MITSUBISHI ELECTRIC

ZONE CONTROLLER INTERFACE

PAC-ZC04S240C-A PAC-ZC10S240C-A
PAC-ZC04L240C-A PAC-ZC10L240C-A

Prior to use, thoroughly read the instructions in this manual to use the product correctly.
Retain this manual for future reference.
Make sure that the Installation Manual and Operation Manual are passed on to any future users.
To ensure safety and proper operation of the remote controller, the remote controller should only be installed by qualified personnel.

OPERATION MANUAL

FOR USER

English

Product features

The zone controller system consists of the zone controller interface (this product) and the main remote controller. Use the main remote controller for various operations.
The main remote controller is a device for operating the basic functions of the air conditioners connected to it, setting schedules and adjusting the openings in each zone via the zone controller interface. The main remote controller has a thermo-hygro sensor for air conditioning purposes.

Controller interface (Main remote controller)

Mounted hardware

Proximity detection sensor

Wake up system when a user is detected within 0.6 m.

Thermo-hygro sensor

The thermo-hygro sensor detects room temperature/humidity.

Touch panel & Backlight LCD

The touch panel shows the operation settings screen.
When the backlight is off, tapping the panel turns on the backlight, and it stays on for a pre-determined period of time.

Contents

Product features ····· 2
Controller interface ····· 2
Safety precautions ····· 4
General precautions ····· 4
Screen display ····· 6
Screen configuration ····· 6
Display ····· 7
Menu structure ····· 9
Icon explanations ····· 10
Basic operations ····· 11
Power ON/OFF ····· 11
Operation mode ····· 12
Set temperature ····· 13
Fan speed ····· 14
Zones ····· 15
Zone ON/OFF ····· 15
Zone temp and damper control ····· 16
Alert ····· 18
Alert display ····· 18
Schedule ····· 19
Schedule ····· 19
Settings ····· 24
Settings menu ····· 24
Network ····· 25
Sensors ····· 26
Preferences ····· 27
Zone names ····· 27
Sleep options ····· 29
Wake options ····· 30
Temperature format ····· 31
Dry mode interlock ····· 32
Humidifier interlock ····· 33
System temperature setting ····· 34
Brightness ····· 35
System ····· 36
Time/Day ····· 36
Timer ····· 38
Power usage ····· 39
Schedule enable ····· 40
Software update ····· 41
About ····· 43
Specifications ····· 44
Specifications ····· 44

EN

Safety precautions

Read the following safety precautions thoroughly before use.

- The following hazardous classification shows the likelihood and severity of hazards if a person does not follow the instructions contained on the following signs.

⚠ **Warning**	Indicates a hazardous situation which, if a person does not follow the instructions, could result in death or serious injury.
⚠ **Caution**	Indicates a potentially hazardous situation that, if a person does not follow the instructions, may result in bodily injury or property damage.

- Always keep this instruction manual at hand for quick reference. Provide this manual to the technician or installer in the event that the device is relocated or repaired. Or, if the ownership changes, hand this manual to the next owner.

General precautions

⚠ WARNING

Check installation location.	Ensure that the device is placed on a hard and stable place to prevent the device from falling.
The device must not be modified or repaired by the user.	Modification or improper repair could cause electrical shock or fire and the like. For repair, contact the dealer where you purchased the device.
Stop operation when the device is malfunctioning.	Operating the malfunctioning device without repairing it could cause breakdown, electrical shock, fire, or the like. Should anything abnormal, such as burning smell, occur, stop operation immediately, turn off power, and contact the dealer.
The user must not dispose of the device.	To dispose of the device, contact the dealer.
Do not install the unit in a place where large amounts of oil, steam, organic solvents, or corrosive gases, such as sulfuric gas, are present or where acidic/alkaline solutions or sprays are used frequently.	These substances can compromise the performance of the unit or cause certain components of the unit to corrode, which can result in electric shock, malfunctions, smoke, or fire.
Do not wash the controller with water or any other liquid.	To reduce the risk of shorting, current leakage, electric shock, malfunctions, smoke, or fire.
Do not operate the touch panel or tap other electrical parts with wet hands.	To reduce the risk of electric shock, malfunctions, smoke, or fire.
When disinfecting the unit using alcohol, ventilate the room adequately.	The fumes of the alcohol around the unit may cause a fire or explosion when the unit is turned on.

⚠ CAUTION

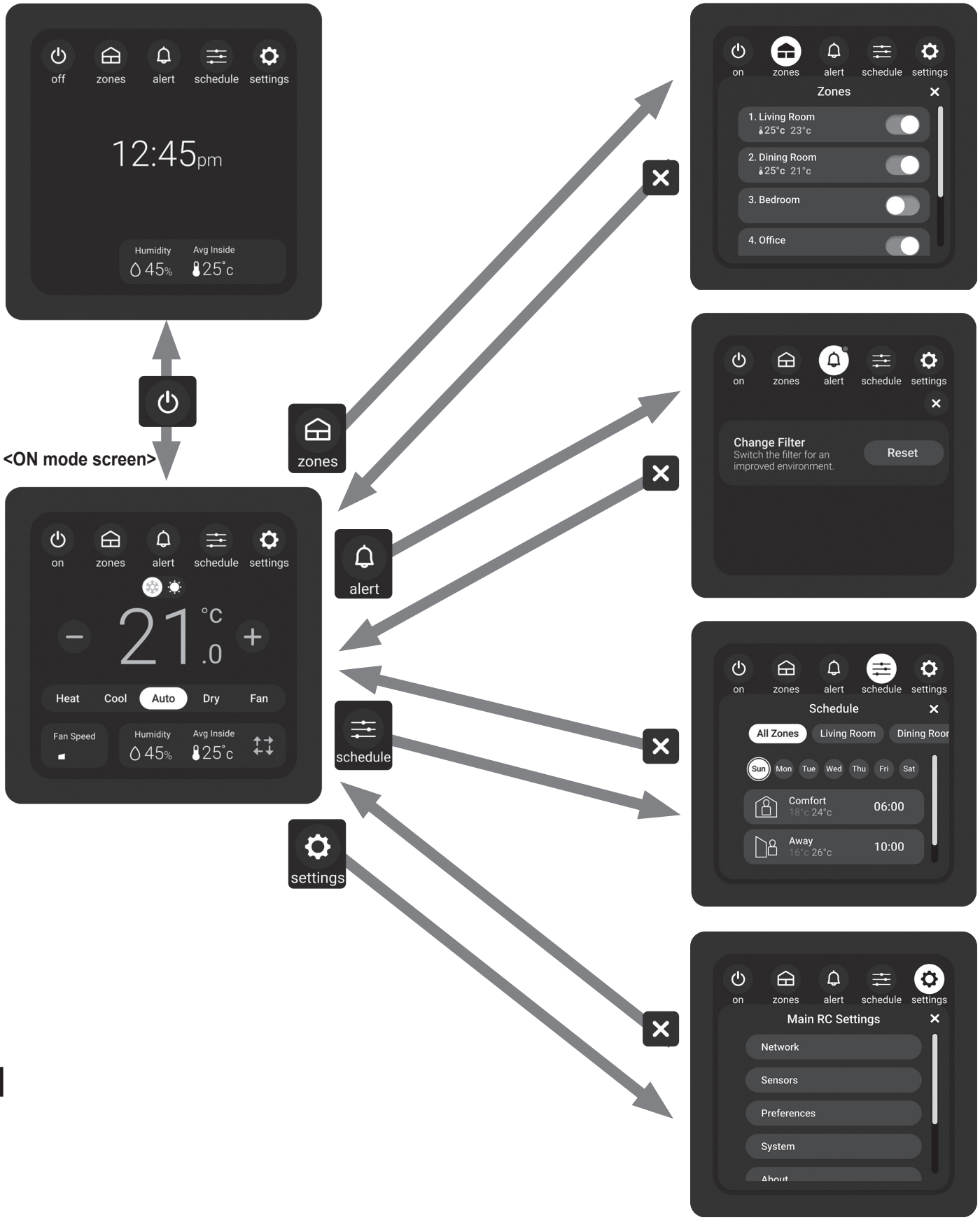
Do not drop the device.	This could break the case or break down the device.
Do not wipe the device with benzine, thinner, and a chemical impregnated cloth, or the like.	The device could be discoloured and damaged. If the dirt is hard to remove, wipe it with a well wrung-out cloth with diluted mild detergent, and dry moisture with a dry cloth.
Do not put hazardous materials around the device.	Avoid installing the device in the place where flammable gas may leak. Should leaked gas build up around the device, fire or explosion could occur.
Do not disassemble the device.	Direct contact with the control board inside is hazardous and also could result in fire, breakdown, and reduction in operating performance.
Do not use the device in particular environments.	Do not use the device in particular environments where the following substances are present in large amounts: oil, vapour, organic solvents, corrosive gases (such as ammonia, sulphuric compounds, and acid, or the like), or where acid or alkali solution, or particular sprays are used frequently. This could affect operating performance, or cause corrosion which could result in electrical shock, breakdown, smoke generation, or fire. (e.g., around kitchen sink, gas cooker, bath room, wash stand, or the like)
Do not use sharp objects to tap the buttons.	Electric shock or breakdown may occur.
Do not wash the device with water or solution, or the like.	Electric shock or breakdown may occur.
Do not tap the device with wet hands.	Electric shock or breakdown may occur.
Always observe the operating temperature and humidity requirements.	Always observe the operating temperature and humidity requirements. Otherwise, severe damage to the device could result. For more details, refer to the specification table in this manual.
Observe the following and handle batteries properly. Otherwise, it may result in explosion, leakage of electrolytic liquid, or heat generation. 1) Do not charge the batteries. 2) Place the batteries with correct polarities. 3) Do not mix up new and old batteries or different types of batteries. 4) When the batteries have run out, remove them from the device immediately.	
Do not place flammable materials or use flammable sprays around the controller.	To reduce the risk of fire or explosion.
Do not directly spray insecticide or other flammable sprays on the controller.	To reduce the risk of damage to the controller.
Consult an authorized agency for proper disposal of the remote controller.	To reduce the risk of environmental pollution.
Do not tap the touch panel with a pointy or sharp object.	To reduce the risk of electric shock or malfunctions.
Avoid contact with sharp edges of certain parts.	To reduce the risk of injury and electric shock.
Do not apply excessive force on the glass parts.	To avoid injury from broken glass.
Wear protective gear when working on the controller.	To reduce the risk of injury.

EN

Screen display

Screen configuration

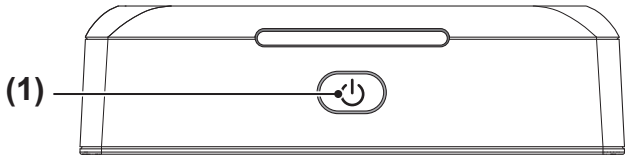
<OFF mode screen>



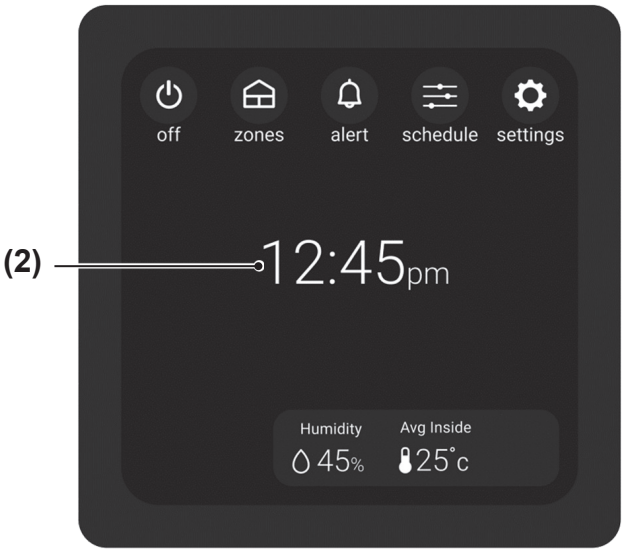
Display

Home screen

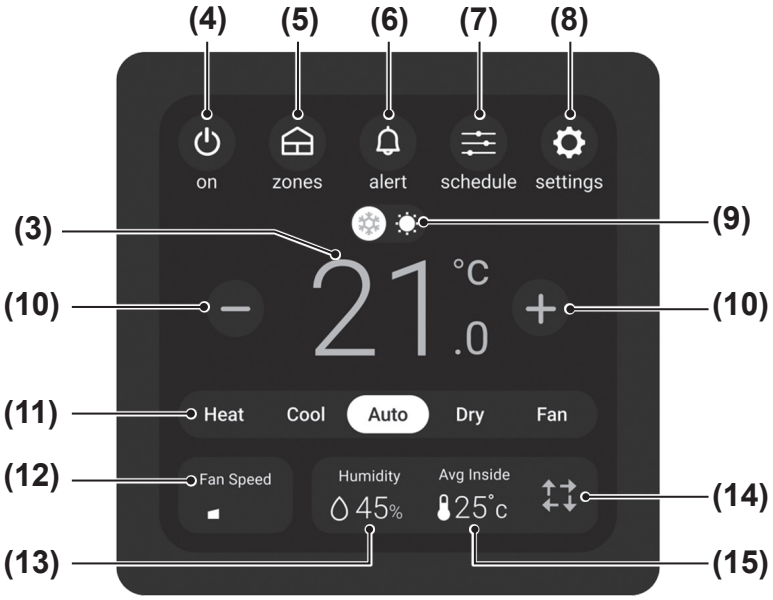
* All icons are displayed for explanation.



OFF mode screen



ON mode screen



(1) Top button

- Push the button to turn ON/OFF the air conditioner.
- Press and hold for at least 3 seconds to reboot the controller.

(2) Clock

Displays present time

(3) Set temperature

Displays target set temperature for the air conditioner

(4) ON/OFF

Tap to turn ON/OFF the air conditioner

(5) Zones

Displays the list of zones

(6) Alert

Displays alerts

(7) Schedule

Displays weekly schedules

(8) Settings

Displays settings

(9) Switching between cooling/heating temperature settings

When the operation mode is AUTO, the set temperature for cooling and heating can be set.

(10) Change set temperature

Tap to change the set temperature

(11) Operation mode change

Tap to change the mode for the air conditioner

(12) Fan speed

Tap to change the fan speed

(13) Average humidity

Displays the average humidity in the zones that a user has turned on. Average includes the common zone if it is connected.

(14) Operation mode display

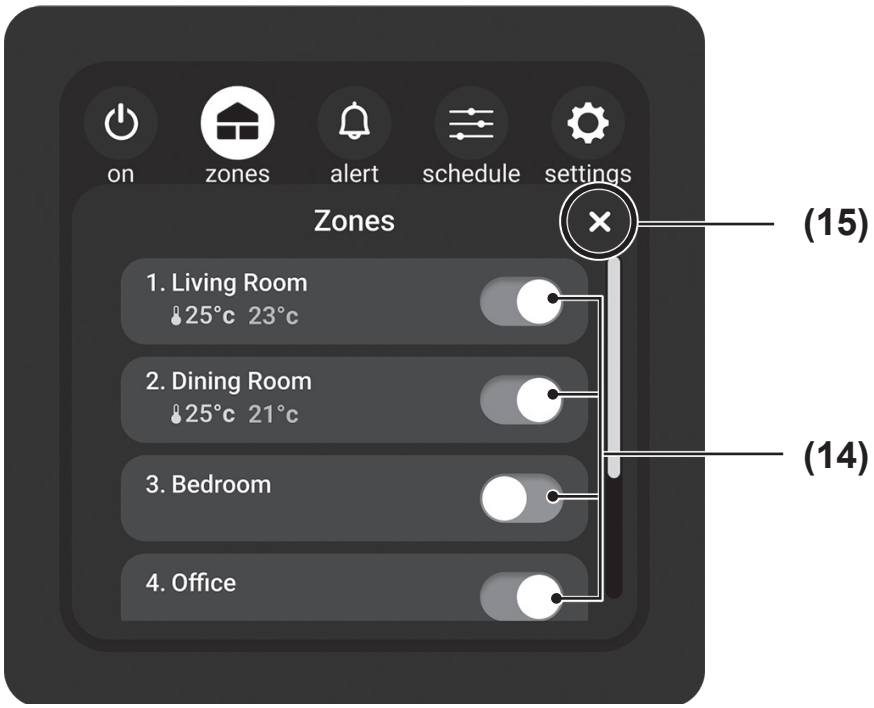
Displays the mode currently in operation

(15) Average inside temperature

Displays the average inside temperature in the zones that a user has turned on. Average includes the common zone if it is connected. Depending on the operation status of the system, the temperature detected in the indoor unit is displayed.

EN

Zone operation screen



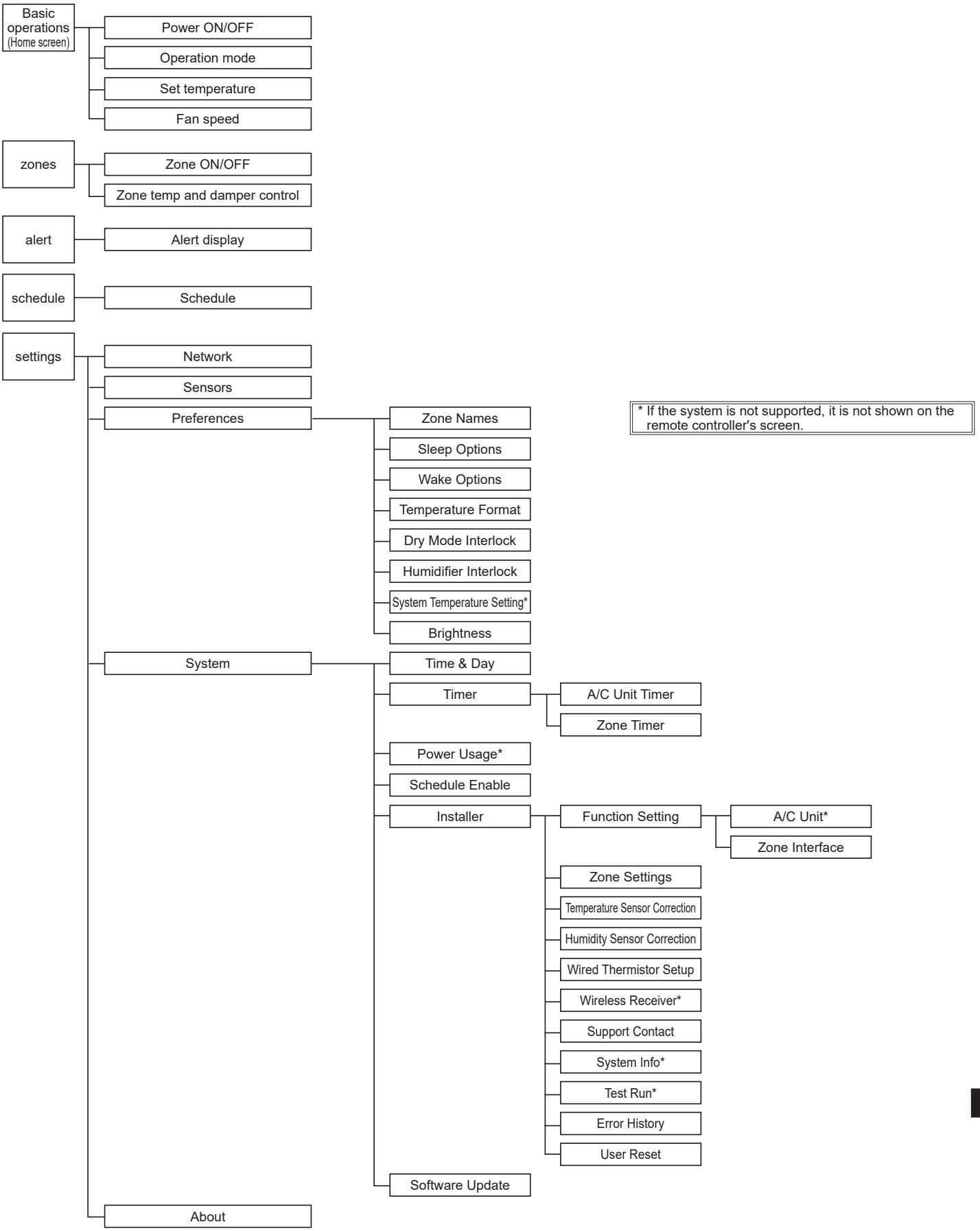
(14) Zones ON/OFF

Tap to turn ON/OFF the zones

(15) Cancel

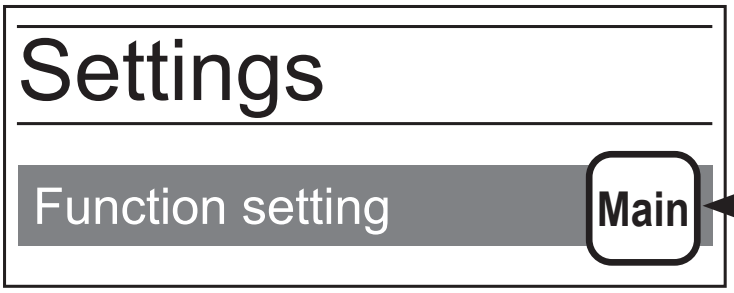
Tap to return to the Home screen

Menu structure



EN

Icon explanations

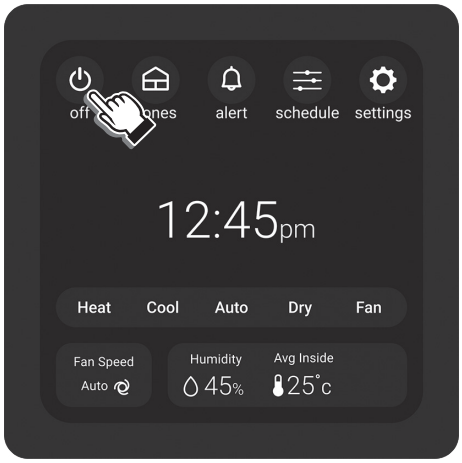


The table below summarizes the square icons used in this manual.

Main	**The operation and monitoring are available only from the main remote controller.**
Linear	**Available only in the linear control system.**

Basic operations

Power ON/OFF



Tap the **[on/off]** to turn on or off the indoor unit.

Note: The unit will operate in the previously-set operation mode, set temperature, and fan speed.

Operation mode

Operation mode bar

Tap **[Operation mode]** bar to change the operation mode.

Operation mode

The icon of the current mode is displayed.

Heat | Cool | Auto | Dry | Fan

When Auto mode is selected, it will be any of the following modes.

Blue Auto_Cool

Red Auto_Heat

Note:
After Auto mode is selected, White **Auto** may be displayed, indicating that the system is in the process of determining the transition to Auto Cool/Heat mode.

Set temperature

Tap **[+]** or **[-]** to adjust the set temperature.

- The air conditioner to which the zone controller is connected determines the temperature range available in each mode.
- Set temperature cannot be set for Fan mode.

Note:
The adjustment of air conditioner's set temperature is available only when the system temperature setting is in Manual mode.

When the operation mode is AUTO, the set temperature for cooling and heating can be set.

Tap the icon above the set temperature to select which mode, cooling or heating, you want to adjust.

The set temperatures for cooling and heating in Auto mode must meet the conditions below:

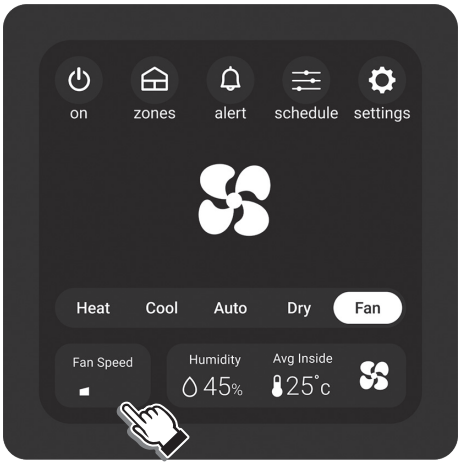
- Cooling set temperature is higher than Heating set temperature.
- The minimum temperature difference requirement between cooling and heating set temperatures (2°C).
- If set temperatures are set in a way that does not meet the minimum temperature difference requirement, both set temperatures will automatically be changed within the allowable setting ranges.

Set temperature range

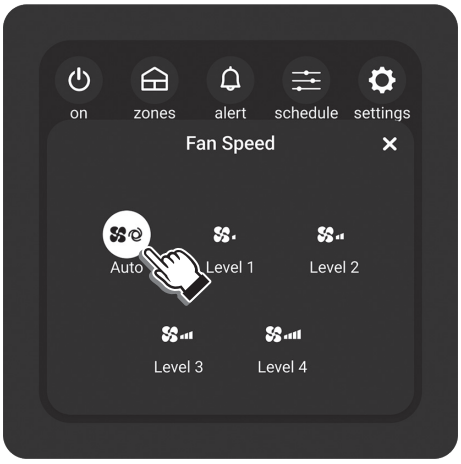
Operation mode	Set temperature range
Heat	Adjustable temperature ranges vary depending on the indoor unit model.
Cool	
Auto	
Dry	
Fan	Not available.

EN

Fan speed



Tap the **[Fan Speed]** indicator in the lower left corner to adjust the fan speed settings.



• The available fan speeds depends on the indoor unit model.

Note: The set fan speed and the actual fan speed may differ depending on the operating status of the air conditioner.

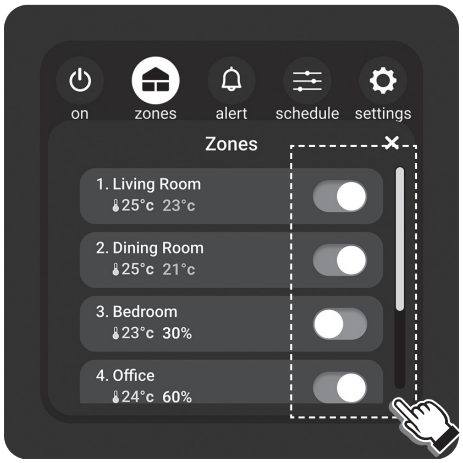
Zones

Zone ON/OFF

1

Tap the icon , you will move to list of connected zones.

2



Zone ON/OFF switches

Tap the **[Zone ON/OFF]** switch to turn on or off the each zones.

Turn ON

The green indicator means ON.

The orange indicator means forced ON.

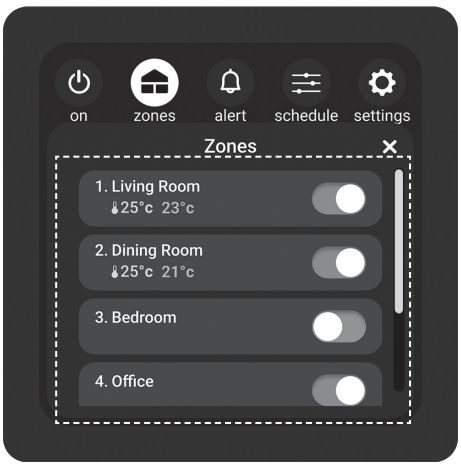
Turn OFF

EN

Zone temp and damper control

Linear

1



Tap each zone bar to access the zone settings.

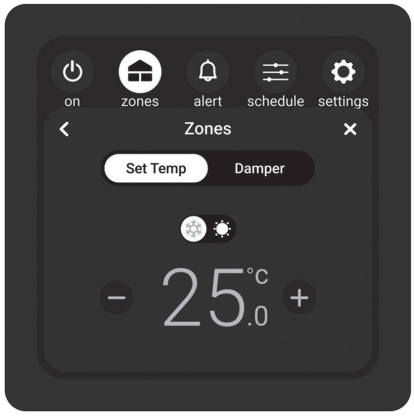
Note: You can set temperature for each zone.
Zone set temperature is not displayed under the following conditions.

- In Fan mode. Because the temperature setting is unavailable.
- When a sensor is not linked to a zone.
- When a sensor linked to a zone is causing an error.

2

Tap **[Set Temp]** to adjust the set temperature.
Tap **[+]** or **[-]** to adjust the set temperature.

Note: Temperature setting is not available in Fan mode.



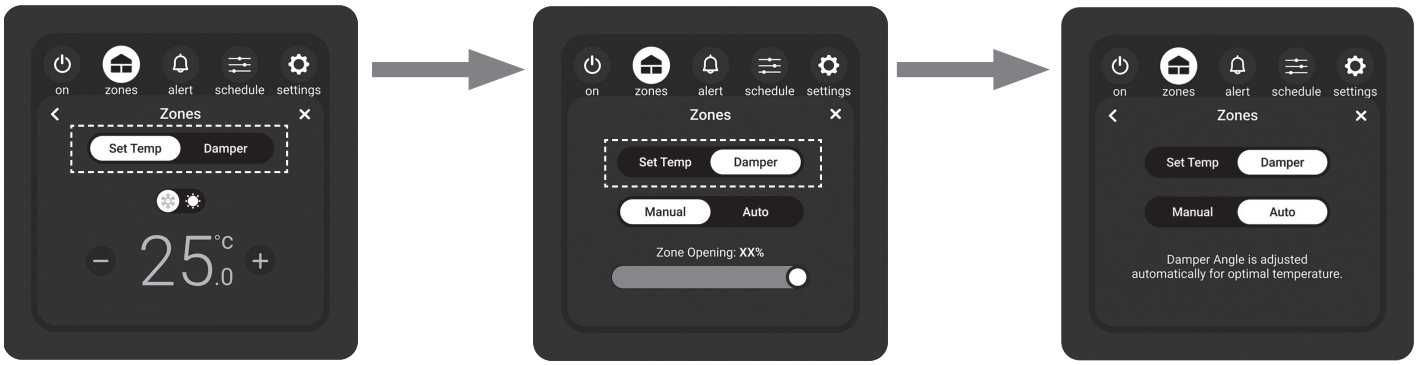
When the operation mode is Auto, the zone set temperature for cooling and heating can be set.
Tap the icon above the set temperature to select which mode, cooling or heating, you want to adjust.

The zone set temperatures for cooling and heating in Auto mode must meet the conditions below:

- Cooling set temperature is higher than Heating set temperature.
- The minimum temperature difference requirement between cooling and heating zone set temperatures (2°C).
- If zone set temperatures are set in a way that does not meet the minimum temperature difference requirement, both zone set temperatures will automatically be changed within the allowable setting ranges.

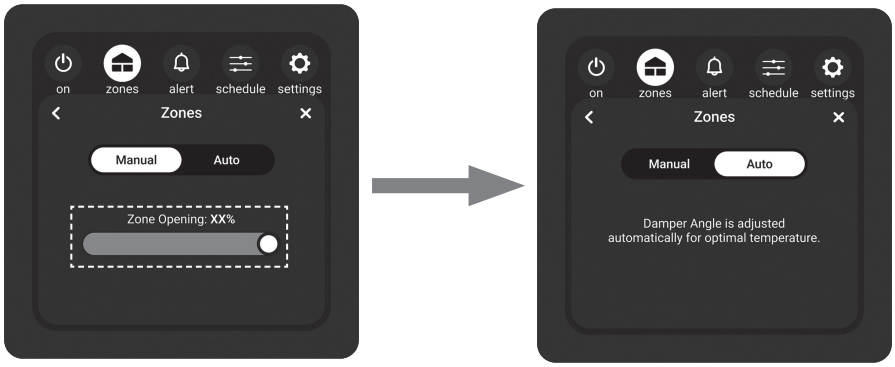
3

• When the zone temperature setting is adjustable



Adjust set temperature | Adjust damper opening | In Auto mode

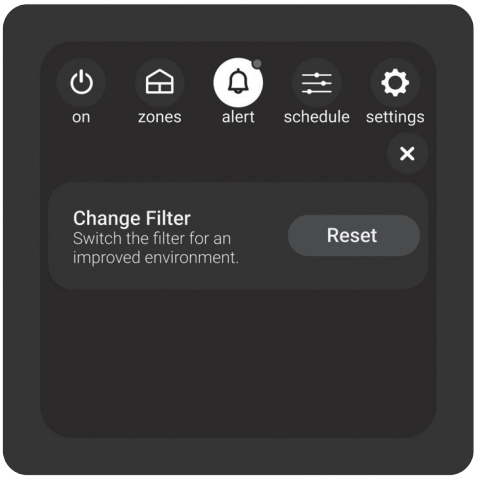
• When the zone temperature setting is not adjustable



In Manual mode | In Auto mode

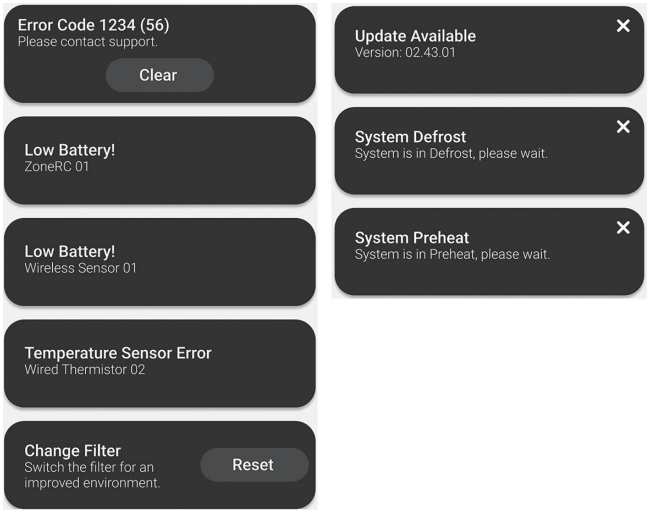
Alert

Alert display



Tap the icon to move to the alert menu.
Notifications are stacked for display.

You will receive the following notifications.



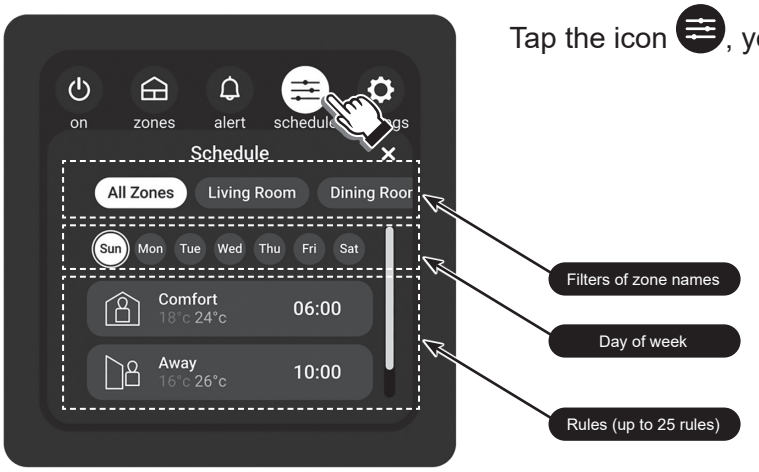
When you receive a new message, the message pops up.

Schedule

Schedule

Main

Operation Unit ON/OFF, operation modes, set temperatures, and zones ON/OFF for a week can be scheduled. Up to 10 operation patterns can be scheduled.
For zones where the set temperature cannot be adjusted on the **[Zones]** screen, the set temperature for the zone in the weekly schedule is invalid.

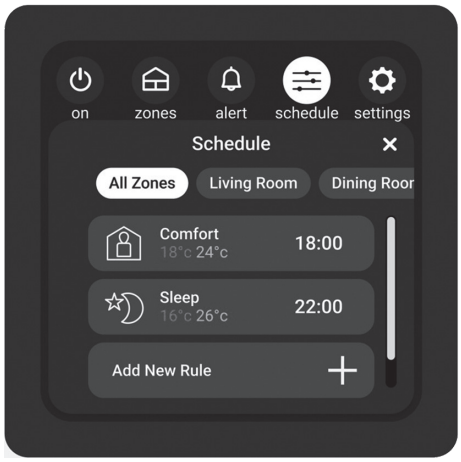


Schedule menu

Tap the icon , you will move to the schedule menu.

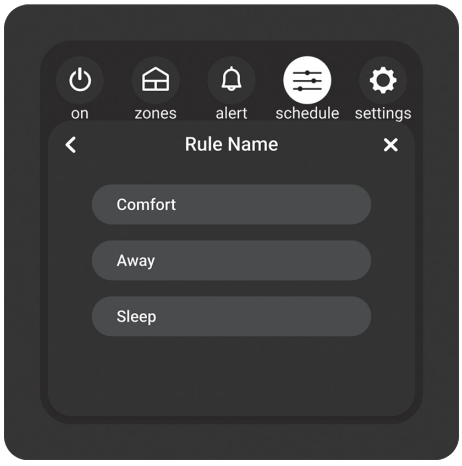
Making a new rule

1



Tap **[Add New Rule]** at the lowermost part.

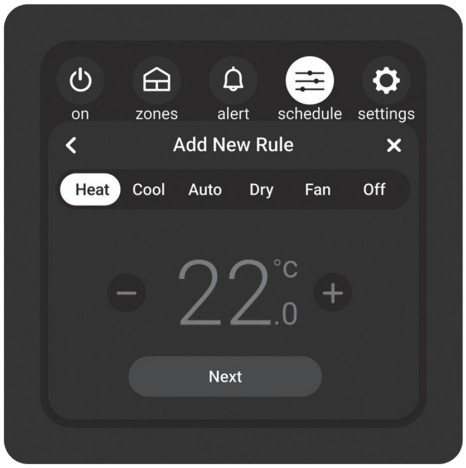
2



Select the rule name from the list.

EN

3

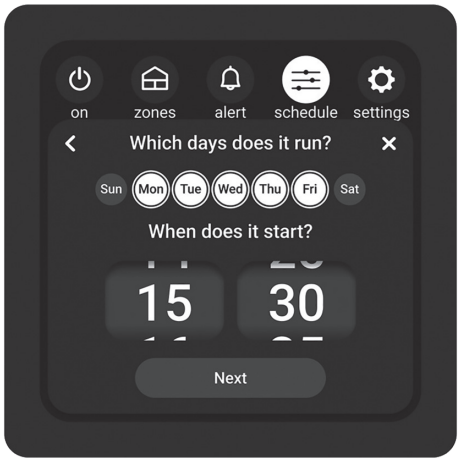


Select the operation mode and set temperature for air conditioner.

4

Select the ON/OFF, and set temperature for each zone.

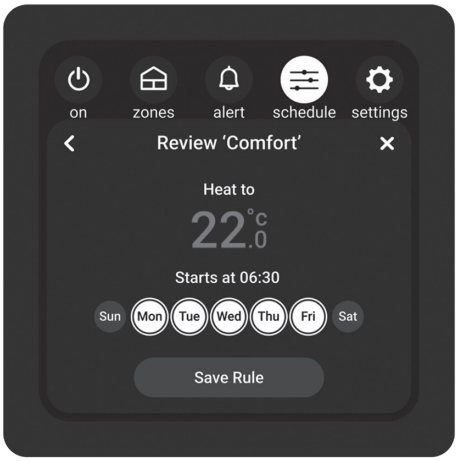
5



Set days and time for operation.

EN

6



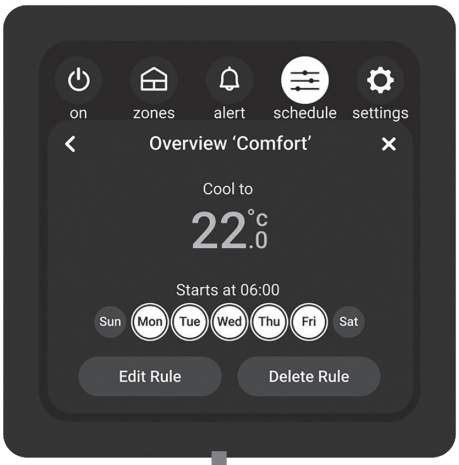
Check your settings and tap **[Save Rule]** to add the new rule.

Edit/Delete a rule

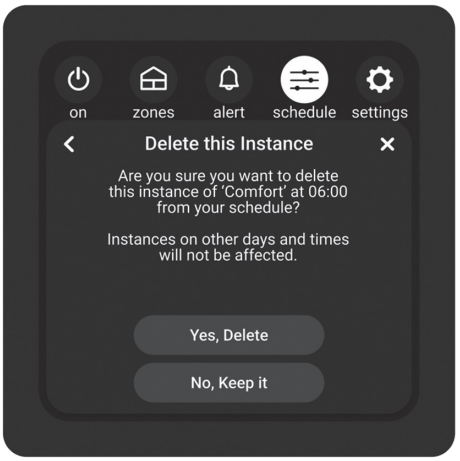
1

Tap the rule you want to change or delete.

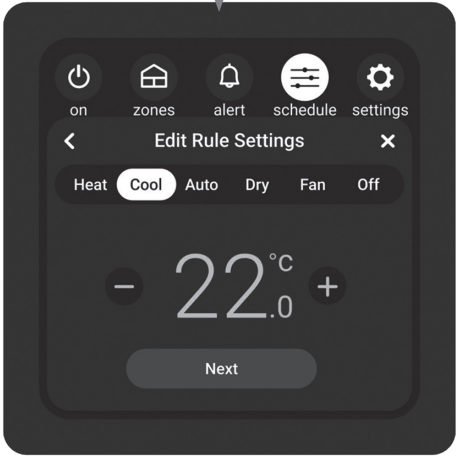
2



Tap **[Delete Rule]**.



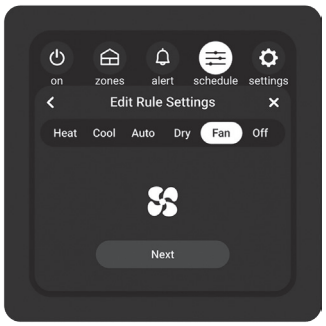
Tap **[Edit Rule]**.



Tap **[Yes, Delete]** to delete the item.

Adjust the set temperature for the indoor unit and tap **[Next]**.

In Auto mode



In Fan mode

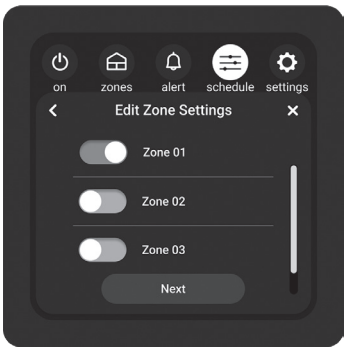
In Auto mode, set the temperature for both cooling and heating.

EN

3

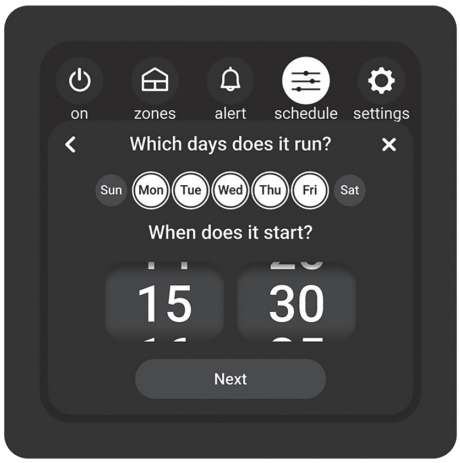
Adjust the set temperature for each zone and tap **[Next]**.

In Auto mode



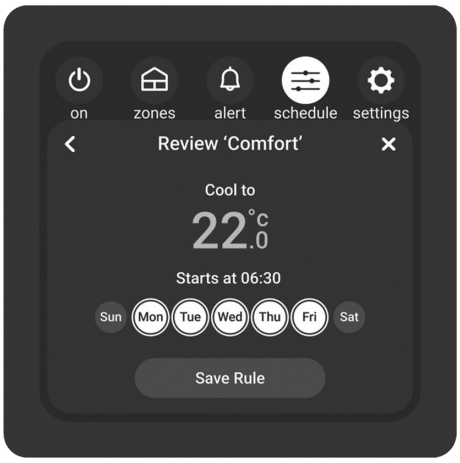
In Fan mode

4

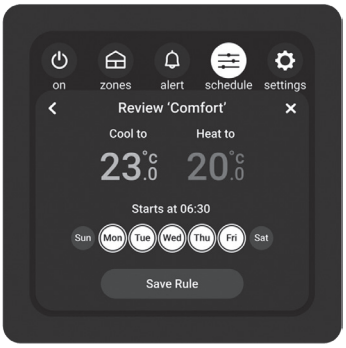


Set the time and days to start operation and tap **[Next]**.

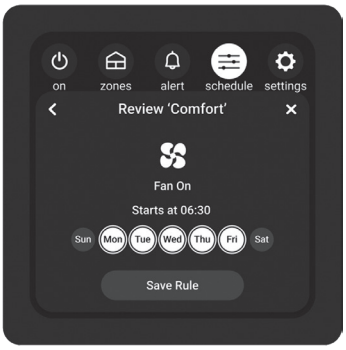
5



Check your settings and tap **[Save Rule]** to complete.



In Auto mode

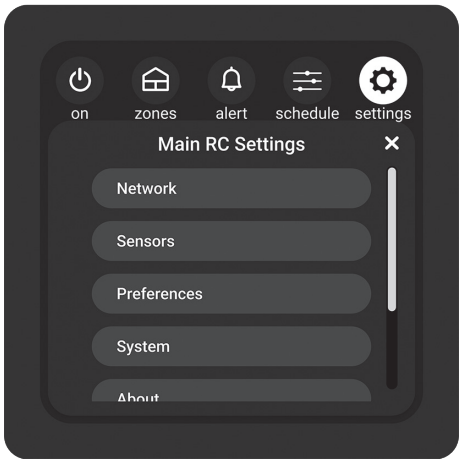


In Fan mode

EN

Settings

Settings menu

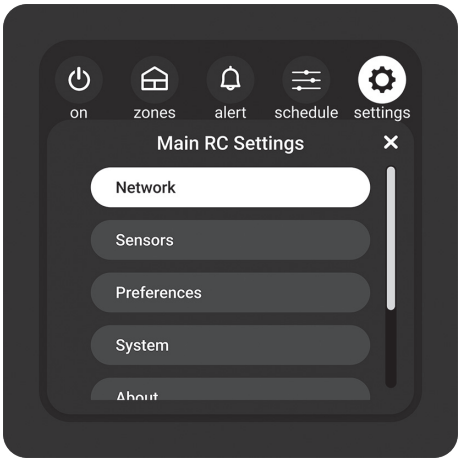


Tap the ⚙ button.
[Main RC Settings] or **[Sub RC Settings]** will appear.

Network

Set Wi-Fi setting for both the main remote controller and sub remote controller.

1



Tap **[Network]**.

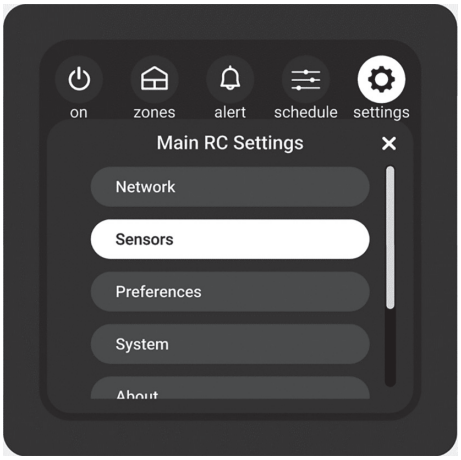
2

This controller connects to Wi-Fi for over the air updates for its firmware.
In order to connect to Wi-Fi, you will be required to scan the code and download the Wi-Fi Control app.
Connecting the controller to Wi-Fi is recommended for important updates for security, bug fixes, and other improvements.

EN

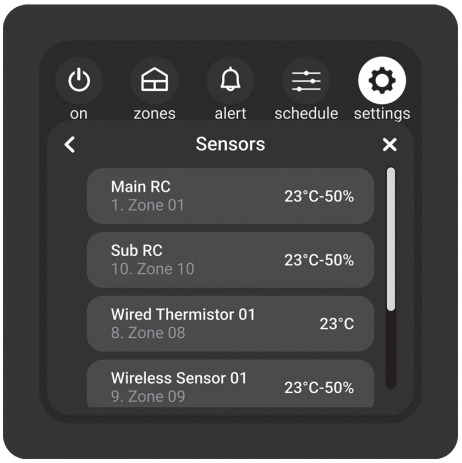
Sensors

1



Tap **[Sensors]**.

2



The sensor information in the system is displayed. If the sensor is selected as the representative sensor for a zone, the zone information is displayed.

Preferences

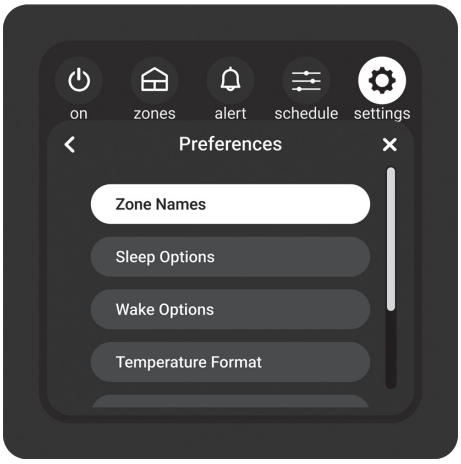
Zone names

Set the zone names for both the main remote controller and sub remote controller.

1

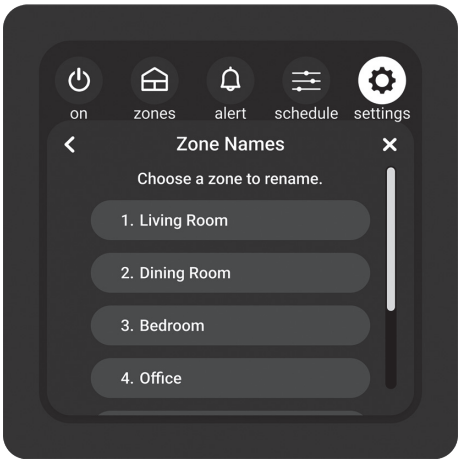
Tap **[Preferences]**.

2



Tap **[Zone Names]** in the list.

3



The current zone names are displayed.
If you want to change the zone name, select the object zone.

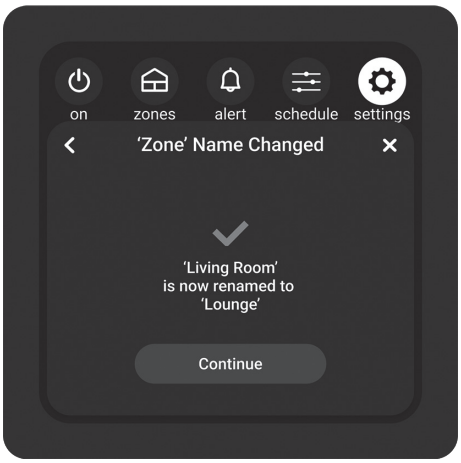
EN

4

Select the zone name from the list.

Note:
Using the dedicated application allows the zone name to be set manually. See the manual for the Wi-Fi Control App.

5

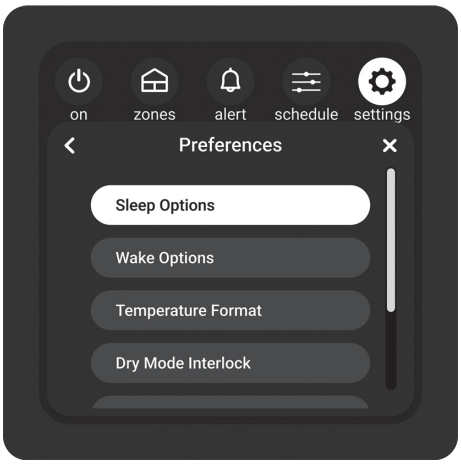


Tap **[Continue]** after you confirmed the name selected.

Sleep options

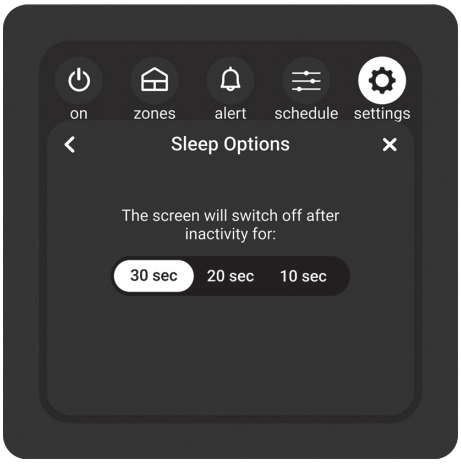
Set the sleep options for both the main remote controller and sub remote controller.

1



Tap **[Preferences]**.
Then, tap **[Sleep Options]**.

2



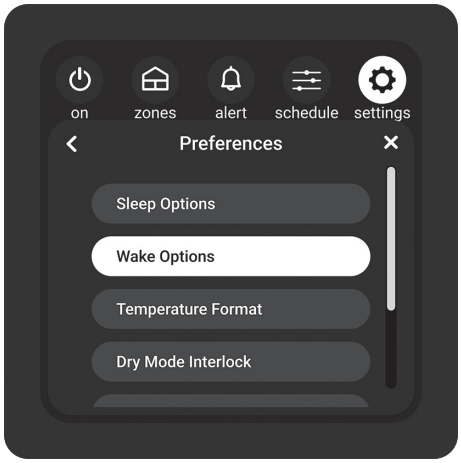
Select the time to turn off the screen automatically.
When you are in the Home screen, the screen will dim after a lapse of the set time in the sleep options.
After a while, the screen will turn off. If **[On Proximity]** is selected in the wake options, the time will be cleared each time a user is detected.

EN

Wake options

Set the wake options for both the main remote controller and sub remote controller.

1



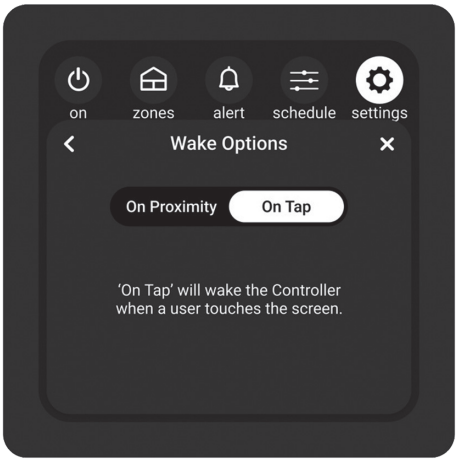
Tap **[Preferences]**.
Then, tap **[Wake Options]** in the list.

2

Select the condition to wake the controller from the options below.

[On Proximity] wakes the controller when it detects a user in front of it.

Note:
The proximity sensor is installed at the bottom side of the remote controller. Therefore, if the bottom side of the remote controller is covered, the sensor may not respond.



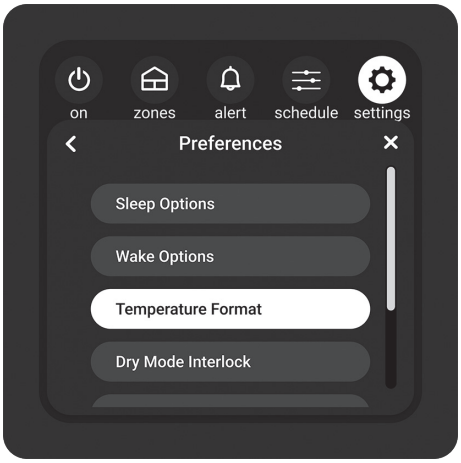
[On Tap] wakes the controller when a user touches the screen.

EN

Temperature format

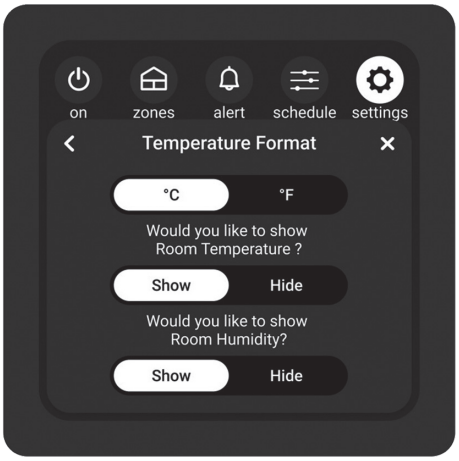
Set the temperature format for both the main remote controller and sub remote controller.

1



Tap **[Preferences]**.
Then, tap **[Temperature Format]** in the list.

2



Select the temperature scale used in the remote controller. You can also select whether or not to display the temperature/humidity information on the top page.

• Temperature scale
[°C] or **[°F]**

• Temperature display
[Show]: The average temperature in the house is displayed on the top page.
[Hide]: The average temperature in the house is not displayed on the top page.

• Humidity display
[Show]: The average humidity in the house is displayed on the top page.
[Hide]: The average humidity in the house is not displayed on the top page.

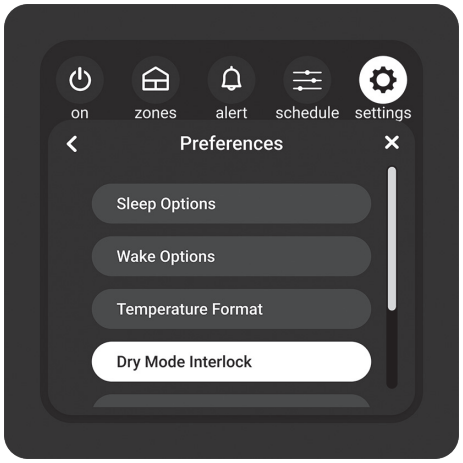
EN

Dry mode interlock

Main

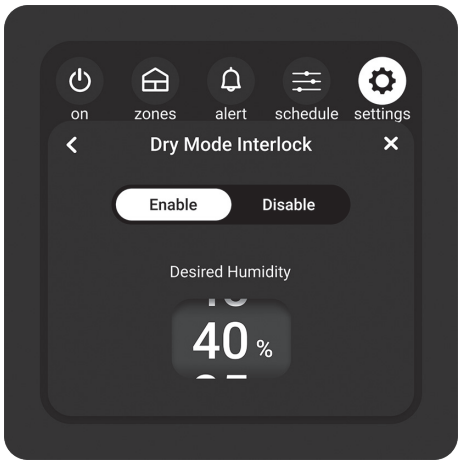
This control is disabled, if the current humidity that should be displayed on the home screen is not displayed.

1



Tap **[Preferences]**.
Then, tap **[Dry Mode Interlock]** in the list.

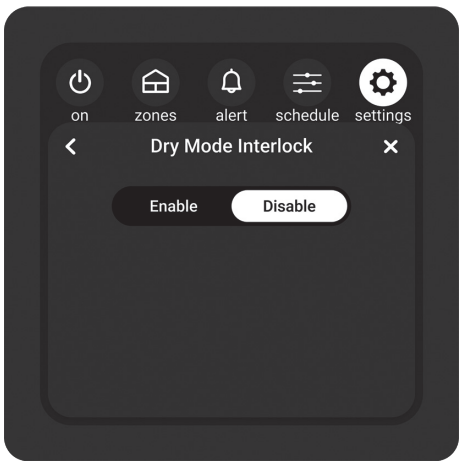
2



When the air conditioner is in dry mode, the air conditioner is controlled to maintain the average humidity at the set humidity.

• **[Enable]**
Dry mode interlock is enabled.
[Desired Humidity] can be set from 40 to 70% (in 5% increments).

Caution: This function compares the average humidity with the set humidity and stops the air conditioner operation if dry mode operation is not necessary. If the power is reset while dry mode is suspended, even if the automatic power failure recovery function is enabled, the air conditioner will remain suspended after the power is restored.



• **[Disable]**
Dry mode interlock is disabled.

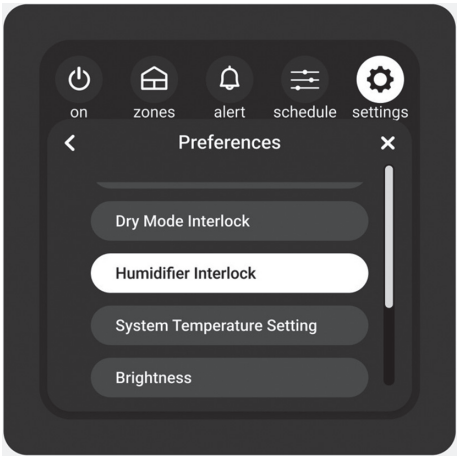
EN

Humidifier interlock

Main

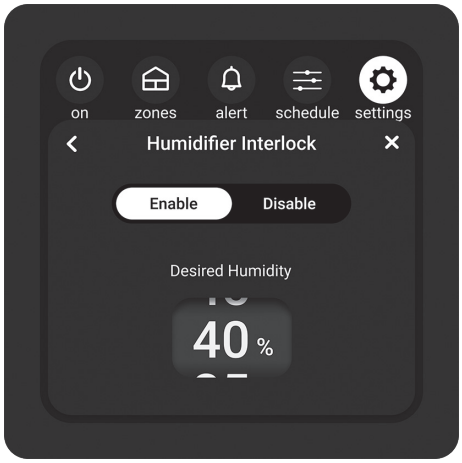
Humidifier interlock is a function that compares the average humidity during heating operation with the set humidity and then sends ON/OFF signals to the humidifier, which is an external connection device.

1



Tap **[Preferences]**.
Then, tap **[Humidifier Interlock]** in the list.

2

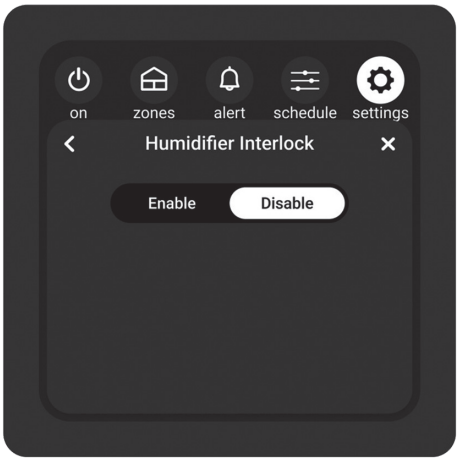


When the air conditioner is in heating mode, the humidifier interlocks and operates to maintain the average humidity at the set humidity.

Note:
To use this feature, the humidifier must be connected to the zone control interface.

[Enable]
Humidifier interlock is enabled.
The desired humidity can be set from 40 to 70% (in 5% increments).

3



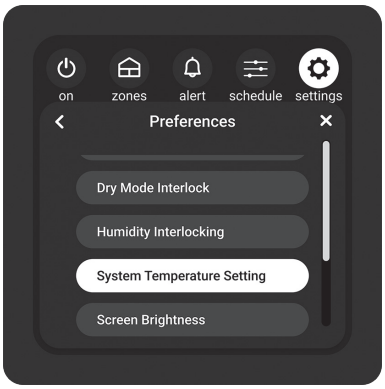
[Disable]
Humidifier interlock is disable.

EN

System temperature setting

Main Linear

1

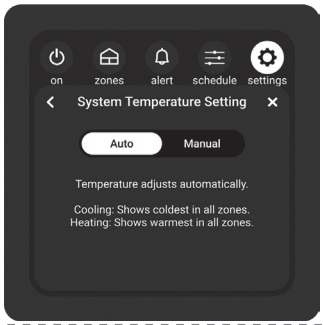


Tap **[Preferences]**.
Then, tap **[System Temperature Setting]** in the list.

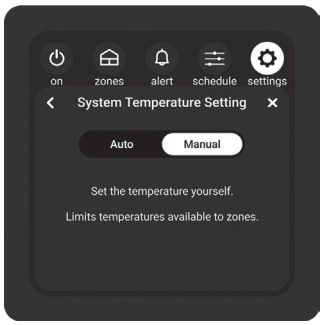
Note: If the system is not supported, it is not shown on the remote controller's screen.

2 Select either **[Auto]** or **[Manual]** to switch the method for setting the set temperature of the air conditioner

• [Auto]
The set temperature of the air conditioner is automatically determined by the temperature in each zone. Therefore, the set temperature of each zone can be set regardless of the limitations described in the **[Manual]** instructions below.
Heating: Shows the warmest temperature in all active zone.
Cooling: Shows the coldest temperature in all active zone.



• [Manual]
The set temperature of the air conditioner is set manually.
Note: There are the following limitations between the set temperature of the air conditioner and the set temperature of each zone.
Heating mode set temperature of the air conditioner ≧ Heating mode set temperature of each zone
Cooling mode set temperature of the air conditioner ≦ Cooling mode set temperature of each zone

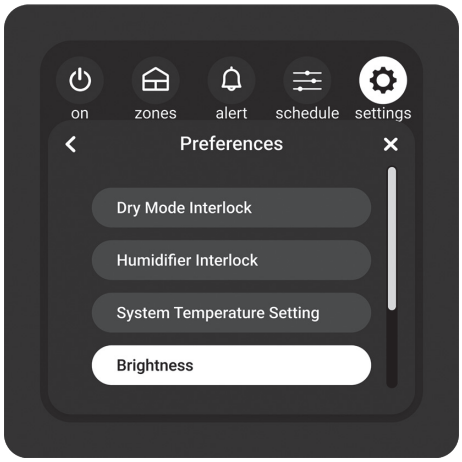


EN

Brightness

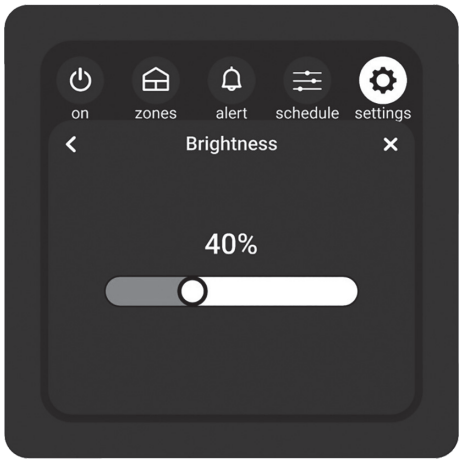
Set the brightness for both the main remote controller and sub remote controller.

1



Tap **[Preferences]**.
Then, tap **[Brightness]** in the list.

2



Adjust the screen brightness from 10% to 100%.

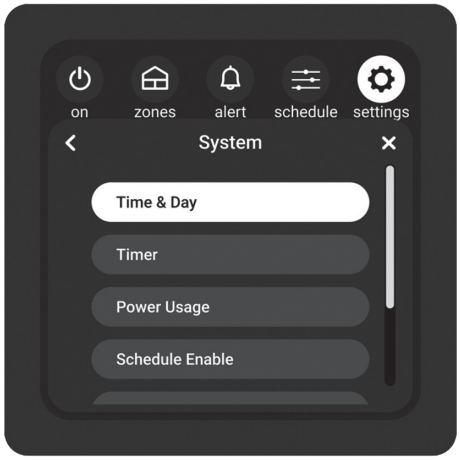
EN

System

Time/day

Set the time & day for both the main remote controller and sub remote controller.

1

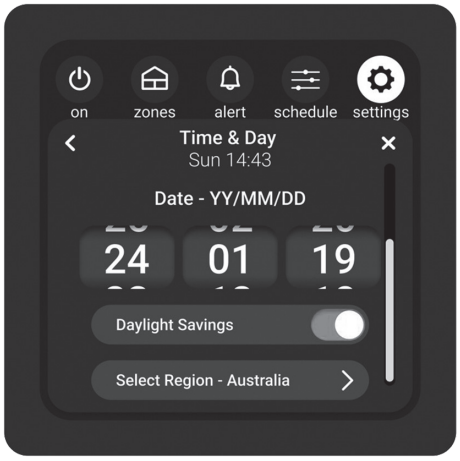


Tap **[System]**.
Then, tap [**Time & Day]** in the list.

2

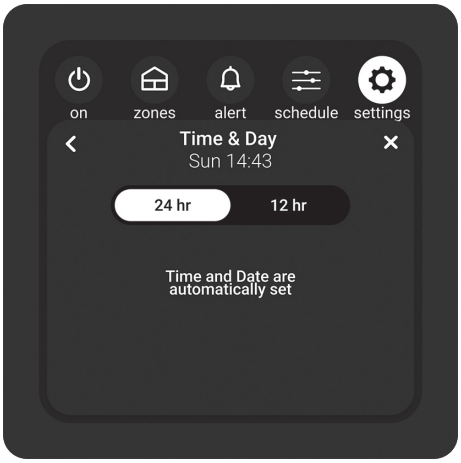
You can change the clock display between a 24-hour clock and a 12-hour clock.
Set the present time. (This is an example of the 24-hour display.)

3



Enable **[Daylight Savings]**, if necessary.

If **[Daylight Savings]** is enabled, select the target regions.



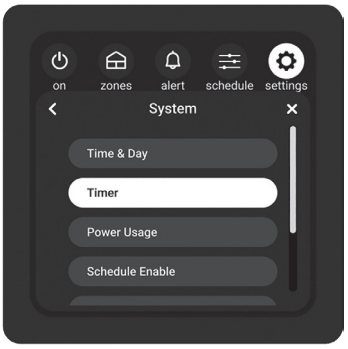
If the remote controller is connected to the network, the setting is not necessary because the time and date are synchronized via the network.

EN

Timer

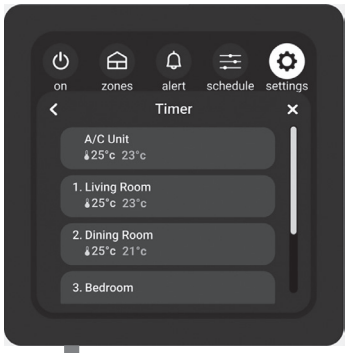
Main

1



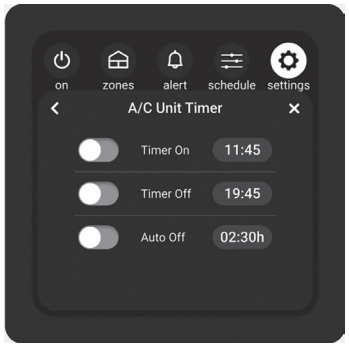
Tap **[System]**.
Then, tap **[Timer]** in the list.

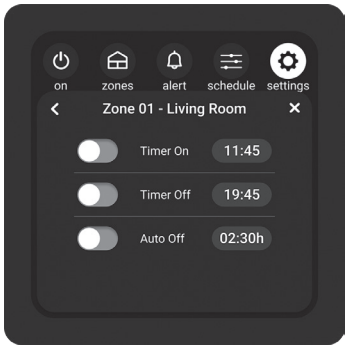
2

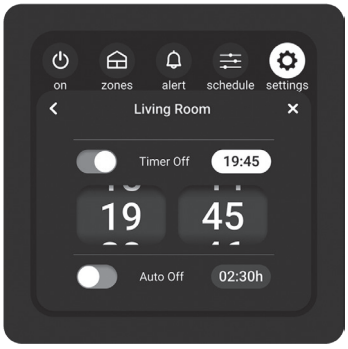


Select the setting target.
[A/C Unit]: Setting for the air conditioner
[Other zones]: Setting for each zone

■Setting items
[Timer On]: When the setting is enabled, the air conditioner/ zone is turned on at the set time.
[Timer Off]: When the setting is enabled, the air conditioner/ zone is turned off at the set time
[Auto Off]: When the setting is enabled, the air conditioner/ zone is automatically turned off after the set time has passed.



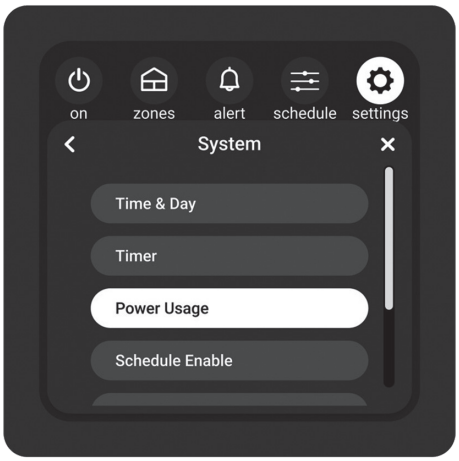




EN

Power usage

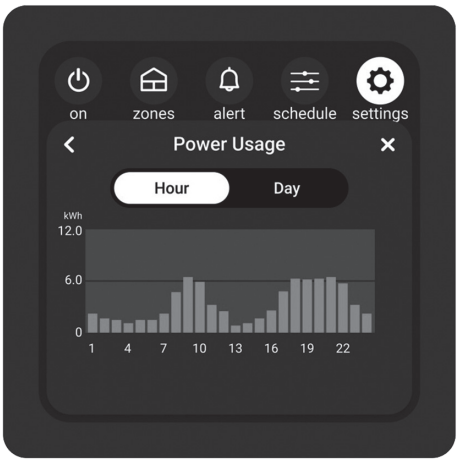
1



Tap **[System]**.
Then, tap **[Power Usage]** in the list.

Note: If the system is not supported, it is not shown on the remote controller's screen.

2



The power consumption of the last 24 hours is displayed in a graph. The graph may not be saved depending on when the power is turned off.

Note: If the remote control is turned off at the collection time, the corresponding data will not be displayed. In this case, the power consumption up to that point will be added at the next collection time.

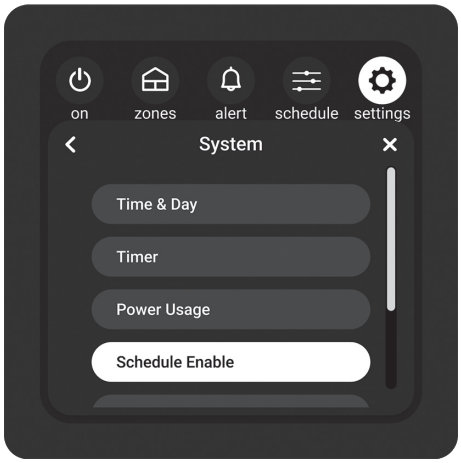
3

The power consumption of the last 30 days is displayed in a graph. The graph may not be saved depending on when the power is turned off.

EN

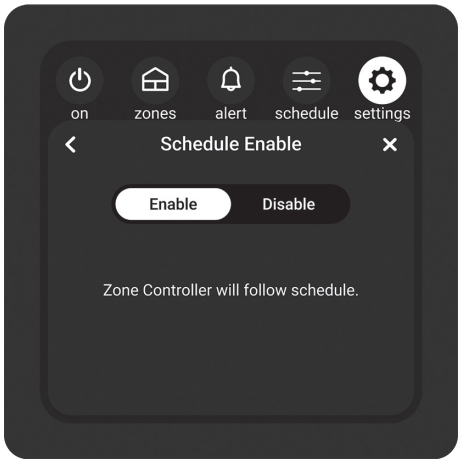
Schedule enable

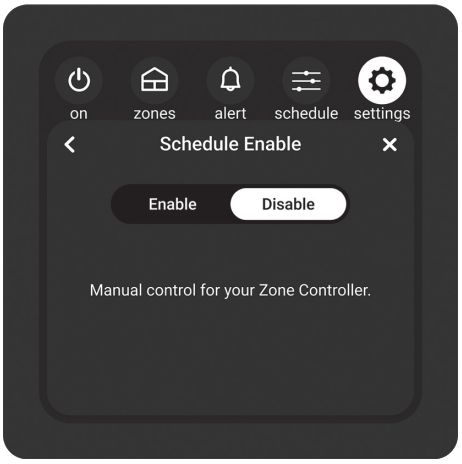
Main



Enabling/Disabling Schedule.

Tap **[Schedule Enable]**.



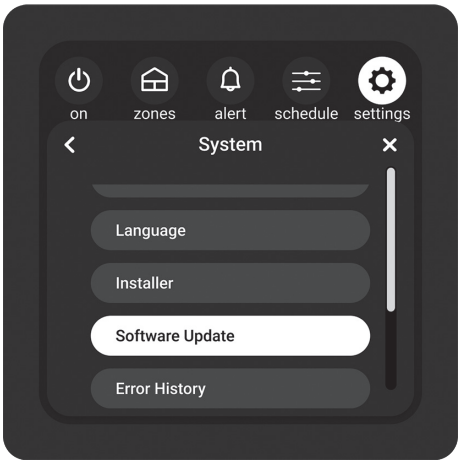


EN

Software update

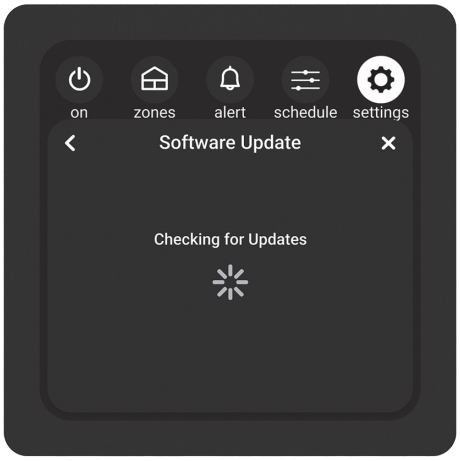
Set the software update for both the main remote controller and sub remote controller.

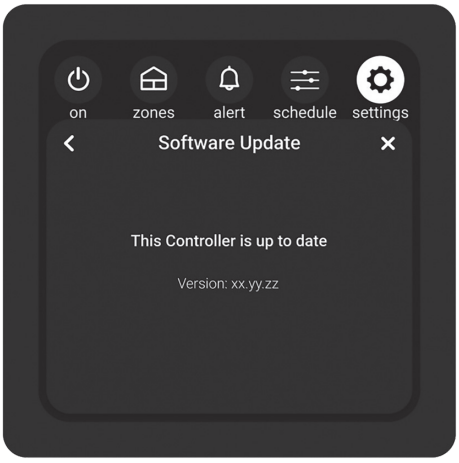
1



Update the software of this product. Internet access via Wi-Fi is required to use this function.

Tap **[Software Update]**.





If the software has been already updated to the latest version

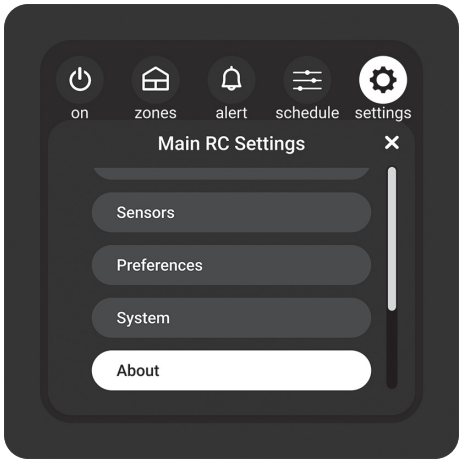
EN

2

Tap **[Update Now]**.

Download and apply the latest firmware.

About



Display the product information.

Tap **[About]**.

Specifications

Specifications

Zone control interface			
Model name		PAC-ZC04S240C-A PAC-ZC04L240C-A	PAC-ZC10S240C-A PAC-ZC10L240C-A
Weight		2.8 kg	
Allowable ambient temperature		0 to 60°C	
Allowable ambient humidity		80% RH or less	
External dimensions (W x H x D)		336 x 278 x 69 mm	

Main remote controller (Option)			
Model name		PAR- ZM01A-A	
Power Source		13 VDC (for connection to MA only)	Receives power from the zone controller interface via the transmission cable.
Power consumption		MAX 2 W	
Operating conditions	Temperature	Operating temperature range	0 – 40ºC (32 – 104ºF)
		Storage temperature range	-20 – 70ºC (-4 – 158ºF)
	Humidity	20 – 90% RH (No condensation)	
Weight		0.15 kg (11/16 lbs)	
External dimensions (W x H x D)		86 × 86 × 23.6 mm	
Display		LCD digital screen	
Transmitter power level (MAX)		15 dBm @IEEE 802.11b 13 dBm @IEEE 802.11g 13 dBm @IEEE 802.11n 3.5 dBm @Bluetooth® Low Energy	
RF channel		Wifi: 1 to 11 Channels (2412 - 2484 MHz) Bluetooth® Low Energy: 40 Channels (2402 - 2480 MHz)	
Radio protocol		IEEE 802.11b/g/n	
Encryption		AES	
Authentication		WPA-PSK, WPA2-PSK, WPA3-PSK	
Bluetooth® Low Energy		Ver 5.0	

EN

This product includes the following software components that are licensed as "open source" or "free software":

1. MIT License

cJSON (v1.7.18)
Copyright (c) 2009 Dave Gamble

nghttp2 (v1.31.0)
Copyright (c) 2012, 2014, 2015, 2016 Tatsuhiro Tsujikawa
Copyright (c) 2012, 2014, 2015, 2016 nghttp2 contributors

libmicrossdp
Copyright 2014-2015 Alexander von Gluck IV kallisti5@unixzen.com

free RTOS (v10.2.0)
Copyright (C) 2019 Amazon.com, Inc. or its affiliates. All Rights Reserved.

c-util
Copyright (c) Microsoft Corporation.

azure-iot-sdk-c (v1.3.7)
Copyright (c) Microsoft Corporation
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

2. Apache License 2.0

mbed-coap (v4.0.3)
Copyright (c) 2011-2015 ARM Limited. All rights reserved.

mDNS (mDNSResponder-544)
Copyright (c) 2002-2013 Apple Computer, Inc. All rights reserved.

mbedtls (v2.4.0)
Copyright (C) 2006-2015, ARM Limited, All Rights Reserved

net sockets
Copyright (C) 2006-2015, ARM Limited, All Rights Reserved

mbed (v2.4.0)
Copyright (C) 2006-2015, ARM Limited, All Rights Reserved

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

3. BSD-2-Clause

lz4 Compression (v1.9.4)
Copyright (c) 2011-2020, Yann Collet
Copyright (C) 2022, Xiaomi Inc."
All rights reserved.

protobuf-c (v1.4.0)
Copyright (c) 2008-2016, Dave Benson and the protobuf-c authors.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this
  list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this
  list of conditions and the following disclaimer in the documentation and/or
  other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR
ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

4. BSD-3-Clause

Copyright (c) 2022, The littlefs authors.
Copyright (c) 2017, Arm Limited. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

• Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
• Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
• Neither the name of ARM nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2001, 2002 Swedish Institute of Computer Science.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice,
   this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice,
   this list of conditions and the following disclaimer in the documentation
   and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products
   derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED
WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT
SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN
CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
OF SUCH DAMAGE.

This file is part of the lwIP TCP/IP stack.
Author: Adam Dunkels <adam@sics.se>

5. Eclipse Distribution Licence-v1.0

Copyright (c) 2007, Eclipse Foundation, Inc. and its licensors. All rights reserved.
Copyright (c) 2014, 2015 IBM Corp. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

6. CWI License

Copyright 1992 by Stichting Mathematisch Centrum, Amsterdam, The Netherlands.

All Rights Reserved

Permission to use, copy, modify, and distribute this software and its
documentation for any purpose and without fee is hereby granted,
provided that the above copyright notice appear in all copies and that
both that copyright notice and this permission notice appear in
supporting documentation, and that the names of Stichting Mathematisch
Centrum or CWI not be used in advertising or publicity pertaining to
distribution of the software without specific, written prior permission.

STICHTING MATHEMATISCH CENTRUM DISCLAIMS ALL WARRANTIES WITH REGARD TO
THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND
FITNESS, IN NO EVENT SHALL STICHTING MATHEMATISCH CENTRUM BE LIABLE
FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT
OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Cyber security information

Pursuant to (Security Standards for Smart Devices) Rules 2025 (Cth) cyber security information for this product can be found from the below matrix barcode or URL.
This is inclusive of support periods and other relevant Cyber security information.

URL: https://www.mitsubishielectric.com.au/csa-statement-of-compliance

About Bluetooth word mark

The Bluetooth word mark and logo are trademarks owned by Bluetooth SIG, Inc. Mitsubishi Electric Corporation is authorized to use the trademark. Other trademarks and trade names are the property of their respective owners.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO Building. , 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
Authorized representative in EU: MITSUBISHI ELECTRIC EUROPE B.V.
HARMAN HOUSE, 1 GEORGE STREET, UXBRIDGE, MIDDLESEX UB8 1QQ, U.K.

BH79F099H03

Printed in Japan