

Model MD-A1
Machine Codes: E0A0
Field Service Manual

30 January, 2012

Important Safety Notices

LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING

WARNING

- This product is manufactured using lead free solder. DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT! The melting temperature of lead-free solder is higher than that of leaded solder by 86 °F to 104 °F (30 °C to 40 °C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product – especially when soldering large components, through-hole pins, and on PCBs - as the level of heat required to melt lead-free solder is high.

Prevention of Physical Injury

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine power cord is unplugged.
2. The wall outlet should be near the machine and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. The machine drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the machine starts operation.

CAUTION

- RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
- DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Observance of Electrical Safety Standards

The machine and its peripherals must be serviced by a customer service representative who has completed the training course on those models.

Safety and Ecological Notes for Disposal

1. Dispose of replaced parts in accordance with local regulations.

WARNING

- To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols. A fire or an explosion might occur.

This product contains substances which are harmful to humans and the environment.

- The lamp contains mercury.

Please dispose of this product or used lamps in accordance with local regulations.




The following information is only for EU-member states:



The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office or your household waste disposal service.

Symbols and Trademarks

This manual uses several symbols and abbreviations. The meaning of those symbols and abbreviations are as follows:

	See or Refer to
	Screw
	Connector

Trademarks

Microsoft® and Windows® are registered trademarks of Microsoft Corporation in the United States and /or other countries.

Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

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1. Product Information

Specifications

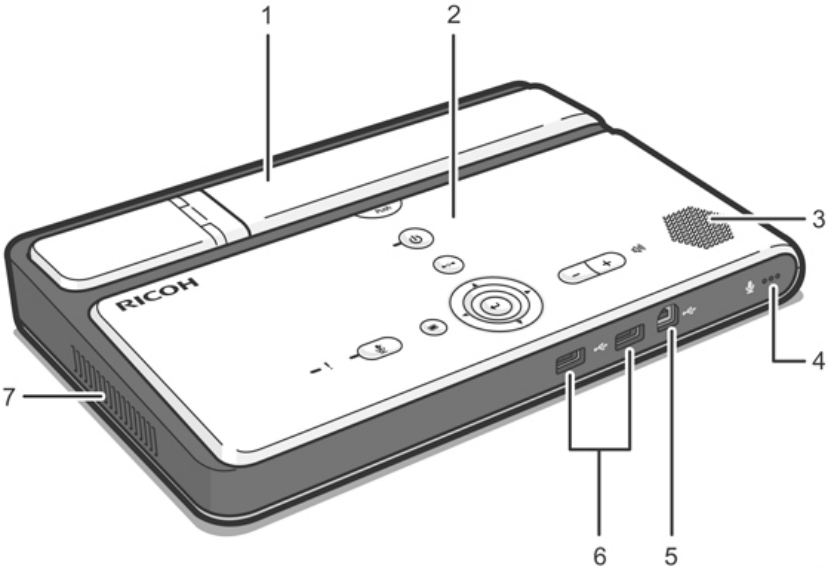
See "Appendices" for the following information:

- General Specifications

Overview

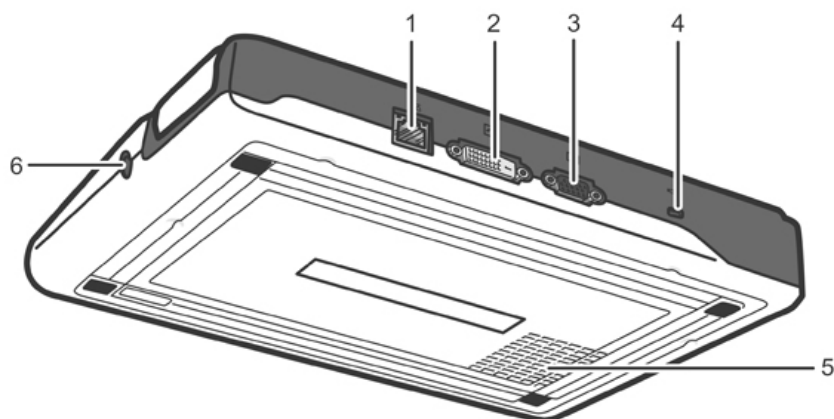
1

Front and Top view



Name	Main Function
(1) Camera unit	Captures live video that is transmitted to other parties. The camera unit consists of a camera and arm.
(2) Control Panel	Provides a set of keys used to operate the machine.
(3) Speaker	Outputs audio from other parties.
(4) Microphone	Inputs audio from the machine.
(5) USB port (type B)	Used to connect the machine to your computer and share the computer screen.
(6) USB ports (type A)	Used to attach an external microphone speaker to the machine.
(7) Air outlet	Releases heat from inside the machine.

Rear and Bottom view



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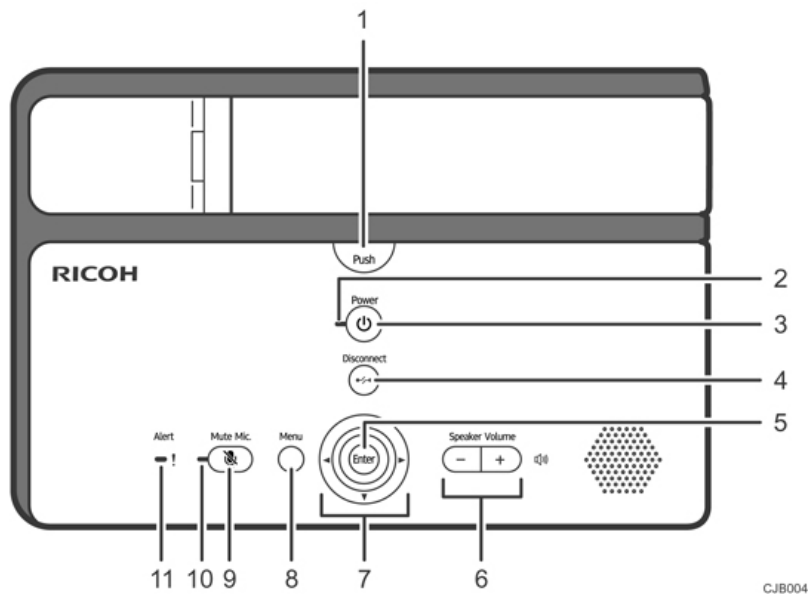
Name	Main Function
(1) Ethernet port	Port to which the 1000BASE-T, 100BASE-TX, or 10BASE-T cable connects. This port is used when connecting the machine to a wired network.
(2) DVI-D connector	Connector used to connect this machine to a video output device, such as a projector or monitor, via a DVI-I connector. ^{*1}
(3) Analog RGB connector	Connector used to connect this machine to a video output device, such as a projector or monitor, via a RGB (VGA) connector.
(4) Anti-theft lock hole	Hole for connecting the anti-theft chain.
(5) Air inlet	Brings in air from the outside to cool the machine and prevent it from overheating.
(6) Power connector	Connector for connecting the power cord.

*1 DVI-I connection is not supported.

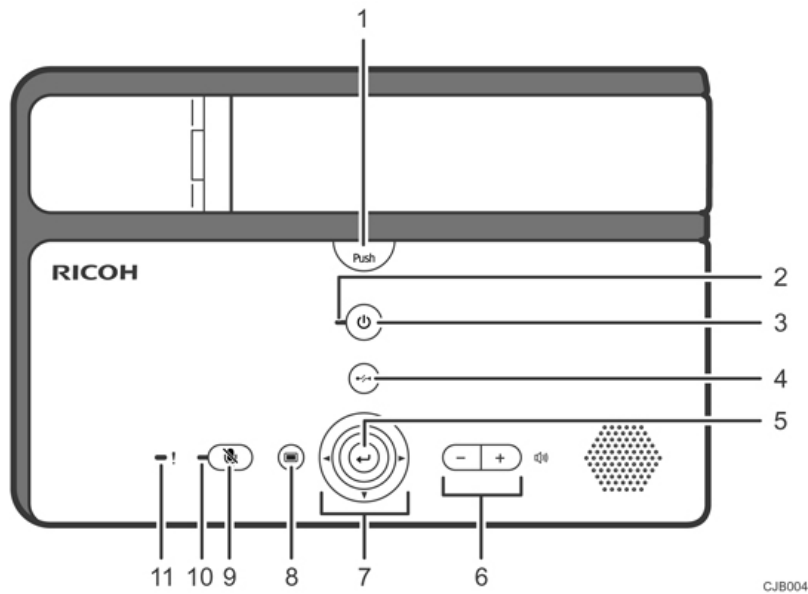
Control Panel

For North America/ASIA

1



For Europe



Name	Main Function
(1) Push key	Used to raise the camera unit.

Name	Main Function
(2) Power indicator	Lights when the machine turns on. This indicator blinks while the machine is starting up or shutting down.
(3) Power key	Used to turn the machine on and off.
(4) Disconnect key	Used to leave a meeting.
(5) Enter key	Used to confirm the menu, setting, or set value selected with the cursor keys. This key is also used to connect and leave a meeting.
(6) Speaker volume keys (− + key)	Used to adjust the speaker volume.
(7) Cursor keys (▲ ▼ ◀ ▶ key)	Used to select a menu, dialog, or setting. These keys are also used to switch between screen layouts during a meeting.
(8) Menu key	Used to switch between the Site List screen and Menu screen.
(9) Mute key	Used to temporarily disable audio input on the machine.
(10) Mute indicator	Blinks when the microphone is disabled by pressing the Mute key.
(11) Alert indicator	Lights when an error occurs on the machine. Follow the instructions in the on-screen messages to resolve the error.

2. Installation

Installation Requirements

- Do not use or store this machine in a place that is exposed to soot, cigarette smoke, or any other type of smoke. Doing so may soil the machine, resulting in shorter product life and lower video quality.
- Abrupt changes in temperature may cause drops of water to form inside the machine, resulting in a phenomenon called dew condensation. Continuing to use the machine in this condition may lead to product failure or malfunction. If dew condensation forms, wait until the drops of water evaporate before using the machine.
- Do not use this machine when it is improperly positioned or oriented. Doing so may lead to failure or shorten the product life.
- Route and position the power cord and other cables so that other users do not trip over them. Tripping over the cables may cause the machine to fall, resulting in personal injury.

Preventing the deterioration of sound quality

- Keep objects that may cause the sound quality to deteriorate away from the microphone or speaker.
- Blocking both the microphone and speaker may cause the sound quality to deteriorate.
- Do not place devices that generate noise, such as projectors or computers, near the machine.
- When using the machine in a room where sound echoes, try keeping your voice as low as possible during meetings to avoid distracting echoes.
- Make sure there is sufficient space between this machine and the wall.
- Keep this machine away enough from the other party's device, for example, when the other party's voice can be heard directly instead of through a speaker.
- If you plan to use an external microphone and speaker, see the manual for details about how to use the device.

About network environment

- A poor network environment can cause delays in video streaming during meetings.
- When using a wireless network, communication quality may deteriorate or communication may be lost, depending on the environment in which the machine is used. If these problems occur, use a wired network instead. To switch to a wired network, you must first turn the machine off and then turn it back on.
- When using a wireless network, radio or electromagnetic interference or weak reception may cause the following problems to occur during meetings:
 - Delays in video streaming.
 - Video is stopped.

- Audio of other party cuts out.
- Synchronization between video and audio is lost.
- Audio quality deteriorates.
- Meetings are automatically ended or left.
- Delays in video streaming occur when sharing computer screen.
- Your video and the other party's video disappear and only audio is heard.
- Screen image does not display properly when the screen layout is changed.
- The Site List or contact status do not appear, or it takes longer than expected for each to be displayed.
- The attempt to update the firmware fails, or it takes an excessively long time for the update to finish.
- The machine does not start.
- You cannot connect to other party.

If you experience trouble using the machine in a wireless network environment, take the following remedial actions:

- If wireless network environment has both an IEEE802.11b connection and IEEE802.11g connection, try the IEEE802.11b connection first.
- Avoid environments that have multiple wireless LAN standards.
- Turn off any wireless networking or radio devices that are not being used.
- If there are multiple devices in the environment that support IEEE802.11n, use IEEE802.11n with a single channel.
- Use the machine in an environment with stable reception, making sure to confirm the distance from the access point and check for any obstructions.
- If the environment has multiple wireless LAN standards, change the access point channel. There should be a difference of at least five between the channel settings for each LAN standard. For example, set one standard to channel 1 and the other to channel 6.
- Keep the machine as far away as possible from highly conductive objects such as metal.
- The recommended line speed for the machine is 1 Mbps. To use the machine at a stable line speed, the recommended standard for connecting to a network is IEEE802.11g.
- This wireless product uses the 2.4 GHz band. Make sure there is no industrial, scientific, or medical equipment that uses the same frequency band currently in operation, such as a microwave. Interference can cause communication to become unstable. Before using the machine, make sure that there is no equipment around that may potentially cause interference.
- If you experience radio interference or other wireless networking problems, please call the support desk.

Use this machine in an environment that meets the following conditions:

Specification	Description
Temperature	<ul style="list-style-type: none"> Operating 10~32°C (50°F-89.6°F) Non-operating 0~43°C (50°F-109.4°F)
Humidity	<ul style="list-style-type: none"> Operating 15~80% (Non-condensing) Non-operating 10~90% (Non-condensing)
Maximum Altitude	3000m (10,000 feet)

Operating Environment for This Machine

The following operating environments are required to use this machine:

★ Important

- If you are using the machine in a wired network environment in which the Ethernet cable is connected to a network switch, the machine will be unable connect to the network. Make sure the Ethernet cable is connected to a hub.

Power Source

Specification	Description
Power Source	<ul style="list-style-type: none"> 220V-240V, 50/60Hz (for Europe /ASIA) 110V, 50/60Hz (for North America)

Network

Specification	Description
Interface	<p>Network with one of the following interfaces that can connect to the Internet</p> <ul style="list-style-type: none"> Wired Network 10BASE-T, 100BASE-TX, 1000BASE- Wireless Network IEEE802.11g, IEEE802.11b, IEEE802.11n

Specification	Description
Line speed	Minimum: 500 Kbps, Recommended: 1 Mbps or higher
Port	<p>The following port numbers are available for communication:</p> <ul style="list-style-type: none"> When no proxy is used TCP : 443, 5222, 17990, 17992 UDP : 50000 - 65535 ^{*1} When a proxy is used TCP : 443
Frequency Range (Wireless Network)	<p>2412MHz-2472MHz (Ch1-Ch13) (mainly Europe and Asia)</p> <p>2412MHz-2462MHz (Ch1-Ch11) (mainly North America)</p>
Authentication (Wireless Network)	<ul style="list-style-type: none"> Authentication method Open system authentication, shared key authentication, WPA-PSK, WPA2-PSK Encryption method WEP (128bit/64bit), TKIP, AES

^{*1} A port in the range of 50000 to 65535 is selected as the port used for communication, according to the environment and conditions.

Video Output Device

Specification	Description
Supported device	Monitor or projector
Resolution	1024×768 pixels (XGA), 1280×800 pixels (WXGA)
Interfaces	Analog RGB, DVI-D

Installation Procedure

The following shows the basic swap and repair workflow. Unique actions

- Issue CID from the UCS management system
- Register CID and Serial No. into the UCS management system
- Register the password (=Serial No.) for utility into the UCS management system
- Input service/billing start date into the UCS management system
- AC power cable arrangement

Contact Address registration

Before having a meeting, you need to register the contact of the other party in Address Book in Device Management Settings.

Before registering a new contact in Address Book, you need to obtain permission from the party whose contact you want to register. Send a registration request to that individual and obtain permission to register the contact in Address Book.

1. Log in to Device Management Settings (<https://ucs.ricoh.com/util/login>).
2. Click "Address Book".
3. Click "Register New Contact".
4. Click the "Contact ID" field, and then enter the Contact ID of the contact you want to register.
5. Click the "Name" field, and then enter the name of the contact you want to register.

The machine name can be up to 100 characters in length.

6. Click "Send Registration Request".

"Registration Request" appears at the top of Address Book if the request is successfully sent.

When the request is accepted by the other party, their contact is added to Address Book.

To cancel the registration request, click "Cancel".

Note

- The maximum number of entries in Address Book is 100. This number includes the number of registration requests waiting to be accepted.

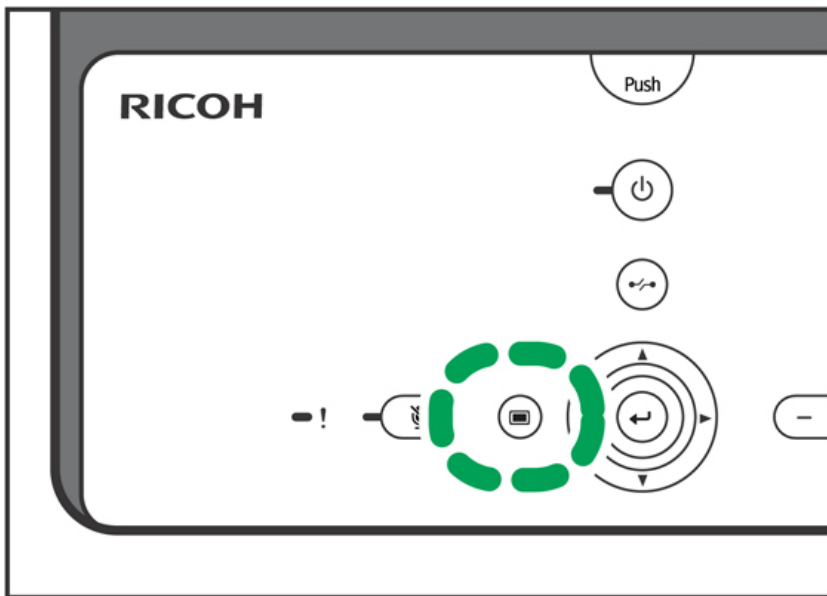
Using the Menus

This screen is used to accept registration requests, configure network settings, update firmware, and check the system information.

When the Menu screen is displayed, the machine's status switches to "Offline". You cannot connect to or receive connection from contacts when the machine's status is "Offline".

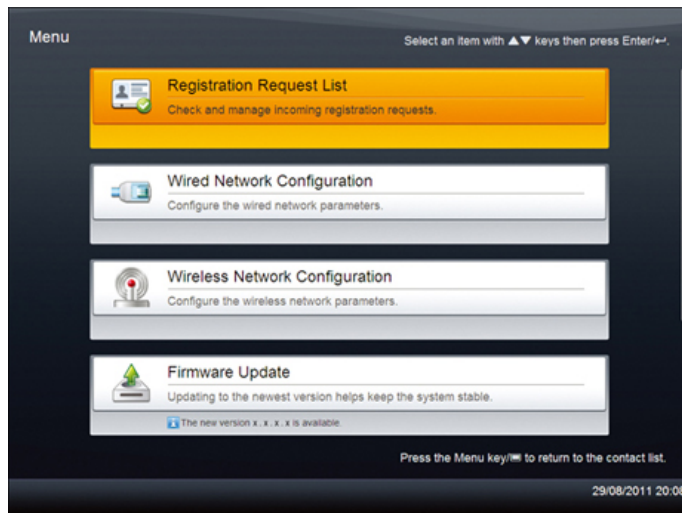
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Registration Request List



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1. Press the Menu key.



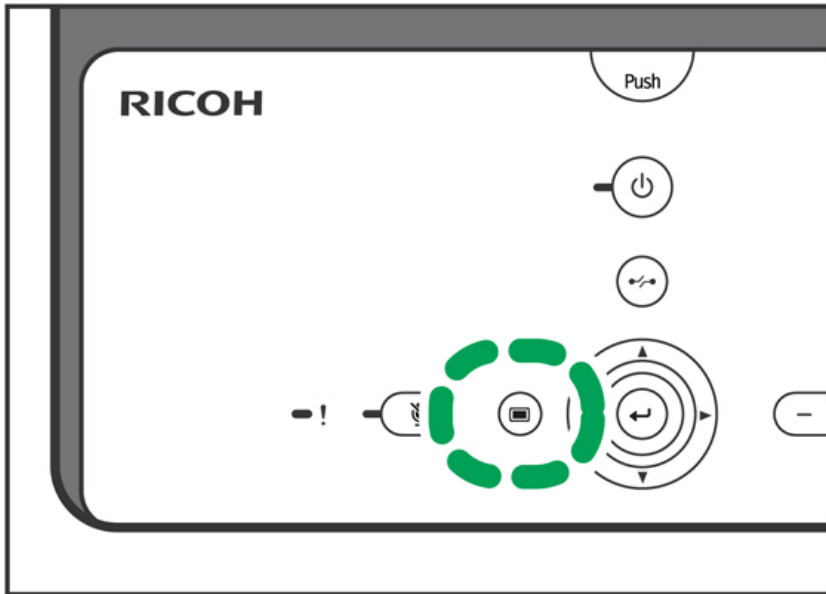
2. Press the ▼ or ▲ key to select "Registration Request List", and then press the Enter key.
3. Press the ▼ or ▲ key to select the contact you want to accept, and then press the Enter key.
4. Press the ▼ or ▲ key to select "Accept", and then press the Enter key.
5. Press the ▼ or ▲ key to select "Accept", and then press the Enter key.

The accepted contact is added to Address Book.

↓ Note

- To decline the registration request, press the ▼ or ▲ key to select "Decline", and then press the Enter key. in step 3.
- To cancel the operation, press the ▼ or ▲ key to select "Cancel", and then press the Enter key.

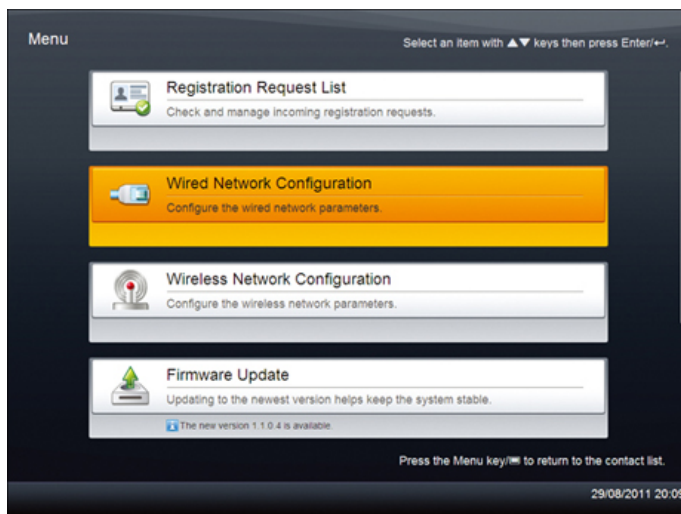
Wired/Wireless Network Configuration



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2

1. Press the Menu key if Site List screen is displayed. If the Menu screen is displayed, proceed to step 2.



2. Press the ▼ or ▲ key to select the "Wired Network Configuration" or "Wireless Network Configuration", and then press the Enter key.
3. Press the ▼ or ▲ key to select setting you want to change, and then press the Enter key.
4. Press the ▼ or ▲ key to change the setting, and then press the Enter key.

5. Press the ▼, ▲, or ► key to select "OK", and then press the Enter key if you finish specifying the settings.

If the machine needs to be restarted, a message will appear instructing you to do so. Follow the instructions given in the message to restart the machine.

2

Entering Characters

Certain settings require you to enter characters.

A character input screen appears when characters need to be entered.

Available Characters

You can enter the following characters:

- Alphabetic characters
- Symbols
- Numerals

Character Input Screens

There are two types of character input screens: the alphanumeric input screen, and the numeric input screen.

The screen that appears depends on the setting.

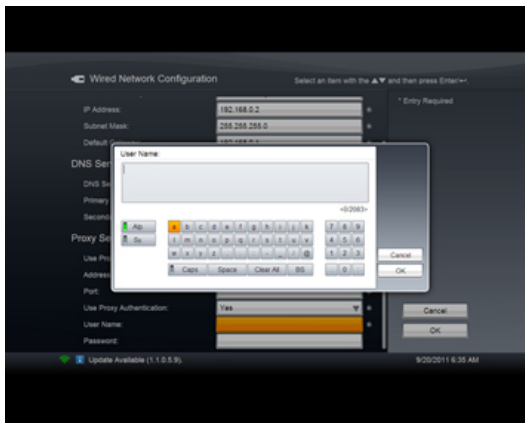
- Alphanumeric input screen

This screen allows you to enter alphanumeric characters and symbols.

You can switch between "Alp." and "Sy". for the keyboard layout.

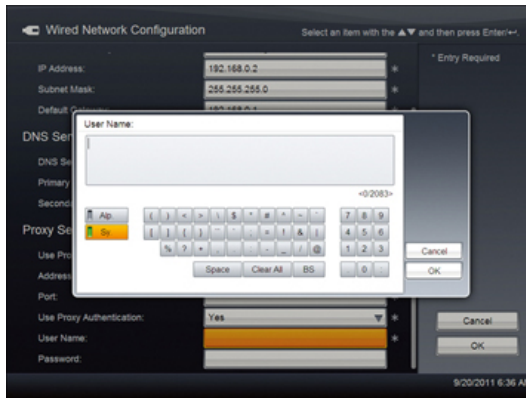
- Alp.

Switches to the alphanumeric key and symbol key layout.

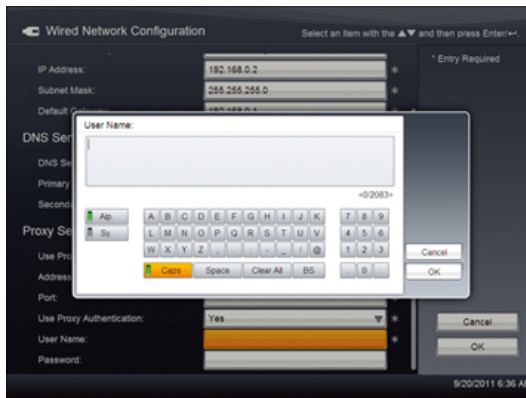


- Sy.

Switches to the symbol key and numeric key layout.



- Caps
Switches between upper-case and lower case alphabetic characters.



- Space
Enters a space.
- Clear All
Clears all the entered characters.
- BS
Deletes one character to the left of the cursor.
- Numeric input screen
This screen allows you to enter numeric characters.



- ←→
Moves the cursor to the left or right. If the cursor is moved and then a character is entered, the character is inserted to the left of the cursor.
- BS
Deletes one character to the left of the cursor.
- Clear All
Clears all the entered characters.

How to Enter Characters

1. Press the cursor keys (▼▲►◄ keys) to select the character you want to enter, and then press the Enter key.
2. When you are finished entering characters, press the ► key to select "OK", and then press the Enter key.

Setting Items

Wired Network Configuration or Wireless Network Configuration contains the following settings that can be configured.

SSID (Wireless Network Configuration only)

Specify the SSID that identifies the wireless LAN network.

The SSID can be up to 32 alphanumeric characters and symbols in length.

The SSID is case-sensitive.

Authentication Method (Wireless Network Configuration only)

Specify the authentication method for the wireless LAN.

- Network Authentication
- Encryption Method

- Encryption Key Character Set
- Encryption Key
- Key Index

If "Encryption Method" is set to WEP, specify the key index.

IP Address

Specify the IP address, subnet mask, and default gateway settings for the machine on the network.

- IP Address Configuration Method
- IP Address
- Subnet Mask
- Default Gateway

If "IP Address Configuration Method" is set to Manual Configuration, enter the IP address, subnet mask, and default gateway.

DNS Server

Specify the DNS server.

- DNS Server Configuration Method
- Primary DNS Server
- Secondary DNS Server

If "DNS Server Configuration Method" is set to Manual Configuration, enter the IP address of the DNS server.

If "IP Address Configuration Method" for "IP Address" is set to Manual Configuration, you cannot set "DNS Server Configuration Method" for "DNS Server" to Auto-Obtain.

Proxy Server

Configure the proxy server.

- Use Proxy Server
- Address / IP Address
- Port
- Use Proxy Authentication
- User Name
- Password

If "Use Proxy Server" is set to Yes, enter the IP address or the host name and port number of the proxy server.

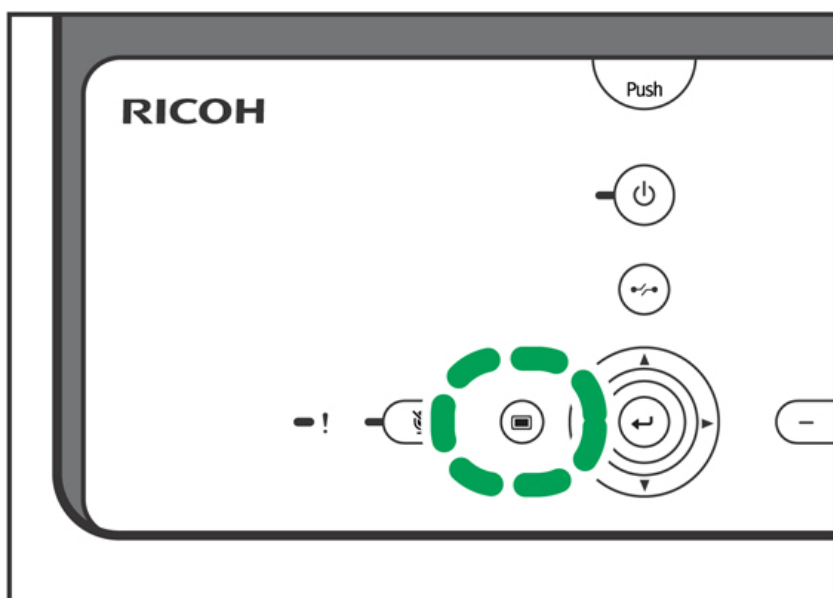
If "Use Proxy Authentication" is set to Yes, enter the user name and password.

This machine only supports Basic authentication as proxy authentication.

Firmware Update

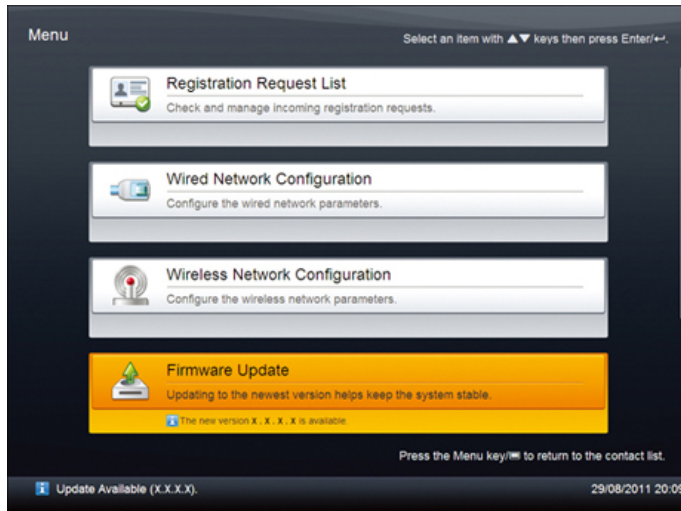
★ Important

- Do not press and hold the Power key or remove the power cord during update.
- If connection with the network is lost during an update, the update will fail. We recommend performing the update in a wired network environment.
- If a required firmware update is detected when the machine starts, the firmware update screen will appear automatically. If this happens, you cannot start a meeting or accept a registration request until the update is complete. Check the update information, and then start the update immediately.



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1. Press the Menu key if Site List screen is displayed. If the Menu screen is displayed, proceed to step 2.



2. Press the ▼ or ▲ key to select "Firmware Update", and then press the Enter key.
3. Press the ▼ or ▲ key to select "Update", and then press the Enter key.
4. Press the ▼ or ▲ key to select "Update", and then press the Enter key.

The machine automatically restarts and begins the update.

When updating the firmware to a version that is two levels higher or more, the update process repeats until the all update are complete.

To abort an update, select [Cancel] and then press the [Enter] key. Wait until the update has finished aborting before turning the machine off.

5. When the update is complete, press the ▼ or ▲ key to select "Turn Off" or "Restart", and then press the Enter key.

If you want to use the machine after the firmware update is complete, you must restart the machine.

System Information

★ Important

- The Contact ID and UI version do not appear if the machine is not connected to a network, or if it cannot connect to the service.



1. Machine Information

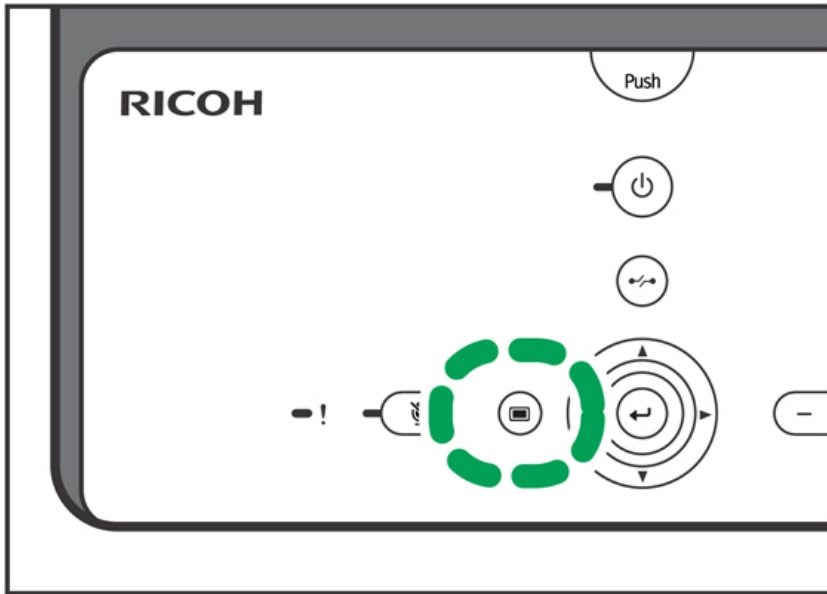
- Model Name
Indicates the model name of the machine.
- Contact ID
Indicates the Contact ID of the machine.
- Firmware Version
Indicates the current firmware version.
- UI Version
Indicates the current UI version.

2. Network

- Wired Network MAC Address
Indicates the MAC address of the machine when it is connected to a wired network.
- Wireless Network MAC Address
Indicates the MAC address of the machine when it is connected to a wireless network.

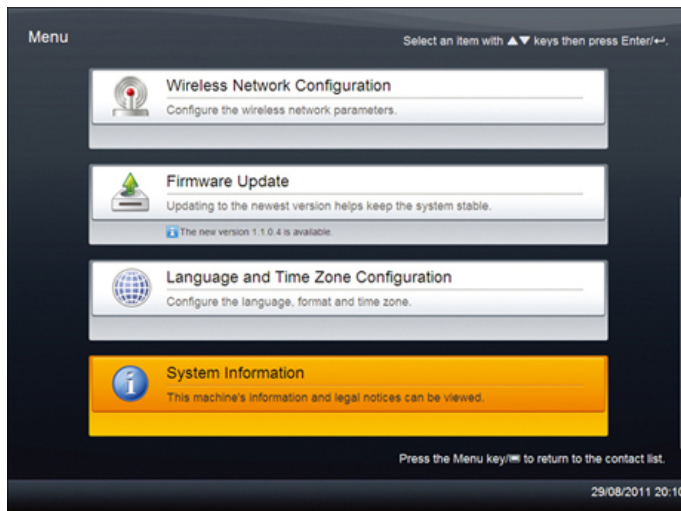
3. Product Information

- Web Site URL
Indicates the URL of the Unified Communication System home page.
- Legal Notices
You can view the copyright information for the software applications installed on this machine.

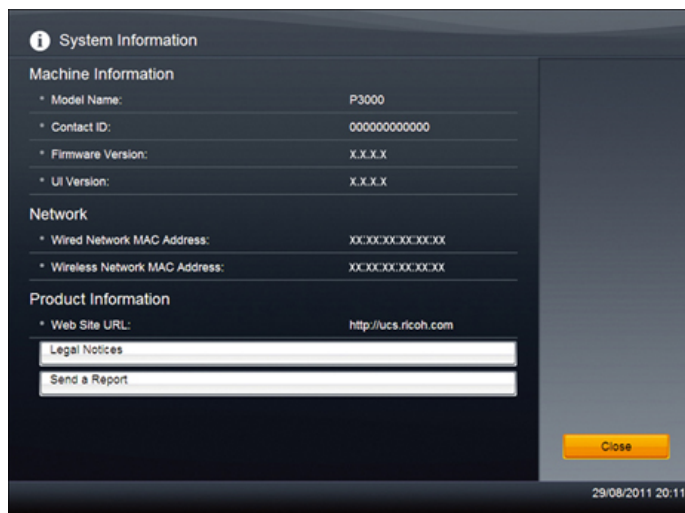


CJB021

1. Press the Menu key if Site List screen is displayed. If the Menu screen is displayed, proceed to step 2.



2. Press the ▼ or ▲ key to select "System Information", and then press the Enter key.



3. Check the system information.

If you want to check the legal notices, press the ◀ key to select "Legal Notices", and then press the Enter key.

4. After checking the system information, make sure that "Close" is selected, and then press the Enter key.

If "Legal Notices" is selected, press the ▶ key to select "Close", press the Enter key.

Using Utility

Operating Environment for Device Management Settings

The following environment is required to access Device Management Settings:

Note

- Device Management Settings can be accessed without needing to turn on the machine.

Specification	Operating environment
Computer	PC/AT-compatible machine
CPU	Pentium M 1.2 GHz or higher
Memory	512MB or higher
HDD	100 MB or more of free space
OS*1	<ul style="list-style-type: none">• Windows XP (Service Pack 3 or later) Windows XP Home Edition Windows XP Professional• Windows Vista (Service Pack 2 or later) Windows Vista Home Basic Windows Vista Home Premium Windows Vista Business Windows Vista Enterprise Windows Vista Ultimate• Windows 7 Windows 7 Home Premium Windows 7 Professional Windows 7 Enterprise Windows 7 Ultimate
Resolution	XGA (1,024×768 pixels) or higher 64,000 colors or more (recommended)
Web browser	Internet Explorer 7 or 8

Specification	Operating environment
Security settings	<p>The following security settings must be enabled on your Web browser:</p> <ul style="list-style-type: none"> • Scripting <ul style="list-style-type: none"> Active scripting • ActiveX controls and plug-ins <ul style="list-style-type: none"> Run ActiveX controls and plug-ins Script ActiveX controls marked Safe for scripting Binary and Script behaviors • Downloads <ul style="list-style-type: none"> File downloads

*1 Only the 32-bit version is supported.

Logging in to Device Management Settings

To manage Address Book or check Meeting History in Device Management Settings, you must first log in to Device Management Settings.

Device Management Settings can be accessed from a computer that is connected to Internet.

Login

1. Start your Web browser.
2. Enter the following URL in the address bar of your web browser to access Device Management Settings.

<https://ucs.ricoh.com/util/login>

The screenshot shows the login interface for the RICOH Unified Communication System. At the top, the title bar reads "RICOH Unified Communication System Device Management Settings" with a "Help" icon on the right. Below this is a dark header with the text "Unified Communication System". The main area contains a "Login" section with a "Language" dropdown menu set to "English". There are two input fields: "Contact ID:" and "Password:". At the bottom left, it says "Copyright © 2011 Ricoh Company, Ltd. All rights reserved." and at the bottom right is a "Login" button.

3. Select the Language.
4. Enter the Contact ID and the password.
5. Click "Login".

Logout

The screenshot shows the home page of the RICOH Unified Communication System after a successful login. The title bar now includes "Contact ID: 000000000000" and a "Contact" link. The "Help" and "Logout" icons are visible on the right. The main content area features a "Home" icon and three large buttons: "Address Book" (with a description: "Editing the address book, sending registration requests, and accepting or declining registration requests sent from another party can be performed."), "Meeting History" (with a description: "The meeting information can be checked."), and "Device Settings" (with a description: "The standard settings of the device can be checked and also changed.").

1. Click "Logout".

Managing Address Book

Address Book in Device Management Settings is used to manage the contacts whom you want to have meetings.

The contacts registered in Address Book are synchronized with the contacts in the Site List on the machine. When starting a meeting from the machine, you can only connect a contact registered in Address Book.

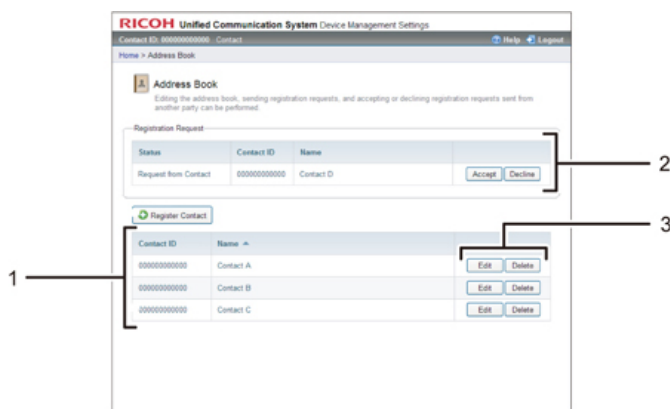
In Address Book, you can send a request to register a contact, accept registration requests from other parties, change the name of registered contacts, and delete contacts that are no longer unnecessary.

The Contact ID and name of contact is entered in Address Book as the contact information.

Name of contact is only reflected in Address Book and the machine.

The maximum number of entries in Address Book is 100. This number includes the number of registration requests waiting to be accepted.

Address Book screen



CJB026

1. List of registered contacts

Displays a list of registered contacts.

Clicking the table column header "Contact ID" sorts rows by ID number, and clicking "Name" sorts rows in the order of reading. The rows are sorted in alphabetical order by default.

2. Registration requests

Displays the contacts that have sent registration requests, as well as the registration requests that have been received.

It is not displayed if registration requests that have not been received or sent.

3. Edit/Delete

Used to edit or delete registered contacts.

3. Replacement and Adjustment

Parts Replacement

★ Important

- Please never attempt to remove the battery from the main board. If you removed, you can not repair the failure.

↓ Note

- For details about the different screw types and their respective torque, see the following:

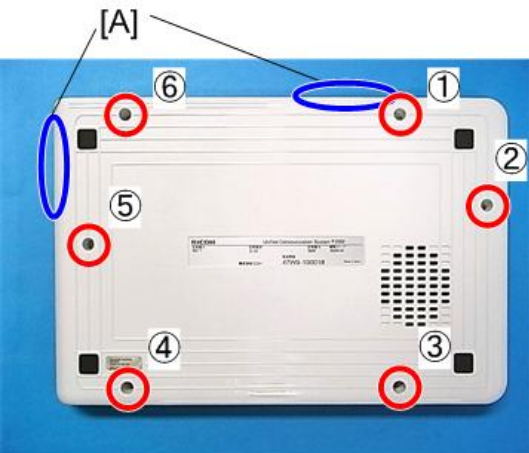
M3×4 Screw	0.507±0.05 N·m
M3×6 Screw	
M2.6×8 Tapping screw	0.358±0.035 N·m
M3×10 Tapping screw	0.6±0.06 N·m
Shoulder Tapping screw	0.343±0.03 N·m

3

Rear Cover

↓ Note

- The screws of this part has been established in order to install and remove. The order listed on the screen is at the time of removal. When assembling, please perform the installation in reverse order.



e0a01001

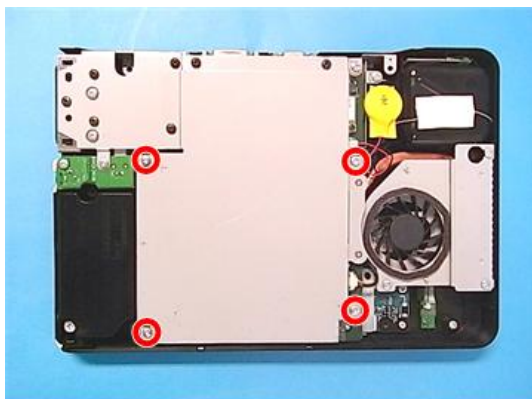
1. Rear cover (⚙️ M3×10 Tapping screw×6).

[A] : Be careful not to damage the cover or other parts when removing the cover from inside the chassis.

Memory

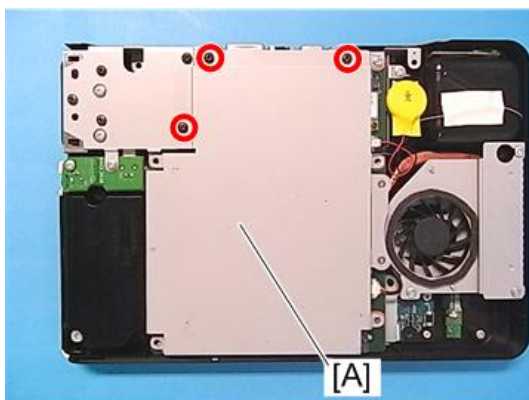
1. Rear cover (📄 "p.35 "Rear Cover"").

3



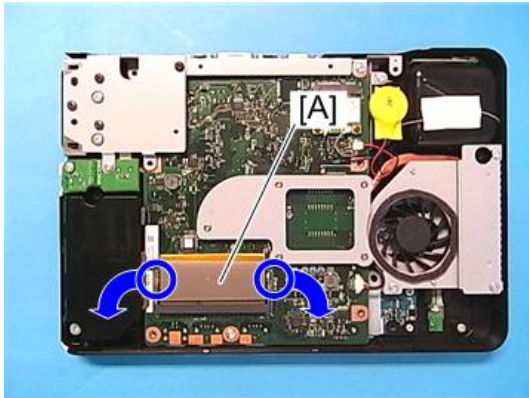
e0a01003

2. Remove the Screws (⚙️ M3×6 Screw×4).



e0a01004

3. Remove the Bracket [A] (⚙ M3×4 Screw×3).



e0a01005

4. Remove the memory [A].

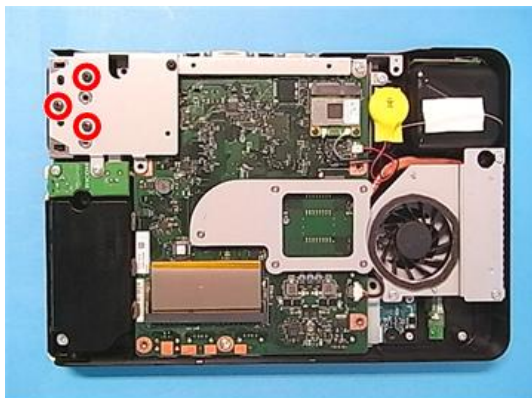
Camera Unit

1. Remove the Bracket (⚙ "p.36 "Memory"").



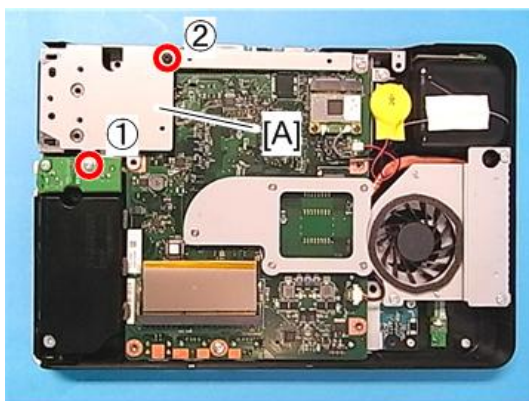
e0a01006

2. Remove the Screws (🔧 M3×10 Tapping screw×2).



e0a01007

3. Remove the Screws (🔧 M3×4 Screw×3)



e0a01008

4. Remove the bracket [A] (🔧 M3×10 Tapping screw×1, 🔧 M3×4 Screw×1).

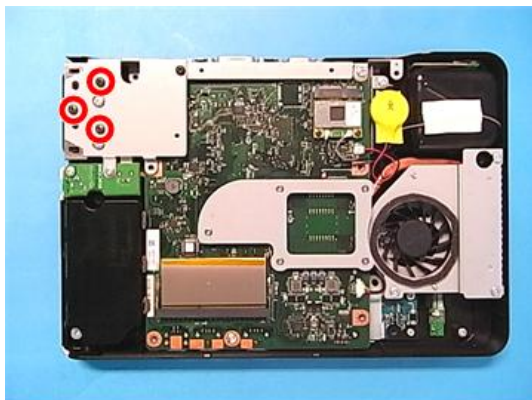


e0a01009

5. Remove the Camera unit (🔧 ×1).

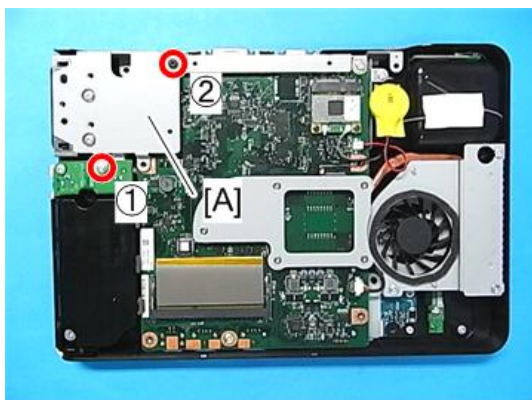
Fan

1. Remove the Bracket (Refer to "p.36 "Memory"").



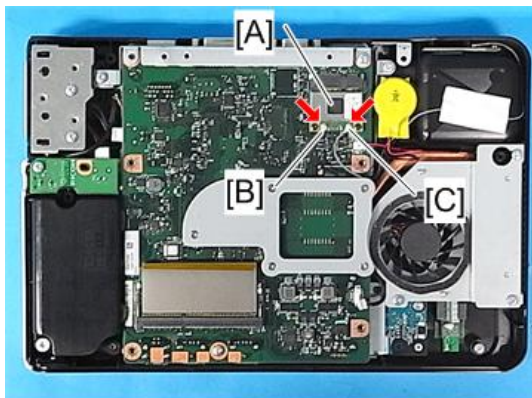
e0a01012

2. Remove the Screws (M3×4 Screw×3, M3×10 Tapping screw×1).



e0a01013

3. Remove the bracket [A] (⚙️ M3×10 Tapping screw×1, ⚙️ M3×4 Screw×1).



e0a01015

4. Remove the antenna codes on the LAN card [A] (⚙️ ×2).

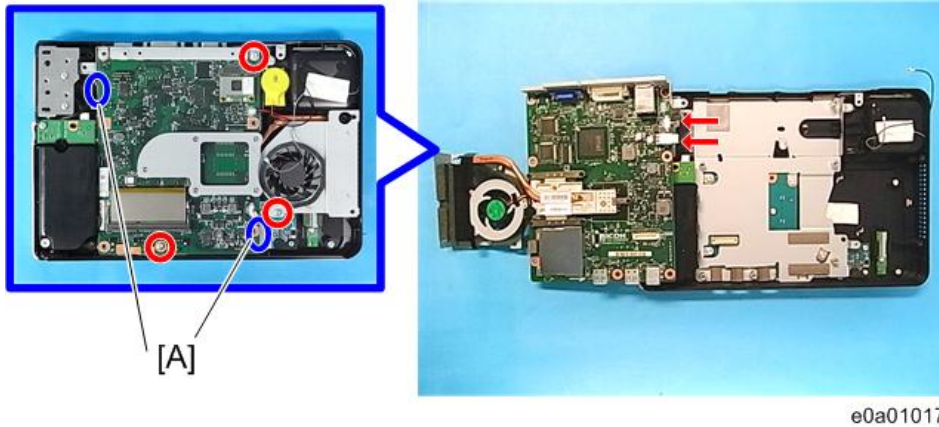
[B] : Black code

[C] : Gray code



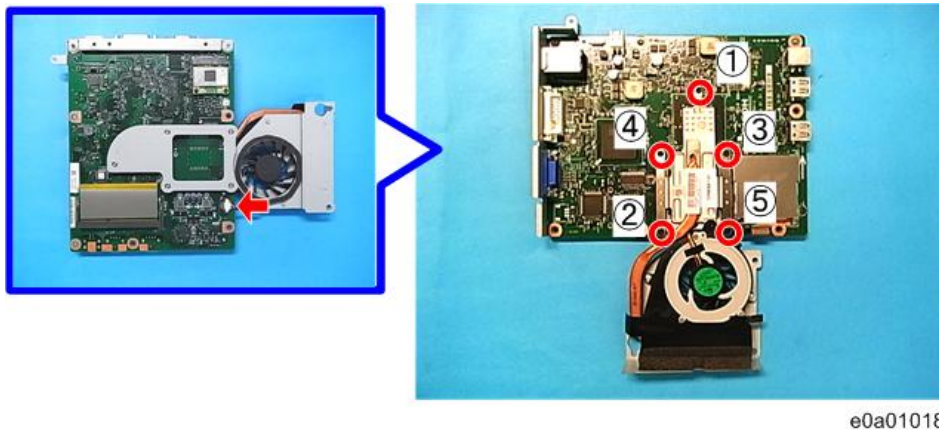
e0a01016

5. Remove the Screws (M3×10 Tapping screw×3).



6. Remove the main board assembly (M3×4 Screw×3, M3×4 Screw×2).

[A] : Remove with a point marked by blue circle.



★ Important

- Please never attempt to remove the battery from the main board. If you removed, you can not repair the failure.

7. Remove the fan unit (M3×5, M3×5×1).

CPU

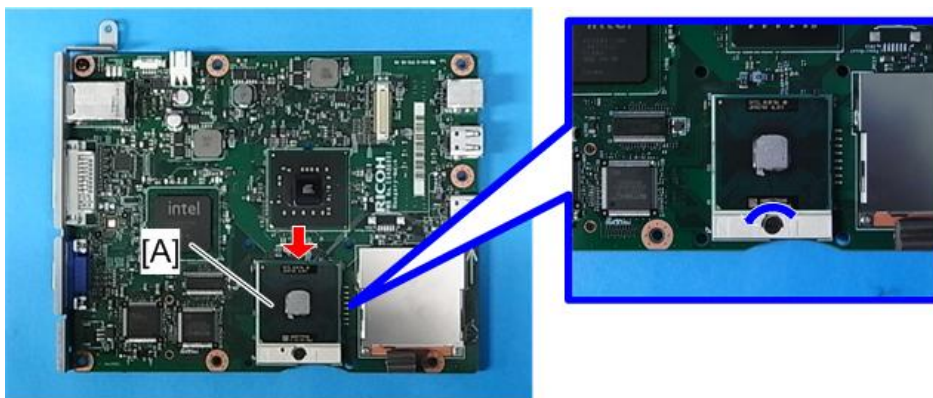
★ Important

- Please never attempt to remove the battery from the main board. If you removed, you can not repair the failure.

↓ Note

- When replacing the CPU, you must also replace the Fan.

1. Remove the Fan (Refer to "p.39 "Fan"").

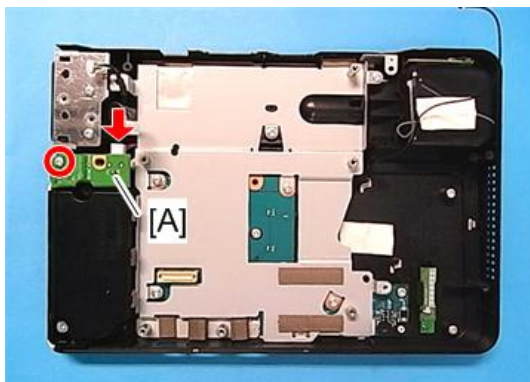


e0a01037

2. Remove the CPU [A] (Loosen the screw ①×1).

DC Board

1. Remove the Bracket (Refer to "p.39 "Fan"").

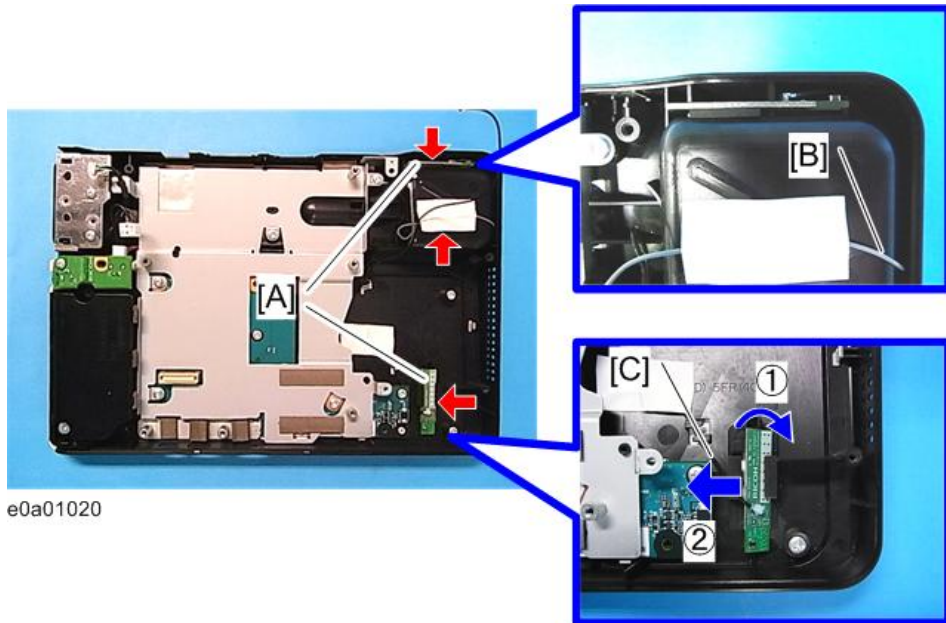


e0a01019

2. Remove the DC board [A] (M3×10 Tapping screw×1, ②×1).

Antenna Module

1. Remove the main board assembly (see "p.39 "Fan"").



2. Remove the antenna module [A].

[B] : Gray code

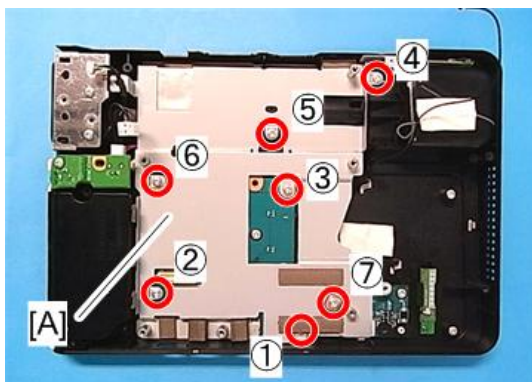
[C] : Black code

↓ Note

- The two antenna modules are of the same substrate type, but the cushion materials for each are of a different shape. Exercise care when re-inserting the antenna modules.

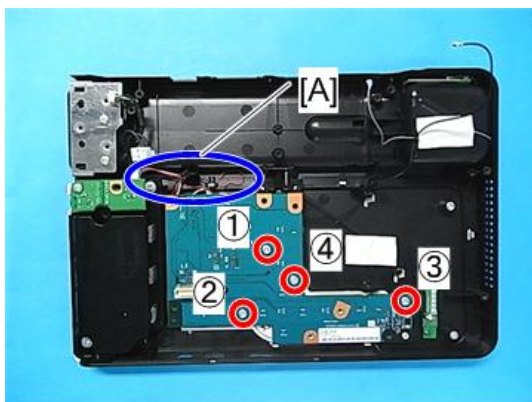
Microphone

1. Remove the main board assembly (Refer to "p.39 "Fan"").



e0a01021

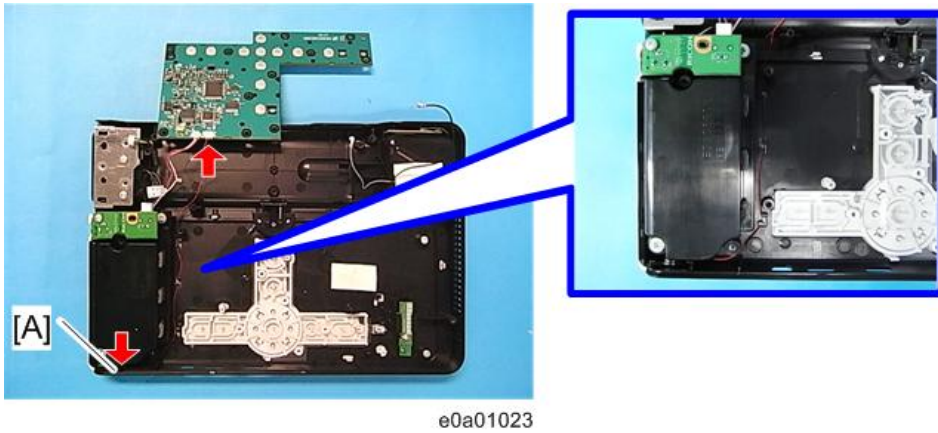
2. Remove the bracket [A] (M3×10 Tapping screw×7).



e0a01022

3. Remove the audio board (M3×10 Tapping screw×4).

[A] : When assembled, the cables that fit into this range.



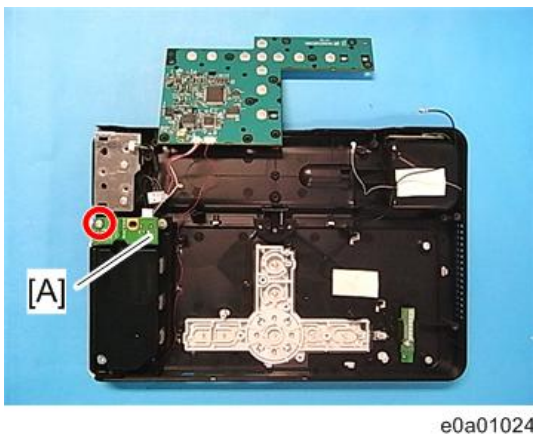
4. Remove the microphone [A] (1x1).

⚠ CAUTION

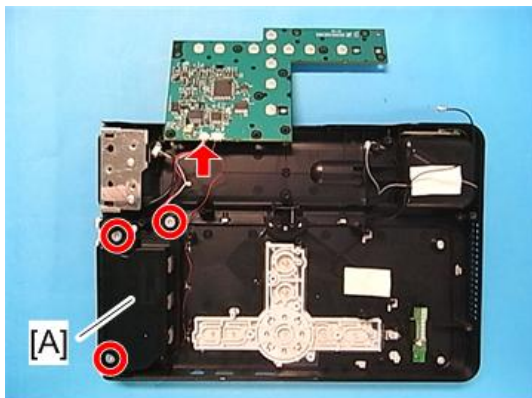
- The microphone harness is thin. When removing the microphone, make sure to hold the microphone by the connector section.

Speaker

1. Remove the Audio Board (Refer to "p.44 "Microphone"").



2. Remove the DC board [A] (⚙ M3×10 Tapping screw×1).

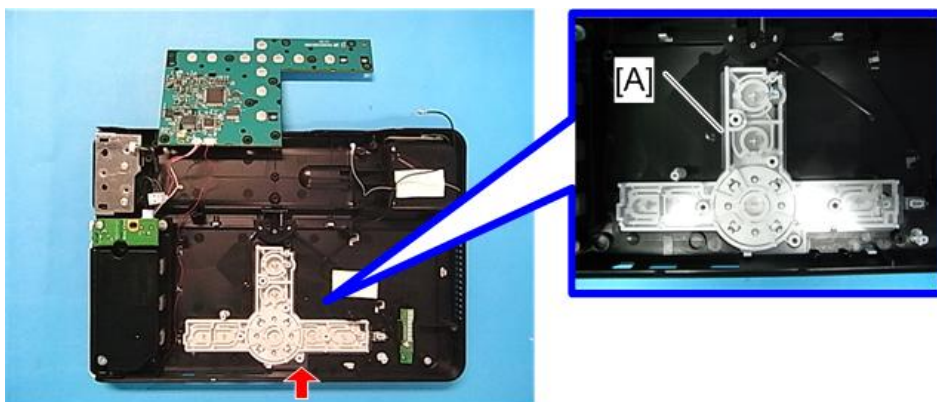


e0a01025

3. Remove the speaker [A] (⚙ Shoulder tapping screw×3, 📏×1).

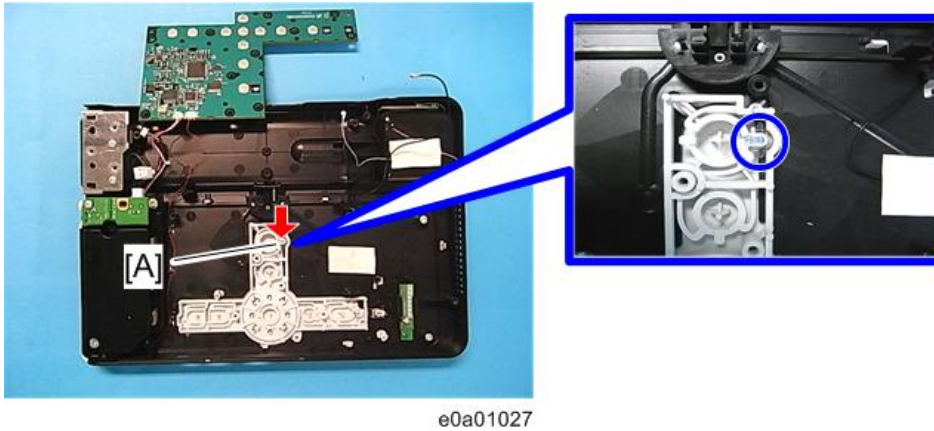
Key Top Unit

1. Remove the audio board, Microphone and Speaker (📏 "p.44 "Microphone", p.45 "Speaker"").

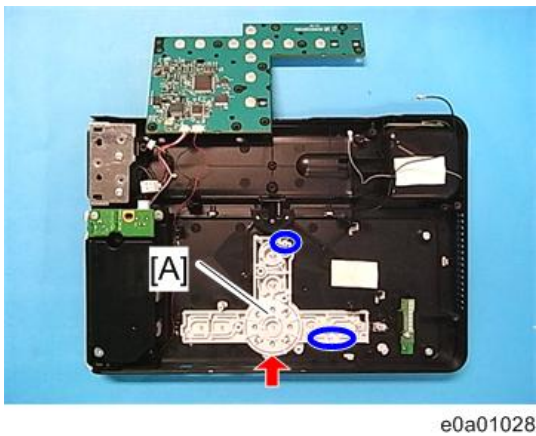


e0a01026

2. Remove the Protector [A].



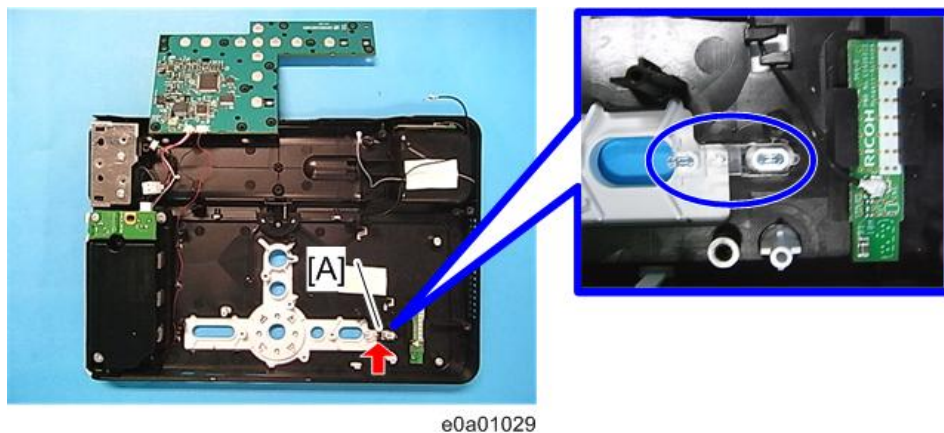
3. Remove the Lens [A].



4. Remove the Key top [A].

↓ Note

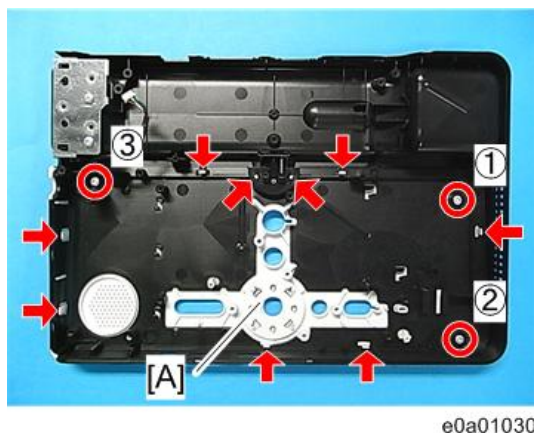
- Because pressure is applied to part [A] during assembly, use long-nose pliers to carefully pull the marked portion of part [A] and lift it up when removing the part.



1. Remove the Lens [A].

Front Cover

1. Remove the Key top unit (Refer to "p.46 "Key Top Unit"").



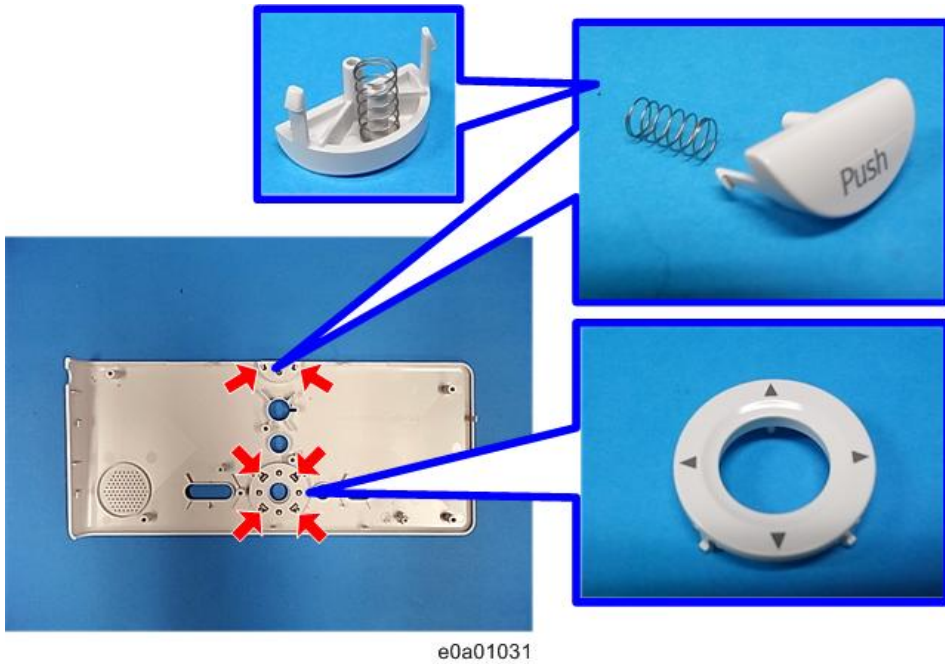
2. Remove the front cover [A] (M3×10 Tapping screw×3).

Front Cover Parts

Note

- This part is used for spring. Take care not to lose.

1. Remove the Front cover (see "p.48 "Front Cover"").



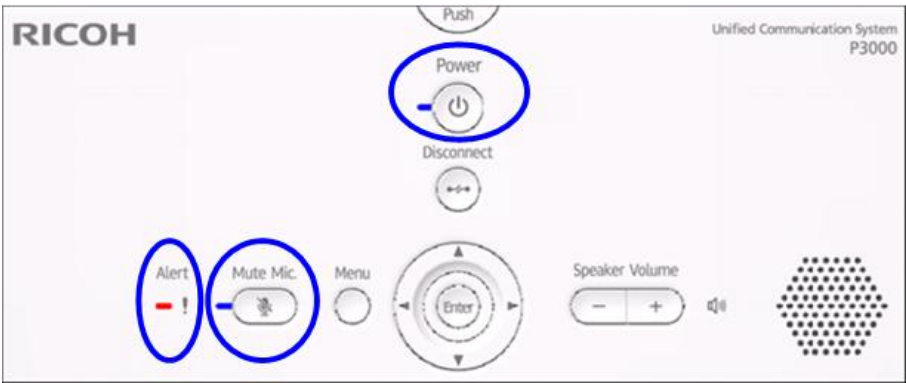
2. Remove the parts.

4. Troubleshooting

LED Behavior and Meaning

LED type

Power LED	Blue
Mute LED	Blue
Alert LED	Red



e0a01038

LED Behavior during Power-Up

When the machine is turned on, all of the LEDs light up for 0.5 seconds to verify they are operating normally.

After the check finishes, the LEDs turn off and the machine starts up.

Power LED

Status	LED	Interval of blinking
Power off	Not lit	-
Powering up/down	Blinking	0.5 sec
Standby	Lit	-

Mute Mic LED

Status	Microphone mute: ON	Microphone mute: OFF
Internal mic.	Blinking	Lit for 1.5sec, off for 0.5 sec
External mic.	not lit	not lit

Alert LED

Status	LED	Interval of blinking
Normal	Not lit	-
Hardware error	Blinking	Lit for 0.5sec, off for 0.5 sec
Other error	Lit	-


Error table



Boot sequence and errors




Explanatory notes


No	Normal boot sequence		
	Screen Transition	LED	
		Process	
	Device Errors		
	Symptom	Possible Cause	Workaround

4

1	<div>Black</div> <div></div> <div>e0a01039</div>	<div>Power LED: blinking (0.5sec)</div> <div>Alert LED: lit (0.5sec)</div> <div>Mute Mic LED: blinking (0.5sec)</div> <div>Powering up</div>	
	While powering up, the device stops and the screen remains black.	Possible HW issue.	Swap the device

3	<div>Logo screen</div> <div></div> <div>e0a01040</div>	<div>Power LED: blinking (0.5sec) Alert LED: lit (0.5sec) Mute Mic LED: blinking (0.5sec)</div> <div>The OS is booting.</div>	
	While powering up, the device automatically and continuously reboots.	Possible HW issue.	Swap the device
4	<div>Message: Starting</div> <div></div> <div>e0a01041</div>	<div>Power LED: blinking (0.5sec) Alert LED: lit (0.5sec) Mute Mic LED: blinking (0.5sec)</div> <div>Connecting to the network. Note: If the device can not connect to the network, menu screen will be displayed.</div>	
	During loading of the OS, the device stops and the screen doesn't change.	Possible HW issue.	Swap the device

6	Booting Message: Connecting to the service  e0a01041		Power LED: blinking (0.5sec) Alert LED: lit (0.5sec) Mute Mic LED: blinking (0.5sec)
	Authenticating with the central server.		
	During authentication with the central server, the device stops and the screen doesn't change.	Possible HW issue	Make sure that the central server is up. If so, swap the device.
8	Message: Loading screen data  e0a01041		Power LED: blinking (0.5sec) Alert LED: lit (0.5sec) Mute Mic LED: blinking (0.5sec)
	Downloading the UI screen from central server.		
	LED does not work	Possible HW issue.	Swap the device
10	Message: Connecting to the service  e0a01042		Power LED : Blinking (0.5sec) Alert LED : Lighting (0.5sec) Mute Mic LED : Blinking (0.5sec)
	After connecting to the service, the contact list is downloaded from the central server.		
	Freeze/reboot/power failure	Possible HW issue.	Swap the device

11	<p>Contact List screen</p>  <p>e0a01043</p>		<p>Power LED: blinking (0.5sec)</p> <p>Alert LED: lit (0.5sec)</p> <p>Mute Mic LED: blinking (0.5sec)</p>
	<p>The contact list is displayed. The device is waiting for the user to make a selection.</p>		
4	Screen/video discoloration	<p>Possible HW issue</p> <p>Possible display issue</p>	<p>Make sure the display works properly. If so, swap the device.</p>
-	-		-
	-		-
-	No sound or sound volume is too low to hear.	<p>Possible HW issue</p> <p>Possible FW issue</p>	<p>Swap the device</p>
	-		-
-	-		-
	-		-
-	Buttons do not work.	Possible HW issue.	Swap the device
	-		-
-	-		-
	-		-
-	No output from the camera.	Possible HW issue	Swap the device
	-		-
-	-		-
	-		-
-	The sound/video being received from other parties is not clear.	<p>Possible HW issue</p> <p>Possible FW issue</p> <p>Possible network issue</p>	<p>Make sure the network connection being used by both parties has sufficient bandwidth. If so, swap the device</p>
	-		-

-	-		-
			-
-	Cannot connect to the network.	Possible network issue Possible HW issue (NIC) Possible FW issue	Once network problems have been ruled out, swap the device.
-	-		-
			-
-	No sound.	Possible HW issue Possible FW issue	Swap the device
-	-		-
			-
-	Unable to share a PC screen.	Possible HW issue Possible FW issue PC Screen share driver is not installed	Make sure that the PC screen share driver is installed properly. Once the problems with the PC have been ruled out, swap the device.

Error Message

Explanatory notes

Error Code	Error Message	Situation
		Possible Cause(s):
		What to try:

0001	Machine Locked. Please call the support desk.	The device is not permitted to use.
		Problem with the users account status. It might have expired or is unpaid.
		Make sure the account is active.

0002	<p>Not Connected to the Network.</p> <p>Failed to update the firmware. It may have been caused by the following. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine and update the firmware again</p>	Failed to connect to the network after failed to update the firmware.
		Network error
		Try updating the firmware to the latest version.
0003	<p>Failed to connect to network.</p> <p>It may have been caused by the following. The network configuration is not correct. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine.</p>	The device boots up with no network connection.
		Network error
		Make sure that the device is properly configured for the network environment. Refer to the network troubleshooting sheet.
0004	<p>Network connection disconnected. The machine has been disconnected from the network due to a network error.</p> <p>It may have been caused by the following. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine.</p>	Network disconnected during power up.
		Network error
		Refer to the network troubleshooting sheet.
0005	<p>Error on Starting the Machine. Restart the machine.</p>	Authentication failed.
		Proxy setting is not correct.
		Authentication server failure.
0007	<p>Error on Starting the Machine. Restart the machine.</p>	Make sure that the device is properly configured for the network environment. Refer to the network troubleshooting sheet.
		Error occurred during boot up.
		HW error.
		Restart the device. If the error persists, swap the device.

0008	<p>Network connection disconnected. The machine has been disconnected from the network due to a network error.</p> <p>It may have been caused by the following.</p> <p>The wireless signal may be too weak.</p> <p>The network cable may be disconnected.</p> <p>Please check the network and then restart the machine.</p>	Accessing to central server is failed during power up.
		Network error
		Refer to the network troubleshooting sheet.
0011	<p>Cannot Share the PC Screen. Restart the machine.</p>	Application for PC screen share in the device error.
		Application error
		Restart the device. If the error persists, swap the device.
0101	<p>Error Occurred, Please Restart the Machine</p>	-
		HW error
		Restart the device. If the error persists, swap the device.
0102	<p>Not Connected to the Network. Due to a DNS error the machine could not connect to the network.</p> <p>It may have been caused by the following.</p> <p>The DNS server configuration is not correct.</p> <p>Please check it and then restart the machine.</p>	DNS error
		DNS error
		<p>Check that the device is properly configured to access a DNS server.</p> <p>Check that the DNS server is functioning and that the name being resolved exists.</p>
0103	<p>Not Connected to the Network.</p> <p>Failed to connect to the network. It may have been caused by the following. The network configuration is not correct. The wireless signal may be too weak. The network cable may be disconnected.</p> <p>Please check the network and then restart the machine.</p>	<p>Network connection disconnected by physical cause.</p> <p>Or an error happens in central server.</p>
		Central server or network error
		Refer to the network troubleshooting sheet.

0104	Not Connected to the Network. Failed to connect to the network. It may have been caused by the following. The network configuration is not correct. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine	Network connection disconnected by network environment
		Network error
		Refer to the network troubleshooting sheet.
0105	Not Connected to the Network. Failed to connect to the network. It may have been caused by the following. The proxy configuration is not correct. Please check it and then restart the machine	Proxy authentication error
		Proxy setting is wrong
		Make sure that the device is properly configured for proxy authentication.
0106	Error Occurred. Press and hold the Power key for more than 4 seconds to restart the machine	User operation is ignored when this error is displayed.
		HW error
		Restart the device. If the error persists, swap the device.
0201	Error occurred. Restart the machine.	Unknown
		HW error
		Restart the device. If the error persists, swap the device.
0202	Network connection disconnected. The machine has been disconnected from the network due to a network error. It may have been caused by the following. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine.	Network disconnected. If OK is clicked, the device tries to connect to the network again.
		Network error
		Refer to the network troubleshooting sheet.
0203	Error Occurred, Please Restart the Machine	System error occurred.
		System bug.
		Restart the device. If the error persists, swap the device.

0204	Error occurred. Leave the meeting and restart the machine.	Unknown
		There is a low possibility of network error.
		Refer to the network troubleshooting sheet.
0205	Not Connected to the Network. Failed to connect to the network. It may have been caused by the following. The network configuration is not correct. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then restart the machine.	If network setting is changed and they are invalid, this error is shown.
		Central server or network error
		Refer to the network troubleshooting sheet.
0206	Error occurred. Leave the meeting and restart the machine.	System error occurred during meeting.
		System error.
		Restart the device. If the error persists, swap the device.
0301	Check the Microphone Speaker. If the microphone speaker does not work properly then please restart the machine.	The device couldn't recognize the external microphone speaker. Restart might not be needed.
		HW (Microphone Speaker) error
		Reconnect the Microphone Speaker and restart the device. If the microphone speaker does not work properly, swap the device.
0302	Error Occurred, Please Restart the Machine	The device couldn't recognize the external microphone speaker. Restart is needed.
		HW (Microphone Speaker) error
		Reconnect the Microphone Speaker and restart the device. If the microphone speaker does not work properly, swap the device.
0401	Error While Configuring. Please restart the machine	-
		-
		-

0402	Error While Configuring. Please configure it again.	-
		-
		-
0501	Failed to Start Meeting. There may be a problem either with the network or you and another party have performed an operation simultaneously. Please try again.	Some parties have performed a same operation (call each other) simultaneously.
		Central server or network error
		Refer to the network troubleshooting sheet.
0503	Disconnected from the Meeting. The machine has been disconnected from the meeting due to a network error. It may have been caused by the following. The wireless signal may be too weak. The network cable may be disconnected. The network bandwidth may be insufficient. Please check the network and then start the meeting again	There is a high possibility that an error occurred by other than network disconnection.
		Central server or network error
		Refer to the network troubleshooting sheet.
0504	Disconnected from the Meeting. The machine has been disconnected from the meeting due to a network error. It may have been caused by the following. The wireless signal may be too weak. The network cable may be disconnected. Please check the network and then select [OK]. The machine will then try to connect to the network again.	Network disconnected during meeting. If click OK, the device tries to connect to the network again.
		Central server or network error
		Refer to the network troubleshooting sheet.
0509	Information Unavailable. Switch the screen layout again.	Failed to download contact list view from central server.
		Central server or network error
		Refer to the network troubleshooting sheet.
0510	Failed to Switch Screen Layout. Switch the screen layout again.	Failed to change the screen layout during meeting.
		Central server or network error
		Restart the device. If the error persists, swap the device.

0601	Failed to Save Configuration. Select [Cancel] to return to the menu and then change the settings again.	Failed to save network setting configuration.
		HW error
		Restart the device. If the error persists, swap the device.
0602	Failed to Obtain IP Address Automatically. The configuration has been saved, but the machine failed to obtain the IP address. It may have been caused by the following. The configuration of the authentication method or SSID may be incorrect. There may be a problem with the DHCP environment. The wireless signal may be too weak. The network cable may be disconnected. If you are using a wireless network please first check the network configuration. If the configuration is correct or the network is wired then next please check the network and then restart the machine.	Failed to save network setting configuration.
		Network error (Failed to obtain IP address)
		Make sure that the device is properly configured for network environment. (DHCP/DNS)
0701	Failed to Process Registration Request. Accept or decline the registration request again.	Error occurs during accepting the contact request.
		Central server or network error
		Refer to the network troubleshooting sheet.
0702	Check the Registration Request List. If unprocessed requests exist please accept or decline them again.	-
		Central server or network error
		Refer to the network troubleshooting sheet.
0801	Error Occurred During Meeting. Press the Disconnect key to leave the meeting.	HW error occurs during meeting. Restart is needed.
		HW error
		Restart the device. If the error persists, swap the device.

0902	Failed to Share the PC Screen. Please select [Start Sharing] on your PC again.	Failed to start PC screen share. Reboot is not necessary.
		HW error
		Restart the device. If the error persists, swap the device.
0904	PC Screen Share Error. To share the PC screen, leave the meeting and restart the machine.	PC screen share error occurred during meeting. It is possible to continue the meeting.
		HW error
		Restart the device. If the error persists, swap the device.
1001	<p>Disconnected from the Network.</p> <p>The machine has been disconnected from the network. It may have been caused by the following. The network bandwidth may be insufficient. The wireless signal may be too weak. The network cable may be disconnected.</p> <p>Please check the network.</p>	Error occurred during boot up.
		Network error
		Refer to the network troubleshooting sheet.
1002	<p>Failed to Update the Firmware.</p> <p>Restart the machine and update the firmware again.</p>	Failed to complete firmware update.
		System error
		<p>Try updating the firmware to the latest version.</p> <p>If the error persists, swap the machine.</p>
1003	Error Occurred, Please Restart the Machine	Firmware error occurred.
		Firmware error
		Restart the device. If the error persists, swap the device.

1101	Error Occurred, Please Restart the Machine	-
		System error
		Restart the device. If the error persists, swap the device.
1102	Error Occurred. Leave the meeting and restart the machine.	-
		System error
		Restart the device. If the error persists, swap the device.
1103	Failed to Obtain Signal Strength. Restart the machine.	Failed to obtain wireless signal strength. Actually, it is highly possible that the device is not connected to the network.
		System error
		Restart the device. If the error persists, swap the device.
1104	Failed to Obtain Signal Strength	Failed to obtain wireless signal strength. Actually, it is highly possible that the device is connected to the network.
		System error
		Restart the device. If the error persists, swap the device.
1201	Failed to Obtain the System Information. Restart the machine.	Failed to obtain the system information.
		System error
		Restart the device. If the error persists, swap the device.
1302	Failed to Update the Firmware. Restart the machine and update the firmware again.	This error message is shown when failed to update the firmware and to connect to the network after the reboot.
		Central server or HW error
		Check the central server. If the central server works fine, swap the device.

1303	Network Disconnected During Update. The machine could not update the firmware. Please check the network, restart the machine and then update the firmware.	This error message is shown when failed to update the firmware and to connect to the network after the reboot.
		Network error
		Try updating the firmware to the latest version.
1304	Failed to Obtain Firmware Update Info. To update the firmware, restart the machine.	Failed to obtain firmware update information.
		Central server or network error
		Refer to the network troubleshooting sheet.
None	Connection Failed. Could not connect with the following contact.	This error is shown when the call was rejected.
		The call was rejected by the recipient.
		Call again.
None	Discontinue Connection The other contact(s) did not respond.	The call went through but the recipient did not pick up.
		Call time out.
		Call again.
None	Call Failed. The number of participating contacts has reached the maximum.	The number of participating clients has reached the limit of 20 when start calling.
		The number of participating clients has reached the limit of 20.
		Adjust the participants.
None	Call Failed. Call Again.	-
		The caller was deleted from the recipient's contacts list right as the call was being placed. Or the status of the receiver is changed when call was being placed.
		Call again.

None	Connected USB Device is Inactive. To use the external microphone speaker please connect it before starting the meeting.	A USB device was connected after a meeting was already started.
		A USB device was connected after a meeting was already started.
		Leave the meeting, connect the USB device, and start the meeting again.
None	The USB Device has been Disconnected. Please do not disconnect the USB device during the meeting.	A USB device was disconnected during the meeting.
		A USB device was disconnected during the meeting.
		Connect the disconnected microphone speaker.
None	Before using this machine. The machine must be connected to the network. Currently no connection is available. Please check the network configuration.	The machine is not connected to the network after boot up first.
		The machine is not connected to the network.
		Establish connectivity with the network. If external microphone speaker is connected when booting up, disconnect the microphone speaker.
None	The firmware must be updated before the meeting service can be used.	There is required firmware update.
		A firmware upgrade is required before the iHub can be used.
		Try updating the firmware to the latest version.

When a acoustic feedback noise can be heard

↓ Note

- Because the automatic learning function of the echo canceller is active for approximately 5 to 10 seconds after a meeting starts, you may hear a loud noise or acoustic feedback for a short while. Although this noise dramatically lowers the audio quality and makes it difficult to hear the other party at the beginning of the meeting, there is nothing wrong with the machine.

- The audio quality gradually improves as you continue the meeting and speak with the other party.

If the machine is being used in one of the following locations, move the machine to a different location.

Inappropriate location	Solution	Description
Audio from the other party can be heard directly.	Move away to a place where audio from the other party cannot be heard directly.	Direct audio input from the other party into the microphone produces repeated feedback. This feedback is not canceled by the echo canceller, resulting in a acoustic feedback noise.
The machine is set next to a wall.	Keep the machine away from walls.	If the level of the sound input exceeds the capacity of the echo canceller, some of the echoes cannot be canceled, resulting in a acoustic feedback noise.
The machine is placed next to a device that generates noise.	Keep the machine away from devices that generate noise.	If the volume of noise exceeds the capacity of the noise reduction function used to cancel noise, the remaining noise that is not canceled will generate repeated feedback, resulting in a acoustic feedback noise.
Room that echoes	Lower the volume of the speaker and adjust the orientation of the machine.	If the cycle of the sound input is longer than the cancelable time (up to 128 ms) of the echo canceller, some echoes cannot be canceled, resulting in a acoustic feedback noise. To reduce the amount echoes, lower the volume of the speaker and turn the machine to face a direction in which echoes are not picked up easily.

* This table applies to both the internal and external speaker.

Avoid doing the following things when using the machine.

Inappropriate use	Solution	Description
Your have placed your hand or object in front of the microphone.	Do not place your hand or object in front of the microphone.	The echo canceller cannot handle abrupt changes in the acoustic environment and fully cancel echoes, resulting in a acoustic feedback noise.
The machine is moved during a meeting.	Before moving the machine, set Mic Mute to ON. After you finish moving the machine, reset Mic Mute to OFF.	The echo canceller cannot handle abrupt changes in the acoustic environment and fully cancel echoes, resulting in a acoustic feedback noise.
The speaker volume is too loud.	Lower the volume of the speaker.	If the level of sound input exceeds the capacity of the echo canceller, some echoes cannot be canceled, resulting in a acoustic feedback noise. If the speaker output is distorted, the echo canceller cannot handle the distortion, resulting in a acoustic feedback noise.
The external microphone speaker is placed next to the fan outlet of the machine. * Only when an external microphone speaker is being used.	Keep the external microphone speaker away from the fan outlet.	If the volume of fan noise exceeds the capacity of the noise reduction function, the remaining noise that is not canceled will generate repeated feedback, resulting in a acoustic feedback noise.

* This table applies to both the internal and external speaker.

Echo canceller: Automatically cancels echoes.

Noise reduction: Automatically cancels noise.

Network Trouble Shooting

For both wired and wireless connections

Questions	Causes	Solutions
The machine failed to start	One of the network settings is incorrect, such as the IP address, subnet mask, or default gateway.	Check the network settings
	MAC addresses are limited. (When using DHCP, the machine fails to obtain an IP address.)	Improve the ambient environment. Register additional MAC addresses.
	<ul style="list-style-type: none">• A required proxy server setting is not specified.• A proxy server is specified even though it does not exist.• A proxy server setting is incorrect.	Review the proxy server settings.
	When using a fixed IP address and a proxy exists: The proxy server name has not been resolved by DNS.	<ul style="list-style-type: none">• Configure the PC to use the same DNS and proxy server settings, and then use a browser to check whether it passes proxy authentication.• Configure the DNS settings so that DNS can resolve the proxy server name. When using the machine in a R-WAN: Use the same DNS settings for the entire company. <ul style="list-style-type: none">• Preferred DNS:165.96.170.104• Alternate DNS:192.168.242.10

Questions	Causes	Solutions
Failure to start a meeting	<p>When no proxy is used:</p> <ul style="list-style-type: none"> • A port for TCP (17992 or 17990) or UDP (50000-65535) is closed. • The UDP packets are distributed to an inappropriate server, such as a Video on Demand server. <p>When using a proxy:</p> <ul style="list-style-type: none"> • The machine leaves the meeting by mistake because it takes longer than expected to start. (There are times it may take 30 seconds or more.) 	<p>When no proxy is used:</p> <p>Improve the ambient environment.</p> <ul style="list-style-type: none"> • Confirm that the required ports are open. • Use a tool to check the ports or consult the network administrator. • Reconfigure the settings for the router that distributes UDP packets. • Connect to an upstream path that is at a higher level than the distributing router. Consult the network administrator. <p>When using a proxy:</p> <p>Wait a while and then retry.</p>

For wired connections only

Questions	Causes	Solutions
The machine failed to start	The cable is broken or the hub has failed.	<p>Improve the ambient environment.</p> <ul style="list-style-type: none"> • Check whether the indicator LED for the port is on. If the LED is off, replace the cable or reconnect it to a different port on the hub. If the hub has failed, replace it. • Check whether the cable latch and connector are firmly engaged. Do not use a cable that has a broken latch.

Questions	Causes	Solutions
The machine failed to start A PC can connect to a network with the same network settings.	The spanning tree function of the switch connected to the MD discards the request issued when the meeting is started.	<p>Improve the ambient environment.</p> <ul style="list-style-type: none"> • Install a hub between the switch and MD. • Disable the spanning tree function on the port of the switch connected to the MD. (You must check with the network administrator to determine whether this can be done.)

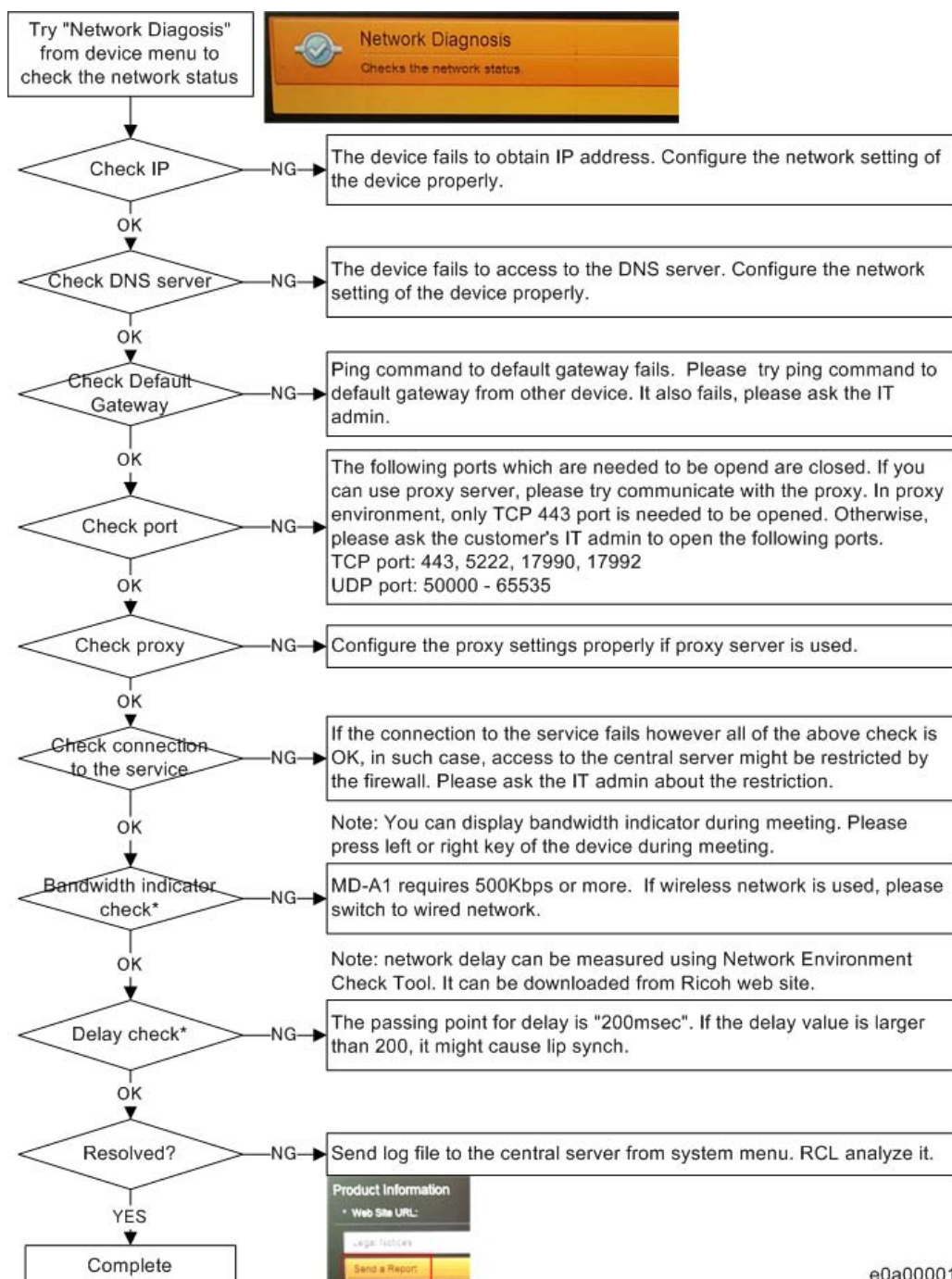
For wireless connection only

Solutions
<p>To fix this problem, the following measures can be performed on the terminal side:</p> <ul style="list-style-type: none"> • Switch to a wired communication • Do not use a proxy server. • Place the machine as close as possible to the access point. <p>Improve the ambient environment.</p> <ul style="list-style-type: none"> • Turn off any unused wireless LAN devices or other devices using the same frequency range (such as a microwave oven), or eliminate the electromagnetic interference. • Use a network projector. If any of the problems shown on left occur, disable the wireless LAN function of the projector. (For details, see "Disabling the wireless function of a Ricoh network projector".) • If multiple access points exist, specify channel settings that are at least five channels apart (for example, 1ch and 6ch, or 7ch and 12ch). • Keep conductive objects such as metal away from the machine. • Do not obstruct the access point (such as setting the access point near a wall, standing in front of the access point, or placing furniture in front of it). • Do not use an IEEE802.11b wireless LAN device. (In a wireless environment in which both 11b and 11g exist, packet control is implemented to avoid packet conflicts, which in turn causes the speed to decrease. There are also times 11b is used for communication because it has a lower rate.) • If an access point that supports IEEE802.11n is available, use Single Channel (20 MHz).

Questions	Causes
The video stream of the meeting stops.	This is a Video specification limitation. If there is a lack of bandwidth for wireless communication, the video is cut off and only the audio is played.
The video as if it is being played frame by frame.	The lack of bandwidth during wireless communication causes the frame rate to decrease.
The audio cuts in and out.	This problem occurs because electromagnetic interference and a lack of bandwidth causes wireless communication to be temporarily lost.
The video and audio fall out of sync, with the audio being heard first.	Lip sync (for synchronizing video and audio) does not work properly because there is a lack of bandwidth for wireless communication.
There seems to be an echo in the audio.	The echo cancelling function fails to work properly because there is a lack of bandwidth for wireless communication.
The meeting ends or is left abruptly. (This occurs when video and audio are lost for approximately five seconds.)	This problem occurs because electromagnetic interference and a lack of bandwidth causes wireless communication to be temporarily lost. As a result, the machine becomes disconnected from the access point.
A delay occurs when PC Screen Share attempts to switch to a different screen.	This problem occurs because there is a lack of bandwidth for wireless communication. As a result, the recommended communication speed (1 Mbps or more) is unavailable.
If video stops for a set length of time while displaying multiple contacts, the contacts disappear from the screen (and only audio is output).	This problem occurs because there is a lack of bandwidth for wireless communication. To optimize all the contacts, the downstream direction is given priority over the upstream direction.
A delay occurs when obtaining the contact list or updating a contact status display, or it becomes impossible to do either.	This problem occurs because there is a lack of bandwidth for wireless communication.

Questions	Causes
The firmware update takes longer than expected, and fails before it is complete.	This problem occurs because the wireless communication speed decreases when there is a lack of bandwidth for wireless communication. This results in electromagnetic interfere that causes wireless communication to be temporarily lost.
There are times the machine fails to start	This problem occurs as result of electromagnetic interference that prevents the machine from connecting to the access point while starting (50-second timeout).
There are times the machine fails to connect	This problem occurs because not enough bandwidth (256 kbps or more) can be reserved when starting a meeting.
The screen becomes garbled when the layout is changed. (This screen remains garbled until the video to be displayed reaches the machine.)	This problem occurs because there is a lack of bandwidth for wireless communication.

Network Troubleshooting Flow



Problems when using Device Management Settings

Problem	Possible cause/location	Solution/Judgment
The Device Management Settings page is not displayed.	PC Settings	<p>Your Security Settings in Internet Explorer must be configured to enable the following settings:</p> <p>Scripting</p> <ul style="list-style-type: none"> • Active scripting <p>ActiveX controls and plug-ins</p> <ul style="list-style-type: none"> • Run ActiveX controls and plug-ins • Script ActiveX controls marked Safe for scripting • Binary and Script behaviors <p>Downloads</p> <ul style="list-style-type: none"> • File downloads
The layout of Device Management Settings is corrupted.	Setting the browser/OS font	Decrease the font size in your browser/OS
The layout of Device Management Settings is corrupted.	Magnification in Internet Explorer	In Internet Explorer 7, set the browser's zoom level to 100%.
Cannot log into Device Management Settings.	The date set on the PC indicates a future date (which is later than the expiry for the session).	Set the PC to the current date.
The screen sharing software does not start automatically.	An appropriate USB driver is not installed.	Install the appropriate USB driver.

Restrictions

Handling This Product

1. Observe the following points when moving the machine:

Turn off the machine and remove the power plug from the AC outlet.

Remove all the connector cables connected to the machine.

- When carrying the machine by hand
 - Use the bag that comes with the machine.
 - When traveling by plane, take this machine onboard as carry on luggage.
- When Transporting the Machine

This machine contains a large number of glass and precision parts. Observe the following points to prevent the machine from being damaged by excessive shock:

- Wrap the machine in cushioning material to prevent it from being directly exposed to shock.
 - Place the machine in the supplied bag and pack it in the original box or a sturdy cardboard box.
 - Inform the carrier that the machine is a piece of precision equipment.
 - For more information about transporting the machine, consult your carrier.
1. Avoid contact with rubber and plastic materials for an extended period of time. Doing so may lead to discoloration or cause the exterior coating to peel off.
 2. The screen sharing software does not start automatically.

Using the machine for an extended length of time may cause the machine to fail or shorten its product life.

Cleaning

1. Never use benzene or thinner to clean the machine. Doing so may lead to deformation, discoloring, or cause the exterior coating to peel off.
2. Do not use a chemically treated cloth.
3. Remove the dust that accumulates in the air outlet and inlet periodically. If the air outlet or inlet becomes clogged, the flow of air inside the machine decreases. Poor air flow can result in failure.

Copyright Notice

1. Using this machine to perform any of the following acts, without permission from the copyright holder, for purposes other than personal use may constitute an infringement on the copyright and/or neighboring rights of the commercial video software or cable broadcasting program. These acts include broadcasting or transmitting commercial video software or cable broadcasting programs, modifying videos, such as by freezing, or resizing videos to be displayed in an aspect ratio different from the original. To avoid the risk of possible infringement, we advise you to obtain permission from the copyright holder and take all other measures necessary before performing any of the above-mentioned acts.

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Electromagnetic Interference

1. Interference may occur if the machine is placed next to other electronic devices.
In particular, noise may be generated if the machine is placed near a television or radio.

If noise or interference occurs, take the following actions:

- Place the machine as far away as possible from the television or radio.
- Readjust the direction of the television or radio antenna.
- Use different AC outlets.

Precautions for Use

1. A separate video output device (such as a monitor or projector) is required in order to use this product.
2. Be sure to use the power cord set and USB cable included with the machine.
3. Pack and store the machine together with the power cord set, USB cable, and Quick Guide in the supplied bag. Do not store any other items in the supplied bag.

System Operations

1. Start-up

If the line quality when the machine starts up is below the guaranteed bandwidth (500 Kbps up and down), the following dialog box is displayed and the machines does not start even if the network is configured properly.

---- Dialog box description -----

The network connection was lost during start-up.

Likely causes are as follows:

- The required network bandwidth is not secured.
- The wireless reception is poor.
- The network cable became disconnected.

Check that there is no problem with the state of the network.

2. Performance

No video or audio is encrypted.

The times it takes to access the Destination List screen after turning on the machine is as follows:

- Automatic IP address setting (DHCP): 32 seconds or less

(Wired LAN, no proxy, ping response: 30 ms or less)

- Manual IP address/DNS setting: 52 seconds or less (typical)

- During start-up, the machine displays a progress bar together with the message "Starting..."

Frame dropping may occur or audio may be choppy due to network delays or high resource load inside the machine.

3. Wireless

If there are many wireless LAN access points near the machine, it may fail to connect to wireless LAN (or may fail to start up as a terminal).

4. Operating Environment

If the P3000 is directly connected to a switch on which spanning tree is enabled, the P3000 cannot start up.

5. Contact List screen

Sort order cannot be changed on the Destination Contacts List screen.

If a terminal suddenly loses the network connection or turns off during a meeting, the following problems may have occurred:

- Although the terminal that lost the network connection is in offline state, its presence is indicated on the Destination List screen of the other terminal as "waiting" for up to two minutes.

* Presence: Indicates the current status of a terminal having a meeting as either Ready, Offline or Meeting on the Contact List screen.

- On the center server, the meeting end time for the terminal that lost the network connection is extended by up to two minutes.

6. Call Initiation

If the presence of a terminal changes at the time when a call is initiated to it (as seen in the following case), the meeting may fail to start. If the call is initiated again, the terminals are connected normally.

- The Contact List screen shows that the other terminal is Ready.

- Selecting the other terminal and pressing the Enter button displays the "Do you want to connect with this contact?" screen.
- The other terminal goes offline when the "Do you want to connect with this contact?" screen is still displayed.

* Call initiation also fails if the presence of the other terminal changes as follows:

Meeting>Ready

Ready>Meeting

Ready>Offline

Meeting>Offline

Call initiation succeeds if the presence changes as follows:

Ready>Meeting>Ready

Meeting>Ready>Meeting

- On the "Do you want to connect with this contact?" screen, OK is selected.
- Call initiation fails (because the other terminal is offline).

If a call is initiated to a meeting that has reached the maximum number of 20 contacts, the following dialog box is displayed:

---- Dialog box description -----

Title: Call Failed

Message: The number of participating contacts has reached the maximum.

7. Call Reception

A terminal cannot receive a call when an error message is displayed.

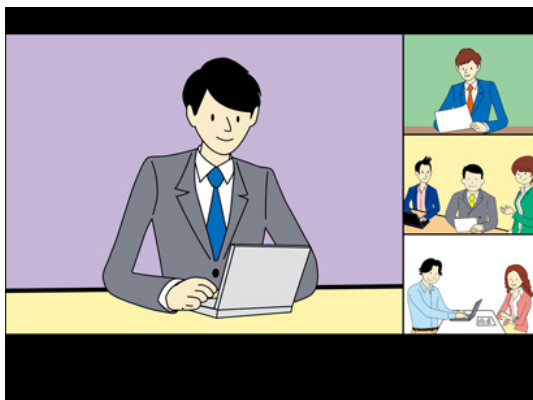
* A terminal cannot receive a call when it is displaying a screen other than Contact List screen, or an error dialog box containing an OK button, prompting for restart, or containing a button to turn the power off.

8. Meeting in Progress

If the bandwidth of the network used during a meeting gets too narrow, no video is displayed and only audio is available during the meeting.

For a meeting of two contacts, the video screen layout for "One larger pane (for the other contact) and multiple smaller panes (for you and all other contacts)" is the same as the layout for "Panels for all contacts (including you)".

"One larger pane (for the other contact) and multiple smaller panes (for you and all other contacts)" layout



"Panes for all contacts (including you)" layout



Terminals that are not registered in Contact List on the local terminal are not displayed on the Meeting Information screen.

9. Firmware Update

If a required update is missing, the terminal cannot use any meeting function or process any incoming registration requests in general.

If the power cord is disconnected (or if a power failure occurs) at a particular point during a firmware update, the firmware may be destroyed, making it impossible to start the terminal.

10. Menus

If the power cord is disconnected (or a power failure occurs) at a particular point during a firmware update, the firmware may be destroyed, making it impossible to start the terminal.

After starting up, the machine cannot switch between wired and wireless LANs.

Sort order cannot be changed on the Registration Request List screen.

- If the network connection is lost, no registration request can be viewed.
- If the machine is not connected to a network while viewing System Information, no Contact ID or UI version can be viewed.

11. External Devices

If an external microphone speaker is connected during call initiation or reception or during a meeting, the machine does not switch to the microphone speaker.

If an external microphone speaker is connected to each of the two USB ports, only one of the microphone speakers is available.

If the external microphone speaker is disconnected during a meeting, the machine does not switch to the internal microphone speaker.

No buttons on the machine can be used to control an external microphone speaker (microphone muting or volume adjustment)

The machine does not support an external camera.

12. You cannot connect display devices to the DVI and RGB connectors simultaneously.

Device Management Settings

1. Contacts Management (Address Book)

Sort order is not saved.

A sort key in the list cannot be changed.

The CID of the local terminal cannot be specified.

2. PC Settings

You cannot log in if the PC is set to a future date.

Your Security Settings in Internet Explorer must be configured to enable the following settings:

Scripting

Active scripting

ActiveX controls and plug-ins

Run ActiveX controls and plug-ins

Script ActiveX controls marked Safe for scripting

Binary and Script behaviors

Downloads

File downloads

If multiple browser instances are started and different Contact ID information is used to log in, the session with the last Contact ID used to log in becomes active.

Increasing the font size in your browser/OS may corrupt the display layout.

Setting the zoom level to a value other than 100% in Internet Explorer 7 may corrupt the display layout.

PC Screen Share

1. Screen Sharing

Translucent windows cannot be shared.

* If Windows Aero is enabled, a translucent window can also be shared.

2. USB Driver

Depending on the version of the WinUSB driver installed in your PC, you may be prompted to restart the machine after installing the supplied USB driver.

Depending on the PC settings, the Add New Hardware Wizard may be displayed when a device is connected to your PC.

(By default, Windows XP and Vista are configured to display the Add New Hardware Wizard and Windows 7 is not.)

The supplied USB driver can be installed by canceling the Add New Hardware Wizard and executing the USB driver installation program.

The Add Hardware Wizard can be used to install the supplied USB driver, but if this method is used, the USB driver is not added to the Add or Remove Programs menu.

If Windows Vista SP2 is used, the initial installation of the PC Screen Share driver may fail.

If this happens, perform Windows Update to apply the latest patch before installing the driver.

If the Add New Hardware Wizard is used to install the supplied USB driver, the USB driver is not listed in the Add or Remove Programs menu, which then cannot be used to uninstall the driver.

3. Performance

The frame rate may drop to 1 fps or less due to network delays or high resource load inside the machine.

Cause of Acoustic feedback

The common cause of acoustic feedback in a karaoke room or hall is illustrated below.

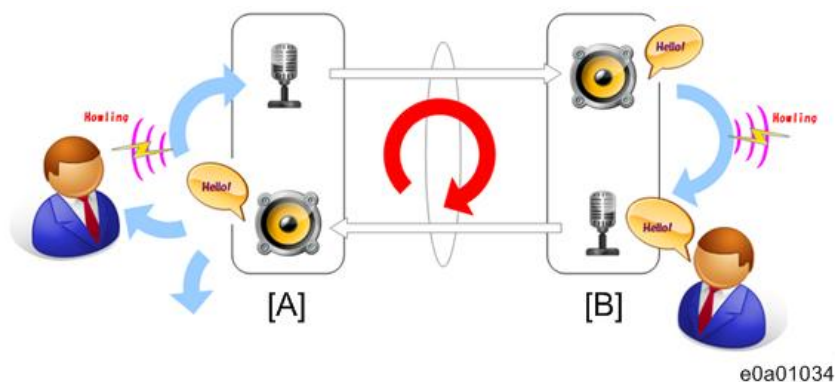


e0a01035

Acoustic feedback occurs when sounds from the speaker diffract and surround the microphone at the same time as when the same speaker produces echoes.

4

The cause of acoustic feedback during video conferencing is illustrated below.



e0a01034

[A] : Listener

[B] : Person talking

Acoustic feedback occurs when the voice of the person talking (including ambient noise) diffracts through the speaker and microphone on the listener side at the same time as when the speaker on the side of the person talking produces echoes.

Model MD-A1
Machine Codes: E0A0
Appendices

30 January, 2012

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1. Appendix: Specifications

General Specifications

1

Item	Specification
Interface	<ul style="list-style-type: none">• Ethernet: 10BASE-T, 100BASE-TX, 1000BASE-T• IEEE802.11g, IEEE802.11b, IEEE802.11n• Encryption method: WEP128bit/64bit, WPA-PSK(TKIP/AES), WPA2-PSK(AES)• USB2.0 (type A)×2• USB2.0 (type B)• DVI-D• Analog RGB (VGA)
Proxy authentication	Basic authentication
Port	<p>The following port numbers are available for communication:</p> <ul style="list-style-type: none">• When no proxy is used TCP:443, 5222, 17990, 17992 UDP:50000 - 65535^{*1}• When a proxy is used TCP:443
Network bandwidth	Minimum 2Mbps
Video resolution	<ul style="list-style-type: none">• Maximum transmission resolution 640×360 pixels• Maximum reception resolution 1280×720 pixels
Frame rate	Up to 30 fps
Video mode	1024×768 pixels (XGA), 1280×800 pixels (WXGA)
Video coding	H.264 Annex G (SVC)
Voice coding	SPEEX wideband/ITU-T G.711/ITU-T G.722
Data transfer	RTP (RFC1889/RFC3550) and RTCP (RFC1890/RFC3551)

Item	Specification
Focus	Pan focus
Automatic camera adjustment	<ul style="list-style-type: none">• Automatic gain control• Automatic white balance control
Microphone	<ul style="list-style-type: none">• Automatic echo canceller• Automatic noise reduction• Automatic gain control• Muting
Noise	40 dB or less
Power Source	 Region A (mainly Europe and Asia) 220 V-240 V, 50/60 Hz  Region B (mainly North America) 110 V, 50/60 Hz
Power consumption	50 W or less
External dimensions (W× D×H)	<ul style="list-style-type: none">• Main unit (Camera unit folded) 285.0×189.0×40.0 mm (11.2 7.4 1.6 inches)• AC adapter (excludes projection) 119.2×53.0×17.6 mm (4.7 2.1 0.7 inches)
Weight	<ul style="list-style-type: none">• Main unit Approx. 1.6 kg (3.5 lb.)• AC adapter Approx. 250 g (0.6 lb.)

*1 A port in the range of 50000 to 65535 is selected as the port used for communication, according to the environment and conditions.

