **"ON"**: Encryption is enabled.
– **"OFF"** (default): Encryption is disabled.

Note

- Be careful when changing encryption settings because doing so may cause you to become unable to communicate with other parties.
- Be aware that if encryption is disabled, eavesdropping might be possible on networks that are not secured against such actions.
- If you cannot specify a value for **"Encryption"** because the setting is unavailable, contact your network administrator.
- When connecting to an MCU or non-Panasonic video conference system, set **"Encryption"** to **"OFF"** because encryption is not available. Encryption must be disabled on both sides.

"Video Quality": Use **[◀][▶]** to select between prioritizing smooth movement or image quality for video.
– **"Motion"** (default): Prioritize smooth movement.
– **"Sharpness"**: Prioritize image quality.

Note

- If one of the other parties is using an older software version, **"Motion"** will be selected.
- If **"Max Resolution"** is set to **"HD"**, and **"Video Quality"** is changed from **"Motion"** to **"Sharpness"**, the setting for **"Max Resolution"** is automatically changed to **"Auto"**.

"Max Resolution": Use **[▲][▼]** to select the maximum display resolution of the main video camera and sub video camera used during a video conference call.
– **"Full HD"**: Maximum resolution: 1920 × 1080 (This mode switches the display resolution according to the condition of the network.)
– **"HD"**: Maximum resolution: 1280 × 720 (This mode switches the display resolution according to the condition of the network.)
– **"Auto"** (default): This mode selects either **"Full HD"** or **"HD"** according to the available bandwidth.

Note

- Selecting **"Auto"** or **"HD"** is recommended.
- When **"Full HD"** is selected, if the other party has a low bandwidth, the display resolution may be lower than when **"HD"** or **"Auto"** is selected.
- When making a 3-party video conference call, the main video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When making a 4-party video conference call, the main video camera and sub video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When **"Video Quality"** is set to **"Sharpness"**, only **"Full HD"** and **"Auto"** can be selected.

"SIP Transport Protocol": Use **[◀][▶]** to select between protocols (**UDP**, **TCP**, or **Auto** [default]) used when communicating via SIP.

Note

- When **"Auto"** is selected, if using a SIP server, TCP will be used for communication, and if using an IP address or MCU's conference room number@IP address, UDP will be used for communication. Normally, select **"Auto"**.

"IP Address": Use **[◀][▶]** to select whether the IP address information for the local site (**"IP Address"**, **"Subnet mask"**, **"Default Gateway"**) will be obtained automatically from a DHCP server or will be set manually.
– **"Auto"**: Obtain the IP address information automatically.
– **"Manual"** (default): Set the IP address information manually.

Note

- Even if you have selected **"Auto"**, you still may not be able to acquire an IP address due to problems such as network congestion. In this case, **"Address is not assigned"** is displayed in the upper right of the Home screen. Contact your network administrator.

"IP Address": Enter the IP address for the local site.
"Subnet mask": Enter the subnet mask.
"Default Gateway": Enter the IP address of the default gateway.

Note

- **"IP Address"**, **"Subnet mask"**, and **"Default Gateway"** can be entered only if **"IP Address"** is set to **"Manual"**.
- If the value for **"IP Address"**, **"Subnet mask"**, or **"Default Gateway"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  – Correct entry: [192.168.0.1]
  – Wrong entry: [192.168.000.001]

"DNS Server": Use **[◀][▶]** to select whether the IP address information for the DNS servers (**"Primary DNS Server"**, **"Secondary DNS Server"**) will be obtained automatically from a DHCP server or will be set manually.
– **"Auto"**: Obtain the IP address information automatically.
– **"Manual"** (default): Set the IP address information manually.

Note

- To select **"Auto"**, **"IP Address"** must be set to **"Auto"**.

"Primary DNS Server": Enter the IP address of the primary DNS server.
"Secondary DNS Server": Enter the IP address of the secondary DNS server.

Note

- **"Primary DNS Server"** and **"Secondary DNS Server"** can be entered only if **"DNS Server"** is set to **"Manual"**.
- If the value for **"Primary DNS Server"** or **"Secondary DNS Server"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  – Correct entry: [192.168.0.1]
  – Wrong entry: [192.168.000.001]

"SIP Server": Use **[◀][▶]** to select **"ON"** or **"OFF"** (default).
– **"ON"**: You can communicate using a SIP server.
– **"OFF"**: You cannot communicate using a SIP server.

Note

- If SIP settings have not been configured on the SIP settings screen, you cannot select

"ON" (Page 99). For details, contact your network administrator.
- When there is a problem with the SIP server, or when SIP settings are incorrect (on the server or on the unit), etc., and video conference calls cannot be made, on the Home screen the SIP user name is not displayed, and instead **"SIP is not registered"** is displayed. In this case, you cannot make calls using IP addresses as well as SIP. Contact your network administrator.

5. Press **[G]**.
   - A dialog box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The select local site screen is displayed.

7. Press **[Home]**.
   - The Home screen is displayed.

Selecting a Local Site

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
   - The select local site screen is displayed.

Selected	Local site name	Connection mode
	room 1	IP
	room 2	IP
	room 3	IP
	"Not Registered"	
	"Not Registered"	
	room 6	NAT Traversal
	room 7	NAT Traversal
	room 8	NAT Traversal
	"Not Registered"	
	"Not Registered"	

| B Edit | R Delete | G Set | Y Release |

3. Use **[▲][▼]** to select the local site you want to use.

Note

- For the currently selected local site,
  "   " is displayed in **"Selected"**.
- **"Not Registered"** is displayed for sites that have not been registered.

4. Press **[G]**.
- A dialog box to confirm the temporary use of the selected local site is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The Home screen is displayed.

Note

- When the current connection mode and the selected local site's connection mode are different, the system will automatically restart to reflect changes to system settings.

Note

- When changing the connection mode, the time required for a restart may depend on network conditions.
- When you select a local site, the name entered in **"Local site name"** is displayed instead of the unit name in the unit information.
- If you turn the power off and then back on, the local site is returned to the site set on the system settings screen.
- To return to the site set on the system settings screen, turn off the power and then turn it back on, or use the following procedure:
  1. Repeat steps **1–2**.
  2. Use **[◀][▶]** to select the currently selected local site.
  3. Press **[Y]**.
     - A dialog box to confirm whether you want to return to the site set on the system settings screen is displayed.
  4. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
     - The Home screen is displayed.

     Note

     - When the connection mode temporarily used for the selected local site and the connection mode set on the system settings screen

are different, the system will automatically restart to reflect changes to system settings.

Editing Local Site Information

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
- The select local site screen is displayed.

3. Use **[▲][▼]** to select the local site you want to edit.

4. Press **[B]**.
- The local site edit screen is displayed.

5. Use **[▲][▼]** to select the item you want to edit, and then make any changes.

6. Press **[G]**.
- A dialog box to confirm the saving of settings is displayed.

7. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The select local site screen is displayed.

8. Press **[Home]**.
- The Home screen is displayed.

Deleting Local Site Information

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
   - The select local site screen is displayed.

Selected	Local site name	Connection mode
	room 1	IP
	room 2	IP
	room 3	IP
	"Not Registered"	
	"Not Registered"	
	room 6	NAT Traversal
	room 7	NAT Traversal
	room 8	NAT Traversal
	"Not Registered"	
	"Not Registered"	

B Edit	R Delete	G Set	Y Release

3. Use **[▲][▼]** to select the local site you want to delete.

4. Press **[R]**.
   - A dialog box to confirm deletion is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The select local site screen is displayed.

6. Press **[Home]**.
   - The Home screen is displayed.

Inputting Letters and Numbers

You can use the remote control to input letters and numbers.
The following tables detail the characters and numbers that can be input. The language that can be input depends on which language is selected through system settings.

Press the indicated button repeatedly to cycle through the characters and numbers assigned to that button until the character you want to input is displayed. If you want to input another character using the same button, press **[▶]** to move the input cursor to the right.

Table 1 English

Button	Latin Mode		Number Mode	Extended Character 1 (Western Europe) Mode		Extended Character 2 (Eastern Europe) Mode	
	Uppercase -preferred Mode	Lowercase -preferred Mode		Uppercase -preferred Mode	Lowercase -preferred Mode	Uppercase -preferred Mode	Lowercase -preferred Mode
1	1	1	1	1	1	1	1
2ABC	ABCabc2	abcABC2	2	AÀÁÂÃÄÅ ÆBCÇaàá âãäåæbcç 2	aàáâãäåæ bcçAÀÁÂ ÃÄÅÆBC Ç2	AÁÄĄBCĆ Čaáäąbcć č2	aáäąbcćč AÁÄĄBCĆ Č2
3DEF	DEFdef3	defDEF3	3	DEÈÉÊËF deèéêëf3	deèéêëfD EÈÉÊËF3	DĎEÉĘĚF dďeéęěf3	dďeéęěfD ĎEÉĘĚF3
4GHI	GHIghi4	ghiGHI4	4	GĞHIÌÍÎÏİĬ İgğhiìíîïİĭ 4	gğhiìíîïİĭ GĞHIÌÍÎÏİĬ 4	GHIÍghií4	ghiíGHIÍ4
5JKL°	JKLjkl5	jklJKL5	5	JKLjkl5	jklJKL5	JKLĹĽŁjkl ĺľł5	jklĺľłJKLĹ ĽŁ5
6MNO	MNOmno6	mnoMNO6	6	MNÑOÒÓ ÔÕÖØŒ mnñoòóô õöøœ6	mnñoòóôõ öøœMNÑ OÒÓÔÕÖ ØŒ6	MNŃŇOÓ ÖŐmnńňo óöő6	mnńňoóöő MNŃŇOÓ ÖŐ6
7PQRS	PQRSpqr s7	pqrsPQR S7	7	PQRSŞßp qrsşß7	pqrsşßP QRSŞß7	PQRŔŘSŚ Špqrŕřsśš 7	pqrŕřsśšP QRŔŘSŚŠ 7
8TUV	TUVtuv8	tuvTUV8	8	TUÙÚÛÜŰ Vtuùúûüű v8	tuùúûüűv TUÙÚÛÜŰ V8	TŤUÚÜŮŰ Vtťuúüůűv 8	tťuúüůűvT ŤUÚÜŮŰV 8
9WXYZ	WXYZwxy z9	wxyzWXY Z9	9	WŴXIJYŶ Zwŵxijyŷz 9	wŵxijyŷz WŴXIJYŶ Z9	WXYŶÝZŹ ŻŽwxyŷýz żźž9	wxyŷýzźżž WXYŶÝZŹ ŻŽ9
0_	0 Space	0 Space	0	0 Space	0 Space	0 Space	0 Space
•@*	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >	. @ : ; " = ˟ + < >
#	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '

Table 2 French

| Button	Latin Mode		Number Mode	Extended Character 1 (Western Europe) Mode		Extended Character 2 (Eastern Europe) Mode	
	Uppercase-preferred Mode	Lowercase-preferred Mode		Uppercase-preferred Mode	Lowercase-preferred Mode	Uppercase-preferred Mode	Lowercase-preferred Mode
1	1	1	1	1	1	1	1
2 ABC	AÀÂÆBCÇaàâbcç2	aàâæbcçAÀÂÆBCÇ2	2	AÀÁÂÃÄÅÆBCÇaàáâãäåæbcç2	aàáâãäåæbcçAÀÁÂÃÄÅÆBCÇ2	AÁÄĄBCĆČaáäąbcćč2	aáäąbcćčAÁÄĄBCĆČ2
3 DEF	DEÈÉÊËFdeèéêëf 3	deèéêëfDEÈÉÊËF3	3	DEÈÉÊËFdeèéêëf3	deèéêëfDEÈÉÊËF3	DĎEÉĘĚFdďeéęěf3	dďeéęěfDĎEÉĘĚF3
4 GHI	GHIÎÏghiîï4	ghiîïGHIÎÏ4	4	GĞHIİÍÎÏĨĬghiìíîïĩĭı4	gğhiìíîïĩĭıGĞHIİÍÎÏĨĬ4	GHIÍghií4	ghiíGHIÍ4
5 JKL°	JKLjkl5	jklJKL5	5	JKLjkl5	jklJKL5	JKLĹĽŁjkIĺľł5	jkIĺľłJKLĹĽŁ5
6 MNO	MNOÔŒmnoôœ6	mnoôœMNOÔŒ6	6	MNÑOÒÓÔÕÖØŒmnñoòóôõöøœ6	mnñoòóôõöøœMNÑOÒÓÔÕÖØŒ6	MNŃŇOÓÖŐmnńňoóöő6	mnńňoóöőMNŃŇOÓÖŐ6
7 PQRS	PQRSpqrs7	pqrsPQRS7	7	PQRSŞßpqrsşß7	pqrsşßPQRSŞß7	PQRŔŘSŚŠpqrŕřsśš7	pqrŕřsśšPQRŔŘSŚŠ7
8 TUV	TUÙÛÜVtuùûüv8	tuùûüvTUÙÛÜV8	8	TUÙÚÛÜÕVtuùúûüũv8	tuùúûüũvTUÙÚÛÜÕV8	TŤUÚÜŮŰVtťuúüůűv8	tťuúüůűvTŤUÚÜŮŰV8
9 WXYZ	WXYZwxyz9	wxyzWXYZ9	9	WŴXIJYŶZwŵxijyŷz9	wŵxijyŷzWŴXIJYŶZ9	WXYÝÝZŹŻŽwxyýỳyzźżž9	wxyýỳyzźżžWXYÝÝZŹŻŽ9
0	0 Space	0 Space	0	0 Space	0 Space	0 Space	0 Space
•@*	. @ : ; " = *+ < >	. @ : ; " = *+ < >	. @ : ; " = *+ < >	. @ : ; " = *+ < >	. @ : ; " = *+ < >	. @ : ; " = *+ < >	. @ : ; " = *+ < >
#	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '	# _ - & $ \ % ~ ^ ! ? / ` ( ) , [ ] {	} '

Table 3 Spanish

Button	Latin Mode		Number Mode	Extended Character 1 (Western Europe) Mode		Extended Character 2 (Eastern Europe) Mode	
	Uppercase-preferred Mode	Lowercase-preferred Mode		Uppercase-preferred Mode	Lowercase-preferred Mode	Uppercase-preferred Mode	Lowercase-preferred Mode
1	1	1	1	1	1	1	1
2 ABC	AÁBCaábc2	aábcAÁBC2	2	AÀÁÂÃÄÅÆBCÇaàáâãäåæbcç2	aàáâãäåæbcçAÀÁÂÃÄÅÆBCÇ2	AÁÄĄBCĆČaáäąbcćč2	aáäąbcćčAÁÄĄBCĆČ2
3 DEF	DEÉFdeéf 3	deéfDEÉF3	3	DEÈÉÊËFdeèéêëf3	deèéêëfDEÈÉÊËF3	DĎEÉĘĚFdďeéęěf3	dďeéęěfDĎEÉĘĚF3
4 GHI	GHIÍghií4	ghiíGHIÍ4	4	GĞHIÌÍÎÏĨİİgğhiìíîïĩıı4	gğhiìíîïĩııGĞHIÌÍÎÏĨİİ4	GHIÍghií4	ghiíGHIÍ4
5 J KL°	JKLjkl5	jklJKL5	5	JKLjkl5	jklJKL5	JKLĹĽŁjklĺľł5	jklĺľłJKLĹĽŁ5
6 MNO	MNÑOÓmnñoó6	mnñoóMNÑOÓ6	6	MNÑOÒÓÔÕÖØŒmnñoòóôõöøœ6	mnñoòóôõöøœMNÑOÒÓÔÕÖØŒ6	MNŃÑOÓÖŐmnńňoóöő6	mnńňoóöőMNŃÑOÓÖŐ6
7 P QRS	PQRSpqrs7	pqrsPQRS7	7	PQRSŞßpqrsşß7	pqrsşßPQRSŞß7	PQRŔŘSŚŠpqrŕřsśš7	pqrŕřsśšPQRŔŘSŚŠ7
8 TUV	TUÚÜVtuúüv8	tuúüvTUÚÜV8	8	TUÙÚÛÜŨVtuùúûũv8	tuùúûũvTUÙÚÛÜŨV8	TŤUÚÜŮŰVtťuúüůűv8	tťuúüůűvTŤUÚÜŮŰV8
9 W XYZ	WXYZwxyz9	wxyzWXYZ9	9	WŴXIJYŶZwŵxijyŷz9	wŵxijyŷzWŴXIJYŶZ9	WXYỲÝZŹŻŽwxyỳýzźżž9	wxyỳýzźżžWXYỲÝZŹŻŽ9
0 ₋	0 Space	0 Space	0	0 Space	0 Space	0 Space	0 Space
• @ *	. @ : ; " = * + < >	. @ : ; " = * + < >	. @ : ; " = * + < >	. @ : ; " = * + < >	. @ : ; " = * + < >	. @ : ; " = * + < >	. @ : ; " = * + < >
#	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '	# _ - & \$ \ % ~ ^ ! ? / ` ( ) , [ ] { | } '

Switching the Input Mode

Each time **[B]** or **[R]** is pressed, the input mode will be switched in the following cycle:
- **[B]**: latin mode → number mode → extended character 1 mode → extended character 2 mode
- **[R]**: lowercase-preferred mode → uppercase-preferred mode

The current input mode is displayed in the guide area.

Example: latin mode and lowercase-preferred mode currently selected
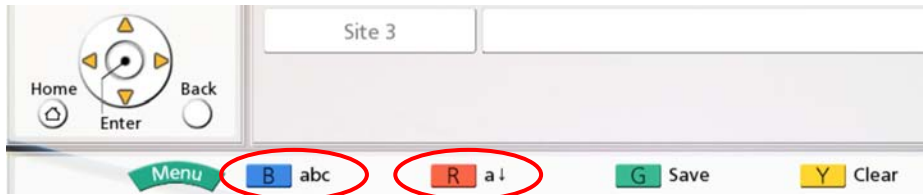
Deleting an Input Character

Press **[Y]** to delete an input character. The character deleted depends on the position of the cursor:
- If the cursor is to the right of the last character in the line, the last character will be deleted.
- If the cursor is within a line of characters, the character to the right of the cursor will be deleted.

Inserting Characters

Use **[◀][▶]** to move the cursor to the position where you want to insert characters, and then begin input. The characters will be inserted at the location of the cursor.

Changing the Remote Control Batteries

1. Open the cover.
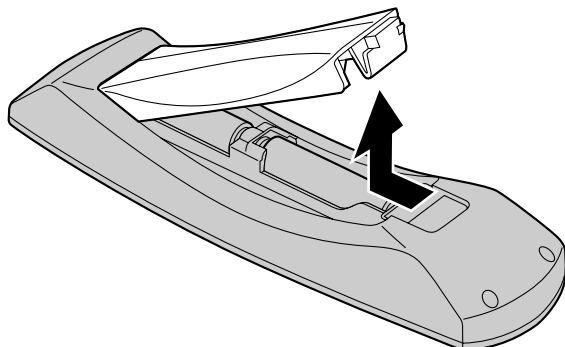
2. Take out the AA batteries.
3. Insert new batteries (AA dry cell), minus side first, then close the cover.
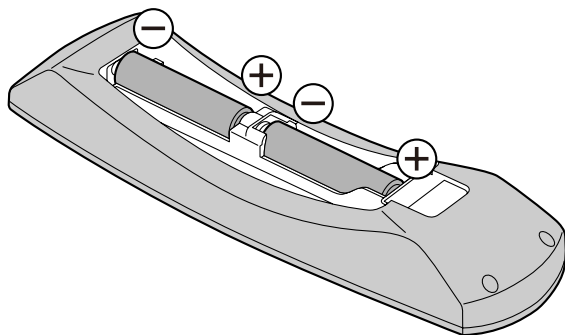
Cleaning the Unit

When cleaning the unit, make sure the power is off and all cables are unplugged. Cleaning the unit while the power is on may cause a malfunction.
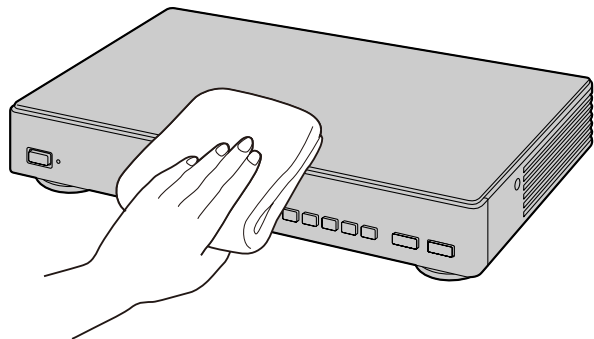
- Wipe the unit with a dry, soft cloth.
  When the unit is very dirty, first clean it with a neutral, household cleaning agent using a well-wrung, damp cloth. Then, wipe down the unit with a dry, soft cloth.
- Do not use the following when cleaning the unit. They may cause unit discoloration or damage.
  - Petroleum
  - Scouring powder
  - Alcohol
  - Thinner
  - Benzine
  - Wax
  - Hot water
  - Powder soap
- If using a chemically treated cleaning cloth, be sure to follow all accompanying directions and warnings.

Troubleshooting

If a problem is occurring with the operation of the device, check here for possible solutions. Before proceeding check all connections to make sure they are secure, and that power is flowing from the outlet that the unit is plugged into.

Basic Operation

Problem	Cause and Solution
The power does not turn on.	• The power cord is not plugged into the outlet. → Plug the power cord into the outlet.
There is no display.	• A cable or cord is not properly connected. → Check that all cables to the unit are connected properly (Page 19). Perform self diagnosis, and check the performance of the video camera and the display that are connected to the unit (Page 94). • The main video camera is not turned on. → Turn on the main video camera. • The display is not turned on, or the input that the unit is connected to is not selected. → Turn on the display, and select the input that the unit is connected to. • The unit is in screen standby mode. → Pushing a button on the unit or the remote control, or receiving a video conference call will end standby mode and the display will return. **Note** • The network administrator can set the length of time until the unit enters screen standby mode (Page 87). • When connecting a device equipped with HDCP (High-bandwidth Digital Content Protection), only a blue or blue/black screen may be displayed. → If an image is not correctly displayed, do not connect an HDCP-equipped device.
The area at the edges of the screen is not displaying properly.	• The display is not set to show the full image. → Set the display to show images at full screen. • When connecting to an MCU or non-Panasonic video conference system, the other party's image may be trimmed, depending on the device used by the other party. → Contact your dealer. **Note** • In **Layout 1** during a 3-party video conference call, the left and right edges of the image are trimmed (Page 49). In **Layout 2** during a 4-party video conference call, the edges of the image are trimmed and only the center of the image is displayed (Page 52).
The aspect ratio of the image is not correct.	• When connecting to an MCU or non-Panasonic video conference system, the aspect ratio of the image displayed on the other party's device may not be displayed correctly, depending on the device used. → Adjust the aspect ratio accordingly (Page 48).

Problem	Cause and Solution
Operation is unresponsive or incorrect.	• Cables or cords may not be connected properly. → Check that all cables to the unit are connected properly (Page 19). • An error has occurred. → Turn off the unit and restart it. • There may be a problem with your communication lines. → Contact your dealer.

The remote control is unresponsive.	• The batteries are depleted.
	→ Replace with new batteries.
	• The remote control is being used out of the signal reception range.
	→ Make sure to use the remote control within the signal reception range (Page 18).
	• The remote control ID differs between the unit and the remote control.
	→ Change the settings so that the remote control ID of the unit and the remote control match. Perform the following procedure:
	1. Press **[Home]** on the unit.
	   • The Home screen is displayed. Check the remote control ID of the unit (Page 29).
	
	   Note
	     • If the remote control ID is not displayed on the Home screen, contact your dealer.
	
	2. Press and hold **[·]** and **[#]** at the same time.
	
	3. Within 2 seconds after you release the buttons, press the number (**1** to **3**) corresponding to the ID displayed on the Home screen.
	   Note
	     • If the remote control is still unresponsive after performing the procedure above, contact your dealer.

Problem	Cause and Solution
You cannot control the other party's video camera with the remote control.	• The other party's main video camera is not a PTZ camera supported by this unit. → Ask the other party to use a PTZ camera that is supported by this unit. For details, have the other party contact the dealer. • **"CAM ctrl from remote site(s)"** is set to **"OFF"** on the other party's unit. → Ask the other party to set **"CAM ctrl from remote site(s)"** to **"ON"** on their unit. • You are trying to use a function that is not supported by the other party's main video camera. For example, you tried to use the pan function with a video camera that supports only the zoom function. → Check whether the other party's main video camera supports the function you are trying to use. • One of the parties is using a unit with an incompatible software version. → Check the software version of all parties. Update the unit with the older software version so that the versions match. • The other party is using a non-Panasonic video conference system. → If the other party uses a non-Panasonic video conference system, some operations may not be possible or some operations may not function as expected.

Problem	Cause and Solution
Cannot connect with another party.	• The LAN cable is not connected properly. → Check that it is connected to the unit properly (Page 19). Perform a network test by entering the IP address of the other party, and then confirm the connection to the other party (Page 94). • The maximum bandwidth setting is incorrect. → 3-party video conference calls are not possible if 512 kbps is selected. 4-party video conference calls are not possible if 512 kbps or 768 kbps is selected. Check your maximum bandwidth setting, and select a value that is appropriate for your network environment. → If you are trying to connect to a non-Panasonic video conference system, a connection might not be possible depending on either your or the other party's bandwidth settings. Either check your settings and change them, or have the other party do the same (Page 85, Page 105). If you change your own settings, you should register the new information as a local site (Page 105). • The SIP settings are incorrect. → Check the SIP settings (Page 99). After you check the SIP settings, if you still cannot connect to the other party, contact your network administrator. • The ID and password for digest authentication are incorrect. → Check that the values specified for **"Authentication ID"** and **"Authentication Password"** are correct (Page 100). • The **"SIP Transport Protocol"** setting is different from the other party's. → Set the **"SIP Transport Protocol"** setting so that it is the same as the other party's (Page 100, Page 106). • The local site settings are incorrect. → Confirm the local site settings. Specify the settings that are appropriate for your usage environment (Page 105). • The IP address is not entered correctly. → Confirm that the other party's IP address is correctly entered. • The SIP URI (or SIP user name) is not entered correctly. → Check whether the SIP URI (or SIP user name) of the other party is entered correctly or whether it conforms to the RFC. • The MCU's conference room number@IP address is not entered correctly. → Check whether the conference room number and IP address of the MCU is entered correctly. • When making a video conference call by entering an MCU's conference room number@IP address, **"SIP Server"** is set to **"ON"**. → Change the **"SIP Server"** setting to **"OFF"** (Page 99).

Problem	Cause and Solution
	• The internet connection is not established. → Some hubs, routers, etc. can take 10 seconds or more to establish an internet connection. • A video conference call to a unit with an incompatible software version was attempted. → Check the software version of all parties. Update the unit with the older software version so that the versions match. • There may be a problem with your communication lines. → Contact your dealer. • If you are trying to connect to an MCU or non-Panasonic video conference system, encryption is enabled on either your or the other party's side. → Make sure that all parties have encryption disabled (Page 85, Page 97, Page 106). • You are trying to connect to an MCU or non-Panasonic video conference system that is not compatible. → Depending on the other party's model, such connections can be enabled with an activation key card (KX-VCS101, sold separately). For details about supported models, contact your dealer. → Use the outgoing call history to confirm the name of the device, and then contact your dealer.
The image is distorted.	• The settings of the hub or router are different to those of the unit. → Contact your dealer. • Packet loss is occurring. (The network is congested.) → Check the display of the network status indication (Page 32). If the icon shows only 0–1 bars continuously, press **[Status]** twice and check the fields **"Loss"** and **"Bandwidth"**, then contact your network administrator or dealer (Page 73). • The maximum bandwidth setting is incorrect. → During a 3-party video conference call, at least 1 Mbps of bandwidth is required. Change the **"Max. Bandwidth"** setting to a value of **"1.0 Mbps"** or higher (Page 85, Page 105). → During a 4-party video conference call, at least 1.5 Mbps of bandwidth is required. Change the **"Max. Bandwidth"** setting to a value of **"1.5 Mbps"** or higher (Page 85, Page 105). → If you are trying to connect to an MCU or non-Panasonic video conference system, depending on the other party's device, the image may be distorted due to lack of bandwidth. In this case, contact your dealer. • There may be a problem with your communication lines. → Contact your dealer.
The maximum bandwidth changes during a video conference call.	• The maximum bandwidth during a video conference call adjusts to that of the party that has set the lowest bandwidth for the maximum bandwidth setting among all participating parties. → If there is a problem with your communication lines, contact your dealer.

Problem	Cause and Solution
The computer or sub video camera's video is not displayed.	• Cables or cords may not be connected properly. → Make sure all connections to the unit are correct (Page 64, Page 68). On the Home screen, press **[PC]** or **[Camera Sub]** and then check the computer's screen or sub video camera's image (Page 64, Page 68). • The computer's display resolution or refresh rate is incompatible with the unit. → Set your computer's resolution and refresh rate to a setting compatible with the unit (Page 65).
It takes a long time to display a clear image when displaying a still image from the sub video camera.	• Sending a still image requires time. Packet loss is occurring. → Change the **"Still image quality"** setting to **"HD"** (Page 86).

Audio

Problem	Cause and Solution
The other party cannot hear your voice.	• The microphone cable is not properly connected. → Check that the microphone is properly connected to the unit (Page 19). Perform self diagnosis, and check the performance of the microphones that are connected to the unit (Page 94). • The microphone is muted. → Press **[MIC Mute]** on the remote control, or press the MIC Mute button on the Boundary Microphone to unmute the microphone (Page 61). • **"Default MIC Mute set"** is set to **"ON"**. → The microphones are muted at the start of a received video conference call. Confirm the settings (Page 86). • The microphone is being obstructed. → During the video conference call, do not block the microphone with your hand or other object. • You are too far from a microphone. → Speak close to a microphone. • More than 5 Boundary Microphones are connected in cascade. → Connect no more than 4 Boundary Microphones at a time. • There may be a problem with your communication lines. → Contact your dealer.
The sound cuts out.	• You are too far from a microphone. → Speak close to a microphone. • The microphone or unit is being moved during a video conference call. → Do not move the unit or the microphone during a video conference call. • The microphone is being obstructed. → During the video conference call, do not block the microphone with your hand or other object. • There may be a problem with your communication lines. → Contact your dealer.

Problem	Cause and Solution
The sound volume is low or cannot be heard at all.	• The unit's volume settings are too low. → Increase the volume level (Page 60). **Note** • You can set the volume level of a video conference call before starting the call. Confirm the settings (Page 88). • The other party's microphone has been muted. → Have the other party unmute their microphone. • The display's volume settings are too low. → Increase the volume level of the display.
You hear audio feedback.	• The microphone is too close to the display or to speakers. → Keep microphones at least 1 m (3.3 ft) away from any display or speaker. • The display's volume settings are too high. → Decrease the volume level of the display.
Sound cuts out or echoes.	• Adjustments to the environment immediately after a video conference call has begun may not yet have completed. → Immediately after a video conference call has begun, be sure to speak in turn with other parties. The unit will automatically adjust audio levels so that all parties can easily be heard.
The other party hears noise.	• The Boundary Microphone cable is not properly connected. → Make sure that the cable connecting the Boundary Microphone with the unit is fully and securely inserted on either end.
The orientation of the image and sound do not match (the voice of a person on a side of the screen comes from the opposite side's speaker, etc.).	• The speakers are not properly positioned. → Position speakers on either side of the display and check that the left/right wiring is correct. If you place the display at the front of the room and the speakers at the back, the microphone's left/right spatial direction may be reversed, and the orientation of the image and sound will not match. • The speakers of the other party are not properly positioned. → Ask the other party to position speakers on either side of the display. When the MIC position is set automatically, if the other party places the display at the front of the room and the speakers at the back, the microphone's left/right spatial direction may be reversed, and the orientation of the image and sound will not match. • The MIC positions set manually by the other party are incorrect. → Ask the other party to confirm the manual settings of their MIC positions. When setting the MIC position manually, the left/right orientation should match the left/right channels as viewed from the side of the main video camera. When the MIC position is set to **"Center stereo"**, make sure that it is placed with its connector facing the display (Page 89).

System Settings

Problem	Cause and Solution
The settings of the unit cannot be changed.	• A video conference call is in progress. → Make settings after ending the current video conference call. • A video conference call is incoming. → A dialog box will be displayed asking whether to answer the call. Press **[End]** to disconnect the incoming call, and then configure the setting on the unit. → If a video conference call is received when editing settings on the unit, a dialog box will be displayed asking whether to answer the call without saving the settings, and you will temporarily be unable to edit the settings. To continue editing, reject the call.

If These Messages Appear

Message	Cause and Solution
Call FAILED. Encryption settings (On/Off) must match. Please change the encryption setting on one side and try again.	• The encryption settings do not match those of the other party in a video conference call. → Change the encryption settings to match those of the other party (Page 85, Page 97).
Call Failed due to wrong encryption key. Please contact your installer.	• The encryption key settings do not match those of the other party in a video conference call. → Ensure your encryption key setting matches the other party's (Page 97).
Check the Main Camera connection.	• A cable or cord is not properly connected. → Check that all cables to the unit are connected properly (Page 19). • The signal input from the main video camera is invalid. → A valid signal cannot be received from the connected main video camera. Contact your dealer.
Unable to register, the contact list is full.	• The contact list has reached its maximum capacity. → Delete unneeded contacts (Page 81).
Invalid IP Address.	• The format of the entered IP address is invalid. → Enter the IP address correctly, in the format XXX.XXX.XXX.XXX (decimal values separated by periods). For values of only 1 or 2 digits, enter these numbers as they are. Do not enter like [.001]. Example: The IP address is [192.168.0.1]. – Correct entry: [192.168.0.1] – Wrong entry: [192.168.000.001] Multicast or broadcast addresses cannot be used.

Message	Cause and Solution
Invalid Subnet mask.	• The input subnet mask is invalid. → Enter a valid subnet mask. For values of only 1 or 2 digits, enter these numbers as they are. Do not enter like [.001]. Example: The subnet mask is [255.255.255.0]. – Correct entry: [255.255.255.0] – Wrong entry: [255.255.255.000]
Invalid Default Gateway.	• The input default gateway is invalid. → Enter a valid default gateway. For values of only 1 or 2 digits, enter these numbers as they are. Do not enter like [.001]. Example: The default gateway is [192.168.0.1]. – Correct entry: [192.168.0.1] – Wrong entry: [192.168.000.001]
Invalid Date/Time.	• Enter a date within the valid parameters. → Enter a date between January 1, 2012, and December 31, 2035.
PC is not connected. Check the connection.	• A cable or cord is not properly connected. → Check that all cables to the unit are connected properly (Page 64). • The computer is not turned on. → Turn on the computer. • The computer is not set to output from its external monitor video out port. → Change the computer's settings so that video is output from the external monitor port.
Sub-Camera is not connected. Check the connection.	• A cable or cord is not properly connected. → Check that all cables to the unit are connected properly (Page 68). • The sub video camera is not turned on. → Turn on the sub video camera.
Sub-Camera source is not compatible.	• A cable or cord is not properly connected. → Check that all cables to the unit are connected properly (Page 68). • The signal input from the sub video camera is invalid. → A valid signal cannot be received from the connected sub video camera. Contact your dealer.
Check display resolution.	• The computer's display resolution or refresh rate is incompatible with the unit. → Set your computer's resolution and refresh rate to a setting compatible with the unit (Page 65).
n is already in use. **Note** • The IP address is represented by **n**.	• On the network you are using, another device is already using the IP address you have input for the unit. → Make sure that all devices on the network have unique IP addresses assigned.
Cooling Fan Malfunction. Please turn off the system and call for service.	• The CPU cooling fan within the device has stopped. → Quickly turn off the power. Contact your dealer.

Message	Cause and Solution
Check main camera setting. <Check camera> Set the main camera HDMI output to 1080i. <Safe Mode> If [#] is pressed, the system enters safe mode after restart.	• A standard definition (640 × 480p, 720 × 480p) video camera signal has been detected. → Change the video camera's resolution to HD (1920 × 1080i). **Note** • If you enter Safe Mode during a video conference call, the call will be disconnected.

Check main camera setting.
<Check camera>
Set camera operating frequency to **n**Hz.
<Safe Mode>
If [#] is pressed, the system enters safe mode after restart.
 	
Note
   • The field frequency setting of the unit (**50** or **60**) is represented by **n**.
	• A video camera with a different field frequency to the unit has been detected.
	→ Use a video camera with the same field frequency as the unit.
	Note
	   • If you enter Safe Mode during a video conference call, the call will be disconnected.

Check sub camera setting. <Check camera> Set the sub camera HDMI output to 1080i. <Safe Mode> If [#] is pressed, the system enters safe mode after restart.	• A standard definition (640 × 480p, 720 × 480p) video camera signal has been detected. → Change the video camera's resolution to HD (1920 × 1080i). **Note** • If you enter Safe Mode during a video conference call, the call will be disconnected.

Check sub camera setting.
<Check camera>
Set sub camera operating frequency to **n**Hz.
<Safe Mode>
If [#] is pressed, the system enters safe mode after restart.
 	
Note
   • The field frequency setting of the unit (**50** or **60**) is represented by **n**.
	• A video camera with a different field frequency to the unit has been detected.
	→ Use a video camera with the same field frequency as the unit.
	Note
	   • If you enter Safe Mode during a video conference call, the call will be disconnected.

Call failed due to software version mismatch.	• A video conference call to a unit with an incompatible software version was attempted. → Check the software version of all parties. Update the unit with the older software version so that the versions match.

Message	Cause and Solution
Call FAILED. "Connection Enhancement" feature must be activated before attempting to call to this site.	• A connection is trying to be established with an MCU or non-Panasonic video conference system even though the feature for connecting to MCUs or non-Panasonic systems has not been activated. → By using an activation key card (KX-VCS101) to activate the feature for connecting to MCUs and non-Panasonic systems (Page 101), you can connect to devices other than Panasonic HD Visual Communication Units. For details about activation keys or about the types of MCUs and non-Panasonic video conference systems you can connect to, contact your dealer.
Call Failed due to combination mismatch.	• In a multiple-party video conference call, one or more of the parties is incompatible. → Check the software version of all parties. Update the unit with the older software version so that the versions match.
Call Failed due to unsupported product or other error.	• An unsupported feature was used. → Check the software version of all parties. Update the unit with the older software version so that the versions match. For details about supported versions and features, contact your dealer. • Connection to an unsupported MCU or non-Panasonic video conference system was attempted. → For details about supported MCUs and non-Panasonic video conference systems, contact your dealer.
Call disconnected due to incompatible device or unexpected error.	• The other party's device uses an unsupported codec. → Have the other party check their settings.

Message	Cause and Solution
Received remote control ID (**n1**). The unit current setting is (**n2**). Press [Home] button using the correct remote control, or setup remote control as follows. 1. Press [.] and [#] at the same time. 2. Within 2 seconds, press [**n2**]. 3. Press [Home] to finish, this message will disappear. If this message will not disappear, please check the batteries in your remote control and try again. **Note** • The remote control ID of the remote control (**1**/**2**/**3**) is represented by **n1**. • The remote control ID of the unit (**1**/**2**/**3**) is represented by **n2**.	• The remote control IDs of the unit and remote control do not match. → Follow the on-screen instructions to change the remote control ID of the remote control to match that of the unit. → If you cannot change the remote control ID of the remote control, contact your dealer. → If multiple remote controls with assigned IDs will be used close together or if you do not want this message to be displayed, select **"OFF"** for **"Check ID mismatch"** (Page 91).

The address is invalid.	• The IP address contains an invalid value.
	→ Enter the IP address correctly. The correct format is XXX.XXX.XXX.XXX (dotted format decimal notation).
	If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001].
	Example: The IP address is [192.168.0.1].
	  – Correct entry: [192.168.0.1]
	  – Wrong entry: [192.168.000.001]
	Multicast or broadcast addresses cannot be used.
	• The MCU's conference room number@IP address contains an invalid value.
	→ Enter the MCU's conference room number@IP address correctly.

Check the address.	• The IP address of the other party is the same as your own IP address. → Register the correct IP address.

Message	Cause and Solution
Invalid Primary DNS Server address. Invalid Secondary DNS Server address.	• The IP address contains an invalid value. → Enter the IP address correctly. The correct format is XXX.XXX.XXX.XXX (dotted format decimal notation). If the IP address contains 1 or 2 digit numbers, enter these numbers as they are. Do not enter like [.001]. Example: The IP address is [192.168.0.1]. – Correct entry: [192.168.0.1] – Wrong entry: [192.168.000.001] Multicast or broadcast addresses cannot be used.
Please enter different addresses for each DNS Server.	• The addresses of the primary and secondary DNS servers are the same. → Enter different IP addresses (Page 84).
Connection will be closed in **n** seconds. Press "YES" to continue. **Note** • The message first appears when one minute remains and **"60"** is displayed for **n**. Then, the remaining time starts to decrease.	• The time set for **"Call Limit time"** has one minute remaining (Page 86). → If you select **"Yes"**, you can extend the call limit time for the amount set for **"Call Limit time"**. If you select **"No"**, the call is disconnected.
Unable to connect to network. (XXXX XXXX) **Note** • An error code (consisting of numerals) is displayed in "XXXX XXXX".	• The LAN cable is not connected properly, and therefore you cannot make a video conference call. → Check that the LAN cable is connected to the unit properly. Try making a call again, after confirming that the IP address or SIP user name is displayed on the Home screen. If transmission still fails, make a note of the error code and contact your dealer. **Note** • If transmission fails due to the LAN cable not being connected properly, it may take up to 10 minutes before the IP address or SIP user name is displayed and video conference calls can be made after reconnecting the LAN cable.
Disconnected.	• When connecting to an MCU or non-Panasonic video conference system, the video conference call was disconnected because encryption settings were enabled. → Disable encryption settings on both sides. • When connecting to an MCU or non-Panasonic video conference system, the video conference call was disconnected for an unknown reason. → Wait a while and then try making the video conference call again. If video conference calls get disconnected repeatedly, contact your dealer.

Message	Cause and Solution
Call failed due to insufficient bandwidth setting on called site.	• The other party's maximum bandwidth is set to a value that cannot support 3-party/4-party video conference calls. → Ask the other party to change their maximum bandwidth setting.
Feature is not available with current connection.	• The other party cannot display the computer's screen because their display does not support the selected resolution. → Change the resolution setting to a resolution that is supported by the other party. → Contact your network administrator. • Tone signals could not be sent because the other party's device does not support tone signals. → Ask the other party to check their configuration.
Invalid SIP Server Address.	• The format of the entered SIP server address is invalid. → Enter the SIP server address correctly, in the format XXX.XXX.XXX.XXX (decimal values separated by periods). For values of only 1 or 2 digits, enter these numbers as they are. Do not enter like [.001]. Example: The IP address is [192.168.0.1]. – Correct entry: [192.168.0.1] – Wrong entry: [192.168.000.001] Multicast or broadcast addresses cannot be used.
Invalid SIP Domain Name.	• The format of the entered SIP domain name is invalid. → Enter an RFC-compliant value. For details, contact your network administrator.
Invalid Operation. Initial setting is not completed.	• In local site settings, you tried to select and save a connection mode without completing network settings. → Before making local site settings, change the connection mode (Page 99) and make network settings (Page 84).
Input DNS Server address.	• You tried to update the software (Page 102) without a DNS server set. → In network settings (Page 84) (or local site settings when a local site is selected [Page 105]), set either **"DNS Server"** or **"Primary DNS Server"**. **Note** • When **"DNS Server"** is set to **"Auto"**, the DHCP server may be the cause of the problem. In this case, contact your network administrator.
System Error! Please restart the system. If error message appears again, please contact Installer or Service Administrator.	• The unit's internal software failed to start up. • The unit failed to write data to the internal flash memory. → Reset the unit by turning off its power, then turning it back on. If the same message is displayed after resetting the unit, contact your dealer.

Miscellaneous

Problem	Cause and Solution
"Safe Mode" is displayed on the screen. **Note** • When "Safe Mode" is displayed on the screen, you cannot connect to the network, make video conference calls, or perform certain settings (self diagnosis, performing a network test, etc.).	• A standard definition (640 × 480p, 720 × 480p) video camera signal has been detected. → Disconnect the video camera from the unit, and reset the unit by turning off its power, then turning it back on. Check to make sure the video camera's resolution is set to HD (1920 × 1080i), and then connect the video camera to the unit again. • A standard definition (640 × 480p, 720 × 480p) display signal has been detected. → Disconnect the display from the unit, and reset the unit by turning off its power, then turning it back on. Make sure to connect a HD (1920 × 1080i) display to the unit. • The field frequency of the video camera or display you are using is different from the field frequency setting of the unit. → Use a video camera or display that has the same field frequency as the unit. For details, contact your dealer.

System Specifications

Video	Compression Method		H.264
		Compatible Resolutions	• 1920 × 1080p • 1920 × 1080i • 1280 × 720p • 1280 × 540p • 960 × 540p • 704 × 480p • 352 × 240p
	Camera Input Resolution		1920 × 1080i
	PC Input Resolutions		XGA, SVGA, VGA
Audio	Compression Method		MPEG-4 AAC LD
		Frequency Range	20 kHz
		No. of Channels	2
		Bitrate	64 kbit/s, 96 kbit/s (per channel)
	Sound Processing Function		Stereo Echo Canceller
	Microphone		Boundary Microphone KX-VCA001 (Option)
		Pickup Range	2 m radius, 360° coverage
		Cascade Connections	Up to 4 Boundary Microphones
		Sound Pickup Method	Stereo/Monaural[1]
Transmission	Call Control		SIP
	Other		AV QoS Call Control, Encrypted Transmission (AES)
External Interface	Video Inputs		HDMI (Camera) × 2, RGB (PC) × 1 (Switchable 3 inputs)
	Video Output		HDMI × 1, RCA (Component) × 1
	Audio Input		Boundary Microphone port × 1, RCA (Stereo) × 1
	Audio Output		RCA (Stereo) × 1 (Audio output to display is via HDMI)
	Network		RJ45 port × 1
	Other		• Camera Control RS-232C Serial Port × 1 (Not used) • Maintenance RS-232C Serial Port × 1 (Not used)
Misc.	Dimensions (width × depth × height)		Approx. 430 mm × approx. 280 mm × approx. 80 mm (approx. 17 in × approx. 11 in × approx. 3.2 in)
	Weight		Approx. 4.0 kg (approx. 8.8 lb)
	Power Input		AC 100–240 V, 50/60 Hz
	Power Consumption		Standby: approx. 30 W Maximum: approx. 32 W

	Operating Temperature	0 °C–40 °C (32 °F–104 °F)
	Operating Humidity	10 %–90 % (non-condensing)

*1   Either output can be set through system settings (Page 89); only monaural is available when connecting to MCUs and non-Panasonic video conference systems.

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When you ship the product
Carefully pack and send it prepaid, adequately insured and preferably in the original carton. Attach a postage-paid letter, detailing the symptom to the outside of the carton. DO NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.

Product service
For product service, ship the product to the address listed in the Limited Warranty. Consult your authorized Panasonic dealer for detailed instructions.

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