



CITY MULTI

Air-Conditioners For Building Application
OUTDOOR UNIT
BASE HEATER
PAC-BH04EHT-E

INSTALLATION MANUAL

For safe and correct use, please read this installation manual thoroughly before installing the air-conditioner unit.

MANUEL D'INSTALLATION

Veuillez lire le manuel d'installation en entier avant d'installer ce climatiseur pour éviter tout accident et vous assurer d'une utilisation correcte.

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- * For information not contained in this booklet, please refer to the Installation Manual of the outdoor unit.
- To use this base heater, it is required to have the genuine Relay Box manufactured by Mitsubishi Electric.
- Consult your dealer for purchasing the Relay Box.
- This base heater must be used in combination with the Relay Box.
- Do not connect the wrong Relay Box. Only the following two models can be connected to this heater.
PAC-BH01KTT-E: U.S./Canada/South America (3-phase 3-wire 208-230 V 60 Hz)
PAC-BH02KTY-E: Europe (3-phase 4-wire 380-415 V 50/60 Hz)
- Refer to the Installation Manual of the Relay Box for how to install this base heater and the Relay Box.

1. Safety precautions

1.1. Before installation and electric work

- ▶ Before installing the unit, make sure you read all the "Safety precautions".
- ▶ The "Safety precautions" provide very important points regarding safety. Make sure you follow them.

Symbols used in the text

 **Warning:**
Describes precautions that should be observed to prevent danger of injury or death to the user.

 **Caution:**
Describes precautions that should be observed to prevent damage to the unit.

Symbols used in the illustrations

-  : Indicates an action that must be avoided.
-  : Indicates that important instructions must be followed.
-  : Indicates a part which must be grounded.
-  : Beware of electric shock. (This symbol is displayed on the main unit label.)
<Color: yellow>

 **Warning:**
Carefully read the labels affixed to the main unit.

HIGH VOLTAGE WARNING:

- Control box houses high-voltage parts.
- When opening or closing the front panel of the control box, do not let it come into contact with any of the internal components.
- Before inspecting the inside of the control box, turn off the power, keep the unit off for at least 10 minutes, and confirm that the voltage between FT-P and FT-N on INV Board has dropped to DC20V or less. (It takes about 10 minutes to discharge electricity after the power supply is turned off.)

Only TKMU series

- Before inspecting the inside of the control box, turn off the power, keep the unit off for at least 10 minutes, and confirm that the capacitor voltage (inverter main circuit) has dropped to 20 VDC or less. (It takes about 10 minutes to discharge electricity after the power supply is turned off.)
- Control box houses high temperature parts. Be well careful even after turning off the power source.
- Perform the service after disconnecting the fan board connector (CNINV) and the inverter board connector (CN1 or CNFAN). (To plug or unplug connectors, check that the outdoor unit fan is not rotating and that the voltage of capacitor in the main circuit is 20 VDC or below. The capacitor may collect a charge and cause an electric shock when the outdoor unit fan rotates in windy conditions. Refer to the wiring nameplate for details.)
- To connect wiring to TB7, check that the voltage is 20 VDC or below.
- Reconnect the connector (CNINV) back to the fan board and reconnect the connector (CN1 or CNFAN) back to the inverter board after servicing.

Warning:

- Ask the dealer or an authorized technician to install the air conditioner.
 - Improper installation by the user may result in water leakage, electric shock, or fire.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Use the specified cables for wiring. Make the connections securely so that the outside force of the cable is not applied to the terminals.
 - Inadequate connection and fastening may generate heat and cause a fire.
- Always use Relay Box and other accessories specified by Mitsubishi Electric.
 - Ask an authorized technician to install the accessories. Improper installation by the user may result in water leakage, electric shock, or fire.
- Never repair the unit. If the air conditioner must be repaired, consult the dealer.
 - If the unit is repaired improperly, water leakage, electric shock, or fire may result.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- To reduce the risk of electric shock, do not install the unit when it is raining.
- Never attempt to repair the unit without the proper qualifications. If the air conditioner must be repaired consult the dealer, contractor or qualified Refrigeration Engineer.
 - If the unit is repaired improperly, water leakage, electric shock, or fire may result.
- Have all electric work done by a licensed electrician according to the "Electric Facility Engineering Standard", the "Wire Regulations in each area" and the instructions given in this manual and always use a dedicated power supply.
 - If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.
- Securely install the outdoor unit terminal cover (panel).
 - If the terminal cover (panel) is not installed properly, dust or water may enter the outdoor unit and fire or electric shock may result.
- When moving and reinstalling the air conditioner, consult the dealer or an authorized technician.
 - If the air conditioner is installed improperly, water leakage, electric shock, or fire may result.
- Do not reconstruct or change the settings of the protection devices.
 - If the pressure switch, thermal switch, fuse, or other protection device is shorted or operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.
- To dispose of this product, consult your dealer.
- The installer and system specialist shall secure safety against leakage according to local regulation or standards.
 - Choose the appropriate wire size and the switch capacities for the main power supply described in this manual if local regulations are not available.
- Children should be supervised to ensure that they do not play with the appliance.

1.2. Before installation

Caution:

- Do not use the air conditioner in special environments.
 - Oil, steam, sulfuric smoke, etc. can significantly reduce the performance of the air conditioner or damage its parts.
- When installing the unit in a hospital, communication station, or similar place, provide sufficient protection against noise.

- Inverter equipment, private power generator, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate erroneously, or fail to operate. On the other hand, the air conditioner may affect such equipment by creating noise that disturbs medical treatment or image broadcasting.
- **To reduce the risk of injury, wear protective gear when working on the controller.**

1.3. Before installation (relocation) - electrical work

⚠ Caution:

- **Ground the unit.**
 - Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground lines. Improper grounding may result in electric shock.
- **Install the power cable so that tension is not applied to the cable.**
 - Tension may cause the cable to break and generate heat and cause a fire.
- **Install a leak circuit breaker, as required.**
 - If a leak circuit breaker is not installed, electric shock may result.
- **Use power line cables of sufficient current carrying capacity and rating.**
 - Cables that are too small may leak, generate heat, and cause a fire.
- **Use only a circuit breaker and fuse of the specified capacity.**
 - A fuse or circuit breaker of a larger capacity, or the use of a substitute simple steel or copper wire may result in a general unit failure or fire.
- **Be careful that the installation base is not damaged by long use.**
 - If the damage is left uncorrected, the unit may fall and cause personal injury or property damage.
- **Do not touch the electrical parts with bare hands while the unit is in operation or immediately after operation.**
 - Doing so may result in burns.
- **If a large electric current flows due to malfunction or faulty wiring, earth-leakage breakers on the unit side and on the upstream side of the power supply system may both operate.**

Depending on the importance of the system, separate the power supply system or take protective coordination of breakers.
- **Stop the operation and turn off the power before cleaning.**
- **Do not wash the air conditioner units.**
 - Washing them may cause an electric shock.

- **Be very careful about transporting the product.**
 - One person should not carry the product. Its weight is in excess of 20 kg [45 LBS].
 - Some products use PP bands for packaging. Do not use any PP bands as a means of transportation. It is dangerous.
- **Safely dispose of the packing materials.**
 - Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.
 - Tear apart and throw away plastic packaging bags so that children will not play with them. If children play with a plastic bag which has not been torn apart, they face the risk of suffocation.
- **Never connect in reverse phases.**
- **Install the power cable so that tension is not applied to the cable.**

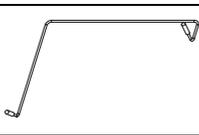
1.4. Before starting the test run

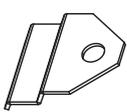
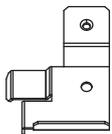
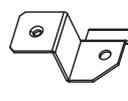
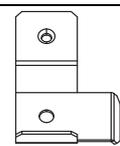
⚠ Caution:

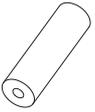
- **Turn on the power at least 12 hours before starting operation.**
 - Starting operation immediately after turning on the main power switch can result in irreversible damage to internal parts. Keep the power switch turned on during the operational season. Make sure of the phase order of power supply and voltage between each phase.
- **Do not touch the switches with wet fingers.**
 - Touching a switch with wet fingers can result in an electric shock.
- **Do not touch the refrigerant pipes during and immediately after operation.**
 - During and immediately after operation, the refrigerant pipes may be hot or cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes.
- **Do not operate the air conditioner with the panels and guards removed.**
 - Rotating, hot, or high-voltage parts can cause injuries.
- **Do not turn off the power immediately after stopping operation.**
 - Always wait at least 5 minutes before turning off the power. Otherwise, drainage water leakage or mechanical failure of sensitive parts may occur.

2. Parts List

This kit contains the following parts.

Parts name	Base Heater
Shape	
Qty.	1

Parts name	* Heater mounting brackets			
	①	②	③	④
Stamp name	-	S2	S3	S4
Shape				
Qty.	1	1	1	1

Parts name	M5 screw	Cable tie (black)	Pipe cover	Installation Manual
Shape				
Qty.	6 (2 for spare)	5	1	1

* Use proper mounting brackets according to the outdoor unit model. Refer to the Installation Manual of the Relay Box.

3. Applicable models

Refer to a separate quick reference unit model chart that came with the Relay box.

4. Preparation for installation

- To use this base heater, it is required to have the genuine Relay Box (hereinafter referred to as "Relay Box") manufactured by Mitsubishi Electric.
- Do not connect the wrong Relay Box. Only the following two models can be connected to this heater.
PAC-BH01KTT-E: U.S./Canada/South America (3-phase 3-wire 208-230 V 60 Hz)
PAC-BH02KTY-E: Europe (3-phase 4-wire 380-415 V 50/60 Hz)
- Refer to the Installation Manual of the Relay Box for how to install this base heater and the Relay Box.
- This base heater and the Relay Box must be installed by a dealer or certified technician.

Specifications of the outdoor unit base heater

Output	[W]	122 (208)/150 (230)
	[W/m]	89 (208)/109 (230)
Power supply voltage	[V]	208, 230
Heater length [mm (inch)]		1378 (54.3)
Heater diameter [mm (inch)]		ø8 (ø0.32)

- The following tools are required to install the base heater. These are field-supplied.
 - Phillips screwdriver (magnetic tip): Use to remove or install panels.
 - Phillips screwdriver (Minimum 40 cm, magnetic tip): Use to install or uninstall the mounting brackets.
 - Ratchet, spanner: Use to install or uninstall the mounting brackets.
 - Threaded rod (Minimum 60 cm, M5): Use to install the mounting brackets to the base.
 - Nippers: Use to cut cable ties.
 - Tester: Use to check the base heater for proper operation.
 - Gloves: Use to keep your hands out of direct contact with the heat exchanger fins, hot section, etc.
 - Helmet or cap: Use to keep your head protected when you bump your head against the outdoor unit fan motor.
 - Head light: Use when it is too dark to see the bracket mounting area.
- Check that the main power on the outdoor unit is turned off.
- Base heater installation requires many screws to be unscrewed. Do not lose these screws.
- Thoroughly remove the dust from the base of the unit.

Refer to the Installation Manual of the Relay Box for how to install this base heater and the Relay Box.

This product is designed and intended for use in the residential,
commercial and light-industrial environment.

Please be sure to put the contact address/telephone number on
this manual before handing it to the customer.

MITSUBISHI ELECTRIC CORPORATION

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