

MITSUBISHI ELECTRIC



CITY MULTI R410A SERIES HOT WATER SUPPLY, AIR TO WATER, and FLOW TEMP. CONTROLLER Remote Controller PAR-W21MAA

Installation Manual

This instruction manual describes how to install the Remote Controller for CITY MULTI R410A SERIES HOT WATER SUPPLY, AIR TO WATER, and FLOW TEMP. CONTROLLER. Please read this manual thoroughly and install the remote controller accordingly. For information on how to wire and install CITY MULTI R410A SERIES HOT WATER SUPPLY, AIR TO WATER, and FLOW TEMP. CONTROLLER Remote Controller, refer to the installation manual. After the installation, hand over this manual to users.

1 Safety Precautions

- Read these Safety Precautions and perform installation work accordingly.
- The following two symbols are used to dangers that may be caused by incorrect use and their degree:

	WARNING	This symbol denotes what could lead to serious injury or death if you misuse the PAR-W21MAA.
	CAUTION	This symbol denotes what could lead to a personal injury or damage to your property if you misuse the PAR-W21MAA.

- After reading this installation manual, give it and units installation manual to the end user.
- The end user should keep this manual and units installation manual in a place where he or she can see it at anytime. When someone moves or repairs the PAR-W21MAA, make sure that this manual is forwarded to the end user.

WARNING

Ask your dealer or technical representative to install the unit.

Any deficiency caused by your own installation may result in an electric shock or fire.

Install in a place which is strong enough to withstand the weight of the PAR-W21MAA.

Any lack of strength may cause the PAR-W21MAA to fall down, resulting in personal injury.

Firmly connect the wiring using the specified cables. Carefully check that the cables do not exert any force on the terminals.

Improper wiring connections may produce heat and possibly a fire.

Never modify or repair the PAR-W21MAA by yourself.

Any deficiency caused by your modification or repair may result in an electric shock or fire.
Consult with your dealer about repairs.

Ensure that installation work is done correctly following this installation manual.

Any deficiency caused by installation may result in an electric shock or fire.

All electrical work must be performed by a licensed technician, according to local regulations and the instructions given in this manual.

Any lack of electric circuit or any deficiency caused by installation may result in an electric shock or fire.

Do not move and re-install the PAR-W21MAA yourself.

Any deficiency caused by installation may result in an electric shock or fire.
Ask your distributor or special vendor for moving and installation.

To dispose of this product, consult your dealer.

CAUTION

Do not install in any place exposed to flammable gas leakage.

Flammable gases accumulated around the body of PAR-W21MAA may cause an explosion.

Do not use in any special environment.

Using in any place exposed to oil (including machine oil), steam and sulfuric gas may deteriorate the performance significantly or give damage to the component parts.

When installing the remote controller in a hospital or communication facility, take ample countermeasures against noise.

Inverters, emergency power supply generators, high-frequency medical equipment, and wireless communication equipment can cause the remote controller to malfunction or to fail. Radiation from the remote controller may effect communication equipment and prevent medial operations on the human body or interfere with image transmission and cause noise.

Wire so that it does not receive any tension.

Tension may cause wire breakage, heating or fire.

Completely seal the wire lead-in port with putty etc.

Any dew, moisture, insects entering the unit may cause an electric shock or a malfunction.

Do not install in any place at a temperature of more than 40°C [104°F] or less than 0°C [32°F] or exposed to direct sunlight.

Doing so may cause deformation or malfunction.

Do not apply AC100V or AC200V to the remote controller. The maximum voltage that can be applied to the remote controller is 12V.

The remote controller may be damaged or may generate heat and cause a fire.

Do not install in any steamy place such a bathroom or kitchen.

Avoid any place where moisture is condensed into dew. Doing so may cause an electric shock or a malfunction.

Do not install in any place where acidic or alkaline solution or special spray are often used.

Doing so may cause an electric shock or malfunction.

Use standard wires in compliance with the current capacity.

A failure to this may result in an electric leakage, heating or fire.

Do not touch any control button with your wet hands.

Doing so may cause an electric shock or a malfunction.

Do not wash with water.

Doing so may cause an electric shock or a malfunction.

Do not press any control button using a sharp object.

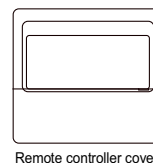
Doing so may cause an electric shock or a malfunction.

2 Confirming the Supplied Parts

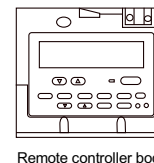
Confirm that the box includes the following parts, in addition to this installation manual:

1. Remote controller (cover, body) 1
2. Cross recessed pan head screw (M4 × 30) 2
3. Wood screw (4.1 × 16, used for directly hooking to the wall) 2
4. Caution label (in 16 languages) 1

Use the cable specified in the Installation Manual that comes with the units for remote controllers.



Remote controller cover



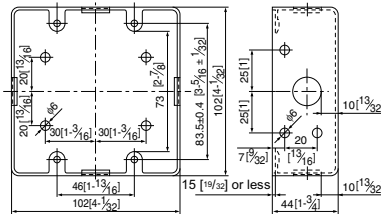
Remote controller body

3 How To Install

1. Choose a place in which to install the remote controller (switch box).

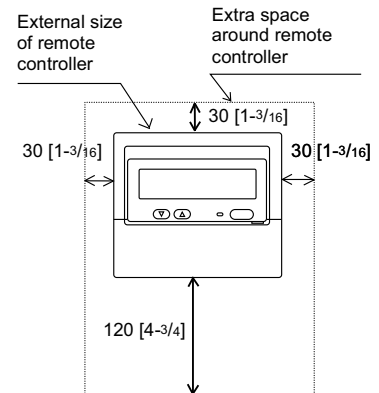
Be sure to observe the following steps:

- (1) When installing on either the switch box or the wall, allow extra space around the remote controller as shown in the figure at the right.
- (2) Parts which must be supplied on site.
 - Switch box for two units
 - Thin-copper wiring pipe
 - Lock nut and bushing
 - Surface raceways



Switch box two units

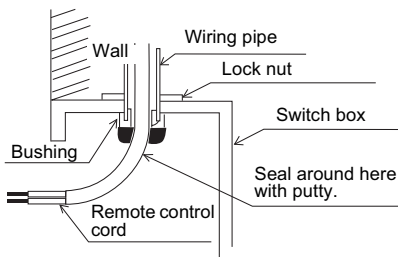
(Unit: mm [in])



2. Seal the remote controller cord with putty in order to prevent the possible entry of dew, water droplets, cockroaches, other insects, etc.

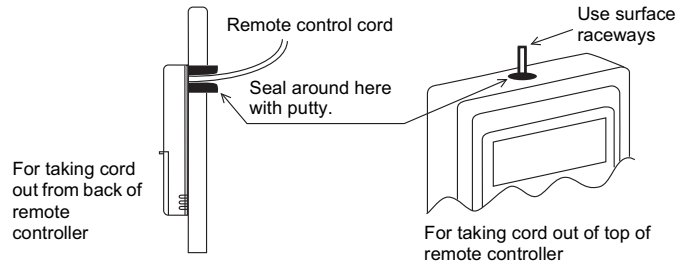
When using the switch box

- When installing on the switch box, seal the connections between the switch box and wiring pipe with putty.



When installing directly on the wall

- When opening a hole using a drill for the remote controller cord (or when taking the cord out of the back of the remote controller), seal the hole with putty.
- When routing the cord via the portion cut off from the upper cover, similarly seal that portion with putty.
- When taking the remote controller cord from back of the controller, use surface raceways.



3. Remove the remote controller cover.

- Insert a minus screwdriver into one of the open slots and move the screwdriver in the arrow direction.

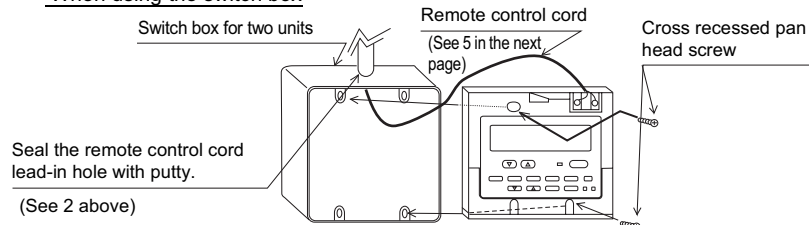


CAUTION

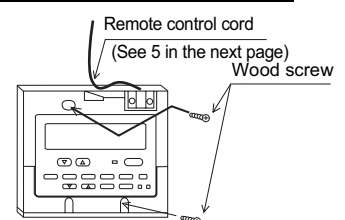
Do not turn the screwdriver in the slot. Doing so may damage the slot.

4. Install the lower case on the switch box or directly on the wall.

When using the switch box



When installing directly on the wall



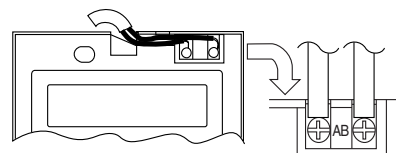
CAUTION Do not tighten the screws too tight. Doing so may deform or crack the lower cover.

NOTE:

- Choose a flat plane for installation.
- Fasten the switch box at more than two places when installing directly on the wall.
- When reinstalling on the wall, fasten securely using anchors.

5. Connect the remote control cord to the remote controller terminal block.

To the remote controller terminal block on the unit
There is no polarity.



To connect the remote control cord, peel 6mm [1/4 in] of coating.

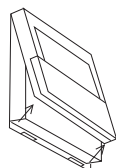
CAUTION Do not use crimp terminals to connect to remote controller terminal blocks. The terminals may contact the board and cause trouble or contact the cover and damage the cover.

CAUTION Prevent remote cord chips from getting into the remote controller. Electric shock or malfunction may result.

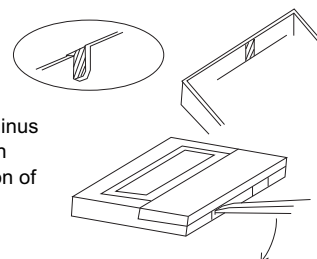
6. Wiring hole for installing directly on the wall (or open wiring)

- Cut off the shaded area from the upper cover using a knife, nippers, etc.
- Take out the remote control cord connected to the terminal block via this portion.

7. Install the cover to the remote controller.



To remove the cover, insert a minus screwdriver into one of the open slots, and move it in the direction of the arrow shown in the figure.



First, hook the cover to the two upper claws and then fit it to the remote controller.

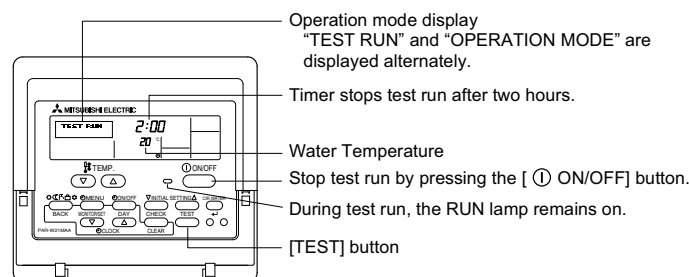
CAUTION Press the cover until it snaps shut. If not, it may fall off. **CAUTION** Do not turn into the screwdriver in the slot. Doing so may damage the slot.

NOTE: A protection sheet is stuck to the operation section. Peel off this protection sheet before use.

4 Test Run

This setting cannot be made with FLOW TEMP. CONTROLLER.

1. Before making a test run, refer to the "Test Run" section of the unit installation manual.
2. Press the [TEST] button twice successively within three seconds. Test run starts.
3. Stop the test run by pressing the [ON/OFF] button.
4. If trouble occurred during the test run, refer to the "Test Run" section of the unit installation manual.



5 Function Selection

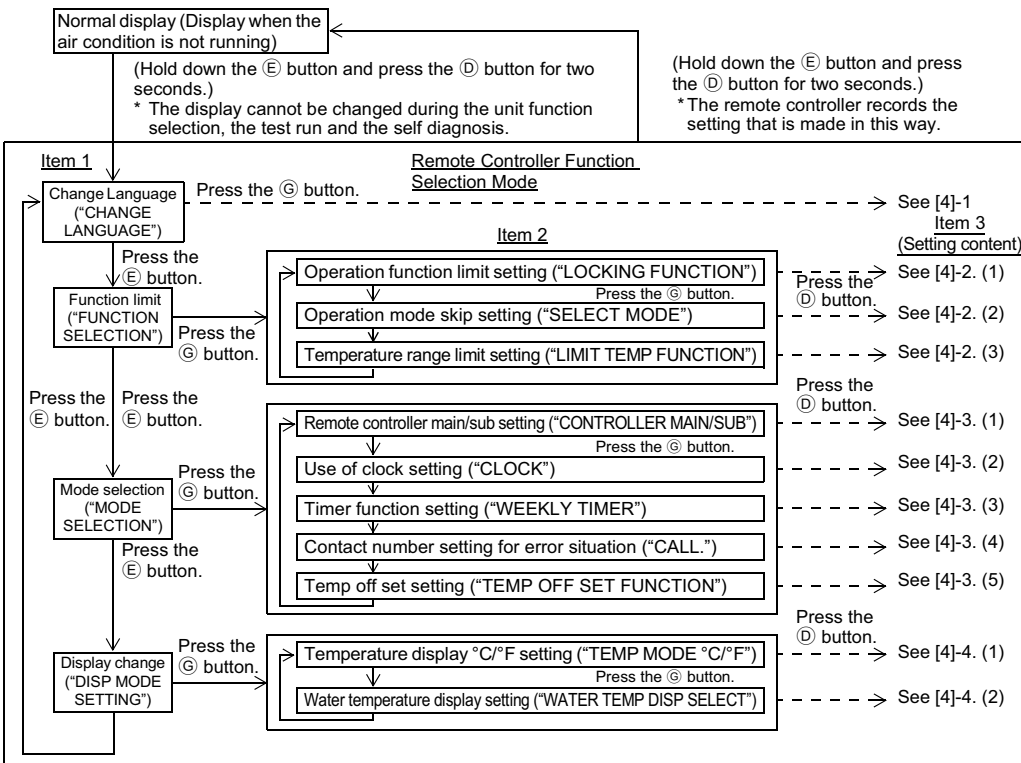
(1) Function selection of remote controller

The setting of the following remote controller functions can be changed using the remote controller function selection mode. Change the setting when needed.

Item 1	Item 2	Item 3 (Setting content)
1. Change Language ("CHANGE LANGUAGE")	Language setting to display	• Display in multiple languages is possible.
2. Function limit ("FUNCTION SELECTION")	(1) Operation function limit setting (operation lock) ("LOCKING FUNCTION")	• Setting the range of operation limit (operation lock)
	(2) Operation mode skip setting ("SELECT MODE")	• Setting the use or non-use of each operation mode
	(3) Temperature range limit setting ("LIMIT TEMP FUNCTION")	• Setting the temperature adjustable range (maximum, minimum)
3. Mode selection ("MODE SELECTION")	(1) Remote controller main/sub setting ("CONTROLLER MAIN/SUB")	• Selecting main or sub remote controller * When two remote controllers are connected to one group, one controller must be set to sub.
	(2) Use of clock setting ("CLOCK")	• Setting the use or non-use of clock function
	(3) Timer function setting ("WEEKLY TIMER")	• Setting the timer type
	(4) Contact number setting for error situation ("CALL.")	• Contact number display in case of error • Setting the telephone number
	(5) Temp off set setting ("TEMP OFF SET FUNCTION")	• Setting the use or non-use of setback amount setting
4. Display change ("DISP MODE SETTING")	(1) Temperature display °C/°F setting ("TEMP MODE °C/°F")	• Setting the temperature unit (°C or °F) to display
	(2) Water temperature display setting ("WATER TEMP DISP SELECT")	• Setting the use or non-use of the display of water temperature

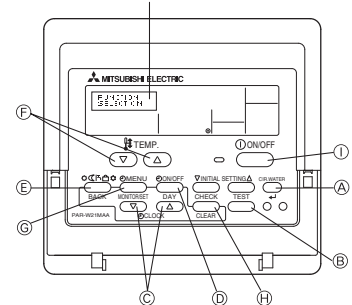
[Function selection flowchart]

[1] Stop the unit to start remote controller function selection mode. → [2] Select from item1. → [3] Select from item2. → [4] Make the setting. (Details are specified in item3) → [5] Setting completed. → [6] Change the display to the normal one. (End)



Dot display

The language that is selected in CHANGE LANGUAGE mode appears on this display. English is set in this manual.



[Detailed setting]

[4] -1. CHANGE LANGUAGE setting

The language that appears on the dot display can be selected.

- Press the [**ⓓ** MENU] button to change the language.
- ① English (GB), ② German (D), ③ Spanish (E), ④ Russian (RU), ⑤ Italian (I), ⑥ French (F), ⑦ Swedish

[4] -2. Function limit

(1) Operation function limit setting (operation lock)

- To switch the setting, press the [**ⓓ** ON/OFF] button.
- ① no1: Operation lock setting is made on all buttons other than the [**ⓓ** ON/OFF] button.
- ② no2: Operation lock setting is made on all buttons.
- ③ OFF (Initial setting value): Operation lock setting is not made.
- * To make the operation lock setting valid on the normal screen, it is necessary to press buttons (Press and hold down the [CIR.WATER] and [**ⓓ** ON/OFF] buttons at the same time for two seconds.) on the normal screen after the above setting is made.

(2) Operation mode skip setting

After setting is changed, the operation mode can be changed within the changed range.

- To switch the following settings, press the [**ⓓ** ON/OFF] button.
- ① Heating mode : Sets the use or non-use of the Heating mode.
- ② Heating ECO mode : Sets the use or non-use of the Heating ECO mode.
- ③ Hot Water mode : Sets the use or non-use of the Hot Water mode.
- ④ Anti-freeze mode : Sets the use or non-use of the Anti-freeze mode.
- ⑤ Cooling mode : Sets the use or non-use of the Cooling mode.
- ⑥ OFF (Initial setting value) : Operation mode skip is not executed.

* When the setting, other than OFF, is made, the skip settings of the Heating, Heating ECO, Hot Water, Anti-freeze, and Cooling modes are executed at the same time.

* A mode that is not available on the unit to connect cannot be used even if the setting is "AVAILABLE".

(3) Temperature range limit setting

After this setting is made, the temperature can be changed within the set range.

- To switch the setting, press the [**ⓓ** ON/OFF] button.
- ① LIMIT TEMP HEATING MODE:
The temperature range can be changed on heating mode.
This mode cannot be used with FLOW TEMP. CONTROLLER.
- ② LIMIT TEMP HOT WATER MODE:
The temperature range can be changed on hot water mode.
Heating mode can be used with FLOW TEMP. CONTROLLER.
- ③ LIMIT TEMP ANTI-FREEZE MODE:
The temperature range can be changed on anti-freeze mode.
- ④ LIMIT TEMP COOLING MODE:
The temperature range can be changed on cooling mode.
- ⑤ OFF (Initial setting):
The temperature range limit is not active.
- * When the setting, other than OFF, is made, the temperature range limit setting on hot water, anti-freeze and cooling mode is made at the same time. However, the range cannot be limited when the set temperature range has not changed.
- To increase or decrease the temperature, press the [**ⓓ** TEMP. (**▽**) or (**△**)] button.
- To switch the upper limit setting and the lower limit setting, press the [INITIAL SETTING (**▽**)] button. The selected setting will flash and the temperature can be set.
- Settable range

Heating/Hot Water mode	: Lower limit: 20 ~ 90 °C (68 ~ 194°F)
	Upper limit: 90 ~ 20 °C (194 ~ 68°F)
Anti-freeze mode	: Lower limit: 5 ~ 45 °C (41 ~ 113°F)
	Upper limit: 45 ~ 5 °C (113 ~ 41°F)
Cooling mode	: Lower limit: 5 ~ 30 °C (41 ~ 87°F)
	Upper limit: 30 ~ 5 °C (87 ~ 41°F)
- * The settable range varies depending on the unit to connect.

[4] -3. Mode selection setting

(1) Remote controller main/sub setting

- To switch the setting, press the [**ⓓ** ON/OFF] button.
- ① Main : The controller will be the main controller.
- ② Sub : The controller will be the sub controller.

(2) Use of clock setting

- To switch the setting, press the [**ⓓ** ON/OFF] button.
- ① ON : The clock function can be used.
- ② OFF : The clock function cannot be used.

(3) Timer function setting

- To switch the setting, press the [⊕ ON/OFF] button (Choose one of the followings.).

① WEEKLY TIMER (Initial setting value):

The weekly timer can be used.

- ② AUTO OFF TIMER : The auto off timer can be used.
- ③ SIMPLE TIMER : The simple timer can be used.
- ④ TIMER MODE OFF : The timer mode cannot be used.

* When the use of clock setting is OFF, the "WEEKLY TIMER" cannot be used.

(4) Contact number setting for error situation

- To switch the setting, press the [⊕ ON/OFF] button.

- ① CALL OFF : The set contact numbers are not displayed in case of error.
- ② CALL **** * : The set contact numbers are displayed in case of error.
- CALL_ : The contact number can be set when the display is as shown on the left.

- Setting the contact numbers

To set the contact numbers, follow the following procedures.

Move the flashing cursor to set numbers. Press the [⏮ TEMP. (▽) or (△)] button to move the cursor to the right (left). Press the [⊕ CLOCK (▽) or (△)] button to set the numbers.

(5) Temp off set setting

- To switch the following settings, press the [⊕ ON/OFF] button.

- ① ON : The setback amount setting is displayed under the water temperature initial setting mode.
- ② OFF : The setback amount setting is not displayed under the water temperature initial setting mode.

[4] -4. Display change setting

(1) Temperature display °C/°F setting

- To switch the setting, press the [⊕ ON/OFF] button.

- ① °C : The temperature unit °C is used.
- ② °F : The temperature unit °F is used.

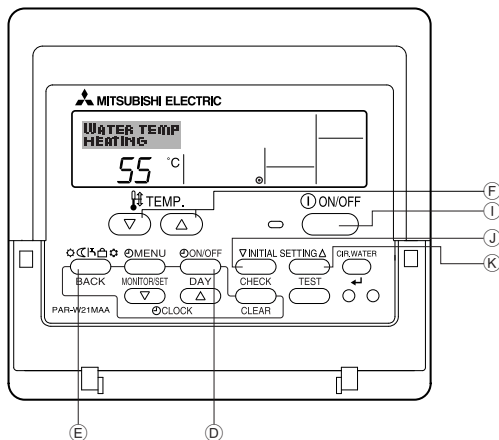
(2) Water temperature display setting

- To switch the setting, press the [⊕ ON/OFF] button.

- ① ON : The water temperature is displayed.
- ② OFF : The water temperature is not displayed.

6 Initial Setting

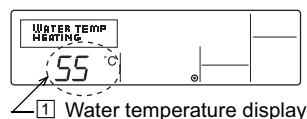
The initial operation mode can be set. Change the setting when needed.



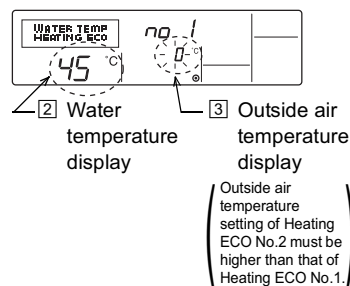
(1) Water temperature initial setting mode

- Stop the unit by pressing the [⊕ ON/OFF] ① button.
- To enter the water temperature initial setting, press and hold down the [INITIAL SETTING (▽)] ④ button for three seconds or longer. (Any of 1. to 8. will be displayed.)
 - * Wait a while because the water temperature initial setting takes approximately 30 seconds to display after the [INITIAL SETTING (▽)] ④ button is pressed.
 - * Depending on the model of the unit to connect, the water temperature initial setting may not be possible. In such case, the screen transitions to the unit stop screen after the display of the error.
- To select a water temperature initial setting from 1. to 8., press the [Mode (Back)] ⑤ button.

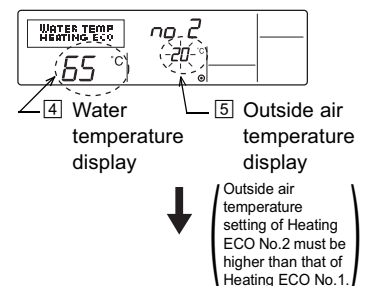
1. Water temperature initial setting Water Temp Heating



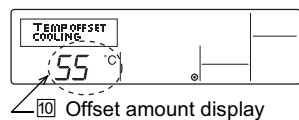
2. Water temperature initial setting Water Temp Heating ECO No.1



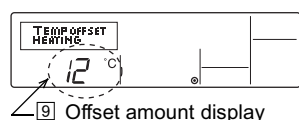
3. Water temperature initial setting Water Temp Heating ECO No.2



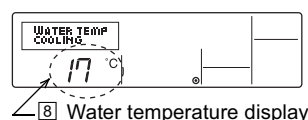
8. Water temperature initial setting Temp Offset Cooling



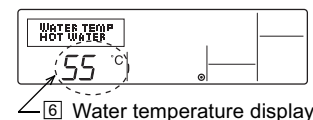
7. Water temperature initial setting Temp Offset Heating



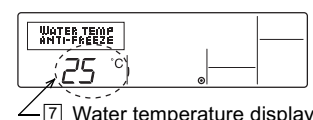
6. Water temperature initial setting Water Temp Cooling



4. Water temperature initial setting Water Temp Hot Water



5. Water temperature initial setting Water Temp Anti-freeze



* The available settings differ depending on the model of the unit to connect.

1. Water Temp Heating	: Sets the water temperature to [1]°C when starting operation in Heating mode.
2. Water Temp Heating ECO No.1	: Sets the water temperature to [2]°C for an outside air temperature of [3]°C when operating in Heating ECO mode.
3. Water Temp Heating ECO No.2	: Sets the water temperature to [4]°C for an outside air temperature of [5]°C when operating in Heating ECO mode.
4. Water Temp Hot Water	: Sets the water temperature to [6]°C when starting operation in Hot Water mode.
5. Water Temp Anti-freeze	: Sets the water temperature to [7]°C when starting operation in Anti-freeze mode.
6. Water Temp Cooling	: Sets the water temperature to [8]°C when starting operation in Cooling mode.
7. Temp Offset Heating	: Sets the offset amount of the Heating system to [9]°C.
8. Temp Offset Cooling	: Sets the offset amount of the Cooling system to [10]°C.

④ Switch the outside air temperature or water temperature setting by pressing the [⊖ ON/OFF] ④ button.

⑤ To set the water temperature, outside air temperature, or offset amount, press the [TEMP. (▽) or (△)] ⑤ (setting temperature) button.
The adjustment range is as shown below.

Water Temp Hot Water (Heating, Heating ECO)	: 20°C ~ 90°C (68°F ~ 194°F) *1
Water Temp Anti-freeze	: 5°C ~ 45°C (41°F ~ 113°F) *1
Water Temp Cooling	: 5°C ~ 30°C (41°F ~ 87°F) *1
Outside air temperature	: -20°C ~ 40°C (-4°F ~ 104°F)
Temp Offset Heating (Cooling)	: -15°C ~ 15°C (5°F ~ 59°F)

*1 The adjustment range differs depending on the model of the unit to connect.

⑥ To cancel the water temperature initial setting, press the [INITIAL SETTING (▽)] ⑥ button for three seconds or longer.
Alternatively, press the [① ON/OFF] ① button.

(2) Interface (I/F) Option Setting mode

The upper and lower limit values for the "water temperature switching by analog input (4-20 mA/0-10 V)" used by the interface (I/F) can be set. Change the setting when needed.

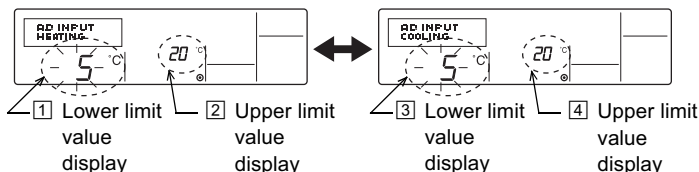
① Stop the unit by pressing the [① ON/OFF] ① button.

② To enter the interface (I/F) option setting, press the [INITIAL SETTING (△)] ② button for three seconds or longer. (1. or 2. will be displayed.)

* Depending on the model of the unit to connect, the "Interface (I/F) Option Setting mode" may not be available. In such case, the screen transitions to the unit stop screen after the display of the error.

③ To select an interface (I/F) option setting 1. or 2., press the [Mode (Back)] ③ button.

1. Interface (I/F) option setting
Heating system
2. Interface (I/F) option setting
Cooling system



* The available settings differ depending on the model of the unit to connect.

⑧ Heating system	Lower limit value setting:	Defines the "4 mA/0 V" input as the "water temperature [1]°C" of the Heating, Hot Water, and Anti-freeze modes.
	Upper limit value setting:	Defines the "20 mA/10 V" input as the "water temperature [2]°C" of the Heating, Hot Water, and Anti-freeze modes.
⑧ Cooling system	Lower limit value setting:	Defines the "4 mA/0 V" input as the "water temperature [3]°C" of the of the Cooling mode.
	Upper limit value setting:	Defines the "20 mA/10 V" input as the "water temperature [4]°C" of the Cooling mode.

④ To switch the upper/lower limit value display, press the [⊖ ON/OFF] ④ button.

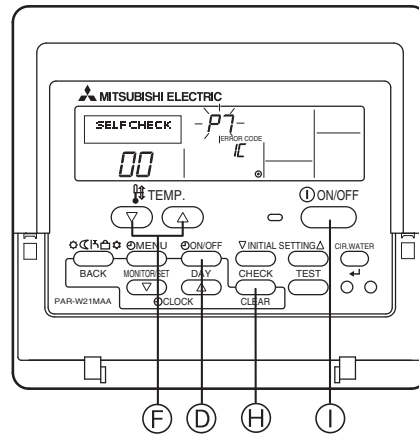
⑤ To set the upper/lower limit value, press the [TEMP. (▽) or (△)] ⑤ (setting temperature) button.

- The adjustment range for both the upper and lower limit values is -20°C (-4°F) to 90°C (194°F).

⑥ To cancel the interface (I/F) option setting, press the [INITIAL SETTING (△)] ⑥ button for three seconds or longer.
Alternatively, press the [① ON/OFF] ① button.

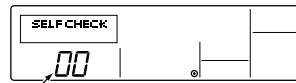
7 Self Check

Retrieve the error history of each unit using the remote controller.



① Switch to the self check mode.

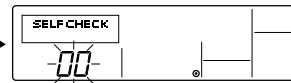
When the [CHECK] (H) button is pressed twice successively within three seconds, the display shown below appears.



Self check address or self check refrigerant address

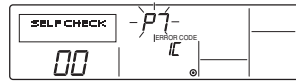
② Set the address or refrigerant address No. you want to self check.

When the [TEMP. (▽) or (△)] (F) buttons are pressed, the address decreases and increases between 001 and 127 or 00 and 15. Set it to the address No. or refrigerant address No. you want to self check.

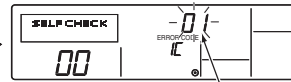


Approximately three seconds after the change operation, the self check refrigerant address changes from flashing to a steady light and self check begins.

③ Self check result display <Error history> (For the contents of the error code, refer to the units installation manual or service handbook.)

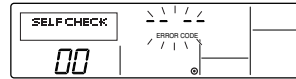


Error code 4 digits or error code 2 digits



Address 3 digits or unit address No. 2 digits

<When there is no error history>

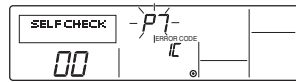


<When opposite side does not exist>

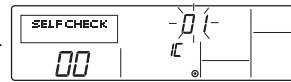


④ Error history reset

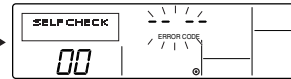
The error history is displayed in ③ Self check results display.



When the [ON/OFF] (D) button is pressed twice successively within three seconds, the self check address or refrigerant address flashes.



When the error history was reset, the display shown below appears. When error history reset failed, the error contents are displayed again.



⑤ Self check reset

There are the following two ways of resetting self check.

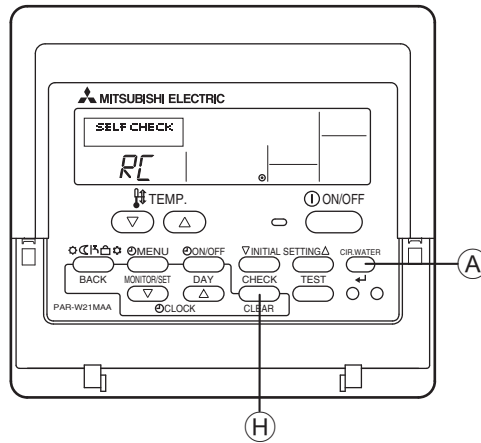
Press the [CHECK] (H) button twice successively within three seconds → Resets self check and returns to the state before self check.

Press the [ON/OFF] (D) button → Self check resets and units stop.

(When operation is prohibited, this operation is ineffective.)

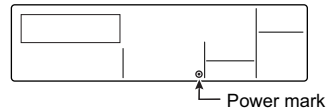
8 Remote Controller Check

When the unit cannot be controlled from the remote controller, use this function to check the remote controller.



① First check the power mark.

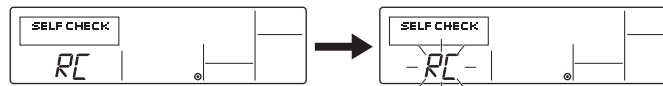
When normal voltage (DC12V) is not applied to the remote controller, the power mark goes off.
When the power mark is off, check the remote controller wiring and the unit.



② Switch to the remote controller check mode.

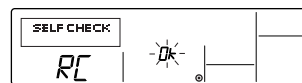
When the [CHECK] (H) button is held down for five seconds or longer, the display shown below appears.

When the [CIR. WATER] (A) button is pressed, remote controller check begins.



③ Remote controller check result

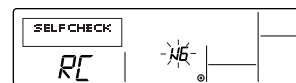
When remote controller is normal



Since there is no problem at the remote controller, check for other causes.

When remote controller is faulty

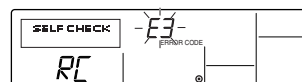
(Error display 1) "NG" flashes → Remote controller send/receive circuit abnormal



Remote controller switching is necessary.

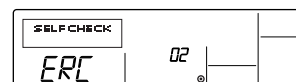
When the problem is other than the checked remote controller

(Error code 2) "E3" "6833" "6832" flash → Cannot send



There is noise on the transmission line, or the unit or another remote controller is faulty. Check the transmission line and the other remote controllers.

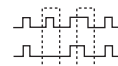
(Error display 3) "ERC" and data error count are displayed → Data error generation



"Data error count" is the difference between the number of bits of remote controller send data and the number of bits actually sent to the transmission line. In this case, the send data was disturbed by the noise, etc. Check the transmission line.

When data error count is 02

Remote controller send data
Send data on transmission line



④ Remote controller check reset

When the [CHECK] (H) button is held down for five seconds or longer, remote controller check resets and the "PLEASE WAIT" and RUN lamp flash. Approximately 30 seconds later, the remote controller returns to the state before remote controller check.



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