

# 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.

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.

Do not 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 cause damage to the component parts.

When installing the remote controller in a hospital or communication facility, take anti-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 affect communication equipment and prevent medical operations on the human body or interfere with image transmission and cause noise.

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:
- Remote controller (cover, body)
  - Cross recessed pan head screw (M4 x 30)
  - Wood screw (4.1 x 16, used for directly hooking to the wall)
  - Caution label (in 16 languages)
- Use the cable specified in the Installation Manual that comes with the units for remote controllers.

## 3 How To Install

1. Choose a place in which to install the remote controller (switch box). Be sure to observe the following steps:

- 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.
- Parts which must be supplied on site.
  - Switch box for two units
  - Thin-copper wiring pipe
  - Lock nut and bushing
  - Surface raceways

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 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.

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

When using the switch box: Seal the remote control cord lead-in hole with putty.

When installing directly on the wall: Seal around here with putty.

**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

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.

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 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.
- Before making a test run, refer to the "Test Run" section of the unit installation manual.
  - Press the [TEST] button twice successively within three seconds. Test run starts.
  - Stop the test run by pressing the [ON/OFF] button.
  - 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") (2) Operation mode skip setting ("SELECT MODE")	• Setting the range of operation limit (operation lock) • Setting the use or non-use of each operation mode
3. Mode selection ("MODE SELECTION")	(1) Remote controller main/sub setting ("CONTROLLER MAIN/SUB") (2) Use of clock setting ("CLOCK") (3) Timer function setting ("WEEKLY TIMER") (4) Contact number setting for error situation ("CALL") (5) Temp off set setting ("TEMP OFF SET FUNCTION")	• Selecting main or sub remote controller • When two remote controllers are connected to one group, one controller must be set to sub. • Setting the use or non-use of clock function • Setting the timer type • Contact number display in case of error • Setting the telephone number
4. Display change ("DISP MODE SETTING")	(1) Temperature display "C/F" setting ("TEMP MODE 'C/F'") (2) Water temperature display setting ("WATER TEMP DISP SELECT")	• Setting the temperature unit ("C" or "F") to display • 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 item 1. → (3) Select from item 2. → (4) Make the setting. (Details are specified in item 3) → (5) Setting completed. → (6) Change the display to the normal one. (End)

Normal display (Display when the air condition is not running)

(Hold down the [ON/OFF] button and press the [TEST] button for two seconds.)  
• The display cannot be changed during the unit function selection, the test run and the self diagnosis.

(Hold down the [ON/OFF] button and press the [TEST] button for two seconds.)  
• The remote controller records the setting that is made in this way.

NOTE: Timer operation stops when the display for remote controller function selection is changed to the normal one.

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.

[4]-2. Function limit: (1) Operation function limit setting (operation lock): To switch the setting, press the [ON/OFF] button. (2) Operation mode skip setting: To switch the setting, press the [ON/OFF] button. (3) OFF (Initial setting value): Operation lock setting is not made. (4) no: 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.

[4]-3. Mode selection setting: (1) Remote controller main/sub setting: To switch the setting, press the [ON/OFF] button. (2) Main: The controller will be the main controller. (3) 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.

[4]-4. Display change setting: (1) Temperature display "C/F" setting: To switch the setting, press the [ON/OFF] button. (1) ON: 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.

[4]-5. Temp off set setting: 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) 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.

(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.

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] button. To enter the water temperature initial setting, press and hold down the [INITIAL SETTING] button for three seconds or longer. (Any of 1 to 6 will be displayed.) Wait a while before the water temperature initial setting takes approximately 30 seconds to display after the [INITIAL SETTING] 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. (3) To select a water temperature initial setting from 1. to 6., press the [Mode (Back)] button.

1. Water temperature initial setting Water Temp Heating: (1) Water temperature display (2) Water temperature display (3) Outside air temperature display (4) Water temperature display (5) Outside air temperature display

2. Water temperature initial setting Water Temp Heating ECO No.1: (1) Water temperature display (2) Outside air temperature setting of Heating ECO No.2 must be higher than the Heating ECO No.1.

3. Water temperature initial setting Water Temp Heating ECO No.2: (1) Water temperature display (2) Outside air temperature display (3) Outside air temperature setting of Heating ECO No.2 must be higher than the Heating ECO No.1.

4. Water temperature initial setting Water Temp Hot Water: (1) Water temperature display (2) Water temperature display (3) Water temperature display (4) Water temperature display

5. Water temperature initial setting Water Temp Anti-freeze: (1) Water temperature display (2) Water temperature display (3) Water temperature display (4) Water temperature display

6. Water temperature initial setting Water Temp Cooling: (1) Water temperature display (2) Water temperature display (3) Water temperature display (4) Water temperature display

7. Water temperature initial setting Temp Off Set Heating: (1) Off amount display (2) Water temperature display (3) Water temperature display (4) Water temperature display

8. Water temperature initial setting Temp Off Set Cooling: (1) Off amount display (2) Water temperature display (3) Water temperature display (4) Water temperature display

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

1. Water Temp Heating: Sets the water temperature to [ ]°C when starting operation in Heating mode.

2. Water Temp Heating ECO No.1: Sets the water temperature to [ ]°C for an outside air temperature of [ ]°C when operating in Heating ECO mode.

3. Water Temp Heating ECO No.2: Sets the water temperature to [ ]°C for an outside air temperature of [ ]°C when operating in Heating ECO mode.

4. Water Temp Hot Water: Sets the water temperature to [ ]°C when starting operation in Hot Water mode.

5. Water Temp Anti-freeze: Sets the water temperature to [ ]°C when starting operation in Anti-freeze mode.

6. Water Temp Cooling: Sets the water temperature to [ ]°C when starting operation in Cooling mode.

7. Temp Off Set Heating: Sets the offset amount of the Heating system to [ ]°C.

8. Temp Off Set Cooling: Sets the offset amount of the Cooling system to [ ]°C.

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

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

Water Temp Hot Water (Heating, Heating ECO): 20°C - 80°C (68°F - 194°F) \*  
Water Temp Anti-freeze: 5°C - 45°C (41°F - 113°F) \*  
Water Temp Cooling: 5°C - 30°C (41°F - 87°F) \*  
Outside air temperature: -20°C - 40°C (-4°F - 104°F) \*  
Temp Off Set Heating (Cooling): -15°C - 15°C ( 5°F - 59°F) \*

\* 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] button for three seconds or longer. Alternatively, press the [ON/OFF] button.

(2) Interface (IF) 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 (IF) can be set. Change the setting when needed.

1. Interface (IF) option setting Heating system: (1) Stop the unit by pressing the [ON/OFF] button. (2) To enter the interface (IF) option setting, press the [INITIAL SETTING] button for three seconds or longer. (1, 2, or will be displayed.) Depending on the model of the unit to connect, the "Interface (IF) 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 (IF) option setting 1. or 2., press the [Mode (Back)] button.

2. Interface (IF) option setting Cooling system: (1) Lower limit value display: (2) Upper limit value display (3) Lower limit value display (4) Upper limit value display

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

Lower limit value setting: Defines the "4 mA/0 V" input as the "water temperature [ ]°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 [ ]°C" of the Heating, Hot Water, and Anti-freeze modes.

Lower limit value setting: Defines the "4 mA/0 V" input as the "water temperature [ ]°C" of the Cooling mode.

Upper limit value setting: Defines the "20 mA/10 V" input as the "water temperature [ ]°C" of the Cooling mode.

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

5. To set the upper/lower limit value, press the [TEMP. (V) or (Δ)] (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 (IF) option setting, press the [INITIAL SETTING] button for three seconds or longer. Alternatively, press the [ON/OFF] button.

(3) Remote controller check reset: When the [CHECK] 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.

(4) When data error count is 0: Remote controller send data. Send data on transmission line.

## 7 Self Check

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

1. Switch to the self check mode. When the [CHECK] button is pressed twice successively within three seconds, the display shown below appears.

2. Set the address or refrigerant address No. you want to self check. When the [TEMP. (V) or (Δ)] 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.

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

When the [ON/OFF] button is pressed twice successively within three seconds, the self check address or unit address is displayed. When the error history was reset, the display shown below appears. When error history reset failed, the error contents are displayed again.

4. Error history reset: The error history is displayed in 3. Self check results display. When the [ON/OFF] button is pressed twice successively within three seconds, the self check address or refrigerant address is displayed. 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] button twice successively within three seconds → Resets self check and returns to the state before self check. Press the [ON/OFF] button → Self check resets and units stop. (When operation is prohibited, this operation is ineffective.)

Self check address or self check refrigerant address

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

When the [ON/OFF] button is pressed twice successively within three seconds, the self check address or unit address No. 2 digits

When the [ON/OFF] button is pressed twice successively within three seconds, the self check address or unit address No. 2 digits

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## 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 [CIR.WATER] button is pressed, remote controller check begins. When the [CHECK] button is held down for five seconds or longer, the display shown below appears.

3. Remote controller check result: (When remote controller is normal) (When remote controller is faulty) (Data error display 1) "NG" flashes → Remote controller send/receive circuit abnormal. (When remote controller switching is necessary.)

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

Remote controller switching is necessary.

(When the problem is other than the checked remote controller) (Error code 2) "E3" "6833" "6832" flash → Cannot send. (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.

(4) When data error count is 0: Remote controller send data. Send data on transmission line.

4. Remote controller check reset: When the [CHECK] 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.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG. 2-7-3, MARUNOUCHI, CHYODA-KU, TOKYO 100-8310, JAPAN

Authorized representative in EU: MITSUBISHI ELECTRIC EUROPE B.V. HARMAN HOUSE, 1 GEORGE STREET, UXBIDGE, MIDDLESEX UB8 1QQ, U.K.