

CITY MULTI Control System

MA Remote Controller PAR-30MAAU

Installation Manual

For distribution to dealers and contractors

This installation manual describes how to install the MA Remote Controller for use with Mitsubishi Building Air Conditioning System, direct expansion type CITY MULTI air conditioner indoor units ("A" type and later).

Please be sure to read this installation manual, Initial Setting Manual, and Instruction Book that are supplied with the Remote Controller before proceeding with the installation. Failure to follow the instructions may result in equipment damage.

For information on how to wire and install the air conditioning units, refer to the installation manual.

After the installation, hand over this manual to users.

1 Safety Precautions

- Thoroughly read the following safety precautions prior to installation.
- Observe these precautions carefully to ensure safety.

 WARNING	Indicates a risk of death or serious injury.
 CAUTION	Indicates a risk of serious injury or structural damage.

- After reading this manual, pass it on to the end user to retain for future reference.
- Keep this manual for future reference and refer to it as necessary. This manual should be made available to those who repair or relocate the controller. Make sure that the manual is passed on to any future users.

All electric work must be performed by qualified personnel.

General precautions

WARNING

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.

To reduce the risk of shorting, current leakage, electric shock, malfunctions, smoke, or fire, do not wash the controller with water or any other liquid.

To reduce the risk of electric shock, malfunctions, smoke or fire, do not operate the switches/buttons or touch other electrical parts with wet hands.

To reduce the risk of injury or electric shock, before spraying a chemical around the controller, stop the operation and cover the controller.

To reduce the risk of injury or electric shock, stop the operation and switch off the power supply before cleaning, maintaining, or inspecting the controller.

Properly install all required covers to keep moisture and dust out of the controller. Dust accumulation and water can cause electric shock, smoke, or fire.

To reduce the risk of injury, keep children away while installing, inspecting, or repairing the controller.

CAUTION

To reduce the risk of fire or explosion, do not place flammable materials or use flammable sprays around the controller.

To reduce the risk of damage to the controller, do not directly spray insecticide or other flammable sprays on the controller.

To reduce the risk of electric shock or malfunctions, do not touch the touch panel, switches, or buttons with a pointy or sharp object.

To reduce the risk of injury and electric shock, avoid contact with sharp edges of certain parts.

To avoid injury from broken glass, do not apply excessive force on the glass parts.

To reduce the risk of injury, wear protective gear when working on the controller.

Precautions during installation

⚠ WARNING

Do not install the controller where there is a risk of leaking flammable gas. If flammable gas accumulates around the controller, it may ignite and cause a fire or explosion.

Properly dispose of the packing materials. Plastic bags pose suffocation hazard to children.

Take appropriate safety measures against earthquakes to prevent the controller from causing injury.

To prevent injury, install the controller on a flat surface strong enough to support its weight.

⚠ CAUTION

To reduce the risk of shorting, current leakage, electric shock, malfunctions, smoke, or fire, do not install the controller in a place exposed to water or in a condensing environment.

Controller must be installed by qualified personnel according to the instructions detailed in the Installation Manual. Improper installation may result in electric shock or fire.

When attaching the cover and the top casing to the bottom casing, push it until it they click into place. If they are not properly locked into place, they may fall, causing personal injury, controller damage, or malfunctions.

Precautions during wiring

⚠ WARNING

To reduce the risk of damage to the controller, malfunctions, smoke, or fire, do not connect the power cable to the signal terminal block.

Properly secure the cables in place and provide adequate slack in the cables so as not to stress the terminals. Improperly connected cables may break, overheat, and cause smoke or fire.

To reduce the risk of injury or electric shock, switch off the main power before performing electrical work.

All electric work must be performed by a qualified electrician according to the local regulations, standards, and the instructions detailed in the Installation Manual. Capacity shortage to the power supply circuit or improper installation may result in malfunction, electric shock, smoke, or fire.

To reduce the risk of current leakage, overheating, smoke, or fire, use properly rated cables with adequate current carrying capacity.

⚠ CAUTION

To reduce the risk of electric shock, shorting, or malfunctions, keep wire pieces and sheath shavings out of the terminal block.

To reduce the risk of shorting, current leakage, electric shock, or malfunctions, keep the cables out of contact with controller edges.

To reduce the risk of electric shock, malfunctions, or fire, seal the gap between the cables and cable access holes with putty.

Precautions for moving or repairing the controller

⚠ WARNING

The controller should be repaired or moved only by qualified personnel. Do not disassemble or modify the controller. Improper installation or repair may cause injury, electric shock, or fire.

⚠ CAUTION

To reduce the risk of shorting, electric shock, fire, or malfunction, do not touch the circuit board with tools or with your hands, and do not allow dust to accumulate on the circuit board.

Additional precautions

To avoid damage to the controller, use appropriate tools to install, inspect, or repair the controller.

This controller is designed for exclusive use with the Building Management System by Mitsubishi Electric. The use of this controller for with other systems or for other purposes may cause malfunctions.

Take appropriate measures against electrical noise interference when installing the air conditioners in hospitals or facilities with radio communication capabilities. Inverter, high-frequency medical, or wireless communication equipment as well as power generators may cause the air conditioning system to malfunction. Air conditioning system may also adversely affect the operation of these types of equipment by creating electrical noise.

To avoid malfunctions, do not bundle power cables and signal cables together, or place them in the same metallic conduit.

To prevent malfunctions, do not remove the protective film or the circuit board from the casing.

To avoid damage to the controller, do not overtighten the screws.

Use a flat-head screwdriver with a blade width of 4-7 mm (5/32-9/32 inch). The use of a screwdriver with a narrower or wider blade tip may damage the controller casing.

To prevent damage to the controller casing, do not force the driver to turn with its tip inserted in the slot.

To avoid discoloration, do not use benzene, thinner, or chemical rag to clean the controller. To clean the controller, wipe with a soft cloth soaked in water with mild detergent, wipe off the detergent with a wet cloth, and wipe off water with a dry cloth.

To avoid damage to the controller, provide protection against static electricity.

Do not use solderless terminals to connect cables to the terminal block. Solderless terminals may come in contact with the circuit board and cause malfunctions or damage the controller cover.

To avoid damage to the controller, do not make holes on the controller cover.

To avoid deformation and malfunction, do not install the remote controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).

Do not install the controller on the control panel door. Vibrations or shocks to the controller may damage the controller or cause the controller to fall.

Hold the cables in place with clamps to prevent undue force from being applied to the terminal block and causing cable breakage.

To prevent cable breakage and malfunctions, do not hang the top controller casing hang by the cable.

2 Component names and supplied parts

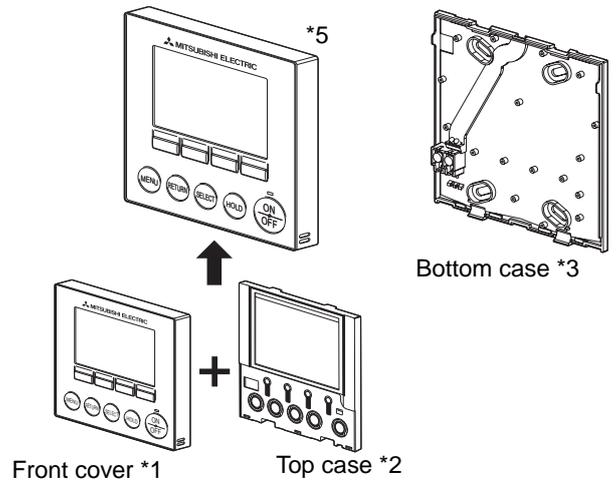
The following parts are included in the box.

Parts name	Qty.	Appearance
Remote controller (front cover)	1	Right figure *1
Remote controller (top case)	1	Right figure *2
Remote controller (bottom case)	1	Right figure *3
Roundhead cross slot screws M4×30	2	*4
Wood screw 4.1×16 (for direct wall installation)	2	*4
Installation Manual (this manual)	1	
Instruction Book	1	
Initial Setting Manual	1	

*4 ISO metric screw thread

*5 The front cover (*1) is already installed on the top case (*2) at factory shipment.

*6 Remote controller cable is not included.



3 Field-supplied parts/Required tools

(1) Field-supplied parts

The following parts are field-supplied parts.

Parts name	Qty.	Notes
Double switch box	1	Not required for direct wall installation
Thin metal conduit	Necessary	
Lock nut and bushing	Necessary	
Cable cover	Necessary	Required for routing remote controller cable along a wall
Putty	Reasonable	
Molly anchor	Necessary	
Remote controller cable (Use a 0.3 mm ² (AWG22) 2-core sheathed cable.)	Necessary	

(2) Field-supplied tools

- Flat-tip screwdriver (Width: 4-7 mm (5/32-9/32 inch))
- Knife or Nipper
- Miscellaneous tools

4 Selecting an installation site

This remote controller is for the wall installation. It can be installed either in the switch box or directly on the wall. When performing direct wall installation, wires can be thread through either back or top of the remote controller.

(1) Selecting an installation site

Install the remote controller (switch box) on the site where the following conditions are met.

- For connection to the indoor unit with an Auto descending panel, a place where people can check the Auto descending panel operation of the indoor unit while they are operating the remote controller (Refer to the indoor unit Instructions Book for how to operate Auto descending panel.)
- A flat surface
- A place where the remote controller can measure the accurate indoor temperature

Sensors to monitor indoor temperature are on the indoor unit and on the remote controller. When the room temperature is monitored with the sensor on the remote controller, the main remote controller monitors the room temperature. When using the sensor on the remote controller, follow the instructions below.

- To monitor the accurate indoor temperature, install the remote controller away from direct sunlight, heat sources, and the supply air outlet of the air conditioner.
- Install the remote controller in a location that allows the sensor to measure the representative room temperature.
- Install the remote controller where no wires are routed around the temperature sensor on the controller.
(If wires are routed, the sensor cannot measure accurate indoor temperature.)

Important

Do not install the controller in a place where the difference between the remote controller surface temperature and the actual room temperature will be great.
If the temperature difference is too high, room temperature may not be adequately controlled.

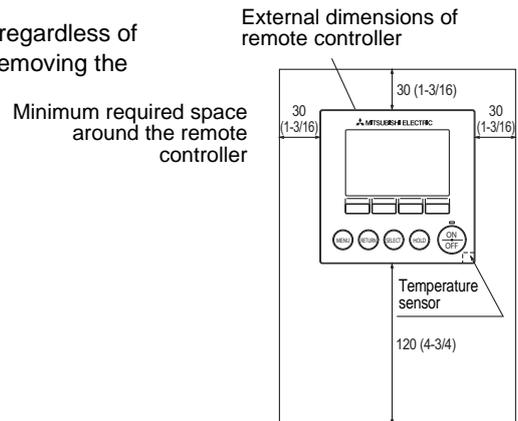
To reduce the risk of shorting, current leakage, electric shock, malfunctions, smoke, or fire, do not install the controller in a place exposed to water or in a condensing environment.

To avoid deformation and malfunction, do not install the remote controller in direct sunlight or where the ambient temperature may exceed 40°C (104°F) or drop below 0°C (32°F).

(2) Installation space

Leave a space around the remote controller as shown in the figure at right, regardless of whether the controller is installed in the switch box or directly on the wall. Removing the remote controller will not be easy with insufficient space.

Also, leave an operating space in front of the remote controller.



unit: mm(in)

5 Installation/Wiring work

(1) Installation work

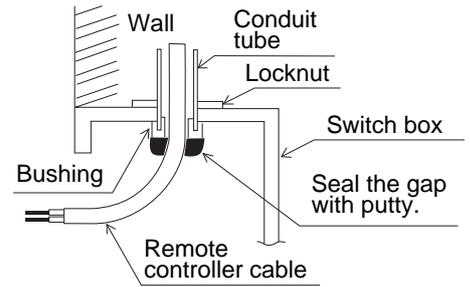
Controller can be installed either in the switch box or directly on the wall. Perform the installation properly according to the method.

① Drill a hole in the wall.

- Installation using a switch box
 - Drill a hole in the wall, and install the switch box on the wall.
 - Connect the switch box to the conduit tube.
- Direct wall installation
 - Drill a hole in the wall, and thread the cable through it.

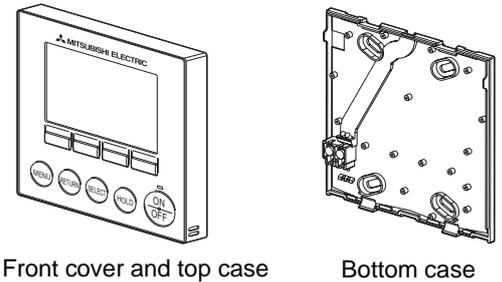
② Seal the cable access hole with putty

- Installation using a switch box
 - Seal the remote controller cable access hole at the connection of switch box and conduit tube with putty.



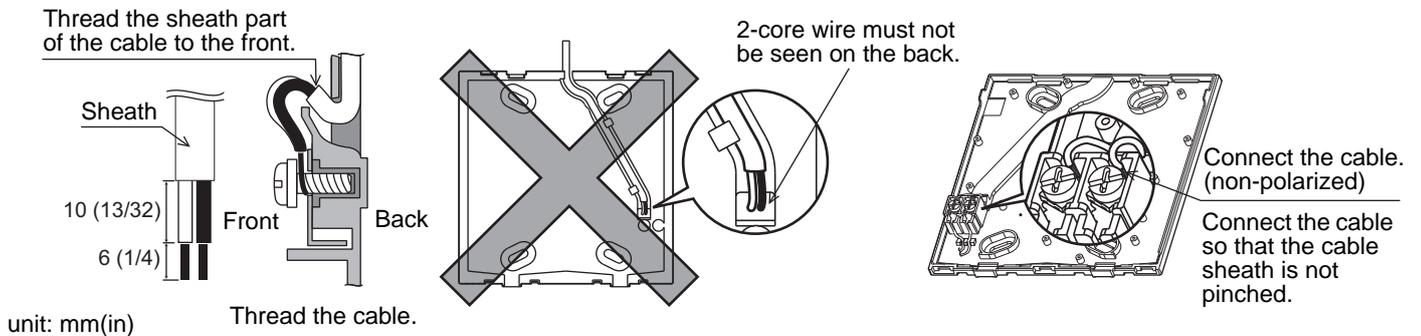
To reduce the risk of electric shock, malfunctions, or fire, seal the gap between the cables and cable access holes with putty.

③ Prepare the bottom case of the remote controller.



④ Connect the remote controller cable to the terminal block on the bottom case.

Peel off 6 mm (1/4 inch) of the remote controller cable sheath as shown in the figure below, and thread the cable from behind the bottom case. Thread the cable to the front of the bottom case so that the peeled part of the cable cannot be seen behind the bottom case. Connect the remote controller cable to the terminal block on the bottom case.

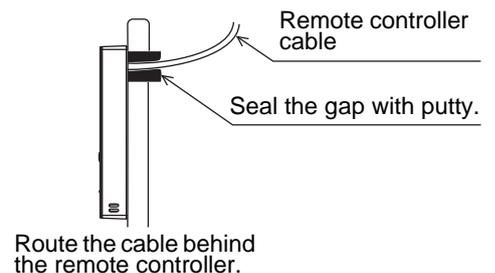


- Direct wall installation
 - Seal the hole through which the cable is threaded with putty.

To reduce the risk of electric shock, shorting, or malfunctions, keep wire pieces and sheath shavings out of the terminal block.

Important

Do not use solderless terminals to connect cables to the terminal block. Solderless terminals may come in contact with the circuit board and cause malfunctions or damage the controller cover.



⑤ Install the bottom case.

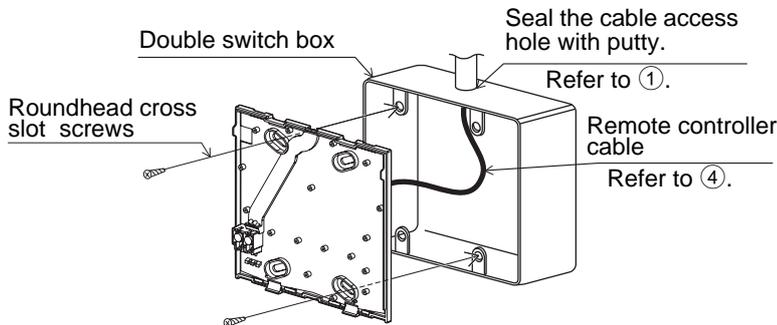
■ Installation using a switch box

- Secure at least two corners of the switch box with screws.

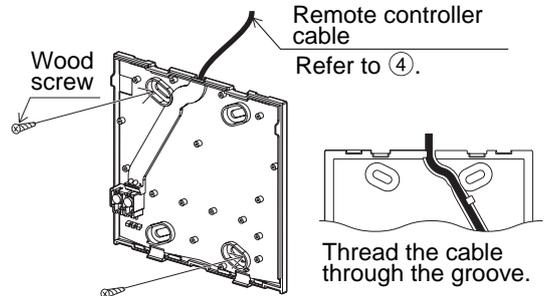
■ Direct wall installation

- Thread the cable through the groove.
- Secure at least two corners of the remote controller with screws.
- Be sure to secure top-left and bottom-right corners of the remote controller (viewed from the front) to prevent it from lifting. (Use molly anchor etc.)

■ Installation using a switch box



■ Direct wall installation



Important

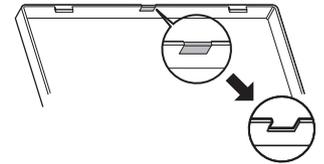
To avoid damage to the controller, do not overtighten the screws.

To avoid damage to the controller, do not make holes on the controller cover.

⑥ Cut out the cable access hole.

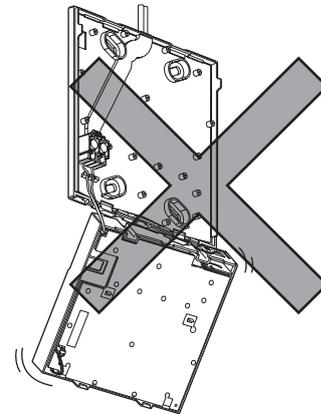
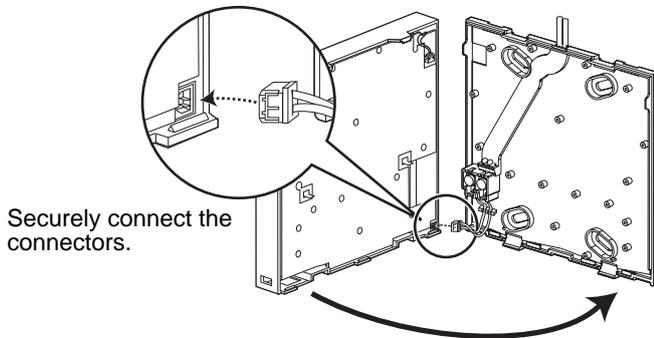
■ Direct wall installation (when running the cable along the wall)

- Cut out the thin-wall part on the cover (indicated with diagonal lines in the right figure) with a knife or a nipper.
- Thread the cable from the groove behind the bottom case through this access hole.



⑦ Route the wire to the top case.

Connect the connector on the bottom case to the connector on the top case.



Important

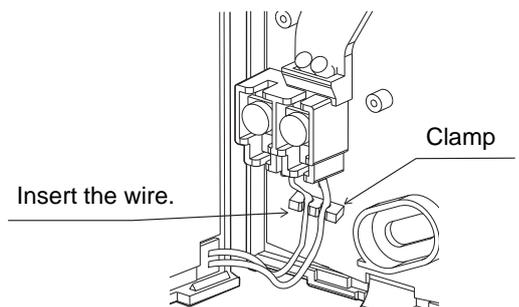
To prevent malfunctions, do not remove the protective film or the circuit board from the casing.

To prevent cable breakage and malfunctions, do not hang the top controller casing hang by the cable.

⑧ Route the wire to the top case.

Important

Hold the cables in place with clamps to prevent undue force from being applied to the terminal block and causing cable breakage.



⑨ **Install the front cover and top case on the bottom case.**

Two mounting tabs are at the top of the top case. (A cover is already installed on the case at the time of factory shipment.) Hook those two tabs onto the bottom case, and click the top case into place. Check that the case is securely installed and not lifted.

Important

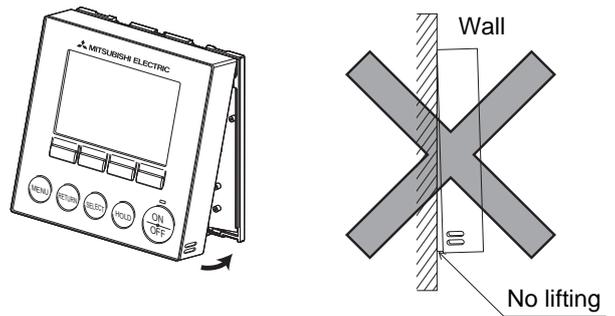
When attaching the cover and the top casing to the bottom casing, push it until it they click into place. If they are not properly locked into place, they may fall, causing personal injury, controller damage, or malfunctions.

■ **Direct wall installation (when running the cable along the wall)**

- Thread the cable through the access hole at the top of the remote controller.
- Seal the cut-out part of the cover with putty.
- Use a cable cover.

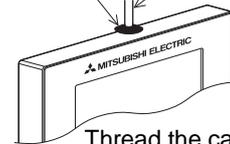
Installation is complete.

Follow the instructions below when uninstalling them.



Seal the gap with putty.

Use a cable cover.

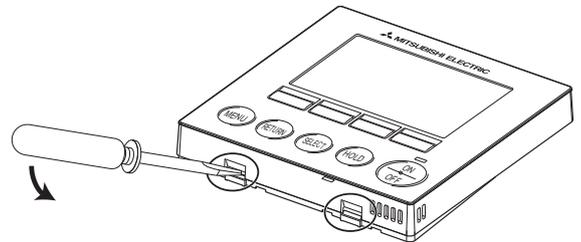


Thread the cable through the top of the remote controller.

• **Uninstalling the front cover and top case**

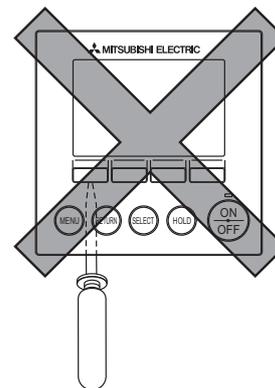
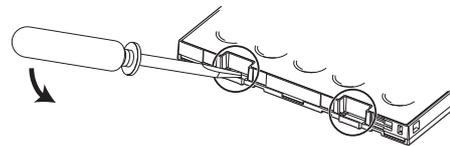
① **Uninstalling the front cover**

Insert a flat-tip screwdriver into either of the two latches at the bottom of the remote controller, and move it in the direction of the arrow as shown in the figure at right.



② **Uninstalling the top case**

Insert a flat-tip screwdriver into either of the two latches at the bottom of the remote controller, and move it in the direction of the arrow as shown in the figure at right.



Important

Use a flat-head screwdriver with a blade width of 4-7 mm (5/32-9/32 inch). The use of a screwdriver with a narrower or wider blade tip may damage the controller casing.

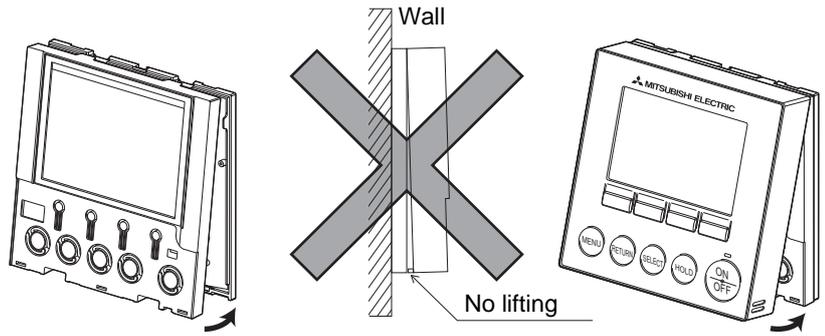
To prevent damage to the controller casing, do not force the driver to turn with its tip inserted in the slot.

To prevent damage to the control board, do not insert the driver into the slot strongly.

- ③ Installing the cover and top case
 Two mounting tabs are at the top of the top case.
 Hook those two tabs onto the bottom case, and
 click the top case into place.
 Install the cover on the top case in the same way
 as with the top case.
 Check that the top case is securely installed and
 not lifted.

Important

When attaching the cover and the top casing to the bottom casing, push it until it they click into place. If they are not properly locked into place, they may fall, causing personal injury, controller damage, or malfunctions.



6 Important

■ Discrepancy between the indoor temperature measured at the wall and the actual indoor temperature may occur.

If the following conditions are met, the use of the temperature sensor on the indoor unit is recommended.

- Supply air does not reach to the wall easily where the remote controller is installed due to improper airflow distribution.
- There is a great discrepancy between the wall temperature and the actual indoor temperature.
- The back side of the wall is directly exposed to the outside air.

Note: When temperature changes rapidly, the temperature may not be detected accurately.

■ Refer to the following manual for temperature sensor setting: indoor unit Installation Manual for City Multi.

- ### ■ At the time of factory shipment, protective sheet is on the operation interface of the front cover. Peel off the protective sheet on the operation interface prior to use.