Industrial Multi-camera Drive Recorder

RM-100RC

User's Manual

silex technology

WA108020XX

Index

1. Introduction

Thank you for purchasing the industrial multi-camera drive recorder "RM-100RC".
This manual provides information on how to configure and use RM-100RC.
Please read the **1-2. Safety Instructions** carefully before using RM-100RC.

1-1. Introduction

1-1-1. About the Notation

This manual uses the following symbols to indicate specific information for operating RM-100RC.
Be sure to carefully read before using RM-100RC.


TIP : This symbol indicates important information that needs to be observed when operating RM-100RC. Make sure to read this information for safe and proper use.


Note : This symbol indicates information that is useful when using RM-100RC. If you experience difficulties operating RM-100RC, please refer to this information first.

1-1-2. Disclaimers

- The unauthorized transfer or copying of the content of this manual, in whole or in part, without prior written consent is expressly prohibited by law.
- The content of this manual is subject to change without notice.
- This manual was prepared to accurately match the content of each OS, but the actual information shown on the computer monitor may differ from the content of this manual due to future OS version upgrades, modifications, and other changes.
- Although every effort was made to prepare this manual with the utmost accuracy, Silex Technology will not be held liable for any damages as a result of errors, setting examples, or other content.

1-1-3. Trademarks

- AMC Manager® is a registered trademark of Silex Technology, Inc.
- Windows and Microsoft Edge are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Wi-Fi Protected Setup, WPA (Wi-Fi Protected Access), WPA2, WPA3 are trademarks or registered trademarks of Wi-Fi Alliance.
- Other brand or product names are registered trademarks or trademarks of their respective owners.

1-1-4. Glossary

The following explains the technical terms used in this manual.
Please refer to this as you read this manual.

Terms	Explanation
Cloud	One form of systems that can provide a service as needed via the Internet. In this document, it refers to the Web system that is provided by Silex Technology.
Storage	A system or device to store data. RM-100RC has internal storage that allows users to save video of the camera as a recorded file and save the RM-100RC's operation log.
Digital Input	One of the signals input to the device. RM-100RC has the event recording function that records the video before and after the event by using a digital input as a trigger.
RTP Camera	This is a camera that supports the communication protocol called 'RTP' for distributing data in real time. RM-100RC supports the camera that is compatible with the RTP protocol.
Standard Camera	In this document, it refers to RTP cameras, videos of which can be acquired without changing the settings of RM-100RC and the camera. Standard camera of RM-100RC: IP-S324 (manufactured by MOTHERTOOL CO., LTD.)
HD, Full HD	One of the standards that indicates the resolution (the fineness of the screen). HD uses 1,280 pixels horizontally and 720 pixels vertically to show one screen. Full HD uses 1,920 pixels horizontally and 1,080 pixels vertically to show one screen, so the display is more fine and smooth.
Bit Rate	Amount of data that can be sent and received in one second. Higher value creates higher image quality, but it may cause a delay in video distribution.
Configuration Web Page	RM-100RC's Web interface to use for configuration.
Host Name	Name of the device that the users can specify. The initial value is set based on the MAC address, but the users can change to make it easier to identify and manage.
IP Address	A value used to identify devices on network such as the Internet. Unlike the MAC address, this value can be changed by users.
MAC Address	Also called as 'Ethernet Address' for some devices or software programs. This is a unique value assigned to network devices. Some devices have multiple MAC addresses. MAC address cannot be changed and thus it can be used for device identification.
DHCP	A communication protocol for allocating and acquiring information which is needed for devices to connect to network. RM-100RC has a DHCP server function that distributes information to communicate, and a DHCP client function that obtains necessary communication information from another DHCP server.
NTP	A communication protocol for sending/receiving the current time information. By setting the internal time of devices using the time information received from the specified server, the time can be unified within the network.

Terms	Explanation
SMB	A communication protocol for sharing files and printers on a network that uses Windows.
Wi-Fi	One kind of wireless communication technology. If devices are compatible with this technology, they can communicate wirelessly with each other even if they are made from different manufacturers.
Access Point	A device or function that serves as a host unit when performing wireless communication. By connecting a station, PC, tablet, etc. to the Access Point on wireless LAN, users can communicate with the same network as the Access Point.
Wireless Station Device	In this document, it means all devices that connect to an Access Point via wireless LAN, such as stations, PCs, and tablets.
SSID	A name to use for grouping on wireless LAN. It must be set for both Access Point and wireless station device to perform wireless communication. Devices with a different SSID cannot communicate with each other.
Authentication Method	A general term of authentication method to use for wireless LAN. Together with the encryption method, it ensures security of the wireless LAN. The same authentication method must be set to the Access Point and wireless station device.
Encryption Mode	A general term of communication encryption method. In this document, it refers to the encryption method to use for wireless LAN. The supported encryption methods will differ depending on each product. It ensures wireless LAN security in combination with the authentication method. The same encryption method must be set to the Access Point and wireless station device.
DFS	This is a function that complies with IEEE 802.11h. In order to avoid radio interference with C-band radar, which is mainly used for meteorological observation, RM-100RC detects radar waves, stops radio transmission when it is detected, and moves to another channel. When radar waves are detected, communication of 5GHz band will be disabled during the time regulated for each country.
Smart Wireless Setup	Easy wireless configuration function for WPS (Wi-Fi Protected Setup) devices
AMC Mesh	This is a function of Silex Technology's product that connects Access Points. By connecting multiple Access Points, the distance of wireless communication can be expanded.

1-2. Safety Instructions

This page provides the safety instructions for safe use of RM-100RC.
To ensure safe and proper use, please read the following information carefully before using RM-100RC. The safety instructions include important information on safe handling of RM-100RC and on general safety issues.

< Indication of the warning >

	Danger	"Danger" indicates the existence of an imminent hazard that could result in death or serious injury if the safety instruction is not observed.
	Warning	"Warning" indicates the existence of a hazard that could result in death or serious injury if the safety instruction is not observed.
	Caution	"Caution" indicates the existence of a hazard that could result in serious injury or material damage if the safety instruction is not observed.

< Indication of the symbol >

	This symbol indicates the danger, warning and caution. (Example:  "Danger of the electric shock")
	This symbol indicates the prohibited actions. (Example:  "Disassembly is prohibited")
	This symbol indicates the necessary actions. (Example:  "Remove the AC plug from an outlet")

Product installation

⚠ Warning

* Do not place any objects on top of RM-100RC. It may cause fire, electrical shock or malfunction.
* Do not cover or wrap RM-100RC with cloth such as blankets or tablecloths. Accumulated heat may cause fire, accident, or malfunction.

⚠ Caution

* When installing RM-100RC on a wall or in a high place, make sure that it is securely fixed so that it will not fall due to the weight of the cables.

* Do not use or store RM-100RC under the following conditions. It may cause malfunction.
  - Locations subject to vibration or shock
  - Shaky, uneven or tilted surfaces
  - Locations exposed to direct sunlight
  - Humid or dusty places
  - Wet places (kitchen, bathroom, etc.)
  - Near a heater or stove
  - Locations subject to extreme changes in temperature
  - Near strong electromagnetic sources (magnet, radio, wireless device, etc.)

Safe handling

⚠ Danger

* Do not use RM-100RC with the equipment that directly affects the human life (medical equipment such as the life support equipment and operating room equipment) and with the system that has a significant impact on the human safety and the maintenance of public functions (nuclear equipment, aerospace equipment, etc.).

* When using the device connected to RM-100RC, strictly observe the warnings and cautions indicated by the manufacturer of that device, and use it in the correct procedure. Failure to do so may result in fire, electric shock, accident or malfunction.
* If your network device has a ground wire, it must be used to prevent electrocution and power surges.

⚠ Caution

* Metal parts of RM-100RC may become hot when it is in operation. Be careful not to touch it when moving or disconnecting RM-100RC.

Measures for abnormal operations

⚠ Warning

* In the following cases, turn off the connected device and remove the power supply cable or plug. Failure to follow these instructions may cause fire or an electrical shock.
  - When RM-100RC emits a strange smell, smoke or sound or becomes too hot to touch.
  - When foreign objects (metal, liquid, etc.) gets into RM-100RC.
  - When RM-100RC is dropped or the case is broken or cracked.

Ventilation

⚠ Warning

* Do not cover up the vents on RM-100RC. The temperature inside may rise and cause fire or malfunction.

Disassembly and modification are prohibited

⚠ Danger

* Do not disassemble or modify RM-100RC. Failure to do so may cause fire, electric shock, or malfunction.
* Do not disassemble or modify the AC adapter (optionally available). Doing so may cause fire, electric shock, or malfunction.

Notes on using the power supply, power cord, and AC adapter

⚠ Warning

* Be sure to use the specified power supply voltage. Using the power supply voltage other than the specified one may cause fire or electric shock.
* Keep the cords and cables away from children. It may cause an electrical shock or serious injury.

* Do not move RM-100RC while the AC adapter or power supply cable is connected. Doing so may damage the cable and which may result in fire or electric shock.
* Do not put anything on the AC adapter or power supply cable, and do not cover it. Also, do not use the AC adapter on a heat-retaining or moisture-retaining object (carpet, sponge, cardboard, styrofoam, etc.). There is a risk of overheating, which may cause fire, accident or malfunction.
* Do not roll up or wrap the AC cord. It may cause fire or an electrical shock.
* Do not plug or unplug the AC adapter, power supply cable or any other cables with wet hands. It may cause an electrical shock or malfunction.

⚠ Caution

* When RM-100RC will not be used for an extended time, remove the power supply cable and power plug from the connected device and RM-100RC.
* Verify all cables are connected properly and safely before using RM-100RC.
* When removing RM-100RC, be sure to unplug the power supply cable and power plug of both RM-100RC and the connected device beforehand.
* Be sure to use the AC adapter specified by Silex Technology. Failure to do so may cause malfunction.

* Do not place any objects on the cable, and do not bend, twist, or pull it excessively.
* Keep cables and power cords away from the place where people walk by. It may cause injury if they trip over it.
* When unplugging RM-100RC or the connected device, do not pull on the cord. The cord may break resulting in fire and/or electric shock. Pull only on the plug.

1-3. Notes on Usage

1-3-1. Use of Radio Waves

When using RM-100RC near the medical devices

The radio wave interference may adversely affect the operation of medical devices such as pacemakers. When using RM-100RC near the medical devices that require a high level of safety and reliability, check with the manufacturer or distributor of each medical device about the effects of radio waves.

When using RM-100RC near the following devices

- Microwave oven, industrial/scientific equipment, etc.

The above devices use the same radio frequency band as the wireless LAN. Using RM-100RC near the above devices may cause radio wave interference. As the result, communication may be lost, the speed may slow down, or the operation of the above devices may be adversely affected.
Before using RM-100RC, make sure that no radio wave interference occurs. For example, if there is a microwave oven near RM-100RC, check the proper communication beforehand while actually using the microwave oven.

Do not use RM-100RC near a cellular phone, TV or Radio

A cellular phone, TV and radio use a different radio band than our products. Generally, if they are used near RM-100RC, it will not cause any problems. However, when they approximate RM-100RC, sound or image noise may occur.

If there is reinforced concrete/metal between wireless devices, they may not connect

RM-100RC can connect through wood or glass, but may have troubles connecting through reinforced concrete/metal.

RM-100RC complies with the certification of conformance to technical standards. Please pay attention to the following points:

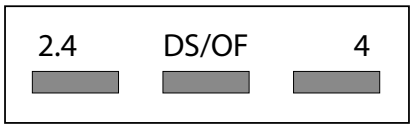
- Please do not disassemble or remodel the product. Such action is prohibited by law.
- Please do not remove the certificate label. Using the product without a label is prohibited.

Wireless devices using 2.4GHz band

The same frequency band of RM-100RC is used for a microwave, industry, science, medical equipment and licensed in room or low power (non-licensed) radio stations.

- Before you use RM-100RC, check that it does not interfere with other devices.
- If interference occurs, stop using RM-100RC or change the wireless band. Please consider to create a wall between these devices to avoid interference. Contact us for possible solution.

* The meaning of the symbols in the bottom of the unit:



2.4	: Wireless devices using 2.4GHz frequency band
DS/OF	: DS-SS or OFDM is used as modulation.
4	: The range of interference is equal to or lower than 40m.
	: All bands can be used to avoid interference.

Notes on using 5GHz band

- Use of 5.2GHz band (W52) and 5.3GHz band (W53) outdoors is prohibited by the radio regulations.

TIP - The channels which can actually be used differ by country.

1-3-2. Notes on Security

Because a wireless LAN uses electromagnetic signals instead of a LAN cable to establish communication with network devices, it has the advantage of allowing devices to connect to the network easily. However, a disadvantage of this is that within a certain range, the electromagnetic signals can pass through barriers such as walls, and if security countermeasures are not implemented in some way, problems such as the following may occur.

- Communication is intercepted by a third party
- Unauthorized access to the network
- Leakage of personal information (ID and Card information)
- Spoofing and the falsification of intercepted data
- System crashes and data corruption

Nowadays, wireless LAN cards or access points are equipped with security measures that address such security problems, so that you can enable security-related settings for wireless LAN products in order to reduce the likelihood of problems occurring.
We recommend that you make yourself fully acquainted with the possible implications of what might happen if you use a wireless product without enabling security features, and that you configure security-related settings and use wireless products at your own responsibility.

1-3-3. Standards Compliance

Notice to US Customers

Contains FCC ID : N6C-PCEAXAP

FCC Rules, Part 15 §15.19(a)(3)
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.

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https://www.silextechnology.com/

FCC Rules Part 15
FCC CAUTION
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Rules Part 15 Subpart B §15.105(a)
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 instruction 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.

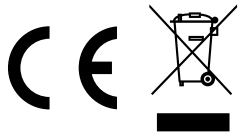
FCC Rules Part 15 Subpart E §15.407(c)
Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.

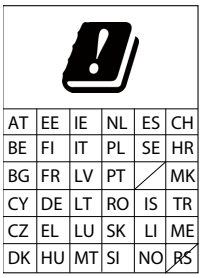
FCC Rules Part 15 Subpart E §15.407(g)
Frequency Tolerance: +/-20 ppm

FCC Rules Part 15 Subpart C §15.247(g) / Subpart E
This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

FCC Rules Part 15 Subpart C §15.247 and Subpart E
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

Notice to European Customers





AT	EE	IE	NL	ES	CH
BE	FI	IT	PL	SE	HR
BG	FR	LV	PT		MK
CY	DE	LT	RO	IS	TR
CZ	EL	LU	SK	LI	ME
DK	HU	MT	SI	NO	RS

Notice to UK Customers

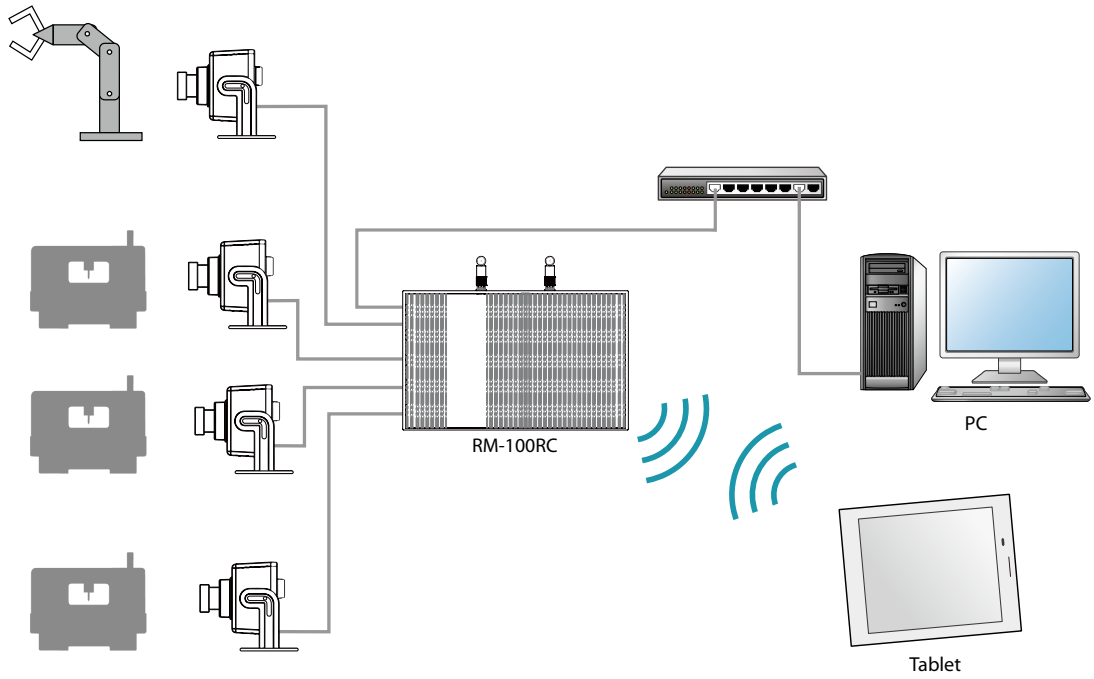
UK

Restrictions or Requirements in the UK

2. About RM-100RC

2-1. Basic Usage

RM-100RC can connect up to 4 RTP cameras and record a video from the cameras.
The recorded video can be checked and retrieved on a PC or tablet over wireless or wired network.
Also, a streaming video of the camera can be checked via wireless LAN or wired LAN.
Below is an example of a system configuration.



Note

- The above system configuration is just an example. By connecting multiple RM-100RC units each others, the wireless communication distance can be expanded. Also, by linking with the cloud, the product status can be managed.

2-2. Features

RM-100RC has the following features:

Videos of camera can be checked remotely

Up to 4 RTP cameras can be connected and videos of the cameras can be recorded at all times. Since videos of the cameras can remotely be checked and the recorded files can be checked without going to the actual site, the users can avoid missing the cause of trouble when a trouble occurs, and can perform the event recording efficiently.
Also, recording can be started by using the digital input as a trigger, allowing the users to check the video before and after the trouble.


TIP

- Camera is not contained in the product package. It need to be purchased separately.

Video is saved as a recorded file

A video of each camera can be saved in RM-100RC as a recorded file. It is also possible to create a recorded file that combines videos from four cameras into one video. The created recorded file can be obtained remotely.

Large capacity storage

Up to 200GB recorded files can be saved to RM-100RC.
When the screen format is **Multi** and the bit rate is 2Mbps, videos of approximately 7 days can be saved.

Access Point function

RM-100RC has an Access Point function compatible with Wi-Fi 6 (IEEE 802.11ax).
Up to 32 wireless station devices can be connected.

Giving unlimited locations for your non-wireless devices

As you do not have to care wiring conditions in order to establish your environment, choices of location greatly expand in any kinds of scenes such as office, factory, warehouse, etc. where frequent and efficient layout change is required.

Wall-mountable

RM-100RC can be mounted on a wall using Bracket Type XI (optionally available) or a DIN rail mounting plate (commercially-available).

AMC Mesh function

Since the AMC Mesh function is supported, wide coverage network can be achieved by connecting multiple AMC Mesh compatible devices.


Note

- For details on the AMC Mesh compatible products, please visit the Silex Technology's website.

2 ways of power supply

As RM-100RC supports DC 24V to 48V power input, it can receive a power from the same power supply as the factory machines. When there is not a power supply, an AC adapter can be used (AC adapter is optionally available).

Users can specify channels to use for auto-channel selection

When the Access Point function is used, RM-100RC can be set to automatically select the channel. The target channels can be specified by the users.

IEEE 802.11a/b/g/n/ac/ax

RM-100RC supports the IEEE 802.11a/b/g/n/ac/ax wireless standard.
The following authentication and encryption methods are supported.

Authentication Method	Encryption Mode
Open	(None)
WPA2-Personal	AES
WPA3-Personal	AES
WPA2-Enterprise	AES
WPA3-Enterprise	AES
WPA3-Enterprise 192-bit security	AES

Note
- For WPA3-Personal, AES-128-GCMP(00-0F-AC:8), AES-256-GCMP(00-0F-AC:9), AES-256-CCMP(00-0F-AC:10) are supported.
- For WPA3-Enterprise 192-bit security, AES-256-GCMP(00-0F-AC:9) is supported.

Unified device management utility "AMC Manager®"

AMC Manager® provides the following functions.
- Remote control and monitoring
- Visualization of the AMC Mesh network using Mesh Monitor (option utility)

Note
- For details on AMC Manager® and Mesh Monitor, please visit the Silex Technology's website.

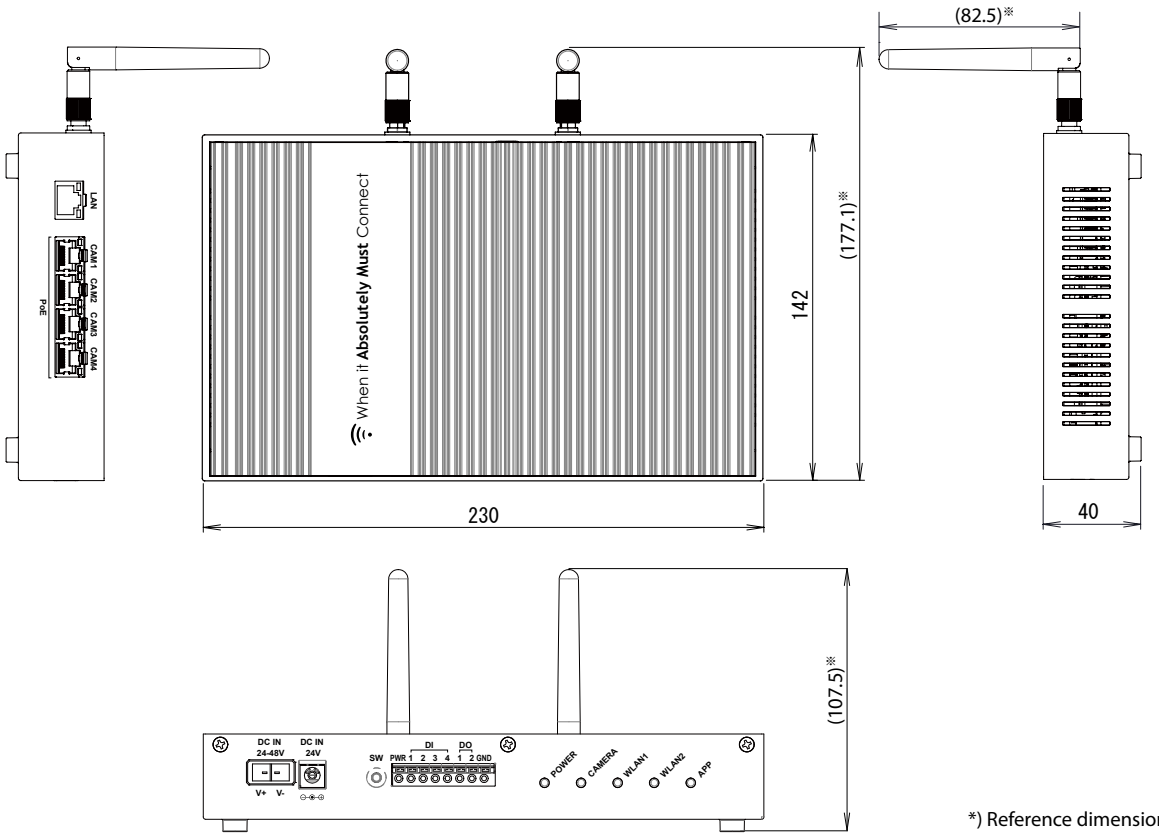
Cloud Web application "AMC Cloud"

AMC Cloud provides the following functions.
- Shows the operating status for the wireless network to which the RM-100RC belongs
- Easy configuration, firmware update, restart

Note
- For details on AMC Cloud, please visit the Silex Technology's website.

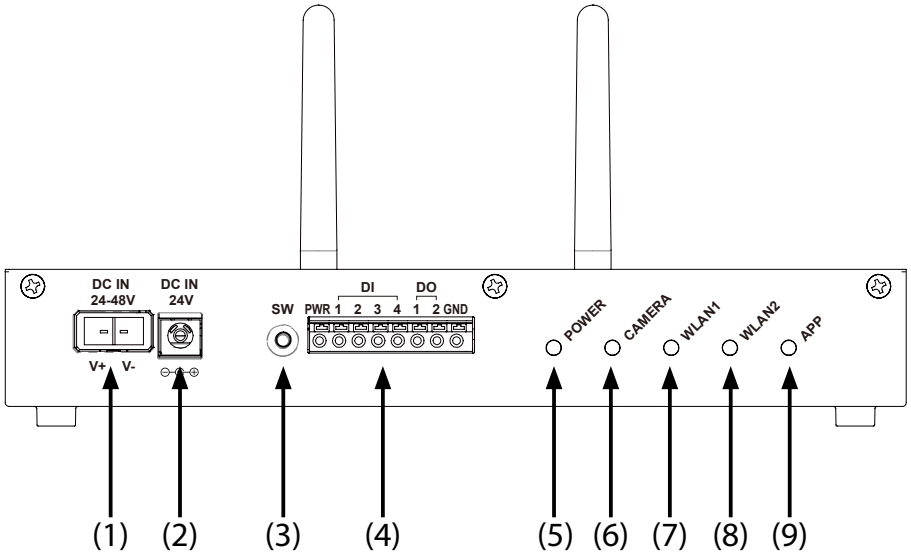
2-3. Parts and Functions

External Dimensions



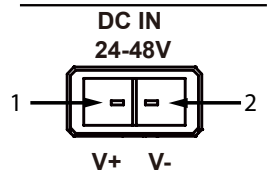
*) Reference dimensions

Parts and Functions



(1) DC connector

Connect the power supply cable.



PIN Number	Signal Name	Description
1	DCIN	DC 24-48V
2	GND	GND

DC connecter : JST S02B-F32SK-GGXR(LF)(AU)

To connect to this connector, please use JST JFA connector J300 series F32FSS-02V-KX.

(2) DC jack

Connect an AC adapter (optionally available).

TIP

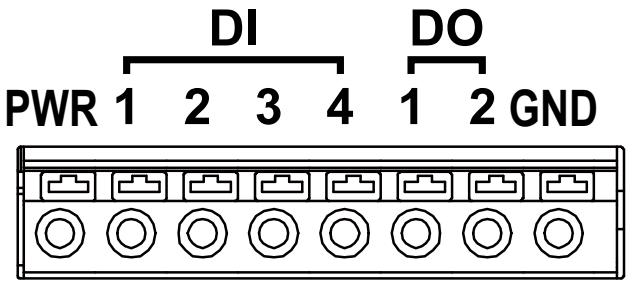
- Power supply and AC adapter cannot be used at the same time.

(3) Push switch

By using the push switch, RM-100RC can be reset to the factory default settings. For details, refer to **3-2. Configuration Using RM-100RC's Web Page** or **10-3-1. Initialization Using the Push Switch on RM-100RC**.

Also, the push switch can be used for wireless device connection if it is used with the Smart Wireless Setup function.

(4) Digital input/output interface

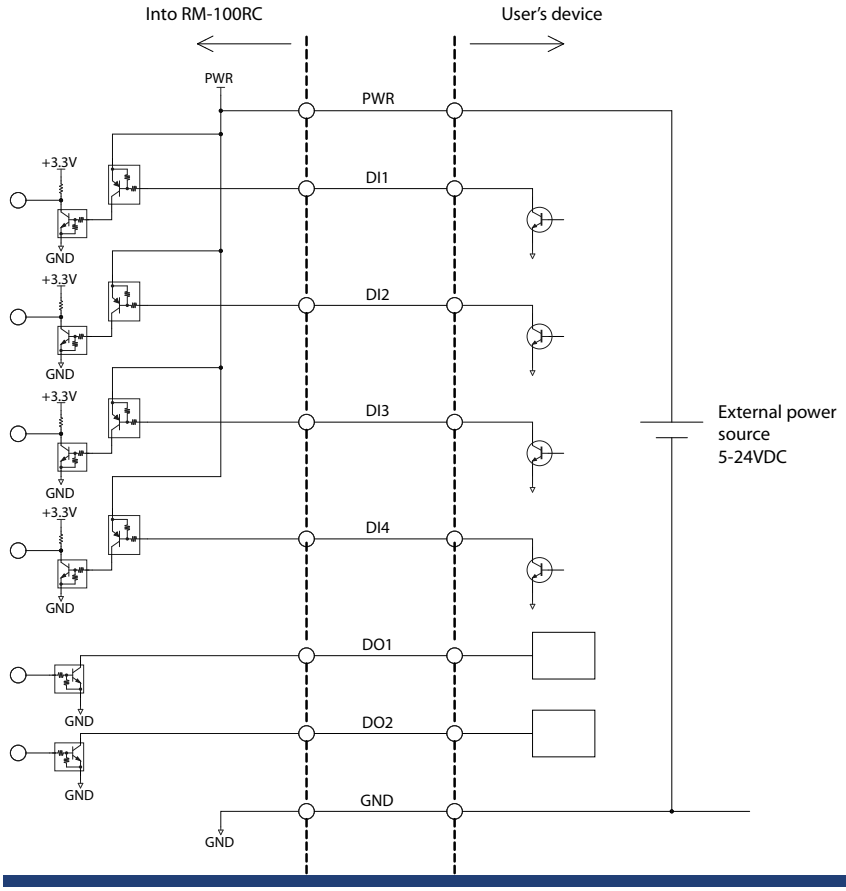


Name	Signal	Explanation
PWR	VIN	Power in (5 to 24V)
DI1 to DI4	IN1 to IN4	Digital input
DO1 to DO2	OUT1 to OUT2	Digital output (Open collector)
GND	GND	Ground

Note

- For details on connection to the digital input/output interface, see **4-2-2. Recording a Video before/after an Event.**

Internal Equivalent Circuit



(5) POWER LED

Color	Light	Explanation
Green	ON	Powered on
	BLINK	Time synchronization failure (2-second cycle)
Orange	ON	- Processing power-on - Preparing for initialization - Formatting internal storage * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**
	BLINK	Detected duplicate IP addresses (2-second cycle)
Red	ON	One of the following events occurs: - SoC temperature exceeds 100 °C. - Internal storage is not mounted correctly. - Temperature of the wireless module exceeds 100 °C.

(6) CAMERA LED

Color	Light	Explanation
Green	ON	Obtaining a video from the camera (when both continuous recording and event recording are set to "OFF")
	BLINK	- Continuous recording in progress (1-second cycle) - Formatting internal storage (2-second cycle). Blinks together with WLAN1 LED, WLAN2 LED, and APP LED.
Orange	ON	Preparing for initialization * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**
	BLINK	Event recording in progress (1-second cycle)
Red	ON	Although the camera is connected, videos cannot be acquired. Or, one of the following conditions occurs. - Video decoding error - Video size of the camera and video size of RM-100RC are different * If no cameras are connected, the LED does not turn red.

(7) WLAN1 LED

Color	Light	Explanation
Green	ON	Wireless function is operating.
	BLINK	- Wireless communication in progress (Turns on for 100 milliseconds and then turns off) - Formatting internal storage (2-second cycle). Blinks together with the CAMERA LED, WLAN2 LED, and APP LED.
Orange	ON	- A network loop is detected. - Preparing for initialization * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**
Red	BLINK	- DFS in progress (1-second cycle) - Wireless module of RM-100RC is not found (2-second cycle).

(8) WLAN2 LED

When the AMC Mesh function is not used

Color	Light	Explanation
Green	ON	Smart Wireless Setup has been successfully done. (Turns off in 3 minutes)
	BLINK	- Smart Wireless Setup is in progress (4-second cycle) - Formatting internal storage (2-second cycle). Blinks together with the CAMERA LED, WLAN1 LED, and APP LED.
Orange	ON	Preparing for initialization * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**
	BLINK	Starting a wireless function (until the Access Point function finishes the startup) (2-second cycle)
Red	ON	Smart Wireless Setup has failed. (Turns off in 3 minutes)

When the AMC Mesh function is used

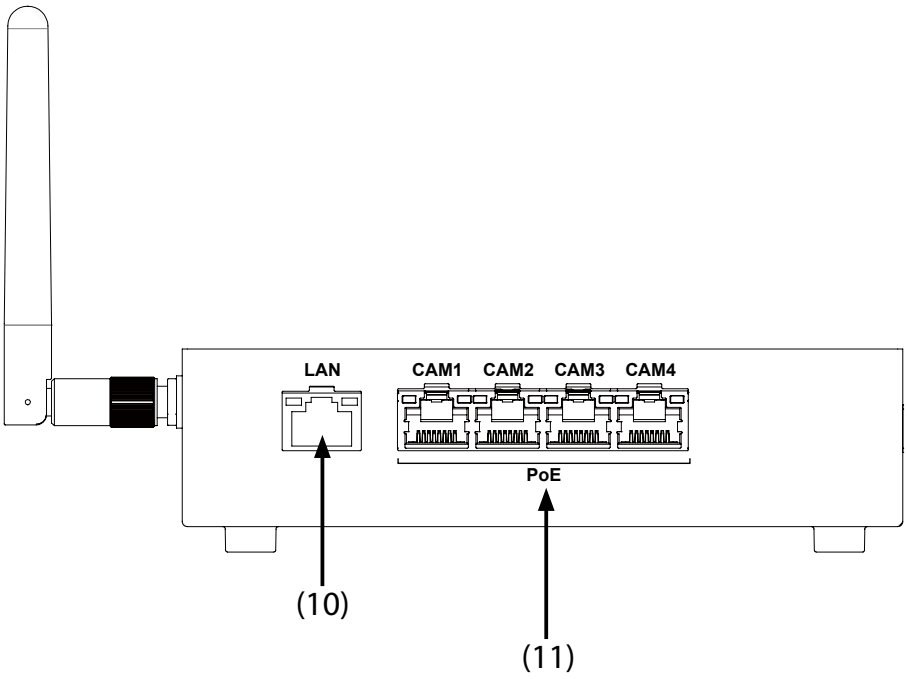
Color	Light	Explanation
Green	ON	Mesh mode is Repeater mode. Connection with the destination RootAP or Repeater is good (RSSI is -60dBm or more).
	BLINK	- Mesh mode is RootAP mode (1-second cycle). - Formatting internal storage (2-second cycle). Blinks together with the CAMERA LED, WLAN1 LED, and APP LED.
Orange	ON	- Mesh mode is Repeater mode. Connection with the destination RootAP or Repeater is OK (RSSI is -61dBm to -70dBm). - Preparing for initialization * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**
Red	ON	Mesh mode is Repeater mode. Connection with the destination RootAP or Repeater is poor (RSSI is -71dBm or less), or connection with the destination RootAP or Repeater is disconnected.

(9) APP LED

Color	Light	Explanation
Green	BLINK	Formatting internal storage (2-second cycle). Blinks together with the CAMERA LED, WLAN1 LED, and WLAN2 LED.
Orange	ON	Preparing for initialization * If the push switch is pressed and held down, the LEDs will turn on one by one starting with the POWER LED. For details, refer to **10-3-1. Initialization Using the Push Switch on RM-100RC.**

TIP

- If all LEDs on RM-100RC flash red, an error has occurred. Then, RM-100RC will restart for recovery in 3 seconds after the LEDs flash simultaneously.



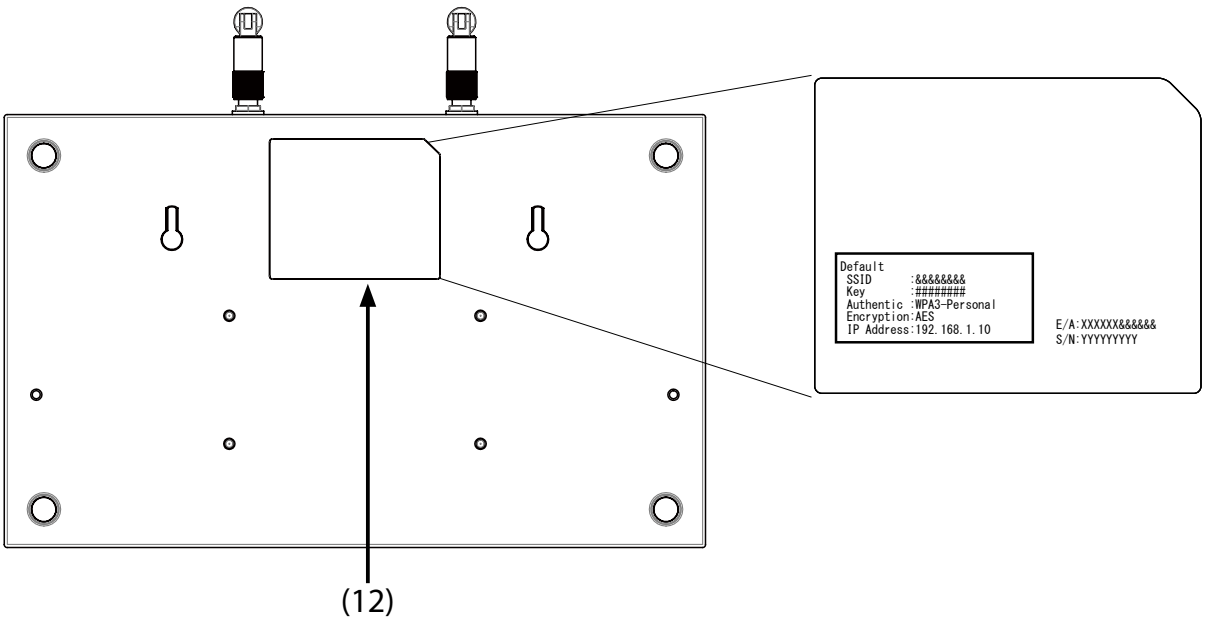
(10) LAN Port

Connect the PC or Ethernet HUB using a LAN cable.

(11) CAMERA Port x 4 (PoE supported)

Connect the RTP camera.

The camera ports are located on the right of the LAN port in the order of camera 1 > camera 2 > camera 3 > camera 4.



(12) Product label

The following settings are described.

E/A	MAC address of RM-100RC The format of MAC address is "E/A: 1CBCECXXXXXX".
S/N	Serial number of RM-100RC
SSID	SSID for 2.4GHz/5GHz band
Key	Pre-Shared Key
Authentic	Authentication mode
Encryption	Encryption mode
IP Address	IP address

2-4. Specifications

2-4-1. Hardware Specifications

Memory	RAM	2GByte		
	SPI Flash ROM	32MByte		
Internal storage	256GByte			
Antenna	Pole antenna x 2			
Others	Push Switch	1		
	LED	LAN Port	2	Status (Orange) Link (Green)
		CAMERA Port	8	Status (Yellow) Link (Green)
		Unit	5	POWER (Green/Orange/Red) CAMERA (Green/Orange/Red) WLAN1 (Green/Orange/Red) WLAN2 (Green/Orange/Red) APP (Green/Orange/Red)
	Digital input/output interface		Input	4
			Output	2
Maximum power consumption	24W (including cameras)			

Power supply	DC connector	Operating voltage DC24V to DC48V
	AC adapter	Operating voltage DC24V
Operating environment	Temperature	-20 °C to 50 °C
	Humidity	20% to 80%RH (Non-condensing)
Storage environment	Temperature	-30 °C to 70 °C
	Humidity	20% to 90%RH (Non-condensing)
EMC	FCC Part15 Subpart B Class-A EN301 489-1/-17 , EN55032 Class-A	
Radio regulation	FCC part15 Subpart C / Subpart E EN300 328, EN301 893, EN300 440	

TIP

- AC adapter is not included for operating environment conditions and storage environment conditions.

Wireless network interface

<table>
<tr><td rowspan="2">IEEE 802.11a</td><td>Bandwidth</td><td colspan="2">5GHz</td></tr>
<tr><td>Channel</td><td colspan="2">(US)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 132, 136, 140, 144
W58 : 149, 153, 157, 161, 165

(EU/UK)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140
W58 : 149, 153, 157, 161, 165</td></tr>
<tr><td rowspan="2">IEEE 802.11b</td><td>Bandwidth</td><td colspan="2">2.4GHz</td></tr>
<tr><td>Channel</td><td colspan="2">(US)
1 to 11

(EU/UK)
1 to 13</td></tr>
<tr><td rowspan="2">IEEE 802.11g</td><td>Bandwidth</td><td colspan="2">2.4GHz</td></tr>
<tr><td>Channel</td><td colspan="2">(US)
1 to 11

(EU/UK)
1 to 13</td></tr>
<tr><td rowspan="3">IEEE 802.11n</td><td>Bandwidth</td><td colspan="2">2.4GHz/5GHz</td></tr>
<tr><td rowspan="2">Channel</td><td>2.4GHz</td><td>(US)
1 to 11

(EU/UK)
1 to 13</td></tr>
<tr><td>5GHz</td><td>(US)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 132, 136, 140, 144
W58 : 149, 153, 157, 161, 165

(EU/UK)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140
W58 : 149, 153, 157, 161, 165</td></tr>
</table>

<table>
<tr><td rowspan="2">IEEE 802.11ac</td><td>Bandwidth</td><td colspan="2">5GHz</td></tr>
<tr><td>Channel</td><td colspan="2">(US)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 132, 136, 140, 144
W58 : 149, 153, 157, 161, 165

(EU/UK)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140
W58 : 149, 153, 157, 161, 165</td></tr>
<tr><td rowspan="3">IEEE 802.11ax</td><td>Bandwidth</td><td colspan="2">2.4GHz/5GHz</td></tr>
<tr><td rowspan="2">Channel</td><td>2.4GHz</td><td>(US)
1 to 11

(EU/UK)
1 to 13</td></tr>
<tr><td>5GHz</td><td>(US)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 132, 136, 140, 144
W58 : 149, 153, 157, 161, 165

(EU/UK)
W52 : 36, 40, 44, 48
W53 : 52, 56, 60, 64
W56 : 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140
W58 : 149, 153, 157, 161, 165</td></tr>
</table>

Wired network interface

LAN port : 1 port, 100BASE-TX/1000BASE-T (auto-sensing)
Camera port : 4 ports, 100BASE-TX (supports power supply of total 10W for 4 ports)
Auto MDI/MDI-X

TIP

- To ensure communication speed of 100Mbps on each camera port, the transmission speed of the LAN port is limited to maximum 600Mbps.

2-4-2. Software Specifications

TCP/IP	Network layer	ARP IP ICMP
	Transport layer	TCP UDP
	Application layer	CIFS/SMB, SMB3.1.1 DNS DHCP(Client/Server) NetBIOS NS LLMNR HTTP RTP SXSMP WebSocket
Recommended Web browser		Microsoft Edge

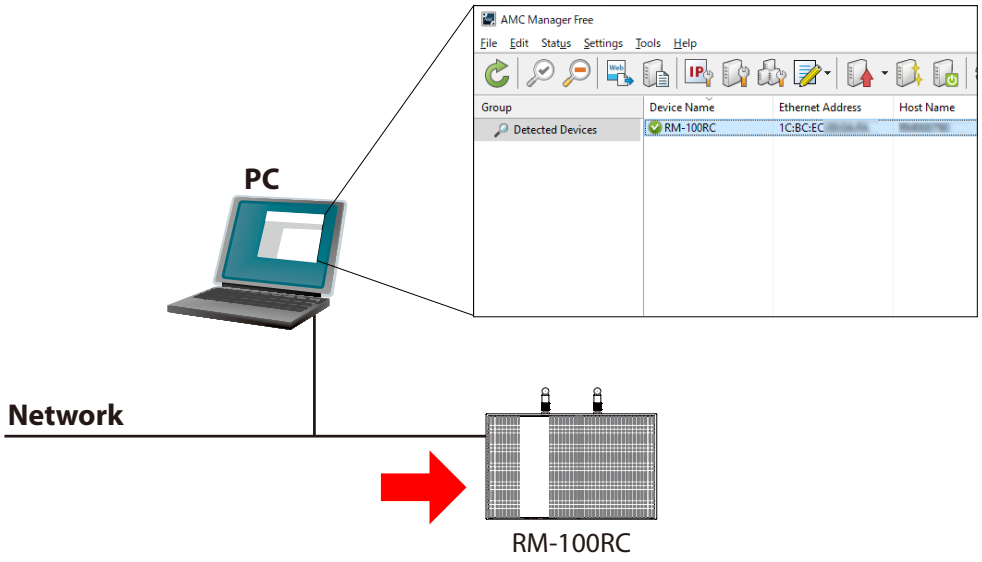
2-5. Configuration Utility

RM-100RC supports the following utilities.
Features of each utility are introduced below.

- AMC Manager®
- Mesh Monitor

2-5-1. AMC Manager®

AMC Manager® is the unified device management utility that provides remote status monitoring and individual configuration for Silex devices over an IP network. It can display the operating status of RM-100RC on the list and such information can be used conveniently for device management.



For AMC Manager®, there are a free version "AMC Manager® Free" and a non-free version "AMC Manager®". When a non-free version is used, more devices can be managed and configured at once and the plug-in utilities such as Mesh Monitor, etc. can be used.

Function	AMC Manager® Free (Free version)	AMC Manager® (Non-free version)
Number of controllable devices	Up to 10 devices	Up to 10,000 devices
Number of devices that can be controlled at a time	Up to 10 devices	Up to 10,000 devices
Number of groups that can be created	Up to 2 devices	Up to 100 devices
Number of devices that can be registered per group	Up to 10 devices	Up to 1,000 devices
Plug-in utility such as Mesh Monitor	Unavailable	Available

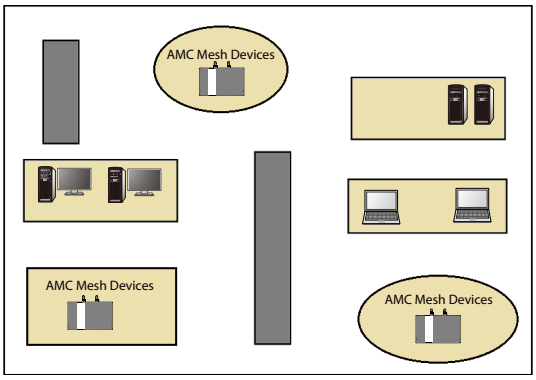
TIP

- To use AMC Manager® (non-free version), the license key needs to be purchased.
- If you are interested in purchasing the license, please contact us. For the contact information, refer to **D-2. Customer Support Center**.

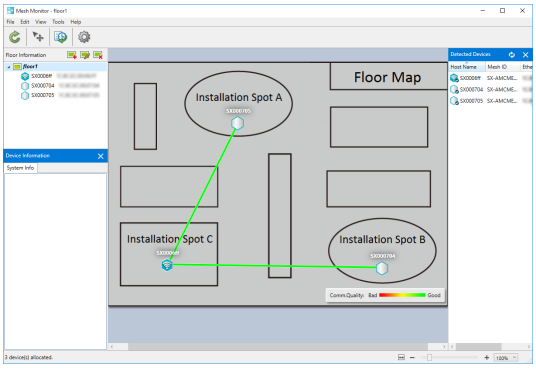
2-5-2. Mesh Monitor

Mesh Monitor is a plug-in utility of AMC Manager®.
The operating status of AMC Mesh device can be visualized and AMC Mesh network can be managed with it.

Actual location of installation



Display on Mesh Monitor



As shown in the image above, the actual installation environment is simulated on Mesh Monitor. The connection line is displayed based on the connection information of RM-100RC. Also, a history of AMC Mesh network transition and RM-100RC's operating status can be checked, which is useful for identifying the cause of trouble.

TIP

- Mesh Monitor is a plug-in utility of AMC Manager®. To install it, another license key needs to be purchased.
- If you are interested in purchasing the license, please contact us. For the contact information, refer to **D-2. Customer Support Center**.
- For how to use Mesh Monitor, refer to the **Mesh Monitor User's Manual (AMC Mesh)**.

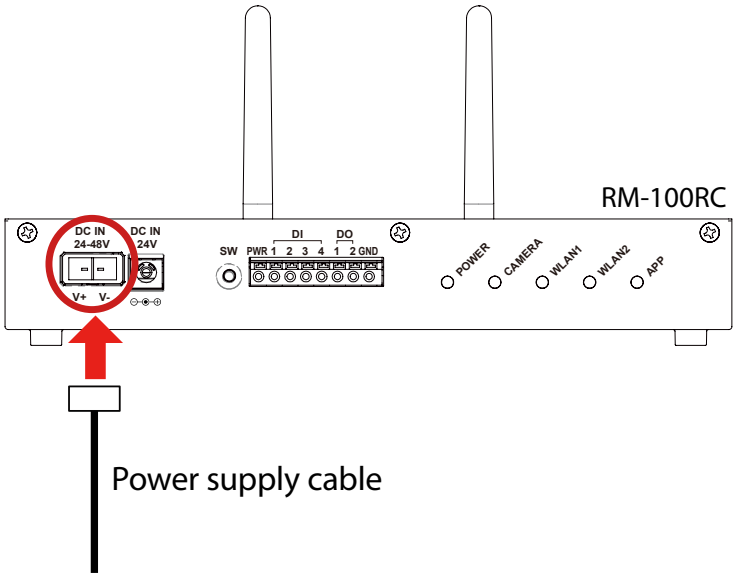
2-6. Power Supply

RM-100RC can receive electrical power in the following two ways:
- Power supply
- AC adapter (optionally available)

TIP
- Power supply and AC adapter cannot be used at the same time.
- Always use the AC adapter that you have purchased from Silex Technology.

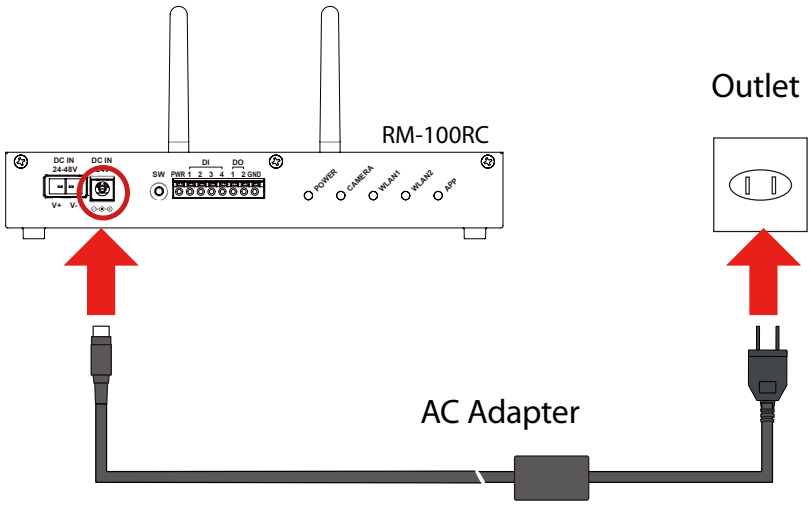
Sample connection1: When using a power supply

Connect the power supply cable to the DC connector of RM-100RC.



Sample connection2: When using an AC adapter (option)

Connect the AC adapter to RM-100RC and AC plug to an outlet.



2-7. DFS Function

RM-100RC supports DFS (Dynamic Frequency Selection) of the IEEE 802.11h wireless standard. When radar waves are detected, the channel will automatically be switched to avoid interference with radar systems (e.g. weather radar, etc.).

If an available channel, instead of **AUTO**, is selected for **Channel**, the channel will be switched to the channel that is checked in the available channel list.
When there are channels that you want to avoid to use, set them in the available channel list in advance.
In the following cases, the destination channel will be selected by RM-100RC.

- The destination channel cannot be used as radar waves are detected on it.
- **AUTO** is set for **Channel**

TIP

- When RM-100RC is powered on, it will check for a certain period of time (*) whether there are radar waves on the channel to use. During that time, it is unable to communicate with RM-100RC using the 5GHz band.
- If radar waves are detected during or after RM-100RC is powered on, the channel needs to be changed in order to avoid wireless interference. Therefore, if DFS channels are selected, the channel may be changed.
- If radar waves are detected, it will be monitored even on the destination channel for a certain period of time (*). During the time, 5GHz band communication will be disabled on RM-100RC. Once radar waves are detected, the channel will not be available for 30 mins.
  (* This time period differs depending on the country.)

Note

- The WLAN1 LED flashes red if radar waves are detected when RM-100RC is powered on or is in operation.

If there are no candidates for the destination channel when radar waves are detected, communication using 5GHz band will be disabled for 30 min.
When an available channel is found in 30 min, the channel is switched to that channel.

3. Configuration

3-1. Displaying the RM-100RC's Configuration Web Page

RM-100RC settings can be configured from its Web page.
The Web page can be displayed by the following methods.
Display the Web page using a method appropriate for your environment.

- Displaying a Web Page by entering the IP address directly

Connect RM-100RC and PC on wired LAN, and enter the IP address of RM-100RC to the Web browser to display the Web page.

- Displaying a Web Page by using AMC Manager

Connect RM-100RC and PC on wired LAN, and display the Web page using AMC Manager.

- **Displaying a Web Page by Smart Wireless Setup**

Connect RM-100RC and PC using Smart Wireless Setup and display the Web page by entering the IP address of RM-100RC to the Web browser.

TIP

- The display of the RM-100RC's Web page may differ depending on your environment and Web browser.
- By default, the Web page cannot be displayed by using Smart Wireless Setup. To use Smart Wireless Setup, **Network Authentication** needs to be changed to **Open** or **WPA2-Personal**.

Note

- The following is the factory default settings for wired LAN settings.

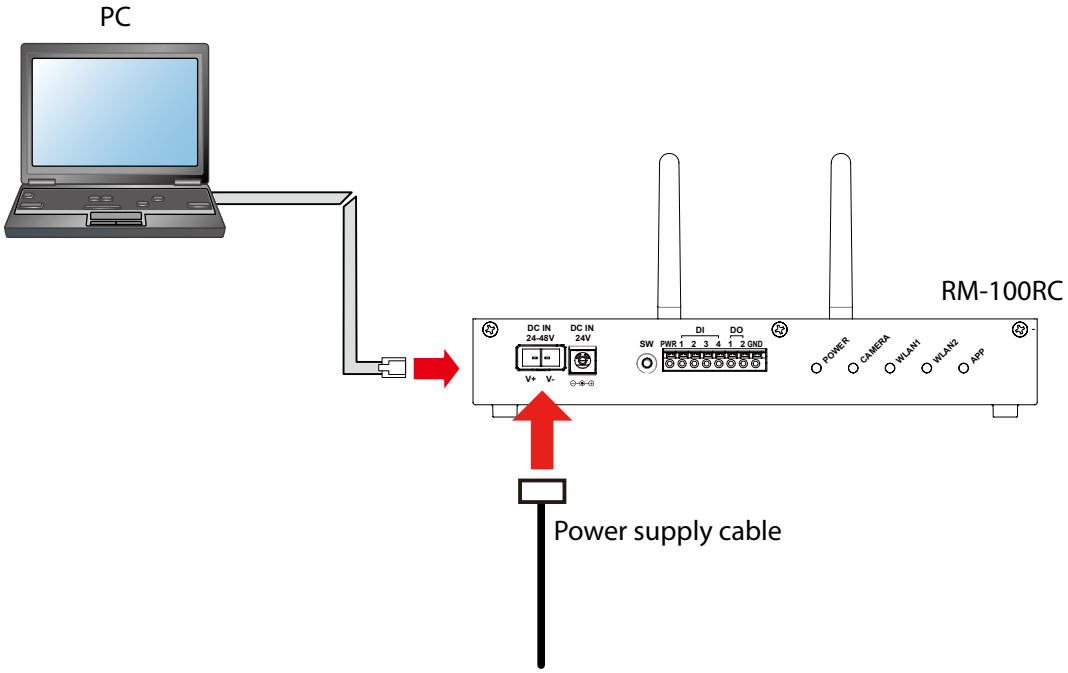
Setting Item	Default Value
Default Gateway	0.0.0.0 (If an IP address is not obtained from DHCP server, 0.0.0.0 is used.)
DNS (Primary)	0.0.0.0 (If an IP address is not obtained from DHCP server, 0.0.0.0 is used.)
DNS (Secondary)	0.0.0.0 (If an IP address is not obtained from DHCP server, 0.0.0.0 is used.)
DHCP Client	DISABLE
IP Address	192.168.1.10 (If an IP address is not obtained from DHCP server, a link-local address is used.)
Subnet Mask	255.255.255.0 (If an IP address is not obtained from DHCP server, 255.255.0.0 is used.)

3-1-1. Displaying a Web Page by Entering the IP Address

By entering the IP address of RM-100RC to the address bar of your Web browser, the Web configuration page can be accessed.

Note

- The following instructions will use Microsoft Edge and Windows 10 as examples. The display may vary depending on the OS or Web browser version.



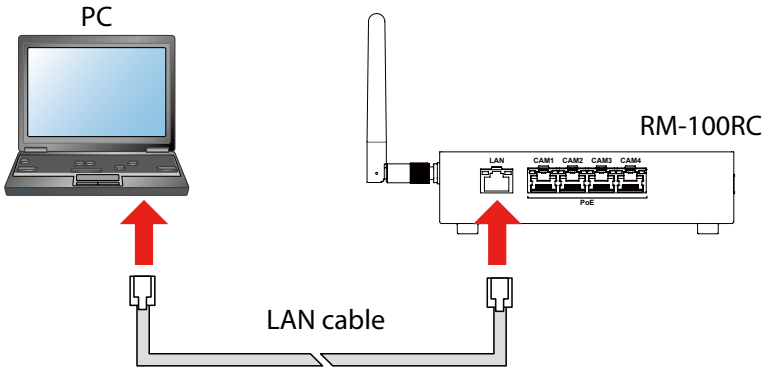
The following items are required for this configuration.

- LAN cable
- PC to use for configuration
- Power supply (DC24V to 48V), or RM-100RC's optional AC adapter

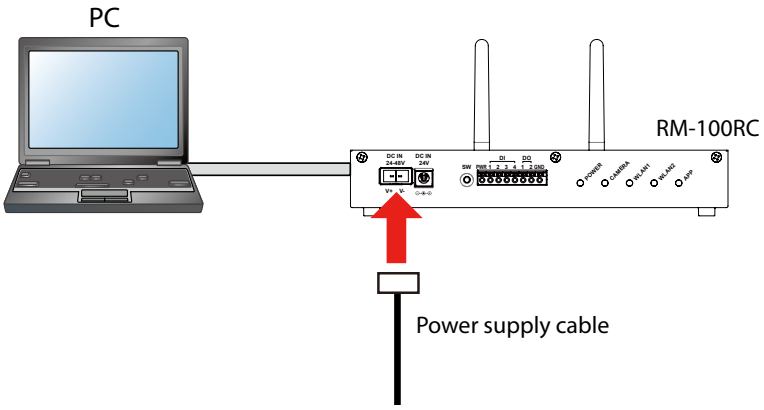
TIP

- If there is no power supply that supports DC24V to 48V, please use the optional AC adapter.
- Power supply (DC24V to 48V) and AC adapter cannot be used at the same time.

1. Connect the PC and RM-100RC ("**LAN**" port) using a LAN cable.



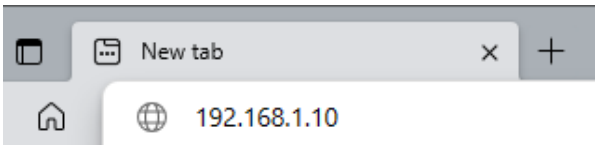
2. Connect the power supply cable to the DC connector of RM-100RC.



TIP

- When the optional AC adapter is used, connect it to the DC jack of RM-100RC. Then, do not use the power supply that supports DC24V to 48V with it.

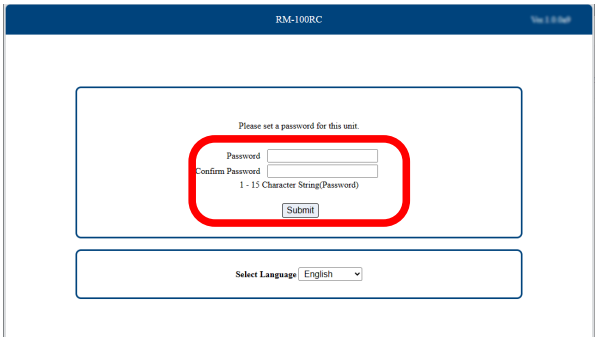
3. Start the Web browser on the PC.
Enter the IP address of RM-100RC to the address bar and press the Enter key.



Note

- Change the wired LAN network setting of the PC to allow communication with RM-100RC. If the wired LAN network setting of the PC is set to "**Obtain an IP address automatically**", you do not have to change it since the DHCP server setting of RM-100RC is enabled by default.
- When the IP address of RM-100RC is "192.168.1.10", change the wired LAN network settings of the PC as follows.
  - IP address : 192.168.1.100
  - Subnet mask : 255.255.255.0

4. The login password configuration page appears.
Enter the password to configure for RM-100RC and click **Submit**.



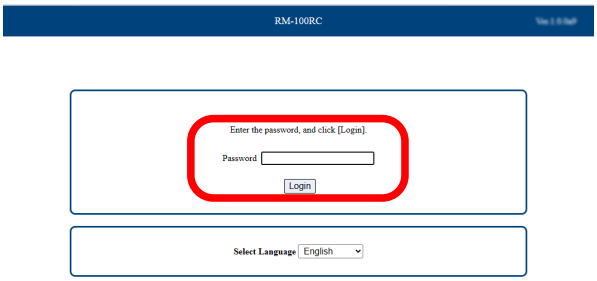
TIP

- Make a note of the password so that you can refer when you have forgotten it. Without the password, no settings can be changed unless RM-100RC is reset to the factory default settings.

Note

- The login password configuration page is displayed only when RM-100RC has the factory default settings. Once configured, it will not be displayed again.

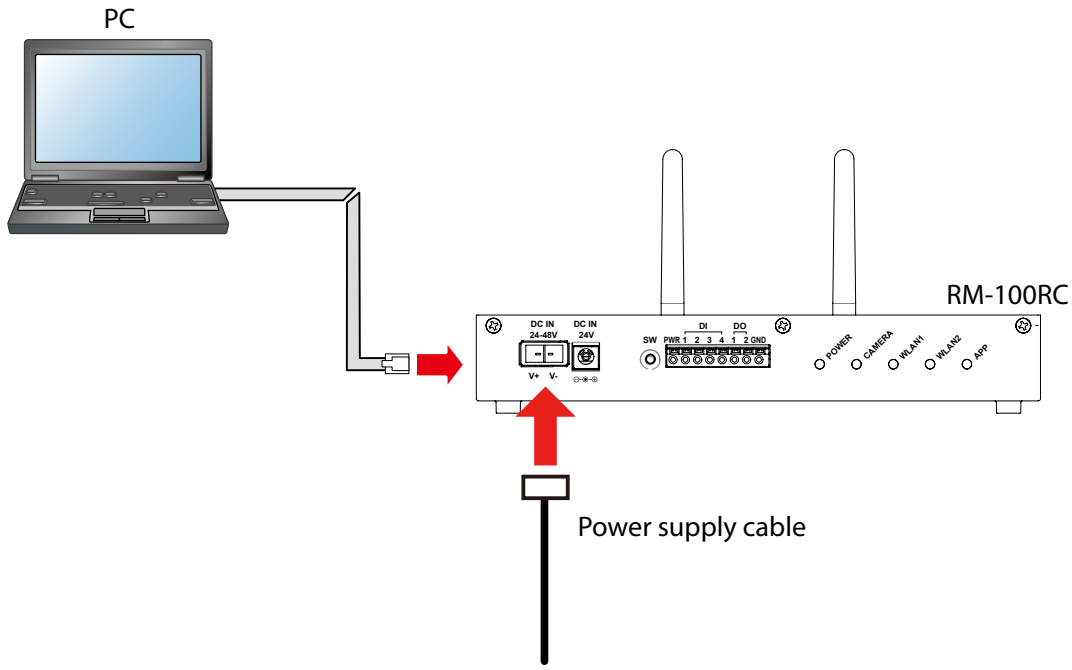
5. When the login page is displayed, enter the configured password and click **Login**.



Web page has been displayed.
Go on to **3-2. Configuration Using RM-100RC's Web Page**.

3-1-2. Displaying a Web Page Using AMC Manager®

The Web page of RM-100RC can be accessed using AMC Manager®.



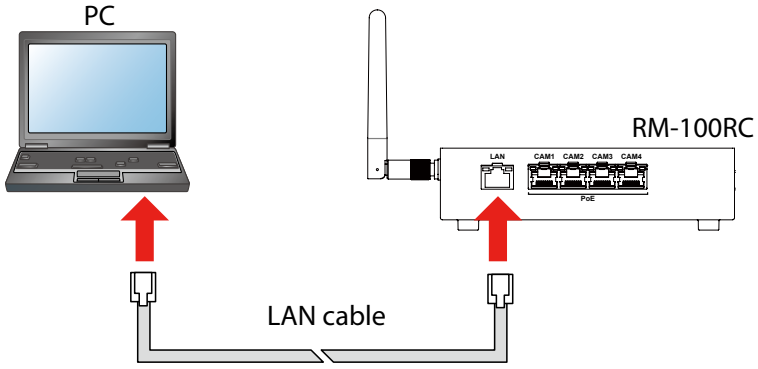
The following items are required for this configuration.

- LAN cable
- PC
  (AMC Manager® is installed)
- Power supply (DC24V to 48V), or RM-100RC's optional AC adapter

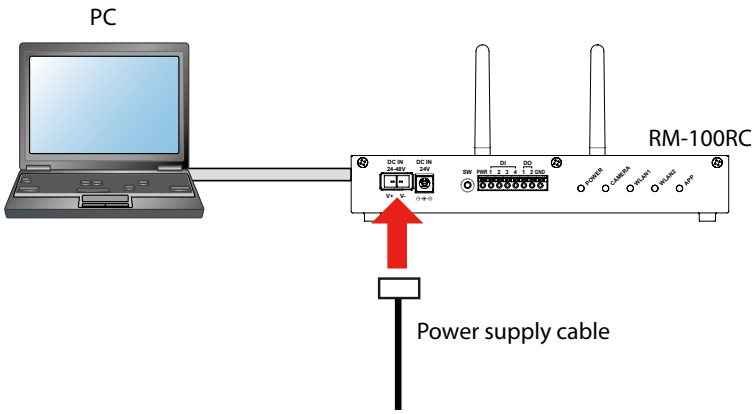
TIP

- If there is no power supply that supports DC24V to 48V, please use the optional AC adapter.
- Power supply (DC24V to 48V) and AC adapter cannot be used at the same time.

1. Connect the PC and RM-100RC ("**LAN**" port) using a LAN cable.



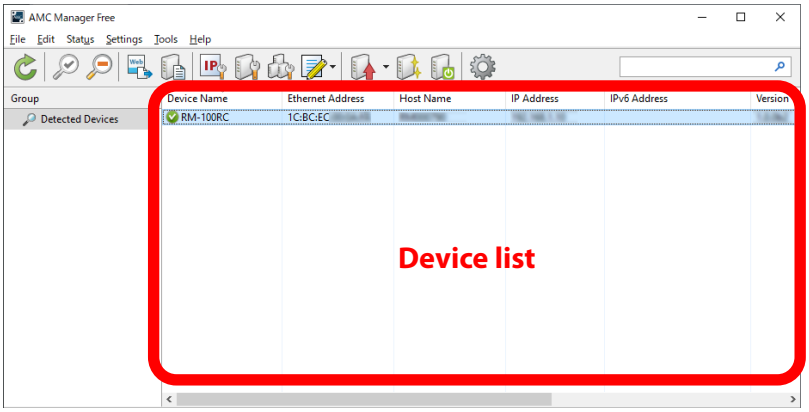
2. Connect the power supply cable to the DC connector of RM-100RC.



TIP

- When the optional AC adapter is used, connect it to the DC jack of RM-100RC. Then, do not use the power supply that supports DC24V to 48V with it.

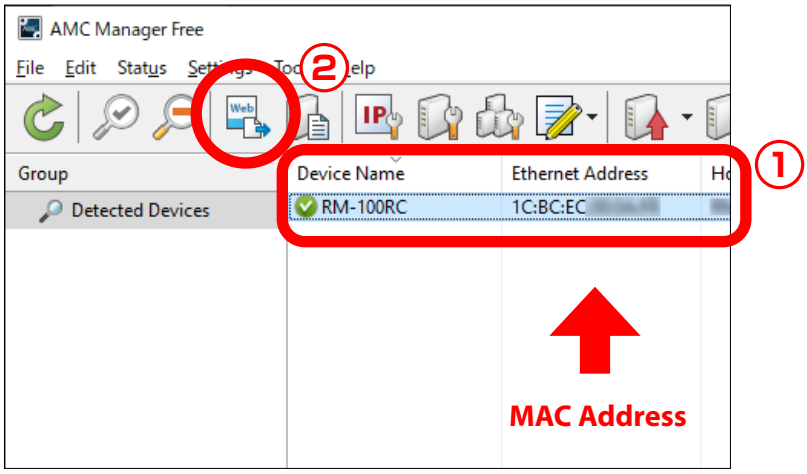
3. Start AMC Manager® in the PC.
The device list of AMC Manager® shows the discovered RM-100RC units.



Note

- If the RM-100RC is not displayed on the device list, click the icon **Refresh** ( ).
- It may take approximately 1 min to show them on the device list depending on your environment.

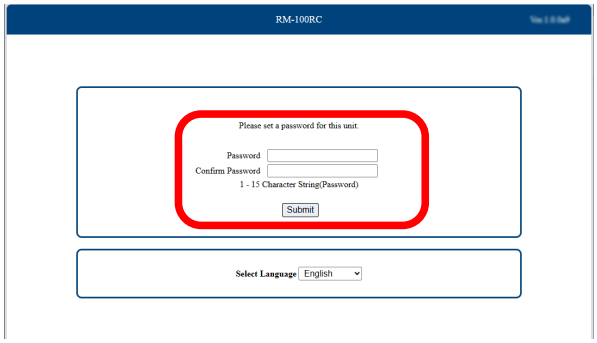
4. Choose RM-100RC to configure, and click the icon **Configure using Web browser**( ).



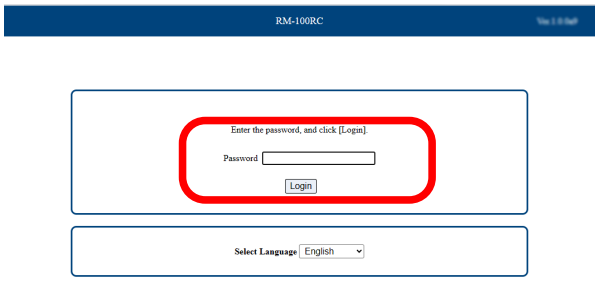
Note

- Check the MAC address that is noted on the product label to see if the displayed device is the correct one you want to configure.

5. When the login password configuration page appears, enter the password to configure for RM-100RC and click **Submit**.



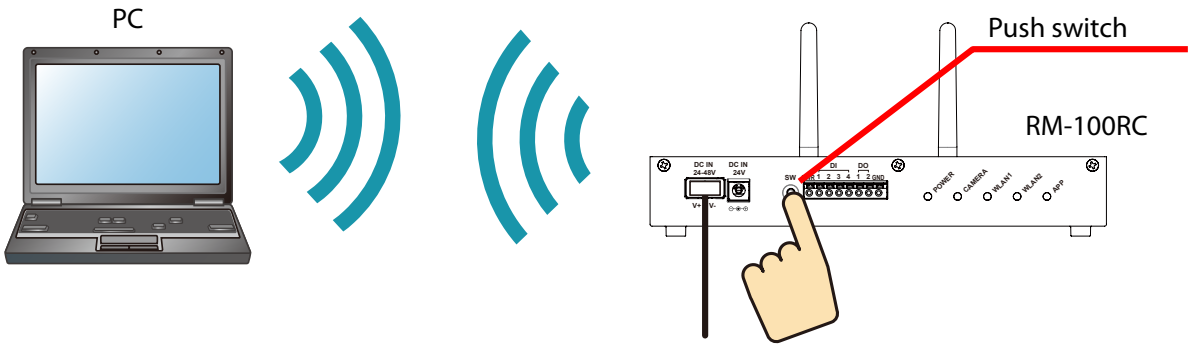
6. The login page is displayed.
Enter the login password you have configured and click **Login**.



Web page has been displayed.
Go on to **3-2. Configuration Using RM-100RC's Web Page**.

3-1-3. Displaying a Web Page by Smart Wireless Setup

Use the push switch(Smart Wireless Setup switch) to connect RM-100RC and PC via a wireless LAN as well as display the Web page.



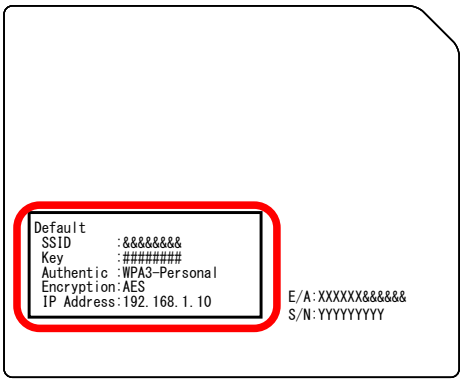
The following items are required for this configuration.

- PC
- Power supply (DC24V to 48V), or RM-100RC's optional AC adapter

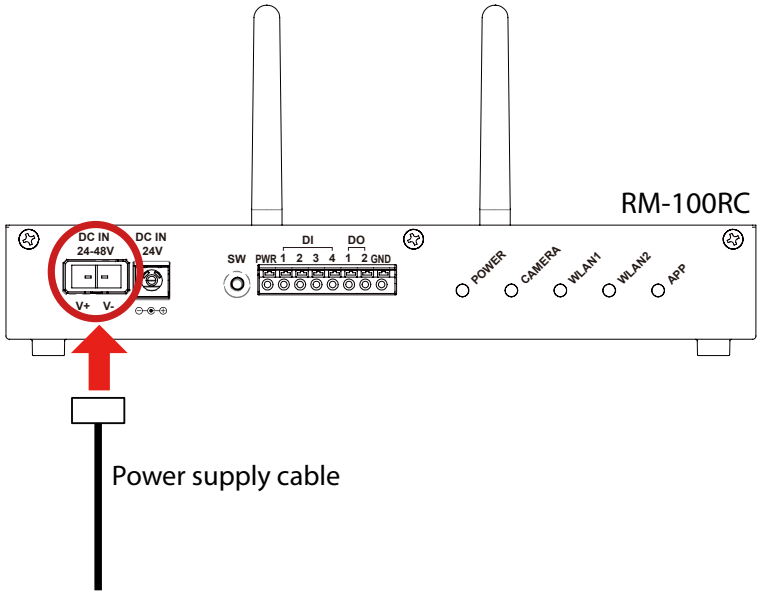
TIP

- If there is no power supply that supports DC24V to 48V, please use the optional AC adapter.
- Power supply (DC24V to 48V) and AC adapter cannot be used at the same time.
- Move RM-100RC closer to the PC you are using for configuration so that they can communicate properly.

1. Check the SSID of RM-100RC.
The SSID is printed on the label.
Make a note of it, as it will be needed during the configuration.



2. Connect the power supply cable to the DC connector of RM-100RC.

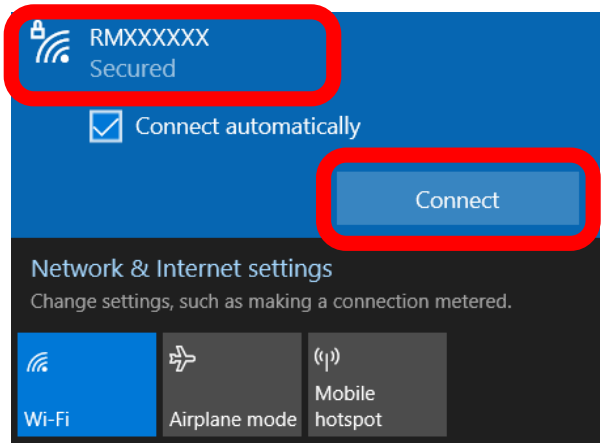


TIP

- When the optional AC adapter is used, connect it to the DC jack of RM-100RC. Then, do not use the power supply that supports DC24V to 48V with it.

3. Click the network icon on the notification area (system tray) of the PC to view the wireless networks.

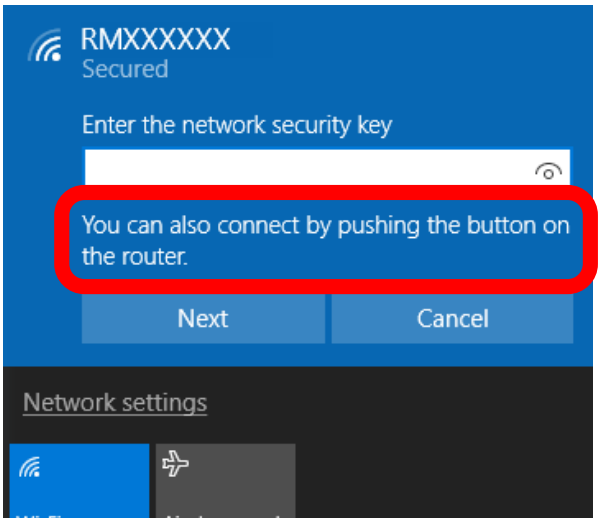
4. Select the SSID configured on RM-100RC from a list and click **Connect**.



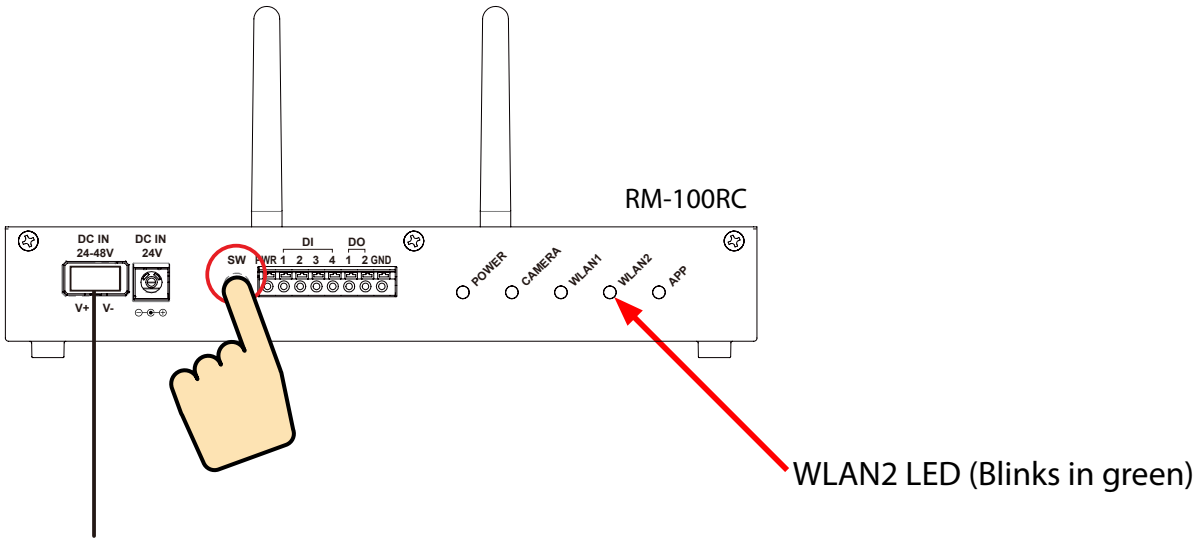
Note

- If **Connect automatically** is checked, your PC will automatically connect to RM-100RC every time it restarts.

5. The message says **You can also connect by pushing the button on the router**.

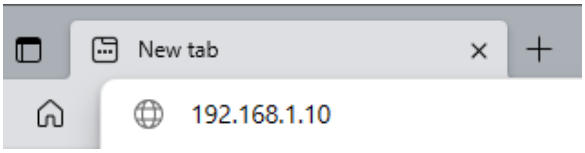


6. Press and hold the push switch(Smart Wireless Setup switch) of RM-100RC for 5 seconds or longer, and release it when the WLAN2 LED blinks green.

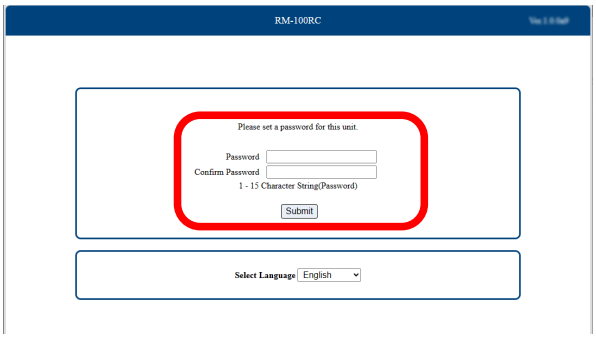


7. When the connection is established successfully, the WLAN2 LED turns green.
When a message **Do you want to allow your PC to be discoverable by other PCs and devices on this network?** appears, click **No**.

8. Start the Web browser on the PC.
Enter the IP address of RM-100RC to the address bar and press the Enter key.



9. When the login password configuration page appears, enter the password to configure for RM-100RC and click **Submit**.



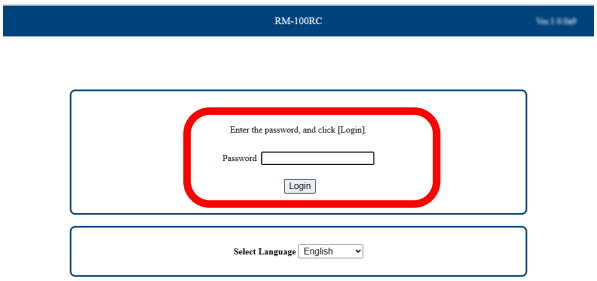
TIP

- Make a note of the password so that you can refer when you have forgotten it. Without the password, no settings can be changed unless RM-100RC is reset to the factory default settings.

Note

- The login password configuration page is displayed only when RM-100RC has the factory default settings. Once configured, it will not be displayed again.

10. When the login page is displayed, enter the password and click **Login**.



Note

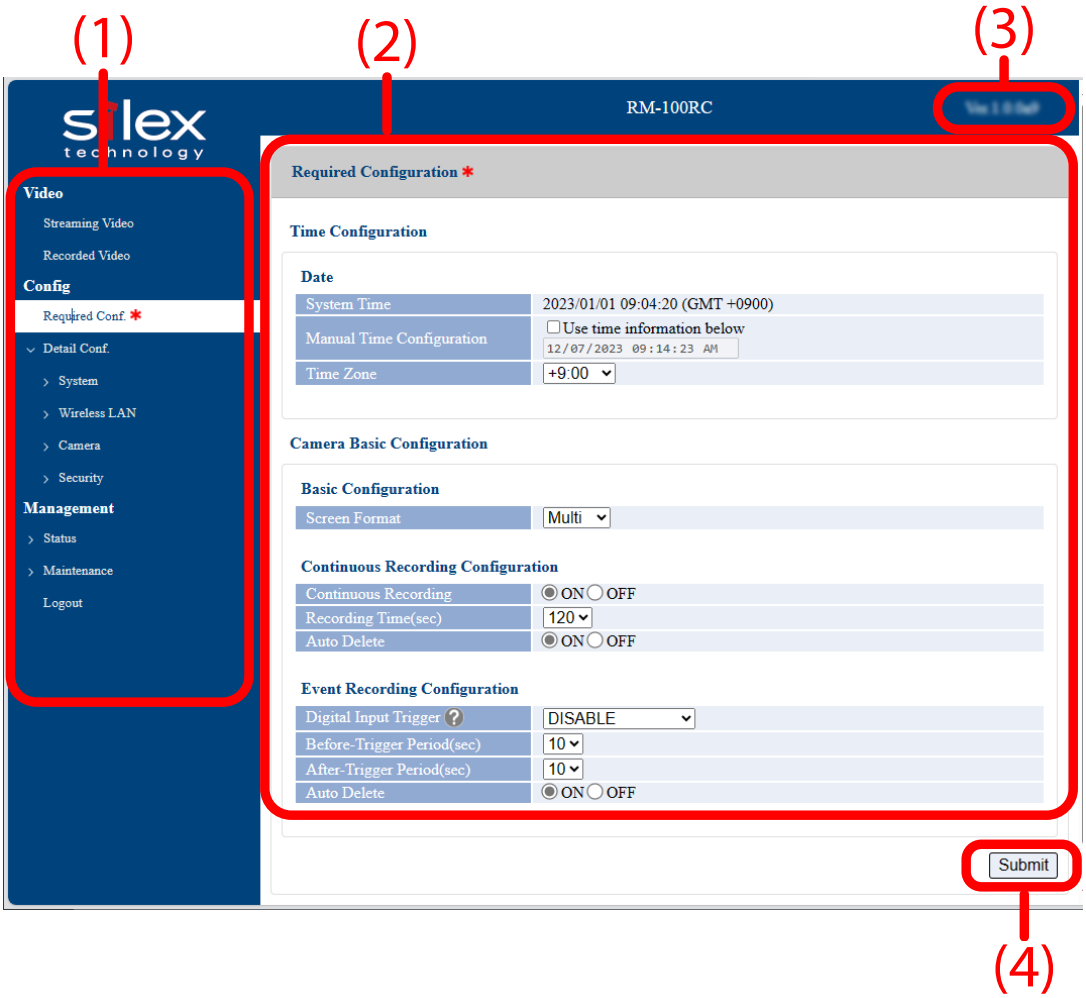
- When RM-100RC has the factory default settings, the login password configuration page is displayed. Enter the login password and click **Submit**.

Web page has been displayed.
Go on to **3-2. Configuration Using RM-100RC's Web Page**.

3-2. Configuration Using the RM-100RC's Web Page

3-2-1. About RM-100RC's Web page

After login, you can change the RM-100RC settings from the Web page.
The following shows the page structure.



(1) Page menu

If clicked, the configuration page is changed.

(2) Configuration page

Each setting can be configured.

(3) Firmware version

The firmware version of RM-100RC is displayed.

(4) Submit button

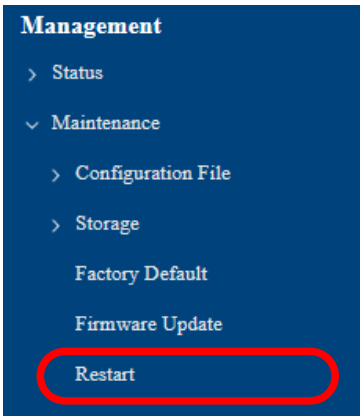
If clicked, the changes you made to the configuration page will be saved. (You may need to scroll-down the screen to find this button.)

TIP

- Be sure to set a password when you connect RM-100RC to a public network.
- Wireless bands for IEEE 802.11b/g or IEEE 802.11n/b/g are often in use by other people because the number of devices supporting these standards is growing rapidly. If these wireless modes are used, you may run into issues with having enough communication bandwidth.

Note

- In case RM-100RC needs to be restated, a message will be displayed prompting you to restart. Click **Restart** at the top, or go to **Management** - **Maintenance** and click **Restart**. When the restart page is displayed, click **Restart**.



Menu and Settings

Menu				Explanation
Video	Streaming Video			Displays the streaming video.
	Recorded Video			Displays the storage location of the recorded file. Click on the file name to obtain the recorded file.
Config	Required Conf.			Configure the settings necessary to use RM-100RC.
	Detail Conf.	System	TCP/IP	Configure the basic communication settings, LAN port, and camera port settings.
			File Share	Configure the external server to use for sharing the recorded files.
			Cloud Link	Configure the AMC Cloud link setting.
			Time	Set the time of RM-100RC.
		Wireless LAN	AccessPoint	Configure the setting for the Access Point function.
			AMC Mesh	Configure the AMC Mesh settings.
			Smart Wireless	Execute the Smart Wireless Setup (push button method).
		Camera	Camera Basic	Configure the basic settings for connected camera and recording.
			Camera Option	Configure the maximum capacity of recorded files that can be saved in RM-100RC, and configure the external server to which recorded files are uploaded.

Menu				Explanation
			Camera Setup Mode	Switches the operating mode of RM-100RC to display a link to the camera setting page.
		Security	Password	Set the password to log in to RM-100RC.
			IP Address Filter	Set the IP address filter.
			MAC Address Filter	Set the MAC address filter.
Management	Status	System	System Basic	Displays the system settings of RM-100RC.
			DHCP Server	Displays the DHCP server address distribution information.
		Wireless LAN	AccessPoint	Displays the setting information of the Access Point function.
			Connected Station Device	Displays the status of wireless station devices connected to RM-100RC via wireless LAN.
			AMC Mesh	Displays the AMC Mesh setting of RM-100RC and the information of devices connected using the AMC Mesh function.
		Log		Downloads the log of RM-100RC.
	Maintenance	Configuration File	Export	Exports the RM-100RC setting information to a text file.
			Import	Imports the setting information of the text file to RM-100RC.
		Storage	Data Delete	Deletes the recorded data from the storage.
			Format	Formats the storage.
		Factory Default		Restores all settings to the factory defaults and restarts RM-100RC.
		Firmware Update		Updates the firmware.
		Restart		Restarts RM-100RC.
	Logout			Log out of the Web page.

Note

- For details on each configuration item, refer to **A. List of All Settings**.

Refer to **5-1. Changing Network Settings** and **6-1. Changing Wireless LAN Settings** respectively for how to configure basic settings using the Web page.

3-2-2. Initial Configuration

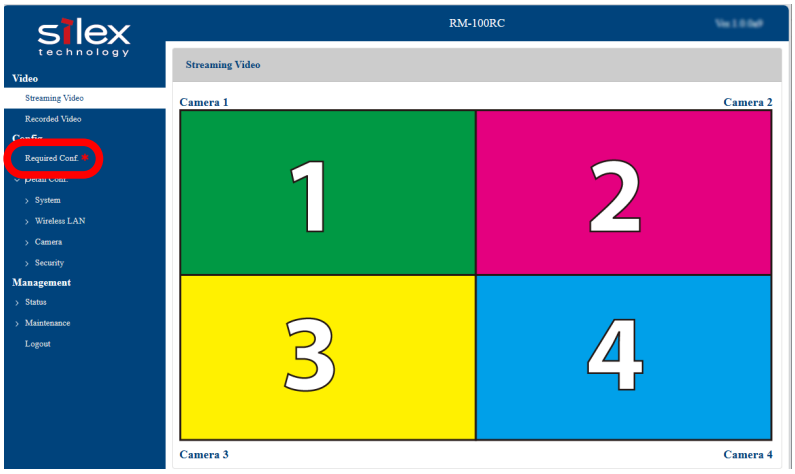
The following explains the initial configuration procedure.

1. Display the RM-100RC Web page.

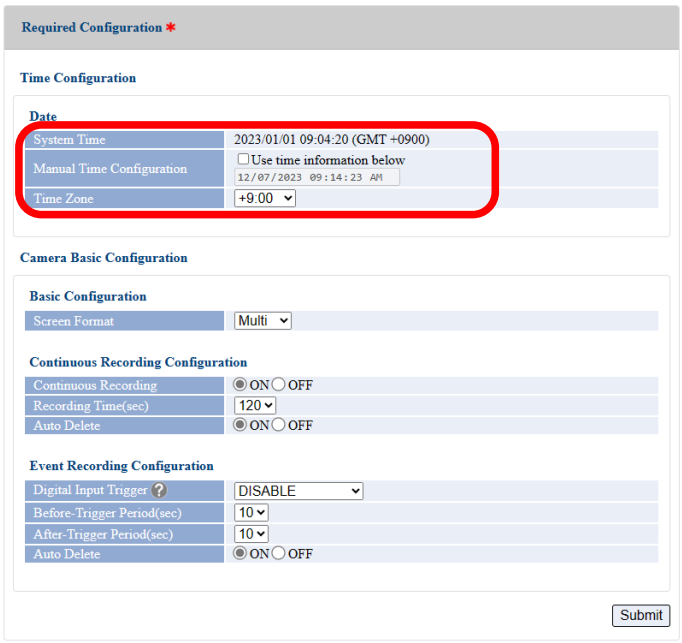
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

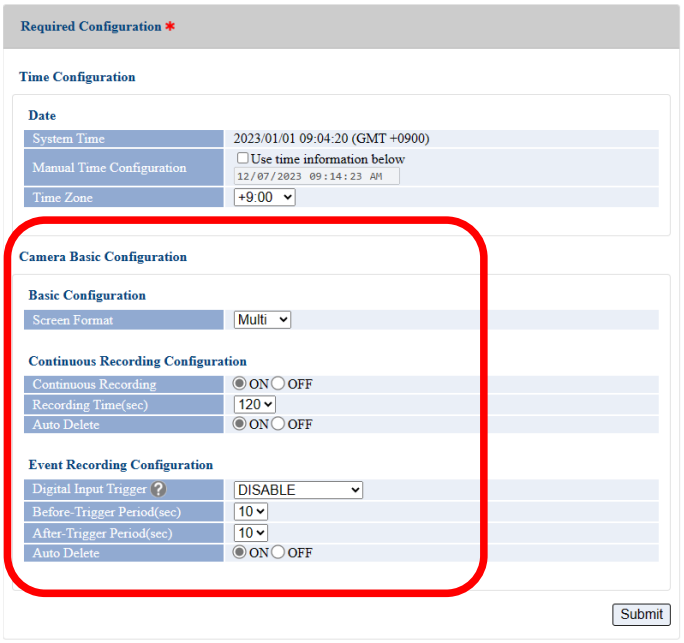
2. Click **Required Conf.** from the page menu.



3. The **Required Configuration** page is displayed.
Check the system time and change it if necessary.



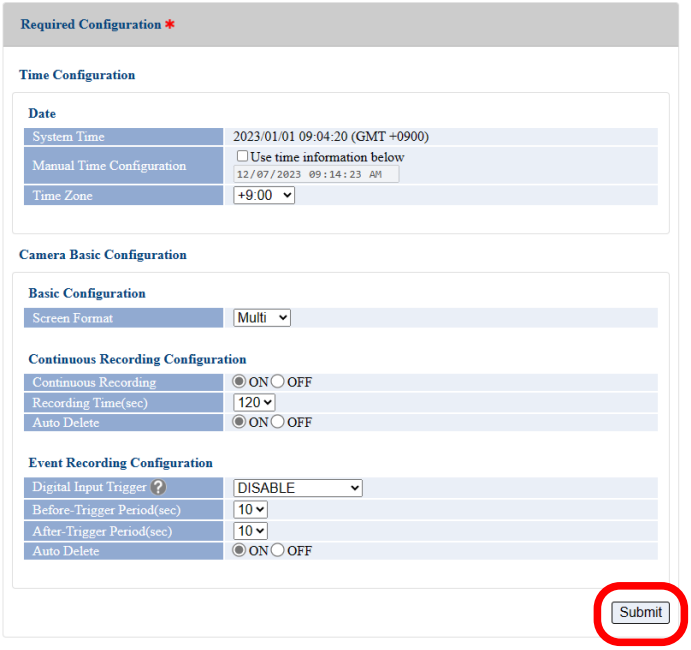
4. Check the settings at **Camera Basic Configuration** and change them if necessary. When you do not want to change the settings, skip the following steps.



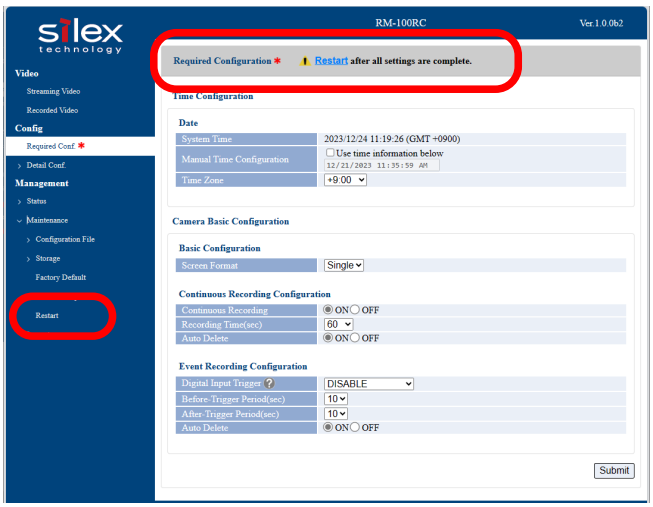
Note

- For details on each configuration item, refer to **A. List of All Settings**.

5. Click **Submit** at bottom right of the **Required Configuration** page.



6. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



7. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

8. The restart progress page is displayed.
When the login page is displayed, the restart is finished.

The initial configuration for RM-100RC is now completed.

4. Taking a Video with Camera

4-1. Camera Settings

This section explains how to register and configure the camera connected to RM-100RC.

Note

- When a standard camera is used, videos can be acquired just by connecting it to RM-100RC, so there is no need to register or configure the camera.

4-1-1. About Saved Videos

The following describes the videos saved on RM-100RC.

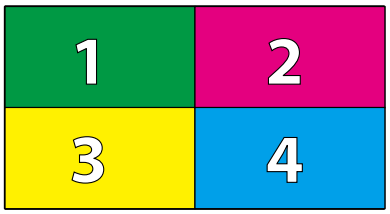
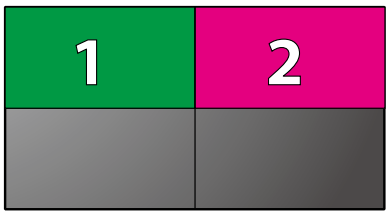
Screen Format

The video of the camera is saved in the temporary storage area of RM-100RC and then saved as a recorded file. The contents of the recorded file vary depending on the **Screen Format** setting.

There are following two options for **Screen Format**.

Screen Format	Description
Single	A video of one camera is saved as a single recorded file. When 4 cameras are connected, 4 recorded files are saved. For distribution, a video of one camera will be applied. The camera can be switched from the Web page.
Multi	Videos of up to 4 cameras (camera 1 to 4) are combined and saved as a single file. For distribution, videos of camera 1 to 4 will be applied.

In case of **Multi**, the video is saved in FullHD. The displayed contents vary as follows, depending on the size of the video.

Camera video size	Displayed contents
HD	One screen is divided into four parts, and videos of camera 1 to 4 are displayed separately as shown below.  The display size is as follows. FullHD (1920 x 1080)
FullHD	Videos of camera 1 and camera 2 are displayed in the top two areas of the four areas. Cameras 3 and 4 are not displayed even if they are connected.  The display size is as follows. FullHD (1920 x 1080)

Saving Location

When a recorded file is created, it is saved in the **camera** folder in the internal storage of RM-100RC.

For the continuous recording function, a date folder and recorded file will be created in the **normal** folder of **camera**, and for the event recording function, a date folder and recorded file will be created in the **event** folder of **camera**.

The date folder is created with a folder name "YYYY-MM-DD" (YYYY: year, MM: month, DD: day).

Storage Size Limits

For the total size of recorded files that can be saved in the internal storage of RM-100RC, there is an upper limit on each recording type. By default, **Auto Delete** is set to **ON**, and the files will automatically be deleted in the ascending order of recording number, before the storage runs out of space. For example, if there is no free space for continuous recording, the recorded file with a smallest recording number will be deleted. The maximum storage size is as follows.

Recording type	Upper limit of recorded files that can be saved
Event Recording	10 to 30% of the available space (200GB) in internal storage (the minimum unit is 5% and this setting can be changed from the Web page)
Continuous Recording	90 to 70% of the available space (200GB) in internal storage (the minimum unit is 5% and this setting can be changed from the Web page)

After changing the storage size, if the total size of the current recorded files becomes larger than the upper limit, the files will be deleted in the ascending order of recording number until the storage size fits in the upper limit, when RM-100RC is restarted.

TIP

- If the automatic deletion setting is set to **OFF** and the storage limit is set lower than the total size of the recorded files that have already been saved, the recorded files will be deleted, but recording will not perform.

Note

- For details on the recording number of the file name, see **4-3. Obtaining a Recorded Video**.
- If you change the storage size limit for either continuous recording or event recording, the percentage of the other one will automatically be changed so that the total becomes 100%.

4-1-2. Supported Cameras

Not only limited to the standard camera "IP-S324", other cameras can also be used with RM-100RC. This section explains the necessary camera settings to use a non-standard camera.

Necessary Camera Settings

RTP camera operates with the following settings.
For the settings of the RTP camera, see **4-1-5. Camera Settings** or refer to the operating manual of the camera. During the setting, be sure to assign the IP address that can communicate with RM-100RC.
The setting names may differ depending on each camera. For details, refer to the operating manual of the camera.

Setting name	Value
Fps	30
Bit rate	3Mbps or lower
Image size	HD or FullHD
I-frame insertion interval	1 second
Compression method	H.264
Protocol	RTP

4-1-3. Registering a Camera

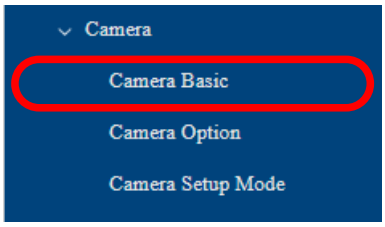
This section explains the procedures for registering an RTP camera.

1. Display the RM-100RC Web page.

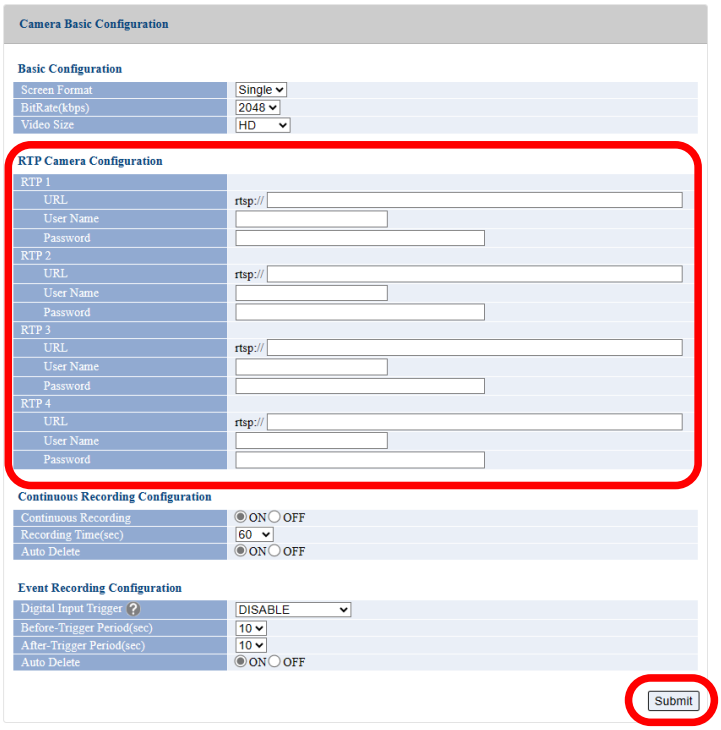
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Camera** - **Camera Basic** from the page menu.



3. The **Camera Basic Configuration** page is displayed.
Enter the camera settings in **RTP Camera Configuration**, and click **Submit**.



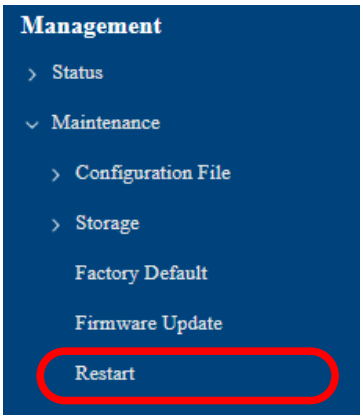
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

Note

- When the screen format is **Multi** and the video size is **FullHD**, only RTP1 and RTP2 can be set.
- When the screen format is **Single** and the video size is **FullHD**, only RTP1 can be set.
- For URL, user name and password of the RTP camera, refer to the user's manual of the camera.
- For details on each configuration item, refer to **A-2-3. Camera**.

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the restart confirmation page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

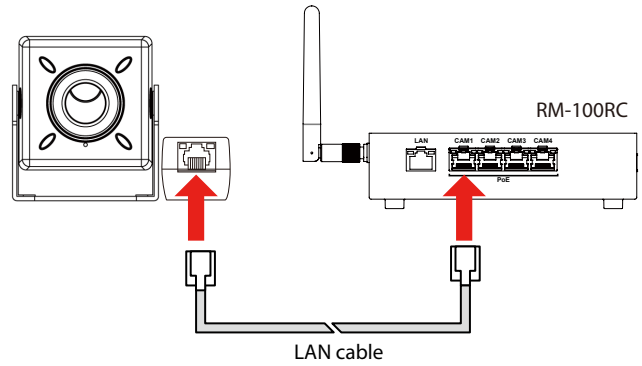
- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

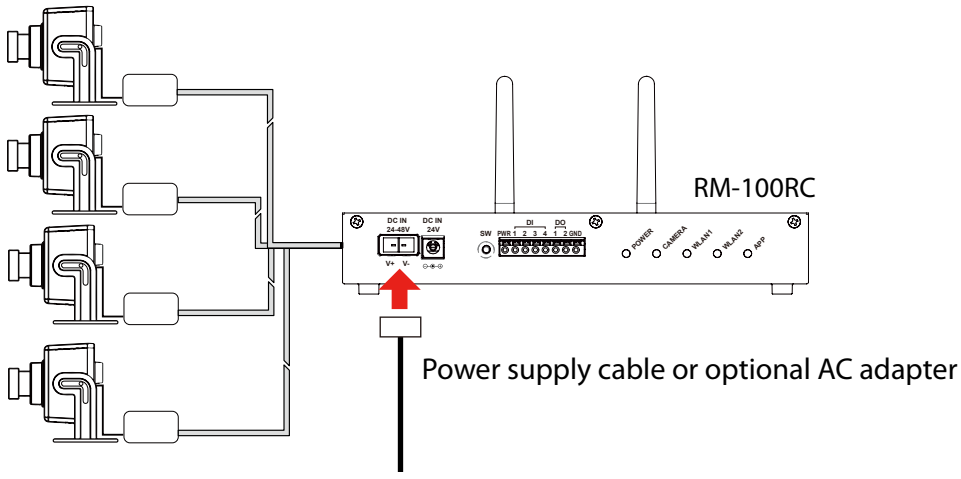
4-1-4. Connecting a Camera and Turning on It

This section explains the steps to connect the camera and turn on RM-100RC.

1. Connect RM-100RC and the camera using a LAN cable.
When there are multiple cameras, connect each to the camera port.



2. Connect the power supply cable to the DC connector of RM-100RC.



TIP

- Depending on the connected camera, overcurrent may be detected and power may not be supplied to the camera. In that case, videos of the camera cannot be acquired.

4-1-5. Camera Settings

The connected camera can directly be configured via RM-100RC.
This section explains the procedures to configure the camera connected to RM-100RC.
To change the camera settings, register that camera to RM-100RC in advance. For details, refer to **4-1-3. Registering a Camera**.

TIP

- This setting can be configured from the PC that is connected to RM-100RC via wired LAN.

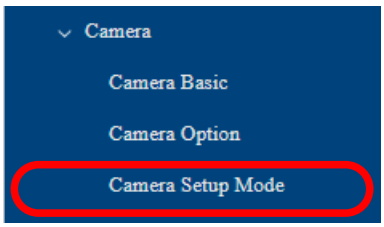
1. Connect the camera to RM-100RC and turn on it.
For details, refer to **4-1-4. Connecting a Camera and Turning on It**.

2. Display the RM-100RC's Web page.

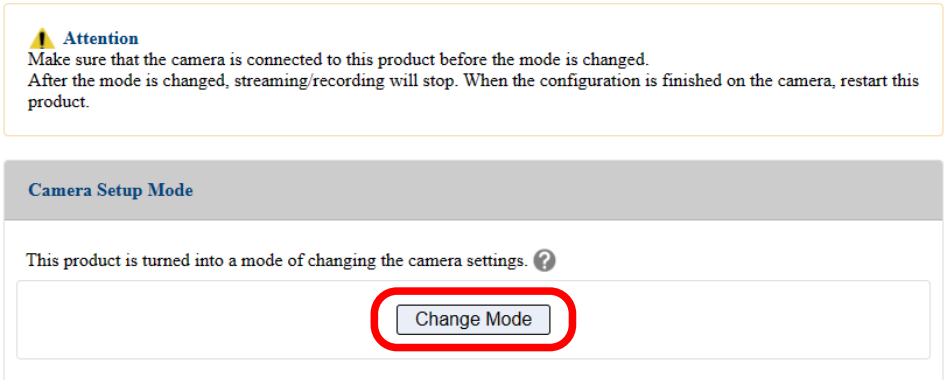
Note

- For how to display the RM-100RC Web page, see **3-1-1. Displaying a Web Page by Entering the IP Address** or **3-1-2. Displaying a Web Page Using AMC Manager®**.

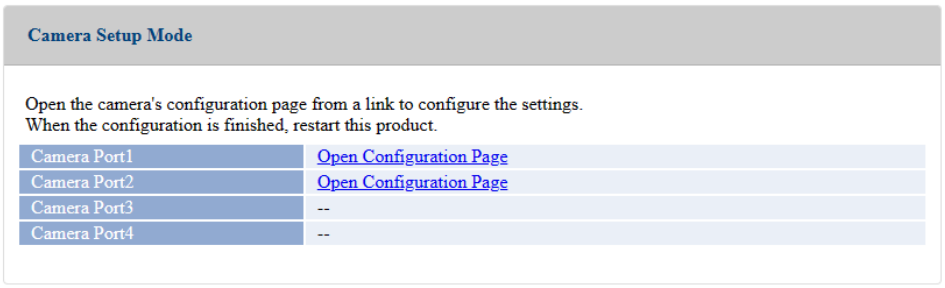
3. Click **Detail Conf.** - **Camera** - **Camera Setup Mode** from the page menu.



4. The **Camera Setup Mode** page is displayed.
Confirm that the camera is connected to RM-100RC, and click **Change Mode**.



5. Click **Open Configuration Page** for the connected camera.
Configure the settings in the camera setting page, and restart RM-100RC.



Note

- When the camera does not have a configuration Web page, the Web page is not displayed even if **Open Configuration Page** is clicked. For more information about the camera, please contact the point of purchase.
- To change the standard camera settings, refer to the separate document, "**Standard Camera Setting Procedure**".
- After the camera setting is completed and RM-100RC is restarted, recording and streaming will perform using the new settings.

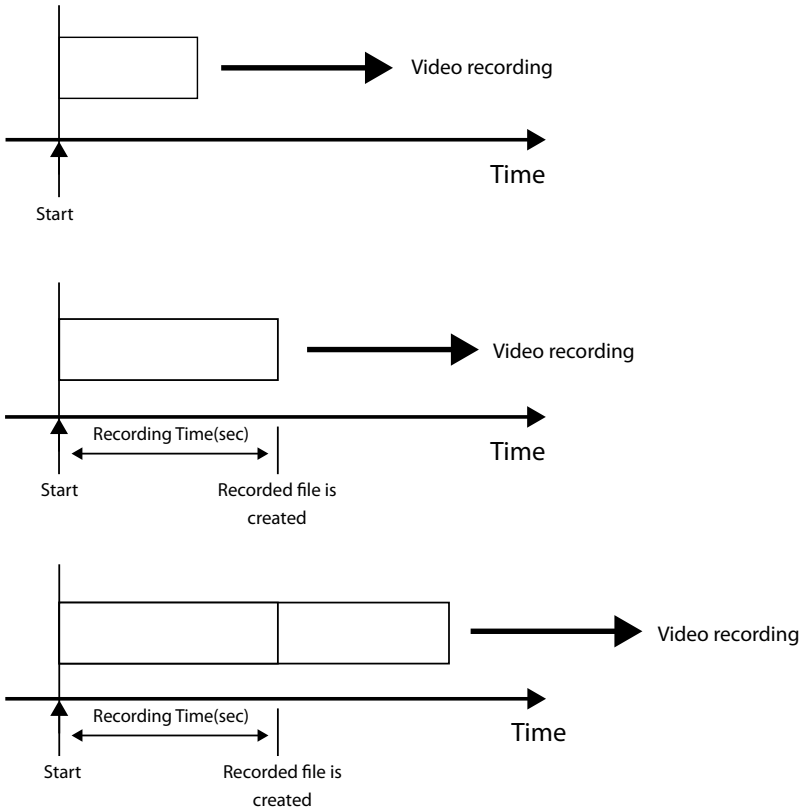
4-2. Recording a Video of Camera

This section explains the video recording system and how to configure the recording settings. There are two recording functions; one is "Continuous Recording" that continues recording since RM-100RC is turned on, and the other one is "Event Recording" that performs recording using the input signal of the digital input interface.
Continuous recording function and event recording function can be used at the same time. For the continuous recording function, see **4-2-1. Recording a Video Continuously**, and for the event recording function, see **4-2-2. Recording a Video before/after an Event**.

4-2-1. Recording a Video Continuously

RM-100RC has a "Continuous Recording" function that continues recording since it is turned on. The following explains the creation timing and setting procedure for the recorded files.

For the continuous recording function, the recorded files are created as below.
Each time recording starts and the specified recording time elapses, the video for that length of time will be saved as a recorded file.



Note

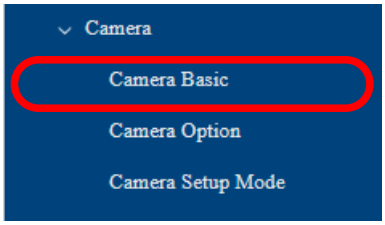
- When RM-100RC is restarted, video will be saved until the restart.

1. Display the RM-100RC's Web page.

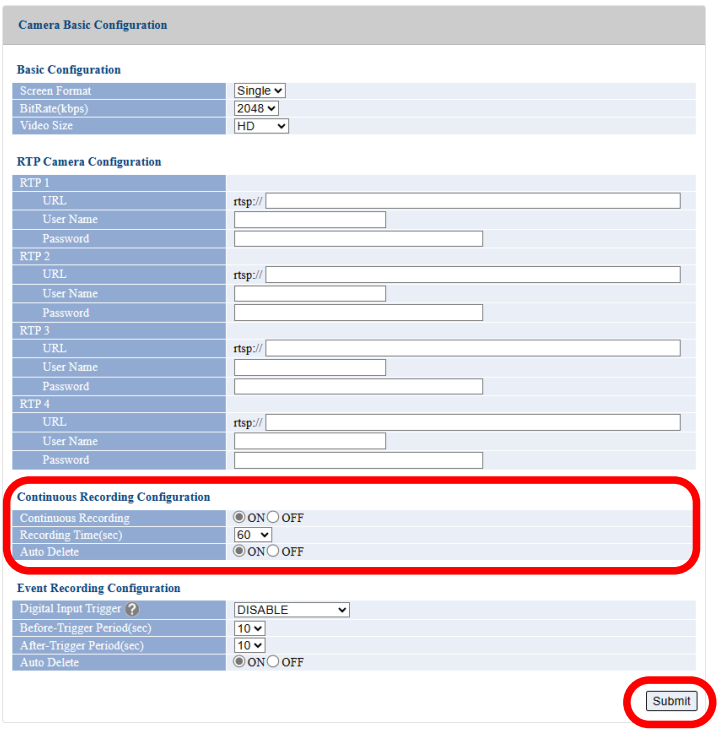
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Camera - Camera Basic** from the page menu.



3. The **Camera Basic Configuration** page is displayed.
Configure the settings at **Continuous Recording Configuration** and click **Submit**.



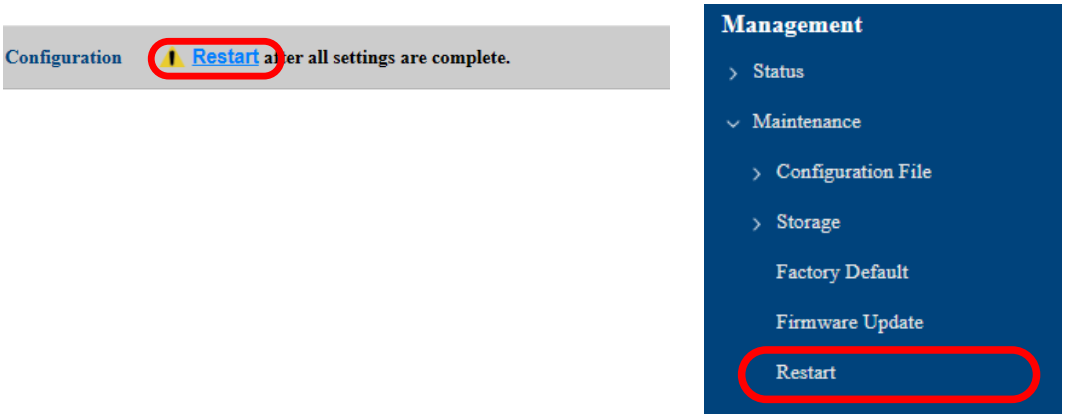
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

Note

- For details on each configuration item, refer to **A-2-3. Camera.**

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the restart confirmation page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

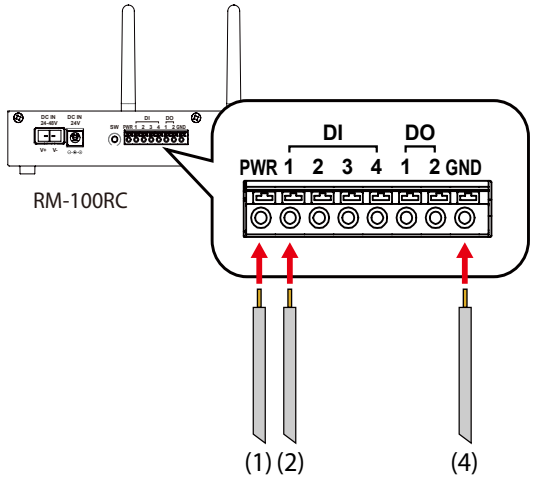
6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

4-2-2. Recording a Video before/after an Event

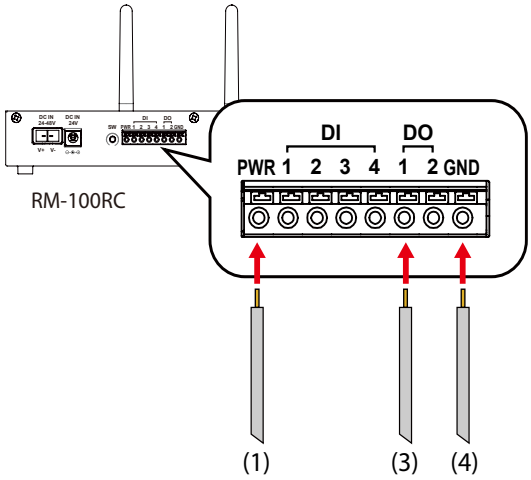
RM-100RC has an "Event Recording" function that uses the signal input of the digital input interface as a trigger in order to save the video before and after the trigger as a recorded file. This section explains the conditions to start recording and how to configure it.

To use the event recording function, connect the digital input/output device to the digital input/output interface. Connect the cables as shown below.
For details on the cables to connect, refer to the user's manual of that device.

When connecting a digital output device



When connecting a digital input device



Number	Description
(1)	Positive wire of the power supply (voltage: 5V to 24V)
(2)	Output line of the digital output device
(3)	Input line of the digital input device (rotating light/audio device/counter/PLC, etc.)
(4)	Negative wire of the power supply

Note

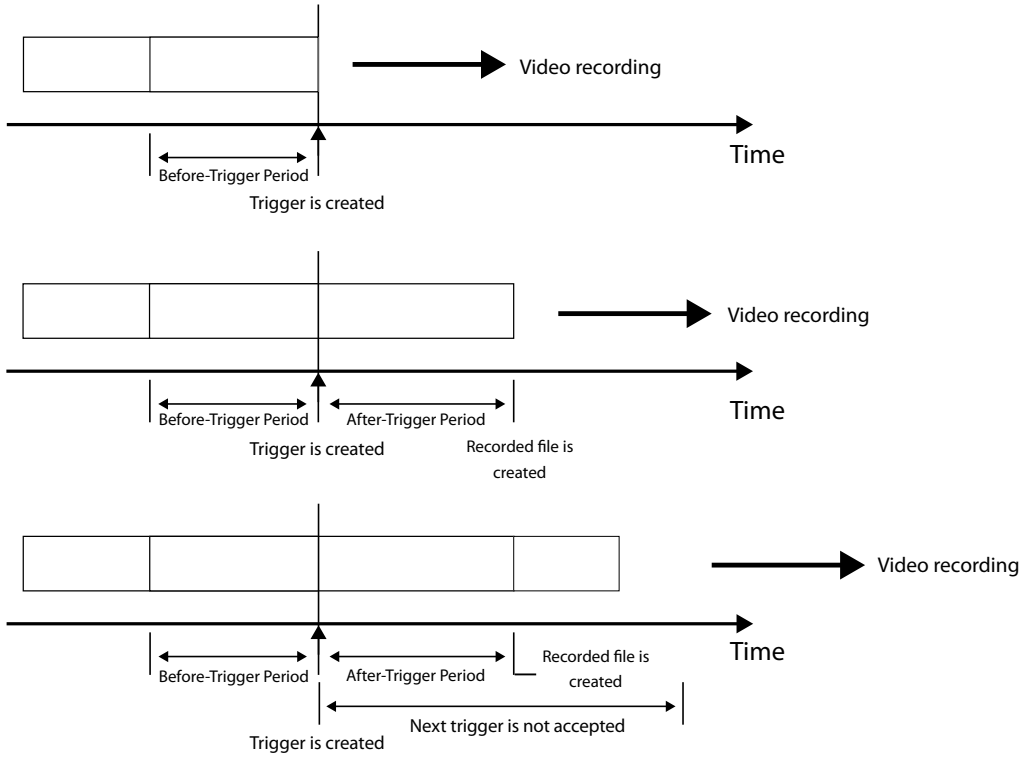
- When connecting both digital input device and digital output device, connect the cable (1),(2),(3),(4) to PWR,DI,DO,GND respectively.
- For details on the digital input/output interface, see **2-3. Parts and Functions**.
- When the **Camera Mode** is **Single**, the DI input number is associated with the camera number. For example, if a cable is connected to DI1, event recording will perform on camera 1 according to the input signal to DI1. For details, refer to **Recorded Files Created by Event Recording Function.**

Recording Conditions

RM-100RC monitors the input signals of the digital input interface at regular intervals. Event recording is triggered when the input signal meets the condition (1) below.

(1) When the input signal is monitored at 20ms interval, and the Low level signal continues 5 times in a row (80ms) after the signal changes from High level to Low level, a trigger is generated.
(2) After that, if a High level signal continues 5 times in a row (80ms) at 20ms interval, the status will return to (1) and the check will restart.

When a trigger occurs, a recorded file is created using a video that is captured from the camera. The file is created by combining videos of the length between **Before-Trigger Period (sec)** and **After-Trigger Period (sec)**.



TIP

- When the trigger occurs, the next trigger will not be accepted for amount of time between **Before-Trigger Period (sec)** and **After-Trigger Period (sec)**. During this time, triggers are suspended until they are accepted.
- Only one trigger can remain to be processed as a next trigger.

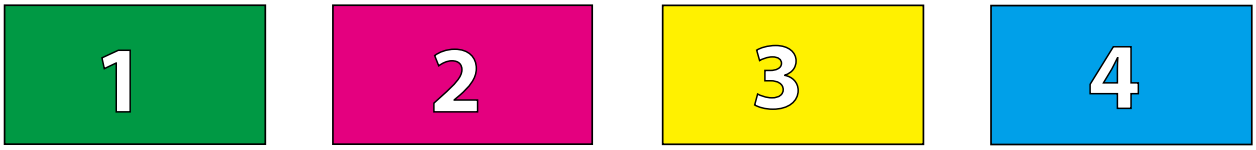
Recorded Files Created by Event Recording Function

After the recorded file is created by the event recording function, the file will change as follows depending on the combination of **Digital Input Trigger** and **Screen Format**.

When "Digital Input Trigger" is "All Cameras"

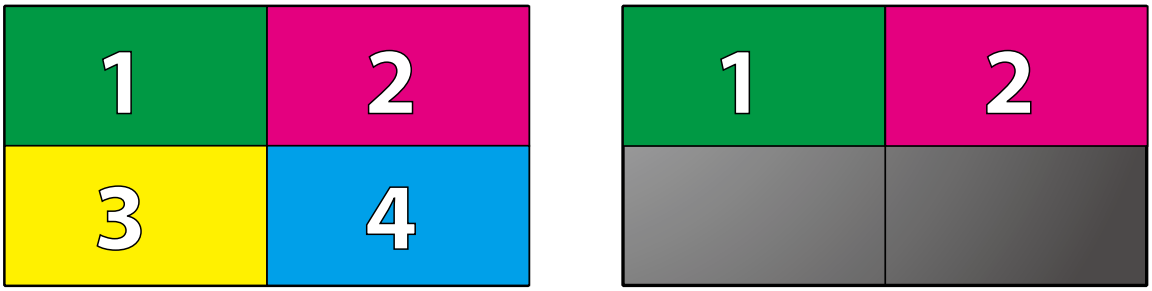
Regardless of which camera has caused a trigger, videos of all cameras are saved as event record files.

When **Screen Format** is **Single**, the recorded file is created for each camera.



Camera 1 recorded file | Camera 2 recorded file | Camera 3 recorded file | Camera 4 recorded file

When **Screen Format** is **Multi**, videos of all cameras are combined and one recorded file is created. When **Video Size** is **FullHD**, a recorded file is created with videos from camera 1 and camera 2.



HD | Full HD

When "Digital Input Trigger" is "Individual Camera"

Only when a video is from the camera that supports digital input signal, it is saved as an event record file.

Digital input	Corresponding cameras
DIN1	Camera 1
DIN2	Camera 2
DIN3	Camera 3
DIN4	Camera 4

Change of Frame When a Trigger Occurs

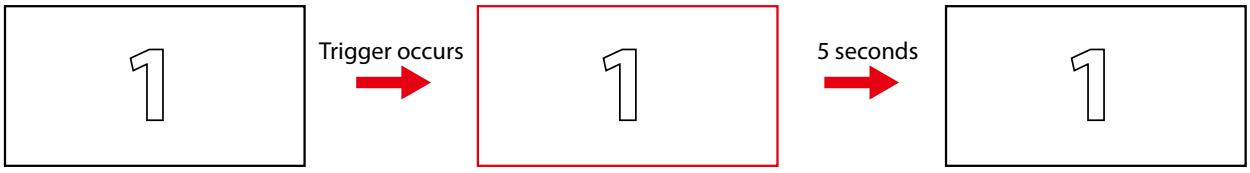
For videos to be distributed and saved with RM-100RC, a black frame will be added to them regardless of the settings.
When a trigger occurs, the color of the frame changes from black, indicating that event recording has started.
The following explains how the frame changes when a trigger occurs.

TIP

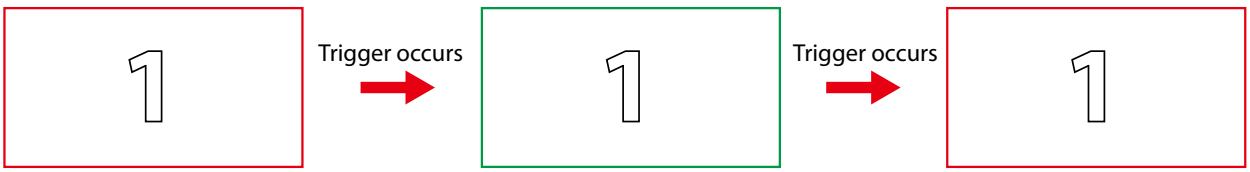
- The frame color change is just a rough indication of the trigger occurrence. The color of the frame may not immediately change when the trigger occurs.

Changes of Frame

Following is an example when using a video of the camera 1 whose **Digital Input Trigger** is **All Cameras** and **Screen Format** is **Single**.
In this case, when a trigger occurs on DIN1, the frame color of the camera 1 changes to red. After 5 seconds, the frame color will return to black.



If another trigger occurs while the frame color is red, such as when a trigger occurs on somewhere other than DIN1, the frame color changes to green. Each time a trigger occurs, the color changes from red to green, and green to red, and so on.

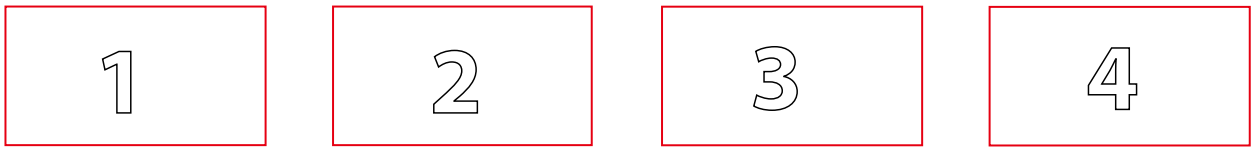


Association with "Digital Input Trigger" Setting

The displayed contents differ depending on the values of **Digital Input Trigger** and **Screen Format**.

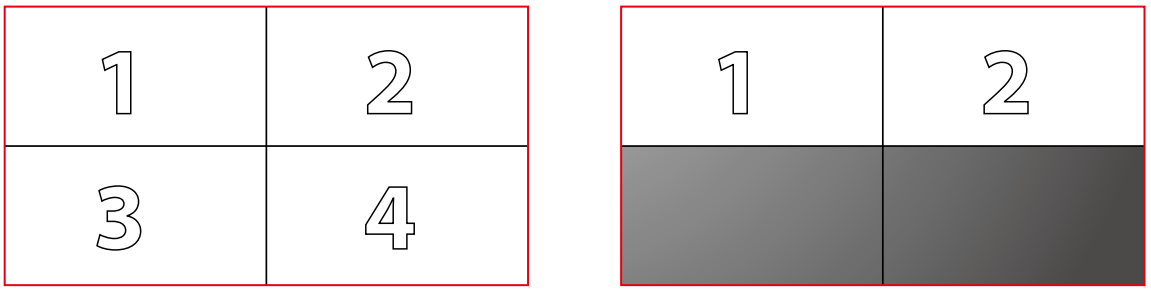
When "Digital Input Trigger" is "All Cameras"

When **Screen Format** is **Single**, the frame color changes for all cameras.



Camera 1 video | Camera 2 video | Camera 3 video | Camera 4 video

When **Screen Format** is **Multi**, outer frame color of the combined video will change.



HD | Full HD

When "Digital Input Trigger" is "Individual Camera"

The frame color changes only for a video of the camera that supports digital input signal.

Digital input	Video for which the frame color changes
DIN1	Frame color changes only for Camera 1 video.
DIN2	Frame color changes only for Camera 2 video.
DIN3	Frame color changes only for Camera 3 video.
DIN4	Frame color changes only for Camera 4 video.

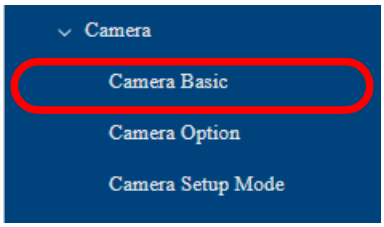
Recording a Video before/after an Event

1. Display the RM-100RC's Web page.

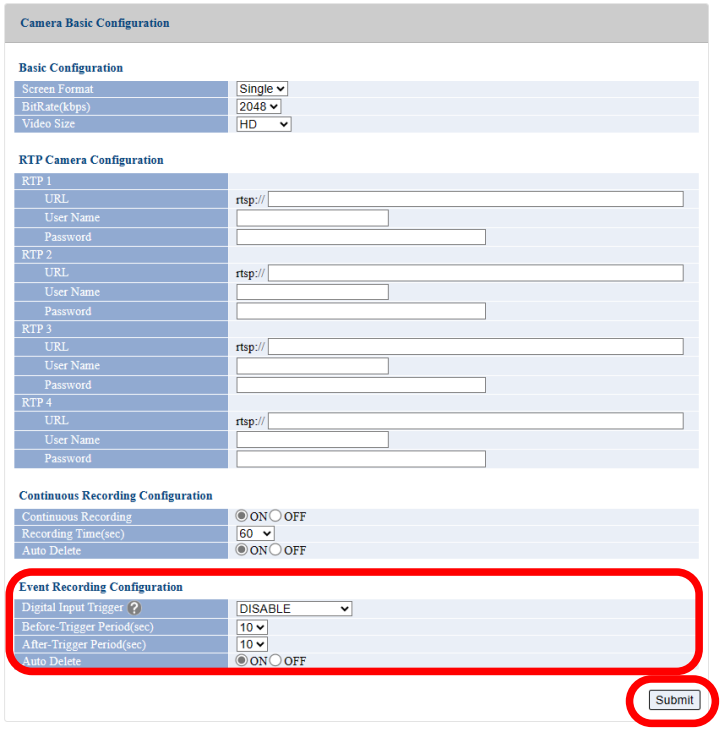
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Camera - Camera Basic** from the page menu.



3. The **Camera Basic Configuration** page is displayed.
Configure the settings at **Event Recording Configuration** and click **Submit**.



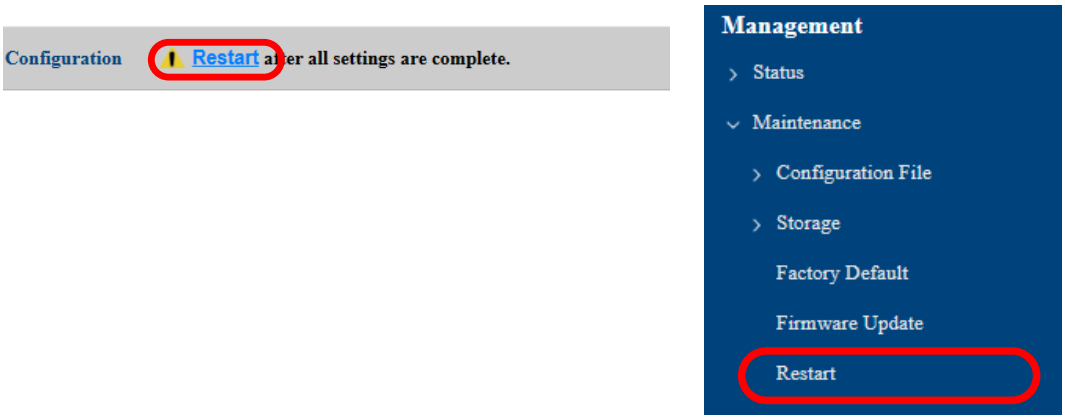
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

Note

- For details on each configuration item, refer to **A-2-3. Camera.**

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the restart confirmation page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

4-3. Obtaining a Recorded Video

This section explains how to retrieve a video recorded by RM-100RC.
The recorded video is saved in the internal storage of RM-100RC.

Note

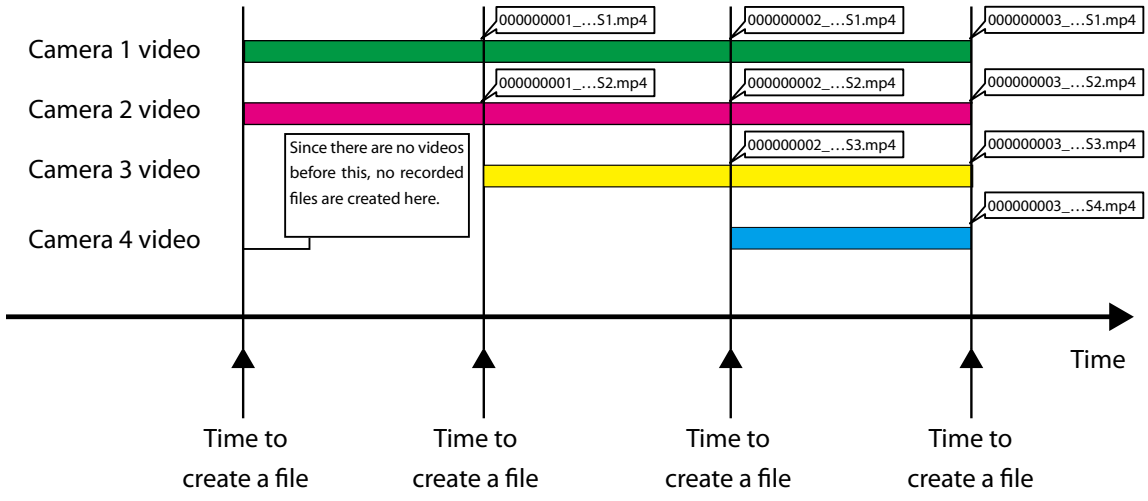
- For the saving location of recorded files, see **4-1-1. About Saved Videos**.

When a recorded file is created, the file name is set as follows.

Type	File name
Single	nnnnnnnnn_YYYYMMDD_hhmmss_SN_T.mp4 nnnnnnnnn : Recorded order YYYYMMDD : Recording start date(YYYY:year, MM:month, DD:date) hhmmss : Recording start time (hh:hours, mm:minutes, ss:seconds) S: File save method M: Multi, S: Single N: Camera number If the recorded file is from the camera connected to the camera port 1, the number will be 1. If the file save method is **Multi**, it is fixed to 1. T: Record type N: constant recording, Dn: event recording ('n' represents the digital input number)
Multi	nnnnnnnnn_YYYYMMDD_hhmmss_M1_T.mp4

Note

- For the recorded order of the file, the sequence number is given as a file name according to the following rules.
  - The number is counted up sequentially starting from "000000001", and the next one after "999999999" is "000000000". After that, the number will be counted up again from "000000001", "000000002", and so on.
  - The recorded order of continuous recording and event recording is counted up separately. For example, even if the number of the latest file created with the continuous recording function is "000000005", the number of the first file created with the event recording function will be "000000001".
  - The number is not counted up when a video is not acquired from all cameras, even if it is the time to create a recorded file.
  - When a video of the camera is correctly acquired, the number will be counted up when the recorded file is created. The number count will be disregarded during the period when recorded files are not created since there are no videos from the camera.



4-3-1. Obtaining a Recorded Video from the RM-100RC's Web Page

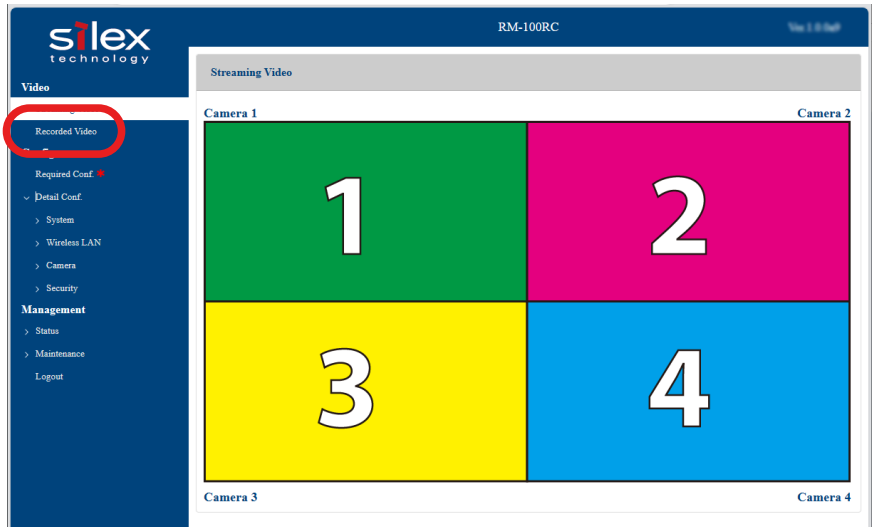
This section explains the procedure for acquiring recorded files from the RM-100RC's Web page.

1. Display the RM-100RC's Web page.

Note

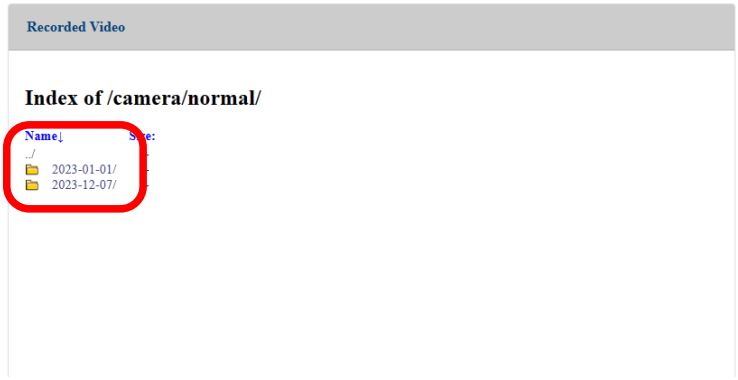
- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. The **Streaming Video** page is displayed.
Click **Recorded Video** from the menu.

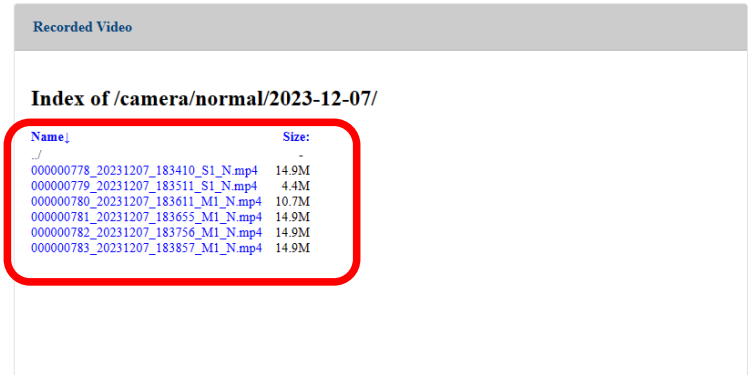


3. The **Recorded Video** page is displayed.
To get a recorded file created with the continuous recording function, click **normal**.
To get a recorded file created with the event recording function, click **event**.
The following will explain the procedure when the "**normal**" folder is clicked, but the procedure will be the same even when the "**event**" folder is clicked.

4. The contents of the **normal** folder are displayed.
Click the folder with the date that the recorded file is created.



5. The saved recorded files are listed.
Click the file to download it, and check the contents of the file.



4-3-2. Obtaining a Recorded Video Using a File Sharing Function

This section explains the procedure for retrieving recorded files from the network share folder of RM-100RC.

TIP

- With the file sharing function, the recorded files can be obtained but cannot be deleted or written.

Note

- For how to change the user information before accessing RM-100RC using the file sharing function, see **5-2. Changing User Information for File Sharing Function**.

1. Start the Explorer on your Windows PC.

2. Enter the IP address or host name of RM-100RC to the address bar of the Explorer as follows.

When using IP address:

When the IP address of RM-100RC is "192.168.1.10", enter it as \\192.168.1.10.

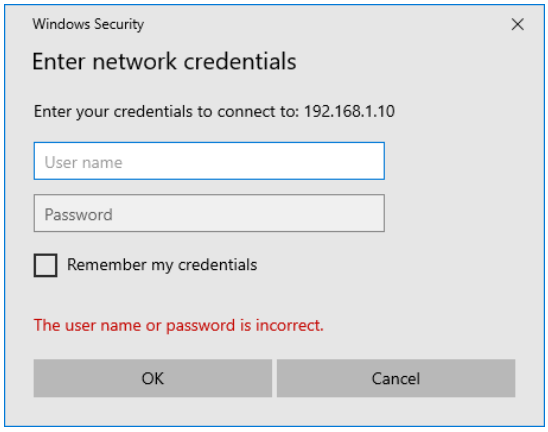
When using host name:

When the host name of RM-100RC is "RM0006B8", enter it as \\RM0006B8.

Note

- The host name of RM-100RC can be identified on the TCP/IP configuration page. For details, see **5-1. Changing Network Settings**.

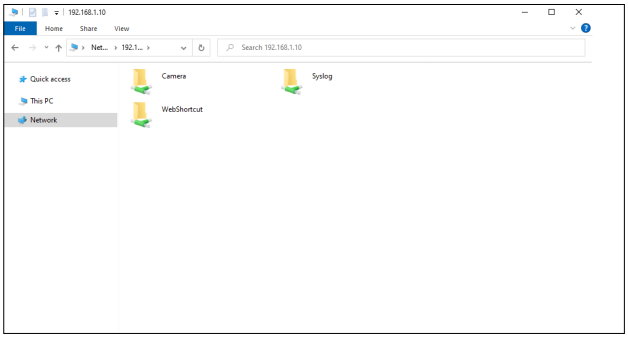
3. The Windows security screen is displayed.
Enter **User name** and **Password**, and click **OK**.



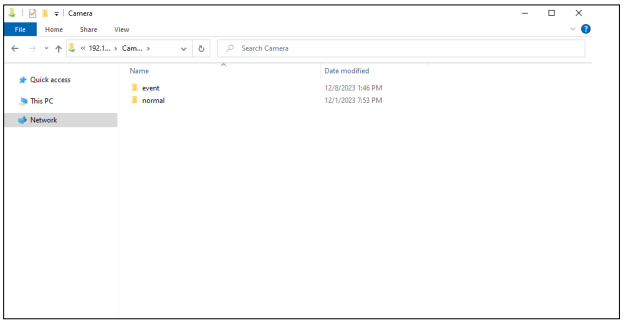
Note

- Enter the **User name** and **Password** set on the **File Share Configuration** page. Both are set to "**admin**" by factory default.

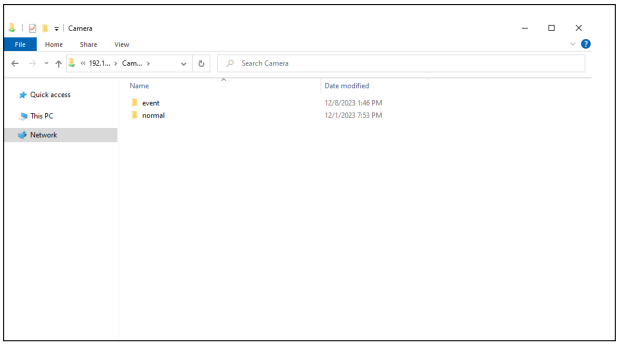
4. The folder of RM-100RC is displayed.
Double-click **Camera**.



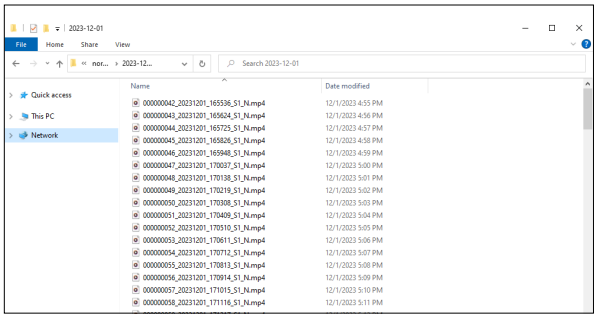
5. To get a recorded file created with the continuous recording function, double-click **normal**.
To get a recorded file created with the event recording function, double-click **event**.
The following will explain the procedure when the "**normal**" folder is double-clicked, but the procedure will be the same even when the "**event**" folder is double-clicked.



6. The contents of the **normal** folder are displayed.
Double-click the folder with the date that the recorded file is created.

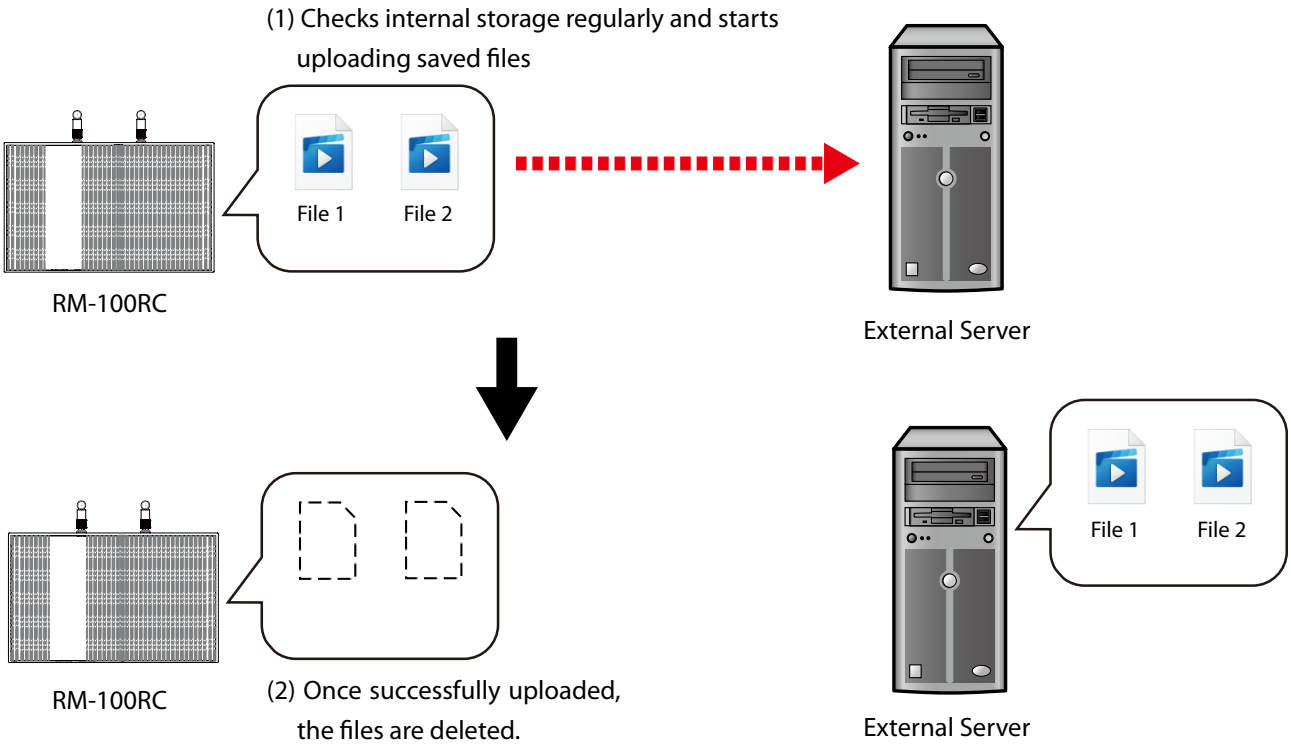


7. The saved recorded files are listed.
Select the target files and copy them.



4-4. Saving a Recorded Video to an External Server

There is a limit of the capacity for saving on the RM-100RC's internal storage.
By changing the settings in advance, the recorded files can be uploaded to an external server (devices running on Windows 10 or Windows 11). Since uploaded files will not remain in the internal storage, you can save space on it.
This section explains the procedure for saving recorded files on an external server.



TIP

- The folder share setting needs to be configured on the external server so that RM-100RC can upload the files. For detailed configuration method, please contact the support center of the external server.
- In case the upload fails, the recorded files of the internal storage are not deleted. Therefore, if the internal storage does not have enough space due to continuous upload failures, old recorded files may automatically be deleted according to the settings of RM-100RC.
- If there is a recorded file with the same file name in the folder, it will be overwritten.
- If communication is lost due to power off, etc. while uploading a file, an incomplete file will remain in the upload destination. When communication is recovered, the same file will be uploaded again.

Note

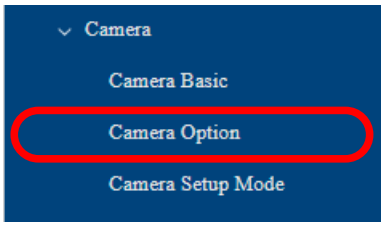
- When there are multiple recorded files, uploading will start from the one with a smallest recording number of the file name.

1. Display the RM-100RC's Web page.

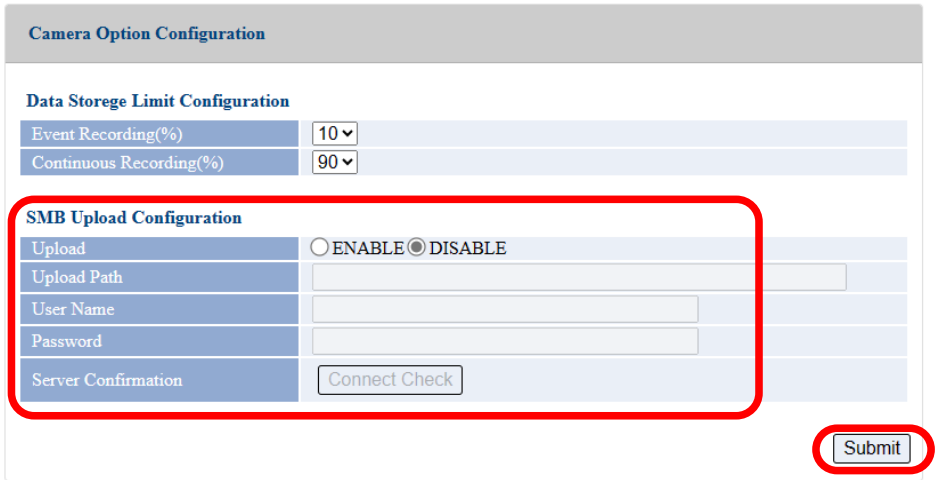
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Camera - Camera Option** from the page menu.



3. The **Camera Option Configuration** page is displayed.
Select **ENABLE** for **Upload** under **SMB Upload Configuration**, and configure each setting for the external server.
When the settings are completed, click **Submit**.



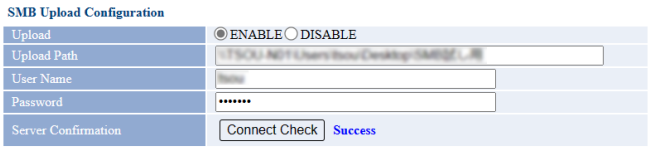
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

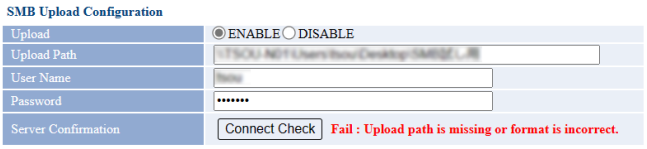
Note

- For details on each configuration item, refer to **A-2-3. Camera**
- Click **Connect Check** at **Server Confirmation** to check whether the external server can be accessed using the settings of **SMB Upload Configuration**.

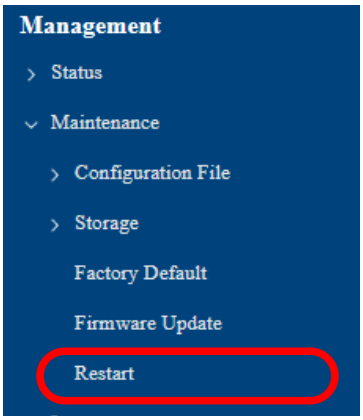
When the connection is established successfully



When the connection has failed



4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the restart confirmation page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

4-5. Checking a Streaming Video

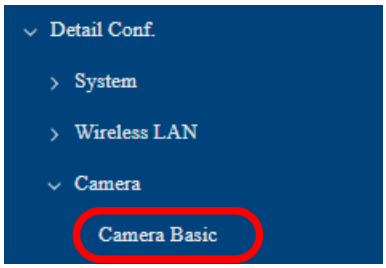
This section explains how to change the display method for a streaming video and how to check it.

1. Display the RM-100RC's Web page.

Note

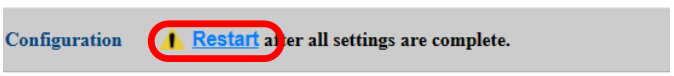
- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

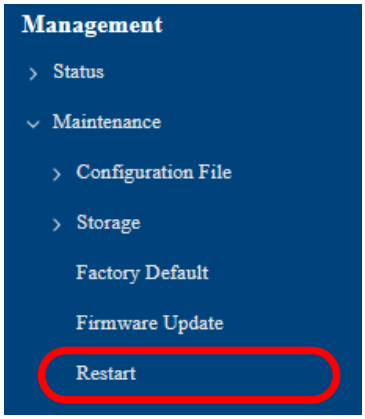
2. Click **Detail Conf.** - **Camera** - **Camera Basic** from the page menu.



3. Select **Single** or **Multi** for **Screen Format** and click **Submit** at the bottom right of the page.

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the restart confirmation page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

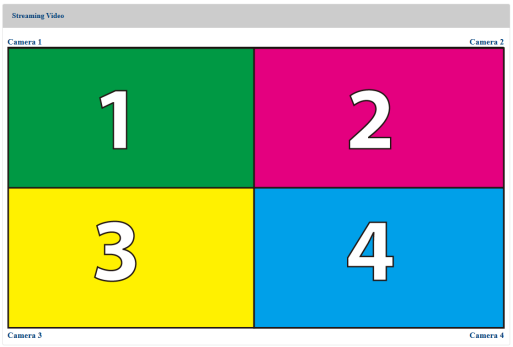
Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

7. After you login to the Web page, the **Streaming Video** page is displayed.
The display differs depending on the **Screen Format** setting.

Multi



Single

TIP

- Only two accesses are allowed for streaming video distribution. For the third and subsequent accesses, an error message is displayed and the video is not played. For example, if you are using one PC but accessing the video from two browsers, it will be counted as two accesses, and further accesses will not be accepted.

Note

- When **Single** is selected, a video can be switched by selecting **Cameras 1** to **4**.
- Clicking on the streamed video in the Web browser will open a new tab and display it at the maximum screen size.

5. System Configuration Change

5-1. Changing Network Settings

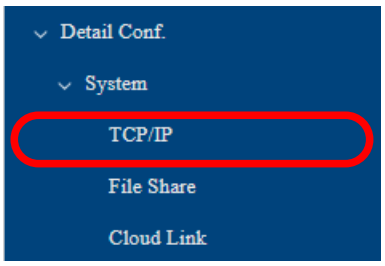
In order to add RM-100RC to the existing network environment, the network setting of RM-100RC may need to be changed.
The following explains how to change the TCP/IP setting of RM-100RC that is required to access via wired or wireless LAN.

1. Display the RM-100RC's Web page.

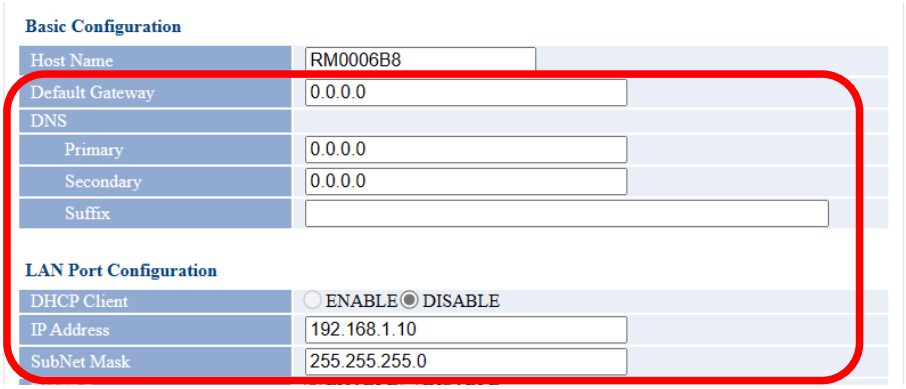
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **System** - **TCP/IP** from the page menu.



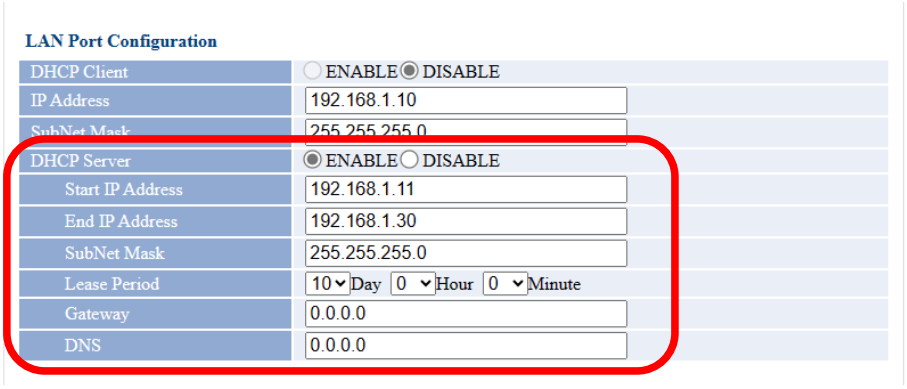
3. The **TCP/IP Configuration** page is displayed.
Change the settings at **Basic Configuration** and **LAN Port Configuration** appropriately for the network where RM-100RC is installed.



Note

- For details on each configuration item, refer to **A-2-1. System**.
- To change **DHCP Client** to **ENABLE**, select **DISABLE** for **DHCP Server** first.

4. To assign an IP address to network devices using RM-100RC, change the DHCP server settings as necessary.



TIP

- When **Mesh Mode** is set to **Repeater**, the DHCP server function is disabled.

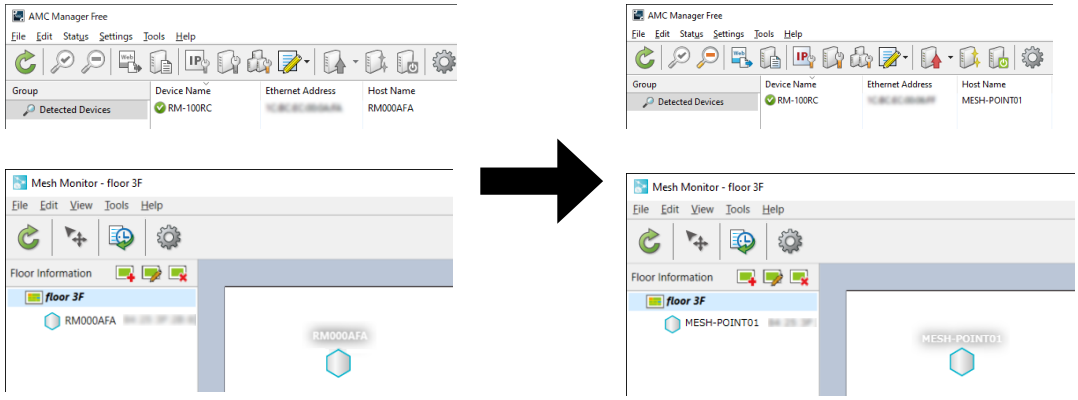
Note

- For details on each configuration item, refer to **A-2-1. System**.
- By default, the DHCP server setting of RM-100RC is set to **ENABLE**.

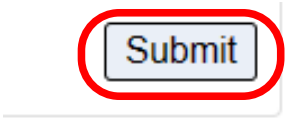
5. Change the setting at **Host Name** as necessary.

Note

- If the **Host Name** is changed, you can easily identify that unit on AMC Manager® and Mesh Monitor.

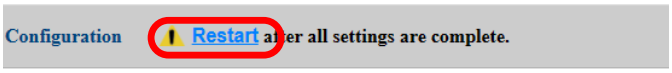


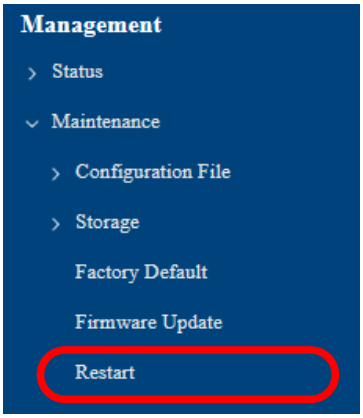
6. When finished entering the settings, click **Submit** at the bottom right of the page.



TIP - If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

7. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note - When you are to continue the configuration on other pages, you do not have to click **Restart** yet.
Do it later when all necessary settings are configured.

8. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note - If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

9. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

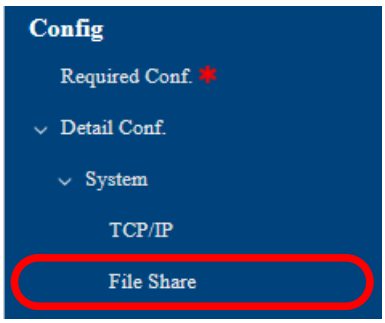
5-2. Changing User Information for File Sharing Function

This section describes how to change the login information setting that is necessary to obtain the recorded files by using the file sharing function.

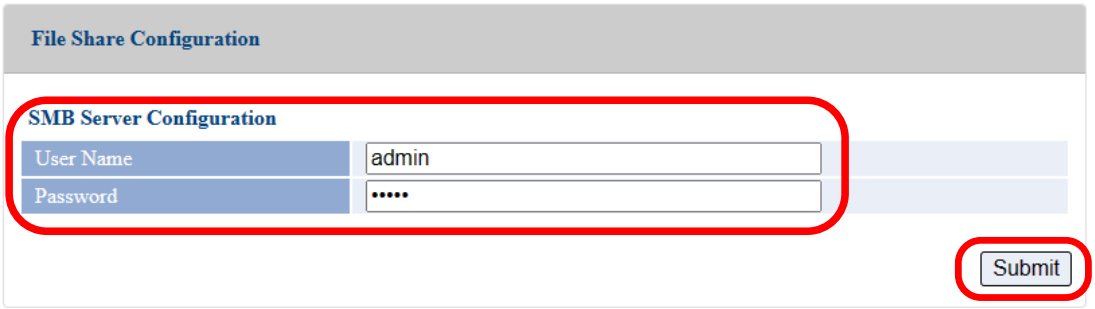
1. Display the RM-100RC's Web page.

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

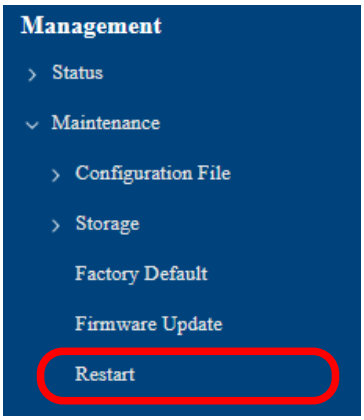
2. Click **Detail Conf.** - **System** - **File Share** from the page menu.



3. The **File Share Configuration** page is displayed.
Enter **User Name** and **Password**, and click **Submit**.



4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

5-3. Monitoring Communication Status by Linking to AMC Cloud

By linking to the Silex Technology's "AMC Cloud," RM-100RC can perform remote configuration, firmware update, restart, and can collect the status information about the wireless network. The following describes the settings to link with AMC Cloud.

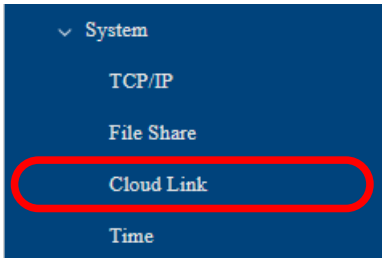
5-3-1. Making a Link with AMC Cloud

1. Display the RM-100RC's Web page.

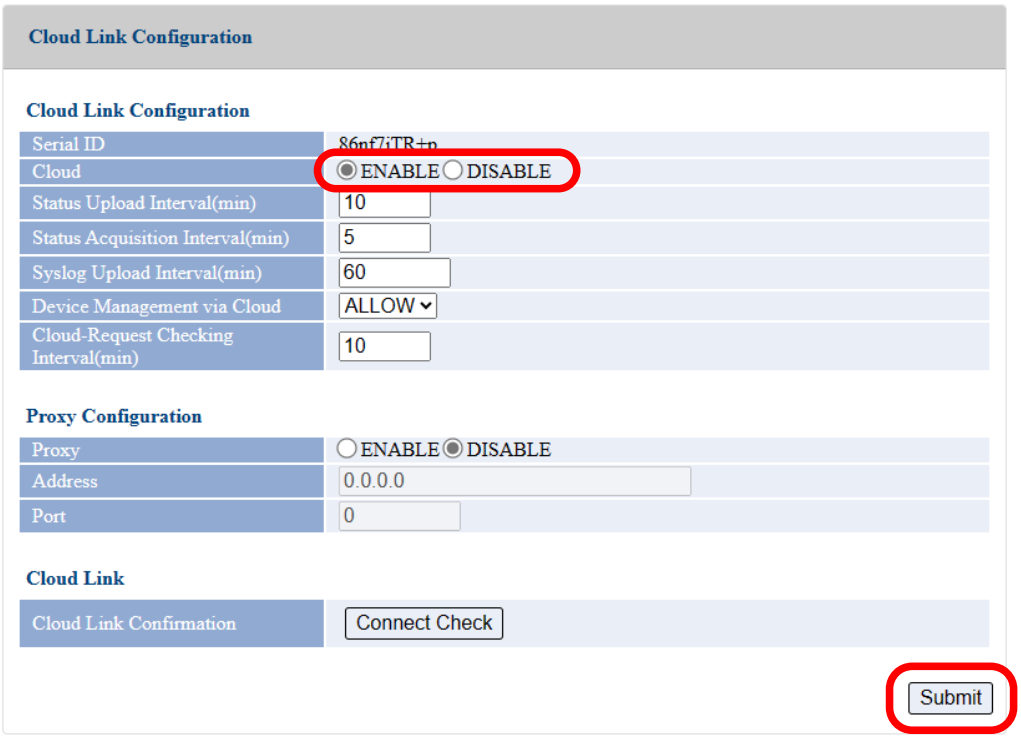
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **System** - **Cloud Link** from the page menu.



3. The **Cloud Link Configuration** page is displayed.
Select **ENABLE** for **Cloud**, configure each setting and click **Submit**.



TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.
- To perform the following operations, RM-100RC needs to be registered to AMC Cloud in advance. For registration method, refer to the user's manual of AMC Cloud.
  - Checking if RM-100RC can be used on AMC Cloud
  - Uploading the RM-100RC's system logs to AMC Cloud
  - Changing the RM-100RC's settings from AMC Cloud
  - Checking the RM-100RC's wireless statistical information on AMC Cloud

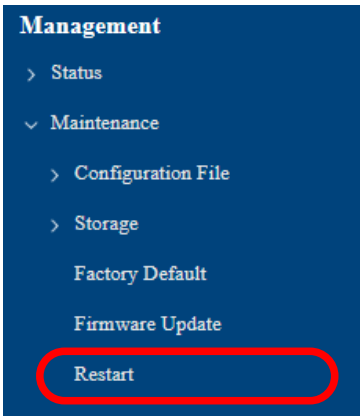
Note

- The serial ID is used to register the device to AMC Cloud.
- To link RM-100RC with AMC Cloud, configure the following settings appropriately for your environment.

Setting Item	Explanation
DNS Configuration	This is the necessary setting for RM-100RC to communicate with AMC Cloud. When **DHCP Client** is set to **ENABLE** and both IP address and DNS server address are distributed from the DHCP server, this setting is not necessary. The **DNS (Primary)** and **DNS (Secondary)** settings can be configured on the TCP/IP Configuration page.
Proxy Configuration	When a proxy server is used to access the Internet from the network where RM-100RC is installed, this setting is required.
NTP Configuration	It is recommended to configure the NTP setting to get the correct time when RM-100RC has received the data. For the configuration method, refer to **5-4-2. Time Sync with NTP Server**. When the time is accurate, it will be displayed correctly on AMC Cloud.

- For details on each configuration item, refer to **A-2-1. System**.

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

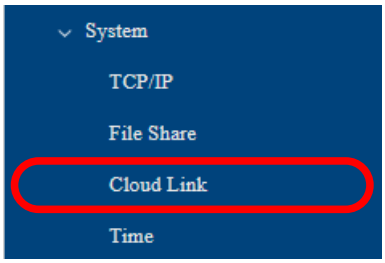
6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

5-3-2. Checking a Link with AMC Cloud

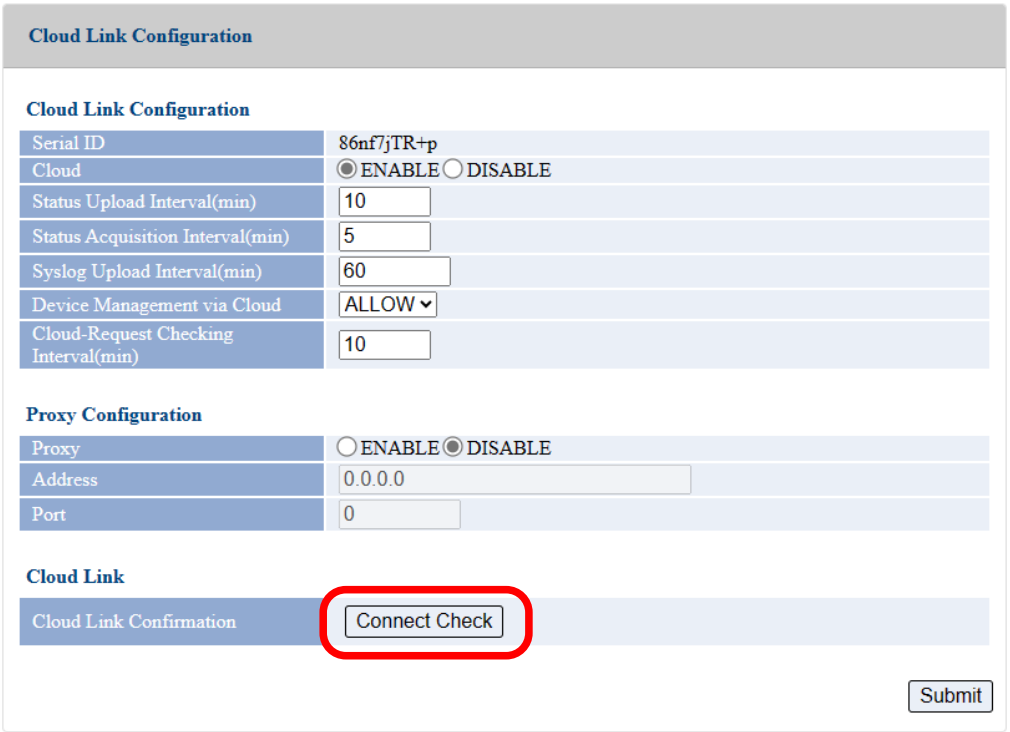
1. Display the RM-100RC's Web page.

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **System** - **Cloud Link** from the page menu.



3. The **Cloud Link Configuration** page is displayed.
Click **Connect Check**.



Note

- When the connection check is finished, the following message is displayed.
- RM-100RC must be registered to AMC Cloud and the cloud link setting of RM-100RC must be completed in advance. For details, refer to **5-3-1. Making a Link with AMC Cloud**.

Displayed message	AMC Cloud link status
Success	RM-100RC can communicate with AMC Cloud.
Fail : Cloud connection has failed.	RM-100RC cannot access AMC Cloud. Check if RM-100RC is connected to the Internet.
Fail : Authentication has failed.	RM-100RC is not registered with AMC Cloud. Check if the serial ID of RM-100RC is correctly registered to AMC Cloud.
Fail : Cloud connection process has failed. Please try again.	An error may have occurred within RM-100RC during the connection process. Click **Connect Check** again.

AMC Cloud connection check is completed.

5-4. Changing Time Settings

This chapter describes how to set the time on RM-100RC.

5-4-1. Time Settings on Web Page

The time can be set from the RM-100RC's Web page.
Even when there is no NTP server in your environment, the time can be recorded in the log.
The following describes how to set the time using the RM-100RC's Web page.

TIP

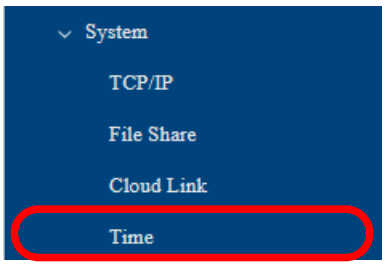
- This method saves the time information to each device, and is different from the method that retrieves the time information from the NTP server. Depending on the environment, the time may differ for each device. To unify the time of devices on the network, refer to **5-4-2. Time Sync with NTP Server** to retrieve the time from the NTP server.

1. Display the RM-100RC's Web page.

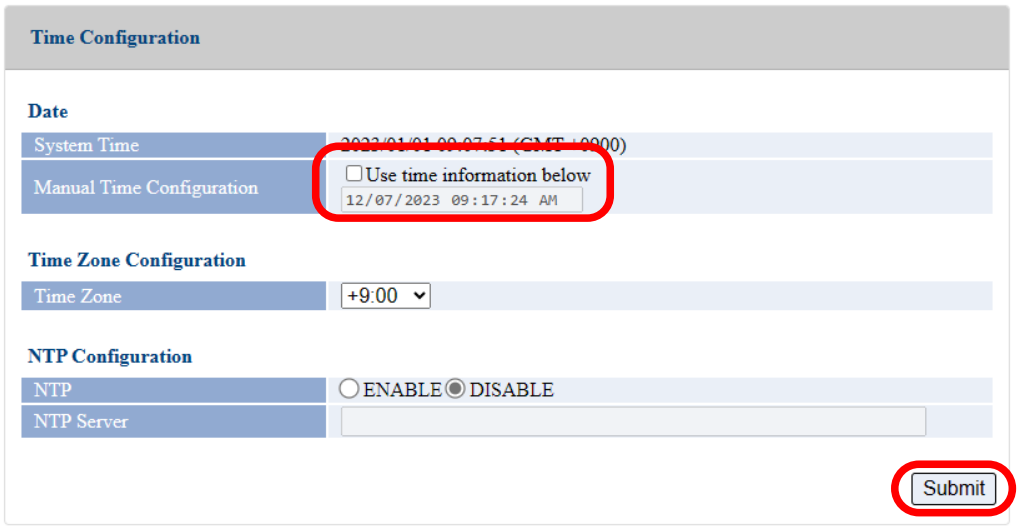
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **System** - **Time** from the page menu.



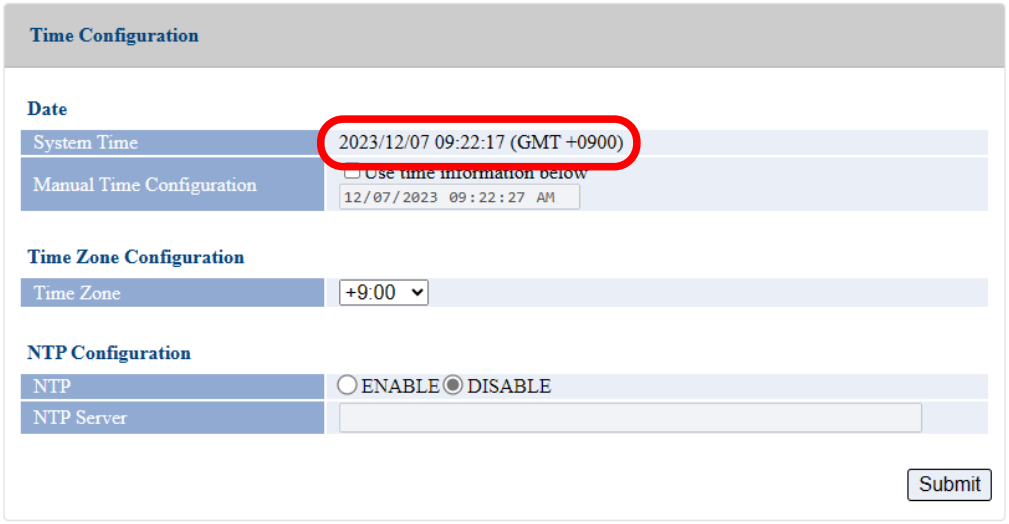
3. The **Time Configuration** page is displayed.
Check **Use time information below**, set the date and time and click **Submit**.



TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

4. When the **System Time** is updated as specified, the configuration is complete.



5-4-2. Time Sync with NTP Server

NTP Feature

RM-100RC can get the time information from the NTP server in the wired LAN network.

Note

- If RM-100RC is initialized in the network where an NTP server is not installed, the time of RM-100RC is counted from 2023/01/01 00:00:00.

NTP Settings

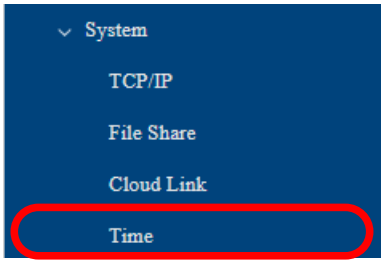
The following describes how to configure the settings to obtain the time from an NTP server.

1. Display the RM-100RC's Web page.

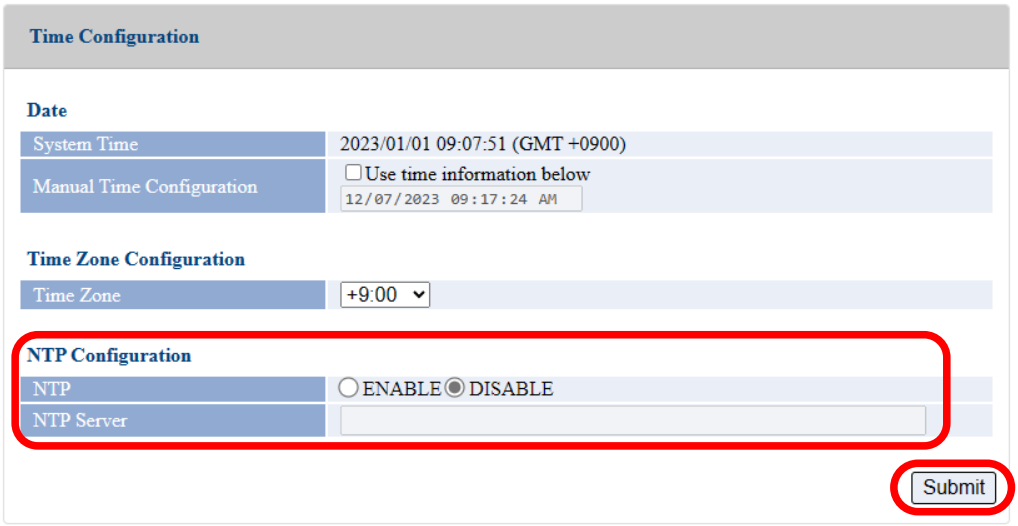
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **System** - **Time** from the page menu.



3. The **Time Configuration** page is displayed.
Configure the settings at **NTP Configuration** and click **Submit**.



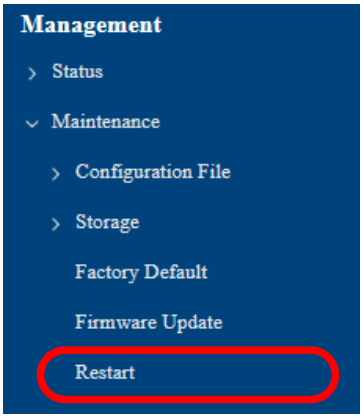
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

Note

- For details on each configuration item, refer to **A-2-1. System**.

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

6. Access Point Functions

6-1. Changing Wireless LAN Settings

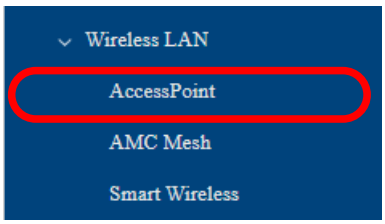
The following explains how to configure the Access Point function settings by using the 5GHz band setting as an example.

1. Display the RM-100RC's Web page.

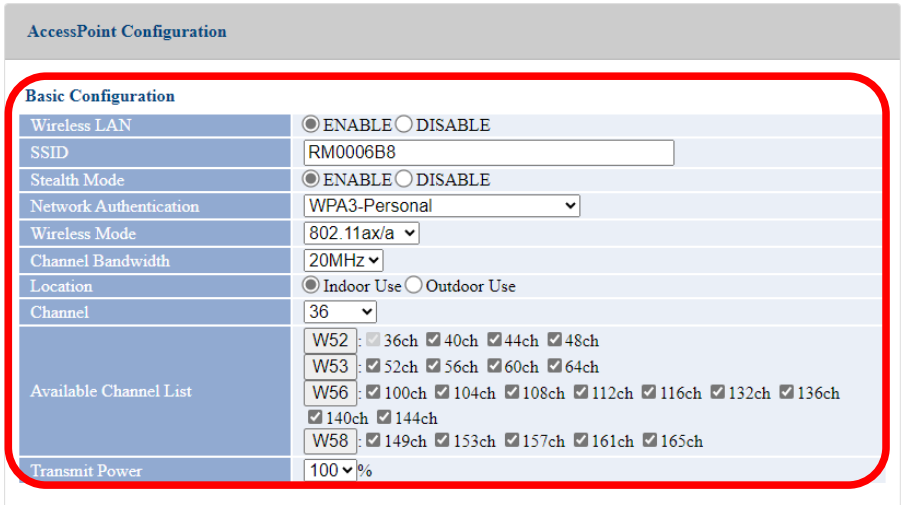
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



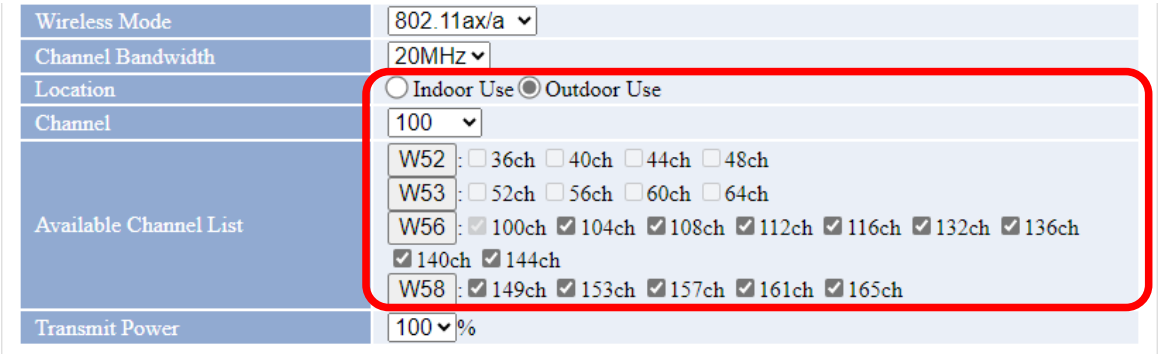
3. The **AccessPoint Configuration** page is displayed.
Change the settings at **Basic Configuration** appropriately for the network where RM-100RC is connected.



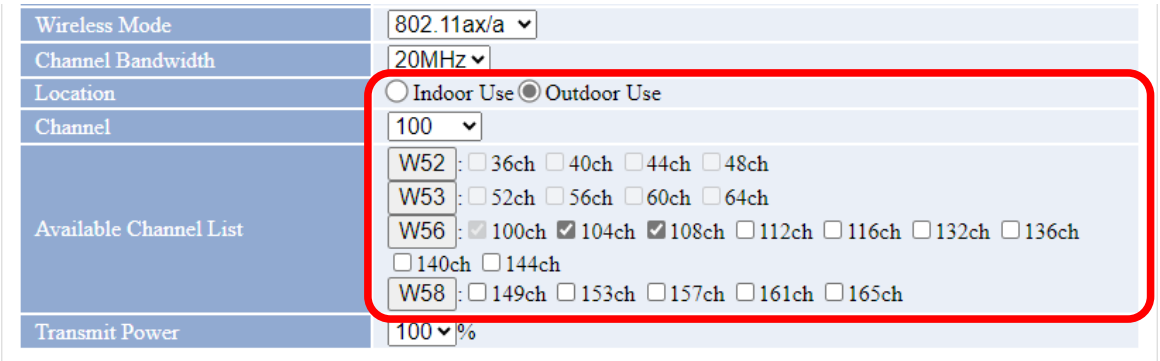
Note

- When 2.4GHz band is used, change **Wireless Mode** to **802.11ax/g** or **802.11n/b/g** first.

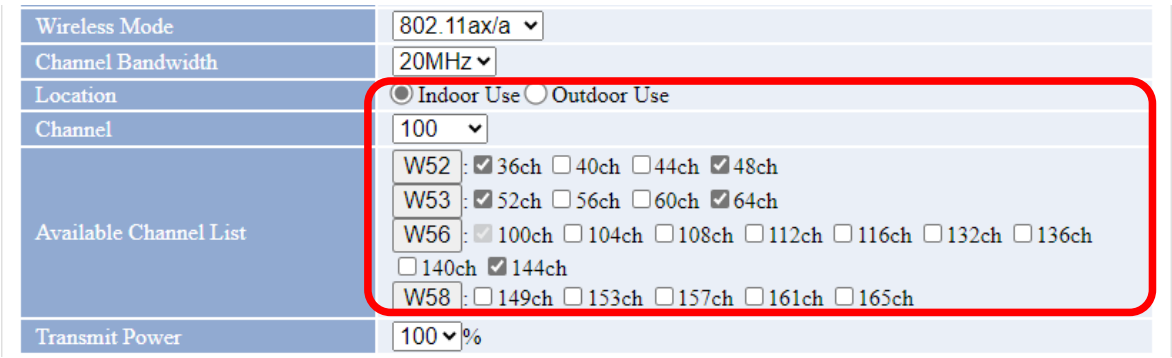
To use RM-100RC outdoors, select **Outdoor Use** for **Location**. Doing so will automatically disable the channels of available channel list that are not allowed to use outdoors.



If the channels are unchecked in the **Available Channel List**, they will not be selected as destination channels when radar waves are detected and the DFS function is started. It is possible to set unused channels as the destination channels for DFS.
The screen below is an example to use only 100ch, 104ch, and 108ch outdoors.



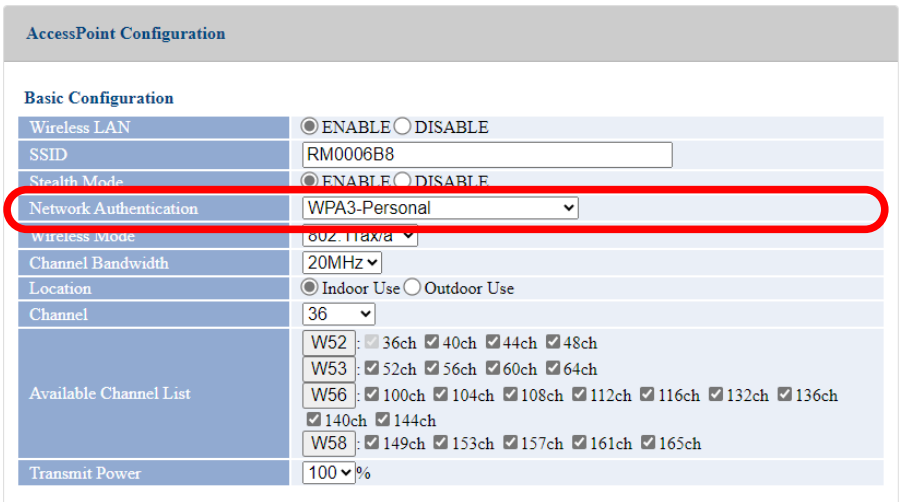
When the **Channel** is set to **AUTO**, an appropriate channel will be selected when RM-100RC is turned on, but if the channels are unchecked in the **Available Channel List**, they will be excluded from the selection, so that the users can avoid the channels that are used for other purposes.
The screen below is an example to use only the first and last channels of W52, W53, and W56.



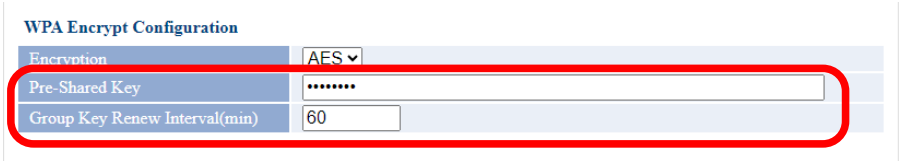
Note

- When the wireless mode is **802.11ax/g** or **802.11n/b/g**, only 1ch, 6ch, and 11ch can be changed.

4. Configure the security settings.
Select the authentication method from **Network Authentication**.



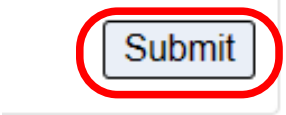
5. Configure the encryption setting according to the authentication method you have selected at **Network Authentication**.
When **Open** is selected, the encryption setting is not needed.
When **WPA2-Personal** or **WPA3-Personal** is selected, **Pre-Shared Key** and **Group Key Renew Interval(min)** need to be set.



Note

- When an authentication method other than above is selected, the IEEE 802.1X authentication method setting will be required. For details, refer to **6-2. IEEE 802.1X Authentication.**

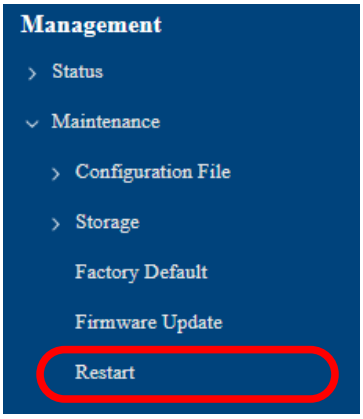
6. When finished entering the settings, click **Submit** at the bottom right of the page.



TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

7. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

8. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

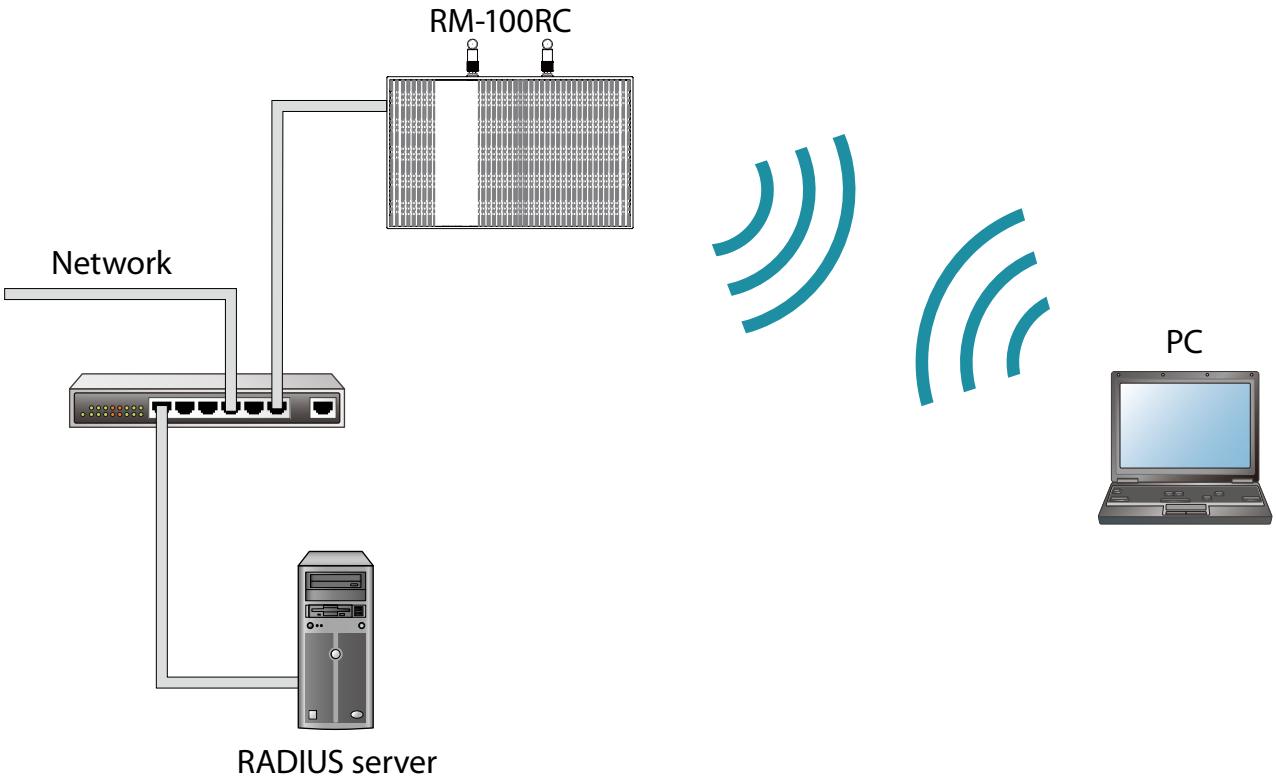
9. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

6-2. IEEE 802.1X Authentication

RM-100RC supports the IEEE 802.1X authentication.
To use the IEEE 802.1X authentication, a RADIUS server is needed.

6-2-1. Network Configuration

Connect RM-100RC to a network as below when you use the IEEE 802.1X authentication.
IP address of RADIUS server and port number of EAPOL can be set.



6-2-2. IEEE 802.1X Authentication

RM-100RC supports the following IEEE 802.1X authentication methods.

IEEE 802.1X Authentication mode
EAP-TLS
EAP-TTLS
PEAP

Note

- LEAP and EAP-FAST are not supported.

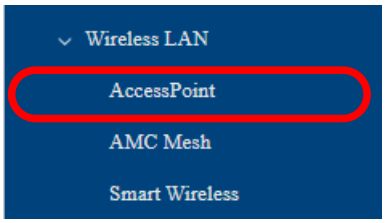
6-2-3. IEEE 802.1X Authentication Settings

1. Display the RM-100RC's Web page.

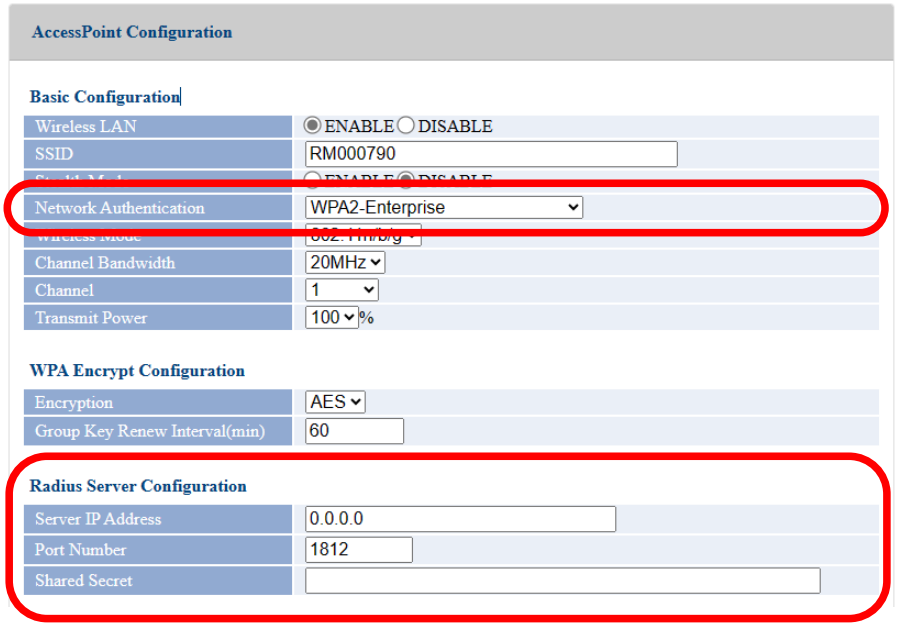
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



3. The **AccessPoint Configuration** page is displayed.
Configure the following settings.



Network Authentication

Name	Explanation
WPA2-Enterprise	Uses IEEE 802.1X user authentication and AES encryption.
WPA3-Enterprise	The authentication complies with WPA3-SAE. Uses IEEE 802.1X user authentication and AES encryption.
WPA3-Enterprise 192-bit security	The authentication complies with WPA3-SAE. Uses IEEE 802.1X user authentication and AES encryption. AES-256-GCMP(00-0F-AC:9) is supported.

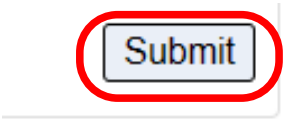
RADIUS Server Configuration

Name	Explanation
Server IP	Set the IP address of RADIUS server.
Port Number	Set the port number used to communicate with RADIUS server.
Shared Secret	Set the secret key used to communicate with RADIUS server.

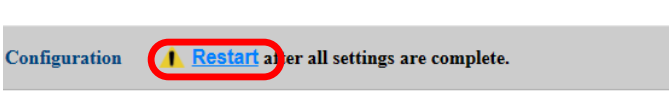
Note

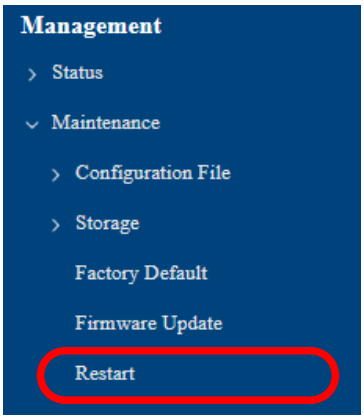
- This setting is valid when network authentication is as follows.
  - WPA2-Enterprise
  - WPA3-Enterprise
  - WPA3-Enterprise 192-bit security
- For details on each configuration item, refer to **A-2-2. Wireless LAN**.

4. When finished entering the settings, click **Submit** at the bottom right of the page.



5. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

6. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

7. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

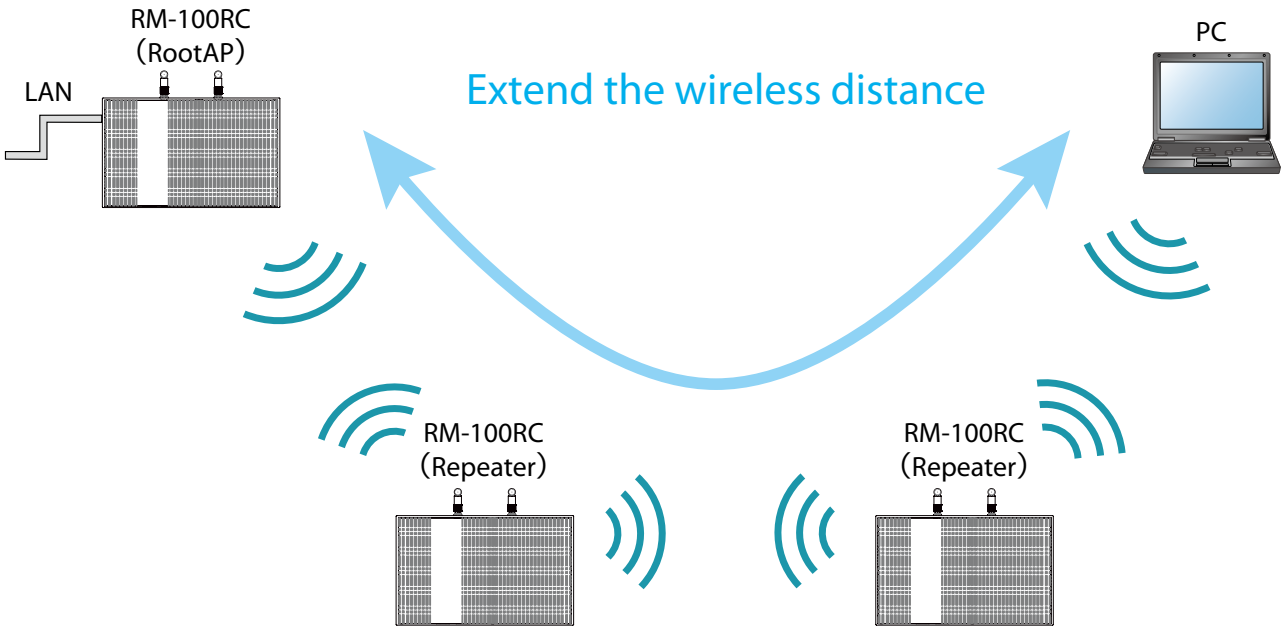
6-3. Network Expansion Using Multiple RM-100RC Units

6-3-1. About AMC Mesh

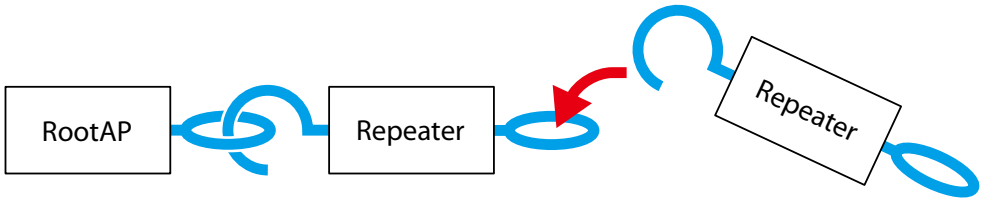
When there are two or more RM-100RC units, you can make them communicate with each other. By connecting several AMC Mesh compatible Access Points (hereinafter referred to as "AMC Mesh devices"), wireless distance can be expanded to locations where it is difficult to establish the backbone network.
RM-100RC can connect the AMC Mesh devices using 5GHz or 2.4GHz bands.
AMC Mesh is composed of one RootAP (running as a host device) and plural Repeater APs (running as station devices).

TIP

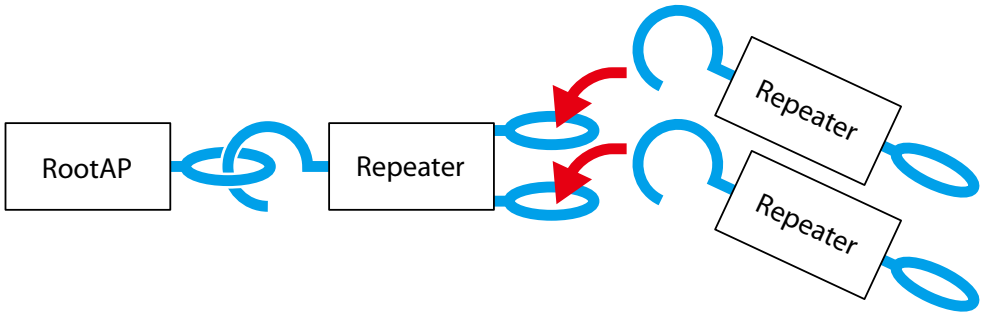
- Please check that all RM-100RC units are running on the same version of firmware.
- To connect the AMC Mesh network, RM-100RC must have the same Mesh group name as that network.



The number of Repeater APs as specified at **Max Hops Number** can be connected for each communication route.
For example, if **Max Hops Number** is set to "**3**", up to 3 Repeater APs can be connected.
When connecting Access Points, use the first AP as RootAP and the second or later APs as Repeater APs. As shown in below image, connect APs starting from the RootAP.



Even when connecting multiple Repeater APs to one RM-100RC unit, connect them starting from RootAP.



To create an AMC Mesh network without specifying the destination of RM-100RC, see **6-3-3. Establishing a Network without Specifying Destination**.
To create an AMC Mesh network where the destination of RM-100RC is fixed by registering the MAC address, see **6-3-4. Establishing a Network That Fixes Communication Route**.

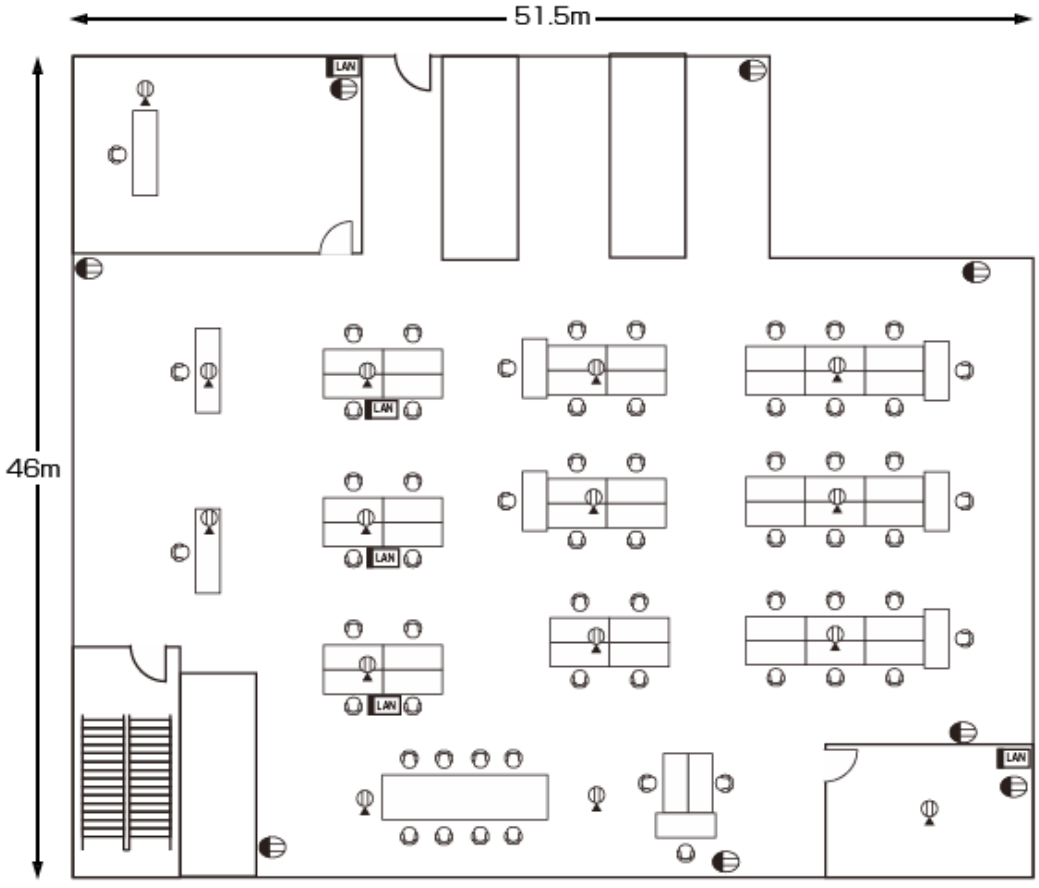
6-3-2. Necessary Preparations

The following describes what to prepare before establishing an AMC Mesh network using multiple RM-100RC units.
Prepare the followings to proceed the configuration and installation easily.

Preparing Floor Plan Image

Please prepare the floor plan image of the floor where RM-100RC units are to be installed, which meets the following conditions.

- The scale is clearly indicated, or approximate distance / area can be confirmed.
- The spot of connection to the backbone network is specifically located.
- The location of outlet can be identified.

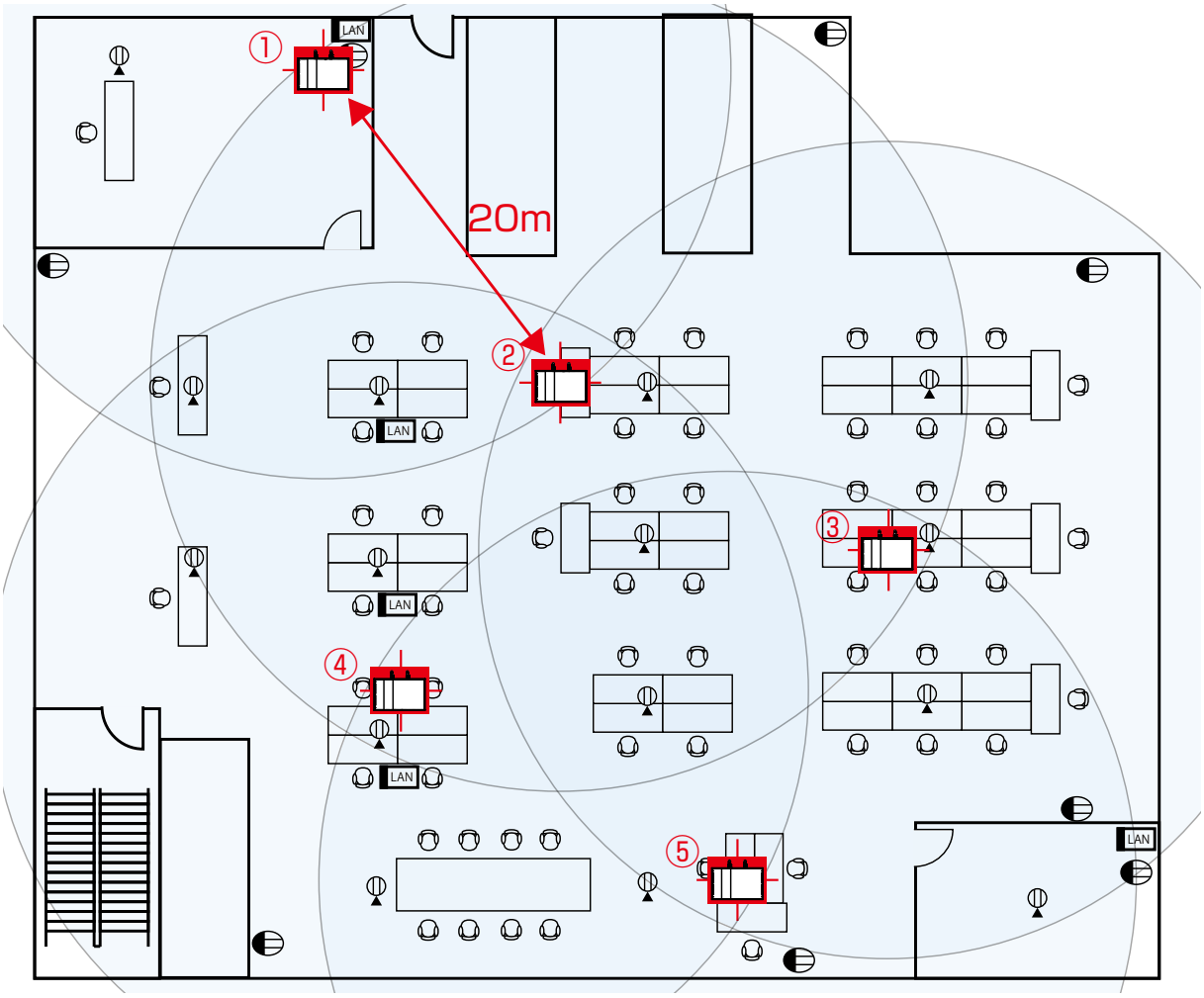


Note

- If you can create an image file of the floor plan using a scanner or camera, you can open it on Windows and use it as the background image. By using the floor plan image on Mesh Monitor, accurate management of each unit location is possible. For how to use the floor plan image as the background image on Mesh Monitor, refer to **Mesh Monitor User's Manual (AMC Mesh)**.

Determination of Unit Locations

First of all, allocate the RM-100RC unit that connects to the backbone network, and then allocate other units by keeping 20m interval starting from the first unit. Make sure that each unit is allocated within a distance of 20m from the other one so that radio signals can reach.

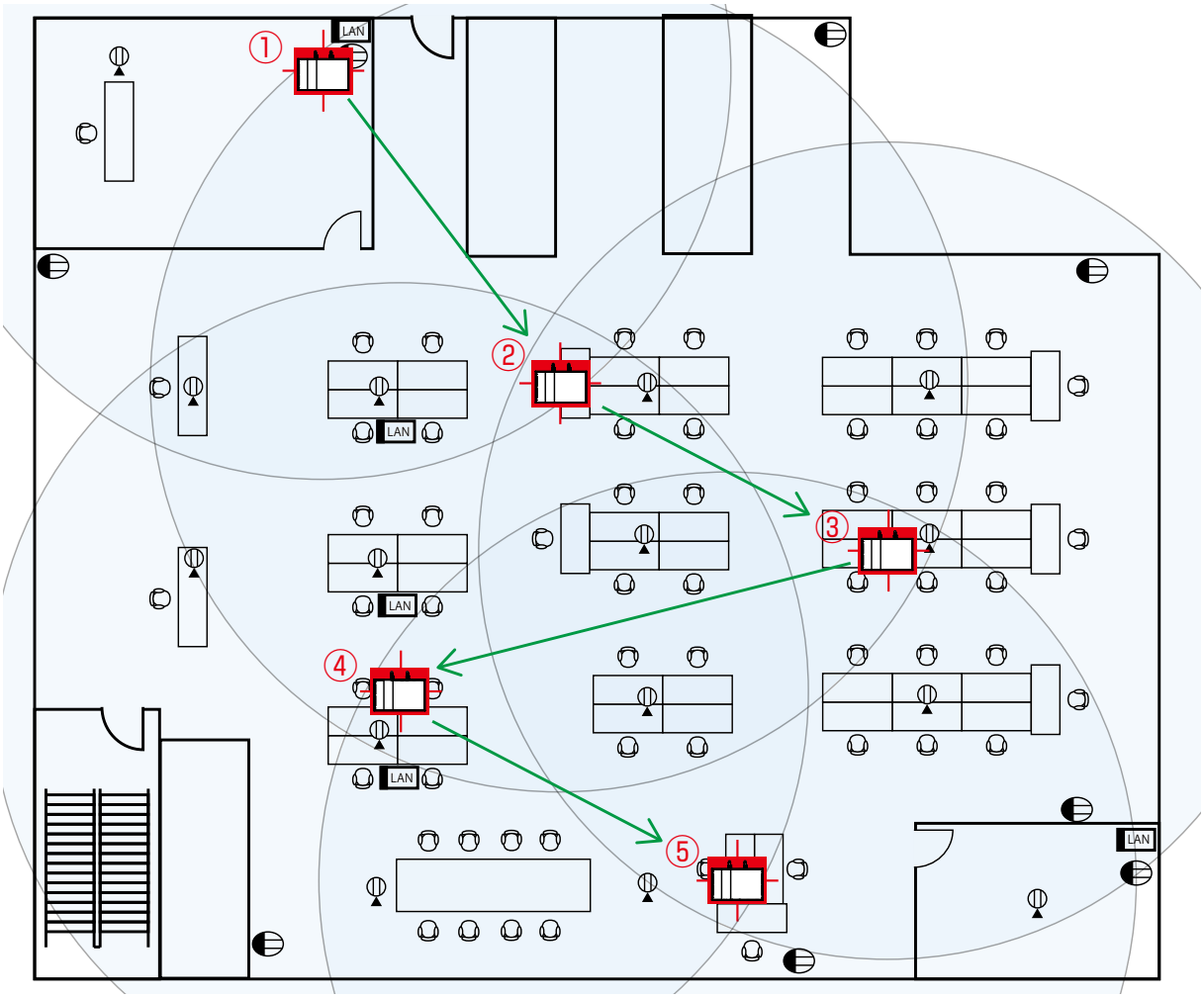


TIP

- When multiple RM-100RC units are connected to the backbone network via wired LAN, they have to be connected to the same subnetwork to configure the AMC Mesh network.
- To install RM-100RC to a different network environment, change the **Mesh Group Name** and create a separate AMC Mesh group.

Note

- First, install RM-100RC that connects to the backbone network, and then install Repeater APs.



6-3-3. Establishing a Network without Specifying Destination

The following describes how to establish an AMC Mesh network without specifying the destination.
First, configure the RootAP, and then configure the Repeaters.

TIP

- Since the destination device is not fixed, RM-100RC may connect to an unexpected device if the installation position and communication route are not planned in advance. Refer to **6-3-2. Necessary Preparations** to determine the installation position in advance.

RootAP Settings

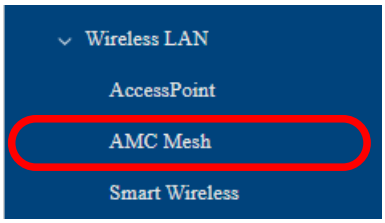
How to configure RM-100RC (first unit) as RootAP is explained.

1. Display the Web page of RM-100RC (first unit).

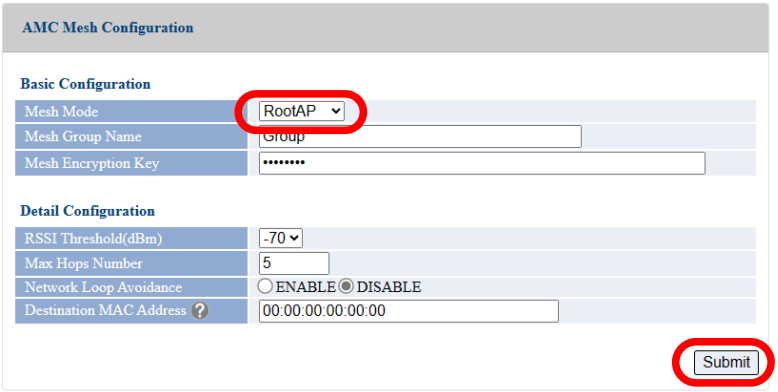
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.



3. The **AMC Mesh Configuration** page is displayed.
Under **Basic Configuration**, select **RootAP** for **Mesh Mode**, configure each setting and click **Submit**.



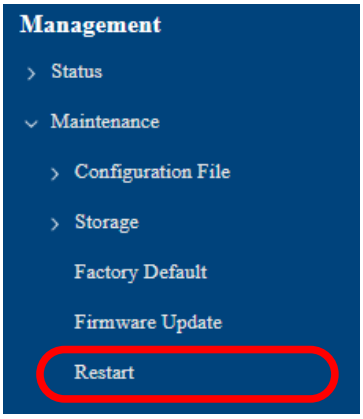
TIP

- To connect to an existing wired LAN, select **ENABLE** for **Network Loop Avoidance**.
- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

- For details on each configuration item, refer to **A-2-2. Wireless LAN** - **AMC Mesh Configuration**.
- The following settings will also be used for the Repeater settings that will come after this. Make a note of these settings.
  - Mesh Group Name
  - Mesh Encryption Key
  - Network Loop Avoidance

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

Preparation for Repeater Settings

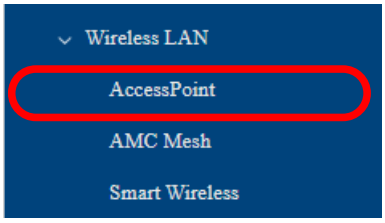
Before proceeding the Repeater settings, the destination RootAP setting needs to be checked.
The following explains the procedure.

1. Display the Web page of RootAP.

Note

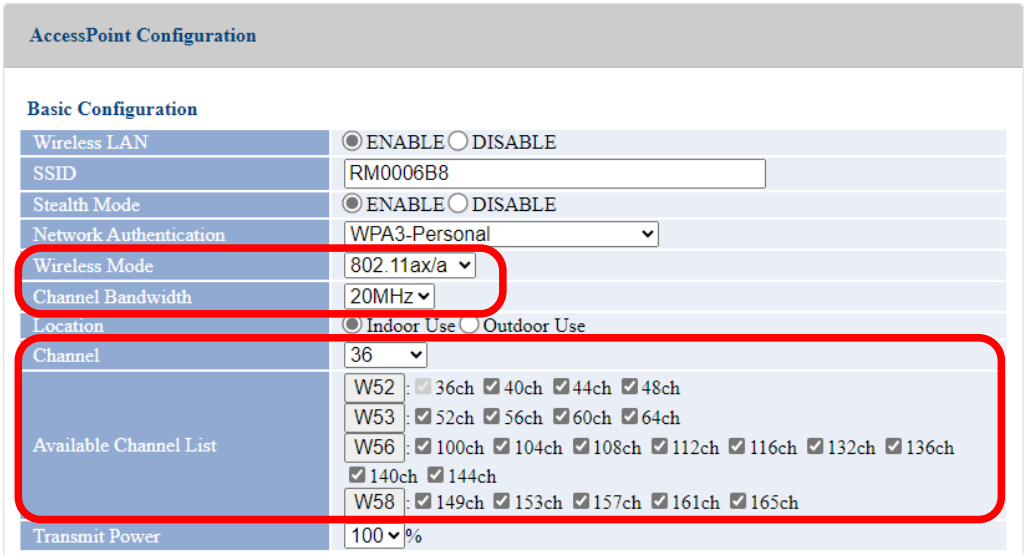
- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



3. The **AccessPoint Configuration** page is displayed. Make a note of the followings.

- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



Note

- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN - AccessPoint Configuration**.

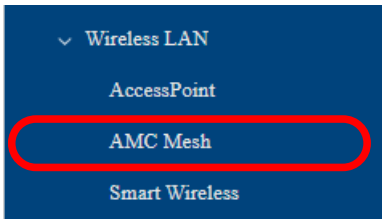
Repeater Settings

The following explains how to configure RM-100RC (second and subsequent units) as a Repeater.

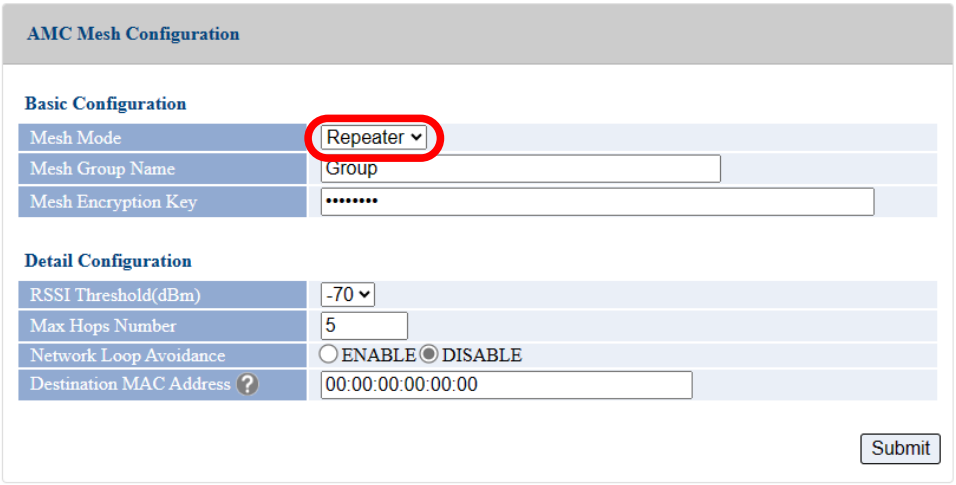
1. Display the Web page of RM-100RC (second and subsequent units).

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.

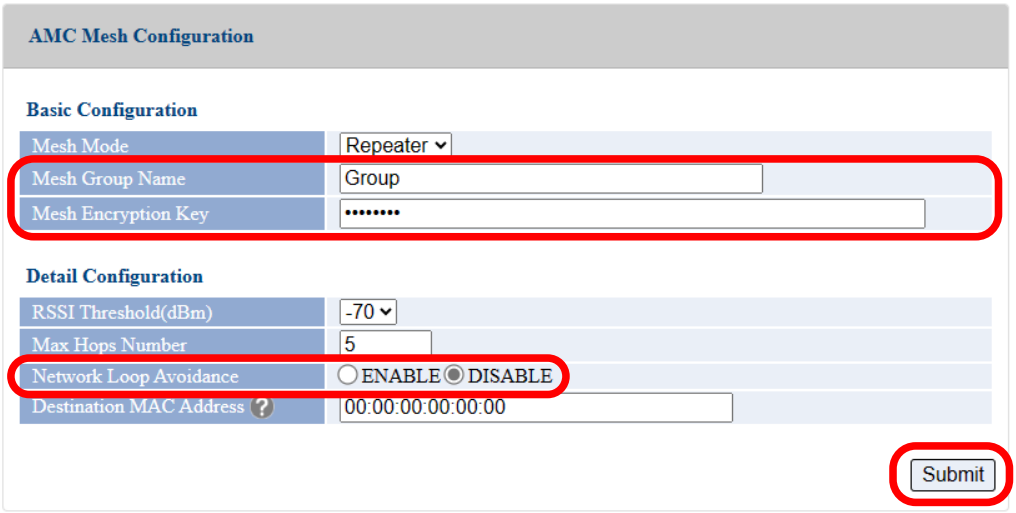


3. The **AMC Mesh Configuration** page is displayed.
Under **Basic Configuration**, select **Repeater** for **Mesh Mode**.



4. For the following settings, configure the same setting as the destination RootAP or Repeater (hereafter referred to as 'host AP'), and click **Submit**.

- Mesh Group Name
- Mesh Encryption Key
- Network Loop Avoidance



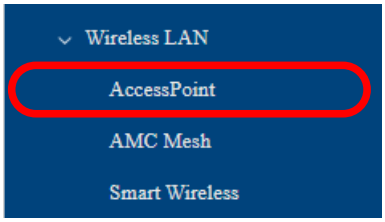
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

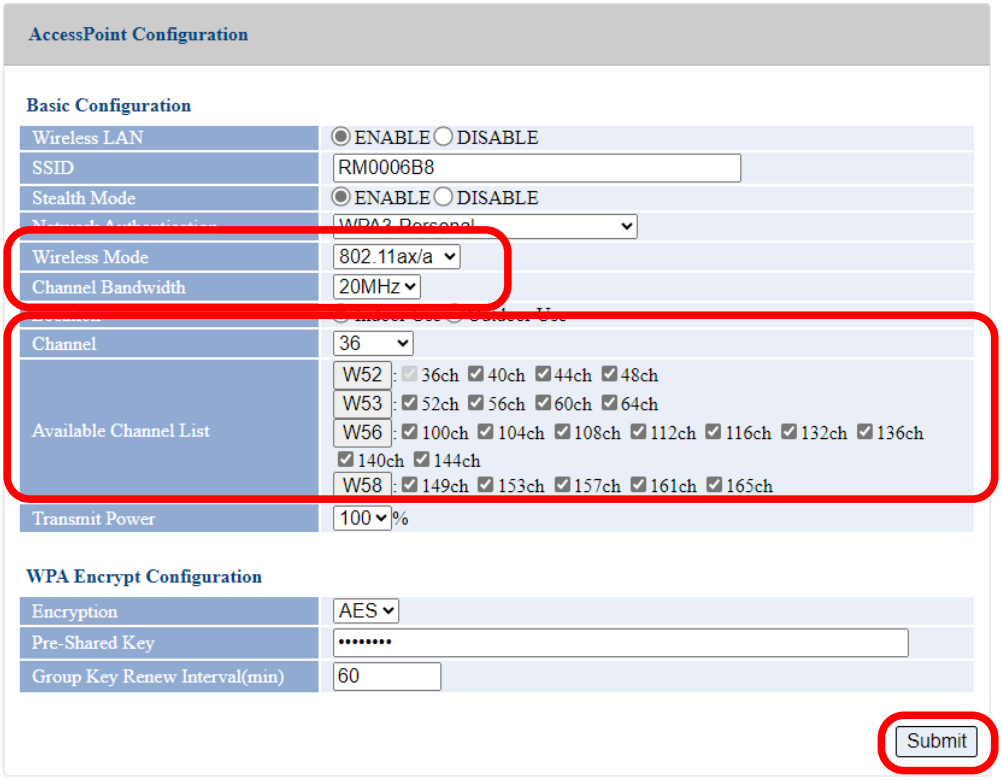
- Configure the same settings as those you have made a note of at the step 3 of **6-3-3. Establishing a Network without Specifying Destination** - **RootAP Settings**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN** - **AMC Mesh Configuration**.

5. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



6. The **AccessPoint Configuration** page is displayed.
For the following settings, configure the same setting as the host AP, and click **Submit**.

- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



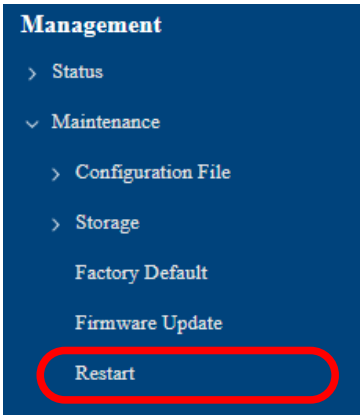
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

- Configure the same settings as those you have made a note of at the step **3** of **6-3-3. Establishing a Network without Specifying Destination - Preparation for Repeater Settings**.
- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN** - **AccessPoint Configuration**.

7. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

8. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

9. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

6-3-4. Establishing a Network That Fixes Communication Route

The following describes how to establish an AMC Mesh network that fixes communication route. First, configure the RootAP and then configure the Repeater.

RootAP Settings

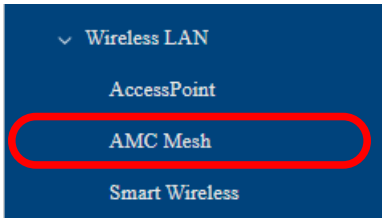
How to configure RM-100RC (first unit) as RootAP is explained.

1. Display the Web page of RM-100RC (first unit).

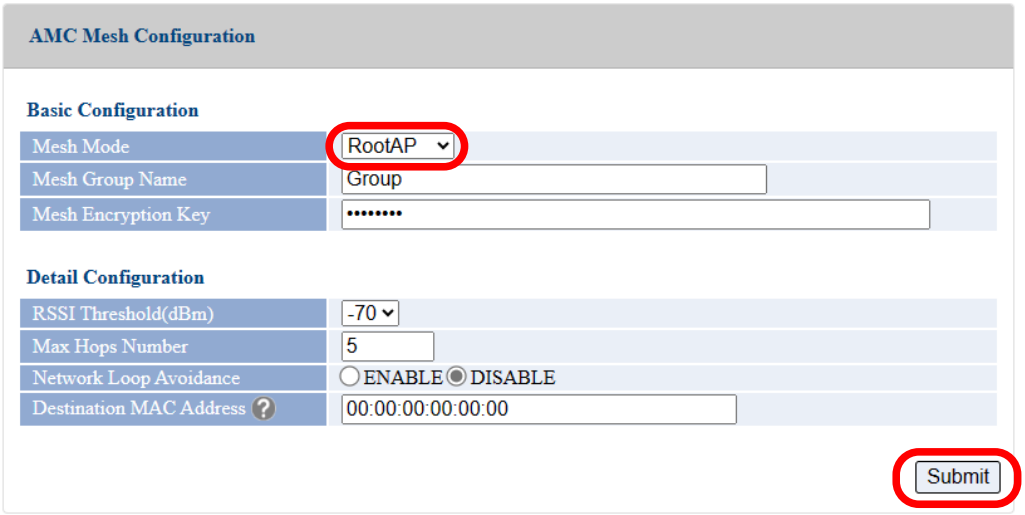
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.



3. The **AMC Mesh Configuration** page is displayed.
Under **Basic Configuration**, select **RootAP** for **Mesh Mode**, configure each setting and click **Submit**.



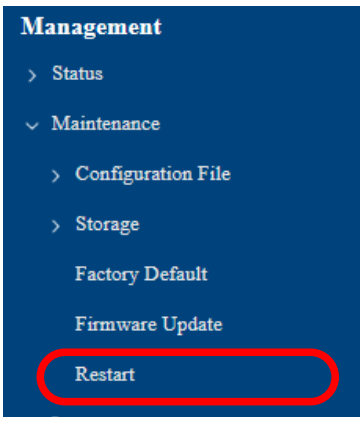
TIP

- To connect to an existing wired LAN, select **ENABLE** for **Network Loop Avoidance**.
- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

- For details on each configuration item, refer to **A-2-2. Wireless LAN - AMC Mesh configuration**.
- The following settings will also be used for the Repeater settings that will come after this. Make a note of these settings.
  - Mesh Group Name
  - Mesh Encryption Key
  - Network Loop Avoidance

4. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

5. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

6. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

Preparation for Repeater Settings

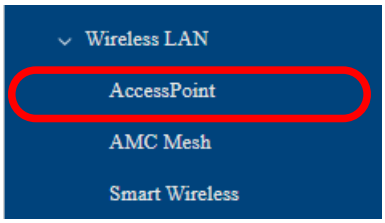
Before proceeding the Repeater settings, check the destination host AP setting.
The following explains the procedure.

1. Display the Web page of host AP.

Note

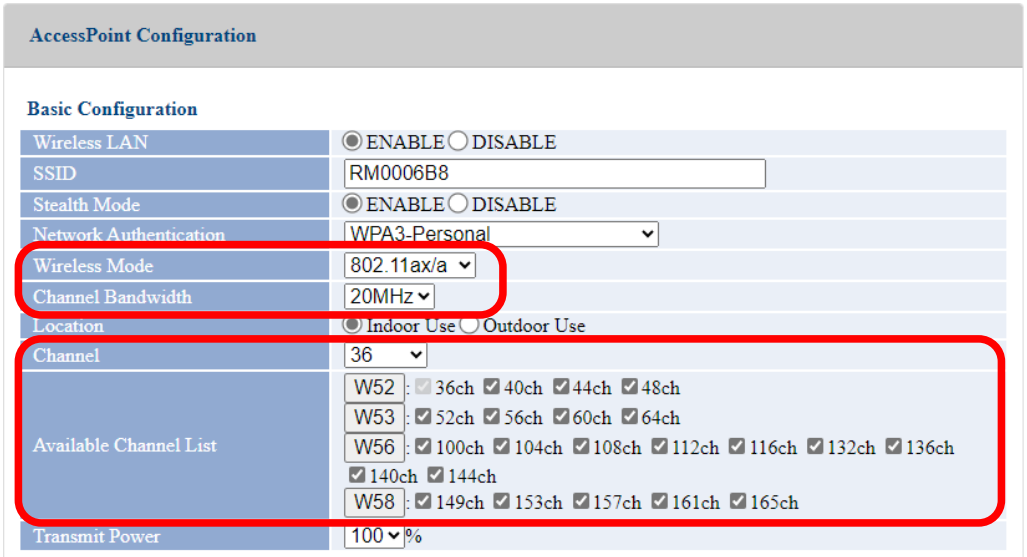
- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



3. The **AccessPoint Configuration** page is displayed. Make a note of the followings.

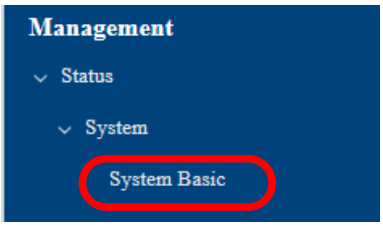
- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



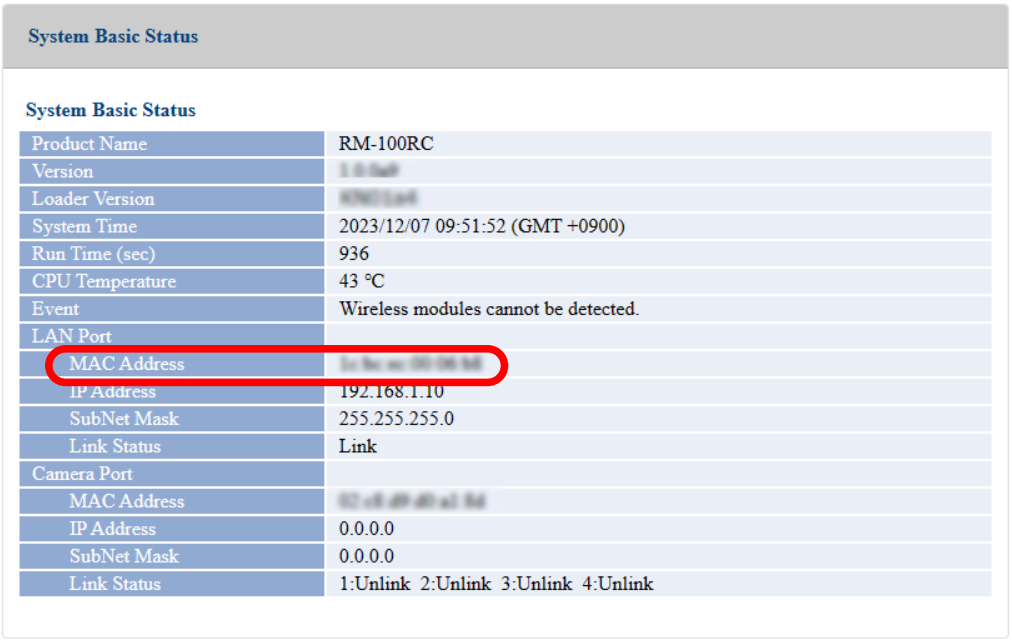
Note

- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN - AccessPoint Configuration**.

4. Click **Status** - **System** - **System Basic** from the page menu.



5. The **System Basic Status** page is displayed. Make a note of the followings.
- MAC Address of LAN Port



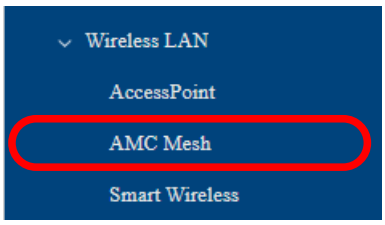
Repeater Settings

The following explains how to configure RM-100RC (second and subsequent units) as a Repeater.

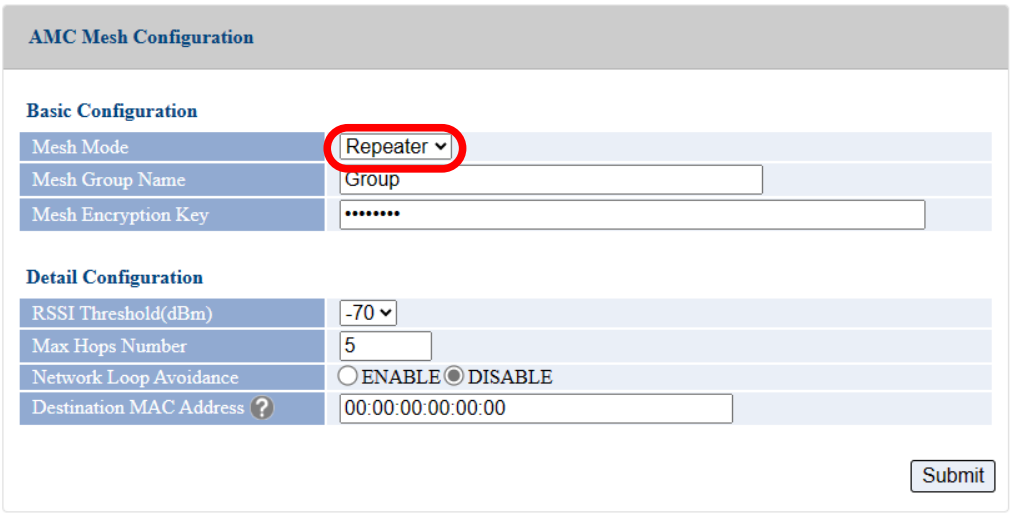
1. Display the Web page of RM-100RC (second and subsequent units).

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.

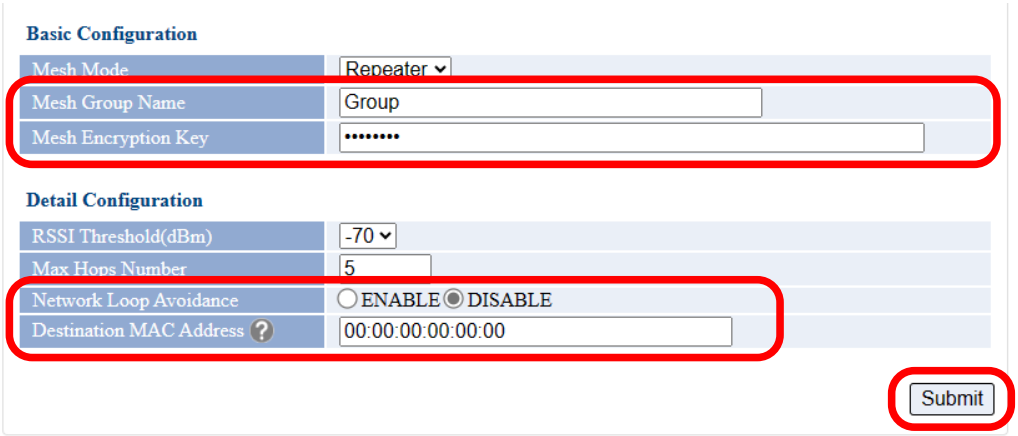


3. The **AMC Mesh Configuration** page is displayed.
Under **Basic Configuration**, select **Repeater** for **Mesh Mode**.



4. For the following settings, configure the same setting as the host AP, enter the MAC address of LAN port of the host AP to **Destination MAC Address** and click **Submit**.

- Mesh Group Name
- Mesh Encryption Key
- Network Loop Avoidance



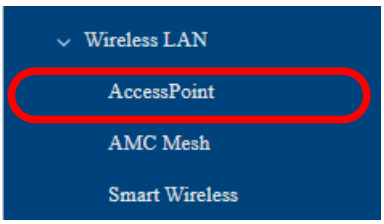
TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

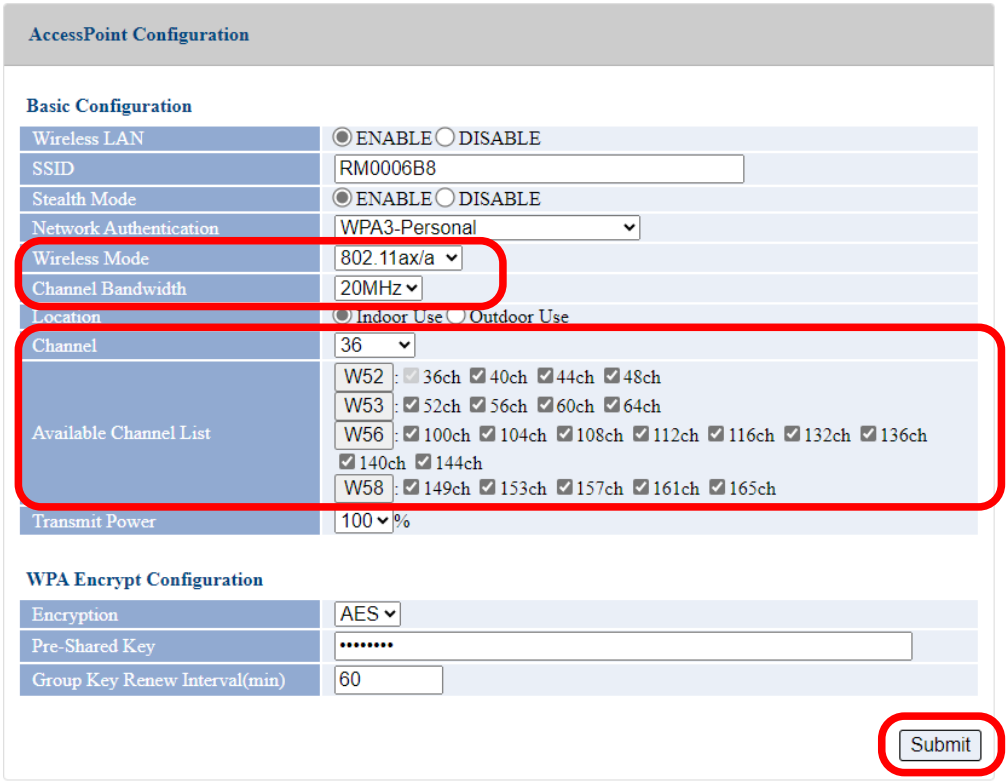
- Configure the same settings as those you have made a note of at the step 3 of **6-3-4. Establishing a Network That Fixes Communication Route** - **RootAP Settings** and step 5 of **6-3-4. Establishing a Network That Fixes Communication Route** - **Preparation for Repeater Settings**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN** - **AMC Mesh Configuration**.

5. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



6. The **AccessPoint Configuration** page is displayed.
For the following settings, configure the same setting as the host AP, and click **Submit**.

- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



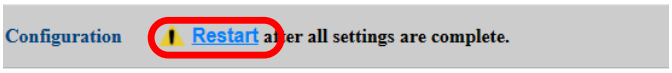
TIP

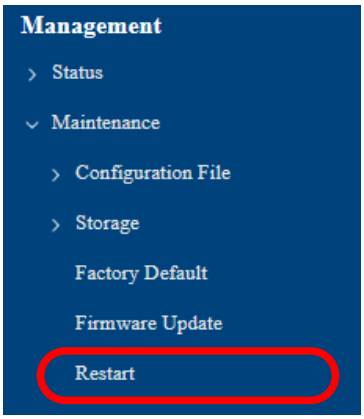
- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

Note

- Configure the same settings as those you have made a note of at the step 3 of **6-3-4. Establishing a Network That Fixes Communication Route - Preparation for Repeater Settings**.
- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.
- For details on each configuration item, refer to **A-2-2. Wireless LAN - AccessPoint Configuration**.

7. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

8. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

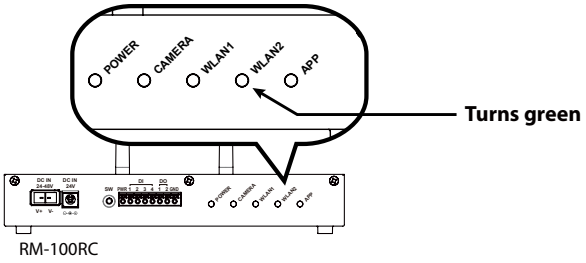
- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

9. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

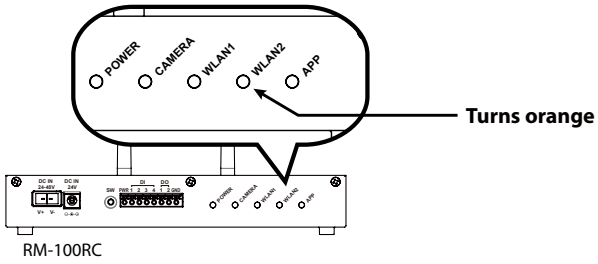
6-3-5. Checking Connection Status with LED

When an AMC Mesh network is established using multiple RM-100RC units, the connection status can be checked by the WLAN2 LED as follows.

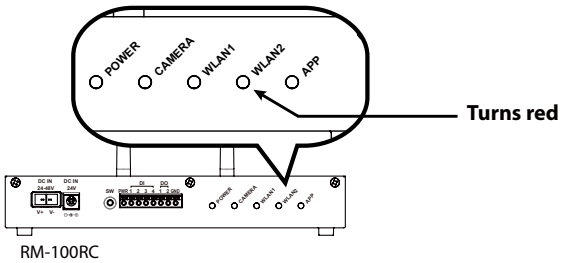
(1) Connection status is good (RSSI is -60dBm or more)



(2) Connection status is ok (RSSI is -61dBm to -70dBm)



(3) Connection status is bad (RSSI is less than -71dBm)



The following explains how to install RM-100RC using this function.

1. First, install RM-100RC (operating as RootAP) that connects to the backbone network, and then install RM-100RC (operating as Repeater) in order of proximity to the RootAP that is connected to the backbone network.

2. Allocate RM-100RC to the determined position, and turn on it.

3. Check the WLAN2 LED of RM-100RC.
   The meaning of LED light colors is as described above.

4. To improve the connection status, confirm the followings and change the location of installation if necessary.

- No reinforcing bars, metal and concrete walls or poles are installed in front of the radio emission portion.
- Not too far away from the other RM-100RC units.

5. Repeat **1** to **4** and adjust the unit location one by one. When the adjustment is finished for all units, fix them to the location.

The product installation is now completed.

6-3-6. What If Connection Fails?

If RM-100RC fails in AMC Mesh connection, one of followings might be the reason:

- The Repeater (hereinafter, "station AP") has a different wireless setting from the host AP.
- Too many devices are connected to the host AP exceeding the limit.
- The value of **RSSI Threshold (dBm)** does not match the environment.

Follow the instructions below to identify the problems on AMC Mesh:

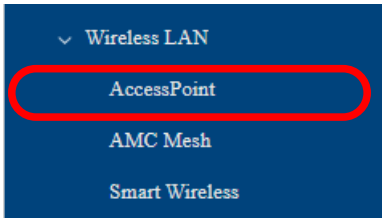
How to check the settings on station AP

The following explains how to check the Repeater settings on the station AP.

1. Display the Web page of host AP.

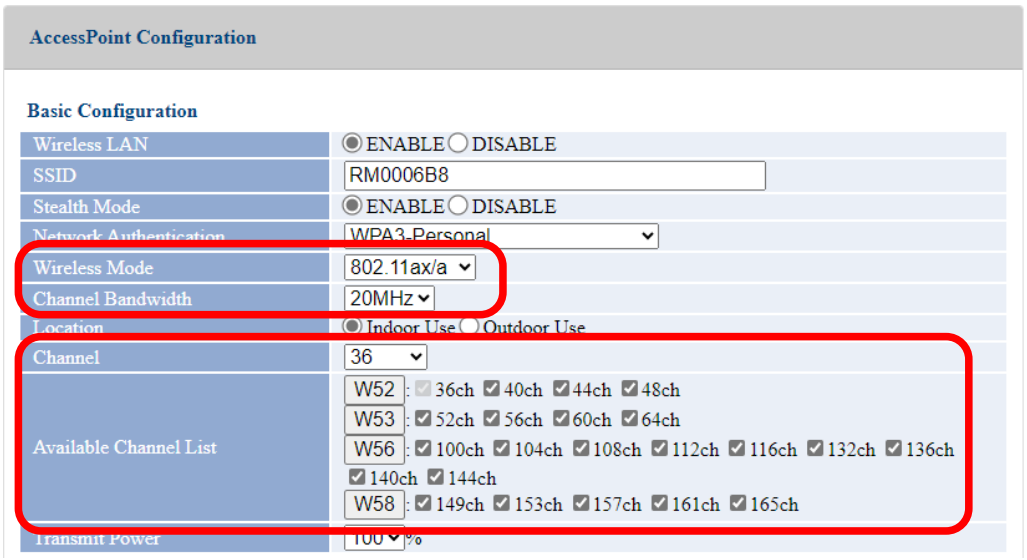
Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



3. The **AccessPoint Configuration** page is displayed. Make a note of the followings.

- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



Note

- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.

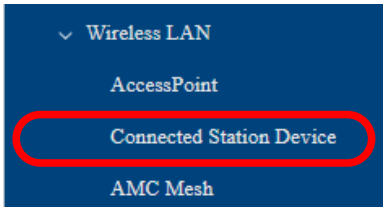
How to check the number of devices connected to host AP and its setting

The following explains the number of devices connected to the host AP and the procedure for checking the settings.

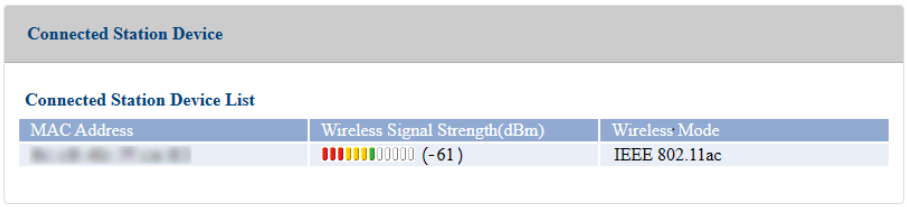
1. Display the Web page of host AP.

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

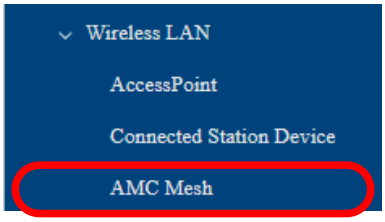
2. Click **Status** - **Wireless LAN** - **Connected Station Device** from the page menu.



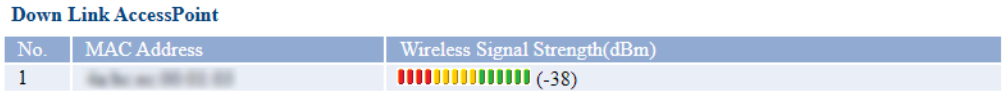
3. The **Connected Station Device** page is displayed.
Check the number of wireless station devices connected to RM-100RC.



4. Click **Status** - **Wireless LAN** - **AMC Mesh** from the page menu.



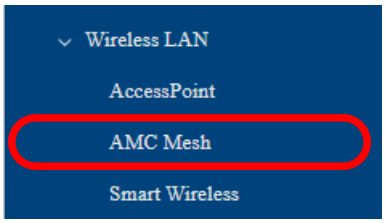
5. The **AMC Mesh Status** page is displayed.
See the number of Repeaters that are connected as wireless station devices.
Check that too many wireless station devices and APs are NOT connected, which exceeds the maximum number of connectable devices.



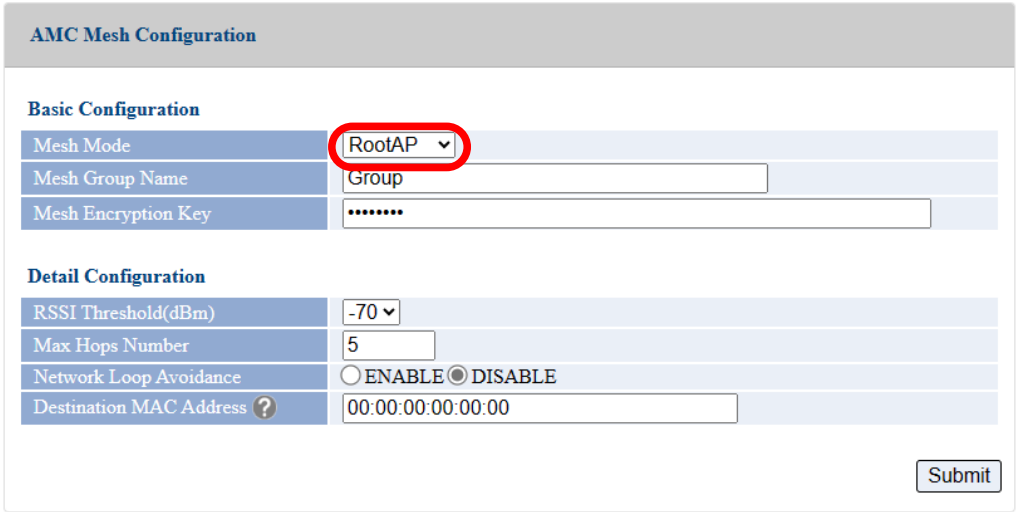
Note

- The host AP (RootAP/Repeater) is not included in the number of connected devices.

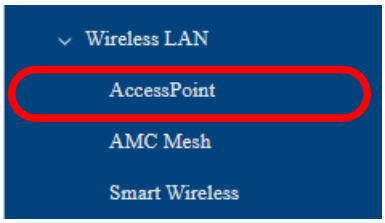
6. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.



7. The **AMC Mesh Configuration** page is displayed.
Under **Basic Configuration**, check that **RootAP** or **Repeater** is selected for **Mesh Mode**.

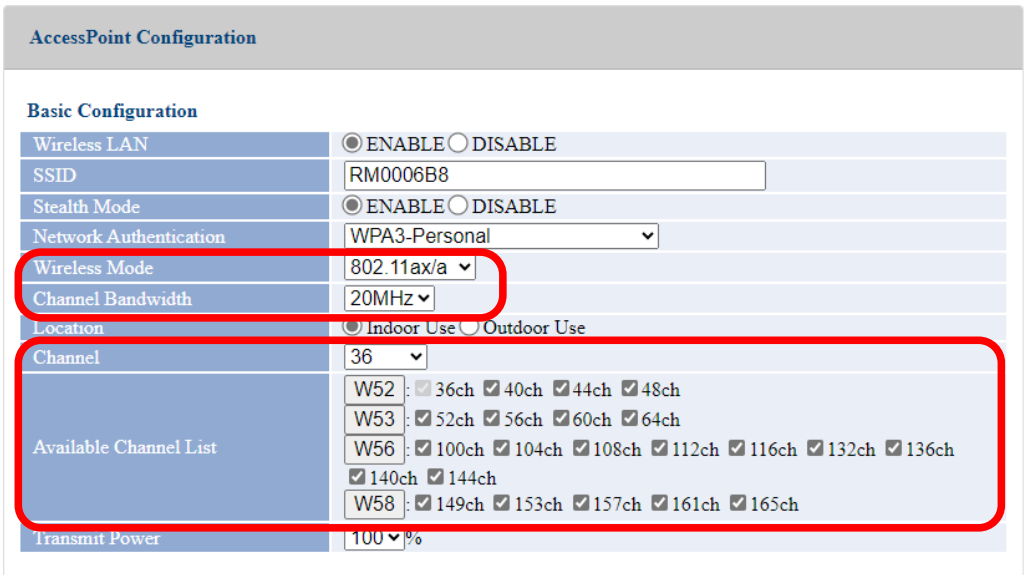


8. Click **Detail Conf.** - **Wireless LAN** - **AccessPoint** from the page menu.



9. The **AccessPoint Configuration** page is displayed. Check the following settings.

- Wireless Mode
- Channel Bandwidth
- Channel
- Ext Channel
- Available Channel List



Note

- The setting items will differ depending on **Wireless Mode** and **Channel Bandwidth**.

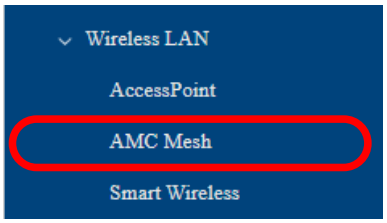
How to change the RSSI threshold setting and check it

The following explains how to change the **RSSI Threshold (dBm)** setting.

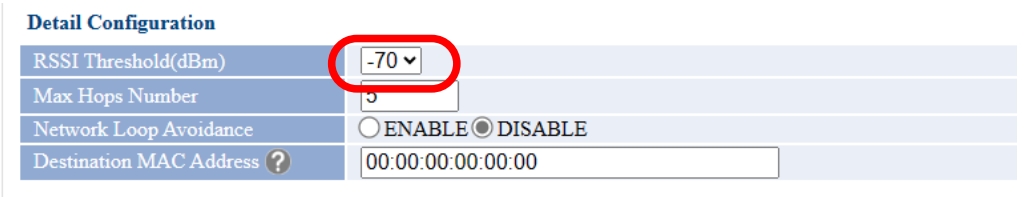
1. Display the Web page of RM-100RC.

Note - For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

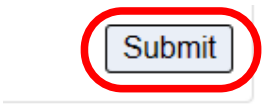
2. Click **Detail Conf.** - **Wireless LAN** - **AMC Mesh** from the page menu.



3. The **AMC Mesh Configuration** page is displayed.
Change the current value to a smaller value for **RSSI Threshold (dBm)** of **Detail Configuration**. For example, if it is "-60", change it to a value below "-70".

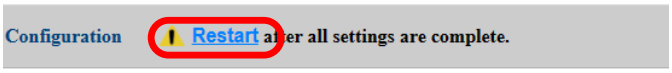


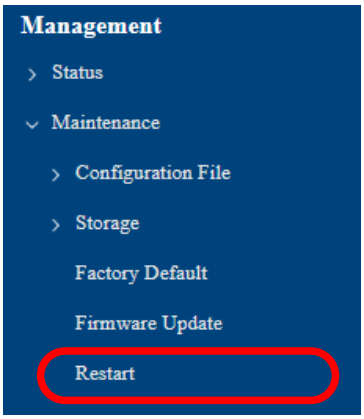
4. Click **Submit** at the bottom right of the page.



TIP - If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit**, to save the current values when you move to the other page.

5. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

6. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

7. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

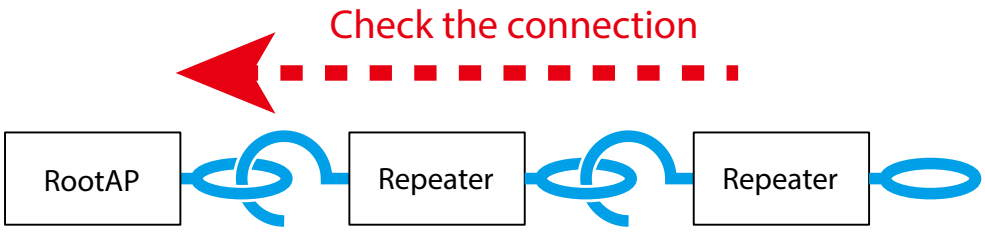
8. Check that RM-100RC is connected to the host AP.
Check the status of the WLAN2 LED on RM-100RC or refer to the AMC Mesh status page.

Note

- For details on the WLAN2 LED, see **2-3. Parts and Functions** or **6-3-5. Checking Connection Status with LED**.

6-3-7. Checking Connection Status on Web Page

To see if RM-100RC is connected in AMC Mesh mode properly, check the status page on the Web page in the order from the station AP to the host AP.
In the Web page, the host AP connected in AMC Mesh is displayed.

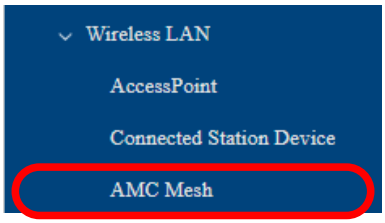


1. Display the Web page of host AP.

Note

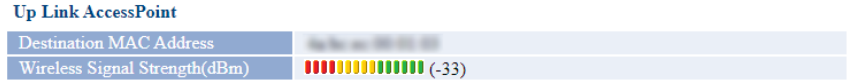
- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **Wireless LAN** - **AMC Mesh** from the page menu.

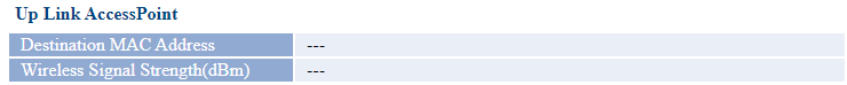


3. In the **AMC Mesh Status** page, check the **Up Link AccessPoint**.
If **Destination MAC Address** and **Wireless Signal Strength(dBm)** are displayed, the AMC Mesh connection is established successfully.

AMC Mesh Connection Success:



AMC Mesh Connection Failure:



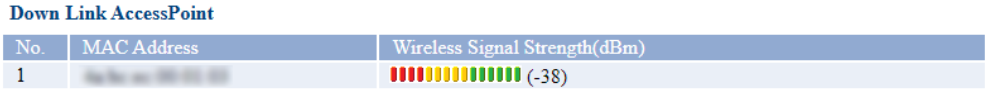
Note

- If **Destination MAC Address** and **Wireless Signal Strength (dBm)** are not displayed, the AMC Mesh connection is not established. In such a case, refer to **6-3-6. What If Connection Fails?** for possible solutions.
- In the Web page of RootAP, **Up Link AccessPoint** is not displayed.

To continue to see the connection status at the host AP, repeat the same process from Step1-3 at the host AP's Web page.

Note

- RM-100RC uses two MAC addresses when connected in AMC Mesh. As they are generated based on the MAC address of RM-100RC, those addresses are different from the one that you can find on the system status page and the product label.
- **MAC Address** of **Down Link AccessPoint** shows the MAC address that the station AP uses to connect to the host AP.



6-4. Connecting Wireless Station Devices

6-4-1. Connecting PC or Tablet

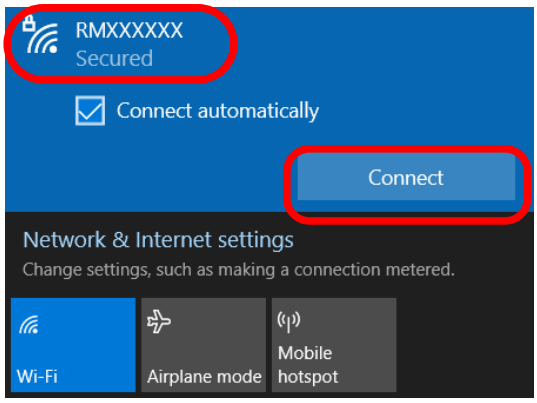
The following explains how to connect your PC or Tablet to RM-100RC as a wireless station device.

Note

- Before you begin, get the **SSID** and **Pre-Shared Key** configured on RM-100RC.
- The following explanation uses Windows 10 for an example. When an operating system other than Windows 10 is used, the procedure may differ.

1. Click the network icon on the notification area (system tray) to view the wireless networks.

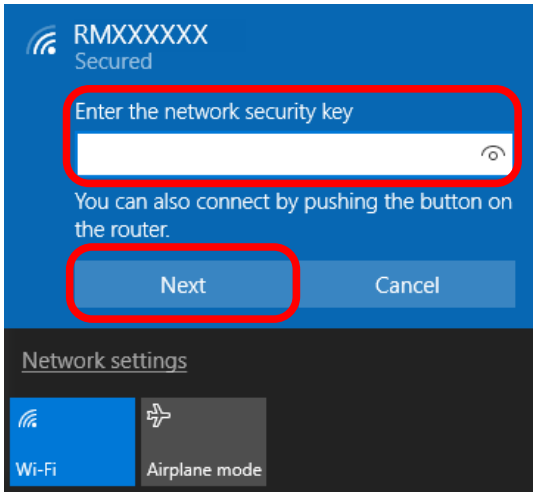
2. Select the SSID configured on RM-100RC from a list and click **Connect**.



Note

- If **Connect automatically** is checked, your PC will automatically connect to RM-100RC every time it restarts.

3. Enter the Pre-Shared key to **Security key** and click **Next**.



4. When a message **Do you want to allow your PC to be discoverable by other PCs and devices on this network?** appears, click **No**.

The Windows PC has been connected.

6-4-2. Connection Using Smart Wireless Setup

This section explains the connection method that uses Smart Wireless Setup.

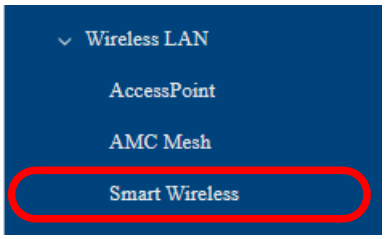
Checking Settings

1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **Smart Wireless** from the page menu.



3. The **Smart Wireless Setup** page is displayed.
Check that the **Execute** button is valid.

Note

- If the **Execute** button is invalid (if the button cannot be clicked), change the setting according to the instructions below.
  1) Select **Open** or **WPA2-Personal** for **Network Authentication**.
  2) Select **DISABLE** for **Stealth Mode**.
  3) Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.
  4) When the **Restart** page is displayed, click **Restart**.
  5) When the login page is displayed, the change is completed.

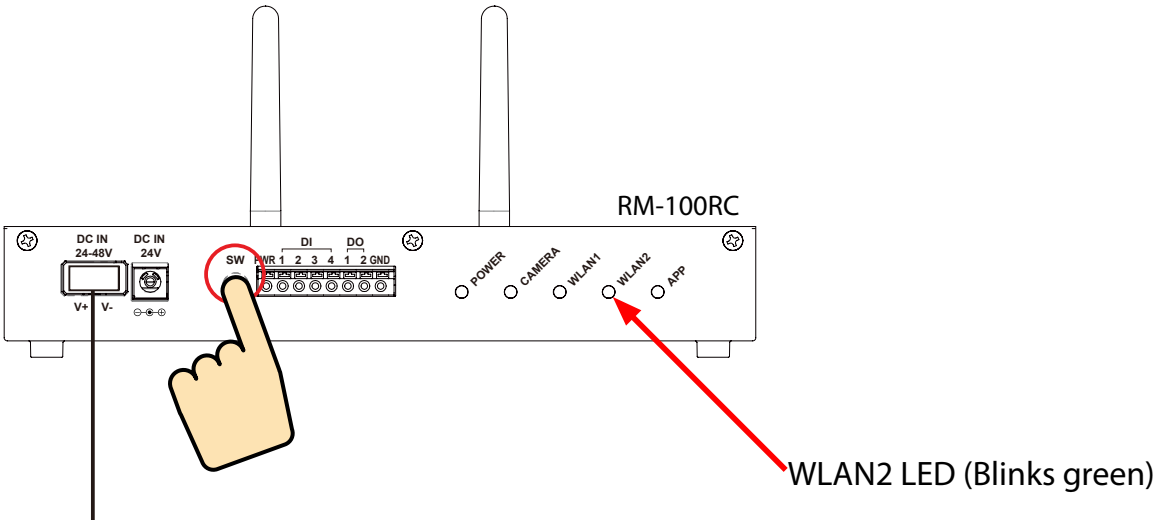
Making a Connection Using Push Switch

The following explains how to connect the wireless station device using the push switch of RM-100RC.

TIP

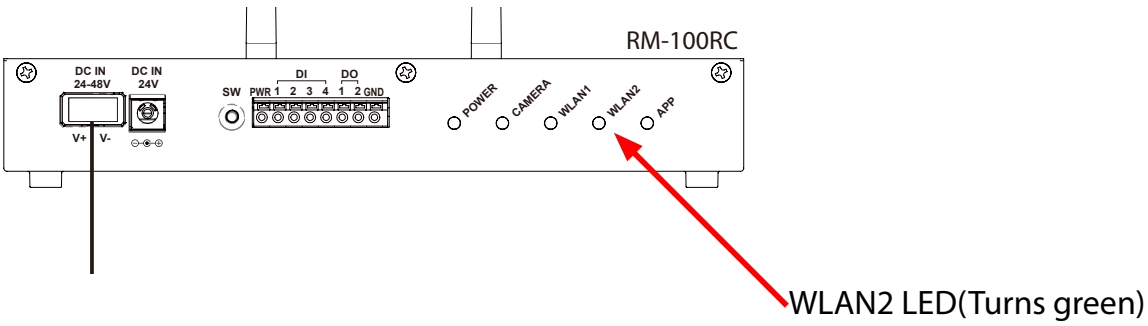
- To use this configuration method, the wireless station device must support Wi-Fi Protected Setup (WPS).

1. Press and hold the Push switch(Smart Wireless Setup switch) of RM-100RC, and release it when the WLAN2 LED flashes green.



2. Press the wireless setup switch also on your wireless station device.

3. RM-100RC will start to communicate with your wireless station device and configure the same wireless settings. The WLAN2 LED will turn green when the configuration is completed.



The wireless station device has been connected.

Making a Connection Using RM-100RC's Web Page

The following explains how to connect the wireless station device using the Web page of RM-100RC.

TIP

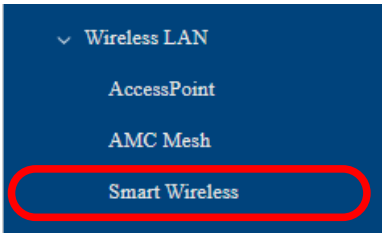
- To use this configuration method, the wireless station device must support Wi-Fi Protected Setup (WPS).

1. Display the RM-100RC's Web page.

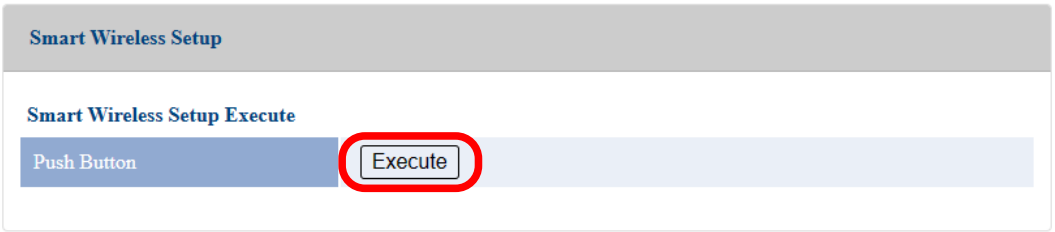
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Wireless LAN** - **Smart Wireless** from the page menu.

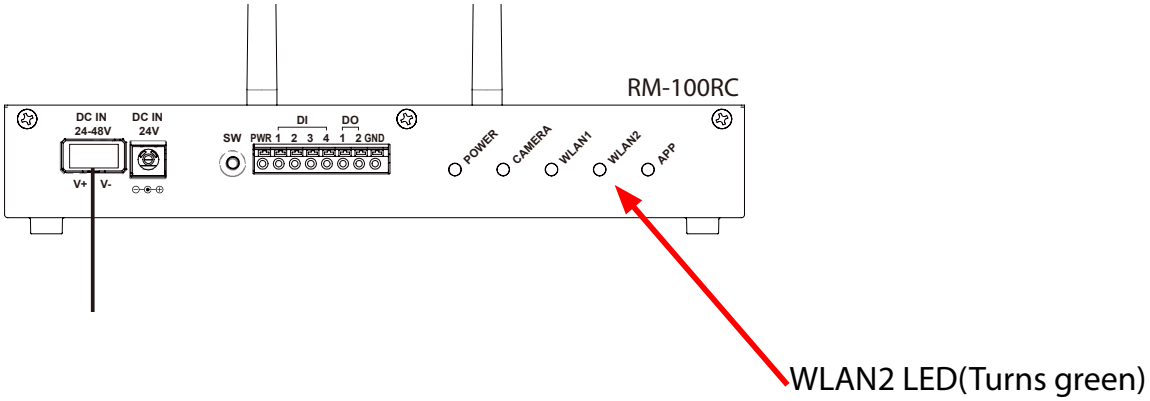


3. The **Smart Wireless Setup** page is displayed.
Click **Execute** at **Push Button**.



4. Press the wireless setup switch also on your wireless station device.

5. RM-100RC will start to communicate with your wireless station device and configure the same wireless settings. The WLAN2 LED will turn green when the connection is completed.



The wireless station device has been connected.

7. Security Functions

7-1. Login Password Setting

The following explains how to change the RM-100RC's login password.

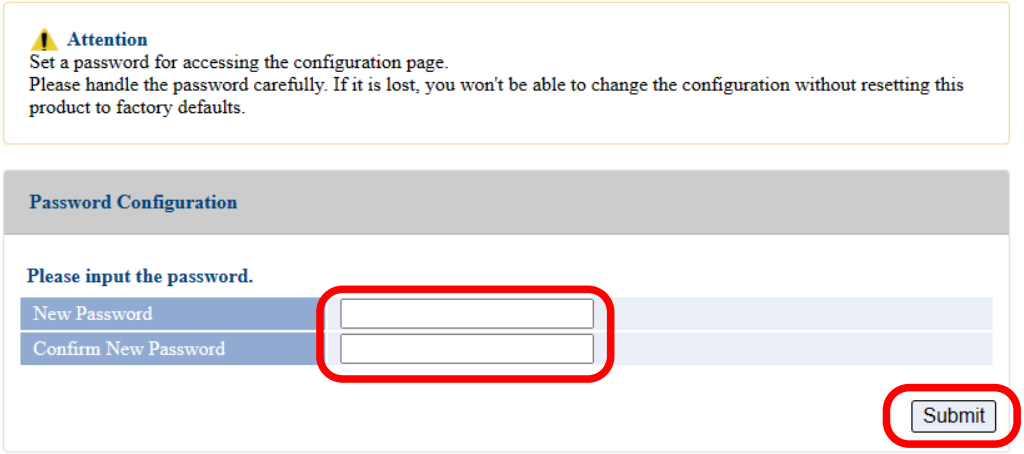
1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Security** - **Password** from the page menu.

3. The **Password Configuration** page is displayed.
Enter the password to both **New Password** and **Confirm New Password** and click **Submit**.



TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.
- Make a note of the password so that you can refer when you have forgotten it. Without the password, no settings can be changed unless RM-100RC is reset to the factory default settings.

The login password change has been completed.

7-2. Device Filter Setting

7-2-1. Filter Operation

By registering the IP address or MAC address, access to RM-100RC can be filtered.
Access of devices is allowed or denied based on the filter type below.

Filter Type	Operation
ALLOW	Allows access only from the registered devices.
DENY	Denies access from the registered devices.

7-2-2. IP Address Filter

This section explains how to filter an access to RM-100RC by registering the IP address. Specify the start address and end address to set all addresses of that range as the filter target. Up to 5 IP address ranges can be registered. Set whether to accept (ALLOW) or block (DENY) for each address range.
For access from IP addresses outside the registered range, set **Default Filter Mode**.

TIP

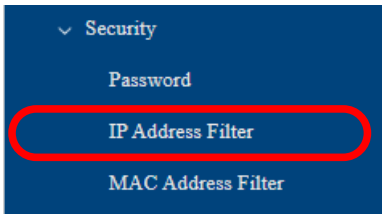
- If this function is used, the communication speed may slow down as the network communication is monitored.
- It is possible to use this function for both wired LAN and wireless LAN.
- This function cannot restrict access to the camera port.

1. Display the RM-100RC's Web page.

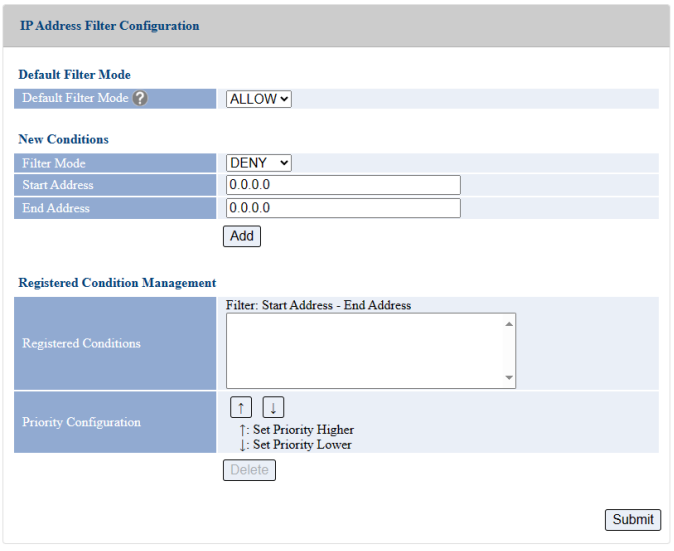
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Security** - **IP Address Filter** from the page menu.



3. The **IP Address Filter Configuration** page is displayed.



Note
- For details on each configuration item, refer to **A-2-4. Security** - **IP Address Filter Configuration**.

Adding Filter Conditions

Select the **Filter Mode** at **New Conditions**, enter the address to **Start Address** and **End Address** to specify the address range, and click **Add**.

Once the filter conditions are registered, it is displayed at **Registered Conditions**.

Note
- If **Default Filter Mode** is set to **DENY** and no IP address is registered, this setting is invalidated and access from all IP addresses is allowed.
- If the registered address ranges overlap, the one with a higher priority will be applied. Select the condition to change the priority and click [↑] button or [↓] button to make the priority of that condition higher or lower.

Default Filter Mode

Set an access filter (ALLOW/DENY) for IP addresses outside the address range registered to **Registered Conditions**.

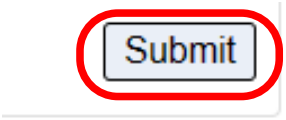
ALLOW: Accepts an access from IP addresses outside the address range registered to **Registered Conditions**.

DENY: Denies an access from IP addresses outside the address range registered to **Registered Conditions**.

Default Filter Mode is used with **Registered Conditions**.

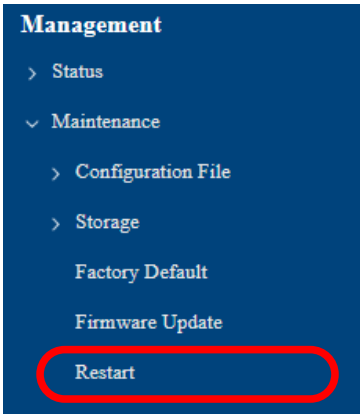
For example, if **Default Filter Mode** is set to **DENY**, RM-100RC can only be accessed from the IP address range registered to **Registered Conditions** as **ALLOW**.

4. Check the settings and click **Submit**.



TIP
- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

5. Click **Restart** at the top of the page or from the page menu.



Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

6. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

7. The restart progress page is displayed.
When the login page is displayed, the configuration is completed.

Note

- If the IP address is changed on RM-100RC and which does not allow communication from the PC, the login page is not displayed.

7-2-3. MAC Address Filter

This section explains how to filter an access to RM-100RC by registering the MAC address. Up to 10 addresses can be registered for the MAC address filter. Set whether to accept (ALLOW) or block (DENY) for the registered MAC address.

TIP

- If this function is used, the communication speed may slow down as the network communication is monitored.
- When **Mesh Mode** is **RootAP** or **Repeater**, MAC address filter is disabled.
- It is possible to use this function for both wired LAN and wireless LAN.
- This function cannot restrict access to the camera port.

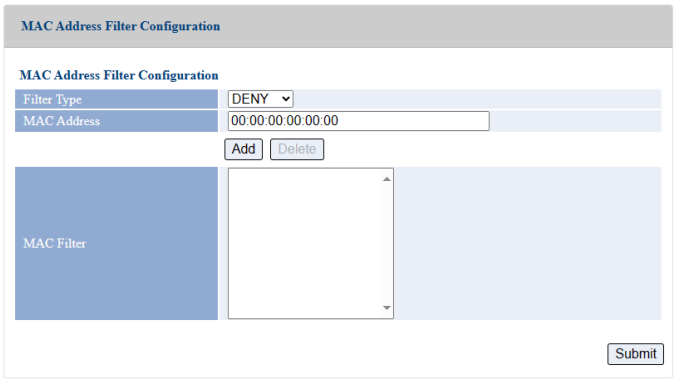
1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Detail Conf.** - **Security** - **MAC Address Filter** from the page menu.

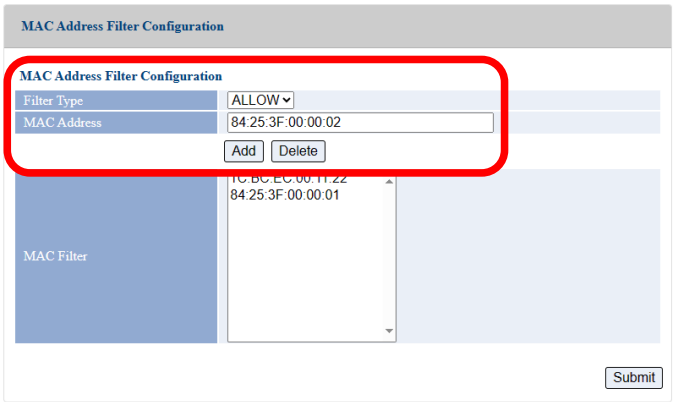
3. The **MAC Address Filter Configuration** page is displayed.



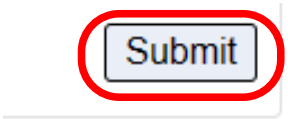
Note

- For details on each configuration item, refer to **A-2-4. Security** - **MAC Address Filter Configuration**.

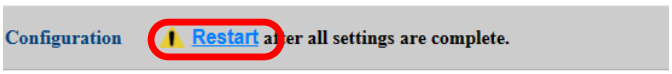
4. Select **Filter Type** for **MAC Address Filter Configuration**.
Enter the MAC address of the device you want to filter to the **MAC Address** field and click **Add**.
The registered MAC address will be added to **MAC Filter**.

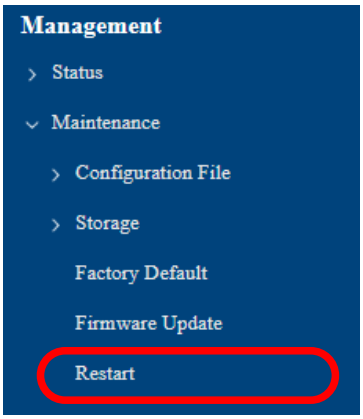


5. Check the settings and click **Submit**.



6. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.





Note

- When you are to continue the configuration on other pages, you do not have to click **Restart** yet. Do it later when all necessary settings are configured.

7. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

Note

- If you do not want to apply the configuration change, reset it to the previous settings and click **Submit** at the bottom right of the Web page. Remember that the changes will take effect after the restart.

8. The restart progress page is displayed.
When the login page is displayed, the change is completed.

8. Product Installation

8-1. Installation for Stable Wireless Communications

For stable wireless communication, RM-100RC units need to be installed properly to your environment.
Install RM-100RC units and the wireless station devices in a place without any obstacles between them. Do not place anything that reflects radio waves, such as an iron plate or metal.
RM-100RC can be mounted on the wall using the brackets (optionally available), and DIN rails and screws (commercially available).


TIP

- The installation conditions described in this document are only examples. You may need to adjust it depending on the radio wave status. Temporarily install RM-100RC and measure the reception sensitivity, and if the reception sensitivity is poor, change the antenna orientation or location.


Note

- For how to mount RM-100RC to the wall, refer to **8-2. Mounting RM-100RC to Wall**.

Height of installation
The height should be about 2m from the ground.

Distance between the units
The distance should be about 20m, which is a supported wireless distance of RM-100RC.


TIP

- The wireless distance varies depending on the radio wave status in the surrounding area.

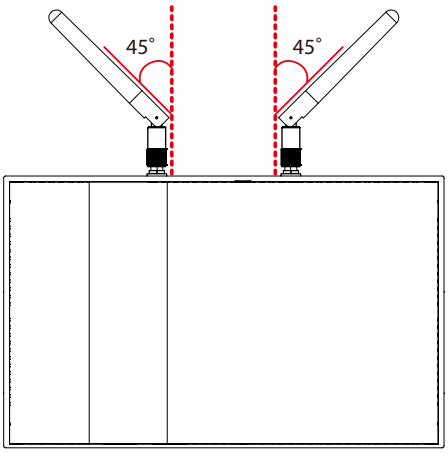

Note

- In the following cases, you may be able to improve wireless conditions by installing additional RM-100RC units and connecting them using the AMC Mesh function. For details, see **6-3. Network Expansion Using Multiple RM-100RC Units**.
  - When a distance between RM-100RC and the wireless station device is more than 20m.
  - When a distance between RM-100RC and the wireless station device is within 20m, but there are obstacles between them.

Direction of antenna

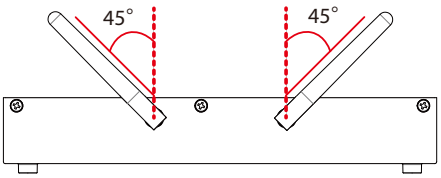
By adjusting the direction of the antenna appropriately for the installation location, the wireless communication may be improved. Rotate the antenna about 45 degrees as follows.

When placing RM-100RC vertically



RM-100RC

When placing RM-100RC horizontally



RM-100RC

TIP

- Do not push the antenna to a wrong direction.

8-2. Mounting RM-100RC to Wall

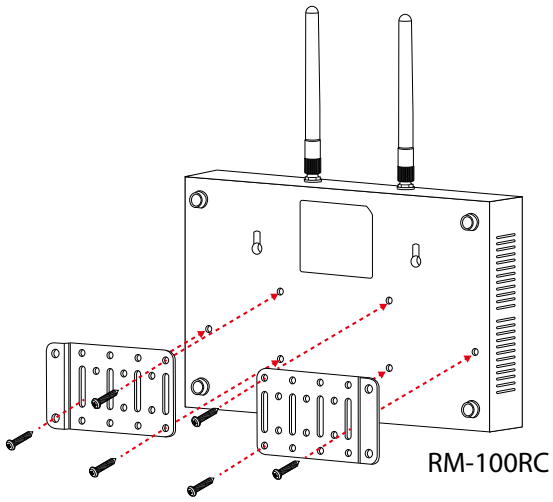
There are the following methods to mount RM-100RC on the wall.

Recommended methods:
- Mounting the unit using brackets
- Attaching to DIN rails

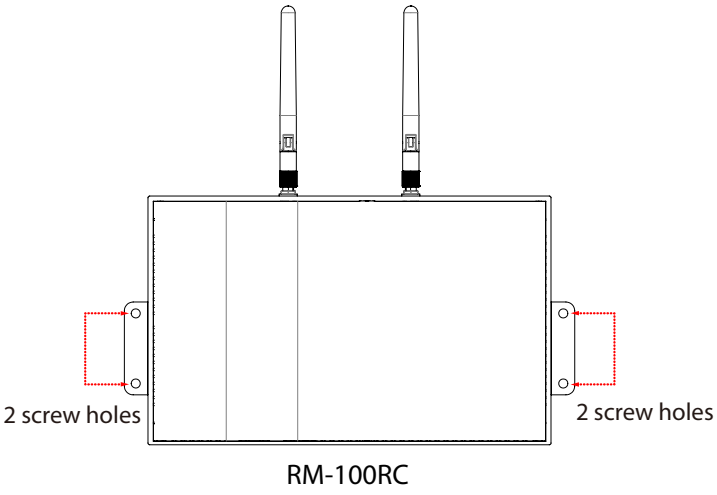
Quick method:
- Attaching the unit using screws

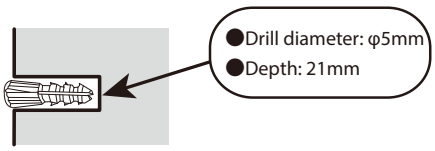
8-2-1. Wall Mounting with Bracket

1. Align the bracket (Bracket Type XI) with the screw holes on the back of RM-100RC and fasten them with screws. (* The bracket is optionally available.)



2. After attaching the bracket to RM-100RC, hold it to the wall and mark the positions of the four screw holes. Drill a pilot hole at the marked positions on the wall and insert the anchors.

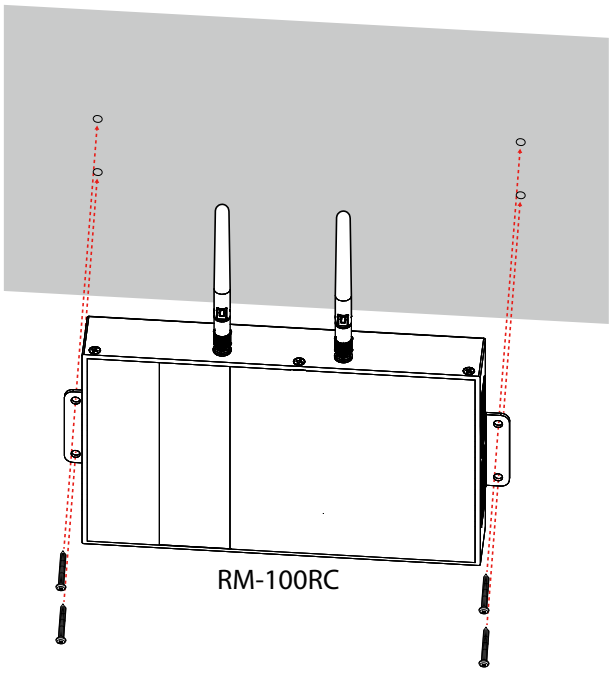




TIP

- Please be careful not to tilt RM-100RC.

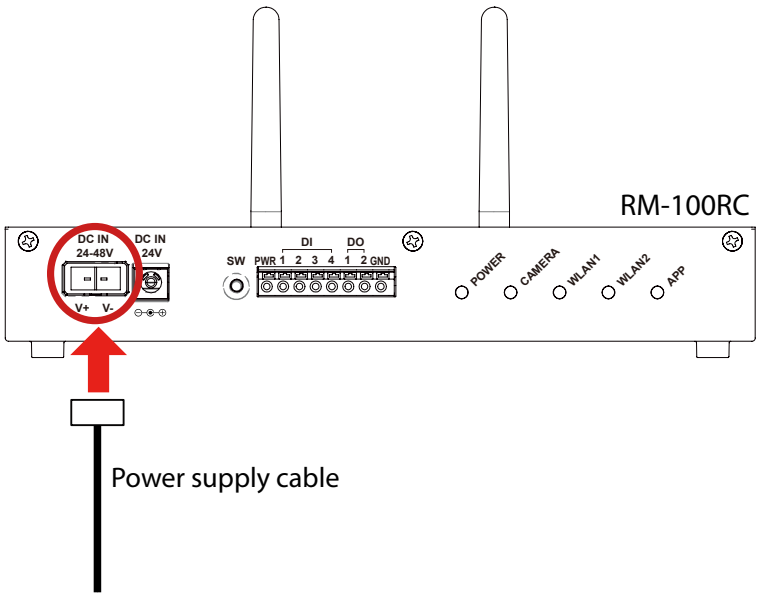
3. Fix the RM-100RC to the wall.
Align the screw holes of the bracket with the anchors inserted at step 2 and screw them.



TIP

- Silex Technology is not responsible for any damages caused by insufficient mounting. Make sure that RM-100RC is securely fixed to the wall so that it does not fall due to the weight of the product and cables.

4. Connect the power supply cable to the DC connector of RM-100RC.

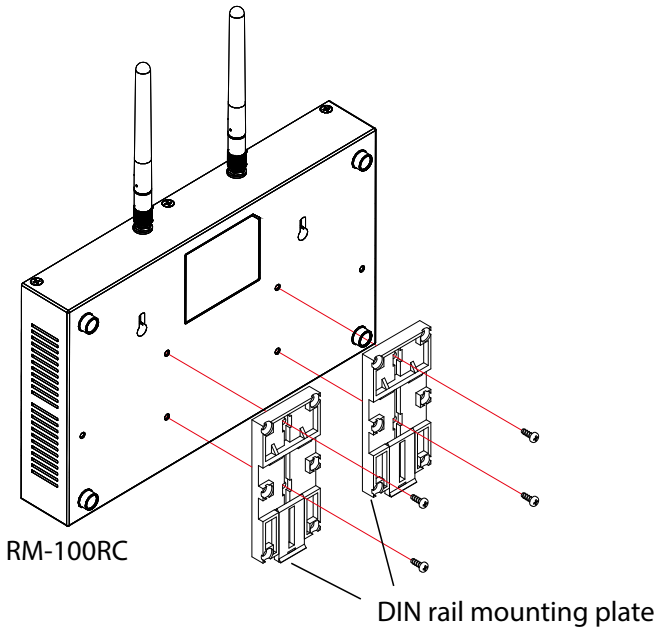


TIP

- When the optional AC adapter is used, connect it to the DC jack of RM-100RC. Then, do not use the power supply that supports DC24V to 48V with it.

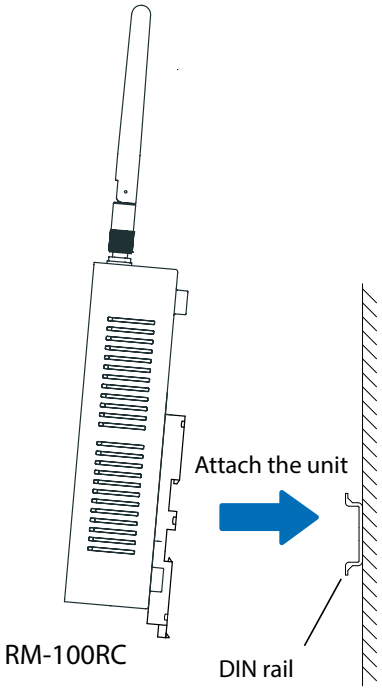
8-2-2. Attaching to DIN Rail

1. Attach DIN rail mounting plates (commercially available) to the back of RM-100RC.



Note
- DIN rail and DIN rail mounting plate are not contained in the product package. They need to be purchased separately.
- Recommended DIN rail : TAKACHI DRA-1

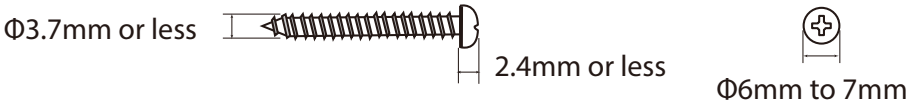
2. Mount RM-100RC (with DIN rail mounting plates) on the DIN rail.



8-2-3. Wall Mounting with Screws

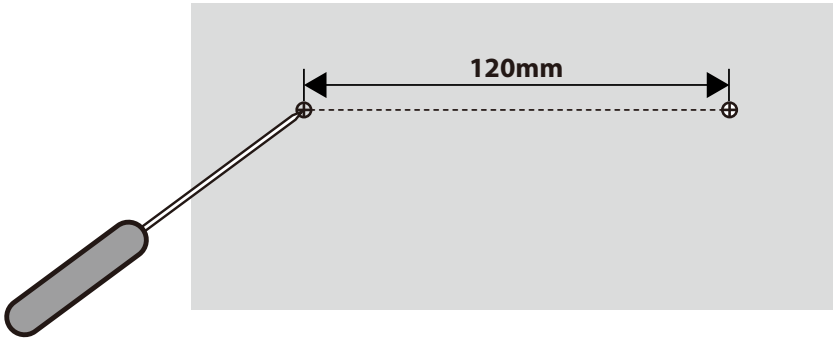
Prepare two screws to attach RM-100RC to the wall.

Screw size



* For the screw length, select it according to the material and thickness of the wall.

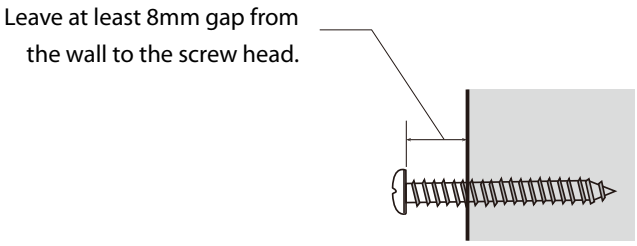
1. Mark the screw hole positions (two positions) on the wall by using an awl or similar tool. The distance between the holes is 120mm.



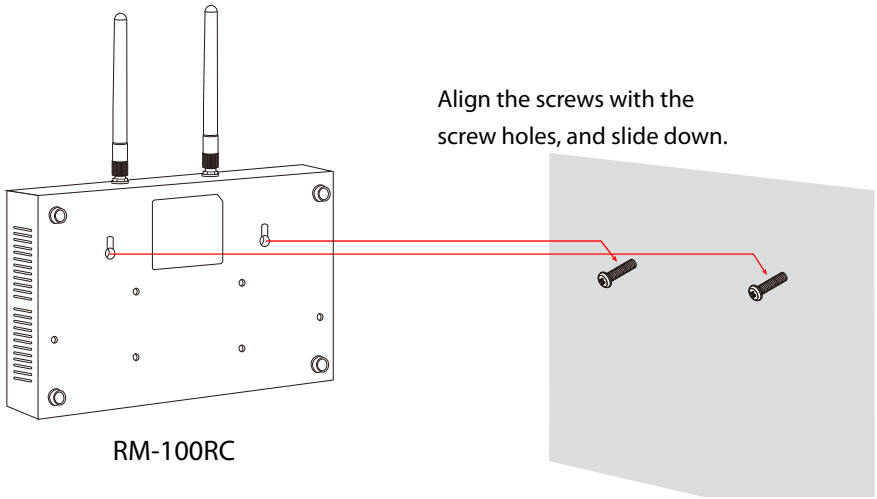
Note

- For gypsum boards or concrete walls where screws cannot be directly tightened, drill a pilot hole at the marked positions and insert anchors (commercially available anchors) that fit the screw.

2. Screw the marked positions (2 positions). Be sure to leave the 8mm gap between the wall and the screw head so that RM-100RC can be hung on it.



3. To mount RM-100RC to the wall, align the screws of the wall with the screw holes of RM-100RC and move the unit down along the wall to fix it.

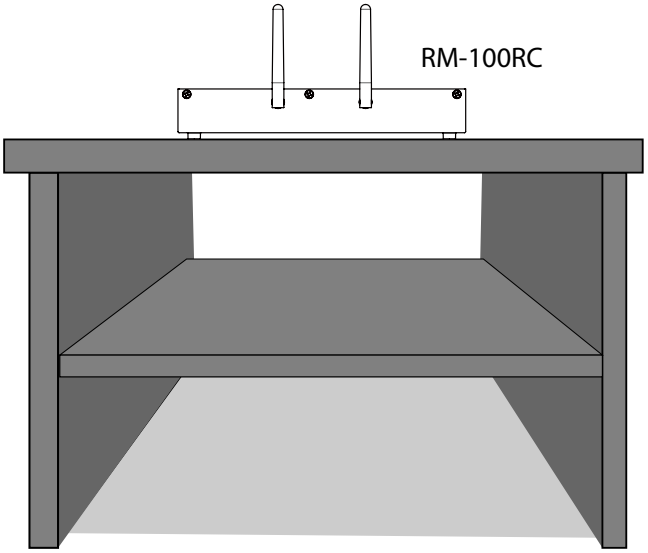


TIP

- Make sure that the unit is firmly attached to the screws. Failure to do so may cause the unit to fall.
- Silex Technology is not responsible for any damage caused by insufficient mounting. Make sure that RM-100RC is securely fixed after the installation so that it does not fall due to the weight of the product and cables.

8-3. Placing RM-100RC onto Table

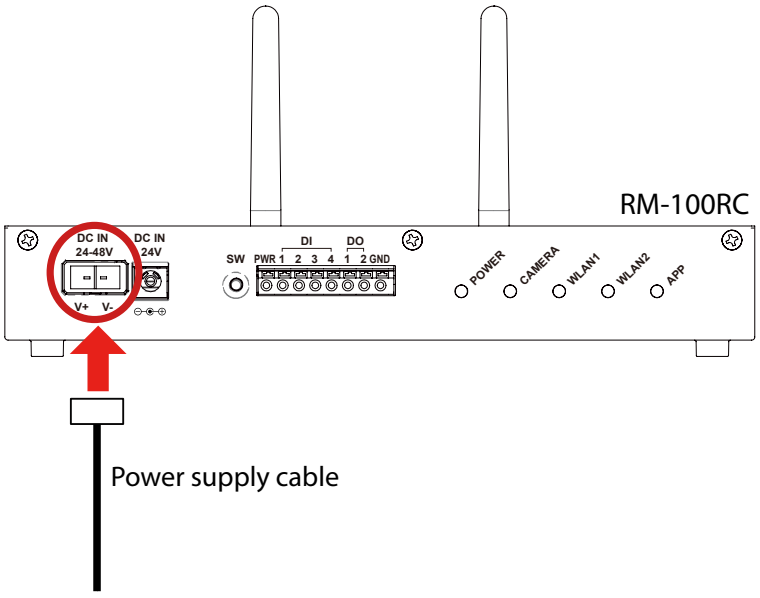
When placing RM-100RC horizontally onto the table, make sure that the table has good sight of view.



TIP

- Do not place RM-100RC onto a tilted or unstable place.

Connect the power supply cable to the DC connector of RM-100RC.



TIP

- When the optional AC adapter is used, connect it to the DC jack of RM-100RC. Then, do not use the power supply that supports DC24V to 48V with it.

9. Administrative Functions

9-1. Checking Status at Web Page

This section explains how to check the status information of RM-100RC.

9-1-1. Checking Basic System Status

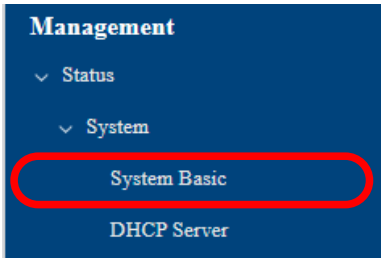
The following describes the procedure to check the basic system status of RM-100RC.

1. Display the RM-100RC Web page.

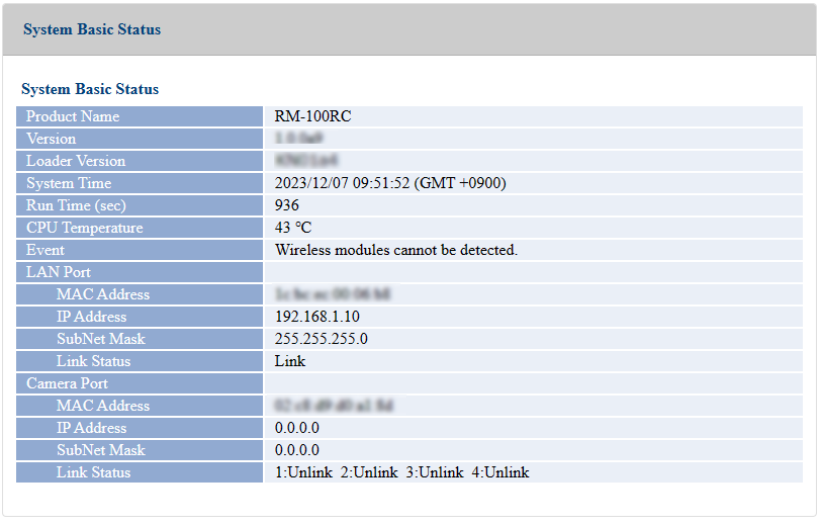
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **System** - **System Basic** from the page menu.



3. The **System Basic Status** page is displayed.
Each setting can be checked.



9-1-2. Checking IP Address Assigned by RM-100RC

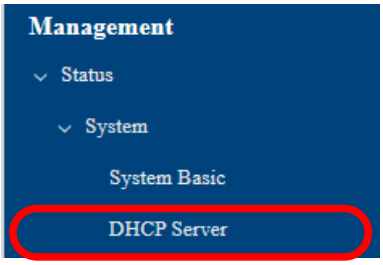
This section explains the procedures for checking the IP address that is assigned to a device using the DHCP server function of RM-100RC.

1. Display the RM-100RC Web page.

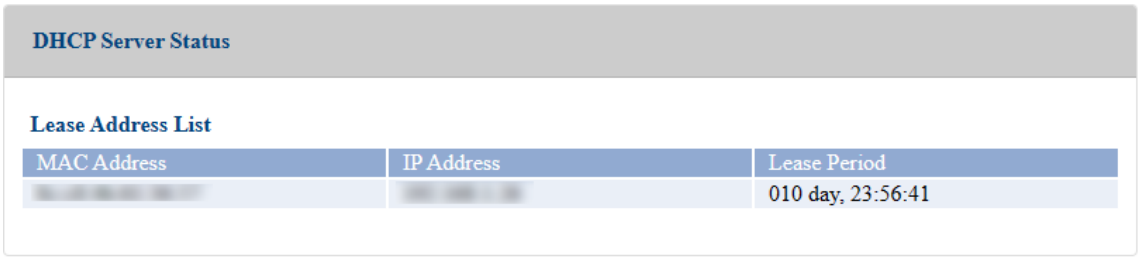
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **System** - **DHCP Server** from the page menu.



3. The **DHCP Server Status** page is displayed.
When **DHCP Server** is **ENABLE**, the status can be checked for devices whose IP addresses have been assigned by RM-100RC.



Note

- **Lease Period** is a validity period of the IP address assigned to the device.

9-1-3. Checking RM-100RC Wireless LAN Status

This section explains how to check the wireless LAN status of RM-100RC.

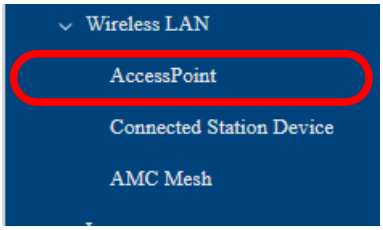
Checking Access Point Settings

1. Display the RM-100RC Web page.

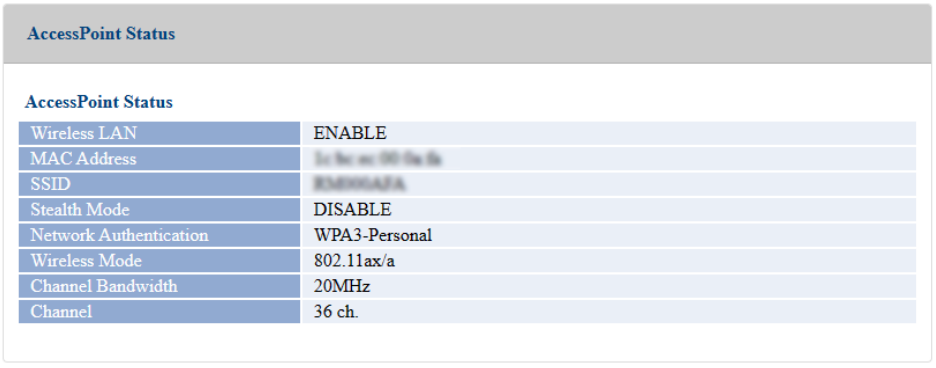
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **Wireless LAN** - **AccessPoint** from the page menu.



3. The **AccessPoint Status** page is displayed.
Each setting can be checked.



Note

- For details on each configuration item, refer to **A-2-2. Wireless LAN - AccessPoint Configuration**.

Checking Status for Connected Wireless Station Devices

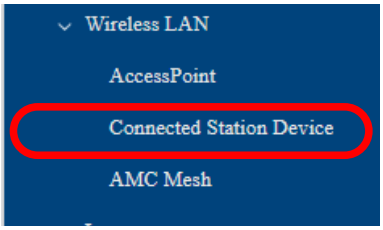
The operating status of the connected wireless station device can be checked on the Web page.
The status includes MAC address of devices and the radio strength.

1. Display the RM-100RC Web page.

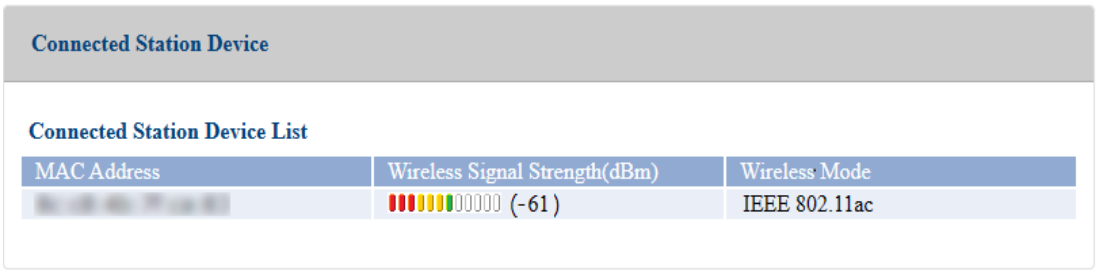
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **Wireless LAN** - **Connected Station Device** from the page menu.



3. The **Connected Station Device** page is displayed.
It shows the status of the wireless station devices connected to RM-100RC.



Checking AMC Mesh Connection Status

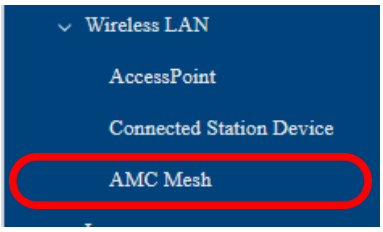
The following describes how to check the AMC Mesh connection status on the Web page.

1. Display the RM-100RC Web page.

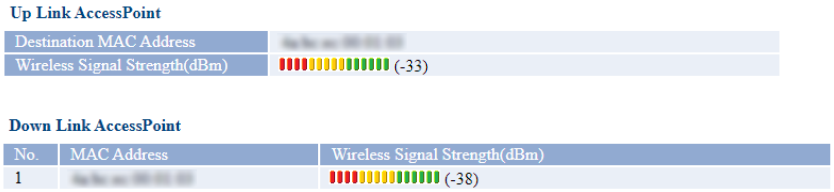
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **Wireless LAN** - **AMC Mesh** from the page menu.



3. The **AMC Mesh Status** page is displayed.
Up Link AccessPoint shows information about the host AP and **Down Link AccessPoint** shows information about the station AP.



Note

- If **Destination MAC Address** and **Wireless Signal Strength (dBm)** are not displayed, the AMC Mesh connection is not established. In such a case, refer to **6-3-6. What If Connection Fails?** for possible solutions.
- In the Web page of RootAP, **Up Link AccessPoint** is not displayed.

9-2. Retrieving Log

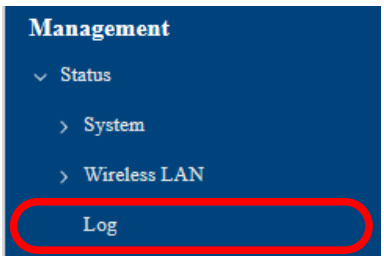
The following explains how to output the system log from the Web page.

1. Display the RM-100RC Web page.

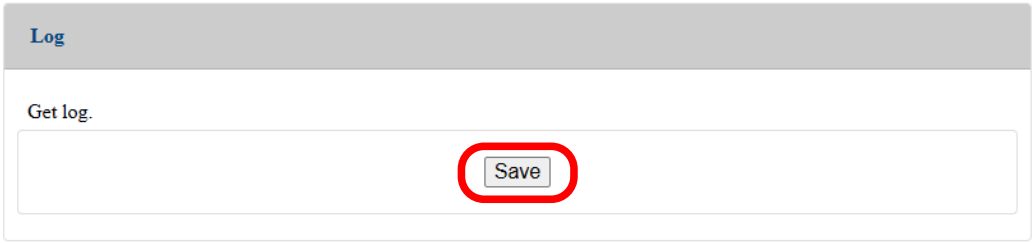
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Status** - **Log** from the page menu.



3. The **Log** page is displayed.
Click **Save**.



4. If the message for compressed file of all logs is displayed, follow the instructions in the message.

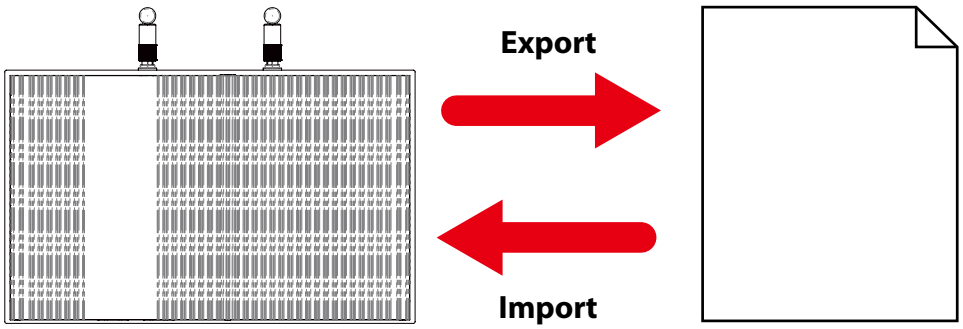
The logs have been downloaded.

10. Maintenance Functions

10-1. Configuration Import/Export Using Configuration File

10-1-1. Configuration Import/Export

By exporting the configuration, the current settings (configuration file) can be saved on to an external device. Once the configuration is saved, it can be imported back to RM-100RC anytime to restore the settings.
The configuration can be imported or exported using the Web page of RM-100RC.



TIP

- The configuration file you can import to RM-100RC must be the one you had exported from RM-100RC.
- After the configuration file is exported, please do not change the file name as well as edit the information. If the file is altered, you may not be able to import.
- If there are differences in firmware versions on RM-100RC between the one exporting the configuration file and the one importing the configuration file, the file may not be imported correctly.

10-1-2. Import/Export from Web Page

The following explains how to import/export the settings from the RM-100RC's Web page.

Exporting Configuration File

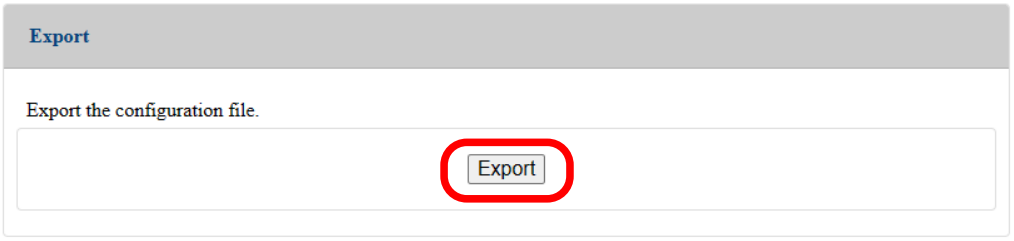
1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Configuration File** - **Export** from the page menu.

3. The **Export** page is displayed.
Click **Export**.



4. The message for setting data file (config.txt) appears.
Follow the instructions in the message.

Importing Configuration File

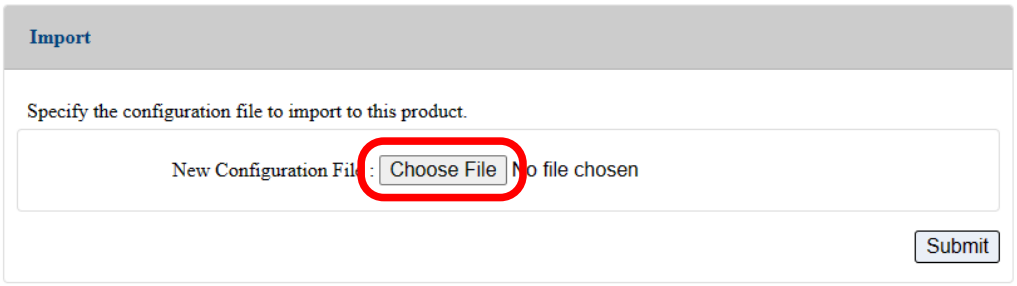
1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Configuration File** - **Import** from the page menu.

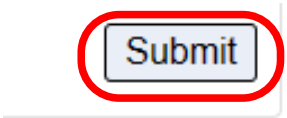
3. The **Import** page is displayed.
Click **Choose File** and specify the imported configuration file (**config.txt**).



Note

- The configuration file you can import to RM-100RC must be the one you had exported from RM-100RC.

4. Check the configuration file you have selected is displayed at the **New Configuration File** field. Click **Submit**.

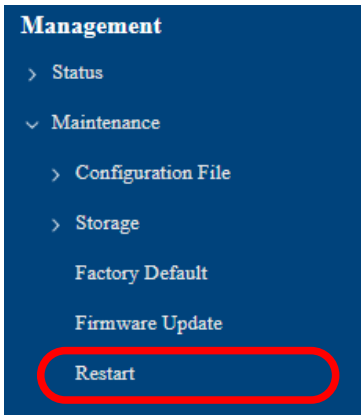


TIP

- If other settings are clicked from the left menu before clicking **Submit**, the entered values will be cleared. Be sure to click **Submit** to save the current values when you move to the other page.

5. A confirmation dialog is displayed. Click **OK**.

6. Click **Restart** at the top of the page, or go to **Management** - **Maintenance** and click **Restart**.



7. When the **Restart** page is displayed, click **Restart**.
The new settings will take effect after RM-100RC is restarted.

8. The restart progress page is displayed.
When the login page is displayed, the configuration import is completed.

10-2. Deleting Recorded Data from RM-100RC

This section explains how to delete all recorded data at once.

10-2-1. Deleting All Recorded Data at Once

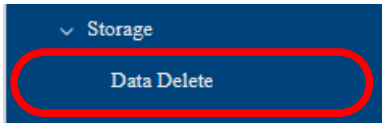
The following describes the procedures for deleting all recorded data at once.

1. Display the RM-100RC's Web page.

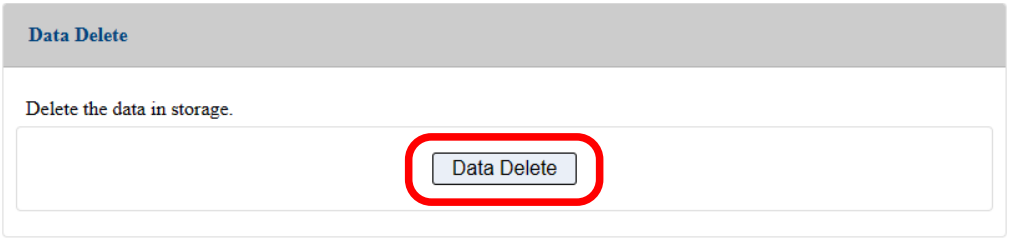
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Storage** - **Data Delete** from the page menu.



3. The **Data Delete** page is displayed.
Click **Data Delete**.



4. A confirmation dialog is displayed. Click **OK**.

5. The deletion progress page is displayed.
When the login page is displayed, the deletion is completed.

10-2-2. Formatting RM-100RC Storage

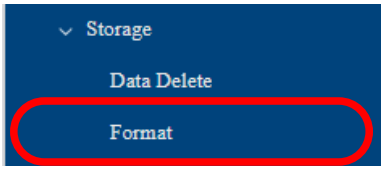
This section describes the procedures for deleting recorded data and system logs of RM-100RC at once.

1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Storage** - **Format** from the page menu.



3. The **Format** page is displayed.
Click **Format**.

4. A confirmation dialog is displayed. Click **OK**.

5. The format progress page is displayed.
When the login page is displayed, the format is completed.

10-3. Factory Default Configuration

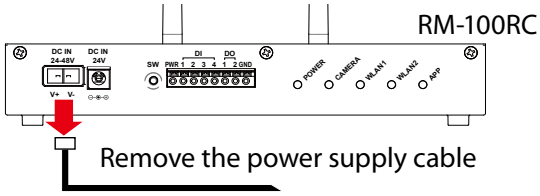
This chapter explains how to reset RM-100RC to the factory default settings.

TIP

- The recorded data will remain even after the initialization. For how to delete the recorded data, see **10-2. Deleting Recorded Data from RM-100RC**.
- It is recommended to export the current settings beforehand, since all the settings are reset to the factory default once the factory default configuration is done. For details on the setting export, refer to **10-1-2. Import/Export from Web Page** - **Exporting Configuration File**.
- Before you start, make sure that only the PC you are using for configuration is connected to RM-100RC, and other PC is not connected to RM-100RC.
- Do not turn off RM-100RC while resetting to factory default.
- Do not press the push switch to turn on RM-100RC again after the factory default configuration.

10-3-1. Initialization Using the Push Switch on RM-100RC

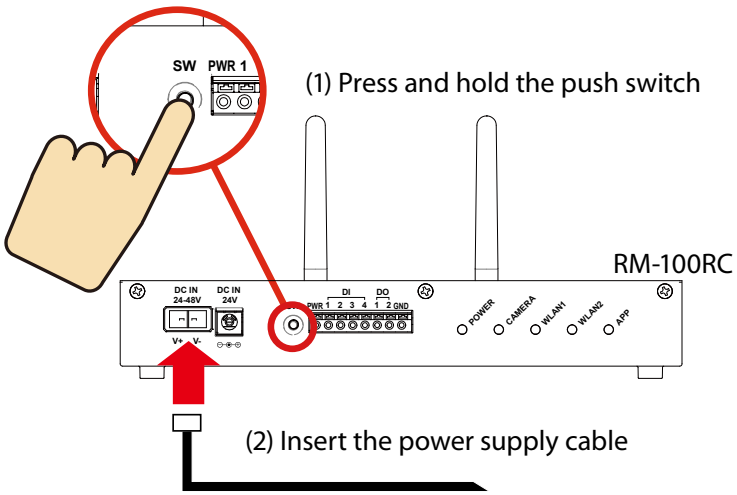
1. Remove the power supply cable from RM-100RC.



TIP

- When the power is supplied using the AC adapter, remove the AC adapter.

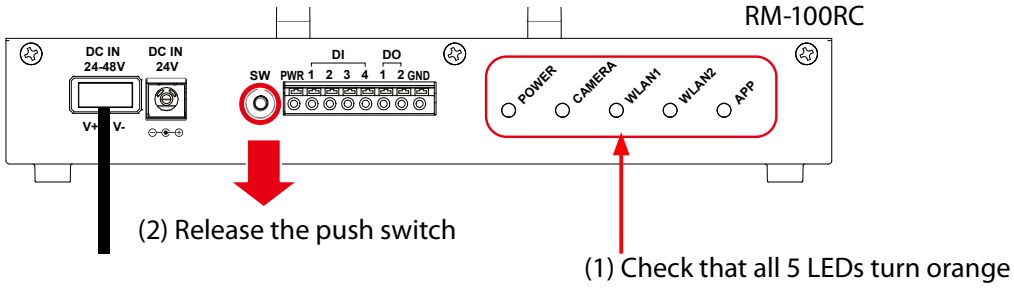
2. Press and hold the push switch of RM-100RC (1) while inserting the power supply cable into the DC connector (2). Keep pressing the push switch.



TIP

- When the power is supplied using the AC adapter, connect the AC adapter to an outlet.

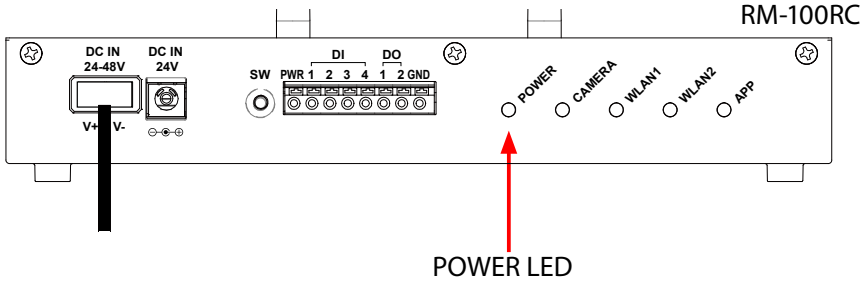
3. The LEDs will turn orange one by one, starting with the POWER LED.
When all 5 LEDs turn orange (1), release the push switch (2).



TIP

- If the push switch is pressed for 15 sec or longer even after all 5 LEDs turn orange, RM-100RC will start normally without performing the factory default configuration.

4. The factory default configuration begins.
When the POWER LED of RM-100RC turns green or blinks green, the factory default configuration is completed.



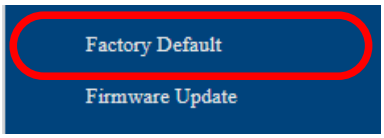
10-3-2. Initialization from the Web Page

1. Display the RM-100RC's Web page.

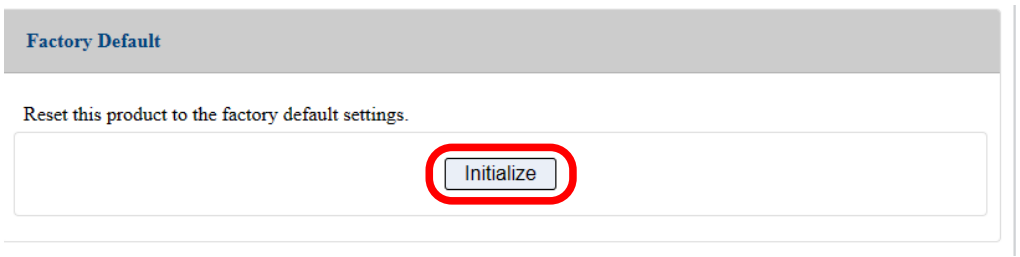
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Factory Default** from the page menu.



3. The **Factory Default** page is displayed.
Click **Initialize**.



4. A confirmation dialog is displayed. Click **OK**.

5. The restart progress page is displayed.
When the login password configuration page is displayed, the factory default configuration is complete.

Note

- Since the IP address of RM-100RC is also reset to the default one when the factory default configuration is finished, the login password configuration page may not be displayed correctly on the PC. Refer to **3-1. Displaying the RM-100RC's Configuration Web Page** for how to display the login password configuration page.

10-4. Updating Firmware

This chapter explains how to update the RM-100RC firmware.

10-4-1. Downloading the Firmware

The latest firmware file can be downloaded from our website.
See the instructions below to download the firmware file.

1. Access our website below.

URL	
USA / Europe	https://www.silextechnology.com/

2. Go to the support section and download the firmware file.

10-4-2. Updating the Firmware

TIP

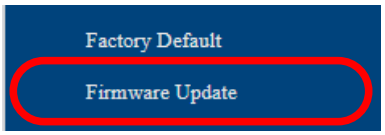
- Do not turn off RM-100RC while the firmware update is in process.

1. Display the RM-100RC's Web page.

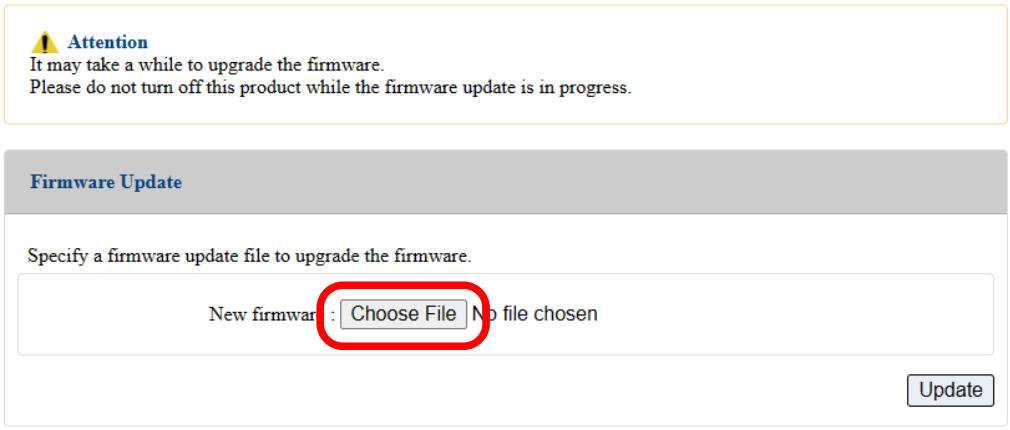
Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

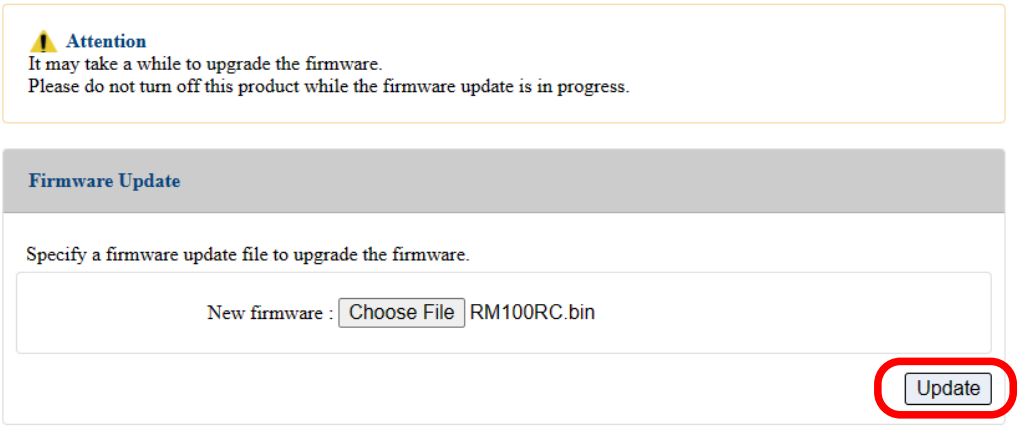
2. Click **Maintenance** - **Firmware Update** from the page menu.



3. The **Firmware Update** page appears.
Click the button to the right of **New firmware**, and select the latest firmware (RM-100RC.bin) that has been downloaded to the PC.



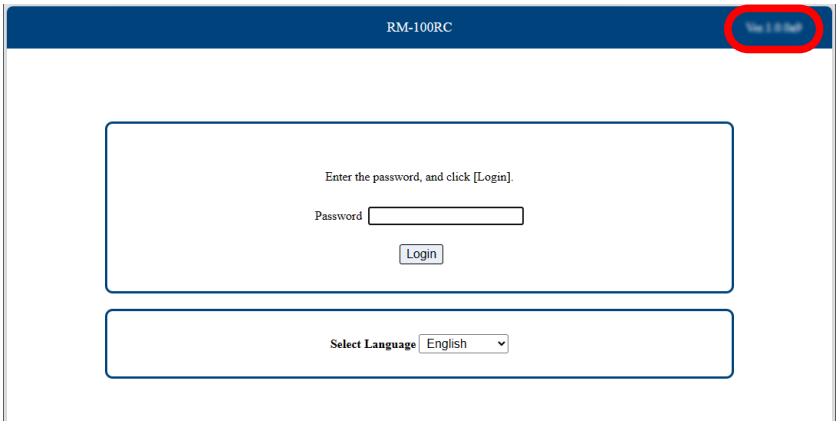
4. Click **Update**.



5. A confirmation dialog is displayed. Click **OK**.

6. The firmware update will begin.

7. When the login page is displayed, the firmware update is completed.
See the top right of the login page and check the version information is changed.



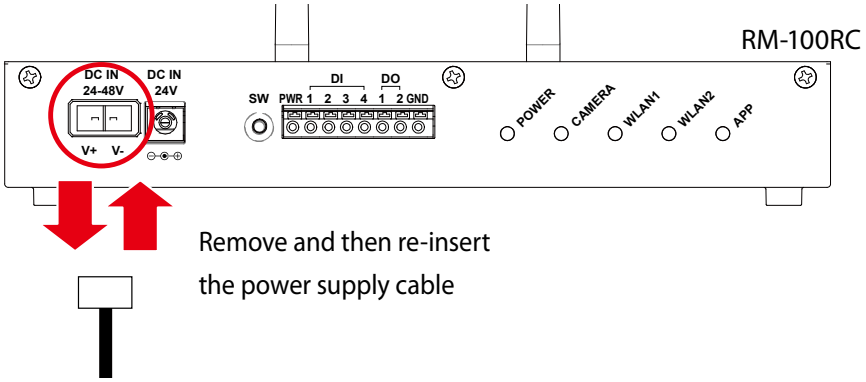
10-5. Restarting

This chapter explains how to restart RM-100RC.

TIP - Do not turn off RM-100RC when the restart is in progress.

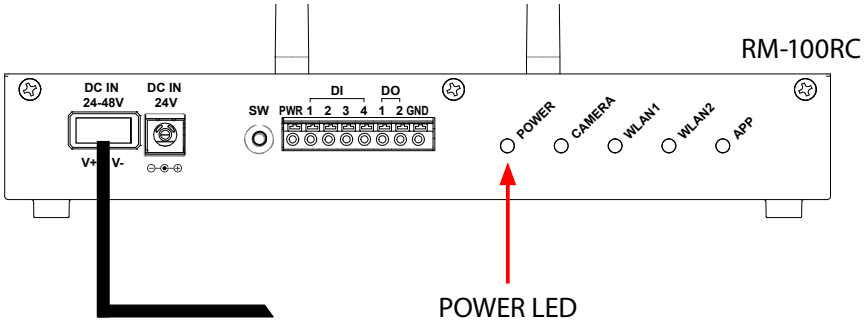
10-5-1. Manual Restart at the Unit Side

1. Remove the power supply cable of RM-100RC and re-insert it again.



TIP - When the power is supplied using the AC adapter, remove and re-insert the AC adapter.

2. When the POWER LED changes from solid orange to blinking green or solid green, the restart is completed.



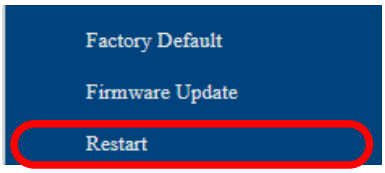
10-5-2. Remote Restart from the Web Page

1. Display the RM-100RC's Web page.

Note

- For how to display the RM-100RC Web page, see **3-1. Displaying the RM-100RC's Configuration Web Page**.

2. Click **Maintenance** - **Restart** from the page menu.



3. The **Restart** page is displayed.
Click **Restart**.

4. The restart progress page is displayed.
When the login page is displayed, the restart is finished.

A. List of All Settings

A-1. Required Configuration

For the required configuration on the Web page, refer to the following.

- Time Settings > **A-2-1. System**
- Camera Basic Settings > **A-2-3. Camera**

A-2. Detailed Configuration

The following describes the detailed setting items that can be configured on the Web page.

A-2-1. System

TCP/IP Configuration

Basic Configuration	
Item	Host Name
Details	Set the host name. Be sure to use a unique name that is not used by other devices.
Range	1 to 15 characters
Default Value	RMxxxxxx (xxxxxx is a last 6-digit of the MAC address)
Note	The following symbols and spaces cannot be used. `~!@#$^&*()=+[]{}|;:'",<>/?_
Item	Default Gateway
Details	Set the gateway address when the **DHCP Client** is disabled. If the **DHCP Client** is enabled on your network, the Default Gateway obtained from it will be applied. When set to "0.0.0.0", this setting is disabled.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0
Item	DNS (Primary)
Details	Set a primary DNS address. When **DHCP Client** is enabled, the DNS address obtained by DHCP will be applied.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0
Item	DNS (Secondary)
Details	Set a secondary DNS address. When **DHCP Client** is enabled, the DNS address obtained by DHCP will be applied.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0
Item	DNS(Suffix)
Details	Set a DNS suffix.
Range	Up to 128 characters
Default Value	(None)

LAN Port Configuration	
Item	DHCP Client
Details	When this setting is enabled, an IP address is automatically obtained from a DHCP server. To assign an IP address using DHCP, the DHCP server must be running in your subnetwork. * If the DHCP server is not running, a link-local address is assigned. * When **DHCP Server** is enabled, this setting cannot be enabled.
Range	ENABLE/DISABLE
Default Value	DISABLE
Item	IP Address
Details	Set the IP address when the **DHCP Client** is disabled. If the **DHCP Client** is enabled on your network, the IP address obtained from it will be applied.
Range	0.0.0.1 to 255.255.255.254 * It is impossible to set an IP address having the same network number as the **IP Address** of **Camera Port Configuration**. * IP addresses such as "x.x.x.0" and "x.x.x.255" cannot be used.
Default Value	192.168.1.10
Item	SubNet Mask
Details	Set the subnet mask when the **DHCP Client** is disabled. If the **DHCP Client** is enabled on your network, the Subnet Mask obtained from it will be applied. When set to "0.0.0.0", a subnet mask appropriate for the IP address is automatically assigned.
Range	0.0.0.0 to 255.255.255.255
Default Value	255.255.255.0
Item	DHCP Server
Details	Enable/Disable the DHCP server. Select **ENABLE** to run RM-100RC as a DHCP server to automatically assign an IP address to the PC. Select **DISABLE** if you already have a DHCP server on the network.
Range	ENABLE/DISABLE
Default Value	ENABLE
Item	DHCP Server (Start IP Address)
Details	Set the start IP address used for DHCP Server Function to assign the address.
Range	0.0.0.1 to 255.255.255.254 * Set an IP address having the same network number as the **IP Address** of **Camera Port Configuration**.
Default Value	192.168.1.11

Item	DHCP Server (End IP Address)
Details	Set the end IP address used for DHCP Server Function to assign the address.
Range	0.0.0.1 to 255.255.255.254 * Set an IP address having the same network number as the **IP Address** of **Camera Port Configuration**.
Default Value	192.168.1.30
Item	DHCP Server (SubNet Mask)
Details	Set the subnet mask for IP addresses to be assigned when the **DHCP Server** is enabled. When "0.0.0.0" is set, the subnet mask corresponding to the address class of the IP address will automatically be assigned.
Range	0.0.0.0 to 255.255.255.255
Default Value	255.255.255.0
Item	DHCP Server (Lease Period)
Details	Set the lease time when the **DHCP Server** is enabled.
Range	0 Day 0 Hour 1 Minute to 44 Day 23 Hour 59 Minute
Default Value	10 Day 0 Hour 0 Minute
Item	DHCP Server (Gateway)
Details	Set the gateway address when the **DHCP Server** is enabled. When set to "0.0.0.0", this setting is disabled.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0
Item	DHCP Server (DNS)
Details	Set the DNS primary server address to be assigned for the device.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0

Camera Port Configuration	
Item	IP Address
Details	Set the IP address of the camera port.
Range	192.168.0.1 to 192.168.255.254 * It is impossible to set an IP address having the same network number as the **IP Address** of **LAN Port Configuration**. * IP addresses such as "192.168.x.0" and "192.168.x.255" cannot be used.
Default Value	192.168.0.10
Item	SubNet Mask
Details	Subnet mask of the camera port. The value cannot be changed.
Range	-
Default Value	255.255.255.0

File Share Configuration

SMB Server Configuration	
Item	User Name
Details	Set the user name to use when accessing from a PC to RM-100RC using the file sharing function.
Range	Up to 32 alphanumeric characters
Default Value	admin
Item	Password
Details	Set the password to use when accessing from a PC to RM-100RC using the file sharing function.
Range	Up to 32 alphanumeric characters
Default Value	admin

Cloud Link Configuration

Cloud Link Configuration	
Item	Serial ID
Details	This is a string to use for registering RM-100RC to AMC Cloud. The value cannot be changed.
Range	-
Default Value	Varies depending on the device.
Item	Cloud
Details	Enable/Disable the cloud link function. When this setting is enabled, RM-100RC communicates with AMC Cloud at regular intervals.
Range	ENABLE/DISABLE
Default Value	DISABLE
Item	Status Upload Interval(min)
Details	Set the interval for RM-100RC to upload the collected wireless status information to AMC Cloud (in minutes) when the **Cloud** is enabled.
Range	10 to 60
Default Value	10
Item	Status Acquisition Interval(min)
Details	Set the interval for RM-100RC to collect the wireless status information from the device (in minutes) when the **Cloud** is enabled.
Range	5 to 60
Default Value	5

Item	Syslog Upload Interval(min)
Details	Set the interval for uploading the RM-100RC's syslog to AMC Cloud (in minutes) when the **Cloud** is enabled.
Range	60 to 1440
Default Value	60
Item	Device Management via Cloud
Details	Set whether to allow or deny a request of operation from AMC Cloud when the **Cloud** is enabled. The requested operation is firmware update, restart, or configuration change. Even if a request is received, it will not be executed until the time of **Cloud-Request Checking Interval(min)** passes.
Range	ALLOW/DENY
Default Value	ALLOW
Item	Cloud-Request Checking Interval(min)
Details	Set the interval to check a request of operation from AMC Cloud when the **Cloud** is enabled. When there is a request, that operation will be executed.
Range	5 to 60
Default Value	10

Proxy Configuration	
Item	Proxy
Details	Enable/Disable communications through a proxy server. When **Cloud** is **DISABLE**, the **Proxy Configuration** settings cannot be configured.
Range	ENABLE/DISABLE
Default Value	DISABLE
Item	Address
Details	Set the domain name or the IP address of proxy server to use when the **Proxy** is enabled.
Range	0.0.0.0 to 255.255.255.255
Default Value	0.0.0.0
Item	Port
Details	Set the port number of proxy server to use when the **Proxy** is enabled.
Range	0 to 65535
Default Value	0

Cloud Link	
Item	Cloud Link Confirmation
Details	Connection with the cloud can be checked when the **Cloud** is enabled. Click **Connect Check**.
Range	-
Default Value	-

Time Configuration

Date	
Item	Manual Time Configuration
Details	Change the time setting of RM-100RC. Check the **Use time information below** check box and specify the time.
Range	2023/01/01 00:00:00 to 2037/12/31 23:59:59
Default Value	-

Time Zone Configuration	
Item	Time Zone
Details	Set the local time zone.
Range	-12:00 to +12:00
Default Value	+9:00

NTP Configuration	
Item	NTP
Details	Enable/Disable the NTP protocol.
Range	ENABLE/DISABLE
Default Value	DISABLE
Item	NTP Server
Details	Set the host name or IP address of NTP server when the **NTP** is enabled.
Range	0 to 128 characters
Default Value	(None)
Note	The following symbols and spaces cannot be used. `~!@#$^&*()=+[]{}|;:'",<>/?_

A-2-2. Wireless LAN

AccessPoint Configuration

Basic Configuration	
Item	Wireless LAN
Details	Enable/Disable the wireless LAN.
Range	ENABLE/DISABLE
Default Value	ENABLE
Item	SSID
Details	Set the SSID of the wireless network when **Wireless LAN** is enabled. The SSID is an ID that distinguishes a wireless LAN network from others. For wireless devices to communicate with each other on a wireless network, they must share the same SSID.
Range	1 to 32 alphanumeric string The following symbols can be used. !"#$%&'()*+,-./:;<=>?@[\]^_`{|}
Default Value	RMxxxxxx (xxxxxx is the last 6 digits of the MAC address.)
Item	Stealth Mode
Details	Configure this setting when **Wireless LAN** is enabled. When set to **ENABLE**, RM-100RC will not be discovered by the Access Point search. * Smart Wireless Setup function cannot be used, then.
Range	ENABLE/DISABLE
Default Value	DISABLE

Item	Network Authentication
Details	Select the network authentication mode that will be used to connect to your wireless devices when **Wireless LAN** is enabled. To ensure a secure network, it is recommended to use WPA2/WPA3.
Range	Open (Open System) : Allows all access without authentication. WPA2-Personal : Uses Pre-Shared Key for network authentication. For encryption mode, AES can be selected. The encryption key will be generated by communicating with your wireless devices using a Pre-Shared key. WPA3-Personal : The authentication complies with WPA3-SAE. Uses Pre-Shared Key for network authentication. For encryption mode, AES can be selected. The encryption key will be generated by communicating with your wireless devices using a Pre-Shared key. WPA2-Enterprise : Uses IEEE 802.1X user authentication and AES encryption. WPA3-Enterprise : The authentication complies with WPA3-SAE. Uses IEEE 802.1X user authentication and AES encryption. WPA3-Enterprise 192-bit security : The authentication complies with WPA3-SAE. Uses IEEE 802.1X user authentication and AES encryption. AES-256-GCMP(00-0F-AC:9) is supported.
Default Value	WPA3-Personal

Item	Wireless Mode
Details	When **Wireless LAN** is **ENABLE**, set the IEEE 802.11wireless mode. 802.11ax/a : IEEE 802.11ax, IEEE 802.11ac, IEEE 802.11n or IEEE 802.11a. 802.11ax/g : IEEE 802.11ax, IEEE 802.11n, IEEE 802.11b or IEEE 802.11g. 802.11ac : IEEE 802.11ac, IEEE 802.11n or IEEE 802.11a. 802.11n/a : IEEE 802.11n or IEEE 802.11a. 802.11n/b/g : IEEE 802.11n, IEEE 802.11b or IEEE 802.11g.
Range	802.11ax/a, 802.11ax/g, 802.11ac, 802.11n/a, 802.11n/b/g
Default Value	802.11ax/a

Item	Channel Bandwidth
Details	When **Wireless LAN** is **ENABLE**, set the frequency bandwidth. A channel is the divided frequency bandwidth. In a wireless network, bandwidth is divided up so that more devices can communicate at a time. Each channel has a bandwidth of **20MHz**. If **40MHz** or **80MHz** is selected, larger and faster data transmission can be realized. The configurable setting will differ depending on the Wireless Mode.
Range	When Wireless Mode is **802.11ax/a** : 20MHz / 40MHz / 80MHz When Wireless Mode is **802.11ax/g** : 20MHz / 40MHz When Wireless Mode is **802.11ac** : 20MHz / 40MHz / 80MHz When Wireless Mode is **802.11n/a** : 20MHz / 40MHz When Wireless Mode is **802.11n/b/g** : 20MHz / 40MHz
Default Value	20MHz

Item	Location
Details	When **Wireless Mode** is **802.11ax/a**, **802.11ac**, **802.11n/a**, Select the location where RM-100RC is used. When **Outdoor Use** is selected, the channels, prohibited by law, are automatically disabled.
Range	Indoor Use / Outdoor Use
Default Value	Indoor Use
Item	Channel
Details	Set the wireless channel.
Range	When **Wireless Mode** is **802.11ax/a**, **802.11ac**, **802.11n/a** (US) W52 : 36 / 40 / 44 / 48 W53 : 52 / 56 / 60 / 64 W56 : 100 / 104 / 108 / 112 / 116 / 132 / 136 / 140 / 144 W58 : 149 / 153 / 157 / 161 / 165 AUTO (EU/UK) W52 : 36 / 40 / 44 / 48 W53 : 52 / 56 / 60 / 64 W56 : 100 / 104 / 108 / 112 / 116 / 120/ 124/ 128/ 132 / 136 / 140 W58 : 149 / 153 / 157 / 161 / 165 AUTO When **Wireless Mode** is **802.11ax/g**, **802.11n/b/g** (US) 1 to 11, AUTO (EU/UK) 1 to 13, AUTO * If your network becomes unstable due to interference with other wireless devices, it could be improved by changing the channel. The channel you can use will differ depending on the country. * If W53 or W56 channels are used when RM-100RC is turned on or a particular radar is detected, wireless communication is lost for certain period of time (*). (*) The time duration differs depending on the country.
Default Value	36
Item	Ext Channel
Details	Shows the extended channels to use when the **Wireless Mode** is **802.11ax/g** or **802.11n/b/g**, and the **Channel Bandwidth** is **40MHz**.
Range	The Ext Channel setting depends on the Channel.
Default Value	5

Item	Available Channel List
Details	When the **Channel** is **AUTO**, set candidate channels for automatic selection. When the **Channel** is not **AUTO**, set candidate channels to use when radar waves are detected. Clicking **W52, W53, W56, W58** will check/uncheck the checkboxes of all corresponding channels at once.
Range	Following channels can be selected. When **Wireless Mode** is **802.11ax/a**, **802.11ac**, **802.11n/a** : (US) W52 : 36ch, 40ch, 44ch, 48ch W53 : 52ch, 56ch, 60ch, 64ch W56 : 100ch, 104ch, 108ch, 112ch, 116ch, 132ch, 136ch, 140ch, 144ch W58 : 149ch, 153ch, 157ch, 161ch, 165ch (EU/UK) W52 : 36ch, 40ch, 44ch, 48ch W53 : 52ch, 56ch, 60ch, 64ch W56 : 100ch, 104ch, 108ch, 112ch, 116ch, 120ch, 124ch, 128ch, 132ch, 136ch, 140ch W58 : 149ch, 153ch, 157ch, 161ch, 165ch
Default Value	All channels are selected.
Note	The current channel cannot be changed.

Item	Transmit Power
Details	Set the transmission strength for wireless LAN. Lower transmission strength narrows the radio wave range of RM-100RC and reduces interference with other wireless networks. Narrowing down the search area may avoid causing interference to other wireless networks.
Range	100/75/50/25
Default Value	100%

This needs to be set only when the network authentication is **WPA2-Personal**, **WPA3-Personal**, **WPA2-Enterprise**, **WPA3-Enterprise**, **WPA3-Enterprise 192bitsecurity**.

WPA Encrypt Configuration	
Item	Encryption
Details	Use this setting when **Network Authentication** is **WPA2-Personal**, **WPA3-Personal**, **WPA2-Enterprise**, **WPA3-Enterprise**, **WPA3-Enterprise 192-bit security authentication**. The value cannot be changed.
Range	AES
Default Value	AES
Item	Pre-Shared Key
Details	Set the Pre-Shared Key when the **Network Authentication** is **WPA2-Personal**, **WPA3-Personal**. The Pre-Shared Key is a keyword used to create the encryption key. It is also referred to as ' security key ', ' network key ' or ' password '.
Range	8 to 63 characters * In most cases, alphanumeric characters are used. This setting must be the same as that of your wireless devices.
Default Value	Characters generated by a particular rule based on the MAC address. * Printed on the product label.
Item	Group Key Renew Interval(min)
Details	Set the renew interval for encryption key (mins). If 0 is set, no update will be made.
Range	0 to 1440
Default Value	60

This needs to be set only when the network authentication is **WPA2-Enterprise**, **WPA3-Enterprise**, **WPA3-Enterprise 192-bit security**.

Radius Server Configuration	
Item	Server IP Address
Details	Set the IP address of RADIUS server.
Range	0.0.0.1 to 255.255.255.255
Default Value	0.0.0.0
Item	Port Number
Details	Set the port number used to communicate with RADIUS server.
Range	0 to 65535
Default Value	1812
Item	Shared Secret
Details	Set the secret key used to communicate with RADIUS server.
Range	Up to 64 characters
Default Value	(None)

AMC Mesh Configuration

Basic Configuration	
Item	Mesh Mode
Details	Set the AMC Mesh operation mode to make communication between the Access Points. The AMC Mesh network consists of one RootAP (host) and plural Repeater APs (station). For details, refer to **6-3-1. About AMC Mesh**.
Range	DISABLE: Does not use AMC Mesh. RootAP: Runs as RootAP for AMC Mesh. Bridges a traffic between Repeater, wired LAN and wireless station device. Repeater: Runs as Repeater for AMC Mesh Bridges a traffic of RootAP, Repeater, wired LAN and wireless station device after connected to host AP. *When set to **RootAP**, the MAC address filter is disabled. *When set to **Repeater**, the MAC address filter and DHCP server function are disabled.
Default Value	DISABLE
Item	Mesh Group Name
Details	Set the common group name for AMC Mesh network when **Mesh Mode** is **RootAP** or **Repeater**.
Range	Up to 32characters The following symbols and spaces can be used. -_
Default Value	Group
Item	Mesh Encryption Key
Details	Set the encryption key to use for AMC Mesh network when **Mesh Mode** is **RootAP** or **Repeater**.
Range	8 to 63characters The following symbols and spaces can be used. -_
Default Value	Characters generated by a particular rule based on the MAC address.

Detail Configuration	
Item	RSSI Threshold(dBm)
Details	Set the RSSI threshold when **Mesh Mode** is **Repeater**. In the AMC Mesh network, RM-100RC connects to the device whose received signal strength is higher than the threshold.
Range	-90/-80/-70/-60/-50/-40/-30/-20/-10/0
Default Value	-70
Note	This setting is not necessary when **Mesh Mode** is **RootAP**.
Item	Max Hops Number
Details	When **Mesh Mode** is **Repeater**, set the maximum number of Repeaters that are allowed to communicate in order to reach RootAP. This number is including the Repeater you are currently configuring. The larger the maximum number of hops, the larger the maximum number of Repeaters in the communication path, which can extend the communication distance but the transfer speed will decrease.
Range	1 to 10 integer value
Default Value	5
Note	This setting is not necessary when **Mesh Mode** is **RootAP**.
Item	Network Loop Avoidance
Details	Set the network loop avoidance when **Mesh Mode** is **RootAP** or **Repeater**. When **ENABLE** is selected, the AMC Mesh function will stop to avoid a network loop when it is detected on AMC Mesh and wired LAN. When this function works, the WLAN1 LED turns orange.
Range	ENABLE/DISABLE
Default Value	DISABLE
Item	Destination MAC Address
Details	When **Mesh Mode** is **Repeater**, enter the MAC address of the host AP (RootAP or Repeater) to connect in the AMC Mesh network. Only the device with registered MAC address will be connected. When you do not want to specify the destination, enter "00:00:00:00:00:00".
Range	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF
Default Value	00:00:00:00:00:00
Note	This setting is not necessary when **Mesh Mode** is **RootAP**.

Smart Wireless Setup

Smart Wireless Setup Execute	
Item	Push Button
Details	Click **Execute** to start the Smart Wireless Setup.
Range	-
Default Value	-

A-2-3. Camera

Camera Basic Configuration

Basic Configuration	
Item	Screen Format
Details	Set the video distribution format and saving method. For **Multi**, videos from up to 4 cameras are combined, distributed and saved. To distribute and save a video for each camera, select **Single**.
Range	Multi/Single
Default Value	Multi
Item	BitRate(kbps)
Details	Set the amount of data that can be sent and received in 1 second. A higher value creates higher image quality, but it may cause a delay in distribution.
Range	1024/2048/3072
Default Value	2048
Item	Video Size
Details	Set the resolution for distributing and saving videos. When set to **FullHD**, the number of RTP cameras that can be used will differ depending on the **Screen Format** setting. When **Multi** is selected, RTP3 and RTP4 cannot be set. Videos are imported from the camera port 1 and 2 (videos are not imported from the camera port 3 and 4). When **Single** is selected, RTP2, RTP3, and RTP4 cannot be set. Videos are imported only from the camera port 1 (videos are not imported from the camera port 2, 3, and 4).
Range	HD/FullHD
Default Value	HD

RTP Camera Configuration	
Item	RTP1 to 4 (URL)
Details	Set the URL to obtain the video of the camera 1 to 4. For details, refer to the user's manual of that camera. When a standard camera is used, this setting is not necessary.
Range	0 to 128 characters
Default Value	(None)
Item	RTP1 to 4 (User Name)
Details	Set the user name to access the URL that is set for **RTP1** to **4 (URL)**. For details, refer to the user's manual of that camera. When a standard camera is used, this setting is not necessary.
Range	0 to 15 alphanumeric characters
Default Value	(None)

Item	RTP1 to 4 (Password)
Details	Set the password to access the URL that is set for **RTP1** to **4 (URL)**. For details, refer to the user's manual of that camera. When a standard camera is used, this setting is not necessary.
Range	0 to 31characters
Default Value	(None)

Continuous Recording Configuration	
Item	Continuous Recording
Details	Enable/Disable the continuous recording function (ON/OFF). When the continuous recording function is enabled, recording will start after RM-100RC is started.
Range	ON/OFF
Default Value	ON
Item	Recording Time(sec)
Details	Set the length of video to save for each recorded file. When set to 60 seconds, the length of a recorded file will be 60 seconds.
Range	60/120/180/240/300
Default Value	60
Item	Auto Delete
Details	Set whether to automatically delete old files when the total size of recorded files reaches the percentage that is set to **Continuous Recording (%)** of **Data Storage Limit Configuration**, after they are saved in the internal storage by the continuous recording function. When set to **ON**, old files will automatically be deleted. When set to **OFF**, files will not be deleted, but continuous recording will not perform until free space is increased.
Range	ON/OFF
Default Value	ON

Event Recording Configuration	
Item	Digital Input Trigger
Details	Set which camera to use for starting event recording upon receipt of digital input. When set to **All Cameras**, event recording will start on all cameras, including the camera that detects the digital input signal. When set to **Individual Camera**, event recording will start only on the camera that detects the digital input signal.
Range	DISABLE/All Cameras/Individual Camera
Default Value	DISABLE

Item	Before-Trigger Period(sec)
Details	Set how many seconds of video to save before the trigger is detected.
Range	10/20/30/40/50/60
Default Value	10
Item	After-Trigger Period(sec)
Details	Set how many seconds of video to save after the trigger is detected.
Range	10/20/30/40/50/60
Default Value	10
Item	Auto Delete
Details	Set whether to automatically delete old files when the total size of recorded files reaches the percentage that is set to **Event Recording (%)** of **Data Storage Limit Configuration**, after they are saved in the internal storage by the event recording function. When set to **ON**, old files will automatically be deleted. When set to **OFF**, files will not be deleted, but event recording will not perform until free space is increased.
Range	ON/OFF
Default Value	ON

Camera Option Configuration

Data Storage Limit Configuration	
Item	Event Recording(%)
Details	Set the percentage of recorded file size that can be saved to internal storage after it is created by the event recording function.
Range	10/15/20/25/30
Default Value	10
Item	Continuous Recording(%)
Details	Set the percentage of recorded file size that can be saved to internal storage after it is created by the continuous recording function.
Range	70/75/80/85/90
Default Value	90

SMB Upload Configuration	
Item	Upload
Details	Enable/Disable the function to upload recorded files to an external server using the SMB protocol.
Range	ENABLE/DISABLE
Default Value	DISABLE

Item	Upload Path
Details	Configure this setting when **Upload** is **ENABLE**. Set a network path for uploading recorded files to an external server.
Range	Up to 100 characters
Default Value	(None)
Item	User Name
Details	Configure this setting when **Upload** is **ENABLE**. Set a username to access the upload path.
Range	Up to 32 characters
Default Value	(None)
Item	Password
Details	Configure this setting when **Upload** is **ENABLE**. Set a password to access the upload path.
Range	Up to 32 characters
Default Value	(None)
Item	Server Confirmation
Details	Click **Connect Check** to check the connection when **Upload** is **ENABLE**.
Range	-
Default Value	-

Camera Setup Mode

Camera Setup Mode	
Item	Camera Setup Mode
Details	Clicking **Change Mode** changes the screen, and displays links to the configuration Web pages for the cameras connected to the camera port 1 to 4.
Range	-
Default Value	-
Note	The configuration Web page is not displayed when the camera does not have it.

A-2-4. Security

Password Configuration

Please input the password	
Item	New Password
Details	Set the login password for RM-100RC. The password is used for authentication when the user tries to update settings from a Web browser or to use the total management software **AMC Manager®**.
Range	1 to 15 characters
Default Value	(None)

IP Address Filter Configuration

Default Filter Mode	
Item	Default Filter Mode
Details	Set an access filter (ALLOW/DENY) for IP addresses outside the range that is registered to **Registered Conditions**. ALLOW : Accepts an access from IP addresses outside the range that is registered to **Registered Conditions**. DENY : Blocks an access from IP addresses outside the range that is registered to **Registered Conditions**. This setting is used with **Registered Conditions**. For example, if **Default Filter Mode** is set to **DENY**, RM-100RC can only be accessed from the IP address range that is registered to **Registered Conditions** as **ALLOW**. * When **Default Filter Mode** is set to **DENY** and no IP addresses are registered at the **Registered Conditions**, this setting is invalidated and RM-100RC accepts any accesses.
Range	ALLOW/DENY
Default Value	ALLOW

New Conditions	
Item	Filter Mode
Details	Configure the filter mode (ALLOW/DENY) for the specified address range. ALLOW : Allows access from the registered IP address range. DENY : Denies access from the registered IP address range.
Range	ALLOW/DENY
Default Value	DENY
Item	Start Address
Details	Set the start address for address filter.
Range	0.0.0.0 to 255.255.255.255
Default Value	-

Item	End Address
Details	Set the end address for address filter.
Range	0.0.0.0 to 255.255.255.255
Default Value	-
Item	Add
Details	Click to add the conditions entered to **New Conditions**.
Range	-
Default Value	-

Registered Condition Management	
Item	Registered Conditions
Details	Shows the registered address filter conditions. (Filter Mode) : (Start Address) - (End Address)
Range	-
Default Value	-
Item	Priority Configuration
Details	Change the priority of the registered conditions. [↑] : Set Priority Higher [↓] : Set Priority Lower
Range	-
Default Value	-
Item	Delete
Details	Click to delete the selected conditions.
Range	-
Default Value	-

MAC Address Filter Configuration

MAC Address Filter Configuration	
Item	Filter Type
Details	Configure the access control setting (ALLOW/DENY) for all MAC addresses. ALLOW : Allows access only from the devices registered to MAC address filter list. DENY : Denies access from the devices registered to MAC address filter list.
Range	ALLOW/DENY
Default Value	DENY

Item	MAC Address
Details	Enter the MAC address to be registered to the MAC address filter. By registering the MAC address, access to RM-100RC can be controlled. Up to 10 addresses can be registered.
Range	00:00:00:00:00:01 to FF:FF:FF:FF:FF:FE
Default Value	-
Item	Add
Details	Click to add the entered MAC address as a filter.
Range	-
Default Value	-
Item	Delete
Details	Click to delete the selected MAC address.
Range	-
Default Value	-
Item	MAC Filter
Details	Shows a list of MAC addresses to be filtered.
Range	-
Default Value	-

B. Downloading AMC Manager®

AMC Manager® can be downloaded from the Silex Technology's website.
Access the URL below to download it.

https://www.silextechnology.com/

1. When the website is displayed, click **Support Center** in the bottom of the page.

2. Click **Software Download**.

3. In the **Software Download** page, click **AMC Manager®**.

4. Download AMC Manager®.

The download is now completed.

C. Troubleshooting

This chapter provides the solutions for possible troubles you may experience when you are configuring or using the RM-100RC.

C-1. Problems During the Setup

I don't know the IP Address of RM-100RC.

Solution	Use the unified device management utility "AMC Manager®". AMC Manager® can search for RM-100RC units connected to a network. For details, refer to **3-1-2. Displaying a Web Page Using AMC Manager®**.

RM-100RC does not show up in the wireless network list on Windows.

If RM-100RC is not displayed in the wireless network list on Windows, you need to check the installation status, network environment and computer settings.

If you intend to setup RM-100RC via a wireless network, please confirm that the wireless adapter is enabled on your PC.	
Solution	Please confirm that the wireless adapter is enabled on your PC by checking the Windows network settings or the wireless LAN switch on your PC.

If you intend to setup RM-100RC via a wireless network, please confirm that RM-100RC is NOT placed in a location subject to weaker radio wave signals.	
Solution	Reconsider the location and surrounding conditions.

An error occurs when accessing the Web page of RM-100RC.

If an error occurs when accessing the Web page, you need to check your PC and Web browser settings.

RM-100RC may not be in the same network segment (environment without a router) as your PC.	
Solution	During the initial configuration, place RM-100RC and PC in the same network segment.

If RM-100RC has been used in another network, it may have the settings not allowing the communication with your PC.	
Solution	Please reset RM-100RC to the factory default setting. Refer to **10-3. Factory Default Configuration** for details on how to reset RM-100RC to the factory default settings.

If your Web browser is configured to use a proxy server, access to the local network might be blocked.	
Solution	Disable use of the proxy server temporarily or enable access to the local network on your Web browser.

How should I determine the way to assign an IP address to RM-100RC?

There are two ways to assign an IP address to RM-100RC; one is to Get IP address automatically from DHCP server and the other is to Assign IP address manually. Choose the way to assign an IP address according to your environment.

When there is a DHCP server in the network environment:	
Solution	An IP address can automatically be assigned to RM-100RC using the DHCP server. Since RM-100RC is not set to "**Get IP address automatically**" in the factory settings, the DHCP server function needs to be disabled and then the DHCP client needs to be enabled. For how to change the settings, see **5-1. Changing Network Settings**.

When there is no DHCP server in the network environment, or when you do not prefer getting an IP address from DHCP server:

Solution

Please use Assign IP address manually. Keep in mind of the following points regarding the IP address to assign to RM-100RC.

- Assign an IP address unique in the network.
- Assign an IP address that has the same address class as the PC that will use RM-100RC. e.g. When an IP address of the PC is "192.168.0.xx", assign an address such as "192.168.0.100" that is not used by other network devices.

(Tips about the IP address)

- An IP address is a unique number for identifying network devices. An IP address is indicated with four numbers divided by a period (.), for example "192.168.0.1". The integer from 0-255 is used for each number.
- An IP address is, depending on the number assigned, categorized to 3 classes below.
- Numbers making up the IP address are either network numbers indicating network, or host numbers indicating each network device; each number indicates the different meaning based on the IP address class. Each class is categorized as the following diagram which is indicating a network number as n, and a host number as u.
- An IP address with the same network number must be assigned to the network devices in the same network segment.
- There is an address range in the IP address called the private address that could be used freely. In the LAN environment not directly connected to the internet, an IP address is assigned within the range of the private address.

First 1 digits in IP address	Class	Definition of IP address n: network number u: host number	Size of the network to be used	Private address
0 to 127	A	n.u.u.u	Large network	10.0.0.0 to 10.255.255.255
128 to 191	B	n.n.u.u	Mid-size network	172.16.0.0 to 172.31.255.255
192 to 223	C	n.n.n.u	Small network	192.168.0.0 to 192.168.255.255

C-2. Video/Recording Troubles

A streaming video is flickering or is delayed.

Solution	It may be resolved by restarting the Web browser or restarting the PC or tablet. Or try to display only one streaming video. If the problem still does not improve, the CPU performance of the PC or tablet may be low. Check the video using the PC or tablet with higher CPU performance.

After RM-100RC is turned on, it may take some time to display or record a streaming video.

Solution	Depending on the camera, it may take a while for RM-100RC to acquire the videos. Please wait until the streaming video is displayed or otherwise, change the camera to another one.

A video is not displayed correctly.

Solution	The camera setting may not be configured correctly. Refer to **4-1-5. Camera Settings** to correct the camera settings.

A streaming video or a video of the recorded file is interrupted.

Solution	If RM-100RC has been used continuously for a long time, the videos may be interrupted or distorted. Please restart RM-100RC.

C-3. Problems on Wireless Access Point Function

I cannot connect to RM-100RC wirelessly.

Please check the operation status and configuration of RM-100RC.

The wireless LAN setting may differ between RM-100RC and the connected wireless station device.	
Solution	Connect a LAN cable to RM-100RC and check the wireless LAN settings.

When DFS channels are used, communication may be disabled for a certain period of time as a result that radar waves are detected.	
Solution	Please wait until the communication recovers, or else, use the channel that does not support DFS. The time period of communication loss will differ in each country.

The wireless station device may be connected to a different Access Point that has the same SSID.	
Solution	Set a different SSID between RM-100RC and the Access Point that the wireless station device is unintentionally connected. Or, set the transmission strength lower for that Access Point to shorten the wireless coverage. * It is possible to see if the wireless station device is properly connected by accessing the Web page of RM-100RC. For details, refer to **9-1-3. Checking RM-100RC Wireless LAN Status - Checking Status for Connected Wireless Station Devices**.

Connection is interrupted and disconnected.

RM-100RC may be installed at a location subject to weaker radio wave signals.	
Solution	Please reconsider the location of installation and condition of use.

Communication speed is too slow.

An older wireless standard may be selected for **Wireless Mode** of RM-100RC.	
Solution	Check that **Wireless Mode** of RM-100RC is set to **802.11ax/a**.

The connected wireless station device may not support the latest wireless standard.	
Solution	Use the wireless station device that supports IEEE 802.11ax.

C-4. Problems for Connecting Multiple RM-100RC Units

RM-100RC fails to connect to the existing AMC Mesh network.

The wireless setting or AMC Mesh setting of RM-100RC may differ from the setting of that AMC Mesh network.	
Solution	Configure the same wireless setting, Mesh group name and Mesh encryption key to RM-100RC as that of the AMC Mesh network. These settings must be the same between the AMC Mesh network and RM-100RC.

I cannot communicate with a target device in the AMC Mesh network.

The communication route to the target device may not have been established.	
Solution	See **6-3-7. Checking Connection Status on Web Page** to identify the AMC Mesh device whose connection is not properly established, and then try the following. - Move the AMC Mesh devices closer to each other - Add another AMC Mesh device (operating in Repeater mode) as a relay device. - Remove obstacles between AMC Mesh devices

RM-100RC of a different floor may have been connected to the AMC Mesh network.

RM-100RC of a different floor could be connected if a radio wave is reached from that AMC Mesh network.	
Solution	To establish the AMC Mesh network separately for each floor, a different Mesh group name needs to be set for each network.

D. Product Information and Customer Services

D-1. Product Information

The services below are available from the Silex Technology website. For details, please visit the Silex Technology website.

URL	
USA / Europe	https://www.silextechnology.com/

- Latest firmware download
- Latest software download
- Latest manual download
- Support information (FAQ)

D-2. Customer Support Center

Customer Support is available for any problems that you may encounter.
If you cannot find the relevant problem in this manual or on our website, or if the corrective procedure does not resolve the problem, please contact Silex Technology Customer Support.

Contact Information	
USA	support@silexamerica.com
Europe	support@silexeurope.com

Note

- Visit the Silex Technology website for the latest FAQ and product information.