

## TECHNICAL DATA

# Air-to-Water INDOOR UNIT

**R410A**



### Indoor Unit

Type	Indoor Unit Type	Rated Capacity	
		80	125
W1	Air-to-Water	S-80MW1E5	S-125MW1E5

### ● Connectable outdoor unit lineup

This document is the TECHNICAL DATA of the indoor unit.

For outdoor unit, refer to the TECHNICAL DATA of the outdoor unit.

Type	Outdoor Unit Type	8 HP	10 HP	12 HP	14 HP	16 HP
MF2	3WAY VRF System	U-8MF2E8	U-10MF2E8	U-12MF2E8	U-14MF2E8	U-16MF2E8
MF3	3WAY VRF System	U-8MF3E8	U-10MF3E8	U-12MF3E8	U-14MF3E8	U-16MF3E8

## IMPORTANT!

### Please Read Before Starting

This Air-to-Water must be installed by the sales dealer or installer.

This information is provided for use only by authorized persons.

Be sure to read the installation instructions relevant to the VRF system connected to this Air-to-Water and all appliances connected to the VRF system.

#### For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- This Air-to-Water shall be installed in accordance with National Wiring Regulations.
- For water circuit installation work, follow to relevant European and national regulations (including EN61770) and local plumbing and building regulation.
- The unit is only for use in a closed water system. Utilization in an open water circuit may lead to excessive corrosion of water piping and risk of incubating bacteria colonies, particularly Legionella, in water.
- Pay close attention to all warning and caution notices given in this manual.



#### WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



#### CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

#### If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

#### In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.



#### WARNING

Do not modify the wiring of indoor/outdoor unit for installation of other components (i.e. heater, etc). Overloaded wiring or wire connection points may cause electrical shock or fire.



#### CAUTION

Do not apply excessive force to water pipes that may damage the pipes. If water leakage occurs, it will cause flooding and damage to other properties.

Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

## SPECIAL PRECAUTIONS



### WARNING When Wiring



**ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Provide a power outlet to be used exclusively for each unit.
- Provide a power outlet exclusively for each unit, and full disconnection means having a contact separation in all poles must be incorporated in the fixed wiring in accordance with the wiring rules.
- To prevent possible hazards from insulation failure, the unit must be grounded. 
- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

### When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner or Air-to-Water can cut your fingers.

## When Installing...

Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.

### ...In a Room

Properly insulate any tubing run inside a room to prevent “sweating” that can cause dripping and water damage to walls and floors.



### CAUTION

Keep the fire alarm and the air outlet at least 1.5 m away from the unit.

### ...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

### ...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

### ...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

### ...In laundry rooms

Do not install in laundry rooms. Indoor unit is not drip proof.

## When Connecting Refrigerant Tubing

Pay particular attention to refrigerant leakages.

### ⚠ WARNING

- When performing piping work, do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.
- If the refrigerant comes in contact with a flame, it produces a toxic gas.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury, etc.

- Ventilate the room immediately, in the event that is refrigerant gas leaks during the installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of toxic gas.
- Keep all tubing runs as short as possible.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.
- Do not leak refrigerant while piping work for an installation or re-installation, and while repairing refrigeration parts. Handle liquid refrigerant carefully as it may cause frostbite.

## When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring. 
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal chips or bits of wiring have been left inside the unit.

### ⚠ WARNING

- This product must not be modified or disassembled under any circumstances. Modified or disassembled unit may cause fire, electric shock or injury.
- Do not clean inside the indoor and outdoor units by users. Engage authorized dealer or specialist for cleaning.
- In case of malfunction of this appliance, do not repair by yourself. Contact the sales dealer or service dealer for repair.

**⚠ CAUTION**

- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Ventilate any enclosed areas when installing or testing the refrigeration system. Leaked refrigerant gas, on contact with fire or heat, can produce dangerous toxic gas.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of toxic gas.

**Others**

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**⚠ CAUTION**

- Do not sit or step on the unit, you may fall down accidentally. 
- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Do not stick any object into the FAN CASE. You may be injured and the unit may be damaged.   


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## 1. Electrical Wiring

### 1-1. General Precautions on Wiring

- (1) Before wiring, confirm the rated voltage of the unit as shown on its nameplate, then carry out the wiring closely following the wiring diagram.
- (2) Provide a power outlet to be used exclusively for each unit, and a power supply disconnect and circuit breaker for overcurrent protection should be provided in the exclusive line.
- (3) To prevent possible hazards from insulation failure, the unit must be grounded.
- (4) Each wiring connection must be done in accordance with the wiring system diagram. Wrong wiring may cause the unit to misoperate or become damaged.
- (5) Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- (6) Unauthorized changes in the internal wiring can be very dangerous. The manufacturer will accept no responsibility for any damage or misoperation that occurs as a result of such unauthorized changes.
- (7) Regulations on wire diameters differ from locality to locality. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning.  
You must ensure that installation complies with all relevant rules and regulations.
- (8) To prevent malfunction of the Air-to-Water caused by electrical noise, care must be taken when wiring as follows:
  - The remote control wiring and the inter-unit control wiring should be wired apart from the inter-unit power wiring.
  - Use shielded wires for inter-unit control wiring between units and ground the shield on both sides.
  - Use shielded wires for remote control wiring between units and ground the shield on indoor unit's side.
- (9) If the power supply cable of this appliance is damaged, it must be replaced by a repair shop appointed by the manufacturer, because special-purpose tools are required.

### 1-2. Recommended Wire Length and Wire Diameter for Power Supply System

Power supply	(A) Power supply cable	
	Minimum power supply cables Ⓛ Ⓝ ⊕	Length (m) <sup>*1</sup>
220/230/240V~	2 mm <sup>2</sup>	Max. 130

Leakage current breaker	Circuit breaker (Minimum capacity)	
	Switch	Fuse
20A	20A	20A

(B) Inter-unit (between outdoor and indoor units) control wiring	
Control wiring Ⓛ1 Ⓛ2	Length (m)
0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring <sup>*2</sup>	Max. 1000

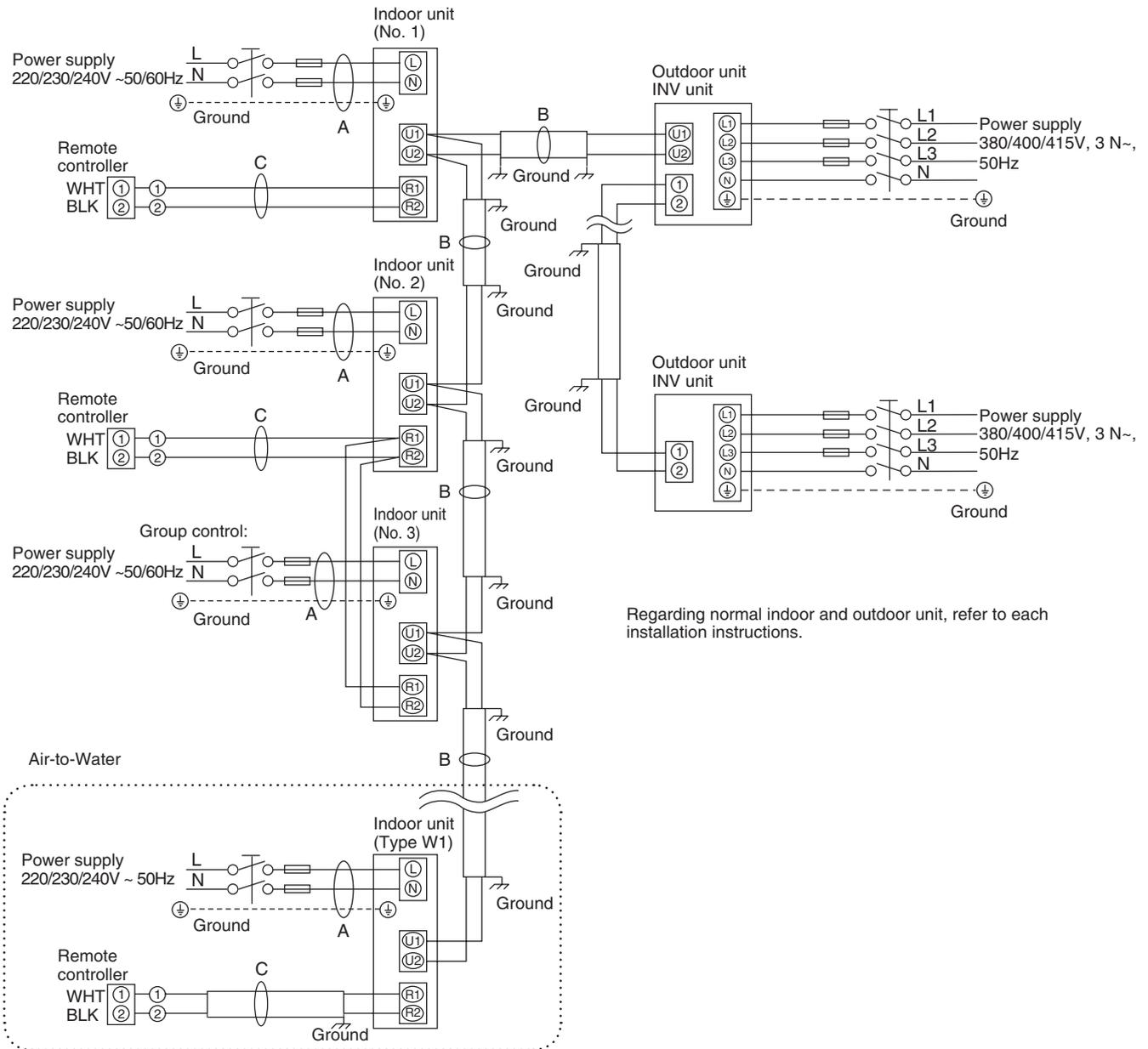
(C) Remote control wiring	
Remote control wiring Ⓛ1 Ⓛ2	Length (m)
0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring <sup>*2</sup>	Max. 500

\*1 This maximum length shows a 2% voltage drop

\*2 With ring-type wire terminal  
Only for Air-to-Water unit

# 1. Electrical Wiring

## 1-3. Wiring System Diagram



Regarding normal indoor and outdoor unit, refer to each installation instructions.

### NOTE

- (1) Refer to "1-2. Recommended Wire Length and Wire Diameter for Power Supply System" for the explanation of "A", "B" and "C" in the above diagram.
- (2) The layout of terminal boards in your equipment may differ from the diagram. Be sure to confirm the actual terminal boards.
- (3) Refrigerant Circuit (R.C.) address should be set before turning the power on.
- (4) Regarding R.C. address setting, refer to the installation instructions supplied with the outdoor unit. Auto address setting can be executed by remote controller automatically.
- (5) Sub-remote controller cannot be connected.
- (6) Group controller function cannot be used for Air-to-Water unit.



**WARNING**

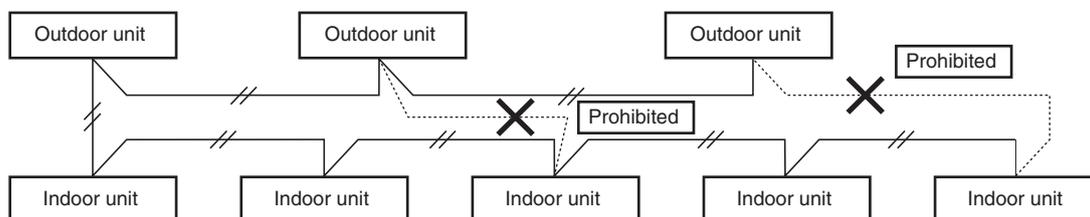


This equipment must be properly earthed.

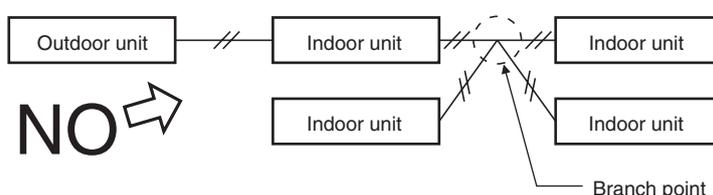
# 1. Electrical Wiring

## ⚠ CAUTION

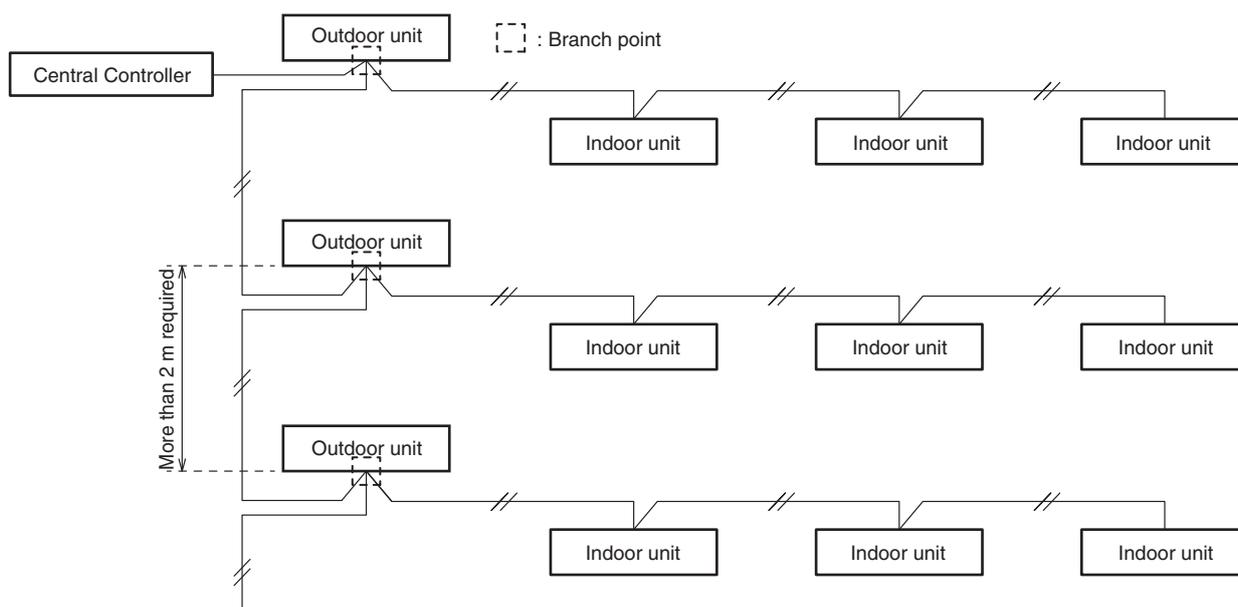
- (1) When linking the outdoor units in a network, disconnect the terminal extended from the short plug from all outdoor units except any one of the outdoor units.  
(When shipping: In shorted condition.)  
For a system without link (no wiring connection between outdoor units), do not remove the short plug.
- (2) Do not install the inter-unit control wiring in a way that forms a loop.



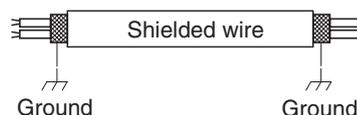
- (3) Do not install the inter-unit control wiring such as star branch wiring. Star branch wiring causes mis-address setting.



- (4) If branching the inter-unit control wiring, the number of branch points should be 16 or fewer.



- (5) Use shielded wires for inter-unit control wiring (B) and ground the shield on both sides, otherwise misoperation from noise may occur.  
Connect wiring as shown in Section “1-3. Wiring System Diagram”.



- (6) • Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 5 or 3 \*1.5 mm<sup>2</sup> flexible cord. Type designation 60245 IEC57 (H05RN-F, GP85PCP etc.) or heavier cord.  
• Use the standard power supply cables for Europe (such as H05RN-F or H07RN-F which conform to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (60245 IEC57, 60245 IEC66)

## ⚠ WARNING

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also occur. Therefore, ensure that all wiring is tightly connected.

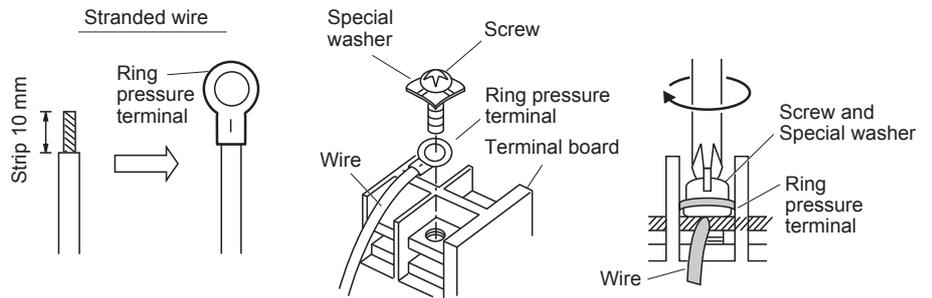
When connecting each power wire to the terminal, follow the instructions on “How to connect wiring to the terminal” and fasten the wire securely with the terminal screw.

# 1. Electrical Wiring

## How to connect wiring to the terminal

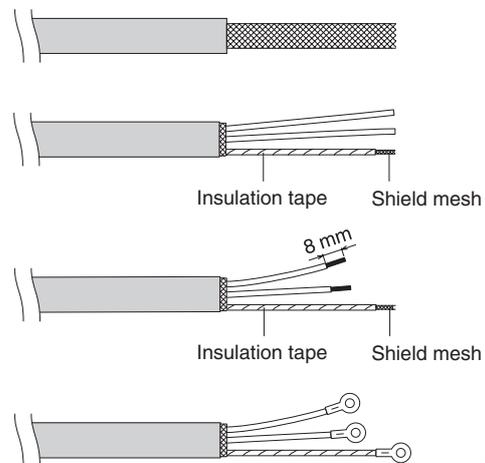
### ■ For stranded wiring

- (1) Cut the wire end with cutting pliers, then strip the insulation to expose the stranded wiring about 10 mm and tightly twist the wire ends.
- (2) Using a Phillips head screwdriver, remove the terminal screw(s) on the terminal board.
- (3) Using a ring connector fastener or pliers, securely clamp each stripped wire end with a ring pressure terminal.
- (4) Place the ring pressure terminal, and replace and tighten the removed terminal screw using a screwdriver.



### ■ Examples of shield wires

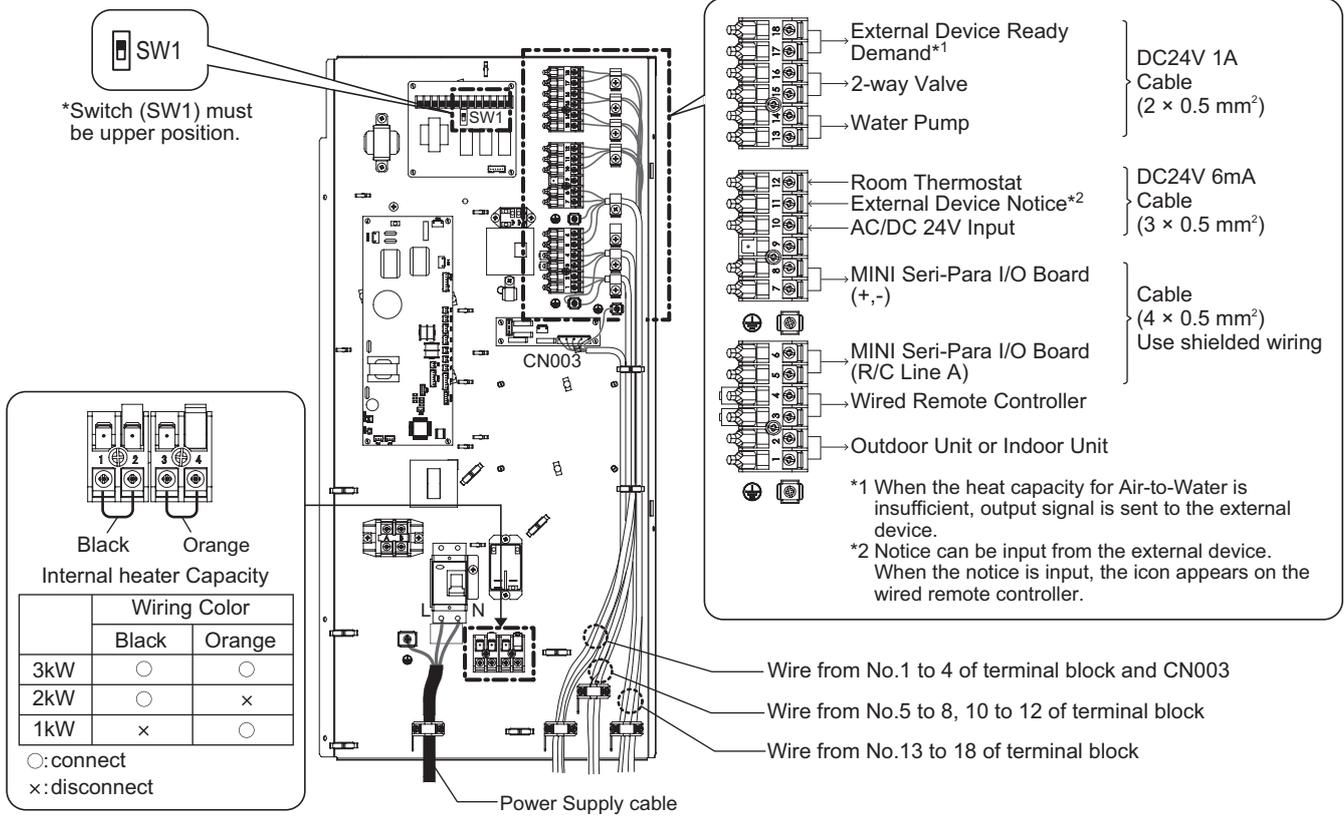
- (1) Remove cable coat not to scratch braided shield.
- (2) Unbraid the braided shield carefully and twist the unbraided shield wires tightly together. Insulate the shield wires by covering them with an insulation tube or wrapping insulation tape around them.
- (3) Remove coat of signal wire.
- (4) Attach ring pressure terminals to the signal wires and the shield wires insulated in Step (2).



2

# 1. Electrical Wiring

## ■ Wiring sample



2

## 2. SELECTING THE INSTALLATION SITE

### 2-1. Indoor Unit

**AVOID:**

- areas where leakage of flammable gas may be expected.
- places where large amounts of oil mist exist.
- direct sunlight.
- locations near heat sources which may affect the performance of the unit.
- locations where external air may enter the room directly. This may cause "condensation" on the air discharge ports, causing them to spray or drip water.
- locations where the remote controller will be splashed with water or affected by dampness or humidity.
- installing the remote controller behind curtains or furniture.
- locations where high-frequency emissions are generated.

**DO:**

- select an appropriate position from which every corner of the room can be uniformly cooled.
- select a location where the ceiling is strong enough to support the weight of the unit.



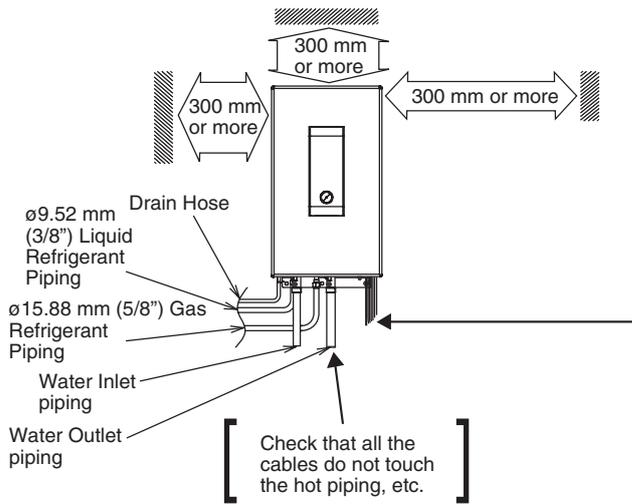
**WARNING**

- select a location which can support a load that is four times the indoor unit weight.
- select a location where tubing and drain pipe have the shortest run to the outdoor unit.
- allow room for operation and maintenance as well as unrestricted air flow around the unit.
- install the unit within the maximum elevation difference above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed in the installation instructions packed with the outdoor unit.
- allow room for mounting the remote controller about 1 m off the floor, in an area that is not in direct sunlight nor in the flow of cool air from the indoor unit.

**NOTE**

Air delivery will be degraded if the distance from the floor to the ceiling is greater than 3 m.

1. The indoor unit must be within a maintenance space.



Cable list:	
● Power Supply cable	} Type designation 60245 IEC 57 or heavier cable
● Inter-unit control wiring	
● Remote controller wiring	} Optional
● MINI Seri-Para I/O wiring	
● Other cable	
● 2-way Valve cable	
● Room Thermostat cable	
● External Controller cable	

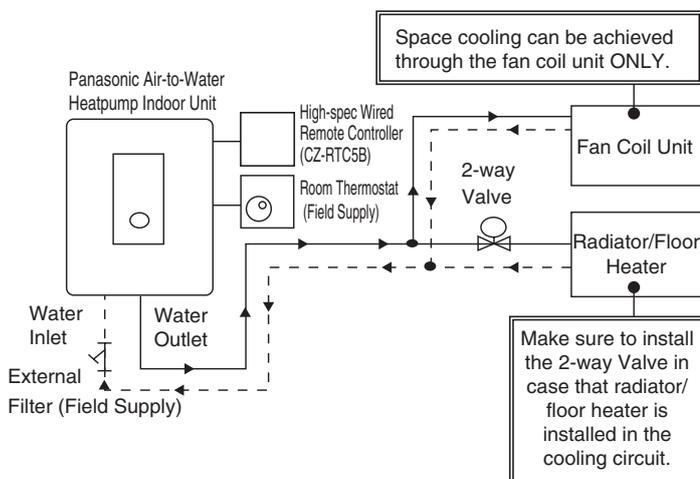


### 3. How to Install the Indoor Unit

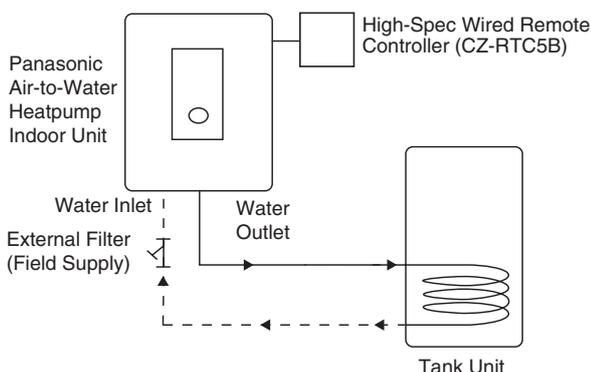
#### 3-5. Water Piping Installation

- The minimum requirement of water in the system is 50 litres. If this value could not be achieved, please install additional buffer tank (field supply).
- Water inlet and water outlet in indoor unit are used for connection to water circuit. Please request a licensed technician to install this water circuit.
- This water circuit must comply with all relevant European and national regulations, i.e. IEC/EN 61770.
- Be careful not to deform the piping with excessive force when doing piping connection job.
- Use Rp 1-1/4" nut for both water inlet and outlet connection and clean all pipings with tap water before connecting to the indoor unit.
- Cover the piping end to prevent dirt and dust when inserting it through a wall.
- Choose proper sealer which can withstand the pressures and temperatures of the system.
- If an existing tank is to be connected to this indoor/outdoor unit, ensure the pipings are clean before water piping installation is carried out.
- An external filter (30 mesh or more, field supplied) must be installed before the water inlet of the indoor unit (with "WATER IN" indication).
- Water operating temperatures (Minimum ~ Maximum) : 5 °C ~ 65 °C
- Water operating pressures (Minimum ~ Maximum) : 0.05 MPa ~ 0.3 MPa

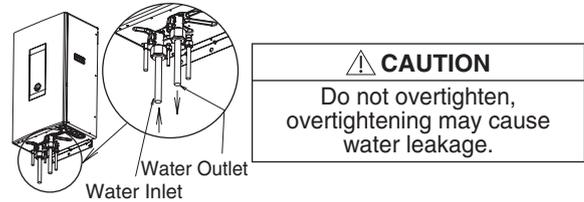
#### Water Piping Installation of Air-Conditioning mode



#### Water Piping Installation of TANK mode

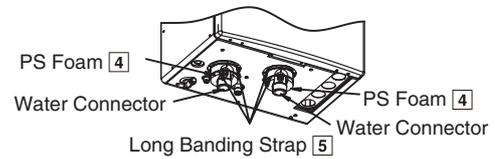


- Be sure to use two spanners to tighten the connection. Tighten the nuts with torque wrench: 117.6 N•m {1176 kgf•cm}.
- If non-brass metallic piping is used for installation, make sure to insulate the pipings to prevent galvanic corrosion.
- Make sure to insulate the water circuit pipings to prevent reduction of heating capacity.
- After installation, check the water leakage condition in connection area during test run.



#### Insulation

- Mount the PS foam [4] and long banding strap [5] to water inlet and outlet connectors, as shown in below illustration.



#### Expansion Vessel

- Expansion Vessel with 10 L air capacity and initial pressure of 1 bar is installed in this indoor unit.
- Total amount of water in system should be below 200 L. (Note: This amount of water does not include the tank unit volume)
- If total amount of water is over 200 L, please add expansion vessel. (field supply)
- Please keep the installation height difference of system water circuit within 10 m. (Inner volume of same indoor unit is about 5 L)

## 3. How to Install the Indoor Unit

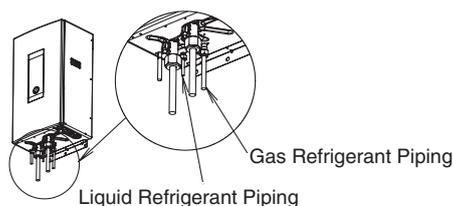
### 3-6. Indoor Unit Refrigerant Piping Installation

- Please make flare after inserting flare nut (located at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)
- Do not use pipe wrench to open refrigerant piping. Flare nut may be broken and cause leakage. Use proper spanner or ring wrench.
- Connect the piping:
  - Align the centre of piping and sufficiently tighten the flare nut with fingers.
  - Further tighten the flare nut with torque wrench in specified torque as stated in the table.

Model	Piping size (Torque)	
	Gas	Liquid
S-80MW1E5 S-125MW1E5	$\varnothing 15.88 \text{ mm (5/8")}$ 65 N•m {650 kgf•cm}	$\varnothing 9.52 \text{ mm (3/8")}$ 42 N•m {420 kgf•cm}

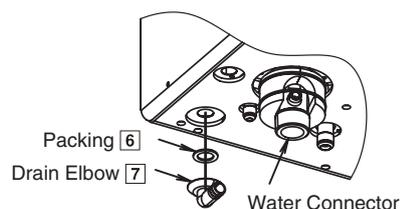
#### ⚠ CAUTION

Do not overtighten, overtightening may cause gas leakage.



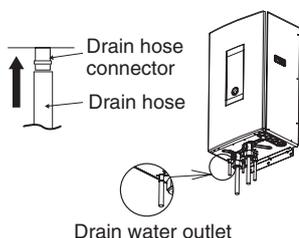
### 3-8. Drain Elbow and Hose Installation

- Fix the drain elbow [7] and packing [6] to the bottom of indoor unit, as shown in below illustration.
- Use inner diameter 17 mm drain hose in the market.
- This hose must be installed in a continuously downward direction and in a frost-free environment.
- Guides this hose's outlet to outdoor only.
- Do not insert this hose into sewage or drain hose that may generate ammonia gas, sulfuric gas, etc.
- If necessary, use hose clamp to further tighten the hose at drain hose connector to prevent leakage.
- Water will drip from this hose, therefore the outlet of this hose must be installed in an area where the outlet cannot become blocked.



### 3-7. Drain Hose Installation

- Use inner diameter 15 mm drain hose in the market.
- This hose must be installed in a continuously downward direction and in a frost-free environment.
- Do not insert this hose into sewage or drain hose that may generate ammonia gas, sulfuric gas, etc.
- If necessary, use hose clamp to further tighten the hose at drain hose connector to prevent leakage.
- Water will drip from this hose, therefore the outlet of this hose must be installed in an area where the outlet cannot become blocked.



## 4. Optional Parts

### 4-1. Distribution Joint Kits

#### ■ CZ-P160BK2 (for R410A)

Use: For indoor unit (Capacity after distribution joint is 22.4 kW or less.) \*

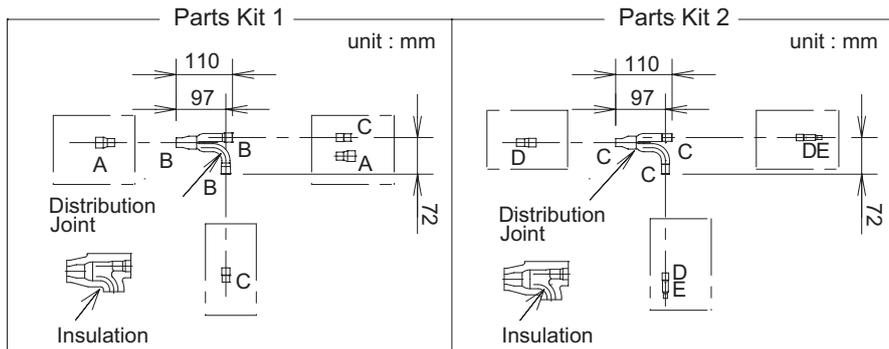
\* In case the total capacity of indoor units connected after distribution exceeds the total capacity of the outdoor units, select the distribution tubing size for the total capacity of the outdoor units.

#### How to Attach Distribution Joint

##### 1. Accompanying Parts

Check the contents of your distribution joint kit.

##### 2. Distribution Joint Kits (with insulation)



- Size of connection point on each part (Shown are inside diameters of tubing)

Size	mm	Inch
Part A	ø19.05	3/4
Part B	ø15.88	5/8
Part C	ø12.7	1/2
Part D	ø9.52	3/8
Part E	ø6.35	1/4

##### 3. Making Branch Connections

- For branching tubes, install 150mm or larger (including reducer) straight tubing up to the point where the tube branches (or after the point where the tubes join together). (Fig. 2-1)
- Using a tube cutter, cut the joints at the diameter required to match the outside diameter of the tubing you are connecting. (This is usually done at the installation site.)  
The tube diameter depends on the total capacity of the indoor unit. Note that you do not have to cut the joints if it already matches the tubing end size. For size selection of the tube diameter, refer to the Installation Instructions provided with the outdoor unit.

#### NOTE

Avoid forceful cutting that may harm the shape of the joints or tubing. (Inserting the tubing will not be possible if the tube shape is not proper.)

- Cut off as far away from stopper as possible. (Fig. 2-2)
- After cutting the joints, be sure to remove burrs on the inside of the joints. (If the joints have been squashed or dented badly, reshaped them using a tube spreader.)
- Make sure there is no dirt or other foreign substances inside the distribution joint.
- The distribution joint can be either horizontal or vertical. (Fig. 2-3)  
In the case of horizontal, the L-shaped tubing must be slanted slightly upward (15° to 30°).
- When brazing a pipe E to the reducer of which middle pipe inner dimension is D as shown above chart, cut the middle pipe as long as possible so that the pipe E can be inserted.
- When brazing, replace air inside the tube with nitrogen gas to prevent copper oxide from forming.
- To insulate the distribution joint, use the supplied tubing insulation. (If using insulation other than that supplied, make sure that its heat resistance is 120 °C or higher.)
- For additional details, refer to the Installation Instructions provided with the outdoor unit.

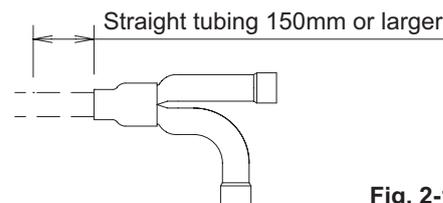


Fig. 2-1

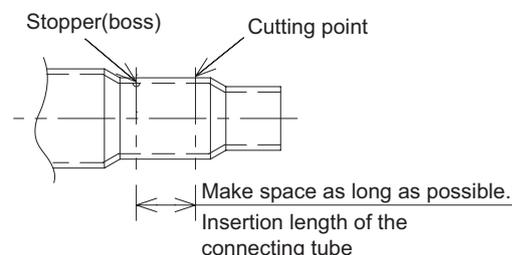
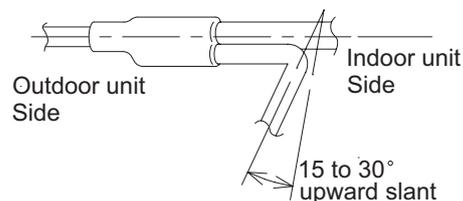
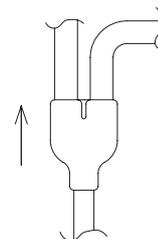


Fig. 2-2



In case of horizontal position



In case of vertical position (directed upward)

Fig. 2-3

## 4. Optional Parts

### ■ CZ-P680BK2 (for R410A)

Use: For indoor unit (Capacity after distribution joint is greater than 22.4 kW and no more than 68.0 kW.) \*

\* In case the total capacity of indoor units connected after distribution exceeds the total capacity of the outdoor units, select the distribution tubing size for the total capacity of the outdoor units.

#### How to Attach Distribution Joint

##### 1. Accompanying Parts

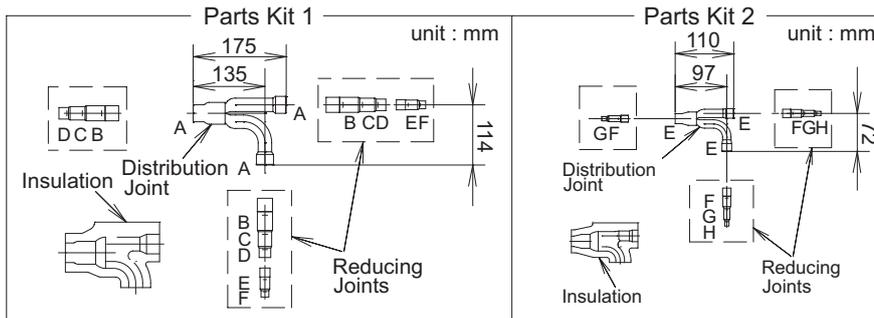
Check the contents of your distribution joint kit.

##### 2. Distribution Joint Kits (with insulation)

Part Name	Parts Kit 1	Parts Kit 2
Distribution Joints	1	1
Insulations	1	1
Reducing Joints	5	3

- Size of connection point on each part (Shown are inside diameters of tubing)

Size	mm	Inch
Part A	ø28.58	1-1/8
Part B	ø25.4	1
Part C	ø22.22	7/8
Part D	ø19.05	3/4
Part E	ø15.88	5/8
Part F	ø12.7	1/2
Part G	ø9.52	3/8
Part H	ø6.35	1/4



##### 3. Making Branch Connections

- For branching tubes, install 150mm or larger (including reducer) straight tubing up to the point where the tube branches (or after the point where the tubes join together). (Fig. 2-4)
- Using a tube cutter, cut the joints at the diameter required to match the outside diameter of the tubing you are connecting. (This is usually done at the installation site.)

The tube diameter depends on the total capacity of the indoor unit. Note that you do not have to cut the joints if it already matches the tubing end size. For size selection of the tube diameter, refer to the Installation Instructions provided with the outdoor unit.

#### NOTE

Avoid forceful cutting that may harm the shape of the joints or tubing. (Inserting the tubing will not be possible if the tube shape is not proper.)

- Cut off as far away from stopper as possible. (Fig. 2-5)
- After cutting the joints, be sure to remove burrs on the inside of the joints. (If the joints have been squashed or dented badly, reshaped them using a tube spreader.)
- Make sure there is no dirt or other foreign substances inside the distribution joint.
- The distribution joint can be either horizontal or vertical. (Fig. 2-6)  
In the case of horizontal, the L-shaped tubing must be slanted slightly upward (15° to 30°).
- When brazing, replace air inside the tube with nitrogen gas to prevent copper oxide from forming.
- To insulate the distribution joint, use the supplied tubing insulation. (If using insulation other than that supplied, make sure that its heat resistance is 120 °C or higher.)
- For additional details, refer to the Installation Instructions provided with the outdoor unit.

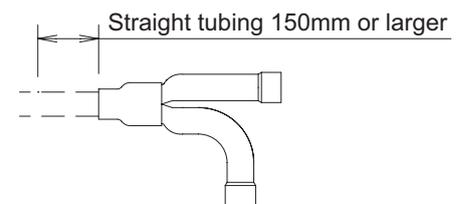


Fig. 2-4

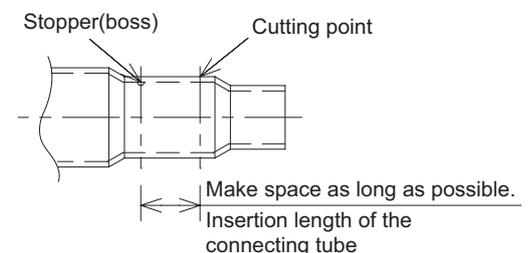
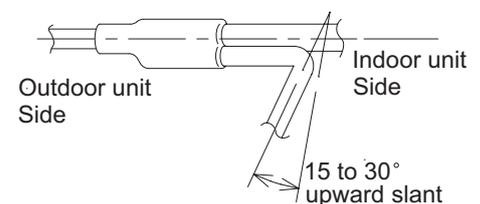
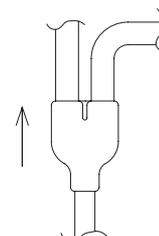


Fig. 2-5



#### In case of horizontal position



#### In case of vertical position (directed upward or downward)

Fig. 2-6

## 4. Optional Parts

### ■ CZ-P1350BK2 (for R410A)

Use: For indoor unit (Capacity after distribution joint is greater than 68.0 kW and no more than 168.0 kW.) \*

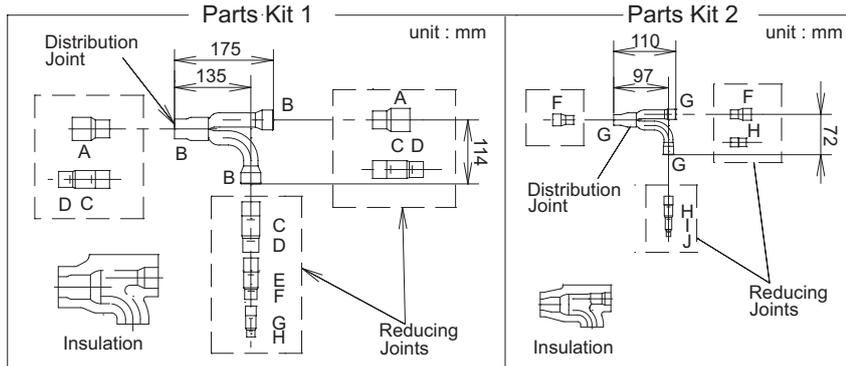
\* In case the total capacity of indoor units connected after distribution exceeds the total capacity of the outdoor units, select the distribution tubing size for the total capacity of the outdoor units.

#### How to Attach Distribution Joint

##### 1. Accompanying Parts

Check the contents of your distribution joint kit.

##### 2. Distribution Joint Kits (with insulation)



- Size of connection point on each part (Shown are inside diameters of tubing)

Size	mm	Inch
Part A	ø38.1	1-1/2
Part B	ø31.75	1-1/4
Part C	ø28.58	1-1/8
Part D	ø25.4	1
Part E	ø22.22	7/8
Part F	ø19.05	3/4
Part G	ø15.88	5/8
Part H	ø12.7	1/2
Part I	ø9.52	3/8
Part J	ø6.35	1/4

##### 3. Making Branch Connections

- For branching tubes, install 150mm or larger (including reducer) straight tubing up to the point where the tube branches (or after the point where the tubes join together). (Fig. 2-7)
- Using a tube cutter, cut the joints at the diameter required to match the outside diameter of the tubing you are connecting. (This is usually done at the installation site.)  
The tube diameter depends on the total capacity of the indoor unit. Note that you do not have to cut the joints if it already matches the tubing end size. For size selection of the tube diameter, refer to the Installation Instructions provided with the outdoor unit.

#### NOTE

Avoid forceful cutting that may harm the shape of the joints or tubing. (Inserting the tubing will not be possible if the tube shape is not proper.)

- Cut off as far away from stopper as possible. (Fig. 2-8)
- After cutting the joints, be sure to remove burrs on the inside of the joints. (If the joints have been squashed or dented badly, reshaped them using a tube spreader.)
- Make sure there is no dirt or other foreign substances inside the distribution joint.
- When brazing, replace air inside the tube with nitrogen gas to prevent copper oxide from forming.
- To insulate the distribution joint, use the supplied tubing insulation. (If using insulation other than that supplied, make sure that its heat resistance is 120 °C or higher.)
- For additional details, refer to the Installation Instructions provided with the outdoor unit.

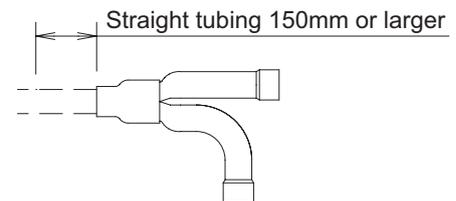


Fig. 2-7

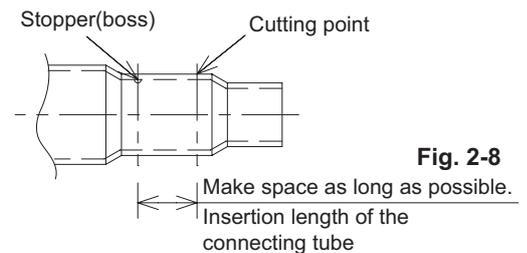


Fig. 2-8

## 4. Optional Parts

### ■ CZ-P680PJ2, CZ-P1350PJ2 (for R410A)

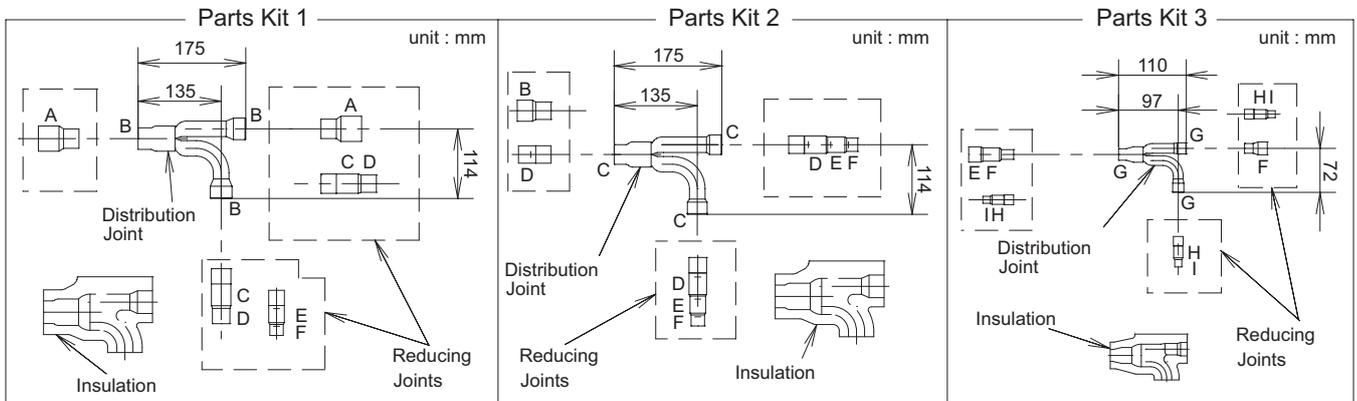
#### How to Attach Distribution Joint

##### 1. Accompanying Parts

Check the contents of your distribution joint kit.

##### 2. Distribution Joint Kits (with insulation)

Model	Capacity	Parts Kit Combination	
CZ-P1350PJ2	135kW or less	Parts Kit 1	Parts Kit 3
CZ-P680PJ2	68kW or less	Parts kit 2	Parts Kit 3



- Size of connection point on each part (Shown are inside diameters of tubing)

Size	Part A	Part B	Part C	Part D	Part E	Part F	Part G	Part H	Part I	Part J
mm	ø38.1	ø31.75	ø28.58	ø25.4	ø22.22	ø19.05	ø15.88	ø12.7	ø9.52	ø6.35
Inch	1-1/2	1-1/4	1-1/8	1	7/8	3/4	5/8	1/2	3/8	1/4

##### 3. Making Branch Connections

- For branching tubes, install 150mm or larger (including reducer) straight tubing up to the point where the tube branches (or after the point where the tubes join together). (Fig. 2-9)
- Using a tube cutter, cut the joints at the diameter required to match the outside diameter of the tubing you are connecting. (This is usually done at the installation site.)  
The tube diameter depends on the total capacity of the indoor unit. Note that you do not have to cut the joints if it already matches the tubing end size. For size selection of the tube diameter, refer to the Installation Instructions provided with the outdoor unit.

#### NOTE

Avoid forceful cutting that may harm the shape of the joints or tubing. (Inserting the tubing will not be possible if the tube shape is not proper.)

- Cut off as far away from stopper as possible. (Fig. 2-10)
- After cutting the joints, be sure to remove burrs on the inside of the joints. (If the joints have been squashed or dented badly, reshaped them using a tube spreader.)
- Make sure there is no dirt or other foreign substances inside the distribution joint.
- The distribution joint can be either horizontal or vertical. (Fig. 2-11)  
In the case of horizontal, the L-shaped tubing must be slanted slightly upward (15° to 90°).
- When brazing, replace air inside the tube with nitrogen gas to prevent copper oxide from forming.
- To insulate the distribution joint, use the supplied tubing insulation. (If using insulation other than that supplied, make sure that its heat resistance is 120 °C or higher.)
- For additional details, refer to the Installation Instructions provided with the outdoor unit.

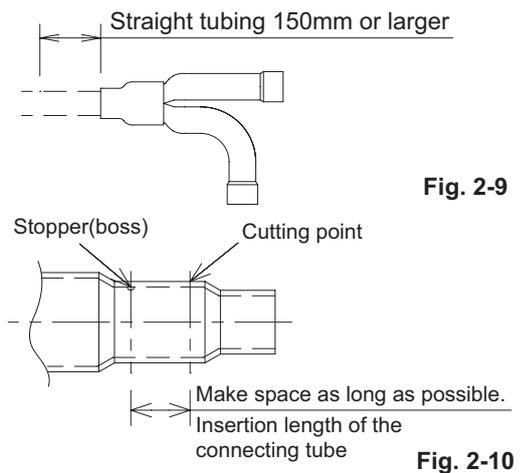


Fig. 2-9

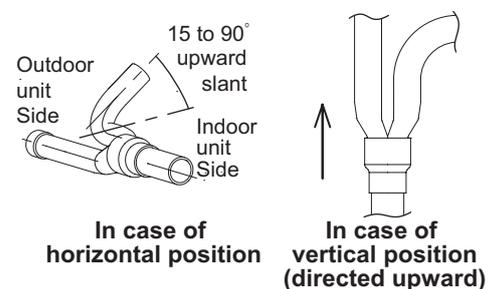


Fig. 2-11

#### Direction of Distribution Joint

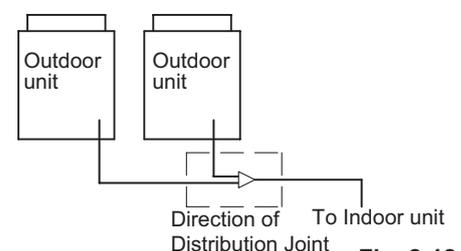


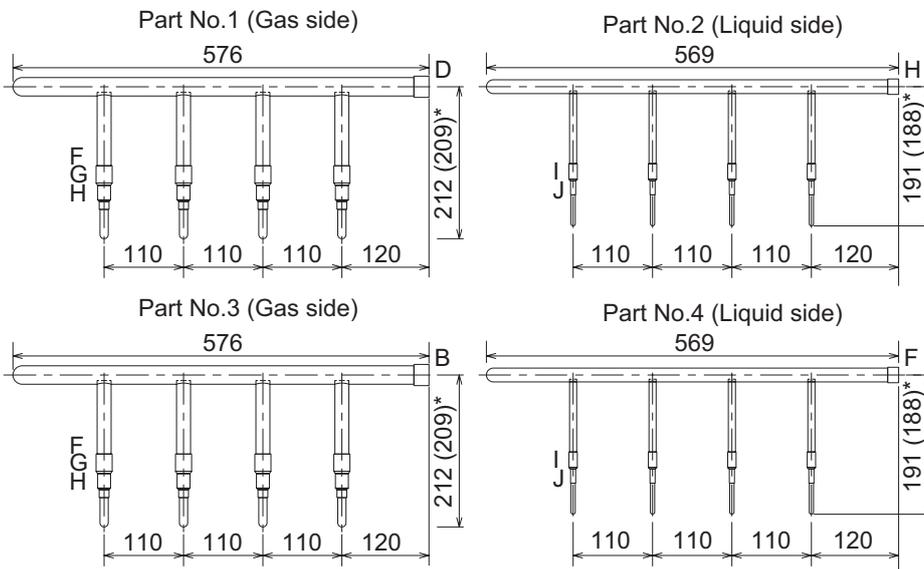
Fig. 2-12

## 4. Optional Parts

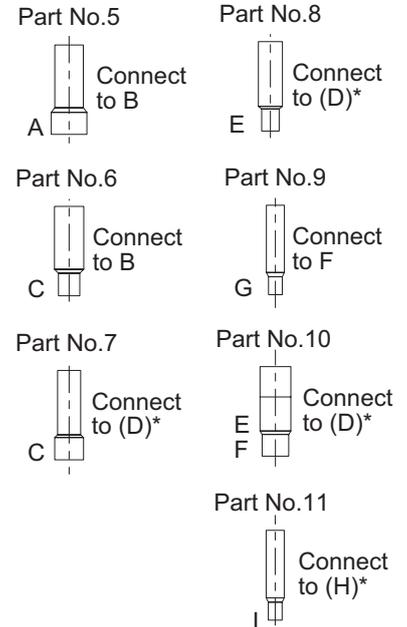
### ■ CZ-P4HPC2, CZ-P4HP2C2, CZ-P4HP1C2 (for R410A)

#### Header Tube Kit Installation

#### Tube size



Unit : mm



**NOTE** \* The values and alphabets given in the parenthesis indicate the size of CZ-P4HPC2, P4HP1C2.

- Size of connection joint on each part (shown are inside diameter of tubing)

Size	mm	Inch
A	φ38.1	1-1/2
B	φ31.75	1-1/4
C	φ28.58	1-1/8
D	φ25.4	1
E	φ22.22	7/8
F	φ19.05	3/4
G	φ15.88	5/8
H	φ12.7	1/2
I	φ9.52	3/8
J	φ6.35	1/4

#### Supplied Parts

	Part No.1	Part No.2	Part No.3	Part No.4	Part No.5	Part No.6	Part No.7	Part No.8	Part No.9	Part No.10	Part No.11
CZ-P4HPC2	○	○					○	○			
CZ-P4HP2C2			○	○	○	○			○		
CZ-P4HP1C2	○	○								○	○

#### Header Selection

	Total capacity of indoor units (kW) after distribution joint
CZ-P4HPC2	More than 16.1kW to less than 45.0kW
CZ-P4HP2C2	More than 45.1kW
CZ-P4HP1C2	Less than 28.0kW

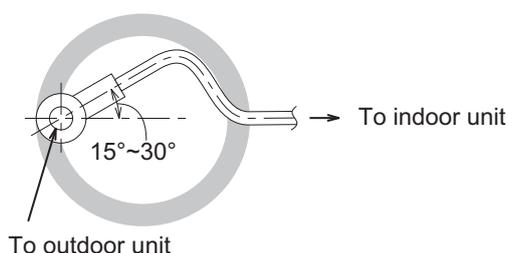
#### Installation

- Be sure to handle the header tube in the correct direction as shown below.

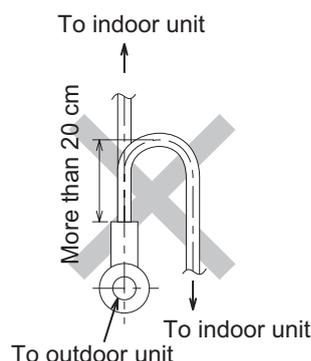
#### <Horizontal use>

- Be sure to use the tube in the 15-degree to 30-degree tilt position. Regarding the branch tube of the indoor unit side, raise the tube correctly as shown in "Horizontal sideways use" and joint the tube sideways.

#### Horizontal sideways use

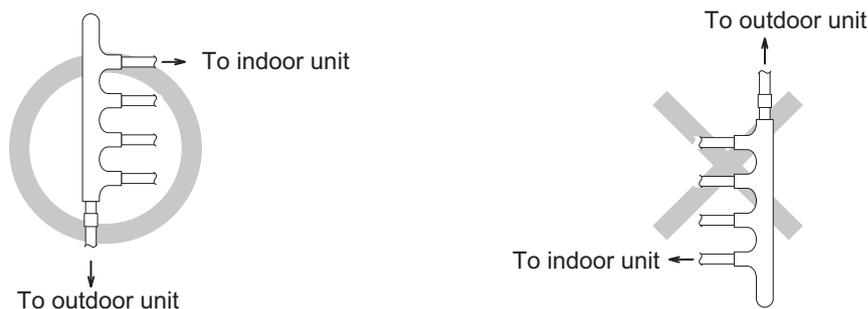


#### Horizontal upward use



## 4. Optional Parts

### <Vertical use>

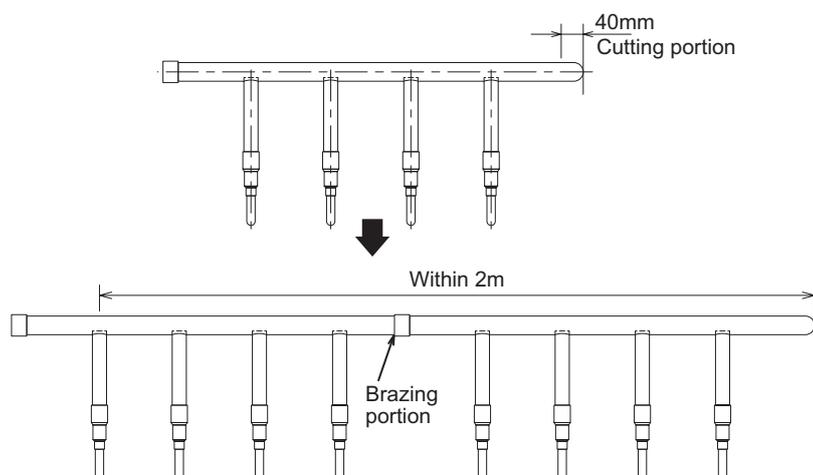


- Cut off the header tube by the pipe cutter according to meet the demand of the local tube size selected in consideration of the total amount of indoor units.  
(It is not necessary to cut off the tube if it is identical to the tip of the size.)

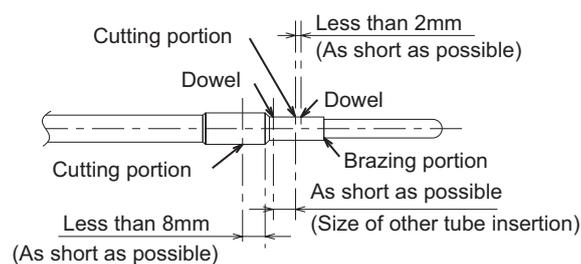
### NOTE

- Do not forcibly cut off the tube to escape deformation. (If doing so, connection tube cannot be inserted.)
- When using with 3 indoor units, cut off the tube and joint in the position fitted to the refrigerant tubing size at the side of 3 indoor units. When not to use some of the header tubes, leave as-is.
- When using with 5 to 8 indoor units, joint two header tubes as shown in the figure below. (Limited up to 2 header tubes)
- Maximum length of two header tubes should be within 2m as shown in the figure below.
- Connection of branch-to-branch tube is strictly prohibited.

### In case of using header tube kit :



### Tube cutting portion :



Branch tube connection prohibited

- After cutting off the tubing, carefully remove burrs from the cut cross section of the tube and make a smooth finish.  
(If there is any hollow on the tube, enlarge the opening port by a mechanical pipe expander.)
- Use the supplied reducer according to the tube size from the side of outdoor unit. In this case, braze it in the local field.
- Check that there is no foreign substance inside the branch tube.
- Use the supplied insulator for the insulation of the branch tube.  
(When using other than that, be sure to insulate it to tolerate the temperature of more than 120°C.)
- For the details, refer to "Installation Instructions".

### Request for Replacement of Nitrogen When Brazing

If the replacement of nitrogen was not carried out when brazing the refrigerant tube of the outdoor unit and indoor unit, oxidized scale occurs and the motor valve and strainer become clogged.

This will cause malfunction. It is necessary to replace the air in the tube with the nitrogen gas when brazing the tube and prevent the trouble caused by the oxidized scale.

## 4. Optional Parts

### 4-2. External Electronic Expansion Valve Kit for Indoor Unit

#### ■ CZ-P56SVK2, CZ-P160SVK2 (for R410A)

Precautions in this manual are given in the form of “Warnings” or “Cautions”.

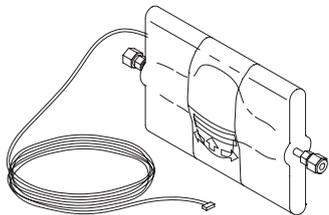
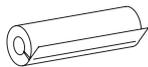
Both types of precautions contain important information related to your safety, the safety of users, and the correct operation, installation, or maintenance of the air conditioning system. Be sure to carefully observe all relevant precautions.

- ⚠ WARNING** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.
- ⚠ CAUTION** This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

- This external electronic expansion valve is compatible with the refrigerants listed below.  
R410A, R407C, R22

#### • Checking Parts

Please check these parts below that came in the box.

	Description	Shape	Q'ty
1	External electronic expansion valve (Extension cord 8 m)		1
2	Flare insulator		2
3	Clamp (Large: 350 mm, Small: 200 mm)		Large: 2 Small: 4
4	Connector-converter cable		1
5	Installation manual		1
6	Insulating tape	 White (heat resisting)	2

### Installation Procedure

#### 1. Positioning for Installation

- The valve should be connected to the liquid tube. Determine the position for installation referring to the diagram of outer dimensions. (Fig. 2-13)  
Refrigerant-flow noise may occur from the external electronic expansion valve. As a guide, the distance from the indoor unit should be a minimum of 5 m, but less than 8 m. (Install away from locations where strictly quiet operation is required.) If this distance is unavailable, install inside the ceiling or in another location where noise insulation is possible. This is a functional component, and therefore may require inspection and replacement. Consider this when deciding the installation location. (For example, place near an inspection port, or provide one.)
- This valve is for indoor use. Do not install the valve outdoors.

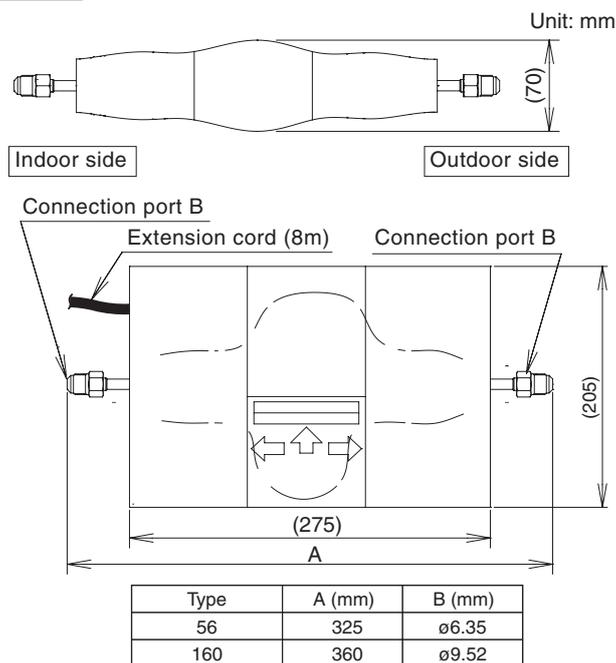


Fig. 2-13 Diagram of outer dimensions

## 4. Optional Parts

### 2. Cutting and Flaring of Liquid Tube

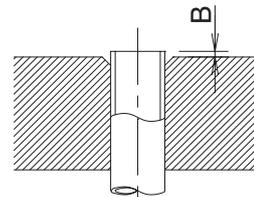
After determining the position for installation, cut the liquid tube and flare the connecting portion.  
(Pay attention to the notes below when flaring the tubes.)

#### NOTE

- After cutting the tube, deburr and finish the end face smoothly and correctly.
  - Do not damage tubes while flaring.
  - Take care not to allow dirt and deburred chips into the tube.
  - Use the flare nut which came with External Electronic Expansion Valve Kit.
  - The flaring dimensions for R410A are different from the conventional dimensions for R407C and R22. For R410A, the specially created flaring tool is recommended.
- However a conventional tool can be used by adjusting the amount of copper tube projection as shown in the table below.

Unit: mm

Rigid (clutch type)		
R410A		R407C, R22
If special R410A tool is used	If conventional tool is used	If conventional tool is used
B=0~0.5	1.0~1.5	0~0.5



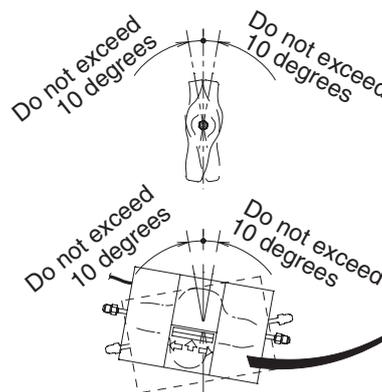
Copper tube projection for flaring: B (mm)

Fig. 2-14

### 3. Connection of External Electronic Expansion Valve with Tubing

In connection with tubing, take care to fit the external electronic expansion valve in the right direction. Be sure to install with the mark on the label pointing upwards. Also when connecting the flare, use the arrow marks on the label to check the directions of the indoor unit side and outdoor unit side.

(The wiring outlet side faces the indoor unit.)  
(Refer to Fig. 2-15.)



#### Attached label on the unit

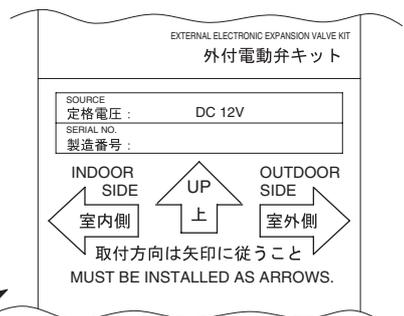


Fig. 2-15

- Tightening flare nuts



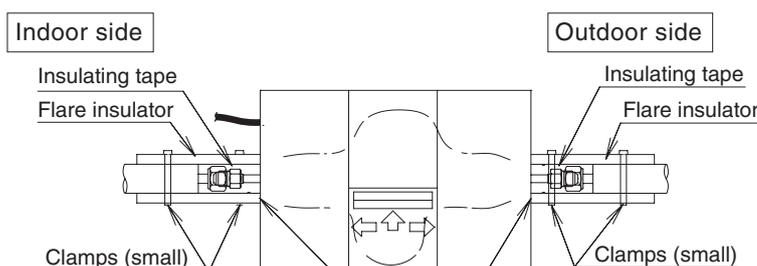
#### CAUTION

Be sure to use 2 spanners together when removing or tightening the flare nuts. After connection with the tubing, tighten the flare nuts by the correct torque. Failure to tighten the nuts correctly can cause loosening and damage on the flared portion, resulting in accidents by oxygen deficiency due to refrigerant leaks.

Tubing size	Tightening torque
φ6.35 (1/4")	14~ 18 N · m {140~180 kgf · cm}
φ9.52 (3/8")	34~ 42 N · m {340~ 420 kgf · cm}

### 4. Flare Insulation of Tubing

After completing a leakage test, apply heat insulation. (Fig. 2-16)



Be careful not to allow a gap to occur between the thermal insulation of the tubing and the thermal insulation of the main unit.

\* Use the flare insulator provided with the product.

Fig. 2-16

## 4. Optional Parts

### 5. Securing the External Electronic Expansion Valve After Connection with Tubing

After connection with tubing, secure the external electronic expansion valve using the supplied clamps (large) to hold it against the gas tube. (Fig. 2-17)

#### NOTE

Be careful not to tighten the clamps with excessive force, in order to avoid deforming the tubing or other parts.

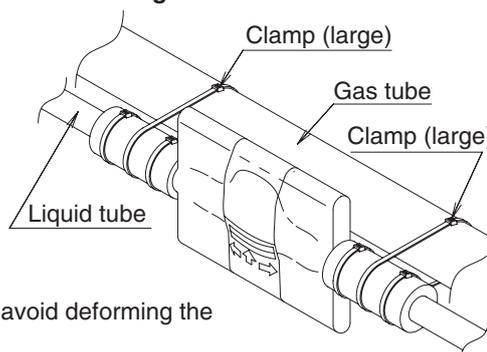


Fig. 2-17

#### Wiring Procedure



**WARNING** Be sure to turn the power off at the mains before removing or connecting connectors to avoid electric shock hazard.

#### ● Connection of External Electronic Expansion Valve with Extension Cord

- (1) Turn the power off.
- (2) Turn the power on. (This step is unnecessary if the model does not have an electronic expansion valve.)
- (3) Wait 1 minute after the power is on and then turn the power off again at the mains.  
(This step is unnecessary if the model does not have an electronic expansion valve.)

\* The electronic expansion valve becomes full-open in the 1 minute.

Do not give instructions for operation through the remote control during this time.

- (4) Open the electrical component box. From the control PCB, disconnect the connector to the indoor unit internal electronic expansion valve. (This step is unnecessary if the model does not have an electronic expansion valve.)

- (5) Connect the external electronic expansion valve. (Fig. 2-18)

Connect the external electronic expansion valve connector to the indoor unit control PCB (PMV or T6).

After completing the wiring process, close the cover of the electrical component box.

\* With some models that do not include an electronic expansion valve, a relay connector is included. Connect this relay connector.

- (6) Turn the mains power breaker back on.

This procedure is now completed.

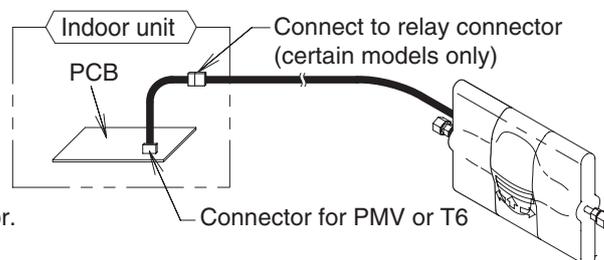


Fig. 2-18

#### Wiring Procedure (Using the Attached Cable)

Depending on the model of indoor unit that is connected, this product may require the use of a supplied connector-converter cable. Refer to the below for the corresponding units and the method of use.

#### ● If the indoor unit control PCB has a 5P plug, use the supplied connector-converter cable.

#### ● Using the connector-converter cable

The connector-converter cable is used by connecting it to the extension cable (8 m) that runs from the electronic expansion valve unit. (Refer to Fig. 2-19)

After connecting the connector-converter cable, follow the above wiring procedure and connect the cable to the indoor unit control PCB.

\* Depending on the model, a relay connector may be connected on the indoor unit control PCB. If this supplied cable is used, disconnect the relay connector and connect the supplied cable directly to the indoor unit control PCB.

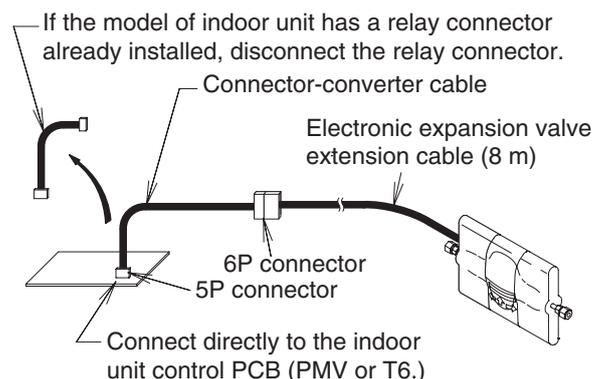


Fig. 2-19

## 4. Optional Parts

### 4-3. Solenoid Valve Kit for 3-Way System

#### ■ CZ-P56HR3, CZ-P160HR3 (for R410A)

#### Installation Instructions

For safety installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.



**WARNING**

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



**CAUTION**

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

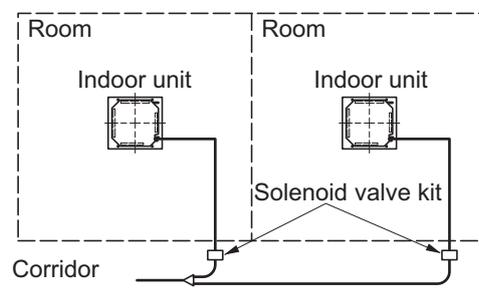
### 1. Accessories

Part Name	Figure	Q'ty	Remarks
Washer		2	For hanging bolts
Hanging hook		1	Used to hang the solenoid valve kit
M4 screw		4	For hanging bolts

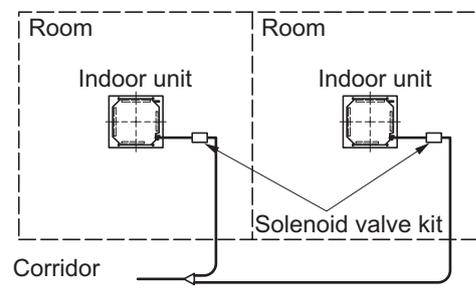
### 2. Positioning for Installation

- The solenoid valve kit must be installed at a location within 30m of the indoor unit. However, the length of wiring provided with the solenoid valve kit is 5m. If the valve will be used with wiring that exceeds 5m in length, use a terminal box (field supply) or similar device to extend the wiring. Refer to "4. Wiring, Tubing, and Heat Insulation".
- The solenoid valve kit produces some refrigerant noise. If it is to be installed in a quiet place such as a hospital, library or hotel, it is recommended that the solenoid valve kit be installed in the ceiling of a corridor, etc. apart from the room.
- The solenoid valve kit must be located not less than 2.5m above the floor or that cannot be touched.

**Recommended installation**



**Avoid**



## 4. Optional Parts

- Be sure to secure the solenoid valve kit with the hanging bolts not to cause any falling damage, using the hanging hooks.  
Do not place the solenoid valve kit directly on the ceiling surface. Select a location where the ceiling is enough to support the weight of the solenoid valve kit. When installing the solenoid valve kit, **be sure to install it with the top surface facing upward.** (See the figure shown in the subsection “How to use the fittings” in “3. Valve Dimensions and Hanging Method”.)
- When installing the valve body, install with the top surface facing up. Secure 200mm or more of space to the front and 150mm space upward so that the service panel can be removed upward.
- **Never conduct drilling or welding on the sheet metal.** Place the solenoid valve kit so that it does not hinder draining.
- Do not cover air holes.

### 3. Valve Dimensions and Hanging Method

- There are 2 types of solenoid valve kits: Type 56 and Type 160. The corresponding indoor unit model capacities are shown in the table at right.

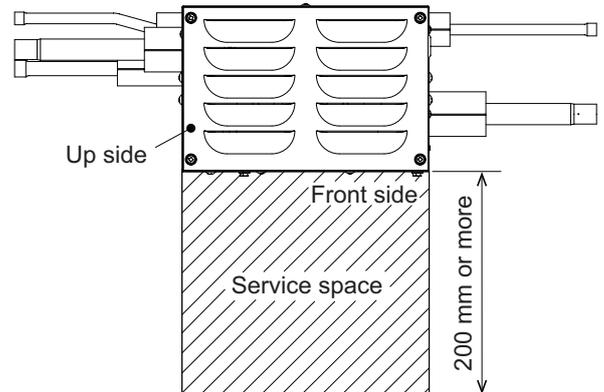
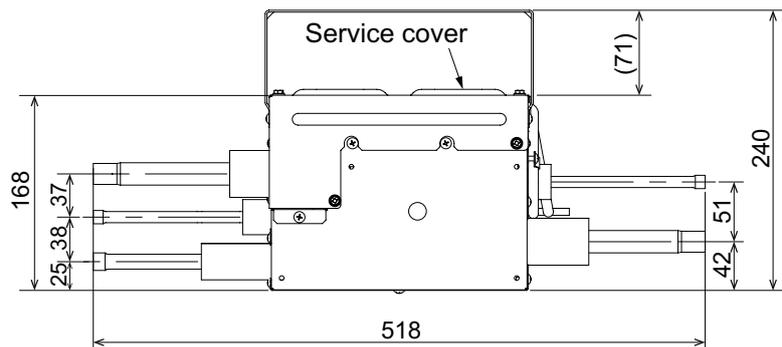
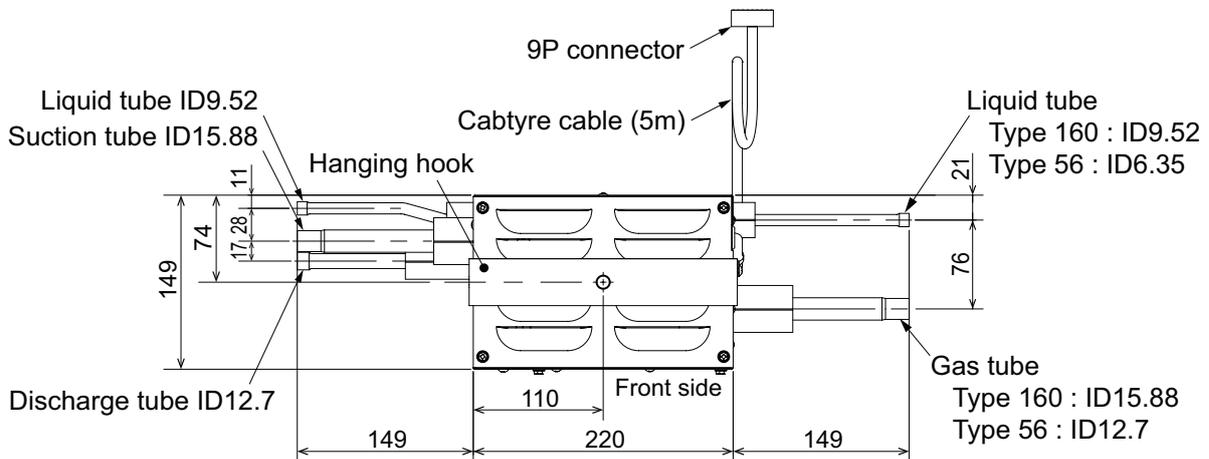


Fig. 2-20 Service space

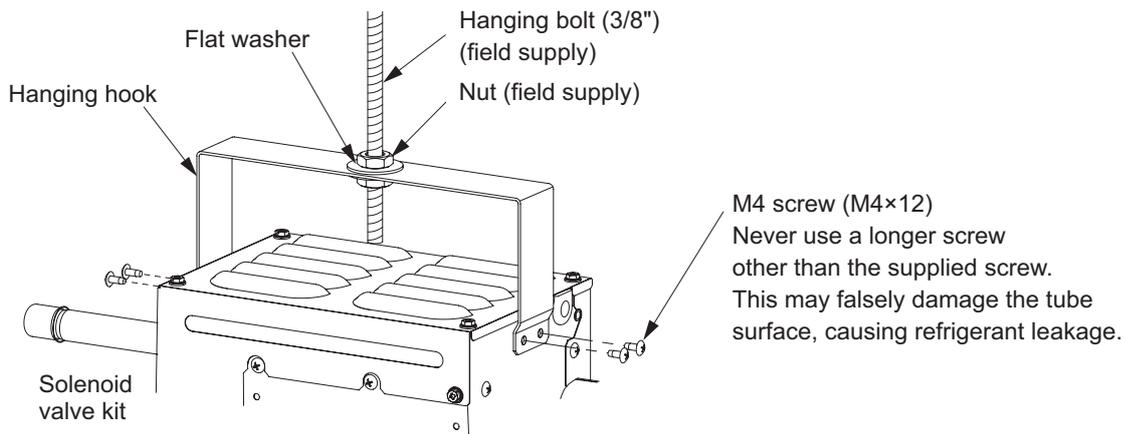
Solenoid Valve Kit	Indoor Unit Capacity
CZ-P56HR3	Type 15 – 56
CZ-P160HR3	Type 60 – 160
CZ-P160HR3 × 2 or CZ-P56HR3 × 1 + CZ-P160HR3 × 1	Type 180 Type 224
CZ-P160HR3 × 2	Type 280



**Note:** This figure shows the unit with suspension fittings attached.

## 4. Optional Parts

### How to use the fittings

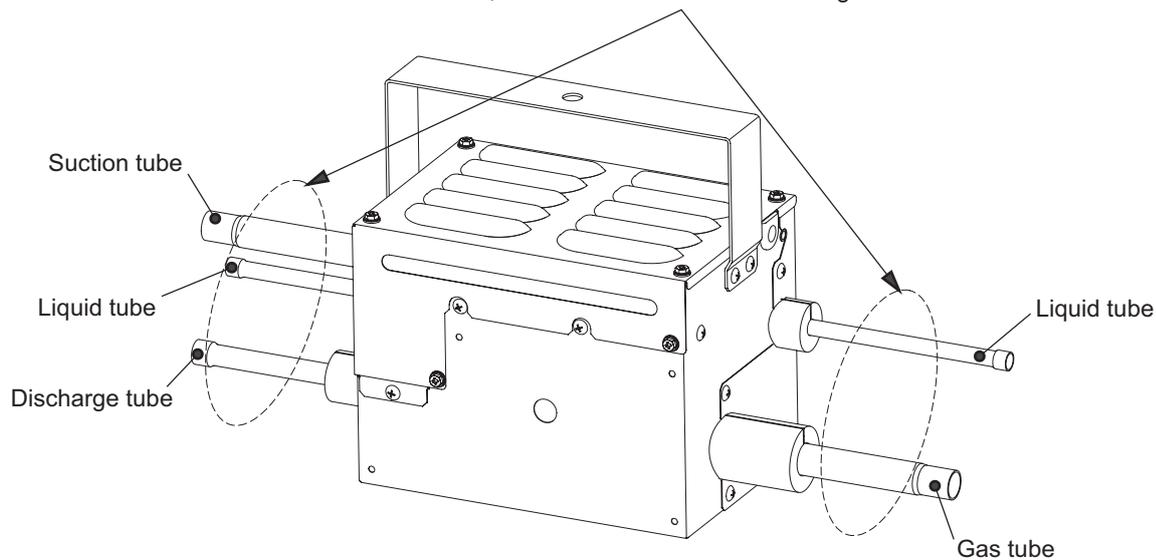


- Be sure to attach the supplied hanging hook.

## 4. Wiring, Tubing, and Heat Insulation

### 1. Refrigerant tubing

Cool with damp cloth or other means when brazing the joint with a torch. Otherwise, the solenoid valve will be damaged.



- When brazing, be sure to perform nitrogen replacement inside the tube so that oxidation coating does not form inside the tube.

### 2. Wiring

Connect the 9P connector coming from the solenoid valve kit through the power inlet of the indoor unit to the 9P connector (red) of the Solenoid Valve Control PCB (sold separately). (Fig. 2-21)

Accessory wire length is 5 m.

In case the wire is not long enough, cut the wire halfway and connect additional wire (field supply) as an extension using a terminal box (field supply).

Additional wire must be "H05VVF 0.5mm<sup>2</sup>" or "60227 IEC53".

Anchor the cabtyre cable using the binding bands inside the unit.

Do not route the cabtyre cable through the same wiring conduit as the remote controller wiring or inter-unit control wiring.

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.

## 4. Optional Parts

### NOTE

The wire should be fixed with the clamp inside the indoor unit.

Do not route the wire through a tube together with the remote-control line and inter-unit operation line.

- Recommended wire size  
6-core cable, 0.5 mm<sup>2</sup> or more (300V or more)
- Grounding should be done between the indoor unit and solenoid valve kit.

### Indoor unit : Type W1 (80 ~ 125)

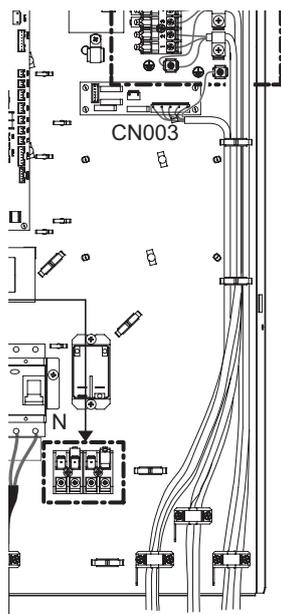


Fig. 2-21 Connection for S-80 ~ 125MW1E5

### 3. Heat Insulation

(Be sure to insulate the tubing after finishing leak inspection.)

- Be sure to insulate the tubing.
- Wrap insulators (field supply) having a thickness of 10 mm or more with heat resistance of 120°C or more around the discharge tubes and gas tubes, and 80°C or more around the suction tubes and liquid tubes.
- Use the supplied thermal insulation tape to bind the areas where there are seams and gaps between the thermal insulation that is wrapped around each tube.
- Failure to conduct thermal insulation may cause water leakage due to condensation.



Contents

3. Control of VRF SYSTEM

\*Refer to the Technical Data of Outdoor Unit.

Refer to the following contents in the high-spec wired remote controller (CZ-RTC5B)

1. Operating Instructions.....3-2

2. Installation Instructions .....3-32

# 1. Operating Instructions

# Panasonic®

Operating Instructions  
High-spec Wired Remote Controller

Model No. **CZ-RTC5B**



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• <b>datanavi</b> .....	4
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• Screen display .....	6
<b>How to Use</b>	
• <b>Basic Operations</b> .....	8
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Installation Instructions  
Separately Attached.

## English

Before operating the unit, read these operating instructions thoroughly and keep them for future reference.



Panasonic Corporation  
1006 Kadoma, Kadoma City, Osaka, Japan

Panasonic Corporation  
<http://www.panasonic.com>

F1118-0  
CV6233312187

# 1. Operating Instructions

## Safety Precautions

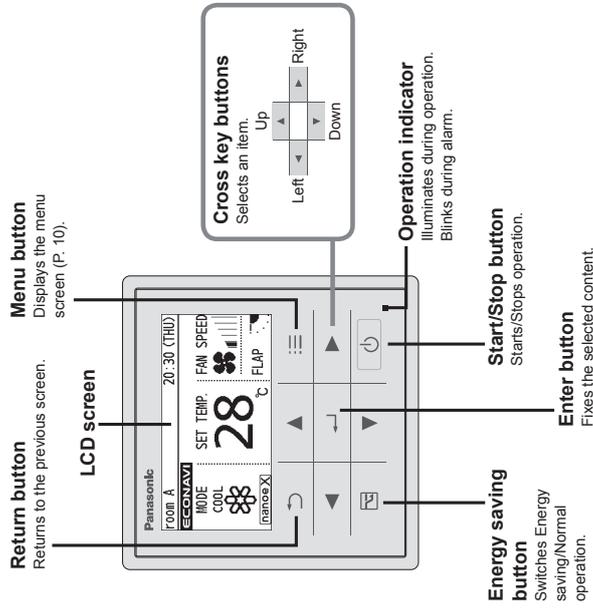
<p><b>WARNING</b></p> <p> This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.</p>	<p><b>CAUTION</b></p> <p> This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.</p>
<p> Matters to be observed</p>	<p> Prohibited matters</p>
<p><b>WARNING</b></p>	
<p> Do not use this appliance in a potentially explosive atmosphere.</p>	
<p> In case of malfunction of this appliance, do not repair by yourself. Contact the sales or service dealer for repair and disposal.</p>	
<p> In case of emergency, remove the power plug from the socket or switch off the circuit breaker or the means by which the system is isolated from the mains power.</p>	<p></p>
<p><b>CAUTIONS</b></p>	
<p> This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.</p> <p>This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.</p>	
<p> Do not operate with wet hands.</p> <p> Do not wash with water.</p>	

### Note:

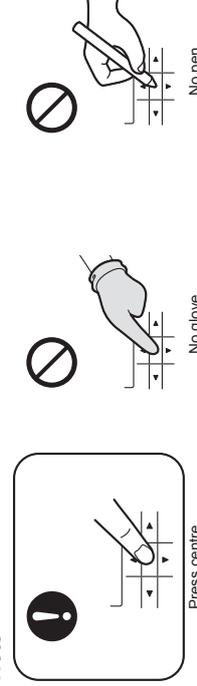
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- FCC Caution: To assure continued compliance, follow the attached installation instructions. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

# 1. Operating Instructions

## Part Names Control panel



### Note



Thank you for purchasing the Panasonic high-spec wired remote controller.

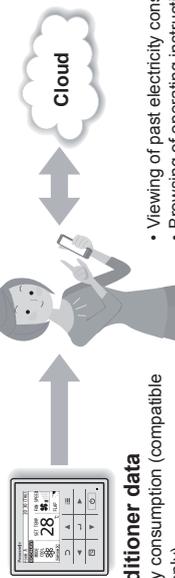
- Read the Operating Instructions carefully for safe use. This manual describes the Operating Instructions of the wired remote controller. Read this manual as well as operating instructions supplied with indoor units and outdoor units.
- **Be sure to read the "Safety Precautions" (P.2, 3) before using.**
- Keep this manual with operating instructions supplied with indoor units and outdoor units in a safe place.
- Be sure to keep this manual in a place easily accessible by users. In the case of user change, be sure to give this manual to the new user.

### NOTICE

The English text is the original instructions. Other languages are translation of the original instructions.



Provide seamless support by saving data about the air conditioners in the cloud using the smartphone app.



### Air conditioner data

- Electricity consumption (compatible models only)
- Model
- Alarm information, etc.

### Service offering storage of electricity consumption data

Utilize electricity consumption data saved in the cloud for energy-saving activities

### Support for browsing operating instructions

Browse the operating instructions for the remote controller and connected units on your smartphone with ease

### Support with simple solutions when you have a problem

Rapid response when an error occurs.



<https://datanavi.ac.smartcloud.panasonic.com/global/>

### Note

- When the brightness of the backlight (P.42) is low, it may not be possible to receive data from smartphones.
- You may not be able to use datanavi with some models of smartphone. Refer to the website above for supported smartphone models. (Even supported models may not be compatible under some operating conditions.)
- Regions supported by datanavi are listed on our website.

# 1. Operating Instructions

## Part Names Screen display

**Top screen**

Remote controller name (P.41)

Operation mode

nanoeX

SET TEMP. 18 °C

FAN SPEED

FLAP

Present time & day (P.40)

datanavi outputting locked. (P.4)

Operation is locked. (P.40)

Setting information icon (Next page)

Fan speed

Set temperature

Flap

**Under operation of nanoe™ X** The indoor unit is stopped or slight blow operation is in process.

**When inspection is required (P.57)**

**Appears if there is a problem on ECONAVI.**

\* Only the partial settings can be checked on the top screen. To check all the settings (P.55)

**Item selection screen**

**Internal cleaning in process (P.51)**

**Lock screen display**

**Operation stop screen**

**Operation lock** is functioning. (P.40)

- To cancel lock Press **STOP** button for 4 seconds.

**Operation guide (P.7)**

**Setting information icon**  
(Setting information icons displayed on the top screen)

Icon	Description	Page
	The indoor unit filter needs to be cleaned.	P.20
	The engine oil needs to be replaced. (Only when using a gas heat pump air conditioner.)	-
	Switching operation mode is prohibited. (Switching to Auto mode is also prohibited.)	-
	Remote control operation is restricted by a central control device.	-
	[ON/OFF timer] is set.	P.14
	[Weekly timer] is set.	P.15
	Energy saving operation is in process.	P.8
	Fresh air is used for ventilation. (Only when connecting a heat exchange ventilation unit or connecting a commercially sold fan.)	P.54
	Prevents the room temperature from increasing too much (or decreasing too much) when no one is in the room.	P.38
	[Circulation] is set. (Not displayed when all the above icons are displayed.)	P.29

**Menu screen (P.10)**

Screen name

Present time & day

20:30 (THU)

**Menu**

- Basic instructions
- FLAP
- Lock indiv. flap
- ON/OFF timer

Sel. Page [←] Confirm

**Operation guide** The currently operable content is displayed.

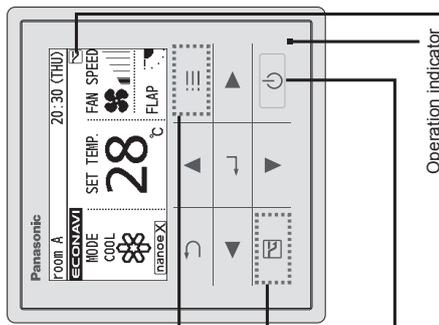
- ▲▼◀▶: Cross key buttons
- ↵: Enter button

# 1. Operating Instructions

## Basic Operations

### 1 Start operation.

Press .  
(The operation indicator illuminates.)



■ **To change the setting**  
(P.10)

■ **To turn the energy saving operation ON/OFF**  
Press during operation.  
(Only for models equipped with the energy saving function.)

■ **Start/Stop**

Operation indicator  
Energy saving operation is in process.

### 2 Select the item to set.

Press .

### 3 Change the setting.

Press .  
(The cursor disappears.)

#### Note

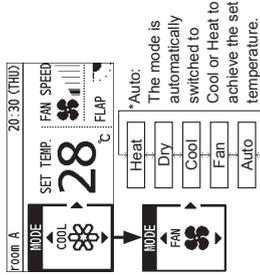
- Operation modes that cannot be set are not displayed.
- The swing and airflow direction on the remote control is not synchronised with the flap movement.
- The flap display differs from the actual flap angle.
- Pressing after recovery from mains power failure will resume operation with the contents before mains power failure has occurred.
- If no operation is performed for a certain period of time, the backlight turns off to save electricity. (Press any button for illumination.)
- The energy saving operation restricts the maximum current value, resulting in decreased cooling/heating performance.  
(If the current of outdoor units does not reach the peak due to low load operation, the current value is not restricted.)
- For models that cannot change the airflow direction, the airflow direction is not displayed.
- When restricting the set temperature range (P.31)
- The fan speed and airflow direction in cooling/drying operation can be adjusted with 3 levels: if controlling using one remote controller while assigning an indoor unit (e.g. ceiling-hung type) which has a 3-level adjustment of fan speed and airflow direction in cooling / drying operation as main unit, and assigning a 4-way ceiling cassette type as sub unit.

8 (EN)

Perform the following operations in step 2 on page 8.

#### ■ Operation mode (e.g. Cool, Heat, etc.)

Press .



\*Auto:  
The mode is automatically switched to Cool or Heat to achieve the set temperature.

#### ■ Set temperature

Press . (When the cursor is not visible)

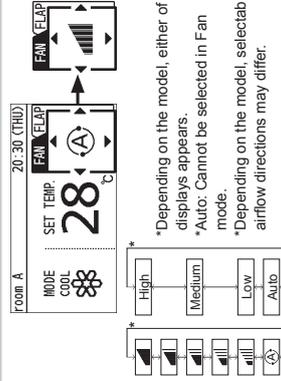


Cursor

• Cool/Dry: 18 °C to 30 °C  
• Heat : 16 °C to 30 °C  
• Auto : 17 °C to 27 °C

#### ■ Fan speed

Press .



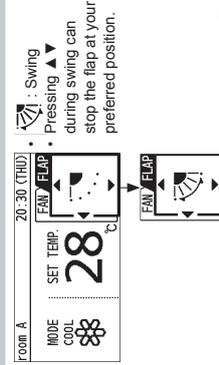
\*Depending on the model, either of the displays appears.

\*Auto: Cannot be selected in Fan mode.

\*Depending on the model, selectable airflow directions may differ.

#### ■ Flap

Press 2 times.



■ **Flap Setting for Each Indoor Unit (P.12)**

9 (EN)

# 1. Operating Instructions

## Menu List

### 1 Display the menu screen.



- To return to the previous screen

Press **D**.

- When no operation is performed in each setting screen for several minutes

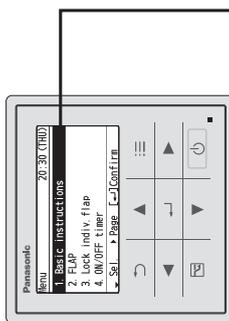
The display returns to the top screen.

### 2 Select the menu item.



- To turn the page

Press **◀ ▶**.



#### ■ Selectable menus (1 to 16)

Menu	20:30 (THU)
1. Basic instructions	
2. FLAP	
3. Lock indiv. flap	
4. ON/OFF timer	
Set. ◀ ▶ Page [↵]Confirm	

Menu	20:30 (THU)
5. Weekly timer	
6. Filter info	
7. Outing function	
8. Quiet operation	
Set. ◀ ▶ Page [↵]Confirm	

Menu	20:30 (THU)
9. Power consumption monitor	
10. Energy saving	
11. Initial settings	
12. Ventilation	
Set. ◀ ▶ Page [↵]Confirm	

Menu	20:30 (THU)
13. Setting list	
14. nanoeX settings	
15. Internal drying settings	
16. datanavi	
Set. ◀ ▶ Page [↵]Confirm	

For details of screen examples, see the next page.

- \* Some menus cannot be used if the function is not fitted. If unavailable menus are selected, the following display appears.



- ☆ The administrator password is required for setting. (P.43)

- ◇ Refer to the website for datanavi. (P.4)

#### ■ Menu items (1 to 16)

1 Basic instructions	Explains the basic operations.	P.8
2 FLAP*	Sets flaps for each indoor unit.	P.12
3 Lock indiv. flap*	Fixes the flap of a specific air outlet.	P.13
4 ON/OFF timer	Sets the ON/OFF timer	P.14
5 Weekly timer	Sets the operation schedule on a daily basis.	P.15
6 Filter Info*	Confirms and resets the time to filter cleaning.	P.20
7 Outing function	Prevents the room temperature from increasing too much (or decreasing too much) when no one is in the room.	P.38
8 Quiet operation**	Performs quiet operation for outdoor units.	P.22
9 Power consumption monitor**	Confirms the power consumptions on a daily, weekly or yearly basis.	P.23
10 Energy saving	The energy saving functions shown on the right can be set individually aside from the  (Energy saving) button.	
11 Initial settings		
12 Ventilation*	Sets ventilation operation including the heat exchange ventilation unit.	P.54
13 Setting list	Confirms the meanings of setting information icons.	P.55
14 nanoeX settings*	Make nanoe™ X and internal cleaning settings.	P.50
15 Internal drying settings*	Make internal drying settings.	P.37
16 datanavi◇	Menu for datanavi.	P.4

#### ■ No. 10 [Energy saving] details

ECONAVI	The ECONAVI sensor detects human activity and conserves energy based on the activity level.	P.24
Temp auto return	Restores the temperature after the set time has elapsed even if the temperature is changed.	P.30
Temp range	Restricts the temperature range that can be set.	P.31
Auto shutoff	Sets the auto shutoff timer.	P.32
Schedule peak cut <sup>†</sup>	Determines the time zone for the energy saving operation.	P.34
Repeat off timer	Stops operation after a certain period of time each time operation is performed.	P.36

#### ■ No. 11 [Initial settings] details

Clock	Sets the present date and time.	
Clock type	Sets the type of clock display.	P.40
Operation lock	Locks the button operations.	
Controller name	Names the remote controller.	P.41
Touch sound	Turns the operation sound ON/OFF.	
Contrast	Sets the screen contrast.	P.42
Backlight	Sets the backlight brightness of the screen.	
Language	Sets the display language for the top screen.	
Password change <sup>☆</sup>	Sets the administrator password.	P.43
Temp sensor <sup>☆</sup>	Sets whether to use the temperature sensor of the remote controller or the indoor units.	
Main/sub <sup>☆</sup>	Set this when 2 remote controllers are connected.	P.44
Vent output <sup>☆</sup>	Interlocks the ON/OFF of the air conditioner and ON/OFF of the fan.	
Contact address	Confirms the contact address and telephone number for servicing.	
External device interlock	Sets the external device interlock.	P.45
Rotation setting <sup>☆</sup>	Sets the rotation operation to ON/OFF.	P.47

# 1. Operating Instructions

## Flap Setting for Each Indoor Unit FLAP

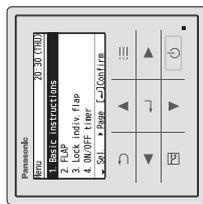
e.g. unit 1-1 e.g. unit 1-3



**When setting flaps for each indoor unit**

- Flaps of all air outlets of 1 indoor unit face the same direction.

### 1 Display the menu screen.



■ **To return to the previous screen**  
Press

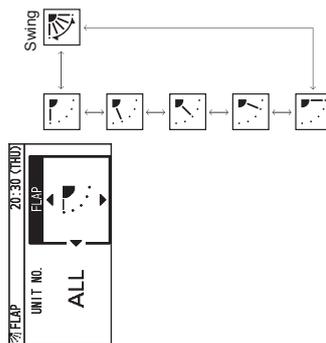
### 2 Select [FLAP].



### 3 Select the indoor unit to set.

▲ ▼ → ▶  
• ALL: All units connected to the remote controller

### 4 Select the flap direction.



- Pressing ▲ or ▼ during swing can stop the flap at your preferred position.
- Pressing ▲ or ▼ while swing is stopped sets the flap at the specified position.
- Depending on the model, the specifications may differ.
- (The swing operation is unavailable, or the airflow direction cannot be changed, and "This function is disabled" is displayed./Depending on the model, the airflow is adjusted with 3 levels in the cooling operation or Auto mode.)

**Note**

- If the function is not fitted, the display shown on the right appears and this function cannot be used.

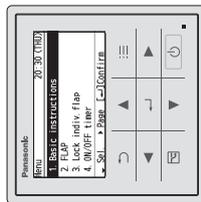


## Flap Setting for Each Air Outlet Lock individual flap

**When setting the flap for each air outlet individually according to the room condition**

- Even if the flap setting of all indoor units (P.9) or each indoor unit (P.12) is changed, the flap directions set here are not changed.

### 1 Display the menu screen.



■ **To return to the previous screen**  
Press

### 2 Select [Lock indiv. flap].



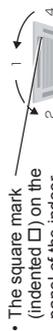
### 3 Select the indoor unit to set.

▲ ▼ → ▶  
e.g. 1-1 → 1-2 to 1-8

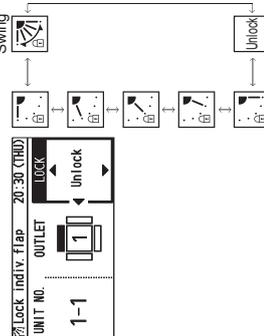
### 4 Select the air outlet.



- The square mark (indented □) on the panel of the indoor unit indicates air outlet No. 1. There are some models that do not have a square mark (indented □).
- The air outlet No. changes according to the installation direction. Check by actual operation.
- ALL: All the air outlets



### 5 Select the flap direction.



▲ ▼ → ▶ (Press 2 times to finish.)

- For types other than the 4-way cassette type, the following display appears and this function cannot be used.



# 1. Operating Instructions

## Timer Reservation ON/OFF timer

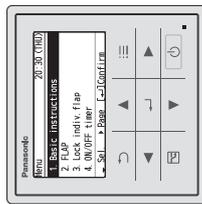
This turns ON/OFF at the specified time. (e.g. Turning ON/OFF after 3 hours)



- Use OFF timer for example when: Reducing electric consumption while sleeping
- Use ON timer for example when: Operating the air conditioner according to the meeting start time.

### 1 Display the menu screen.

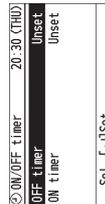
- To return to the previous screen  
Press **◀**.



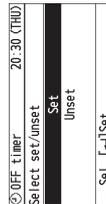
### 2 Select [ON/OFF timer].



### 3 Select the timer type.



### 4 Select [Set].



### 5 Set the time.



- Upper limit: Stops in 72 h. (by the 30 minutes)

#### Note

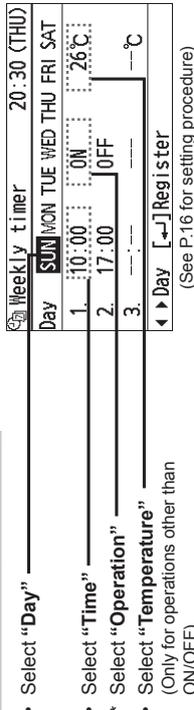
- If ON timer and OFF timer are set to the same time, priority is given to OFF timer, and ON timer cannot be used.

## Timer Reservation Weekly timer overview

You can set a weekly operation schedule.

- The operation ON/OFF schedule or temperature setting schedule can be set by setting the day and time (e.g. Setting the operation start time to 8:00 a.m. from every Monday to Friday).

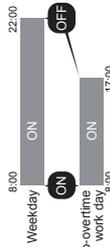
### How to set (Overview)



- Select "Day"
  - Select "Time"
  - \* Select "Operation"
  - Select "Temperature" (Only for operations other than ON/OFF)
- \*Operation • ON: Starts operation with the temperature set last.  
 • OFF: Stops operation.  
 • ON & TEMP: Starts operation with the specified temperature.  
 • TEMP: Sets the temperature to the specified temperature during operation.

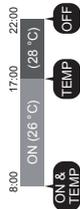
### Combination examples

- 1. Stop operation earlier on "No-overtime work day".

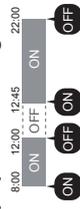


- The setting registered for 1 day can be copied to other days. (P.19)

- 2. Set the temperature higher after the fixed time.



- 3. Stop operation during lunch break.



- 4. This Thursday is a holiday.

The timer can be disabled only for the specified days with the registered schedules kept. (P.16)

- Disable (☐) the timer of the specific Thursday which falls on a holiday.
- Enable (☑) the timer after the holiday is over.

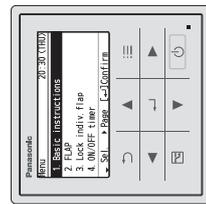


# 1. Operating Instructions

## Timer Reservation Weekly timer

**New registration** • e.g. Start operation with 26 °C at 10:00 a.m. on every Sunday.

### 1 Display the menu screen.



- To return to the previous screen Press

### 2 Select [Weekly timer].

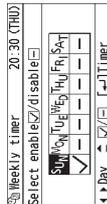


### 3 Enable the Weekly timer.



- Select the item with and select (enable)/ (disable) with .

### 4 Select for all days when the timer is used.

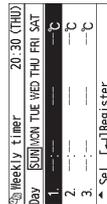


- Select the days with and select (enable)/ (disable) with .

### 5 Select the day for the timer setting.

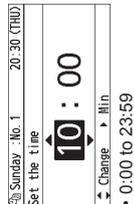


### 6 Select the field to register the timer setting.



- Up to 8 settings are available for each day.
- After registration, the items are arranged in time series automatically.

### 7 Set the start time for the timer operation.



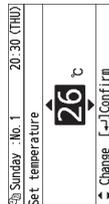
- hour → → minute →
- 0:00 to 23:59

### 8 Select the timer operation.



- Types of timer operation
- **ON:** Starts operation.
- **OFF:** Stops operation.
- **ON & TEMP.:** Starts operation with the specified temperature.
- **TEMP.:** To specify the temperature.

### 9 Set the temperature.



- ▲ → (Only when the timer operation is [ON & TEMP.] or [TEMP.])

### 10 Confirm the setting content.



- To register additionally Repeat from step 6 without pressing .
- To copy the setting content to other days (P.19)

**To set the timer to OFF**  
Starting with step 1, select in step 3 and press 2 times.

**To set the timer to OFF for specified days after registration**  
(national holidays, etc.)  
Starting with step 1, set for OFF days in step 4 and press 2 times.

# 1. Operating Instructions

## Timer Reservation Change/Delete

Weekly timer continued

- After steps 1 to 4 on page 16, select the day to change or delete.
 

Weekly timer	20:30 (THU)
Day	SUN MON TUE WED THU FRI SAT
1.	8:00 ON 26°C
2.	17:00 OFF --°C
3.	Register
- Select the schedule to change or delete.
 

Weekly timer	20:30 (THU)
Day	SUN MON TUE WED THU FRI SAT
1.	8:00 ON 26°C
2.	17:00 OFF --°C
3.	Change
- Select [Change] or [Delete].
 

Sunday	20:30 (THU)
Select change/delete No. 1	
Change	
Delete	
Set. [F]Next	

## 4 Perform [Change] or [Delete] as follows.

- To change the setting, following steps 7 to 10 on page 17, set the time, timer operation and temperature and confirm the content.
- To delete the setting, select [YES].
 

Delete Sunday No. 1?
YES

 (Press 2 times to finish.)

- To change or delete settings repeatedly: Repeat from step 1 without pressing [F].

### Note

- To delete all schedules of selected days
 

Sunday	20:30 (THU)
Select change/delete	
Change	
Delete all: SUN	
Set. [F]Next	
- Select the day in step 1 above and press [F].
- Select [Delete all: O] with [F] and press [F].
- Select [YES] with [F] and press [F].

## Timer Reservation

Weekly timer continued

### Timer copy

The registered schedule can be copied to other days. This is convenient to apply the same schedule to multiple days.

- Display the menu screen.
 

Parameters	20:30 (THU)
BASIC INSTRUCTIONS	
1. FLAP	
2. Lock indiv. flap	
3. ON/OFF timer	
4. Weekly timer	
5. Weekly timer	
Set. [F]Page [F]Confirm	

  - To return to the previous screen Press [F].
- Select [Weekly timer].
 

Menu	20:30 (THU)
2. FLAP	
3. Lock indiv. flap	
4. ON/OFF timer	
5. Weekly timer	
Set. [F]Page [F]Confirm	
- Select [Timer copy].
 

Weekly timer	20:30 (THU)
Weekly timer	<input checked="" type="checkbox"/>
Timer copy	
Set. [F]Set	
- Select the copy source day.
 

Timer copy	20:30 (THU)
Select copy source day	
SUN MON TUE WED THU FRI SAT	
Set. [F]Day [F]Select	
- Select [F] for all copy target days.
 

Timer copy	20:30 (THU)
Select copy target day	
SUN MON TUE WED THU FRI SAT	
Set. [F]Day [F]Confirm	

  - Select the days with [F] and select [F] with [F].
  - [F]: Copy source
- Select [YES].
 

Copy Monday data?
YES
NO

 (Press 2 times to finish.)





# 1. Operating Instructions

## Energy Saving

### ■ ECONAVI

This function is available by attaching an optional ECONAVI sensor. The ECONAVI sensor detects human activity and conserves energy based on the activity level.



#### WARNING

Do not use the ECONAVI function in a room with disabled persons or infants only. Due to their limited motions, the ECONAVI sensor may judge no person is present, causing the indoor unit to stop the operation.

#### Overview of the ECONAVI function

<b>High activity</b>	<ul style="list-style-type: none"> <li>• Cooling: Target temperature is the same as the set temperature.</li> <li>• Heating: Target temperature is 1 °C lower than the set temperature.</li> </ul>
<b>Low activity</b>	<ul style="list-style-type: none"> <li>• Cooling: Target temperature is 1 °C higher than the set temperature.</li> <li>• Heating: Target temperature is the same as the set temperature.</li> </ul>
<b>No one in the room</b>	<ul style="list-style-type: none"> <li>• <b>No one in the room for 20 minutes</b> <ul style="list-style-type: none"> <li>• Cooling: Target temperature is 2 °C higher than the set temperature.</li> <li>• Heating: Target temperature is 2 °C lower than the set temperature.</li> </ul> </li> <li>• <b>No one in the room for 1 hour</b> <ul style="list-style-type: none"> <li>• When no one is in the room for approx. 1 hour or more, the unit operates in the specified Absence operation mode. In the default setting, the energy-saving operation continues with the set temperature restricted.</li> </ul> </li> <li>• <b>No one in the room for 3 hours</b> <ul style="list-style-type: none"> <li>• Cooling: Cooling will stop and the unit will be in fan only mode.</li> <li>• Heating: Heating will stop and the unit will be in fan only mode.</li> </ul> </li> </ul>
<b>Direct/Ind. airflow</b>	<ul style="list-style-type: none"> <li>• <b>Direct airflow:</b> When the ECONAVI sensor detects a person, the unit swings wind up and down around where the person is present.</li> <li>• <b>Indirect airflow:</b> The unit avoids directly hitting wind at a person's body.</li> </ul>
<b>Circulation (When using Panel for cassette (ECONAVI type) only)</b>	<ul style="list-style-type: none"> <li>• <b>Cooling:</b> If the ECONAVI sensor detects high temperature of the floor while group-controlling, the "Circulation" (air circulation) is performed to alleviate the unevenness of temperature between near the ceiling and near the floor.</li> <li>• <b>Heating:</b> If the ECONAVI sensor detects low temperature of the floor, the "Circulation" (air circulation) is performed to alleviate the unevenness of temperature between near the ceiling and near the floor.</li> </ul>

#### Note

- ECONAVI can be set using the separately sold ECONAVI panel or by connecting the holder on the wall.
- Even when target temperature is changed through the ECONAVI function, the set temperature shown in the remote controller does not change.
- Even when Cooling/Heating is changed to Fan through the ECONAVI function, the operation mode shown in the remote controller will still be Cooling/Heating.
- It is possible to choose from the following options for the operation to be performed after a lapse of 3 hours since the room has been empty.
  - Operates in the Fan mode only.
  - Stops and resumes operations after human movements are detected.
  - Stops and will not resume operations even after human movements are detected.
  - Continues to operate in the current mode.
- If you need to do so, please contact the dealer.
  - Turn the ECONAVI function OFF if:
    - You want to maintain the room temperature at a set temperature.
    - You want to keep air conditioner running while nobody is in a room.
    - The sensor fails.
    - Only infants, babies, or people only with disabilities are in the room.
- When operating more than one indoor unit, the energy-saving effect may be reduced depending on the room condition.

# 1. Operating Instructions

## Energy Saving

- 1 Display the menu screen.
- To return to the previous screen  
Press

- 2 Select [Energy saving].

- 3 Select [ECONAVI].

- 4 Select the item to set.

### ECONAVI

- 5 → → (Press 2 times to finish.)



### Absence operation mode

- 5 Select the item to set for when no one is in the room.

▲ → → (Press 2 times to finish.)

- **Types of the Absence operation mode**  
 Select the Absence operation mode from among the following 4 options on the remote control.
  - Not set  
 If human activity is detected, the operation status is restored according to the level of human activity.
  - [Standby]  
 Pauses the COOL/DRY or HEAT operation, and performs only the FAN (slight breeze) operation.  
 If human activity is detected, the operation status is restored according to the level of human activity.
  - [Stop (no restart)]  
 Stops the operation. After stopped, the operation is not resumed even if human activity is detected.
  - [Stop (restart)]  
 Stops the operation. After stopped, the operation is resumed if human activity is detected, and the operation status is restored according to the level of human activity.

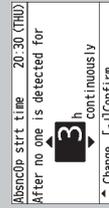
### Absence operation start time

- 5 Set the time that elapses before [Absence operation mode] starts.

hour minute  
 ▲ → → → (Press 2 times to finish.)  
 \* 30 minutes to 3 hours\* (180 minutes)  
 \* Factory default: 1 hour

Depending on the model, either of the displays appears.

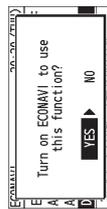
hour  
 ▲ → → (Press 2 times to finish.)



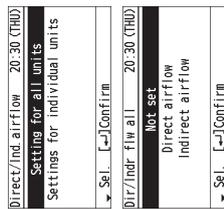
# 1. Operating Instructions

## Direct/Indirect airflow

5 When ECONAVI is off, select [YES].



6 Select [Setting for all units] or [Settings for individual units].



7 Set.

■ Setting for all units

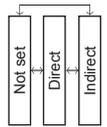


- [Not set]: Operation is performed with the set airflow direction without using the "Direct airflow/Indirect airflow".
- [Direct airflow]: The unit swings wind up and down around where the person is present.
- [Indirect airflow]: The unit avoids hitting wind at a person's body.

■ Settings for individual units

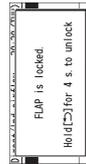


- If the airflow direction of the selected air outlet is fixed, setting and changing are not available.



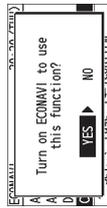
### Note

- [ECONAVI] can be set only with the separately sold ECONAVI panel or holder on the wall, etc. or indoor units equipped with the "Direct airflow/Indirect airflow" function.
- [Direct/Ind. airflow] can be set on the remote control for each flap of the indoor unit.  
(Only for the indoor units equipped with the [Direct/Ind. airflow] function compatible with ECONAVI)
- In the following cases, each message appears and this function cannot be used.
  - When the indoor unit is not supported, or the motion directions of the air outlets are fixed
  - Locked or prohibited

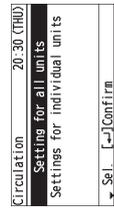


## Circulation

5 Only when ECONAVI is off, select [YES].



6 Select [Setting for all units] or [Settings for individual units].



7 Set.

■ Setting for all units



(Press 2 times to finish.)

■ Settings for individual units



(Press 2 times to finish.)



### Note

- To operate the "Circulation" in HEAT mode, set the fan speed to [AUTO], and set the airflow direction to any one of [Direct airflow], [F3], [F4], and [F5].
- In the following cases, each message appears and this function cannot be used.
  - When the indoor unit is not supported, the motion sensor is not equipped, or the floor temperature sensor is not equipped
  - Locked or prohibited

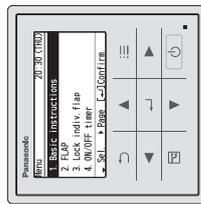


# 1. Operating Instructions

## Energy Saving

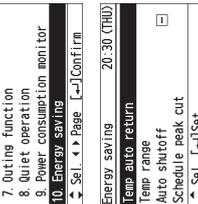
- **Temp auto return**  
Restoring the changed temperature to the originally set temperature automatically after a specified time elapses. (e.g. Only when a guest comes)
- **Temp range**  
Restricting the temperature range that can be set. (Temperatures outside the range cannot be set.)

### 1 Display the menu screen.



- **To return to the previous screen**  
Press

### 2 Select [Energy saving].



### 3 Select the item to set.



## Temp auto return

### 4 Select the item and set to .

- ▲ ▼ → ← ▶ → →
- **To operate only when energy can be saved**  
Select [Return type] with ▲ ▼ and select [Saving] with → ←.

### 5 Set the time to return to the set temperature.

- ▲ ▼ →
- (10 to 240 min; by the 10 min)

### 6 Set the temperature.

- ▲ ▼ →
- (Press 2 times to finish.)

- **To set in series** Repeat from step 4 without pressing .

30 (EN)

## Temp range

### 4 Select the item and set to .



### 5 Set the temperature range.

- ▲ ▼ → ▶ → ▲ ▼ →
- (Press 2 times to finish.)

#### Setting range

- Cool/Dry: 18 °C to 30 °C
- Heat: 16 °C to 30 °C
- Auto: 17 °C to 27 °C

- **To set in series** Repeat from step 4 without pressing .

#### Note

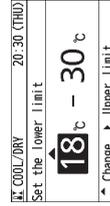
#### Temp auto return

When [Return type] is set to [Saving], this functions only when the temperature set in step 5 saves more energy than the changed temperature.

e.g. When Cool 26 °C is set and the temperature is changed to 28 °C

- [Saving]: Keeps 28 °C
- [Normal]: Returns to 26 °C

- **The temperature range that can be set varies depending on the model.**



(EN) 31

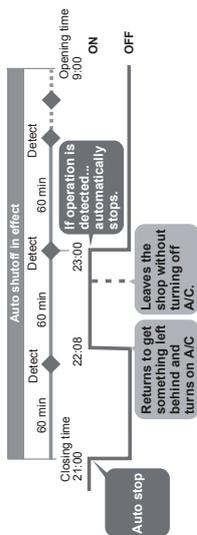
# 1. Operating Instructions

## Energy Saving

### Auto shutoff

When the operation is stopped at a specified time (e.g. closing time) and resumed afterwards, this function detects the operation status at regular time intervals and stops operation automatically.

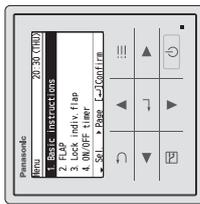
Detect the operation status at regular time intervals and stop the operation automatically. (e.g. 60 min)



#### 1 Display the menu screen.

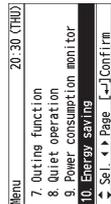
■ To return to the previous screen

Press



#### 2 Select [Energy saving].

▲ ▼ →



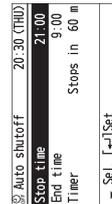
#### 3 Select [Auto shutoff] and set to .

▲ ▼ →



#### 4 Select the item to set.

▲ ▼ →

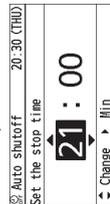


### Stop time

Time to stop operation (Time when Auto shutoff is activated)

#### 5 Set.

hour ▲ ▼ → minute ▲ ▼ → (Press 2 times to finish.)

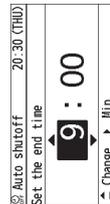


### End time

Time when Auto shutoff stops

#### 5 Set.

hour ▲ ▼ → minute ▲ ▼ → (Press 2 times to finish.)

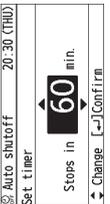


### Timer

Time interval to detect operation status after [Stop time]

#### 5 Set.

▲ ▼ → (Press 2 times to finish.)

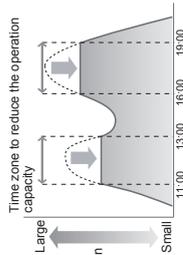


• 10 min to 180 min (by the 10 min)

# 1. Operating Instructions

## Energy Saving

- **Schedule peak cut**  
This reduces the operation capacity for the specified time period.



### 1 Display the menu screen.

- **To return to the last screen**  
Press **[D]**.

### 2 Select [Energy saving].

- ▲ ▼ → →

### 3 Select [Schedule peak cut].

- ▲ ▼ → →

### 4 Enter the password.

- ▲ ▼ → → → →
- (Repeat)

### 5 Set [Select enable/disable] to [✓].

- ▲ ▼ → → ◀ ◀

### 6 Select [Set schedule].

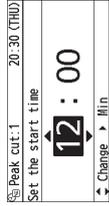
- ▲ ▼ → →

### 7 Change the setting.

- ▲ ▼ → →

### 8 Set the start time and end time.

- ▲ ▼ → → → →
- (Repeat)

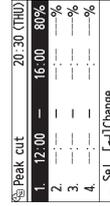


### 9 Select the operation capacity.

- ▲ ▼ → → → →
- (Press 2 times to finish.)
- **To set in series**  
Repeat from step 7 without pressing **[D]**.

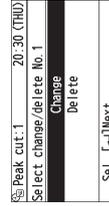


- **To change**
  - Select the field to change in step 7 on the previous page.



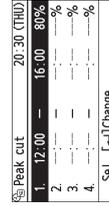
- **Select [Change].**

- ▲ ▼ → →
- Following the above steps 8 to 9, select the start time, end time and operation capacity.



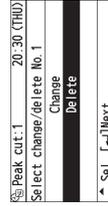
- **To delete**

- Select the field to delete in step 7 on the previous page.



- **Select [Delete].**

- ▲ ▼ → →



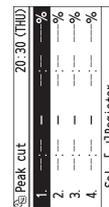
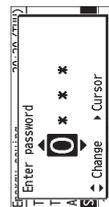
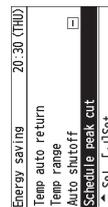
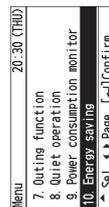
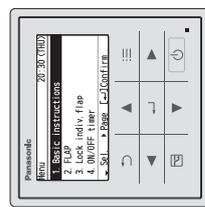
- **Select [YES].**

- ◀ ◀ → → → →
- (Press 2 times to finish.)



#### Note

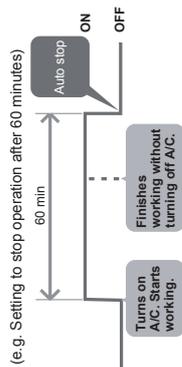
- An administrator password is required to use schedule peak cut. (P.43)



# 1. Operating Instructions

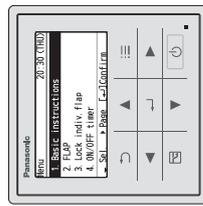
## Energy Saving

- **Repeat off timer**  
This stops operation after a certain period of time each time operation is performed.  
(e.g. When forgetting turning off)



### 1 Display the menu screen.

- To return to the previous screen  
Press **←**.



### 2 Select [Energy saving].

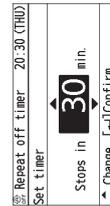


### 3 Select [Repeat off timer] and set to .



### 4 Set the timer to stop.

- ▲ ▼ → ← → **30** min.  
(Press 2 times to finish.)



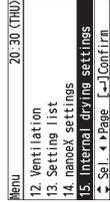
- 10 min to 180 min  
(by the 10 min)

## Internal Drying Settings

- 1 Display the menu screen.  
■ To return to the previous screen  
Press **←**.



### 2 Select [Internal drying settings].



### 3 Select [Setting for all units] or [Settings for individual units].



### 4 Set.

- Setting for all units

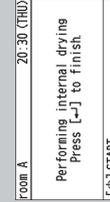


- Settings for individual units



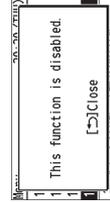
### To stop the internal drying operation

- Press **→**.
- If you wish to resume operating indoor units during internal drying, press **↻**.



### Note

- If the function is not fitted, the display shown on the right appears and this function cannot be used.



# 1. Operating Instructions

## Outing Function

This function prevents the room temperature from rising too high (or dropping too low) when no one is in the room due to outing, etc.

### General Performance of the Outing Function

COOL / DRY	Room temperature
① The air conditioner starts operation when the room temperature increases up to $-1^{\circ}\text{C}$ of the upper limit.	Outing function upper limit ① Room temperature
② The air conditioner stops operation when the room temperature decreases up to $-2^{\circ}\text{C}$ of the upper limit.	Room temperature ② Outing function Lower limit
HEAT	Room temperature
① The air conditioner starts operation when the room temperature decreases up to $+1^{\circ}\text{C}$ of the lower limit.	Room temperature ① Outing function Lower limit
② The air conditioner stops operation when the room temperature increases up to $+2^{\circ}\text{C}$ of the lower limit.	Room temperature ② Outing function upper limit

### [Precautions]

- The outing control only starts/stops the air conditioner. It does not change the operation mode/temperature setting. Therefore, the operation mode/temperature needs to be set beforehand so that the outing function turns on the air conditioner with your desired operation mode/temperature setting.
- If the room temperature rapidly changes, the room temperature may get over the upper or lower limit when the outing function is activated.
- The outing function is invalid during FAN/AUTO operation mode.
- The air conditioner's stop order (stated in ② / above) is valid only when the outing function is operated.
- If operated using other remote control unit (or a centralized control device such as a system controller), the outing function does not work.

### Outing function indication

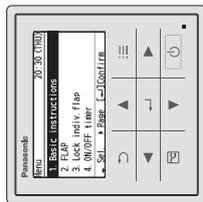
Outing function indication	Status
Off	The outing function is not set.
Flashing 	The outing function is now being set, or under operation.
Lighting 	Although the outing function is set, not under operation.

### Note

- A remote controller loses outing function operation information when it is cut for more than Seventy-two hours during the outing function operation by electricity. It reverts from the blackout, and an air conditioner does not drive in outing function when operation is started. At this time, an air conditioner does not stop at outing function.

## 1 Display the menu screen.

- Press  to return to the previous screen. Press .



## 2 Select [Outing function]

- Press  to select [Outing function].



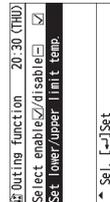
## 3 Select [Select enable/disable] and set to [✓].

- Press  to select [Select enable/disable].



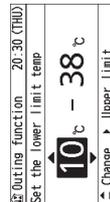
## 4 Select [Set lower/upper limit temp.]

- Press  to select [Set lower/upper limit temp.].



## 5 Set the temperature range.

- Press  to set the temperature range. (Press 2 times to finish.)



# 1. Operating Instructions

## Initial Settings ■ Controller name

The room to which the remote controller belongs can be easily identified.

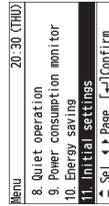


**1** Display the menu screen.

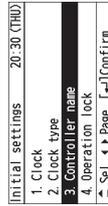


■ To return to the previous screen  
Press **←**.

**2** Select [Initial settings].



**3** Select [Controller name].



**4** Enter the name. (Repeat the same procedure for all characters.)



▲ ▼ → ← ▲ → → →  
• Up to 16 characters.  
(Space is included in the number of characters.)

■ To change the character type  
Select the character type with ▲ ▼  
▲ ▼ and press **↵**.

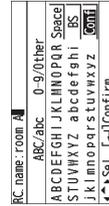


■ To enter space  
Select [Space] with ▲ ▼ ▲ ▼ and  
press **↵**.

■ To delete 1 character  
Select [BS] with ▲ ▼ ▲ ▼ and  
press **↵**.

**5** Select [Conf].

▲ ▼ ▲ ▼ → → → → →  
(Press 2 times to finish.)



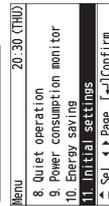
## Initial Settings ■ Clock type ■ Operation lock

**1** Display the menu screen.



■ To return to the previous screen  
Press **←**.

**2** Select [Initial settings].



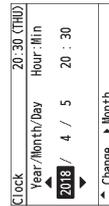
**3** Select the item to set.



### Clock

**4** Set the date and time.

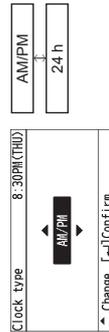
▲ ▼ → → → → → →  
(Repeat) (Press 2 times to finish.)



### Clock type

**4** Select the type to display.

▲ ▼ → → → → →  
(Press 2 times to finish.)



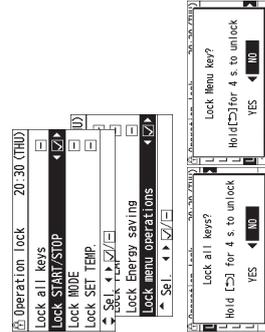
### Operation lock

**4** Select the type of lock and set to [✓].

▲ ▼ → → → → → →  
(Press 2 times to finish.)

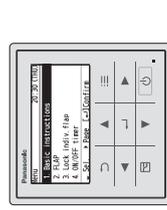
■ To cancel lock  
Select [ ] in step 4.

■ [Lock all keys] [Lock menu Operations]  
Select [YES].



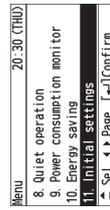
# 1. Operating Instructions

## Initial Settings ■ Password change ■ Temp sensor ■ Main/sub ■ Vent output ■ Contact address



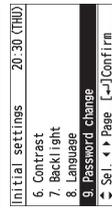
**1** Display the menu screen.

■ To return to the previous screen  
Press **←**.



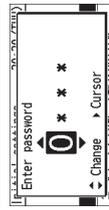
**2** Select [Initial settings].

▲ ▼ → ←



**3** Select the item to set.

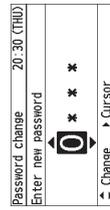
▲ ▼ → ←



**4** Enter the password as necessary.

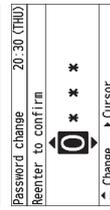
▲ ▼ → ← (Repeat)

• Select the number with ▲ ▼ and move to the next field with →.  
• A password does not need to be entered when displaying the contact address.



**5** Enter a new password.

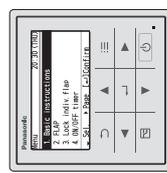
▲ ▼ → ← (Repeat)



**6** Enter the password again to confirm.

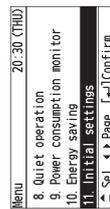
▲ ▼ → ← (Press 2 times to finish.)

## Initial Settings ■ Touch sound ■ Contrast ■ Language



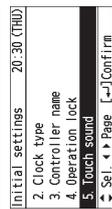
**1** Display the menu screen.

■ To return to the previous screen  
Press **←**.



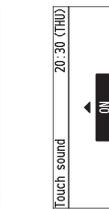
**2** Select [Initial settings].

▲ ▼ → ←



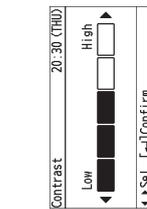
**3** Select the item to set.

▲ ▼ → ←



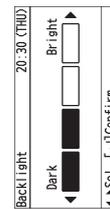
**Touch sound**

▲ ▼ → ← (Press 2 times to finish.)



**Contrast**

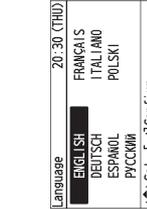
▲ ▼ → ← (Press 2 times to finish.)



**Backlight**

▲ ▼ → ← (Press 2 times to finish.)

• **Notes when using datanavi**  
When the brightness of the backlight is low, it may not be possible to receive data from smartphones.



**Language**

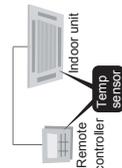
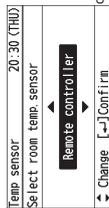
▲ ▼ → ← (Press 2 times to finish.)

# 1. Operating Instructions

\*To display each item, see steps 1 to 4 on the previous page.

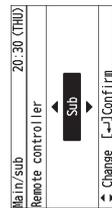
## Temp sensor

- 5 ▲ ▼ → → → → → (Press 2 times to finish.)
- Select the temperature sensor to control the room temperature.



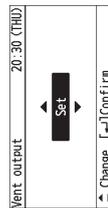
## Main/sub

- 5 ▲ ▼ → → → → → (Press 2 times to finish.)
- When 2 remote controllers are connected to the same indoor unit, this registers one remote controller as [Main] and the other as [Sub]. (There is no difference in function between Main and Sub, however, when the remote controller sensor is selected for the temperature sensor setting, the [Main] sensor controls the operation.)



## Vent output

- 5 ▲ ▼ → → → → → (Press 2 times to finish.)
- [Set]: When the air conditioner is turned ON/OFF, the connected ventilation fan is turned ON/OFF, too.
  - To interlock the air conditioner and the fan, another installation work is required.



## Contact address

- 5 Confirm, then → → → → → (Press 2 times to finish.)
- If you need to contact for servicing, check the back cover of the operating instructions for indoor units or outdoor units.



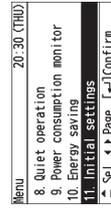
## Initial Settings ■ External device interlock

### 1 Display the menu screen.

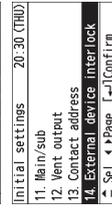


- To return to the previous screen Press →.

### 2 Select [Initial settings].



### 3 Select the item to set.

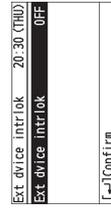


### 4 Enter the password as necessary.



## External device interlock

### 5 Select [Ext device interlock].



### 6 Select [ON].



# 1. Operating Instructions

## Initial Settings ■ External device interlock (Continued)

### Mode

#### 7 Select the item to set.

Ext. device interlock	20:30 (RHU)
Ext. device interlock Mode	ON
Human activity	Human activity
Duration of absence dtctn	0min
↓ Sel.	[←]Confirm

#### 8 Set and confirm.

(Press 2 times to finish.)

- **Human activity YES/NO**
  - Synchronizes the presence/absence output of the motion sensor.
- **Indoor unit ON/OFF**
  - Synchronizes the operation/stop output of the air conditioner.
- **Thermostat ON/OFF**
  - Synchronizes the thermostat ON/OFF output of the air conditioner.

### Duration of absence detection (Duration of absence dtctn)

#### 7 Select the item to set.

Ext. device interlock	20:30 (RHU)
Ext. device interlock Mode	ON
Human activity	Human activity
Duration of absence dtctn	0min
↓ Sel.	[←]Confirm

#### 8 Set and confirm.

(Press 2 times to finish.)

- **Duration of absence dtctn**
  - The operation-off timing can be changed. The setting can be made between 0 and 60 minutes by the minute.

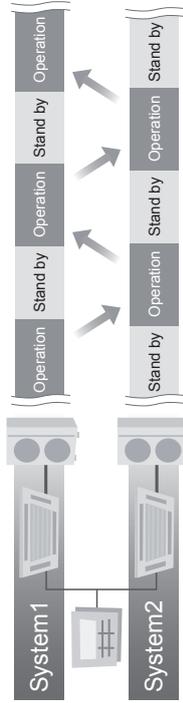
#### Note

- An administrator password is required to use external device interlock (P.43)
- The external device interlock can be set using the separately sold ECONAVI panel or by connecting the holder on the wall.
- When the [Ext device intrlok] is enabled, the mode setting and the absence detection time setting are displayed.

## Initial Settings ■ Rotation ■ Backup

### Rotation operation

Equalizes the operation time by stopping the operation in order. This prevents the operation time from being uneven depending on the refrigerant system.



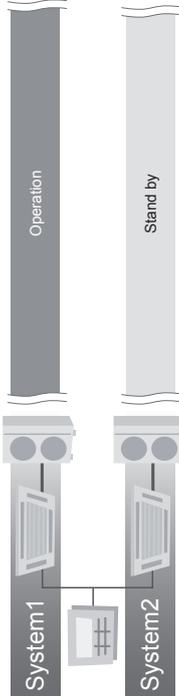
- The rotation operation can be set only when controlling 2 refrigerant systems of Single split system (combination of 1 outdoor unit and 1 indoor unit) by one remote controller.

### Backup operation

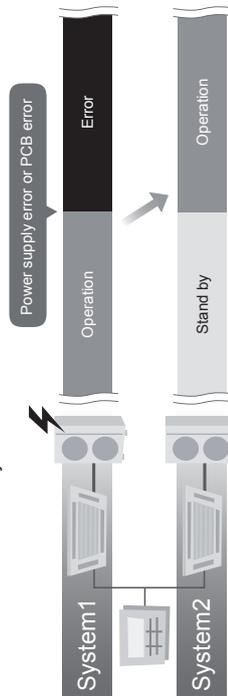
The backup operation is a support operation performed by a refrigerant system in standby mode when the room temperature does not reach the set temperature due to poor performance or occurrence of an alarm.

Example: When an error occurs while System 1 is in operation and System 2 is in standby, System 2 will start up.

- In normal condition



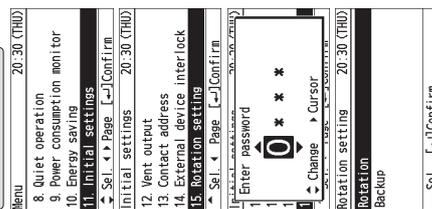
- When an error occurs in System 1



# 1. Operating Instructions

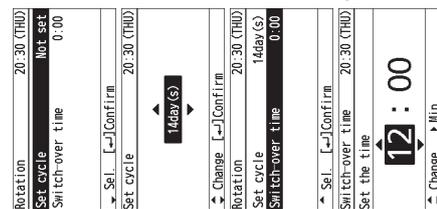
## Initial Settings ■ Rotation (Continued) ■ Backup (Continued)

- 1 Display the menu screen.  
  - To return to the previous screen  
Press
- 2 Select [Initial settings].  
  - ▲ ▼ →
- 3 Select the item to set.  
  - ▲ ▼ →
- 4 Enter the password.  
  - ▲ ▼ → → (Repeat)
- 5 Select the item to set.  
  - ▲ ▼ →



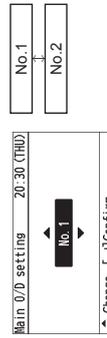
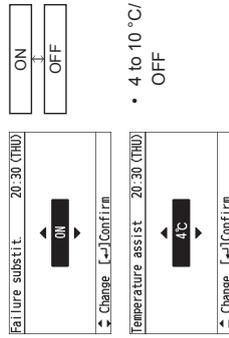
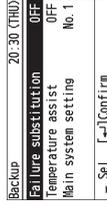
### Rotation

- 6 Select [Set cycle].  
  - ▲ ▼ →
- 7 Set [Set cycle].  
  - ▲ ▼ → →
    - 1 to 7 days (by the day)/ 14 days/ 21 days/ 28 days/None (Rotation operation OFF)
- 8 Select [Switch-over time].  
  - ▲ ▼ →
- 9 Set [Switch-over time].  
  - ▲ ▼ → → → (Press 2 times to finish.)



### Backup

- 6 Select the item to set.  
  - ▲ ▼ →
- 7 Set [Failure substitution]/ [Temperature assist]/[Main system setting].  
  - ▲ ▼ →
    - Failure substitution  
When this is set to ON, a system in standby mode will perform the support operation in case of alarm occurrence.
    - Temperature assist  
In Cool mode: Performs the support operation when the room temperature exceeds "set temperature + set value".  
In Heat mode: Performs the support operation when the room temperature is below "set temperature + set value".
    - Main system setting  
When "Set cycle" is set: System that performs the preceding operation  
When "Set cycle" is OFF: System that always performs the operation  
(The other system is a backup system.)



### Note

- An administrator password is required to use rotation settings. (P.43)
  - If the function is not fitted, the display shown on the right appears and this function cannot be used.
- 
- Setting cycle: The day when the setting is made is counted as one day.
  - Temperature assist: Immediately after the operation starts, the support operation is not performed for up to 1 hour.
  - Main system setting: Displays the system numbers that can be set.

# 1. Operating Instructions

## nanoe™ X Function

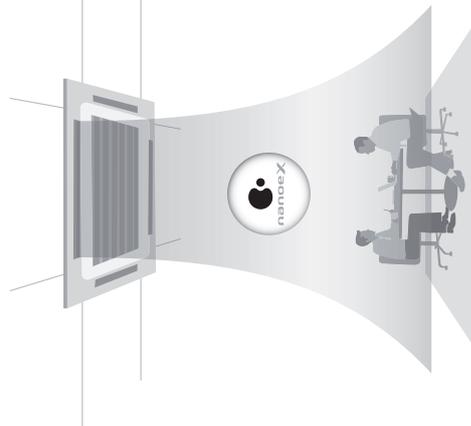
- nanoe™ X
- Internal cleaning

### Display during operation of nanoe™ X



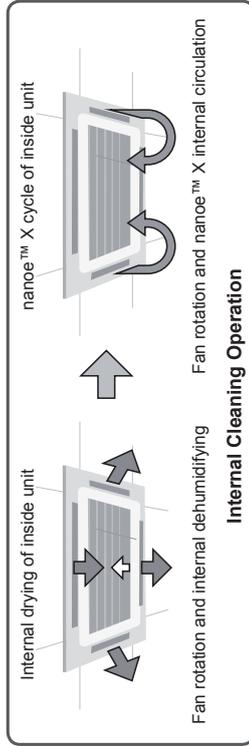
**nanoe X** :  
Under operation of nanoe™ X

**nanoe™ X** For a freshness and cleaner environment  
nanoe™ X generates negative ions using the air in the room to give a healthy air. It also reduces the smell in the room, and constrains propagations of mold and bacteria.



### Internal Cleaning Function

- **Internal Cleaning Operation**  
When cooling or dry operation stopped, internal drying and nanoe™ X circulation airflow is activated in order to suppress the mold proliferation inside the unit (airflow passage, fan, heat exchanger). According to the installation environment or operating hours, mold proliferation or inhibition of mold growth will be changed.



**ROOM A** 20:30 (THU)  
Cleaning the inside of air conditioner with nanoe X  
Press [←] to finish.  
[OK] START

- Operating conditions and operating hours  
Operates in cooling or dry mode for more than 5 minutes.  
When finished, the internal cleaning operation is started.  
Drives for about Max 75 minutes.
- The figure at right shows the display during the internal cleaning operation.
- If you wish to resume operating during internal cleaning, press .

**ROOM A** 20:30 (THU)  
[OK] START

- **To stop the internal cleaning operation**  
Press .  
• When the internal cleaning operation finished and stopped, the remote control display shows at right.

#### Note

- When connected to the remote controller, the internal cleaning function is set to work automatically. If you wish to set to OFF, see page 52.
- In case that the operation time of the air conditioner is less than 5 minutes, the internal cleaning operation cannot be performed.
- While the internal cleaning operation is running, the indoor temperature may occasionally increase.

# 1. Operating Instructions

3

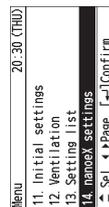
## 1 Display the menu screen.

- To return to the previous screen  
Press .



## 2 Select [nanoeX settings].

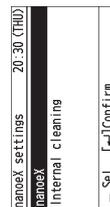
- ▲ ▼ → →



## nanoe™ X

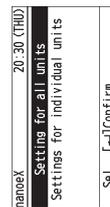
## 3 Select [nanoeX].

- ▲ ▼ → →



## 4 Select [Setting for all units] or [Settings for individual units].

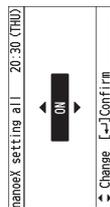
- ▲ ▼ → →



## 5 Set.

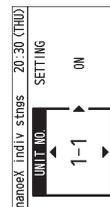
- Setting for all units  
▲ ▼ → → → →

(Press 2 times to finish.)



- Settings for individual units  
▲ ▼ → → → →

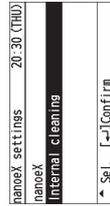
(Press 2 times to finish.)



## Internal cleaning

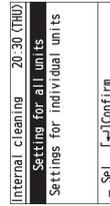
### 3 Select [Internal cleaning].

- ▲ ▼ → →



### 4 Select [Setting for all units] or [Settings for individual units].

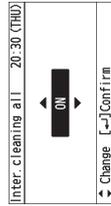
- ▲ ▼ → →



### 5 Set.

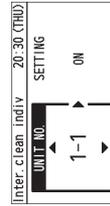
- Setting for all units  
▲ ▼ → → → →

(Press 2 times to finish.)

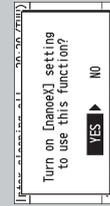


- Settings for individual units  
▲ ▼ → → → →

(Press 2 times to finish.)



In case of nanoe™ X set to OFF, the display shown on the right appears.



### Note

- In the following case, the message appears and this function cannot be used.
  - When the indoor unit is not supported, or the nanoe™ X kit is not equipped



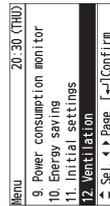
# 1. Operating Instructions

## Ventilation Setting

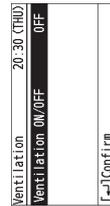
- 1 Display the menu screen.  
 ■ To return to the previous screen  
 Press .



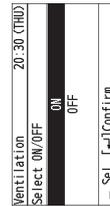
- 2 Select [Ventilation].  
 ▲ ▼ → 



- 3 Select [Ventilation ON/OFF].  
 → 

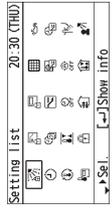


- 4 Select [ON] or [OFF].  
 ▲ ▼ →  →  (Press 2 times to finish.)



## Setting List

This provides the meanings of setting information icons.

- 1 Display the menu screen.  
 ■ To return to the previous screen  
 Press .
- 
- 2 Select [Setting list].  
 ▲ ▼ → 
- 
- 3 Select the item.  
 ▲ ▼ ▲ ▲ → 
    - Only icons currently being displayed on the screen are displayed here.
- 
- 4 Confirm.  
 Confirm, then  →  (Press 2 times to finish.)
- 

# 1. Operating Instructions

## Setting List

### ■ Setting information icon list

Icon	Description	Page
	[Lock indiv. flap] is set.	P.13
	Switching between Heat and Cool/Dry mode is prohibited (Switching to Auto mode is also prohibited.).	—
	Remote control operation is restricted by a central control device.	—
	The indoor unit filter needs to be cleaned.	P.20
	The engine oil needs to be replaced (only when the gas heat pump air conditioner is used).	—
	[ON/OFF timer] is set.	P.14
	[Weekly timer] is set.	P.15
	Energy saving operation is in process.	P.8
	The operation capacity of the outdoor unit is restricted.	—
	[Schedule peak cut] is set.	P.34
	[Temp auto return] is set.	P.30
	[Temp range] is set.	P.31
	[Auto shutoff] is set.	P.32
	[Repeat off timer] is set.	P.36
	[Quiet operation] is set.	P.22
	The temperature sensor of the remote controller is detecting the room temperature.	P.44
	[Operation lock] is set.	P.40
	Fresh air is used for ventilation. (Only when connecting a heat exchange ventilation unit or connecting a commercially sold fan)	P.54
	[Outing function] is set.	P.38
	[Direct airflow] is set.	P.28
	[Indirect airflow] is set.	P.28
	[Circulation] is set.	P.29
	The rotation operation is set.	P.47

## Troubleshooting

If operation does not start by pressing ...

### Check the following before asking for repair.

**When the [START/STOP] message is displayed**

- Being centrally controlled, operation is not possible.

**Blackout?**

- After recovery from blackout, press again.  
→ If operation does not start, turn off the circuit breaker and consult the dealer of purchase about the symptom and Model No.

**Is the circuit breaker turned off?**

- Turn it on and press again.  
→ If operation does not start, turn off the circuit breaker and consult the dealer of purchase about the symptom and Model No.

**Is [Assigning] blinking?**

- After blinking stops, press again.  
→ If operation does not start, turn off the circuit breaker and consult the dealer of purchase about the symptom and Model No.

**Is [△] displayed?**



- If any of the following alarm indications appears, stop operation once and restart approx. 1 minute later.  
(Alarm indication, off)  
→ If the indication does not reappear, use the unit.  
→ If the indication reappears or an alarm indication other than the above (combination of numbers and characters such as E, F, H, L and P) appears, stop operation, turn off the circuit breaker and consult the dealer of purchase about alarm indication, Model No. and indoor unit No.

**Cannot stop the operation. Or the unit starts to run automatically even if button is pressed.**

- Check if the outing function is activated or not. ()
- Check control by central control device.

# 1. Operating Instructions

## Troubleshooting

The remote controller screen displays a flashing “”.

- Faulty sensor or incorrect installation.  
→ Turn OFF the ECONAVI function with the remote controller and contact the retailer or point of purchase with the Model No. and problem.

The remote controller screen does not display the **ECONAVI**.

- The indoor unit has stopped. Turn on the indoor unit.
- The unit is in Fan mode. The ECONAVI function does not operate in Fan mode.
- The ECONAVI function is set to OFF. Turn the ECONAVI function ON with the remote controller.
- The indoor unit may not support the ECONAVI function. If you turn the ECONAVI function ON with the remote control but there is no change, the indoor unit does not support the ECONAVI function. Please contact the dealer.

The remote controller screen displays “”.

- nanoe™ X is considered abnormal.  
→ Turn OFF the nanoe™ X function with the remote controller and contact the retailer or point of purchase with the Model No. and problem.

• If you need to contact for servicing, check the back cover of the operating instructions for indoor units or outdoor units.

## Specifications

<b>Model No.</b>	CZ-RTCSB
<b>Dimensions</b>	(H) 120 mm x (W) 120 mm x (D) 16 mm
<b>Weight</b>	180 g
<b>Temperature/ Humidity range</b>	0 °C to 40 °C / 20% to 80% (No condensation) *Indoor use only.
<b>Power Source</b>	DC16 V (supplied from indoor unit)
<b>Precision</b>	± 30 seconds/month (at normal temperature 25 °C) **Adjust periodically.
<b>Clock Holding time</b>	72 hours (When fully charged) **Approx. 8 hours are required for full charge.
<b>Number of connected indoor units</b>	Indoor unit: Up to 8 units (During group-controlling)

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## 2. Installation Instructions

# Panasonic®

### Installation Instructions

### High-spec Wired Remote Controller

Model No. **CZ-RTC5B**



## English

Read through the Installation Instructions before you proceed with the installation.  
In particular, you will need to read under the "Safety Precautions" on page 3.

### Contents

● Part Names .....	2
● Supplied accessories .....	2
● Safety Precautions .....	3
● Specifications .....	4
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Set elec. consumption .....	12
● Confirming Information .....	13
● Test Operation .....	14



Panasonic Corporation  
1006 Kadoma, Kadoma City, Osaka, Japan

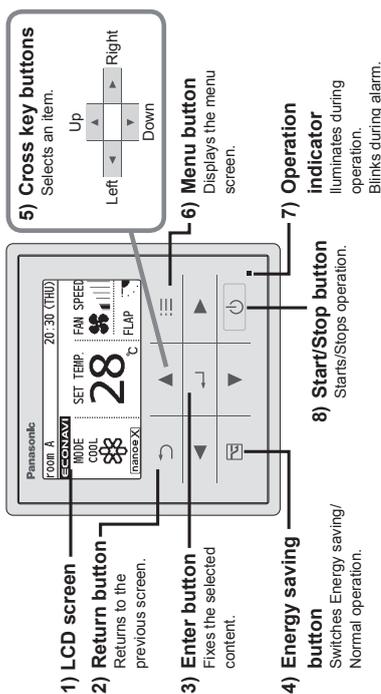
Panasonic Corporation  
<http://www.panasonic.com>

H1118-0  
CV6233312187

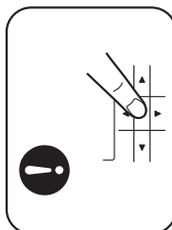
## 2. Installation Instructions

### Part Names

Control panel



### Note



### Safety Precautions

- Read the installation Instructions carefully to install the remote controller correctly and safely. Be sure to read the Safety Precautions in particular before installation.
  - After the installation is complete, perform test operation to confirm that no abnormality is present.
  - We assume no responsibility for accidents or damages resulting from methods other than those described in the installation instructions or methods without using specified parts. Malfunctions that occurred due to the unauthorised installation methods are not covered by the product warranty.
  - Read the installation instructions supplied with indoor units as well.
- ⚠ CAUTION**
- Do not use the remote controller at the following locations.
    - Location where condensation occurs
    - Location where flammable gases, etc. may leak
    - Location where corrosive gases, etc. may leak
    - Location with lots of water or oil droplets (including machine oil)
    - Location where voltage fluctuation frequently occurs
  - Location where there is a machine producing electromagnetic radiation
  - Location where droplets of organic solvents spread
  - Location where acidic or alkaline solutions or special sprays are frequently used
  - Do not operate with wet hands.
  - Do not wash with water.

**⚠ WARNING**  
This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

**⚠ CAUTION**  
This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

- ⚠ WARNING**
- Turn off the circuit breaker of the units before installation.
  - Ask your dealer or professionals for installation and electric work.

**(NOTICE)** The English text is the original instructions. Other languages are translation of the original instructions.

\*Remote control wiring is not supplied. (field supplied item)

Supplied accessories		
<b>Screw</b> M3.8 x 16 (2)	<b>Instructions</b> (1)	<b>Clamper</b> (1)
	<b>Quick Reference</b> (1)	

## 2. Installation Instructions

### Specifications

Model No.	CZ-RTC5B
Dimensions	(H) 120 mm x (W) 120 mm x (D) 16 mm
Weight	180 g
Temperature/ Humidity range	0 °C to 40 °C / 20 % to 80 % (no condensation) *Indoor use only.
Power Source	DC16 V (supplied with indoor unit)
Clock precision	± 30 seconds/month (at normal temperature 25 °C) *Adjust periodically.
Number of connectable indoor units	Up to 8 units

#### datanavi

This unit supports datanavi.  
For details on the usage, supporting regions, etc.,  
visit the following URL.  
<https://datanavi.ac.smartcloud.panasonic.com/global/>



#### Rotation operation

It is possible to make rotation operation settings on this unit.  
For more information, refer to the Operating Instructions in CD (supplied).

### Installation Precautions

#### Installation location

- 
- Install at the height of 1 to 1.5 m from the floor (Location where average room temperature can be detected).
  - Install vertically against the floor.
  - When installing more than 1 remote controller next to each other, keep distance of 5 mm on the right and left and 50 mm on top and bottom.
  - Avoid the following locations for installation.
    - By the window, etc. exposed to direct sunlight or direct air
    - In the shadow or backside of objects deviated from the room airflow.
    - Location where condensation occurs (The remote controller is not moisture proof or drip proof.)
    - Location near heat source
    - Uneven surface
  - Keep distance of 1 m or more from the TV, radio and PC. (Cause of fuzzy images or noise)

#### Remote control wiring

##### ■ Wiring diagram



##### ■ Type of wiring

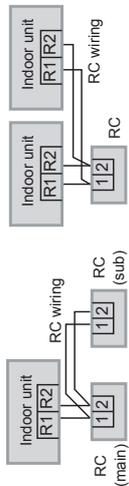
- Use cables of 0.5 to 1.25 mm<sup>2</sup>.
- Total wire length: 500 m or less (The wire length between indoor units should be 200 m or less.)
- Number of connectable units  
Remote controller: Max. 2  
Indoor unit: Max. 8

##### Attention

- Use the field supplied RC wiring with at least 1 mm in thickness of insulation part including the sheath. Regulations on wire diameters differ from locally to locally. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning. You must ensure that installation complies with relevant rules and regulations.
- Be careful not to connect cables to other terminals of indoor units (e.g. power source wiring terminal). Malfunction may occur.
- Do not bundle together with the power source wiring or store in the same metal tube. Operation error may occur.
- If noise is induced to the unit power supply, attach a noise filter.

## 2. Installation Instructions

Wiring as shown below is prohibited.



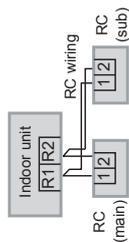
### When setting both the main and sub remote controllers

After installation, set one remote controller to [Main] and the other to [Sub] for [Main/sub] for "Setting" (P.11).

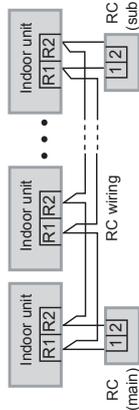
When using the remote controllers\* in combination, set this unit to [Main].

\*CZ-RTC2, CZ-RTC4, CZ-RETC4, CZ-RE2C2, CZ-RELC2

### ■ Using 1 indoor unit



### ■ Using more than 1 indoor unit

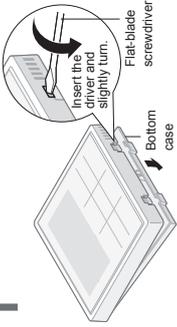


### Note

- Remote controllers can be connected to any indoor unit for operation.

## Mounting

### 1 Remove the bottom case.



### Attention

**Mounting the bottom case**

- Tighten the screws securely until the screw heads touch the bottom case. (Otherwise, loose screw heads may hit the PCB and cause malfunction when mounting the top case.)
- Do not over-tighten the screws. (The bottom case may be deformed, resulting in fall of the unit.)

**Connecting the remote control wiring**

- Arrange the wires as shown in the illustration for ② in step 2, avoiding unnecessary wires being stored in the remote controller case. (Caught wires may destroy the PCB.)
- Avoid wires touching parts on the PCB. (Caught wires may destroy the PCB.)

### 2 Mount to the wall.

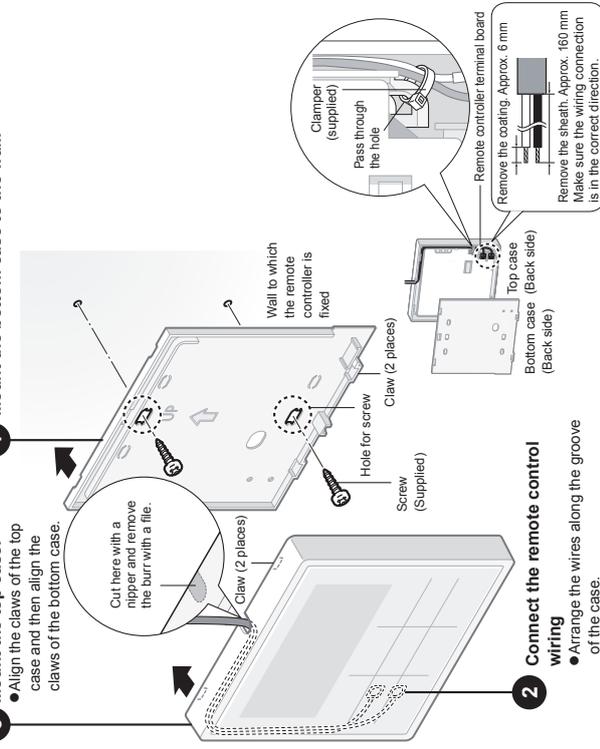
## Exposed type

Preparation: Make 2 holes for screws using a driver.

### 3 Mount the top case.

- Align the claws of the top case and then align the claws of the bottom case.

### 1 Mount the bottom case to the wall.



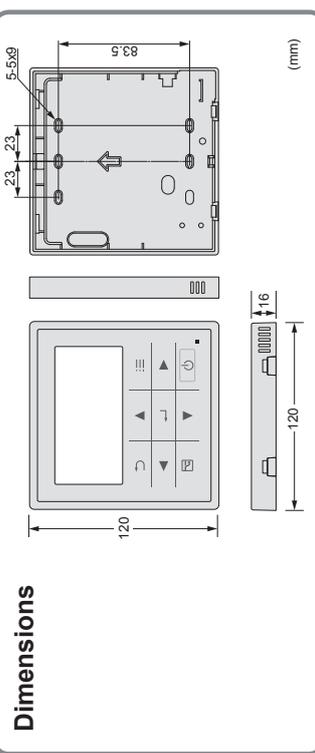
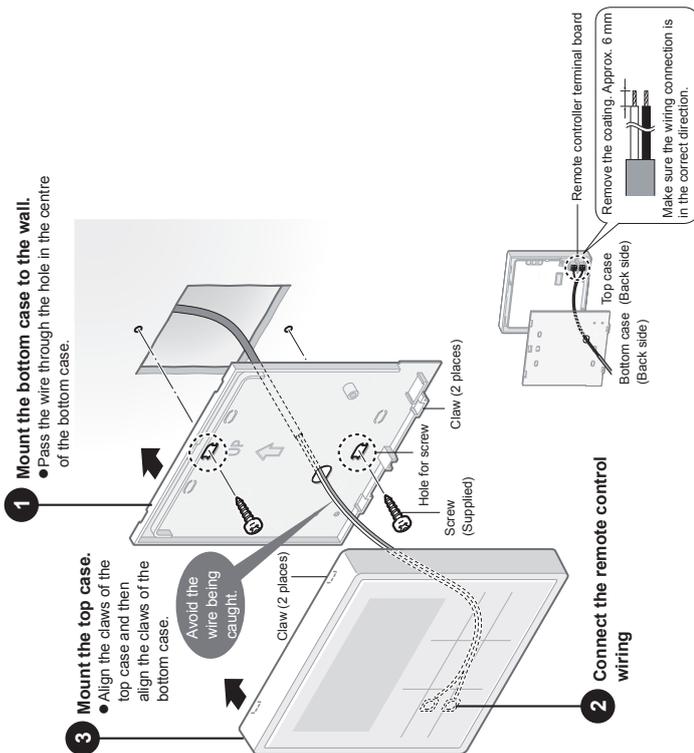
### 2 Connect the remote control wiring

- Arrange the wires along the groove of the case.

## 2. Installation Instructions

### Embedded type

**Preparation:** Make 2 holes for screws using a driver.



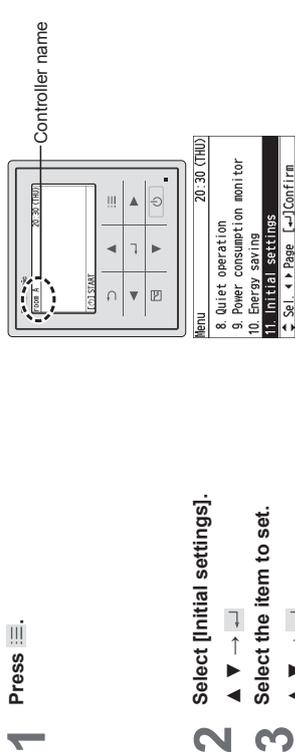
## Setting

- Language
- Clock
- Controller name

**Preparation:** Turn on the circuit breaker of units and then turn the power on. The remote controller starts, and wait until the [Assigning] display disappears. (If [Assigning] continues to blink for 10 minutes or more, check the address setting of indoor units.)

**Note** To return to the previous screen

Press **D**.



**2 Select [Initial settings].**

▲ ▼ → ←

**3 Select the item to set.**

▲ ▼ → ←

### Language

**4 Set.**

▲ ▼ → ←

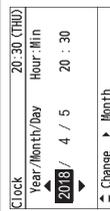


### Clock

**4 Set.**

▲ ▼ → ←

(Repeat)



### Controller name

**4 Set.**

▲ ▼ → ←

(Repeat the same procedure for all characters.)

**To change the character type**

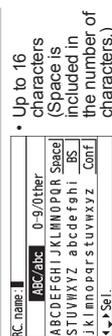
Select the character type with ▲ ▼ → ← and press **→**.

**To enter space**

Select [Space] with ▲ ▼ → ← and press **→**.

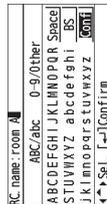
**Select [Conf].**

▲ ▼ → ←



**To delete 1 character**

Select [BS] with ▲ ▼ → ← and press **→**.



## 2. Installation Instructions

### Setting

#### ■ Service contact

- Press and hold the 3 buttons for 4 seconds or more simultaneously.



- Select the item to set.



Maintenance func	20:30 (THU)
1. Outdoor unit error data	
2. Service contact	
3. RC setting mode	
4. Test run	
← Sel. → Page. → Conf. →	

### Service contact

- Select. (Name)



Service contact	20:30 (THU)
Name	Unset
Contact number	Unset
← Sel. → Page. → Conf. →	
Name	ABC/abc 0-9/Other
ABCDEFGHIJKLMNPQR Space	
STUVWXYZ abcdefghi BS	
klmnopqrstuvwxyz Conf	
← Sel. →	

- (Repeat the same procedure for all characters.)



- To change the character type  
Select the character type with ▲▼◀▶ and press →.
- To enter space  
Select [Space] with ▲▼◀▶ and press →.

- Select [Conf].



Name	XXXXXXXXXXXX
ABC/abc 0-9/Other	
ABCDEFGHIJKLMNPQR Space	
STUVWXYZ abcdefghi BS	
klmnopqrstuvwxyz Conf	
← Sel. → Page. → Conf. →	

- Select on the screen for step 3. (Contact number)



- (Repeat the same procedure for all characters.)



Contact number	1 2 3 + - Space
4 5 6 ( ) BS	
7 8 9 0 * # Conf	
← Sel. → Enter	

- Select [Conf].



Contact number	XXXXXXXXXXXX
1 2 3 + - Space	
4 5 6 ( ) BS	
7 8 9 0 * # Conf	
← Sel. → Page. → Conf. →	

### Setting

#### ■ RC. setting mode

#### ■ Detailed settings

- Press and hold the 3 buttons for 4 seconds or more simultaneously.



- Select the item to set.



Maintenance func	20:30 (THU)
1. Outdoor unit error data	
2. Service contact	
3. RC setting mode	
4. Test run	
← Sel. → Page. → Conf. →	

### RC. setting mode

- Set.

(Select the Code no. and Set data.)



(Repeat)



Press

- After Selecting [YES], the unit restarts.

Code no.

01	Main/sub	Set this when using 2 remote controllers.	Set data • 0000: Sub • 0001: Main (factory setting)
02	Clock type	Set the type of clock display.	• 0000: 24 hours • 0001: 12 hours (AM/PM)
2F	Password change	Set the administrator password.	• 0000 to 9999
36	Display of operation lock cancelling method	Set whether to display the operation lock cancelling method on the lock screen while operation is locked. (For the lock screen, see the "Part Names" section in the Operating Instructions.)	• 0000: Displayed • 0001: Not displayed • 0002: Not displayed (password)

### Detailed settings

- Set.

(Select the indoor unit number, Code no. and Set data.)



(Repeat)



Press

- After Selecting [YES], the unit restarts.

Code no.

31	Vent output setting	Set this when connecting a commercially sold fan, etc. to the ventilation fan output "FAN DRIVE 2P (White)" on the indoor control board. *Dedicated cables (optional) are required.	Set data • 0000: Not connected • 0001: Connected
32	Temp sensor setting	Set this when measuring the room temperature with the room temperature sensor of the remote controller. • When using the main and sub controllers, the main one is enabled. • When using the remote sensor in combination, set the indoor setting as "Indoor". *This setting is not available during group-controlling.	Set data • 0000: Indoor unit • 0001: Remote controller
33	Temp display setting	Set the type of temperature display.	• 0000: °C • 0001: °F



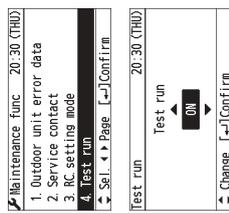
## 2. Installation Instructions

### Test Operation

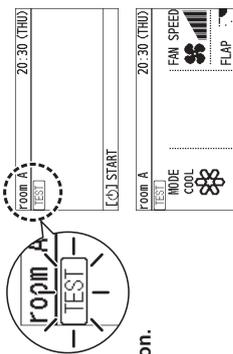
- 1** Press and hold the 3 buttons for 4 seconds or more simultaneously.



- 2** Select [Test run].



- 3** Select [ON]. (The unit enters the test operation mode. Then, [TEST] turns on.)



Press .

- 4** Perform the test operation.



- 5** Finish the test operation.

Perform step 1 and 2, and then select [OFF] in step 3. ([TEST] display disappears.)

- The test operation can be performed in Heat or Cool mode.
- Temperature cannot be changed.
- The test operation mode is automatically turned off in 60 minutes. (To prevent continuous test operation)
- Outdoor units do not operate for approx. 3 minutes after the power is turned on or operation is stopped.

#### Attention

- Do not use this mode for purposes other than the test operation. (To prevent overload of the units)
- Read the installation instructions supplied with the units.



## Contents

### 4. VRF SYSTEMS INDOOR UNIT SPECIFICATIONS

<b>1. Air-to-Water Heatpump (Type W1)</b> .....	<b>4-2</b>
1-1. Specifications .....	4-2
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1-3. Dimensional Data .....	4-5
1-4. Noise Criterion Curves .....	4-6
1-5. External Static Pressure Setting .....	4-6

# 1. Air-to-Water Heatpump (Type W1)

## 1-1. Specifications

### Unit specifications

INDOOR		MODEL		S-80MW1E5			S-125MW1E5				
PERFORMANCE TEST CONDITION				EN14511							
POWER SUPPLY		ø, Hz		1ø 50Hz			1ø 50Hz				
		V		220	230	240	220	230	240		
C O L I N G	CAPACITY	kW		8.00	8.00	8.00	12.5	12.5	12.5		
		BTU/h		27300	27300	27300	42700	42700	42700		
		kcal/h(Fri./h)		-	-	-	-	-	-		
	CURRENT		Rated/Max. A		0.28 / 1.17	0.28 / 1.18	0.28 / 1.19	0.50 / 1.17	0.52 / 1.18	0.52 / 1.19	
	INPUT POWER		Rated/Max. kW		0.04 / 0.18	0.04 / 0.19	0.04 / 0.20	0.07 / 0.18	0.07 / 0.19	0.08 / 0.20	
	ANNUAL CONSUMPTION		W		-	-	-	-	-	-	
	EER/EER CLASS		(W/W) / ("A"~"G")		-	-	-	-	-	-	
	EER		BTU/hW		-	-	-	-	-	-	
	POWER FACTOR		%		-	-	-	-	-	-	
	NOISE INDOOR		Rated/Max. dB (A)		35 / 37			37 / 39			
Rated/Max. Power Level dB			48 / 50			50 / 52					
NOISE OUTDOOR (H/L)		dB-A		-			-				
		Power Level dB		-			-				
H E A T I N G	CAPACITY	kW		9.00	9.00	9.00	14.0	14.0	14.0		
		BTU/h		30700	30700	30700	47800	47800	47800		
		kcal/h(Fri./h)		-	-	-	-	-	-		
	CURRENT		Rated/Max. A		0.36 / 13.7	0.36 / 14.3	0.37 / 14.9	0.59 / 13.7	0.61 / 14.3	0.62 / 14.9	
	INPUT POWER		Rated/Max. kW		0.05 / 2.94	0.05 / 3.20	0.05 / 3.48	0.08 / 2.94	0.09 / 3.20	0.09 / 3.48	
	COP/COP CLASS		(W/W) / ("A"~"G")		-	-	-	-	-	-	
	COP		BTU/hW		-	-	-	-	-	-	
	POWER FACTOR		%		-	-	-	-	-	-	
	NOISE INDOOR		Rated/Max. dB (A)		34 / 37			36 / 39			
			Rated/Max. Power Level dB		47 / 50			49 / 52			
NOISE OUTDOOR (H/L)		dB-A		-			-				
		Power Level dB		-			-				
EXTRA LOW TEMP	CAPACITY(kW)/INPUT POWER(W)/COP		-			-					
Cooling	MAX CURRENT(A)/MAX INPUT POWER(kW)		1.17 / 0.18	1.18 / 0.19	1.19 / 0.20	1.17 / 0.18	1.18 / 0.19	1.19 / 0.20			
Heating	MAX CURRENT(A)/MAX INPUT POWER(kW)		13.7 / 2.94	14.3 / 3.20	14.9 / 3.48	13.7 / 2.94	14.3 / 3.20	14.9 / 3.48			
STARTING CURRENT(A)/COMP OUTPUT(W)		-		-		-		-			
NETWORK IMPEDANCE(ΩMAX.)		-		-		-		-			
FM OUTPUT (ID/OD) W		-		/		-		/			
MOISTURE REMOVAL VOLUME		L/h (Pt/h)		-		(-)		(-)			
Extarnal static pressure		Pa		-		-		-			
I/D WATER FLOW	COOL	L/min		22.9		35.8					
	HEAT	L/min		25.8		40.1					
Maximum working pressure (water)		MPa		0.3		0.3					
Minimum water amount		Litres		50		50					
P R O M	HEIGHT : H mm (inch)		892 (35-1/8)			892 (35-1/8)					
	WIDTH : W mm (inch)		502 (19-25/32)			502 (19-25/32)					
	DEPTH : D mm (inch)		353 (13-29/32)			353 (13-29/32)					
P A I C M	HEIGHT : H mm (inch)		1,041 (41)			1,041 (41)					
	WIDTH : W mm (inch)		626 (24-21/32)			626 (24-21/32)					
	DEPTH : D mm (inch)		462 (18-7/32)			462 (18-7/32)					
MASS	(NET) kg (lb)		43 (95)			43 (95)					
	(GROSS) kg(lb)		50 (110)			50 (110)					
LAYERS LIMIT (actually)		3(4)			3(4)						
Operation Condition (Heat pump Opration)		Cool O.D(DBT)		-10 ~ 43							
		Heat O.D(DBT)		-20 ~ 43							
		Cool & Heat MIX O.D(DBT)		-10 ~ 43							
		Cool Water outlet		5 ~ 20							
		Heat Water outlet		25 ~ 45							
		Cool Water inlet		10 ~ 45							
Heat Water inlet		10 ~ 45									
P I P I N G	PIPE DIAMETER mm (inch)		(Liquid)ø9.52 (3/8) (Gas)ø15.88 (5/8) (Water)ø31.75(1-1/4)			(Liquid)ø9.52 (3/8) (Gas)ø15.88 (5/8) (Water)ø31.75(1-1/4)					
	CONNECT METHOD, STD LENGTH m (ft)		flared type			flared type					
	ADD GAS AMOUNT g/m (oz/ft)		-			-					
	PIPE LENGTH FOR ADDITIONAL GAS m (ft)		-			-					

## 1. Air-to-Water Heatpump (Type W1)

### 1-2. Major Component Specifications Indoor unit (A)

<b>MODEL No.</b>		<b>S-80MW1E5</b>
<b>Power source</b>		220-230-240V Single-phase 50Hz
<b>Controller P.C.B. Ass'y</b>		A748360
<b>Electronic expansion valve</b>		
Coil		HAM-MD12MS-111
Coil resistance (at 20°C)	Ω	WHT – RED : 46
		YEL – RED : 46
		ORG – RED : 46
		BLU – RED : 46
Valve body		HAM-BD30MS-3
<b>Safety device</b>		Bi-metal Thermostat Residual Current Circuit Breaker
<b>Water Pump</b>		
Model		PY-122NDJA3
Moter type		DC Motor
Rated voltage		311VDC
Power consumption (at rated voltage)	W	173
Rated total head	m	7.2
Rated capacity	L/min	Not less than 46
<b>Brazed Pleate Heat Exchanger</b>		
Model		V26Hx36 /1P-SC-F
Plate Material		Stainless steel
Brazed material		Copper
Number of plate		36
Total heat transfer area	m <sup>2</sup>	1.36
<b>Electrical heater</b>		
Capacity	kW	1.0 + 2.0
<b>Expansion Vessel</b>		
Volume	L	10
Max Water pressure	bar	3
<b>Pressure Relief Valve Water Circuit</b>		
		Open: 300, Close: 265 and below
<b>Flow Switch</b>		
		Magnetic Lead Switch

## 1. Air-to-Water Heatpump (Type W1)

### Indoor unit (B)

<b>MODEL No.</b>		<b>S-125MW1E5</b>
<b>Power source</b>		220-230-240V Single-phase 50Hz
<b>Controller P.C.B. Ass'y</b>		A748360
<b>Electronic expansion valve</b>		
Coil		HAM-MD12MS-111
Coil resistance (at 20°C)	Ω	WHT – RED : 46
		YEL – RED : 46
		ORG – RED : 46
		BLU – RED : 46
Valve body		HAM-BD30MS-3
<b>Safety device</b>		Bi-metal Thermostat Residual Current Circuit Breaker
<b>Water Pump</b>		
Model		PY-122NDJA3
Moter type		DC Motor
Rated voltage		311VDC
Power consumption (at rated voltage)	W	173
Rated total head	m	7.2
Rated capacity	L/min	Not less than 46
<b>Brazed Pleate Heat Exchanger</b>		
Model		V26Hx44 /1P-SC-F
Plate Material		Stainless steel
Brazed material		Copper
Number of plate		44
Total heat transfer area	m <sup>2</sup>	1.68
<b>Electrical heater</b>		
Capacity	kW	1.0 + 2.0
<b>Expansion Vessel</b>		
Volume	L	10
Max Water pressure	bar	3
<b>Pressure Relief Valve Water Circuit</b>		
		Open: 300, Close: 265 and below
<b>Flow Switch</b>		
		Magnetic Lead Switch

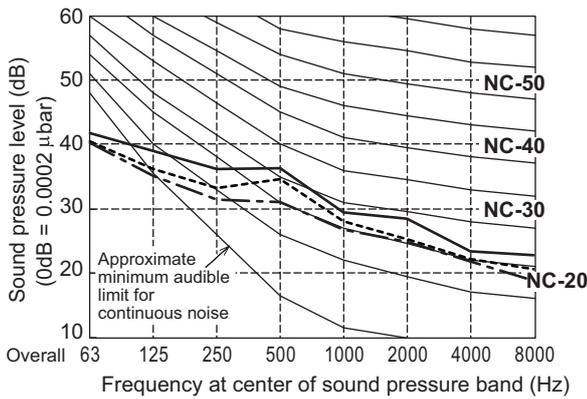


# 1. Air-to-Water Heatpump (Type W1)

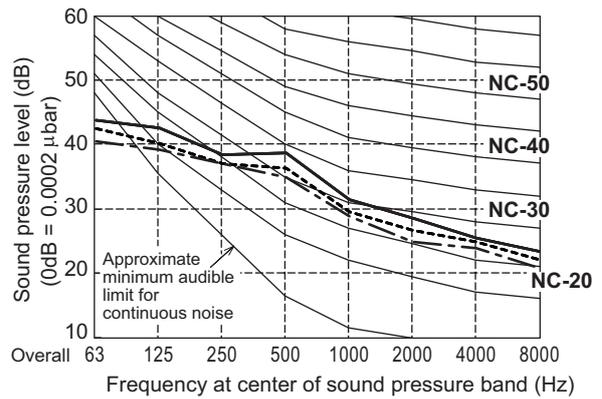
## 1-4. Noise Criterion Curves

### COOLING

MODEL	: S-80MW1E5
SOUND LEVEL : HIGH	37 dB(A)
MEDIUM	35 dB(A)
LOW	33 dB(A)
CONDITION	: 1.5 m directly below unit

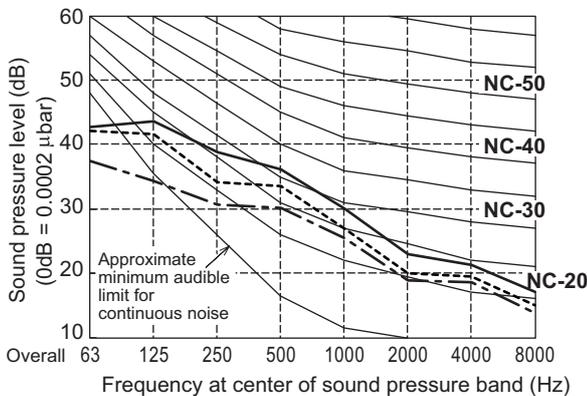


MODEL	: S-125MW1E5
SOUND LEVEL : HIGH	39 dB(A)
MEDIUM	37 dB(A)
LOW	36 dB(A)
CONDITION	: 1.5 m directly below unit

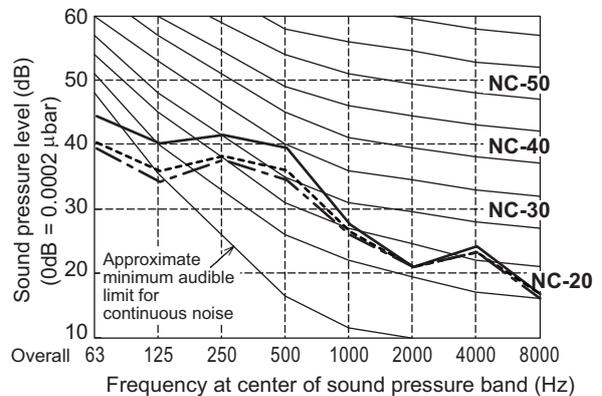


### HEATING

MODEL	: S-80MW1E5
SOUND LEVEL : HIGH	37 dB(A)
MEDIUM	34 dB(A)
LOW	31 dB(A)
CONDITION	: 1.5 m directly below unit

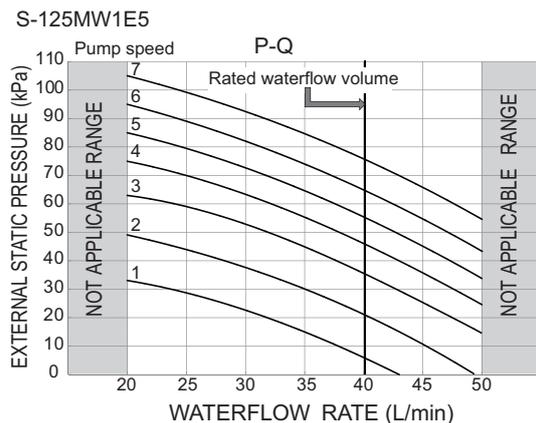
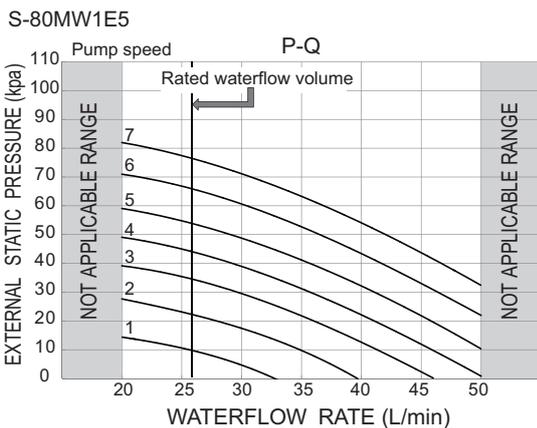


MODEL	: S-125MW1E5
SOUND LEVEL : HIGH	39 dB(A)
MEDIUM	36 dB(A)
LOW	35 dB(A)
CONDITION	: 1.5 m directly below unit



4

## 1-5. External Static Pressure Setting



## Contents

## 5. TEST RUN

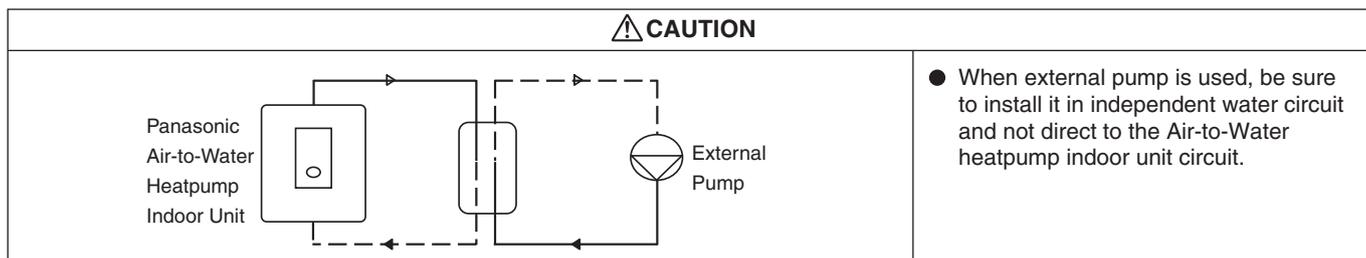
\*Refer to the Technical Data of Outdoor Unit.

Refer to the following operations in the high-spec wired remote controller (CZ-RTC5B)

<b>1. Test Run of Water Circuit</b> .....	<b>5-2</b>
1-1. How to Remove Front Plate .....	5-2
1-2. How to Remove Side Cabinet .....	5-2
1-3. Initial Setting for Air-to-Water Unit .....	5-3
1-4. Detailed Settings for Air-to-Water (extract) .....	5-5
<b>2. Test Run</b> .....	<b>5-6</b>
■ CZ-RTC5B (High-spec wired remote controller) .....	5-6
<b>3. Auto Address Setting</b> .....	<b>5-7</b>
■ CZ-RTC5B (High-spec wired remote controller) .....	5-7

# 1. Test Run of Water Circuit

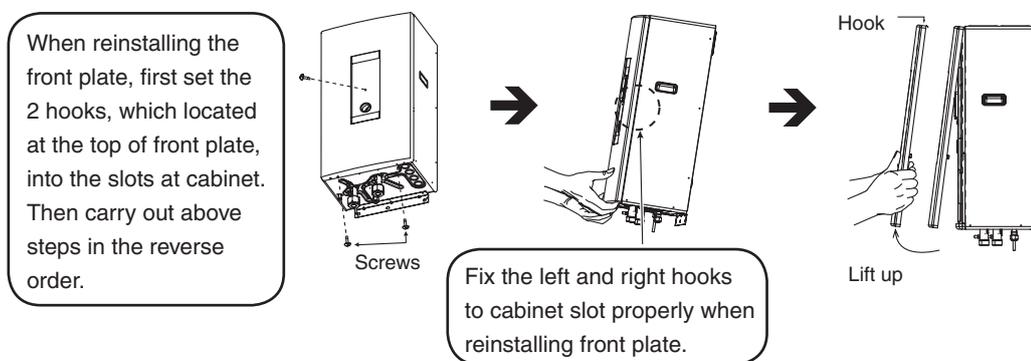
## 1. Test Run of Water Circuit



### 1-1. How to Remove Front Plate

Please follow the steps below to remove the front plate. Before removing the front plate of indoor unit, always switch off all power supply (i.e. indoor unit power supply, heater power supply and tank unit power supply).

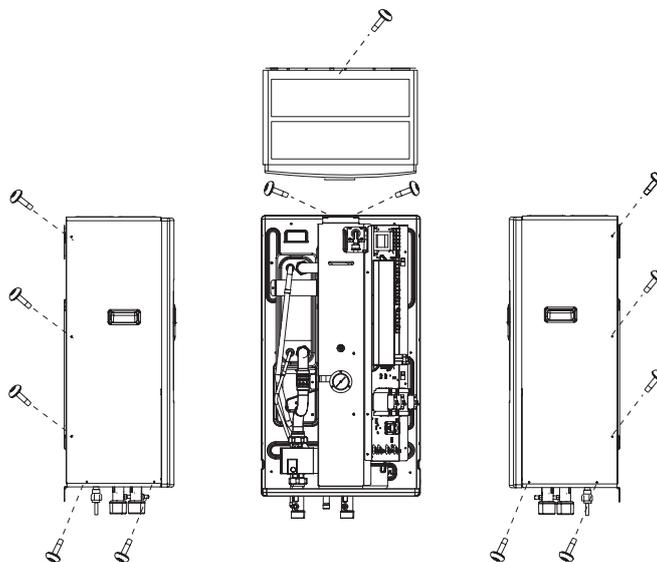
1. Remove the 2 mounting screws which located at bottom of the front plate and 1 mounting screw at the front of the plate.
2. Gently pull the lower section of the front plate towards you to remove the front plate from left and right hooks.
3. Hold the left edge and right edge of front plate to lift up front plate from hooks.



### 1-2. How to Remove Side Cabinet

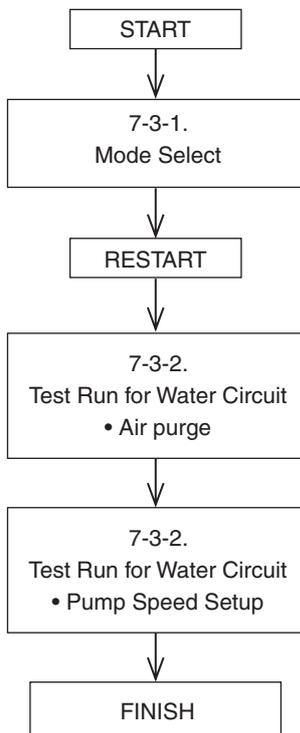
Please follow the steps below to remove the side cabinet. Before removing the front plate of indoor unit always switch off all power supply (i.e. indoor power supply, heater power supply and tank unit power supply).

1. Perform the steps in “7-1. How to Remove Front Plate”.
2. Remove all the 13 mounting screws on the left, right and top of the side cabinet.
3. Gently remove the side cabinet by holding both of the handles.



# 1. Test Run of Water Circuit

## 1-3. Initial Setting for Air-to-Water Unit



### 1-3-1. Mode Select

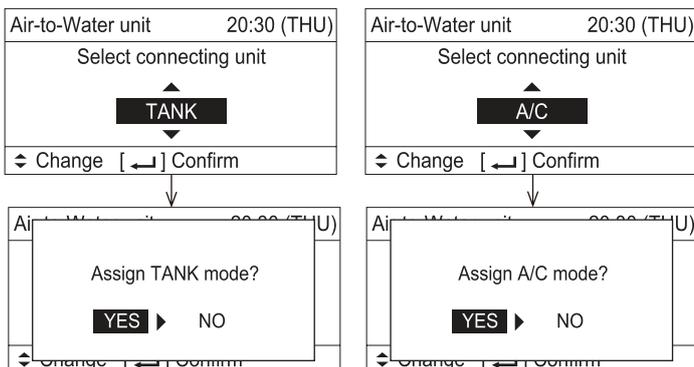
High-spec Wired Remote Controller (CZ-RTC5B)



■ When switching on the power for the first time after installation, it is necessary to make the initial setting for the Air-to-Water unit.

Press the or button to select "TANK" or "A/C" and press the button to finish this process.

After confirmation, the system restarts automatically.



\* To complete the initial setting, it is necessary to carry out the Test Run for Water Circuit.

\* If the Test Run for Water Circuit is not complete, "L16" alarm will occur.

### 1-3-2. Test Run for Water Circuit

\* You cannot perform the test run of refrigerant circuit if test run for water circuit has not been completed.

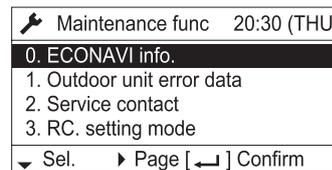
\* First, pour water into the water circuit.

High-spec Wired Remote Controller (CZ-RTC5B)



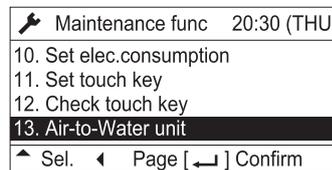
1. Keep pressing the , and buttons simultaneously for 4 or more seconds.

The "Maintenance func" screen appears on the LCD display.



2. Press the or button to see each menu. If you wish to see the next screen instantly, press the or button.

Select "13. Air-to-Water unit" on the LCD display and press the button.



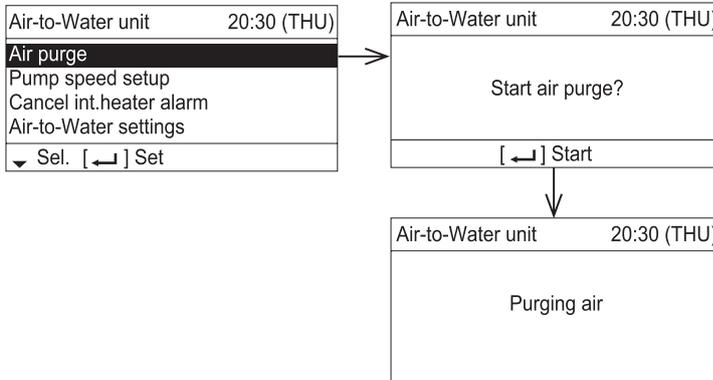
# 1. Test Run of Water Circuit

## • Air purge

Press the or button to see each menu. If you wish to see the next screen instantly, press the or button.

Select "Air purge" on the LCD display and press the button.

After 30 minutes have passed, the following process becomes automatically effective. (Pump will start operation.)

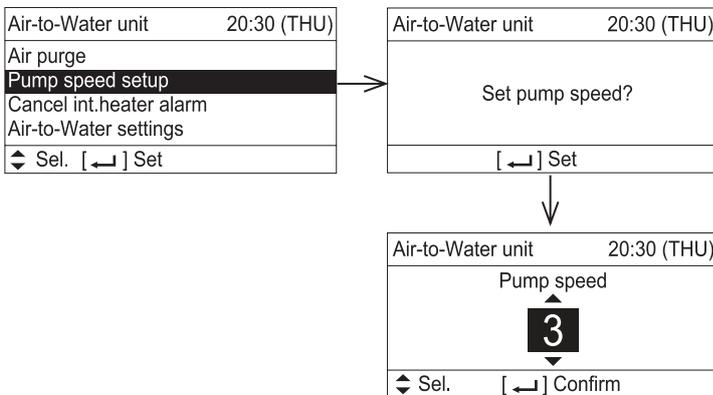


Pump will start operation for Air purge. After 10 minutes have passed, the air purge is ended (pump stops). It is possible to press button to cancel. \* Do not proceed to the Pump speed setup until the air purge is completed.

## • Pump speed setup

Press the or button to see each menu. If you wish to see the next screen instantly, press the or button.

Select "Pump speed setup" on the LCD display and press the button.



The default setting is SPEED 3. Please ensure the minimum flow rate is not less than 13 L/min and not more than 50 L/min.

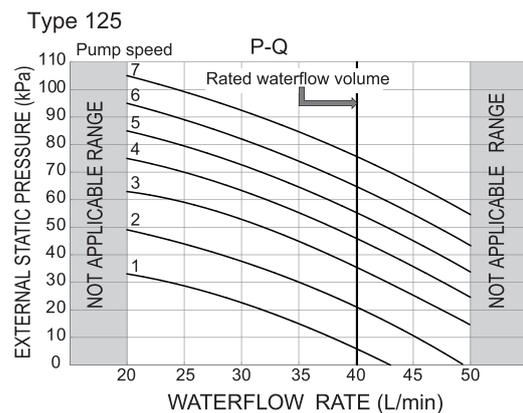
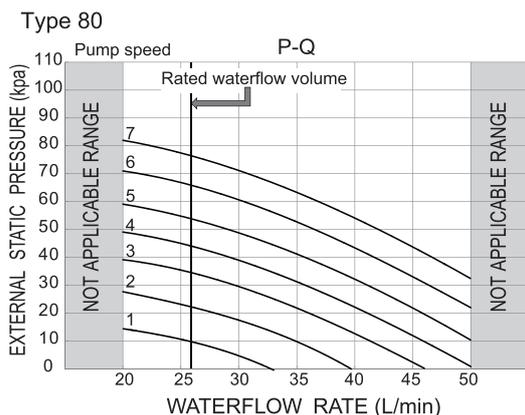
The available external static pressure (kPa) in function of the water flow rate (L/min) is shown in the P-Q graph.

Press the or button to change the pump speed and press the button to confirm the pump speed. It is possible to press the button to cancel.

\* Before adjusting the water flow rate, make sure that the total water volume in the installation is a minimum of 50 litres for heating side.

**NOTE**

Do not perform both test run for water circuit and auto addressing at the same time. The address of indoor unit will not be set correctly.



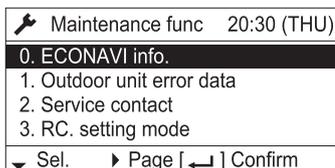
# 1. Test Run of Water Circuit

## 1-4. Detailed settings for Air-to-Water (extract)

High-spec Wired Remote Controller (CZ-RTC5B)

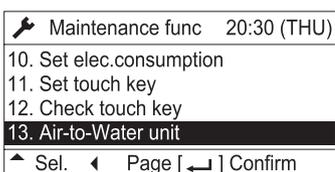


- Keep pressing the , and buttons simultaneously for 4 or more seconds. The "Maintenance func" screen appears on the LCD display.



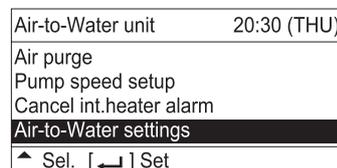
- Press the or button to see each menu. If you wish to see the next screen instantly, press the or button.

Select "13. Air-to-Water unit" on the LCD display and press the button.

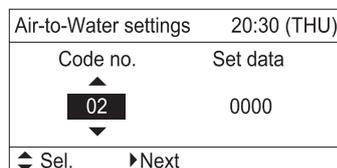


- Press the or button to see each menu. If you wish to see the next screen instantly, press the or button.

Select "Air-to-Water settings" on the LCD display and press the button.



- The "Air-to-Water settings" screen appears on the LCD display. Select the "Code no." by pressing the or button for changes.



- Select the "Set data" by pressing the or button. Select one of the "Set data" by pressing the or button. Then press the button.

Code no.	Menu	Set data	TANK mode	Air-Conditioning mode
02	Mode select (TANK, A/C)	0000: No * 0001: TANK 0002: A/C	○	○
04	Heating curve function use	0000: No 0001: Yes *	—	○
05	Existence of External device	0000: No * 0001: Yes	○	—
06	Optional thermo sensor use	0000: No * 0001: R/C 0002: Remote sensor 0003: Ext. thermo	—	○
07	2-way Valve	0000: Normal Open 0001: Normal Close *	—	○
22	Outdoor temperature using internal heater	-20°C ~ 25°C (* 0°C)	○	○
31	Temperature for sterilization	50°C ~ 65°C (* 55°C)	○	—
52	ON/OFF timing of external device	25°C ~ 65°C (* 40°C)	○	—
53	ON/OFF timing of water pump for detecting the tank temperature	1~12 ×10 min. (* 2×10 min.)	○	—
54	External Water Pump connection	0000: No * 0001: Yes	○	○

\* Default setting

## 2. Test Run

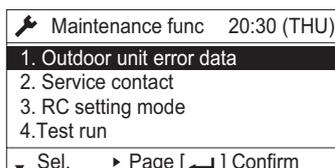
See the TECHNICAL DATA regarding the detailed settings for the test run of each outdoor unit excepting the contents of the electrical control equipment described below.

### 2. Test Run

#### ■ CZ-RTC5B (High-spec wired remote controller)

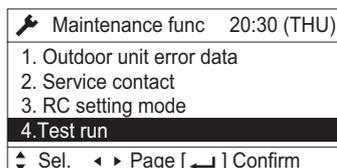
##### <Procedure>

- ① Keep pressing the , and buttons simultaneously for 4 or more seconds. The "Maintenance func" screen appears on the LCD display.

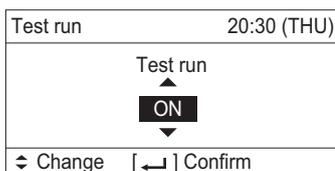


- ② Press the or button to see each menu.

If you wish to see the next screen instantly, press the or button. Select "4. Test run" on the LCD display and press the button.

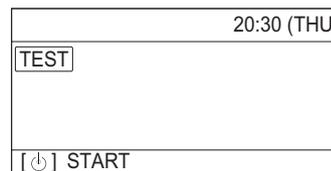


Change the display from OFF to ON by pressing the or button. Then press the button.

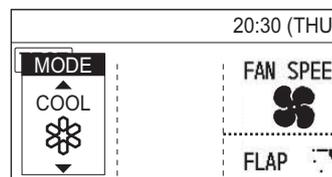


CZ-RTC5B

- ③ Press the button. "TEST" will be displayed on the LCD display.



- ④ Press the button. Test run will be started. Test run setting mode screen appears on the LCD display.



### 3. Auto Address setting

#### 3. Auto address setting

##### ■ CZ-RTC5B (High-spec wired remote controller)

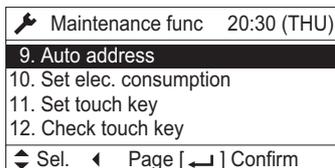


CZ-RTC5B

**<Procedure>**

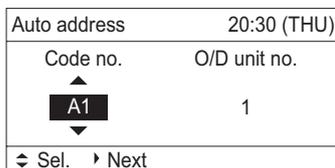
① Keep pressing the , and buttons simultaneously for 4 or more seconds. The “Maintenance func” screen appears on the LCD display.

② Press the or button to see each menu. If you wish to see the next screen instantly, press the or button. Select “9. Auto address” on the LCD display and press the button.



③ The “Auto address” screen appears on the LCD display.

Change the “Code no.” to “A1” by pressing the or button.



④ Select the “O/D unit no.” by pressing the or button.

Select one of the “O/D unit no.” for automatic address by pressing the or button. Then press the button.

Approximately 10 minutes are required. When automatic address setting is completed, the units return to normal stopped status.

#### ● Request concerning recording the indoor/outdoor unit combination Nos.

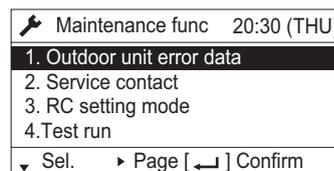
After automatic address setting has been completed, be sure to record them for future reference. List the outdoor main unit system address and the addresses of the indoor units in that system in an easily visible location (next to the nameplate), using a permanent marking pen or similar means that cannot be abraded easily.

Example: (Outdoor) 1 - (Indoor) 1-1, 1-2, 1-3...  
(Outdoor) 2 - (Indoor) 2-1, 2-2, 2-3...

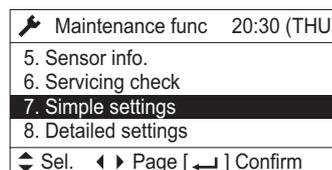
These numbers are necessary for later maintenance. Please be sure to indicate them.

#### ● Checking indoor unit addresses

① Keep pressing the , and buttons simultaneously for 4 or more seconds. The “Maintenance func” screen appears on the LCD display.

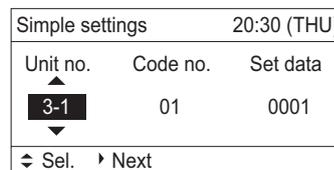


② Press the or button to see each menu. If you wish to see the next screen instantly, press the or button. Select “7. Simple settings” on the LCD display and press the button.



The “Simple settings” screen appears on the LCD display.

Select the “Unit no.” by pressing the or button for changes.



The indoor unit fan operates only at the selected indoor unit.



**Contents**

**6. ELECTRICAL DATA**

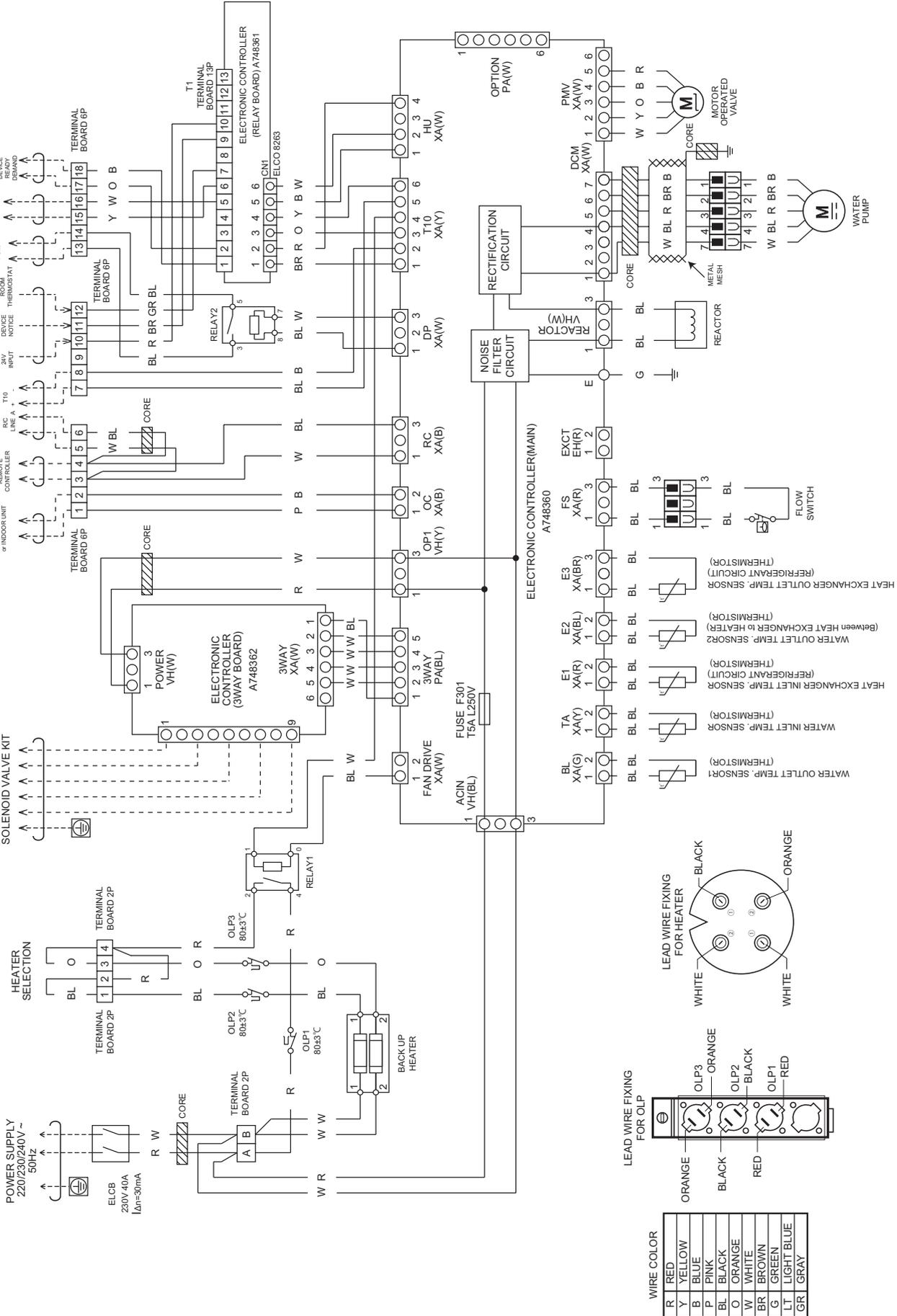
**1. Indoor Unit (Type W1) ..... 6-2**  
(1) S-80MW1E5 / S-125MW1E5

# 1. Indoor Unit (Type W1)

## (1) Electric Wiring Diagram S-80MW1E5 / S-125MW1E5

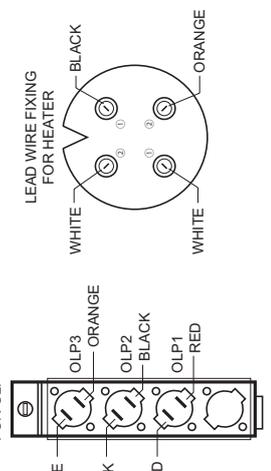
F204184

### WIRING DIAGRAM



3 PIPE CONTROL SOLENOID VALVE KIT  
 WIRE REMOTE CONTROLLER  
 MINI SERIPARA ROOM LINE A  
 AC/DC EXTERNAL ROOM NOISE THERMOSTAT  
 EXTERNAL WATER PUMP  
 2-WAY VALVE  
 EXTERNAL DEVICE DEMAND

HEATER SELECTION  
 OLP3 80±3°C  
 OLP2 80±3°C  
 OLP1 80±3°C



WIRE COLOR	Symbol
R	RED
Y	YELLOW
B	BLUE
P	PINK
BL	BLACK
O	ORANGE
W	WHITE
BR	BROWN
G	GREEN
LT	LIGHT BLUE
GR	GRAY

# Contents

## 7. PCB AND FUNCTIONS

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\*Refer to the Technical Data of Outdoor Unit.

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2-1. S-80MW1E5 / S-125MW1E5 .....	7-3

## 2. Indoor Unit Control PCB Switches and Functions

### Indoor Unit Control PCB Switches and Functions

#### A748360 (MAIN)

**EXCT:** **2P plug (red):** Can be used for demand control. When input is present, forces the unit to operate with the thermostat (CN073) OFF.

**DISP:** **2P plug (black):** Short-circuiting this plug allows the unit to be operated by the remote controller, even if it is not connected to an outdoor unit.  
(In this case, alarm "E04," which indicates trouble in the serial communication between the indoor and outdoor unit, does not occur.)

**Power LED: LED (red):** Illuminates when power is supplied. Blinks when there is a failure in the EEPROM (IC010: nonvolatile memory).

**EEPROM: Nonvolatile memory:** Memory which stores the unit type data and other information.  
When the PCB is replaced, remove the EEPROM from the old PCB and install it onto the new PCB.

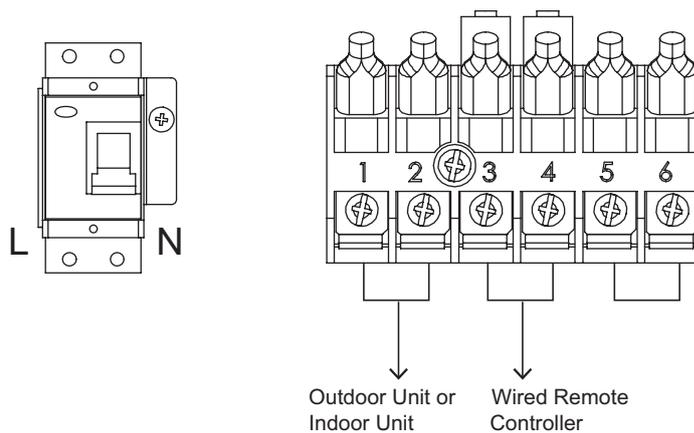
If an IC failure occurs, replace with a new IC which was provided with the service PCB, and set the necessary information from the wired remote controller.  
(For the procedure, refer to the servicing technical materials.)

#### A748361(RELAY BOARD)

**SW1 :** When you use the input signal "EXTERNAL DEVICE NOTICE" or "ROOM THERMOSTAT", it is a switch that is always requesting confirmation.

Make sure that the switch position is "Static".

If the setting is not positioned properly, the unit cannot receive the input signal "EXTERNAL DEVICE NOTICE" and "ROOM THERMOSTAT".







## Contents

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## 1. Capacity Ratio of Outdoor Unit

## 1-1. U-8MF2E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
100%	-10.0	14.9	2.49	17.0	2.83	20.4	3.40	22.4	3.74	23.1	3.86	25.0	4.17	26.9	4.48
	-5.0	14.9	2.50	17.0	2.83	20.4	3.40	22.4	3.74	23.1	3.86	25.0	4.17	26.9	4.48
	0.0	14.9	2.50	17.0	2.84	20.4	3.40	22.4	3.74	23.1	3.87	25.0	4.18	26.9	4.49
	5.0	14.9	2.51	17.0	2.85	20.4	3.41	22.4	3.75	23.1	3.88	25.0	4.18	26.9	4.49
	10.0	14.9	2.53	17.0	2.87	20.4	3.43	22.4	3.76	23.1	3.89	25.0	4.20	26.9	4.50
	15.0	14.9	2.58	17.0	2.91	20.4	3.46	22.4	3.79	23.1	3.91	25.0	4.22	26.9	4.52
	20.0	14.9	2.74	17.0	3.03	20.4	3.55	22.4	3.86	23.1	3.98	25.0	4.27	26.9	4.57
	25.0	14.9	3.04	17.0	3.38	20.4	3.85	22.4	4.10	23.1	4.19	25.0	4.44	26.9	4.71
	30.0	14.9	3.58	17.0	3.98	20.4	4.64	22.4	5.04	23.1	5.18	25.0	5.54	26.9	5.90
	35.0	14.9	4.47	17.0	4.98	20.4	5.83	22.4	6.33	23.1	6.51	25.0	6.96	26.1	7.01
	40.0	14.9	5.39	17.0	6.02	20.3	7.01	21.1	7.01	21.4	7.01	22.3	7.01	23.1	7.01
43.0	14.9	5.98	17.0	6.69	18.8	7.01	19.6	7.01	19.9	7.01	20.7	7.01	21.5	7.01	
46.0	14.9	6.60	16.3	7.01	17.5	7.01	18.3	7.01	18.6	7.01	19.3	7.01	20.0	7.01	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
90%	-10.0	13.4	2.24	15.3	2.55	18.3	3.06	20.2	3.36	20.8	3.48	22.5	3.76	24.2	4.03
	-5.0	13.4	2.25	15.3	2.55	18.3	3.06	20.2	3.37	20.8	3.48	22.5	3.76	24.2	4.04
	0.0	13.4	2.25	15.3	2.56	18.3	3.07	20.2	3.37	20.8	3.48	22.5	3.76	24.2	4.04
	5.0	13.4	2.26	15.3	2.57	18.3	3.07	20.2	3.38	20.8	3.49	22.5	3.77	24.2	4.05
	10.0	13.4	2.28	15.3	2.58	18.3	3.09	20.2	3.39	20.8	3.50	22.5	3.78	24.2	4.06
	15.0	13.4	2.33	15.3	2.62	18.3	3.12	20.2	3.41	20.8	3.52	22.5	3.80	24.2	4.07
	20.0	13.4	2.47	15.3	2.73	18.3	3.19	20.2	3.48	20.8	3.58	22.5	3.85	24.2	4.11
	25.0	13.4	2.79	15.3	3.10	18.3	3.45	20.2	3.67	20.8	3.76	22.5	3.99	24.2	4.23
	30.0	13.4	3.11	15.3	3.43	18.3	3.93	20.2	4.23	20.8	4.34	22.5	4.60	24.2	4.86
	35.0	13.4	3.90	15.3	4.31	18.3	4.97	20.2	5.35	20.8	5.49	22.5	5.83	24.2	6.17
	40.0	13.4	4.71	15.3	5.22	18.3	6.05	20.2	6.53	20.8	6.70	22.3	7.01	23.1	7.01
43.0	13.4	5.23	15.3	5.80	18.3	6.73	19.6	7.01	19.9	7.01	20.7	7.01	21.5	7.01	
46.0	13.4	5.77	15.3	6.41	17.5	7.01	18.3	7.01	18.6	7.01	19.3	7.01	20.0	7.01	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
80%	-10.0	11.9	2.00	13.6	2.27	16.3	2.72	17.9	2.99	18.5	3.09	20.0	3.34	21.5	3.59
	-5.0	11.9	2.00	13.6	2.27	16.3	2.72	17.9	3.00	18.5	3.09	20.0	3.34	21.5	3.59
	0.0	11.9	2.01	13.6	2.28	16.3	2.73	17.9	3.00	18.5	3.10	20.0	3.35	21.5	3.59
	5.0	11.9	2.02	13.6	2.29	16.3	2.74	17.9	3.00	18.5	3.10	20.0	3.35	21.5	3.60
	10.0	11.9	2.03	13.6	2.30	16.3	2.75	17.9	3.02	18.5	3.11	20.0	3.36	21.5	3.61
	15.0	11.9	2.08	13.6	2.34	16.3	2.77	17.9	3.04	18.5	3.14	20.0	3.38	21.5	3.62
	20.0	11.9	2.20	13.6	2.43	16.3	2.84	17.9	3.09	18.5	3.19	20.0	3.42	21.5	3.66
	25.0	11.9	2.54	13.6	2.80	16.3	3.06	17.9	3.26	18.5	3.33	20.0	3.54	21.5	3.75
	30.0	11.9	2.69	13.6	2.93	16.3	3.31	17.9	3.57	18.5	3.67	20.0	3.92	21.5	4.10
	35.0	11.9	3.37	13.6	3.69	16.3	4.20	17.9	4.48	18.5	4.58	20.0	4.83	21.5	5.07
	40.0	11.9	4.08	13.6	4.48	16.3	5.12	17.9	5.49	18.5	5.62	20.0	5.94	21.5	6.25
43.0	11.9	4.52	13.6	4.98	16.3	5.71	17.9	6.13	18.5	6.28	20.0	6.64	21.3	6.93	
46.0	11.9	4.99	13.6	5.51	16.3	6.33	17.9	6.81	18.5	6.98	19.3	7.01	20.0	7.01	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
70%	-10.0	10.5	1.65	11.9	1.87	14.3	2.24	15.7	2.47	16.2	2.55	17.5	2.75	18.8	2.96
	-5.0	10.5	1.65	11.9	1.87	14.3	2.25	15.7	2.47	16.2	2.55	17.5	2.75	18.8	2.96
	0.0	10.5	1.66	11.9	1.88	14.3	2.25	15.7	2.47	16.2	2.55	17.5	2.76	18.8	2.96
	5.0	10.5	1.66	11.9	1.89	14.3	2.26	15.7	2.48	16.2	2.56	17.5	2.76	18.8	2.96
	10.0	10.5	1.68	11.9	1.90	14.3	2.27	15.7	2.49	16.2	2.57	17.5	2.77	18.8	2.97
	15.0	10.5	1.72	11.9	1.93	14.3	2.29	15.7	2.51	16.2	2.59	17.5	2.79	18.8	2.99
	20.0	10.5	1.82	11.9	2.01	14.3	2.34	15.7	2.55	16.2	2.63	17.5	2.82	18.8	3.02
	25.0	10.5	2.16	11.9	2.30	14.3	2.52	15.7	2.68	16.2	2.75	17.5	2.91	18.8	3.09
	30.0	10.5	2.19	11.9	2.42	14.3	2.79	15.7	3.01	16.2	3.09	17.5	3.26	18.8	3.35
	35.0	10.5	2.72	11.9	2.95	14.3	3.30	15.7	3.49	16.2	3.56	17.5	3.72	18.8	3.87
	40.0	10.5	3.29	11.9	3.59	14.3	4.04	15.7	4.29	16.2	4.38	17.5	4.60	18.8	4.80
43.0	10.5	3.65	11.9	3.99	14.3	4.51	15.7	4.80	16.2	4.91	17.5	5.16	18.8	5.39	
46.0	10.5	4.03	11.9	4.41	14.3	5.00	15.7	5.34	16.2	5.46	17.5	5.74	18.8	6.02	

# 1. Capacity Ratio of Outdoor Unit

## U-8MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	9.0	1.26	10.2	1.43	12.2	1.71	13.4	1.88	13.9	1.95	15.0	2.10	16.1	2.26
	-5.0	9.0	1.26	10.2	1.43	12.2	1.72	13.4	1.89	13.9	1.95	15.0	2.10	16.1	2.26
	0.0	9.0	1.27	10.2	1.44	12.2	1.72	13.4	1.89	13.9	1.95	15.0	2.11	16.1	2.26
	5.0	9.0	1.27	10.2	1.44	12.2	1.72	13.4	1.89	13.9	1.96	15.0	2.11	16.1	2.26
	10.0	9.0	1.29	10.2	1.45	12.2	1.73	13.4	1.90	13.9	1.96	15.0	2.12	16.1	2.27
	15.0	9.0	1.32	10.2	1.48	12.2	1.75	13.4	1.92	13.9	1.98	15.0	2.13	16.1	2.28
	20.0	9.0	1.40	10.2	1.54	12.2	1.80	13.4	1.95	13.9	2.01	15.0	2.16	16.1	2.30
	25.0	9.0	1.72	10.2	1.77	12.2	1.93	13.4	2.05	13.9	2.10	15.0	2.23	16.1	2.36
	30.0	9.0	1.74	10.2	1.91	12.2	2.20	13.4	2.37	13.9	2.43	15.0	2.47	16.1	2.54
	35.0	9.0	2.06	10.2	2.20	12.2	2.43	13.4	2.54	13.9	2.58	15.0	2.68	16.1	2.77
	40.0	9.0	2.48	10.2	2.68	12.2	2.97	13.4	3.13	13.9	3.18	15.0	3.31	16.1	3.43
43.0	9.0	2.75	10.2	2.97	12.2	3.32	13.4	3.50	13.9	3.57	15.0	3.72	16.1	3.86	
46.0	9.0	3.03	10.2	3.29	12.2	3.68	13.4	3.90	13.9	3.97	15.0	4.15	16.1	4.32	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	7.5	0.950	8.5	1.07	10.2	1.29	11.2	1.41	11.6	1.46	12.5	1.58	13.4	1.69
	-5.0	7.5	0.950	8.5	1.08	10.2	1.29	11.2	1.42	11.6	1.46	12.5	1.58	13.4	1.69
	0.0	7.5	0.950	8.5	1.08	10.2	1.29	11.2	1.42	11.6	1.47	12.5	1.58	13.4	1.70
	5.0	7.5	0.960	8.5	1.09	10.2	1.30	11.2	1.42	11.6	1.47	12.5	1.58	13.4	1.70
	10.0	7.5	0.970	8.5	1.10	10.2	1.30	11.2	1.43	11.6	1.48	12.5	1.59	13.4	1.71
	15.0	7.5	1.00	8.5	1.12	10.2	1.32	11.2	1.44	11.6	1.49	12.5	1.60	13.4	1.71
	20.0	7.5	1.06	8.5	1.17	10.2	1.35	11.2	1.47	11.6	1.51	12.5	1.62	13.4	1.73
	25.0	7.5	1.31	8.5	1.34	10.2	1.46	11.2	1.55	11.6	1.58	12.5	1.68	13.4	1.78
	30.0	7.5	1.38	8.5	1.51	10.2	1.72	11.2	1.83	11.6	1.83	12.5	1.86	13.4	1.91
	35.0	7.5	1.55	8.5	1.64	10.2	1.78	11.2	1.88	11.6	1.92	12.5	2.04	13.4	2.16
	40.0	7.5	1.86	8.5	1.99	10.2	2.17	11.2	2.27	11.6	2.30	12.5	2.37	13.4	2.43
43.0	7.5	2.06	8.5	2.21	10.2	2.42	11.2	2.54	11.6	2.58	12.5	2.66	13.4	2.74	
46.0	7.5	2.26	8.5	2.43	10.2	2.69	11.2	2.82	11.6	2.87	12.5	2.97	13.4	3.07	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	6.0	0.700	6.8	0.790	8.1	0.940	9.0	1.04	9.3	1.07	10.0	1.16	10.8	1.24
	-5.0	6.0	0.700	6.8	0.790	8.1	0.950	9.0	1.04	9.3	1.07	10.0	1.16	10.8	1.24
	0.0	6.0	0.700	6.8	0.790	8.1	0.950	9.0	1.04	9.3	1.08	10.0	1.16	10.8	1.24
	5.0	6.0	0.710	6.8	0.800	8.1	0.950	9.0	1.04	9.3	1.08	10.0	1.16	10.8	1.25
	10.0	6.0	0.720	6.8	0.810	8.1	0.960	9.0	1.05	9.3	1.08	10.0	1.17	10.8	1.25
	15.0	6.0	0.740	6.8	0.820	8.1	0.970	9.0	1.06	9.3	1.09	10.0	1.18	10.8	1.26
	20.0	6.0	0.790	6.8	0.870	8.1	1.00	9.0	1.08	9.3	1.12	10.0	1.19	10.8	1.27
	25.0	6.0	0.990	6.8	1.00	8.1	1.08	9.0	1.14	9.3	1.17	10.0	1.24	10.8	1.31
	30.0	6.0	1.10	6.8	1.19	8.1	1.35	9.0	1.36	9.3	1.36	10.0	1.37	10.8	1.41
	35.0	6.0	1.17	6.8	1.23	8.1	1.37	9.0	1.46	9.3	1.49	10.0	1.58	10.8	1.66
	40.0	6.0	1.39	6.8	1.47	8.1	1.58	9.0	1.63	9.3	1.65	10.0	1.69	10.8	1.72
43.0	6.0	1.53	6.8	1.63	8.1	1.76	9.0	1.82	9.3	1.85	10.0	1.89	10.8	1.93	
46.0	6.0	1.68	6.8	1.79	8.1	1.95	9.0	2.02	9.3	2.05	10.0	2.11	10.8	2.16	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	4.5	0.490	5.1	0.560	6.1	0.670	6.7	0.730	6.9	0.750	7.5	0.810	8.1	0.870
	-5.0	4.5	0.490	5.1	0.560	6.1	0.670	6.7	0.730	6.9	0.760	7.5	0.820	8.1	0.870
	0.0	4.5	0.500	5.1	0.560	6.1	0.670	6.7	0.730	6.9	0.760	7.5	0.820	8.1	0.880
	5.0	4.5	0.500	5.1	0.560	6.1	0.670	6.7	0.740	6.9	0.760	7.5	0.820	8.1	0.880
	10.0	4.5	0.510	5.1	0.570	6.1	0.680	6.7	0.740	6.9	0.770	7.5	0.820	8.1	0.880
	15.0	4.5	0.530	5.1	0.590	6.1	0.690	6.7	0.750	6.9	0.770	7.5	0.830	8.1	0.890
	20.0	4.5	0.580	5.1	0.620	6.1	0.710	6.7	0.770	6.9	0.790	7.5	0.850	8.1	0.900
	25.0	4.5	0.740	5.1	0.740	6.1	0.780	6.7	0.820	6.9	0.840	7.5	0.880	8.1	0.930
	30.0	4.5	0.870	5.1	0.930	6.1	1.02	6.7	0.980	6.9	0.980	7.5	0.980	8.1	1.01
	35.0	4.5	0.890	5.1	0.950	6.1	1.06	6.7	1.12	6.9	1.15	7.5	1.21	8.1	1.27
	40.0	4.5	1.04	5.1	1.09	6.1	1.15	6.7	1.17	6.9	1.18	7.5	1.21	8.1	1.27
43.0	4.5	1.14	5.1	1.19	6.1	1.27	6.7	1.30	6.9	1.31	7.5	1.33	8.1	1.35	
46.0	4.5	1.24	5.1	1.30	6.1	1.39	6.7	1.44	6.9	1.45	7.5	1.48	8.1	1.50	



# 1. Capacity Ratio of Outdoor Unit

## 1-2. U-8MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	14.8	6.72	13.1	6.46	12.0	6.26	11.3	6.09	10.2	5.80	9.5	5.56	7.5	4.82
	-14.7	-15.0	17.6	7.15	15.7	6.81	14.4	6.56	13.6	6.37	12.3	6.03	11.4	5.77	9.1	4.98
	-9.6	-10.0	20.8	7.36	18.8	7.34	17.3	7.03	16.3	6.80	14.8	6.41	13.7	6.11	11.0	5.23
	-4.4	-5.0	23.5	7.36	21.7	7.36	20.4	7.23	19.2	7.24	17.4	6.71	16.2	6.41	12.9	5.43
	-1.8	-2.5	24.9	7.36	23.1	7.36	22.0	7.36	20.9	7.21	19.0	7.00	17.6	6.67	14.1	5.61
	0.8	0.0	26.5	7.36	24.6	7.36	23.4	7.36	22.7	7.36	20.7	7.11	19.3	6.81	15.5	5.87
	2.8	2.0	27.9	7.36	25.8	7.36	24.7	7.36	23.9	7.36	22.1	7.12	20.4	6.75	15.7	5.60
	6.0	5.0	30.1	7.36	27.9	7.36	26.6	7.36	25.0	6.96	22.2	6.31	20.4	5.97	15.7	5.01
	7.0	6.0	30.9	7.36	28.6	7.36	26.9	7.13	25.0	6.63	22.2	6.02	20.4	5.72	15.7	4.82
	8.6	7.5	32.1	7.36	29.6	7.28	26.9	6.61	25.0	6.17	22.2	5.62	20.4	5.36	15.7	4.56
	11.2	10.0	34.3	7.34	29.6	6.40	26.9	5.83	25.0	5.46	22.2	5.01	20.4	4.80	15.7	4.13
	16.4	15.0	34.3	5.47	29.6	4.81	26.9	4.42	25.0	4.16	22.2	3.85	20.4	3.73	15.7	3.28
24.0	18.0	34.3	5.47	29.6	4.77	26.9	4.35	25.0	4.07	22.2	3.65	20.4	3.38	15.7	2.68	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	14.6	6.72	12.9	6.47	11.8	6.27	11.1	6.10	10.0	5.81	9.3	5.58	7.3	4.85
	-14.7	-15.0	17.4	7.24	15.5	6.90	14.2	6.64	13.4	6.44	12.1	6.10	11.2	5.83	8.9	5.04
	-9.6	-10.0	20.9	7.50	18.6	7.45	17.1	7.13	16.1	6.89	14.6	6.49	13.5	6.18	10.8	5.29
	-4.4	-5.0	23.9	7.69	22.1	7.70	20.6	7.39	19.4	7.49	17.5	7.03	16.2	6.65	12.9	5.62
	-1.8	-2.5	25.5	7.69	23.5	7.69	22.4	7.68	21.1	7.59	19.1	7.22	17.7	6.90	14.1	5.82
	0.8	0.0	27.1	7.69	25.0	7.70	23.9	7.70	22.5	7.45	20.0	6.95	18.3	6.58	14.2	5.50
	2.8	2.0	28.5	7.69	26.3	7.69	24.2	7.21	22.5	6.85	20.0	6.42	18.3	6.11	14.2	5.16
	6.0	5.0	30.7	7.69	26.7	6.91	24.2	6.38	22.5	6.10	20.0	5.77	18.3	5.49	14.2	4.64
	7.0	6.0	30.8	7.60	26.7	6.68	24.2	6.13	22.5	5.84	20.0	5.52	18.3	5.27	14.2	4.49
	8.6	7.5	30.8	6.99	26.7	6.18	24.2	5.68	22.5	5.43	20.0	5.16	18.3	4.94	14.2	4.24
	11.2	10.0	30.8	6.05	26.7	5.39	24.2	4.99	22.5	4.79	20.0	4.60	18.3	4.42	14.2	3.85
	16.4	15.0	30.8	5.18	26.7	4.52	24.2	4.13	22.5	3.87	20.0	3.52	18.3	3.43	14.2	3.05
24.0	18.0	30.8	5.18	26.7	4.52	24.2	4.13	22.5	3.87	20.0	3.47	18.3	3.21	14.2	2.55	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	14.6	6.92	12.9	6.65	11.8	6.44	11.1	6.27	10.0	5.96	9.2	5.73	7.3	4.97
	-14.7	-15.0	17.5	7.44	15.5	7.07	14.2	6.80	13.4	6.60	12.0	6.25	11.1	5.98	8.8	5.16
	-9.6	-10.0	21.0	7.93	18.6	7.69	17.1	7.33	16.1	7.08	14.5	6.66	13.5	6.34	10.7	5.42
	-4.4	-5.0	24.4	8.03	22.5	8.03	21.0	7.77	19.8	7.84	17.8	7.37	16.3	6.88	12.6	5.66
	-1.8	-2.5	26.0	8.03	23.7	7.89	21.5	7.51	20.0	7.25	17.8	6.79	16.3	6.46	12.6	5.37
	0.8	0.0	27.4	7.87	23.7	7.12	21.5	6.83	20.0	6.63	17.8	6.26	16.3	5.96	12.6	5.05
	2.8	2.0	27.4	7.27	23.7	6.59	21.5	6.35	20.0	6.18	17.8	5.85	16.3	5.58	12.6	4.75
	6.0	5.0	27.4	6.41	23.7	5.84	21.5	5.65	20.0	5.51	17.8	5.22	16.3	5.00	12.6	4.25
	7.0	6.0	27.4	6.18	23.7	5.58	21.5	5.38	20.0	5.25	17.8	5.00	16.3	4.79	12.6	4.12
	8.6	7.5	27.4	5.66	23.7	5.14	21.5	4.99	20.0	4.89	17.8	4.68	16.3	4.49	12.6	3.90
	11.2	10.0	27.4	4.84	23.7	4.45	21.5	4.37	20.0	4.32	17.8	4.17	16.3	4.03	12.6	3.54
	16.4	15.0	27.4	4.84	23.7	4.23	21.5	3.87	20.0	3.62	17.8	3.26	16.3	3.11	12.6	2.80
24.0	18.0	27.4	4.84	23.7	4.23	21.5	3.87	20.0	3.62	17.8	3.26	16.3	3.02	12.6	2.41	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	14.9	7.26	13.1	6.97	12.0	6.74	11.3	6.56	10.1	6.24	9.4	5.99	7.4	5.20
	-14.7	-15.0	17.9	7.80	15.8	7.41	14.5	7.12	13.6	6.91	12.2	6.54	11.3	6.25	9.0	5.40
	-9.6	-10.0	21.5	8.24	19.0	8.05	17.5	7.65	16.4	7.41	14.8	6.97	13.7	6.64	11.0	5.77
	-4.4	-5.0	24.0	7.89	20.7	7.53	18.8	7.26	17.5	7.03	15.6	6.61	14.3	6.24	11.0	5.14
	-1.8	-2.5	24.0	7.18	20.7	6.90	18.8	6.67	17.5	6.48	15.6	6.11	14.3	5.83	11.0	4.91
	0.8	0.0	24.0	6.48	20.7	6.28	18.8	6.11	17.5	5.94	15.6	5.63	14.3	5.38	11.0	4.59
	2.8	2.0	24.0	5.95	20.7	5.80	18.8	5.67	17.5	5.74	15.6	5.26	14.3	5.03	11.0	4.31
	6.0	5.0	24.0	5.19	20.7	5.09	18.8	4.98	17.5	4.88	15.6	4.66	14.3	4.47	11.0	3.84
	7.0	6.0	24.0	4.89	20.7	4.82	18.8	4.74	17.5	4.65	15.6	4.46	14.3	4.29	11.0	3.73
	8.6	7.5	24.0	4.46	20.7	4.44	18.8	4.40	17.5	4.33	15.6	4.18	14.3	4.03	11.0	3.53
	11.2	10.0	24.0	4.46	20.7	3.90	18.8	3.86	17.5	3.83	15.6	3.73	14.3	3.62	11.0	3.21
	16.4	15.0	24.0	4.46	20.7	3.90	18.8	3.57	17.5	3.35	15.6	3.01	14.3	2.79	11.0	2.53
24.0	18.0	24.0	4.46	20.7	3.90	18.8	3.57	17.5	3.35	15.6	3.01	14.3	2.79	11.0	2.24	

## 1. Capacity Ratio of Outdoor Unit

## U-8MF2E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	15.6	7.63	13.7	7.32	12.5	7.08	11.8	6.88	10.6	6.55	9.8	6.28	7.7	5.45
	-14.7	-15.0	18.7	8.25	16.5	7.80	15.1	7.49	14.2	7.26	12.8	6.87	11.8	6.57	9.4	5.74
	-9.6	-10.0	20.6	7.87	17.8	7.56	16.1	7.17	15.0	6.85	13.3	6.36	12.2	6.01	9.4	5.03
	-4.4	-5.0	20.6	6.62	17.8	6.45	16.1	6.24	15.0	6.05	13.3	5.71	12.2	5.43	9.4	4.49
	-1.8	-2.5	20.6	6.01	17.8	5.90	16.1	5.73	15.0	5.58	13.3	5.28	12.2	5.04	9.4	4.29
	0.8	0.0	20.6	5.41	17.8	5.36	16.1	5.24	15.0	5.11	13.3	4.86	12.2	4.65	9.4	3.99
	2.8	2.0	20.6	4.95	17.8	4.95	16.1	4.84	15.0	4.73	13.3	4.51	12.2	4.33	9.4	3.73
	6.0	5.0	20.6	4.20	17.8	4.26	16.1	4.21	15.0	4.14	13.3	3.98	12.2	3.84	9.4	3.34
	7.0	6.0	20.6	3.94	17.8	4.04	16.1	4.01	15.0	3.95	13.3	3.82	12.2	3.69	9.4	3.24
	8.6	7.5	20.6	3.93	17.8	3.72	16.1	3.72	15.0	3.68	13.3	3.58	12.2	3.47	9.4	3.07
	11.2	10.0	20.6	3.93	17.8	3.45	16.1	3.26	15.0	3.26	13.3	3.19	12.2	3.12	9.4	2.79
	16.4	15.0	20.6	3.93	17.8	3.45	16.1	3.16	15.0	2.97	13.3	2.68	12.2	2.48	9.4	2.20
24.0	18.0	20.6	3.93	17.8	3.45	16.1	3.16	15.0	2.97	13.3	2.68	12.2	2.48	9.4	2.00	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	16.8	8.04	14.8	7.70	13.4	7.39	12.5	7.14	11.1	6.72	10.2	6.40	7.9	5.47
	-14.7	-15.0	17.1	7.38	14.8	6.85	13.4	6.51	12.5	6.27	11.1	5.86	10.2	5.57	7.9	4.72
	-9.6	-10.0	17.1	6.36	14.8	6.15	13.4	5.89	12.5	5.62	11.1	5.22	10.2	4.94	7.9	4.15
	-4.4	-5.0	17.1	5.34	14.8	5.23	13.4	5.07	12.5	4.94	11.1	4.68	10.2	4.46	7.9	3.72
	-1.8	-2.5	17.1	4.83	14.8	4.78	13.4	4.66	12.5	4.55	11.1	4.32	10.2	4.14	7.9	3.54
	0.8	0.0	17.1	4.34	14.8	4.31	13.4	4.22	12.5	4.13	11.1	3.94	10.2	3.79	7.9	3.28
	2.8	2.0	17.1	3.90	14.8	3.92	13.4	3.87	12.5	3.80	11.1	3.65	10.2	3.51	7.9	3.06
	6.0	5.0	17.1	3.28	14.8	3.37	13.4	3.37	12.5	3.33	11.1	3.23	10.2	3.13	7.9	2.76
	7.0	6.0	17.1	3.28	14.8	3.20	13.4	3.21	12.5	3.18	11.1	3.09	10.2	3.00	7.9	2.67
	8.6	7.5	17.1	3.28	14.8	2.95	13.4	2.98	12.5	2.97	11.1	2.90	10.2	2.83	7.9	2.53
	11.2	10.0	17.1	3.28	14.8	2.89	13.4	2.65	12.5	2.63	11.1	2.60	10.2	2.55	7.9	2.31
	16.4	15.0	17.1	3.28	14.8	2.89	13.4	2.65	12.5	2.49	11.1	2.25	10.2	2.10	7.9	1.82
24.0	18.0	17.1	3.28	14.8	2.89	13.4	2.65	12.5	2.49	11.1	2.25	10.2	2.10	7.9	1.70	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	13.7	5.97	11.9	5.63	10.7	5.40	10.0	5.22	8.9	4.92	8.1	4.70	6.3	4.03
	-14.7	-15.0	13.7	5.37	11.9	5.01	10.7	4.77	10.0	4.60	8.9	4.31	8.1	4.10	6.3	3.49
	-9.6	-10.0	13.7	4.61	11.9	4.48	10.7	4.32	10.0	4.14	8.9	3.85	8.1	3.65	6.3	3.08
	-4.4	-5.0	13.7	3.86	11.9	3.80	10.7	3.69	10.0	3.60	8.9	3.42	8.1	3.27	6.3	2.76
	-1.8	-2.5	13.7	3.44	11.9	3.43	10.7	3.36	10.0	3.29	8.9	3.14	8.1	3.01	6.3	2.61
	0.8	0.0	13.7	3.04	11.9	3.07	10.7	3.03	10.0	2.98	8.9	2.86	8.1	2.76	6.3	2.42
	2.8	2.0	13.7	2.73	11.9	2.80	10.7	2.78	10.0	2.74	8.9	2.65	8.1	2.57	6.3	2.27
	6.0	5.0	13.7	2.47	11.9	2.41	10.7	2.43	10.0	2.41	8.9	2.35	8.1	2.29	6.3	2.05
	7.0	6.0	13.7	2.47	11.9	2.29	10.7	2.31	10.0	2.31	8.9	2.26	8.1	2.21	6.3	1.98
	8.6	7.5	13.7	2.47	11.9	2.18	10.7	2.15	10.0	2.16	8.9	2.13	8.1	2.08	6.3	1.89
	11.2	10.0	13.7	2.47	11.9	2.18	10.7	2.00	10.0	1.92	8.9	1.91	8.1	1.88	6.3	1.72
	16.4	15.0	13.7	2.47	11.9	2.18	10.7	2.00	10.0	1.89	8.9	1.71	8.1	1.60	6.3	1.36
24.0	18.0	13.7	2.47	11.9	2.18	10.7	2.00	10.0	1.89	8.9	1.71	8.1	1.60	6.3	1.31	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	10.3	4.05	8.9	3.83	8.1	3.68	7.5	3.56	6.7	3.37	6.1	3.22	4.7	2.78
	-14.7	-15.0	10.3	3.64	8.9	3.43	8.1	3.27	7.5	3.15	6.7	2.96	6.1	2.82	4.7	2.42
	-9.6	-10.0	10.3	3.10	8.9	3.03	8.1	2.94	7.5	2.85	6.7	2.65	6.1	2.51	4.7	2.14
	-4.4	-5.0	10.3	2.54	8.9	2.53	8.1	2.48	7.5	2.43	6.7	2.33	6.1	2.24	4.7	1.92
	-1.8	-2.5	10.3	2.27	8.9	2.29	8.1	2.26	7.5	2.22	6.7	2.14	6.1	2.07	4.7	1.82
	0.8	0.0	10.3	2.01	8.9	2.06	8.1	2.05	7.5	2.02	6.7	1.96	6.1	1.90	4.7	1.68
	2.8	2.0	10.3	1.81	8.9	1.88	8.1	1.88	7.5	1.87	6.7	1.82	6.1	1.77	4.7	1.58
	6.0	5.0	10.3	1.75	8.9	1.63	8.1	1.65	7.5	1.65	6.7	1.62	6.1	1.59	4.7	1.44
	7.0	6.0	10.3	1.75	8.9	1.55	8.1	1.58	7.5	1.58	6.7	1.56	6.1	1.53	4.7	1.40
	8.6	7.5	10.3	1.75	8.9	1.55	8.1	1.47	7.5	1.48	6.7	1.47	6.1	1.45	4.7	1.33
	11.2	10.0	10.3	1.75	8.9	1.55	8.1	1.43	7.5	1.35	6.7	1.33	6.1	1.31	4.7	1.22
	16.4	15.0	10.3	1.75	8.9	1.55	8.1	1.43	7.5	1.35	6.7	1.24	6.1	1.16	4.7	0.97
24.0	18.0	10.3	1.75	8.9	1.55	8.1	1.43	7.5	1.35	6.7	1.24	6.1	1.16	4.7	0.96	

# 1. Capacity Ratio of Outdoor Unit

## 1-3. U-10MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	18.7	2.95	21.2	3.35	25.5	4.02	28.0	4.43	28.9	4.58	31.3	4.94	33.6	5.31
	-5.0	18.7	2.96	21.2	3.36	25.5	4.03	28.0	4.43	28.9	4.58	31.3	4.95	33.6	5.32
	0.0	18.7	2.97	21.2	3.37	25.5	4.04	28.0	4.44	28.9	4.59	31.3	4.96	33.6	5.33
	5.0	18.7	2.99	21.2	3.39	25.5	4.05	28.0	4.45	28.9	4.60	31.3	4.97	33.6	5.34
	10.0	18.7	3.03	21.2	3.43	25.5	4.09	28.0	4.48	28.9	4.63	31.3	4.99	33.6	5.36
	15.0	18.7	3.15	21.2	3.52	25.5	4.16	28.0	4.55	28.9	4.69	31.3	5.05	33.6	5.41
	20.0	18.7	3.52	21.2	3.83	25.5	4.39	28.0	4.74	28.9	4.87	31.3	5.20	33.6	5.54
	25.0	18.7	3.68	21.2	4.16	25.5	4.98	28.0	5.49	28.9	5.68	31.3	6.16	33.6	6.66
	30.0	18.7	4.71	21.2	5.32	25.5	6.37	28.0	7.02	28.9	7.26	31.3	7.87	33.6	8.49
	35.0	18.7	5.83	21.2	6.58	25.5	7.88	28.0	8.67	28.9	8.97	31.1	9.62	32.1	9.62
	40.0	18.7	6.98	21.2	7.89	25.5	9.45	26.7	9.62	27.0	9.62	28.0	9.62	28.9	9.62
43.0	18.7	7.72	21.2	8.73	24.1	9.62	25.0	9.62	25.4	9.62	26.3	9.62	27.2	9.62	
46.0	18.7	8.50	21.0	9.54	22.6	9.62	23.5	9.62	23.8	9.62	24.6	9.62	25.5	9.62	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	16.8	2.66	19.1	3.02	22.9	3.63	25.2	3.99	26.0	4.12	28.1	4.45	30.2	4.79
	-5.0	16.8	2.67	19.1	3.03	22.9	3.63	25.2	3.99	26.0	4.13	28.1	4.46	30.2	4.79
	0.0	16.8	2.68	19.1	3.04	22.9	3.64	25.2	4.00	26.0	4.13	28.1	4.46	30.2	4.80
	5.0	16.8	2.70	19.1	3.05	22.9	3.65	25.2	4.01	26.0	4.15	28.1	4.48	30.2	4.81
	10.0	16.8	2.74	19.1	3.09	22.9	3.68	25.2	4.04	26.0	4.17	28.1	4.50	30.2	4.83
	15.0	16.8	2.84	19.1	3.17	22.9	3.75	25.2	4.10	26.0	4.22	28.1	4.55	30.2	4.87
	20.0	16.8	3.16	19.1	3.43	22.9	3.93	25.2	4.25	26.0	4.37	28.1	4.67	30.2	4.97
	25.0	16.8	3.30	19.1	3.66	22.9	4.26	25.2	4.63	26.0	4.76	28.1	5.08	30.2	5.31
	30.0	16.8	4.05	19.1	4.53	22.9	5.34	25.2	5.82	26.0	6.00	28.1	6.45	30.2	6.90
	35.0	16.8	5.03	19.1	5.64	22.9	6.64	25.2	7.25	26.0	7.48	28.1	8.04	30.2	8.60
	40.0	16.8	6.04	19.1	6.78	22.9	8.00	25.2	8.74	26.0	9.01	28.0	9.61	28.9	9.62
43.0	16.8	6.68	19.1	7.50	22.9	8.88	25.0	9.61	25.4	9.62	26.3	9.62	27.2	9.62	
46.0	16.8	7.36	19.1	8.28	22.6	9.62	23.5	9.62	23.8	9.62	24.6	9.62	25.5	9.62	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	14.9	2.37	17.0	2.69	20.4	3.23	22.4	3.55	23.1	3.67	25.0	3.96	26.9	4.26
	-5.0	14.9	2.37	17.0	2.69	20.4	3.23	22.4	3.55	23.1	3.67	25.0	3.97	26.9	4.26
	0.0	14.9	2.38	17.0	2.70	20.4	3.24	22.4	3.56	23.1	3.68	25.0	3.97	26.9	4.27
	5.0	14.9	2.40	17.0	2.72	20.4	3.25	22.4	3.57	23.1	3.69	25.0	3.98	26.9	4.28
	10.0	14.9	2.44	17.0	2.75	20.4	3.28	22.4	3.59	23.1	3.71	25.0	4.00	26.9	4.29
	15.0	14.9	2.53	17.0	2.83	20.4	3.33	22.4	3.64	23.1	3.76	25.0	4.04	26.9	4.33
	20.0	14.9	2.80	17.0	3.04	20.4	3.49	22.4	3.77	23.1	3.87	25.0	4.14	26.9	4.41
	25.0	14.9	3.00	17.0	3.33	20.4	3.86	22.4	4.19	23.1	4.27	25.0	4.46	26.9	4.67
	30.0	14.9	3.46	17.0	3.82	20.4	4.42	22.4	4.77	23.1	4.90	25.0	5.22	26.9	5.54
	35.0	14.9	4.31	17.0	4.78	20.4	5.55	22.4	6.00	23.1	6.16	25.0	6.57	26.9	6.97
	40.0	14.9	5.18	17.0	5.76	20.4	6.71	22.4	7.27	23.1	7.47	25.0	7.97	26.9	8.47
43.0	14.9	5.74	17.0	6.38	20.4	7.45	22.4	8.08	23.1	8.31	25.0	8.87	26.9	9.44	
46.0	14.9	6.32	17.0	7.04	20.4	8.24	22.4	8.94	23.1	9.20	24.6	9.62	25.5	9.62	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	13.1	1.95	14.8	2.22	17.8	2.66	19.6	2.93	20.3	3.02	21.9	3.27	23.5	3.51
	-5.0	13.1	1.96	14.8	2.22	17.8	2.66	19.6	2.93	20.3	3.03	21.9	3.27	23.5	3.51
	0.0	13.1	1.97	14.8	2.23	17.8	2.67	19.6	2.94	20.3	3.03	21.9	3.28	23.5	3.52
	5.0	13.1	1.98	14.8	2.25	17.8	2.68	19.6	2.95	20.3	3.04	21.9	3.28	23.5	3.52
	10.0	13.1	2.01	14.8	2.27	17.8	2.70	19.6	2.96	20.3	3.06	21.9	3.30	23.5	3.54
	15.0	13.1	2.09	14.8	2.33	17.8	2.75	19.6	3.00	20.3	3.10	21.9	3.33	23.5	3.57
	20.0	13.1	2.31	14.8	2.51	17.8	2.87	19.6	3.10	20.3	3.19	21.9	3.41	23.5	3.63
	25.0	13.1	2.55	14.8	2.82	17.8	3.26	19.6	3.42	20.3	3.48	21.9	3.64	23.5	3.82
	30.0	13.1	2.76	14.8	3.01	17.8	3.41	19.6	3.65	20.3	3.73	21.9	3.93	23.5	4.14
	35.0	13.1	3.44	14.8	3.78	17.8	4.30	19.6	4.61	20.3	4.72	21.9	4.98	23.5	5.24
	40.0	13.1	4.14	14.8	4.56	17.8	5.23	19.6	5.61	20.3	5.75	21.9	6.09	23.5	6.42
43.0	13.1	4.58	14.8	5.05	17.8	5.81	19.6	6.25	20.3	6.41	21.9	6.79	23.5	7.17	
46.0	13.1	5.05	14.8	5.58	17.8	6.43	19.6	6.92	20.3	7.10	21.9	7.54	23.5	7.97	

# 1. Capacity Ratio of Outdoor Unit

## U-10MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	11.2	1.49	12.7	1.70	15.3	2.03	16.8	2.24	17.4	2.31	18.8	2.49	20.2	2.68
	-5.0	11.2	1.50	12.7	1.70	15.3	2.04	16.8	2.24	17.4	2.31	18.8	2.50	20.2	2.68
	0.0	11.2	1.51	12.7	1.71	15.3	2.04	16.8	2.24	17.4	2.32	18.8	2.50	20.2	2.68
	5.0	11.2	1.52	12.7	1.72	15.3	2.05	16.8	2.25	17.4	2.33	18.8	2.51	20.2	2.69
	10.0	11.2	1.54	12.7	1.74	15.3	2.07	16.8	2.27	17.4	2.34	18.8	2.52	20.2	2.70
	15.0	11.2	1.60	12.7	1.79	15.3	2.10	16.8	2.30	17.4	2.37	18.8	2.55	20.2	2.72
	20.0	11.2	1.77	12.7	1.92	15.3	2.20	16.8	2.37	17.4	2.44	18.8	2.60	20.2	2.77
	25.0	11.2	2.03	12.7	2.23	15.3	2.49	16.8	2.60	17.4	2.64	18.8	2.76	20.2	2.90
	30.0	11.2	2.06	12.7	2.26	15.3	2.60	16.8	2.80	17.4	2.88	18.8	3.06	20.2	3.24
	35.0	11.2	2.57	12.7	2.79	15.3	3.12	16.8	3.30	17.4	3.36	18.8	3.52	20.2	3.67
	40.0	11.2	3.09	12.7	3.37	15.3	3.79	16.8	4.03	17.4	4.12	18.8	4.32	20.2	4.52
43.0	11.2	3.42	12.7	3.73	15.3	4.22	16.8	4.50	17.4	4.60	18.8	4.83	20.2	5.06	
46.0	11.2	3.76	12.7	4.11	15.3	4.67	16.8	4.99	17.4	5.10	18.8	5.37	20.2	5.63	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	9.3	1.12	10.6	1.28	12.7	1.53	14.0	1.68	14.5	1.73	15.6	1.87	16.8	2.01
	-5.0	9.3	1.13	10.6	1.28	12.7	1.53	14.0	1.68	14.5	1.74	15.6	1.87	16.8	2.01
	0.0	9.3	1.13	10.6	1.28	12.7	1.54	14.0	1.69	14.5	1.74	15.6	1.88	16.8	2.02
	5.0	9.3	1.14	10.6	1.29	12.7	1.54	14.0	1.69	14.5	1.75	15.6	1.88	16.8	2.02
	10.0	9.3	1.17	10.6	1.31	12.7	1.56	14.0	1.70	14.5	1.76	15.6	1.89	16.8	2.03
	15.0	9.3	1.21	10.6	1.35	12.7	1.59	14.0	1.73	14.5	1.78	15.6	1.91	16.8	2.05
	20.0	9.3	1.35	10.6	1.45	12.7	1.66	14.0	1.79	14.5	1.83	15.6	1.96	16.8	2.08
	25.0	9.3	1.60	10.6	1.76	12.7	1.87	14.0	1.95	14.5	1.98	15.6	2.07	16.8	2.18
	30.0	9.3	1.63	10.6	1.78	12.7	2.04	14.0	2.19	14.5	2.24	15.6	2.38	16.8	2.49
	35.0	9.3	1.92	10.6	2.05	12.7	2.25	14.0	2.35	14.5	2.39	15.6	2.47	16.8	2.55
	40.0	9.3	2.30	10.6	2.47	12.7	2.73	14.0	2.88	14.5	2.93	15.6	3.04	16.8	3.15
43.0	9.3	2.53	10.6	2.74	12.7	3.04	14.0	3.21	14.5	3.27	15.6	3.41	16.8	3.53	
46.0	9.3	2.78	10.6	3.01	12.7	3.37	14.0	3.56	14.5	3.63	15.6	3.79	16.8	3.94	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	7.5	0.830	8.5	0.940	10.2	1.12	11.2	1.23	11.6	1.27	12.5	1.37	13.4	1.47
	-5.0	7.5	0.830	8.5	0.940	10.2	1.12	11.2	1.23	11.6	1.27	12.5	1.38	13.4	1.48
	0.0	7.5	0.830	8.5	0.940	10.2	1.13	11.2	1.24	11.6	1.28	12.5	1.38	13.4	1.48
	5.0	7.5	0.840	8.5	0.950	10.2	1.13	11.2	1.24	11.6	1.28	12.5	1.38	13.4	1.48
	10.0	7.5	0.860	8.5	0.970	10.2	1.15	11.2	1.25	11.6	1.29	12.5	1.39	13.4	1.49
	15.0	7.5	0.900	8.5	1.00	10.2	1.17	11.2	1.27	11.6	1.31	12.5	1.41	13.4	1.50
	20.0	7.5	1.01	8.5	1.08	10.2	1.22	11.2	1.32	11.6	1.35	12.5	1.44	13.4	1.53
	25.0	7.5	1.27	8.5	1.36	10.2	1.38	11.2	1.44	11.6	1.46	12.5	1.53	13.4	1.60
	30.0	7.5	1.29	8.5	1.40	10.2	1.59	11.2	1.70	11.6	1.74	12.5	1.82	13.4	1.82
	35.0	7.5	1.43	8.5	1.51	10.2	1.62	11.2	1.72	11.6	1.76	12.5	1.87	13.4	1.97
	40.0	7.5	1.70	8.5	1.81	10.2	1.96	11.2	2.04	11.6	2.07	12.5	2.13	13.4	2.18
43.0	7.5	1.87	8.5	2.00	10.2	2.18	11.2	2.27	11.6	2.31	12.5	2.38	13.4	2.44	
46.0	7.5	2.05	8.5	2.19	10.2	2.41	11.2	2.52	11.6	2.56	12.5	2.65	13.4	2.73	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	5.6	0.580	6.4	0.660	7.6	0.790	8.4	0.870	8.7	0.900	9.4	0.970	10.1	1.04
	-5.0	5.6	0.590	6.4	0.660	7.6	0.790	8.4	0.870	8.7	0.900	9.4	0.970	10.1	1.04
	0.0	5.6	0.590	6.4	0.670	7.6	0.800	8.4	0.870	8.7	0.900	9.4	0.970	10.1	1.04
	5.0	5.6	0.600	6.4	0.670	7.6	0.800	8.4	0.880	8.7	0.910	9.4	0.970	10.1	1.04
	10.0	5.6	0.610	6.4	0.690	7.6	0.810	8.4	0.890	8.7	0.910	9.4	0.980	10.1	1.05
	15.0	5.6	0.650	6.4	0.710	7.6	0.830	8.4	0.900	8.7	0.930	9.4	0.990	10.1	1.06
	20.0	5.6	0.730	6.4	0.780	7.6	0.870	8.4	0.940	8.7	0.960	9.4	1.02	10.1	1.08
	25.0	5.6	1.00	6.4	0.990	7.6	1.00	8.4	1.03	8.7	1.05	9.4	1.09	10.1	1.14
	30.0	5.6	1.02	6.4	1.10	7.6	1.23	8.4	1.31	8.7	1.33	9.4	1.30	10.1	1.29
	35.0	5.6	1.07	6.4	1.12	7.6	1.25	8.4	1.33	8.7	1.36	9.4	1.43	10.1	1.50
	40.0	5.6	1.26	6.4	1.32	7.6	1.40	8.4	1.44	8.7	1.45	9.4	1.48	10.1	1.50
43.0	5.6	1.37	6.4	1.45	7.6	1.55	8.4	1.59	8.7	1.61	9.4	1.64	10.1	1.67	
46.0	5.6	1.49	6.4	1.58	7.6	1.70	8.4	1.76	8.7	1.78	9.4	1.82	10.1	1.86	



# 1. Capacity Ratio of Outdoor Unit

## 1-4. U-10MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	19.6	9.20	17.4	8.86	16.1	8.58	15.1	8.36	13.7	7.95	12.7	7.62	10.1	6.61
	-14.7	-15.0	23.4	9.44	20.8	9.30	19.2	8.97	18.1	8.71	16.4	8.25	15.3	7.90	12.2	6.83
	-9.6	-10.0	26.3	9.71	24.9	9.69	23.0	9.57	21.7	9.26	19.7	8.74	18.3	8.34	14.7	7.16
	-4.4	-5.0	29.5	9.71	27.5	9.71	26.3	9.71	25.5	9.64	23.2	9.18	21.6	8.73	17.3	7.42
	-1.8	-2.5	31.3	9.71	29.1	9.71	27.9	9.71	27.1	9.71	25.3	9.55	23.5	8.99	18.9	7.64
	0.8	0.0	33.3	9.71	30.9	9.71	29.6	9.71	28.8	9.71	27.6	9.71	25.7	9.36	19.8	7.62
	2.8	2.0	34.9	9.71	32.5	9.71	31.1	9.71	30.2	9.71	28.0	9.24	25.7	8.70	19.8	7.19
	6.0	5.0	37.6	9.71	35.0	9.71	33.5	9.71	31.5	9.16	28.0	8.17	25.7	7.71	19.8	6.45
	7.0	6.0	38.6	9.71	35.9	9.71	33.8	9.43	31.5	8.75	28.0	7.81	25.7	7.40	19.8	6.22
	8.6	7.5	40.1	9.71	37.3	9.71	33.8	8.77	31.5	8.16	28.0	7.30	25.7	6.94	19.8	5.88
	11.2	10.0	42.7	9.71	37.3	8.56	33.8	7.76	31.5	7.24	28.0	6.52	25.7	6.23	19.8	5.34
16.4	15.0	43.2	7.47	37.3	6.53	33.8	5.97	31.5	5.60	28.0	5.08	25.7	4.91	19.8	4.30	
24.0	18.0	43.2	6.89	37.3	6.03	33.8	5.52	31.5	5.18	28.0	4.67	25.7	4.33	19.8	3.54	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	19.2	9.14	17.0	8.81	15.6	8.53	14.7	8.31	13.3	7.91	12.3	7.59	9.8	6.59
	-14.7	-15.0	22.9	9.71	20.3	9.27	18.7	8.93	17.7	8.67	16.0	8.22	14.8	7.87	11.8	6.82
	-9.6	-10.0	26.9	10.2	24.4	9.97	22.5	9.55	21.2	9.24	19.2	8.72	17.9	8.32	14.3	7.14
	-4.4	-5.0	30.2	10.2	28.0	10.2	26.8	10.2	25.5	10.1	23.1	9.39	21.5	8.93	17.1	7.57
	-1.8	-2.5	32.0	10.2	29.7	10.2	28.4	10.2	27.6	10.2	25.2	9.77	23.1	9.15	17.9	7.44
	0.8	0.0	34.0	10.2	31.6	10.2	30.2	10.2	28.4	9.61	25.2	8.94	23.1	8.45	17.9	7.04
	2.8	2.0	35.7	10.2	33.2	10.2	30.5	9.47	28.4	8.86	25.2	8.28	23.1	7.85	17.9	6.63
	6.0	5.0	38.5	10.2	33.6	9.12	30.5	8.40	28.4	7.91	25.2	7.47	23.1	7.10	17.9	6.01
	7.0	6.0	38.7	10.2	33.6	8.90	30.5	8.13	28.4	7.61	25.2	7.16	23.1	6.82	17.9	5.79
	8.6	7.5	38.9	9.44	33.6	8.25	30.5	7.55	28.4	7.09	25.2	6.70	23.1	6.40	17.9	5.48
	11.2	10.0	38.9	8.20	33.6	7.24	30.5	6.66	28.4	6.28	25.2	5.99	23.1	5.75	17.9	4.99
16.4	15.0	38.9	6.54	33.6	5.74	30.5	5.26	28.4	4.94	25.2	4.66	23.1	4.53	17.9	4.01	
24.0	18.0	38.9	6.54	33.6	5.74	30.5	5.26	28.4	4.94	25.2	4.45	23.1	4.13	17.9	3.33	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	18.9	9.19	16.7	8.84	15.4	8.56	14.4	8.34	13.0	7.94	12.1	7.63	9.5	6.64
	-14.7	-15.0	22.6	9.80	20.1	9.33	18.5	8.99	17.4	8.72	15.7	8.27	14.5	7.92	11.6	6.86
	-9.6	-10.0	27.1	10.6	24.1	10.0	22.2	9.64	20.9	9.32	18.9	8.79	17.5	8.38	14.0	7.19
	-4.4	-5.0	30.9	10.6	28.6	10.6	27.1	10.4	25.2	10.2	22.4	9.34	20.5	8.75	15.9	7.21
	-1.8	-2.5	32.8	10.6	29.9	10.3	27.1	9.66	25.2	9.31	22.4	8.70	20.5	8.25	15.9	6.81
	0.8	0.0	34.5	10.4	29.9	9.29	27.1	8.78	25.2	8.51	22.4	8.02	20.5	7.63	15.9	6.47
	2.8	2.0	34.5	9.57	29.9	8.63	27.1	8.18	25.2	7.95	22.4	7.51	20.5	7.17	15.9	6.10
	6.0	5.0	34.5	8.50	29.9	7.70	27.1	7.32	25.2	7.13	22.4	6.77	20.5	6.47	15.9	5.51
	7.0	6.0	34.5	8.34	29.9	7.44	27.1	7.04	25.2	6.85	22.4	6.49	20.5	6.21	15.9	5.34
	8.6	7.5	34.5	7.66	29.9	6.88	27.1	6.54	25.2	6.38	22.4	6.08	20.5	5.84	15.9	5.05
	11.2	10.0	34.5	6.61	29.9	6.00	27.1	5.75	25.2	5.66	22.4	5.44	20.5	5.25	15.9	4.61
16.4	15.0	34.5	6.14	29.9	5.39	27.1	4.95	25.2	4.65	22.4	4.23	20.5	4.13	15.9	3.70	
24.0	18.0	34.5	6.14	29.9	5.39	27.1	4.95	25.2	4.65	22.4	4.20	20.5	3.90	15.9	3.16	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	19.0	9.41	16.7	9.04	15.4	8.75	14.4	8.53	13.0	8.12	12.0	7.80	9.5	6.79
	-14.7	-15.0	22.8	10.1	20.1	9.57	18.5	9.21	17.4	8.94	15.7	8.47	14.5	8.11	11.5	7.03
	-9.6	-10.0	27.3	10.7	24.2	10.4	22.3	9.90	21.0	9.57	18.9	9.01	17.5	8.59	13.9	7.36
	-4.4	-5.0	30.2	10.2	26.1	9.59	23.7	9.24	22.1	8.95	19.6	8.39	18.0	7.91	13.9	6.56
	-1.8	-2.5	30.2	9.35	26.1	8.82	23.7	8.53	22.1	8.27	19.6	7.80	18.0	7.44	13.9	6.26
	0.8	0.0	30.2	8.49	26.1	8.06	23.7	7.83	22.1	7.62	19.6	7.21	18.0	6.89	13.9	5.89
	2.8	2.0	30.2	7.83	26.1	7.48	23.7	7.29	22.1	7.36	19.6	6.76	18.0	6.46	13.9	5.55
	6.0	5.0	30.2	6.89	26.1	6.64	23.7	6.50	22.1	6.36	19.6	6.05	18.0	5.81	13.9	4.99
	7.0	6.0	30.2	6.63	26.1	6.34	23.7	6.21	22.1	6.07	19.6	5.80	18.0	5.58	13.9	4.85
	8.6	7.5	30.2	6.06	26.1	5.86	23.7	5.77	22.1	5.67	19.6	5.45	18.0	5.25	13.9	4.60
	11.2	10.0	30.2	5.68	26.1	5.10	23.7	5.09	22.1	5.03	19.6	4.88	18.0	4.73	13.9	4.20
16.4	15.0	30.2	5.68	26.1	5.00	23.7	4.59	22.1	4.32	19.6	3.91	18.0	3.71	13.9	3.37	
24.0	18.0	30.2	5.68	26.1	5.00	23.7	4.59	22.1	4.32	19.6	3.91	18.0	3.64	13.9	2.96	

## 1. Capacity Ratio of Outdoor Unit

## U-10MF2E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	19.5	9.61	17.2	9.23	15.8	8.94	14.8	8.70	13.3	8.29	12.3	7.96	9.7	6.94
	-14.7	-15.0	23.5	10.35	20.7	9.84	19.0	9.46	17.9	9.18	16.1	8.69	14.9	8.32	11.9	7.29
	-9.6	-10.0	25.9	9.98	22.4	9.57	20.3	9.03	18.9	8.66	16.8	8.06	15.4	7.62	11.9	6.41
	-4.4	-5.0	25.9	8.46	22.4	8.22	20.3	7.94	18.9	7.71	16.8	7.28	15.4	6.91	11.9	5.75
	-1.8	-2.5	25.9	7.70	22.4	7.54	20.3	7.32	18.9	7.12	16.8	6.75	15.4	6.45	11.9	5.50
	0.8	0.0	25.9	6.97	22.4	6.88	20.3	6.72	18.9	6.56	16.8	6.24	15.4	5.97	11.9	5.15
	2.8	2.0	25.9	6.41	22.4	6.38	20.3	6.25	18.9	6.12	16.8	5.84	15.4	5.61	11.9	4.85
	6.0	5.0	25.9	5.58	22.4	5.60	20.3	5.51	18.9	5.41	16.8	5.19	15.4	5.00	11.9	4.35
	7.0	6.0	25.9	5.26	22.4	5.32	20.3	5.26	18.9	5.17	16.8	4.98	15.4	4.81	11.9	4.24
	8.6	7.5	25.9	5.04	22.4	4.92	20.3	4.89	18.9	4.84	16.8	4.68	15.4	4.54	11.9	4.02
	11.2	10.0	25.9	5.04	22.4	4.45	20.3	4.32	18.9	4.30	16.8	4.21	15.4	4.10	11.9	3.68
	16.4	15.0	25.9	5.04	22.4	4.45	20.3	4.09	18.9	3.85	16.8	3.50	15.4	3.26	11.9	2.96
24.0	18.0	25.9	5.04	22.4	4.45	20.3	4.09	18.9	3.85	16.8	3.50	15.4	3.26	11.9	2.67	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	20.8	9.97	18.3	9.56	16.8	9.24	15.7	9.00	14.0	8.49	12.8	8.10	9.9	6.94
	-14.7	-15.0	21.6	9.31	18.7	8.65	16.9	8.23	15.8	7.93	14.0	7.43	12.8	7.07	9.9	6.02
	-9.6	-10.0	21.6	8.08	18.7	7.80	16.9	7.46	15.8	7.13	14.0	6.64	12.8	6.29	9.9	5.32
	-4.4	-5.0	21.6	6.83	18.7	6.68	16.9	6.49	15.8	6.31	14.0	5.98	12.8	5.71	9.9	4.79
	-1.8	-2.5	21.6	6.21	18.7	6.13	16.9	5.98	15.8	5.83	14.0	5.55	12.8	5.32	9.9	4.58
	0.8	0.0	21.6	5.62	18.7	5.59	16.9	5.48	15.8	5.37	14.0	5.13	12.8	4.92	9.9	4.27
	2.8	2.0	21.6	5.16	18.7	5.15	16.9	5.06	15.8	4.96	14.0	4.76	12.8	4.58	9.9	4.01
	6.0	5.0	21.6	4.36	18.7	4.46	16.9	4.43	15.8	4.37	14.0	4.23	12.8	4.10	9.9	3.62
	7.0	6.0	21.6	4.24	18.7	4.24	16.9	4.23	15.8	4.19	14.0	4.07	12.8	3.95	9.9	3.52
	8.6	7.5	21.6	4.24	18.7	3.93	16.9	3.95	15.8	3.92	14.0	3.83	12.8	3.73	9.9	3.35
	11.2	10.0	21.6	4.24	18.7	3.76	16.9	3.50	15.8	3.50	14.0	3.45	12.8	3.38	9.9	3.07
	16.4	15.0	21.6	4.24	18.7	3.76	16.9	3.47	15.8	3.27	14.0	2.98	12.8	2.79	9.9	2.48
24.0	18.0	21.6	4.24	18.7	3.76	16.9	3.47	15.8	3.27	14.0	2.98	12.8	2.79	9.9	2.30	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	17.3	7.54	14.9	7.13	13.5	6.84	12.6	6.62	11.2	6.25	10.3	5.97	7.9	5.15
	-14.7	-15.0	17.3	6.82	14.9	6.37	13.5	6.07	12.6	5.85	11.2	5.49	10.3	5.23	7.9	4.49
	-9.6	-10.0	17.3	5.88	14.9	5.72	13.5	5.51	12.6	5.28	11.2	4.93	10.3	4.68	7.9	3.98
	-4.4	-5.0	17.3	4.97	14.9	4.90	13.5	4.77	12.6	4.65	11.2	4.43	10.3	4.24	7.9	3.60
	-1.8	-2.5	17.3	4.52	14.9	4.48	13.5	4.38	12.6	4.29	11.2	4.09	10.3	3.93	7.9	3.43
	0.8	0.0	17.3	4.02	14.9	4.04	13.5	3.97	12.6	3.90	11.2	3.75	10.3	3.62	7.9	3.18
	2.8	2.0	17.3	3.64	14.9	3.69	13.5	3.66	12.6	3.61	11.2	3.49	10.3	3.38	7.9	3.00
	6.0	5.0	17.3	3.22	14.9	3.21	13.5	3.22	12.6	3.20	11.2	3.12	10.3	3.04	7.9	2.73
	7.0	6.0	17.3	3.22	14.9	3.06	13.5	3.08	12.6	3.07	11.2	3.00	10.3	2.93	7.9	2.65
	8.6	7.5	17.3	3.22	14.9	2.87	13.5	2.88	12.6	2.88	11.2	2.83	10.3	2.78	7.9	2.53
	11.2	10.0	17.3	3.22	14.9	2.87	13.5	2.66	12.6	2.58	11.2	2.56	10.3	2.53	7.9	2.33
	16.4	15.0	17.3	3.22	14.9	2.87	13.5	2.66	12.6	2.51	11.2	2.30	10.3	2.16	7.9	1.89
24.0	18.0	17.3	3.22	14.9	2.87	13.5	2.66	12.6	2.51	11.2	2.30	10.3	2.16	7.9	1.80	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	13.0	5.17	11.2	4.90	10.2	4.70	9.5	4.56	8.4	4.32	7.7	4.14	6.0	3.60
	-14.7	-15.0	13.0	4.66	11.2	4.40	10.2	4.20	9.5	4.05	8.4	3.82	7.7	3.65	6.0	3.15
	-9.6	-10.0	13.0	4.02	11.2	3.93	10.2	3.81	9.5	3.69	8.4	3.44	7.7	3.28	6.0	2.81
	-4.4	-5.0	13.0	3.35	11.2	3.33	10.2	3.26	9.5	3.19	8.4	3.06	7.7	2.95	6.0	2.54
	-1.8	-2.5	13.0	3.01	11.2	3.03	10.2	2.98	9.5	2.94	8.4	2.83	7.7	2.73	6.0	2.42
	0.8	0.0	13.0	2.69	11.2	2.74	10.2	2.72	9.5	2.68	8.4	2.60	7.7	2.53	6.0	2.26
	2.8	2.0	13.0	2.44	11.2	2.52	10.2	2.51	9.5	2.49	8.4	2.43	7.7	2.37	6.0	2.13
	6.0	5.0	13.0	2.32	11.2	2.20	10.2	2.23	9.5	2.22	8.4	2.19	7.7	2.14	6.0	1.96
	7.0	6.0	13.0	2.32	11.2	2.11	10.2	2.14	9.5	2.14	8.4	2.11	7.7	2.07	6.0	1.90
	8.6	7.5	13.0	2.32	11.2	2.08	10.2	2.01	9.5	2.02	8.4	2.00	7.7	1.97	6.0	1.82
	11.2	10.0	13.0	2.32	11.2	2.08	10.2	1.94	9.5	1.84	8.4	1.82	7.7	1.80	6.0	1.69
	16.4	15.0	13.0	2.32	11.2	2.08	10.2	1.94	9.5	1.84	8.4	1.70	7.7	1.60	6.0	1.38
24.0	18.0	13.0	2.32	11.2	2.08	10.2	1.94	9.5	1.84	8.4	1.70	7.7	1.60	6.0	1.36	

# 1. Capacity Ratio of Outdoor Unit

## 1-5. U-12MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	22.3	3.06	25.4	3.47	30.5	4.16	33.5	4.57	34.6	4.72	37.4	5.10	40.2	5.48
	-5.0	22.3	3.07	25.4	3.48	30.5	4.17	33.5	4.58	34.6	4.74	37.4	5.11	40.2	5.49
	0.0	22.3	3.09	25.4	3.50	30.5	4.19	33.5	4.60	34.6	4.76	37.4	5.13	40.2	5.51
	5.0	22.3	3.14	25.4	3.55	30.5	4.24	33.5	4.65	34.6	4.80	37.4	5.17	40.2	5.55
	10.0	22.3	3.26	25.4	3.67	30.5	4.34	33.5	4.74	34.6	4.89	37.4	5.27	40.2	5.64
	15.0	22.3	3.62	25.4	4.00	30.5	4.63	33.5	5.02	34.6	5.16	37.4	5.52	40.2	5.87
	20.0	22.3	3.75	25.4	4.22	30.5	5.28	33.5	5.98	34.6	6.25	37.4	6.95	40.2	7.69
	25.0	22.3	4.71	25.4	5.46	30.5	6.80	33.5	7.68	34.6	8.02	37.4	8.88	40.2	9.79
	30.0	22.3	5.90	25.4	6.82	30.5	8.46	33.5	9.52	34.6	9.92	37.4	11.0	40.2	12.0
	35.0	22.3	7.17	25.4	8.27	30.5	10.2	33.5	11.5	34.6	12.0	36.8	12.8	37.8	12.8
	40.0	22.3	8.49	25.4	9.79	30.5	12.1	32.3	12.8	32.7	12.8	33.7	12.8	34.7	12.8
43.0	22.3	9.34	25.4	10.8	29.7	12.8	30.7	12.8	31.0	12.8	32.0	12.8	32.9	12.8	
46.0	22.3	10.2	25.4	11.8	28.1	12.8	28.9	12.6	28.9	12.4	28.9	11.7	28.9	11.2	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	20.1	2.75	22.8	3.13	27.4	3.75	30.2	4.12	31.2	4.26	33.7	4.60	36.2	4.94
	-5.0	20.1	2.77	22.8	3.14	27.4	3.76	30.2	4.13	31.2	4.27	33.7	4.61	36.2	4.95
	0.0	20.1	2.79	22.8	3.16	27.4	3.78	30.2	4.15	31.2	4.29	33.7	4.63	36.2	4.97
	5.0	20.1	2.83	22.8	3.20	27.4	3.81	30.2	4.18	31.2	4.32	33.7	4.66	36.2	5.00
	10.0	20.1	2.93	22.8	3.29	27.4	3.90	30.2	4.26	31.2	4.40	33.7	4.73	36.2	5.07
	15.0	20.1	3.22	22.8	3.55	27.4	4.12	30.2	4.46	31.2	4.59	33.7	4.91	36.2	5.23
	20.0	20.1	3.45	22.8	3.83	27.4	4.45	30.2	4.82	31.2	4.96	33.7	5.45	36.2	5.96
	25.0	20.1	3.98	22.8	4.55	27.4	5.55	30.2	6.20	31.2	6.44	33.7	7.07	36.2	7.72
	30.0	20.1	5.01	22.8	5.72	27.4	6.98	30.2	7.77	31.2	8.07	33.7	8.83	36.2	9.62
	35.0	20.1	6.12	22.8	6.98	27.4	8.49	30.2	9.45	31.2	9.80	33.7	10.7	36.2	11.7
	40.0	20.1	7.26	22.8	8.29	27.4	10.1	30.2	11.2	31.2	11.6	33.7	12.7	34.7	12.8
43.0	20.1	7.99	22.8	9.13	27.4	11.1	30.2	12.4	31.0	12.7	32.0	12.8	32.9	12.8	
46.0	20.1	8.76	22.8	10.0	27.4	12.2	28.9	12.6	28.9	12.4	28.9	11.7	28.9	11.1	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	17.9	2.45	20.3	2.78	24.4	3.34	26.8	3.67	27.7	3.79	29.9	4.10	32.2	4.40
	-5.0	17.9	2.46	20.3	2.79	24.4	3.35	26.8	3.68	27.7	3.80	29.9	4.11	32.2	4.41
	0.0	17.9	2.48	20.3	2.81	24.4	3.36	26.8	3.69	27.7	3.82	29.9	4.12	32.2	4.42
	5.0	17.9	2.52	20.3	2.85	24.4	3.39	26.8	3.72	27.7	3.84	29.9	4.15	32.2	4.45
	10.0	17.9	2.61	20.3	2.93	24.4	3.46	26.8	3.78	27.7	3.90	29.9	4.20	32.2	4.50
	15.0	17.9	2.84	20.3	3.13	24.4	3.63	26.8	3.94	27.7	4.05	29.9	4.33	32.2	4.62
	20.0	17.9	3.15	20.3	3.49	24.4	4.04	26.8	4.37	27.7	4.50	29.9	4.73	32.2	4.97
	25.0	17.9	3.35	20.3	3.76	24.4	4.48	26.8	4.94	27.7	5.11	29.9	5.54	32.2	5.99
	30.0	17.9	4.23	20.3	4.76	24.4	5.68	26.8	6.26	27.7	6.47	29.9	7.02	32.2	7.58
	35.0	17.9	5.18	20.3	5.84	24.4	6.97	26.8	7.67	27.7	7.94	29.9	8.60	32.2	9.27
	40.0	17.9	6.15	20.3	6.95	24.4	8.31	26.8	9.15	27.7	9.46	29.9	10.3	32.2	11.1
43.0	17.9	6.77	20.3	7.66	24.4	9.17	26.8	10.1	27.7	10.5	29.9	11.3	32.2	12.2	
46.0	17.9	7.43	20.3	8.41	24.4	10.1	26.8	11.1	27.7	11.5	28.9	11.7	28.9	11.1	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	15.6	2.03	17.8	2.30	21.3	2.76	23.5	3.03	24.2	3.13	26.2	3.38	28.1	3.63
	-5.0	15.6	2.03	17.8	2.31	21.3	2.76	23.5	3.04	24.2	3.14	26.2	3.39	28.1	3.64
	0.0	15.6	2.05	17.8	2.32	21.3	2.78	23.5	3.05	24.2	3.15	26.2	3.40	28.1	3.65
	5.0	15.6	2.08	17.8	2.35	21.3	2.80	23.5	3.07	24.2	3.17	26.2	3.42	28.1	3.67
	10.0	15.6	2.15	17.8	2.41	21.3	2.85	23.5	3.12	24.2	3.22	26.2	3.46	28.1	3.71
	15.0	15.6	2.33	17.8	2.57	21.3	2.98	23.5	3.23	24.2	3.32	26.2	3.56	28.1	3.79
	20.0	15.6	2.69	17.8	2.96	21.3	3.36	23.5	3.55	24.2	3.62	26.2	3.82	28.1	4.02
	25.0	15.6	2.72	17.8	3.00	21.3	3.46	23.5	3.73	24.2	3.83	26.2	4.09	28.1	4.34
	30.0	15.6	3.32	17.8	3.69	21.3	4.31	23.5	4.68	24.2	4.82	26.2	5.17	28.1	5.52
	35.0	15.6	4.09	17.8	4.55	21.3	5.33	23.5	5.79	24.2	5.97	26.2	6.40	28.1	6.84
	40.0	15.6	4.86	17.8	5.42	21.3	6.37	23.5	6.94	24.2	7.15	26.2	7.67	28.1	8.20
43.0	15.6	5.35	17.8	5.98	21.3	7.03	23.5	7.67	24.2	7.91	26.2	8.49	28.1	9.08	
46.0	15.6	5.87	17.8	6.57	21.3	7.74	23.5	8.45	24.2	8.71	26.2	9.37	28.1	10.0	

## 1. Capacity Ratio of Outdoor Unit

## U-12MF2E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	13.4	1.55	15.2	1.76	18.3	2.11	20.1	2.32	20.8	2.39	22.4	2.58	24.1	2.78
	-5.0	13.4	1.56	15.2	1.76	18.3	2.11	20.1	2.32	20.8	2.40	22.4	2.59	24.1	2.78
	0.0	13.4	1.57	15.2	1.78	18.3	2.12	20.1	2.33	20.8	2.41	22.4	2.60	24.1	2.79
	5.0	13.4	1.59	15.2	1.80	18.3	2.14	20.1	2.35	20.8	2.42	22.4	2.61	24.1	2.80
	10.0	13.4	1.65	15.2	1.85	18.3	2.18	20.1	2.38	20.8	2.46	22.4	2.64	24.1	2.83
	15.0	13.4	1.78	15.2	1.96	18.3	2.27	20.1	2.46	20.8	2.53	22.4	2.71	24.1	2.89
	20.0	13.4	2.14	15.2	2.31	18.3	2.52	20.1	2.67	20.8	2.72	22.4	2.87	24.1	3.03
	25.0	13.4	2.17	15.2	2.38	18.3	2.73	20.1	2.94	20.8	3.02	22.4	3.21	24.1	3.40
	30.0	13.4	2.45	15.2	2.68	18.3	3.05	20.1	3.27	20.8	3.34	22.4	3.54	24.1	3.73
	35.0	13.4	3.02	15.2	3.31	18.3	3.79	20.1	4.07	20.8	4.17	22.4	4.43	24.1	4.68
	40.0	13.4	3.58	15.2	3.95	18.3	4.55	20.1	4.90	20.8	5.02	22.4	5.34	24.1	5.65
43.0	13.4	3.94	15.2	4.35	18.3	5.02	20.1	5.42	20.8	5.56	22.4	5.92	24.1	6.27	
46.0	13.4	4.32	15.2	4.78	18.3	5.53	20.1	5.98	20.8	6.14	22.4	6.54	24.1	6.93	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	11.2	1.17	12.7	1.32	15.2	1.58	16.8	1.74	17.3	1.80	18.7	1.94	20.1	2.09
	-5.0	11.2	1.17	12.7	1.33	15.2	1.59	16.8	1.75	17.3	1.80	18.7	1.95	20.1	2.09
	0.0	11.2	1.18	12.7	1.34	15.2	1.60	16.8	1.75	17.3	1.81	18.7	1.95	20.1	2.10
	5.0	11.2	1.20	12.7	1.36	15.2	1.61	16.8	1.77	17.3	1.82	18.7	1.96	20.1	2.11
	10.0	11.2	1.24	12.7	1.39	15.2	1.64	16.8	1.79	17.3	1.85	18.7	1.99	20.1	2.13
	15.0	11.2	1.34	12.7	1.48	15.2	1.70	16.8	1.85	17.3	1.90	18.7	2.03	20.1	2.17
	20.0	11.2	1.65	12.7	1.72	15.2	1.87	16.8	1.98	17.3	2.03	18.7	2.14	20.1	2.26
	25.0	11.2	1.73	12.7	1.89	15.2	2.15	16.8	2.31	17.3	2.36	18.7	2.48	20.1	2.53
	30.0	11.2	1.81	12.7	1.94	15.2	2.18	16.8	2.34	17.3	2.40	18.7	2.54	20.1	2.68
	35.0	11.2	2.22	12.7	2.40	15.2	2.68	16.8	2.84	17.3	2.90	18.7	3.04	20.1	3.17
	40.0	11.2	2.63	12.7	2.86	15.2	3.22	16.8	3.43	17.3	3.50	18.7	3.68	20.1	3.85
43.0	11.2	2.89	12.7	3.15	15.2	3.56	16.8	3.80	17.3	3.88	18.7	4.09	20.1	4.29	
46.0	11.2	3.16	12.7	3.46	15.2	3.92	16.8	4.19	17.3	4.28	18.7	4.52	20.1	4.74	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	8.9	0.860	10.2	0.970	12.2	1.16	13.4	1.28	13.8	1.32	15.0	1.42	16.1	1.53
	-5.0	8.9	0.860	10.2	0.980	12.2	1.17	13.4	1.28	13.8	1.32	15.0	1.43	16.1	1.53
	0.0	8.9	0.870	10.2	0.980	12.2	1.17	13.4	1.29	13.8	1.33	15.0	1.43	16.1	1.54
	5.0	8.9	0.890	10.2	1.00	12.2	1.19	13.4	1.30	13.8	1.34	15.0	1.44	16.1	1.55
	10.0	8.9	0.920	10.2	1.03	12.2	1.21	13.4	1.32	13.8	1.36	15.0	1.46	16.1	1.56
	15.0	8.9	1.00	10.2	1.09	12.2	1.26	13.4	1.36	13.8	1.40	15.0	1.49	16.1	1.59
	20.0	8.9	1.22	10.2	1.26	12.2	1.37	13.4	1.45	13.8	1.49	15.0	1.57	16.1	1.65
	25.0	8.9	1.37	10.2	1.49	12.2	1.68	13.4	1.75	13.8	1.75	15.0	1.78	16.1	1.82
	30.0	8.9	1.40	10.2	1.52	12.2	1.71	13.4	1.83	13.8	1.87	15.0	1.97	16.1	2.08
	35.0	8.9	1.64	10.2	1.75	12.2	1.90	13.4	1.98	13.8	2.01	15.0	2.08	16.1	2.14
	40.0	8.9	1.93	10.2	2.07	12.2	2.28	13.4	2.39	13.8	2.43	15.0	2.52	16.1	2.61
43.0	8.9	2.11	10.2	2.27	12.2	2.51	13.4	2.64	13.8	2.69	15.0	2.80	16.1	2.90	
46.0	8.9	2.30	10.2	2.48	12.2	2.76	13.4	2.91	13.8	2.97	15.0	3.09	16.1	3.21	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	6.7	0.610	7.6	0.690	9.1	0.820	10.1	0.900	10.4	0.930	11.2	1.00	12.1	1.08
	-5.0	6.7	0.610	7.6	0.690	9.1	0.820	10.1	0.900	10.4	0.930	11.2	1.01	12.1	1.08
	0.0	6.7	0.620	7.6	0.700	9.1	0.830	10.1	0.910	10.4	0.940	11.2	1.01	12.1	1.08
	5.0	6.7	0.630	7.6	0.710	9.1	0.840	10.1	0.920	10.4	0.950	11.2	1.02	12.1	1.09
	10.0	6.7	0.660	7.6	0.730	9.1	0.860	10.1	0.930	10.4	0.960	11.2	1.03	12.1	1.10
	15.0	6.7	0.720	7.6	0.780	9.1	0.890	10.1	0.960	10.4	0.990	11.2	1.06	12.1	1.12
	20.0	6.7	0.890	7.6	0.910	9.1	0.980	10.1	1.03	10.4	1.05	11.2	1.11	12.1	1.17
	25.0	6.7	1.09	7.6	1.17	9.1	1.24	10.1	1.23	10.4	1.23	11.2	1.25	12.1	1.28
	30.0	6.7	1.12	7.6	1.20	9.1	1.33	10.1	1.41	10.4	1.44	11.2	1.52	12.1	1.59
	35.0	6.7	1.22	7.6	1.28	9.1	1.36	10.1	1.44	10.4	1.47	11.2	1.54	12.1	1.62
	40.0	6.7	1.42	7.6	1.49	9.1	1.60	10.1	1.66	10.4	1.67	11.2	1.72	12.1	1.75
43.0	6.7	1.54	7.6	1.63	9.1	1.76	10.1	1.83	10.4	1.85	11.2	1.90	12.1	1.94	
46.0	6.7	1.67	7.6	1.77	9.1	1.93	10.1	2.00	10.4	2.03	11.2	2.09	12.1	2.15	

# 1. Capacity Ratio of Outdoor Unit

## 1-6. U-12MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	22.7	10.4	20.3	10.1	18.8	9.75	17.7	9.50	16.1	9.04	14.9	8.68	12.0	7.53
	-14.7	-15.0	27.0	11.0	24.2	10.5	22.4	10.1	21.1	9.86	19.2	9.36	17.9	8.97	14.4	7.79
	-9.6	-10.0	32.0	12.0	28.8	11.2	26.7	10.8	25.2	10.4	23.0	9.86	21.5	9.43	17.3	8.14
	-4.4	-5.0	35.2	12.2	33.6	12.2	31.3	11.5	29.6	11.0	27.0	10.3	25.2	9.84	20.4	8.41
	-1.8	-2.5	37.1	12.2	35.0	12.2	34.1	12.2	32.3	11.7	29.5	10.7	27.5	10.2	22.2	8.65
	0.8	0.0	39.2	12.2	36.8	12.2	35.5	12.2	34.8	12.2	32.1	11.4	30.0	10.6	23.6	8.69
	2.8	2.0	41.0	12.2	38.6	12.2	37.1	12.2	36.2	12.2	33.3	11.3	30.6	10.3	23.6	8.30
	6.0	5.0	43.9	12.2	41.3	12.2	39.8	12.2	37.5	11.5	33.3	10.1	30.6	9.14	23.6	7.46
	7.0	6.0	45.0	12.2	42.3	12.2	40.3	12.0	37.5	11.0	33.3	9.64	30.6	8.78	23.6	7.19
	8.6	7.5	46.6	12.2	43.8	12.2	40.3	11.2	37.5	10.3	33.3	9.05	30.6	8.25	23.6	6.81
	11.2	10.0	49.5	12.2	44.4	11.1	40.3	9.96	37.5	9.20	33.3	8.11	30.6	7.41	23.6	6.20
	16.4	15.0	51.4	10.2	44.4	8.68	40.3	7.82	37.5	7.26	33.3	6.44	30.6	5.91	23.6	5.04
24.0	18.0	51.4	8.61	44.4	7.34	40.3	6.60	37.5	6.11	33.3	5.41	30.6	4.94	23.6	4.22	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	22.1	10.2	19.7	9.87	18.1	9.57	17.1	9.33	15.5	8.89	14.4	8.54	11.5	7.44
	-14.7	-15.0	26.3	10.8	23.5	10.3	21.7	9.98	20.5	9.70	18.6	9.21	17.3	8.84	13.8	7.68
	-9.6	-10.0	31.3	11.8	28.0	11.1	25.9	10.6	24.5	10.3	22.3	9.73	20.7	9.31	16.7	8.03
	-4.4	-5.0	36.0	12.8	33.6	12.5	31.1	11.7	29.4	11.1	26.8	10.5	24.9	9.96	20.0	8.50
	-1.8	-2.5	38.0	12.8	35.7	12.8	34.0	12.5	32.1	11.9	29.2	10.9	27.2	10.3	21.3	8.51
	0.8	0.0	40.2	12.8	37.7	12.8	36.3	12.8	33.8	11.8	30.0	10.5	27.5	9.79	21.3	8.07
	2.8	2.0	42.0	12.8	39.4	12.8	36.3	11.8	33.8	11.0	30.0	9.72	27.5	9.11	21.3	7.66
	6.0	5.0	45.0	12.8	40.0	11.6	36.3	10.6	33.8	9.86	30.0	8.82	27.5	8.28	21.3	6.94
	7.0	6.0	45.1	12.8	40.0	11.4	36.3	10.3	33.8	9.54	30.0	8.47	27.5	7.95	21.3	6.70
	8.6	7.5	46.3	12.5	40.0	10.6	36.3	9.59	33.8	8.92	30.0	7.93	27.5	7.47	21.3	6.35
	11.2	10.0	46.3	11.0	40.0	9.40	36.3	8.52	33.8	7.94	30.0	7.10	27.5	6.72	21.3	5.79
	16.4	15.0	46.3	8.31	40.0	7.25	36.3	6.63	33.8	6.21	30.0	5.59	27.5	5.34	21.3	4.71
24.0	18.0	46.3	7.37	40.0	6.49	36.3	5.96	33.8	5.60	30.0	5.07	27.5	4.72	21.3	3.92	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	21.6	9.98	19.1	9.64	17.6	9.36	16.6	9.13	15.0	8.72	13.9	8.39	11.0	7.34
	-14.7	-15.0	25.7	10.7	22.9	10.2	21.1	9.87	19.9	9.59	18.0	9.11	16.7	8.74	13.3	7.61
	-9.6	-10.0	30.7	11.7	27.4	11.0	25.3	10.5	23.9	10.2	21.6	9.65	20.1	9.22	16.1	7.96
	-4.4	-5.0	36.9	13.3	33.6	12.7	31.1	11.9	29.3	11.4	26.6	10.6	24.4	10.0	18.9	8.24
	-1.8	-2.5	39.0	13.3	35.6	12.8	32.2	11.6	30.0	10.9	26.7	10.1	24.4	9.47	18.9	7.79
	0.8	0.0	41.1	13.3	35.6	11.6	32.2	10.6	30.0	9.95	26.7	9.27	24.4	8.81	18.9	7.44
	2.8	2.0	41.1	12.2	35.6	10.8	32.2	9.92	30.0	9.33	26.7	8.71	24.4	8.29	18.9	7.04
	6.0	5.0	41.1	11.0	35.6	9.72	32.2	8.96	30.0	8.43	26.7	7.90	24.4	7.53	18.9	6.40
	7.0	6.0	41.1	10.9	35.6	9.51	32.2	8.68	30.0	8.14	26.7	7.59	24.4	7.23	18.9	6.18
	8.6	7.5	41.1	10.1	35.6	8.84	32.2	8.09	30.0	7.59	26.7	7.11	24.4	6.80	18.9	5.86
	11.2	10.0	41.1	8.82	35.6	7.78	32.2	7.16	30.0	6.75	26.7	6.38	24.4	6.13	18.9	5.35
	16.4	15.0	41.1	6.93	35.6	6.11	32.2	5.62	30.0	5.29	26.7	5.01	24.4	4.88	18.9	4.35
24.0	18.0	41.1	6.93	35.6	6.11	32.2	5.62	30.0	5.29	26.7	4.80	24.4	4.47	18.9	3.65	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	21.2	10.0	18.8	9.68	17.3	9.39	16.2	9.16	14.6	8.74	13.5	8.41	10.7	7.36
	-14.7	-15.0	25.4	10.7	22.5	10.2	20.7	9.85	19.5	9.57	17.6	9.10	16.3	8.73	13.0	7.61
	-9.6	-10.0	30.4	11.7	27.0	11.1	24.9	10.6	23.5	10.2	21.2	9.67	19.7	9.24	15.7	7.97
	-4.4	-5.0	36.0	12.7	31.1	11.3	28.2	10.6	26.3	10.3	23.3	9.57	21.4	8.95	16.5	7.48
	-1.8	-2.5	36.0	11.6	31.1	10.4	28.2	9.83	26.3	9.52	23.3	8.96	21.4	8.53	16.5	7.11
	0.8	0.0	36.0	10.6	31.1	9.60	28.2	9.05	26.3	8.79	23.3	8.30	21.4	7.92	16.5	6.76
	2.8	2.0	36.0	9.88	31.1	8.94	28.2	8.45	26.3	8.51	23.3	7.80	21.4	7.45	16.5	6.39
	6.0	5.0	36.0	8.81	31.1	8.00	28.2	7.59	26.3	7.41	23.3	7.05	21.4	6.75	16.5	5.80
	7.0	6.0	36.0	8.67	31.1	7.76	28.2	7.32	26.3	7.13	23.3	6.77	21.4	6.49	16.5	5.62
	8.6	7.5	36.0	7.98	31.1	7.19	28.2	6.81	26.3	6.66	23.3	6.36	21.4	6.12	16.5	5.34
	11.2	10.0	36.0	6.91	31.1	6.30	28.2	6.02	26.3	5.93	23.3	5.72	21.4	5.53	16.5	4.88
	16.4	15.0	36.0	6.43	31.1	5.68	28.2	5.23	26.3	4.93	23.3	4.49	21.4	4.39	16.5	3.98
24.0	18.0	36.0	6.43	31.1	5.68	28.2	5.23	26.3	4.93	23.3	4.49	21.4	4.19	16.5	3.44	

# 1. Capacity Ratio of Outdoor Unit

## U-12MF2E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
60%	-19.8	-20.0	21.3	10.1	18.8	9.69	17.3	9.39	16.2	9.16	14.6	8.74	13.5	8.40	10.7	7.36
	-14.7	-15.0	25.6	10.7	22.6	10.3	20.8	9.88	19.6	9.60	17.6	9.11	16.3	8.74	12.9	7.62
	-9.6	-10.0	30.7	11.6	26.7	10.9	24.2	10.3	22.5	9.83	20.0	9.15	18.3	8.66	14.2	7.30
	-4.4	-5.0	30.8	9.94	26.7	9.42	24.2	9.09	22.5	8.82	20.0	8.30	18.3	7.86	14.2	6.56
	-1.8	-2.5	30.8	9.11	26.7	8.68	24.2	8.41	22.5	8.17	20.0	7.73	18.3	7.39	14.2	6.28
	0.8	0.0	30.8	8.29	26.7	7.95	24.2	7.74	22.5	7.54	20.0	7.16	18.3	6.86	14.2	5.91
	2.8	2.0	30.8	7.66	26.7	7.39	24.2	7.22	22.5	7.05	20.0	6.73	18.3	6.45	14.2	5.59
	6.0	5.0	30.8	6.77	26.7	6.59	24.2	6.47	22.5	6.33	20.0	6.05	18.3	5.82	14.2	5.05
	7.0	6.0	30.8	6.51	26.7	6.30	24.2	6.19	22.5	6.06	20.0	5.81	18.3	5.60	14.2	4.92
	8.6	7.5	30.8	5.97	26.7	5.84	24.2	5.77	22.5	5.67	20.0	5.47	18.3	5.29	14.2	4.68
	11.2	10.0	30.8	5.73	26.7	5.11	24.2	5.11	22.5	5.07	20.0	4.93	18.3	4.79	14.2	4.29
	16.4	15.0	30.8	5.73	26.7	5.08	24.2	4.69	22.5	4.43	20.0	4.03	18.3	3.81	14.2	3.50
24.0	18.0	30.8	5.73	26.7	5.08	24.2	4.69	22.5	4.43	20.0	4.03	18.3	3.77	14.2	3.12	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
50%	-19.8	-20.0	22.2	10.2	19.6	9.76	17.9	9.45	16.8	9.21	15.1	8.78	14.0	8.44	11.8	7.86
	-14.7	-15.0	25.7	10.5	22.2	9.79	20.1	9.32	18.8	8.98	16.7	8.42	15.3	8.02	11.8	6.85
	-9.6	-10.0	25.7	9.21	22.2	8.87	20.1	8.45	18.8	8.09	16.7	7.55	15.3	7.16	11.8	6.07
	-4.4	-5.0	25.7	7.84	22.2	7.64	20.1	7.41	18.8	7.21	16.7	6.83	15.3	6.51	11.8	5.48
	-1.8	-2.5	25.7	7.16	22.2	7.04	20.1	6.85	18.8	6.68	16.7	6.35	15.3	6.09	11.8	5.25
	0.8	0.0	25.7	6.50	22.2	6.44	20.1	6.31	18.8	6.17	16.7	5.89	15.3	5.66	11.8	4.93
	2.8	2.0	25.7	5.99	22.2	5.99	20.1	5.88	18.8	5.77	16.7	5.53	15.3	5.32	11.8	4.65
	6.0	5.0	25.7	5.22	22.2	5.27	20.1	5.20	18.8	5.12	16.7	4.94	15.3	4.78	11.8	4.21
	7.0	6.0	25.7	4.93	22.2	5.02	20.1	4.98	18.8	4.91	16.7	4.75	15.3	4.61	11.8	4.10
	8.6	7.5	25.7	4.85	22.2	4.66	20.1	4.65	18.8	4.61	16.7	4.48	15.3	4.36	11.8	3.91
	11.2	10.0	25.7	4.85	22.2	4.31	20.1	4.14	18.8	4.13	16.7	4.05	15.3	3.96	11.8	3.60
	16.4	15.0	25.7	4.85	22.2	4.31	20.1	3.99	18.8	3.78	16.7	3.46	15.3	3.24	11.8	2.95
24.0	18.0	25.7	4.85	22.2	4.31	20.1	3.99	18.8	3.78	16.7	3.46	15.3	3.24	11.8	2.71	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
40%	-19.8	-20.0	20.6	8.53	17.8	8.07	16.1	7.74	15.0	7.50	13.3	7.09	12.2	6.78	9.4	5.86
	-14.7	-15.0	20.6	7.73	17.8	7.22	16.1	6.88	15.0	6.64	13.3	6.25	12.2	5.96	9.4	5.13
	-9.6	-10.0	20.6	6.72	17.8	6.52	16.1	6.27	15.0	5.98	13.3	5.62	12.2	5.34	9.4	4.57
	-4.4	-5.0	20.6	5.71	17.8	5.61	16.1	5.46	15.0	5.33	13.3	5.08	12.2	4.87	9.4	4.14
	-1.8	-2.5	20.6	5.21	17.8	5.17	16.1	5.05	15.0	4.94	13.3	4.73	12.2	4.55	9.4	3.97
	0.8	0.0	20.6	4.73	17.8	4.73	16.1	4.64	15.0	4.55	13.3	4.37	12.2	4.21	9.4	3.70
	2.8	2.0	20.6	4.32	17.8	4.35	16.1	4.29	15.0	4.22	13.3	4.07	12.2	3.94	9.4	3.49
	6.0	5.0	20.6	3.71	17.8	3.80	16.1	3.79	15.0	3.75	13.3	3.65	12.2	3.55	9.4	3.19
	7.0	6.0	20.6	3.71	17.8	3.63	16.1	3.63	15.0	3.61	13.3	3.52	12.2	3.43	9.4	3.10
	8.6	7.5	20.6	3.71	17.8	3.38	16.1	3.41	15.0	3.40	13.3	3.33	12.2	3.26	9.4	2.97
	11.2	10.0	20.6	3.71	17.8	3.32	16.1	3.09	15.0	3.06	13.3	3.03	12.2	2.98	9.4	2.75
	16.4	15.0	20.6	3.71	17.8	3.32	16.1	3.09	15.0	2.93	13.3	2.69	12.2	2.54	9.4	2.26
24.0	18.0	20.6	3.71	17.8	3.32	16.1	3.09	15.0	2.93	13.3	2.69	12.2	2.54	9.4	2.15	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
30%	-19.8	-20.0	15.4	5.87	13.3	5.57	12.1	5.36	11.3	5.20	10.0	4.93	9.2	4.73	7.1	4.12
	-14.7	-15.0	15.4	5.32	13.3	5.01	12.1	4.79	11.3	4.63	10.0	4.37	9.2	4.18	7.1	3.63
	-9.6	-10.0	15.4	4.62	13.3	4.51	12.1	4.37	11.3	4.22	10.0	3.95	9.2	3.77	7.1	3.26
	-4.4	-5.0	15.4	3.93	13.3	3.88	12.1	3.80	11.3	3.71	10.0	3.56	9.2	3.43	7.1	2.96
	-1.8	-2.5	15.4	3.55	13.3	3.55	12.1	3.49	11.3	3.43	10.0	3.30	9.2	3.19	7.1	2.83
	0.8	0.0	15.4	3.18	13.3	3.22	12.1	3.19	11.3	3.15	10.0	3.05	9.2	2.96	7.1	2.65
	2.8	2.0	15.4	2.90	13.3	2.97	12.1	2.96	11.3	2.93	10.0	2.85	9.2	2.78	7.1	2.51
	6.0	5.0	15.4	2.70	13.3	2.62	12.1	2.64	11.3	2.63	10.0	2.58	9.2	2.53	7.1	2.31
	7.0	6.0	15.4	2.70	13.3	2.51	12.1	2.54	11.3	2.53	10.0	2.50	9.2	2.45	7.1	2.25
	8.6	7.5	15.4	2.70	13.3	2.44	12.1	2.39	11.3	2.40	10.0	2.37	9.2	2.33	7.1	2.16
	11.2	10.0	15.4	2.70	13.3	2.44	12.1	2.28	11.3	2.18	10.0	2.17	9.2	2.15	7.1	2.01
	16.4	15.0	15.4	2.70	13.3	2.44	12.1	2.28	11.3	2.17	10.0	2.01	9.2	1.91	7.1	1.68
24.0	18.0	15.4	2.70	13.3	2.44	12.1	2.28	11.3	2.17	10.0	2.01	9.2	1.91	7.1	1.64	

# 1. Capacity Ratio of Outdoor Unit

## 1-7. U-14MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	26.7	3.90	30.3	4.43	36.4	5.30	40.0	5.83	41.3	6.03	44.7	6.51	48.0	7.00
	-5.0	26.7	3.92	30.3	4.45	36.4	5.32	40.0	5.85	41.3	6.04	44.7	6.53	48.0	7.01
	0.0	26.7	3.96	30.3	4.48	36.4	5.36	40.0	5.88	41.3	6.07	44.7	6.56	48.0	7.04
	5.0	26.7	4.03	30.3	4.55	36.4	5.42	40.0	5.94	41.3	6.13	44.7	6.61	48.0	7.09
	10.0	26.7	4.20	30.3	4.71	36.4	5.56	40.0	6.07	41.3	6.26	44.7	6.73	48.0	7.20
	15.0	26.7	4.59	30.3	5.12	36.4	5.92	40.0	6.39	41.3	6.57	44.7	7.01	48.0	7.46
	20.0	26.7	4.63	30.3	5.35	36.4	6.76	40.0	7.69	41.3	8.05	44.7	8.98	48.0	9.96
	25.0	26.7	5.95	30.3	6.93	36.4	8.70	40.0	9.85	41.3	10.3	44.7	11.4	48.0	12.6
	30.0	26.7	7.45	30.3	8.65	36.4	10.8	40.0	12.2	41.3	12.7	44.7	14.1	48.0	15.5
	35.0	26.7	9.06	30.3	10.5	36.4	13.0	40.0	14.7	41.3	15.3	43.9	16.3	45.1	16.3
	40.0	26.7	10.7	30.3	12.4	36.4	15.4	38.7	16.3	39.1	16.3	40.2	16.3	41.4	16.3
43.0	26.7	11.8	30.3	13.7	35.5	16.3	36.3	16.0	36.3	15.7	36.3	14.9	36.3	14.1	
46.0	26.7	13.0	28.6	13.7	28.6	12.5	28.6	11.8	28.6	11.6	28.6	11.0	28.6	10.4	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	24.0	3.51	27.3	3.99	32.7	4.78	36.0	5.26	37.2	5.43	40.2	5.87	43.2	6.31
	-5.0	24.0	3.53	27.3	4.01	32.7	4.80	36.0	5.27	37.2	5.45	40.2	5.88	43.2	6.32
	0.0	24.0	3.57	27.3	4.04	32.7	4.83	36.0	5.30	37.2	5.47	40.2	5.91	43.2	6.34
	5.0	24.0	3.64	27.3	4.10	32.7	4.88	36.0	5.35	37.2	5.52	40.2	5.95	43.2	6.39
	10.0	24.0	3.79	27.3	4.24	32.7	5.00	36.0	5.46	37.2	5.62	40.2	6.05	43.2	6.47
	15.0	24.0	4.19	27.3	4.59	32.7	5.28	36.0	5.71	37.2	5.87	40.2	6.27	43.2	6.67
	20.0	24.0	4.25	27.3	4.72	32.7	5.52	36.0	6.10	37.2	6.35	40.2	7.01	43.2	7.70
	25.0	24.0	5.00	27.3	5.74	32.7	7.07	36.0	7.92	37.2	8.25	40.2	9.07	43.2	9.93
	30.0	24.0	6.31	27.3	7.23	32.7	8.87	36.0	9.91	37.2	10.3	40.2	11.3	43.2	12.3
	35.0	24.0	7.70	27.3	8.82	32.7	10.8	36.0	12.0	37.2	12.5	40.2	13.7	43.2	14.9
	40.0	24.0	9.15	27.3	10.5	32.7	12.8	36.0	14.3	37.2	14.9	40.2	16.3	41.4	16.3
43.0	24.0	10.1	27.3	11.6	32.7	14.1	36.0	15.8	36.3	15.7	36.3	14.9	36.3	14.1	
46.0	24.0	11.1	27.3	12.7	28.6	12.5	28.6	11.8	28.6	11.6	28.6	11.0	28.6	10.4	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	21.3	3.13	24.2	3.55	29.1	4.26	32.0	4.68	33.1	4.84	35.7	5.22	38.4	5.61
	-5.0	21.3	3.15	24.2	3.57	29.1	4.27	32.0	4.69	33.1	4.85	35.7	5.24	38.4	5.62
	0.0	21.3	3.18	24.2	3.60	29.1	4.30	32.0	4.72	33.1	4.87	35.7	5.26	38.4	5.64
	5.0	21.3	3.24	24.2	3.65	29.1	4.34	32.0	4.76	33.1	4.91	35.7	5.30	38.4	5.68
	10.0	21.3	3.37	24.2	3.77	29.1	4.44	32.0	4.85	33.1	5.00	35.7	5.37	38.4	5.75
	15.0	21.3	3.71	24.2	4.06	29.1	4.67	32.0	5.05	33.1	5.19	35.7	5.55	38.4	5.91
	20.0	21.3	3.87	24.2	4.29	29.1	5.00	32.0	5.42	33.1	5.58	35.7	5.97	38.4	6.33
	25.0	21.3	4.17	24.2	4.72	29.1	5.67	32.0	6.28	33.1	6.50	35.7	7.08	38.4	7.68
	30.0	21.3	5.28	24.2	5.98	29.1	7.20	32.0	7.95	33.1	8.23	35.7	8.95	38.4	9.68
	35.0	21.3	6.49	24.2	7.34	29.1	8.82	32.0	9.74	33.1	10.1	35.7	10.9	38.4	11.8
	40.0	21.3	7.72	24.2	8.75	29.1	10.5	32.0	11.6	33.1	12.0	35.7	13.1	38.4	14.1
43.0	21.3	8.52	24.2	9.66	29.1	11.6	32.0	12.9	33.1	13.3	35.7	14.5	36.3	14.1	
46.0	21.3	9.35	24.2	10.6	28.6	12.5	28.6	11.8	28.6	11.6	28.6	11.0	28.6	10.4	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	18.7	2.58	21.2	2.93	25.5	3.51	28.0	3.86	28.9	3.99	31.3	4.31	33.6	4.63
	-5.0	18.7	2.60	21.2	2.95	25.5	3.53	28.0	3.87	28.9	4.00	31.3	4.32	33.6	4.64
	0.0	18.7	2.63	21.2	2.97	25.5	3.55	28.0	3.89	28.9	4.02	31.3	4.34	33.6	4.66
	5.0	18.7	2.68	21.2	3.02	25.5	3.59	28.0	3.93	28.9	4.05	31.3	4.37	33.6	4.68
	10.0	18.7	2.79	21.2	3.11	25.5	3.66	28.0	4.00	28.9	4.12	31.3	4.43	33.6	4.74
	15.0	18.7	3.06	21.2	3.34	25.5	3.84	28.0	4.15	28.9	4.27	31.3	4.56	33.6	4.86
	20.0	18.7	3.28	21.2	3.63	25.5	4.21	28.0	4.56	28.9	4.67	31.3	4.90	33.6	5.15
	25.0	18.7	3.32	21.2	3.67	25.5	4.25	28.0	4.62	28.9	4.76	31.3	5.12	33.6	5.48
	30.0	18.7	4.12	21.2	4.61	25.5	5.42	28.0	5.91	28.9	6.10	31.3	6.56	33.6	7.02
	35.0	18.7	5.09	21.2	5.69	25.5	6.70	28.0	7.32	28.9	7.54	31.3	8.11	33.6	8.68
	40.0	18.7	6.07	21.2	6.80	25.5	8.03	28.0	8.77	28.9	9.05	31.3	9.74	33.6	10.4
43.0	18.7	6.69	21.2	7.51	25.5	8.88	28.0	9.71	28.9	10.0	31.3	10.8	33.6	11.6	
46.0	18.7	7.35	21.2	8.26	25.5	9.79	28.0	10.7	28.6	10.9	28.6	10.3	28.6	9.80	

## 1. Capacity Ratio of Outdoor Unit

## U-14MF2E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	16.0	1.98	18.2	2.24	21.8	2.69	24.0	2.95	24.8	3.05	26.8	3.29	28.8	3.54
	-5.0	16.0	1.99	18.2	2.25	21.8	2.70	24.0	2.96	24.8	3.06	26.8	3.30	28.8	3.54
	0.0	16.0	2.01	18.2	2.27	21.8	2.71	24.0	2.98	24.8	3.07	26.8	3.32	28.8	3.56
	5.0	16.0	2.05	18.2	2.31	21.8	2.74	24.0	3.00	24.8	3.10	26.8	3.34	28.8	3.58
	10.0	16.0	2.14	18.2	2.38	21.8	2.80	24.0	3.06	24.8	3.15	26.8	3.38	28.8	3.62
	15.0	16.0	2.34	18.2	2.56	21.8	2.94	24.0	3.17	24.8	3.26	26.8	3.48	28.8	3.70
	20.0	16.0	2.60	18.2	2.86	21.8	3.29	24.0	3.46	24.8	3.53	26.8	3.71	28.8	3.90
	25.0	16.0	2.63	18.2	2.90	21.8	3.34	24.0	3.61	24.8	3.71	26.8	3.95	28.8	4.20
	30.0	16.0	3.01	18.2	3.31	21.8	3.80	24.0	4.09	24.8	4.19	26.8	4.46	28.8	4.71
	35.0	16.0	3.72	18.2	4.11	21.8	4.74	24.0	5.11	24.8	5.24	26.8	5.58	28.8	5.91
	40.0	16.0	4.44	18.2	4.92	21.8	5.70	24.0	6.16	24.8	6.32	26.8	6.74	28.8	7.15
43.0	16.0	4.90	18.2	5.43	21.8	6.31	24.0	6.83	24.8	7.01	26.8	7.48	28.8	7.94	
46.0	16.0	5.38	18.2	5.98	21.8	6.96	24.0	7.54	24.8	7.75	26.8	8.28	28.6	8.72	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	13.3	1.49	15.2	1.69	18.2	2.02	20.0	2.22	20.7	2.29	22.3	2.47	24.0	2.66
	-5.0	13.3	1.50	15.2	1.70	18.2	2.03	20.0	2.23	20.7	2.30	22.3	2.48	24.0	2.66
	0.0	13.3	1.52	15.2	1.71	18.2	2.04	20.0	2.24	20.7	2.31	22.3	2.49	24.0	2.67
	5.0	13.3	1.55	15.2	1.74	18.2	2.07	20.0	2.26	20.7	2.33	22.3	2.51	24.0	2.69
	10.0	13.3	1.62	15.2	1.80	18.2	2.11	20.0	2.30	20.7	2.37	22.3	2.54	24.0	2.72
	15.0	13.3	1.78	15.2	1.93	18.2	2.21	20.0	2.39	20.7	2.45	22.3	2.61	24.0	2.78
	20.0	13.3	2.05	15.2	2.25	18.2	2.47	20.0	2.59	20.7	2.64	22.3	2.78	24.0	2.92
	25.0	13.3	2.08	15.2	2.28	18.2	2.61	20.0	2.81	20.7	2.89	22.3	3.07	24.0	3.25
	30.0	13.3	2.20	15.2	2.37	18.2	2.65	20.0	2.85	20.7	2.92	22.3	3.10	24.0	3.29
	35.0	13.3	2.72	15.2	2.95	18.2	3.32	20.0	3.53	20.7	3.61	22.3	3.79	24.0	3.97
	40.0	13.3	3.24	15.2	3.53	18.2	4.01	20.0	4.28	20.7	4.37	22.3	4.61	24.0	4.84
43.0	13.3	3.57	15.2	3.90	18.2	4.44	20.0	4.75	20.7	4.86	22.3	5.13	24.0	5.39	
46.0	13.3	3.91	15.2	4.29	18.2	4.90	20.0	5.25	20.7	5.37	22.3	5.68	24.0	5.98	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	10.7	1.10	12.1	1.24	14.5	1.48	16.0	1.63	16.5	1.68	17.9	1.81	19.2	1.95
	-5.0	10.7	1.10	12.1	1.25	14.5	1.49	16.0	1.63	16.5	1.69	17.9	1.82	19.2	1.95
	0.0	10.7	1.12	12.1	1.26	14.5	1.50	16.0	1.65	16.5	1.70	17.9	1.83	19.2	1.96
	5.0	10.7	1.15	12.1	1.29	14.5	1.52	16.0	1.66	16.5	1.71	17.9	1.84	19.2	1.97
	10.0	10.7	1.20	12.1	1.33	14.5	1.56	16.0	1.69	16.5	1.75	17.9	1.87	19.2	2.00
	15.0	10.7	1.33	12.1	1.44	14.5	1.63	16.0	1.76	16.5	1.81	17.9	1.92	19.2	2.04
	20.0	10.7	1.61	12.1	1.71	14.5	1.82	16.0	1.91	16.5	1.95	17.9	2.04	19.2	2.14
	25.0	10.7	1.64	12.1	1.78	14.5	2.03	16.0	2.18	16.5	2.23	17.9	2.36	19.2	2.40
	30.0	10.7	1.67	12.1	1.82	14.5	2.06	16.0	2.21	16.5	2.26	17.9	2.39	19.2	2.53
	35.0	10.7	1.98	12.1	2.12	14.5	2.32	16.0	2.43	16.5	2.47	17.9	2.56	19.2	2.64
	40.0	10.7	2.35	12.1	2.53	14.5	2.80	16.0	2.94	16.5	3.00	17.9	3.12	19.2	3.23
43.0	10.7	2.58	12.1	2.78	14.5	3.10	16.0	3.27	16.5	3.33	17.9	3.48	19.2	3.61	
46.0	10.7	2.82	12.1	3.06	14.5	3.41	16.0	3.61	16.5	3.68	17.9	3.85	19.2	4.01	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	8.0	0.770	9.1	0.880	10.9	1.05	12.0	1.15	12.4	1.19	13.4	1.28	14.4	1.37
	-5.0	8.0	0.780	9.1	0.880	10.9	1.05	12.0	1.15	12.4	1.19	13.4	1.28	14.4	1.37
	0.0	8.0	0.800	9.1	0.900	10.9	1.06	12.0	1.16	12.4	1.20	13.4	1.29	14.4	1.38
	5.0	8.0	0.820	9.1	0.920	10.9	1.08	12.0	1.18	12.4	1.21	13.4	1.30	14.4	1.39
	10.0	8.0	0.870	9.1	0.950	10.9	1.11	12.0	1.20	12.4	1.24	13.4	1.32	14.4	1.41
	15.0	8.0	0.970	9.1	1.04	10.9	1.17	12.0	1.25	12.4	1.28	13.4	1.37	14.4	1.45
	20.0	8.0	1.25	9.1	1.25	10.9	1.31	12.0	1.37	12.4	1.39	13.4	1.45	14.4	1.52
	25.0	8.0	1.28	9.1	1.39	10.9	1.56	12.0	1.66	12.4	1.68	13.4	1.68	14.4	1.70
	30.0	8.0	1.31	9.1	1.42	10.9	1.59	12.0	1.69	12.4	1.73	13.4	1.82	14.4	1.91
	35.0	8.0	1.45	9.1	1.52	10.9	1.62	12.0	1.71	12.4	1.76	13.4	1.85	14.4	1.94
	40.0	8.0	1.70	9.1	1.79	10.9	1.94	12.0	2.01	12.4	2.03	13.4	2.09	14.4	2.13
43.0	8.0	1.85	9.1	1.97	10.9	2.14	12.0	2.22	12.4	2.25	13.4	2.32	14.4	2.38	
46.0	8.0	2.02	9.1	2.15	10.9	2.35	12.0	2.45	12.4	2.49	13.4	2.57	14.4	2.64	

# 1. Capacity Ratio of Outdoor Unit

## 1-8. U-14MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	25.8	11.6	23.1	11.2	21.3	10.9	20.1	10.7	18.3	10.2	17.0	9.82	13.6	8.59
	-14.7	-15.0	30.7	12.4	27.4	11.9	25.4	11.5	24.0	11.2	21.8	10.6	20.3	10.2	16.4	8.90
	-9.6	-10.0	36.4	13.2	32.7	12.6	30.3	12.2	28.7	11.8	26.1	11.2	24.4	10.7	19.7	9.28
	-4.4	-5.0	42.1	14.3	38.3	13.5	35.6	12.8	33.7	12.4	30.7	11.7	28.7	11.2	23.2	9.60
	-1.8	-2.5	44.5	14.3	41.8	14.3	38.8	13.5	36.7	12.9	33.5	12.1	31.2	11.5	25.2	9.87
	0.8	0.0	47.1	14.3	44.2	14.3	42.2	14.2	40.0	13.5	36.5	12.5	34.0	12.0	27.6	10.2
	2.8	2.0	49.4	14.3	46.3	14.3	44.6	14.3	42.4	13.8	38.7	12.7	36.2	12.0	28.3	10.0
	6.0	5.0	53.0	14.3	49.7	14.3	47.8	14.3	45.0	13.5	40.0	11.9	36.7	10.9	28.3	9.03
	7.0	6.0	54.2	14.3	50.9	14.3	48.3	14.0	45.0	12.9	40.0	11.4	36.7	10.4	28.3	8.72
	8.6	7.5	56.2	14.3	52.8	14.3	48.3	13.1	45.0	12.1	40.0	10.7	36.7	9.81	28.3	8.26
	11.2	10.0	59.8	14.3	53.3	12.9	48.3	11.6	45.0	10.8	40.0	9.55	36.7	8.82	28.3	7.53
	16.4	15.0	61.7	11.7	53.3	10.1	48.3	9.10	45.0	8.49	40.0	7.58	36.7	7.05	28.3	6.15
24.0	18.0	61.7	9.83	53.3	8.47	48.3	7.67	45.0	7.14	40.0	6.46	36.7	6.02	28.3	5.18	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	25.1	11.5	22.4	11.1	20.6	10.8	19.4	10.6	17.6	10.1	16.3	9.73	13.0	8.53
	-14.7	-15.0	29.9	12.1	26.7	11.7	24.6	11.3	23.2	11.0	21.1	10.5	19.6	10.1	15.7	8.80
	-9.6	-10.0	35.6	13.2	31.8	12.5	29.5	12.0	27.8	11.7	25.3	11.1	23.6	10.6	18.9	9.19
	-4.4	-5.0	42.6	14.6	38.2	13.7	35.4	13.1	33.4	12.6	30.4	11.9	28.3	11.3	22.8	9.72
	-1.8	-2.5	45.7	15.0	41.6	14.4	38.6	13.6	36.5	13.1	33.2	12.4	30.9	11.7	24.8	10.0
	0.8	0.0	48.3	15.0	45.2	15.0	42.0	14.2	39.7	13.5	36.0	12.5	33.0	11.8	25.5	9.76
	2.8	2.0	50.6	15.0	47.4	15.0	43.5	13.9	40.5	12.9	36.0	11.6	33.0	11.0	25.5	9.28
	6.0	5.0	54.3	15.0	48.0	13.5	43.5	12.4	40.5	11.6	36.0	10.6	33.0	10.0	25.5	8.43
	7.0	6.0	54.4	15.0	48.0	13.3	43.5	12.1	40.5	11.2	36.0	10.1	33.0	9.62	25.5	8.14
	8.6	7.5	55.5	14.4	48.0	12.4	43.5	11.3	40.5	10.5	36.0	9.51	33.0	9.05	25.5	7.72
	11.2	10.0	55.5	12.7	48.0	11.0	43.5	9.98	40.5	9.34	36.0	8.52	33.0	8.16	25.5	7.05
	16.4	15.0	55.5	9.56	48.0	8.43	43.5	7.75	40.5	7.30	36.0	6.74	33.0	6.52	25.5	5.77
24.0	18.0	55.5	8.94	48.0	7.88	43.5	7.25	40.5	6.83	36.0	6.20	33.0	5.78	25.5	4.83	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	24.5	11.5	21.7	11.1	20.0	10.8	18.8	10.5	17.0	10.0	15.8	9.67	12.5	8.48
	-14.7	-15.0	29.2	12.1	26.0	11.6	24.0	11.2	22.6	10.9	20.4	10.4	19.0	10.0	15.1	8.76
	-9.6	-10.0	34.9	13.0	31.1	12.4	28.7	12.0	27.1	11.6	24.6	11.0	22.8	10.5	18.3	9.15
	-4.4	-5.0	42.8	14.7	38.2	13.8	35.3	13.3	33.3	12.9	30.2	12.1	28.1	11.5	22.4	9.87
	-1.8	-2.5	46.7	15.5	41.7	14.4	38.5	13.6	36.0	13.0	32.0	12.1	29.3	11.4	22.7	9.44
	0.8	0.0	49.3	15.5	42.7	13.6	38.7	12.5	36.0	11.9	32.0	11.2	29.3	10.7	22.7	9.02
	2.8	2.0	49.3	14.2	42.7	12.7	38.7	11.7	36.0	11.2	32.0	10.5	29.3	10.0	22.7	8.55
	6.0	5.0	49.3	12.7	42.7	11.4	38.7	10.6	36.0	10.1	32.0	9.57	29.3	9.13	22.7	7.78
	7.0	6.0	49.3	12.7	42.7	11.2	38.7	10.2	36.0	9.75	32.0	9.20	29.3	8.78	22.7	7.52
	8.6	7.5	49.3	11.8	42.7	10.4	38.7	9.53	36.0	9.11	32.0	8.64	29.3	8.26	22.7	7.14
	11.2	10.0	49.3	10.2	42.7	9.12	38.7	8.44	36.0	8.11	32.0	7.76	29.3	7.47	22.7	6.54
	16.4	15.0	49.3	8.42	42.7	7.45	38.7	6.86	36.0	6.47	32.0	6.14	29.3	5.97	22.7	5.35
24.0	18.0	49.3	8.42	42.7	7.45	38.7	6.86	36.0	6.47	32.0	5.88	29.3	5.49	22.7	4.51	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	24.1	11.5	21.3	11.1	19.6	10.8	18.4	10.5	16.6	10.1	15.4	9.70	12.2	8.52
	-14.7	-15.0	28.8	12.2	25.6	11.7	23.6	11.3	22.2	11.0	20.0	10.5	18.6	10.1	14.8	8.80
	-9.6	-10.0	34.6	13.0	30.7	12.6	28.3	12.1	26.7	11.7	24.1	11.1	22.4	10.6	17.8	9.21
	-4.4	-5.0	43.2	14.9	37.3	13.4	33.8	12.8	31.5	12.4	28.0	11.6	25.7	10.8	19.8	9.08
	-1.8	-2.5	43.2	13.6	37.3	12.3	33.8	11.9	31.5	11.5	28.0	10.8	25.7	10.3	19.8	8.64
	0.8	0.0	43.2	12.5	37.3	11.3	33.8	11.0	31.5	10.6	28.0	10.1	25.7	9.60	19.8	8.23
	2.8	2.0	43.2	11.6	37.3	10.5	33.8	10.2	31.5	10.3	28.0	9.46	25.7	9.05	19.8	7.78
	6.0	5.0	43.2	10.3	37.3	9.44	33.8	9.21	31.5	9.00	28.0	8.57	25.7	8.21	19.8	7.08
	7.0	6.0	43.2	10.1	37.3	9.15	33.8	8.89	31.5	8.66	28.0	8.24	25.7	7.90	19.8	6.87
	8.6	7.5	43.2	9.33	37.3	8.48	33.8	8.28	31.5	8.10	28.0	7.75	25.7	7.46	19.8	6.53
	11.2	10.0	43.2	8.07	37.3	7.42	33.8	7.34	31.5	7.23	28.0	6.98	25.7	6.76	19.8	5.99
	16.4	15.0	43.2	7.83	37.3	6.94	33.8	6.41	31.5	6.05	28.0	5.53	25.7	5.41	19.8	4.91
24.0	18.0	43.2	7.83	37.3	6.94	33.8	6.41	31.5	6.05	28.0	5.52	25.7	5.16	19.8	4.27	

# 1. Capacity Ratio of Outdoor Unit

## U-14MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	24.2	11.6	21.4	11.1	19.6	10.8	18.4	10.5	16.6	10.1	15.3	9.70	12.1	8.52
	-14.7	-15.0	29.1	12.3	25.7	11.8	23.6	11.4	22.2	11.0	20.0	10.5	18.5	10.1	14.7	8.81
	-9.6	-10.0	34.9	13.0	31.0	12.7	28.5	12.2	26.8	11.8	24.0	11.1	22.0	10.5	17.0	8.87
	-4.4	-5.0	37.0	11.8	32.0	11.4	29.0	11.0	27.0	10.7	24.0	10.1	22.0	9.53	17.0	7.99
	-1.8	-2.5	37.0	10.8	32.0	10.5	29.0	10.2	27.0	9.90	24.0	9.38	22.0	8.97	17.0	7.65
	0.8	0.0	37.0	9.81	32.0	9.64	29.0	9.39	27.0	9.15	24.0	8.70	22.0	8.34	17.0	7.22
	2.8	2.0	37.0	9.07	32.0	8.97	29.0	8.77	27.0	8.58	24.0	8.18	22.0	7.86	17.0	6.83
	6.0	5.0	37.0	8.01	32.0	8.02	29.0	7.88	27.0	7.72	24.0	7.38	22.0	7.11	17.0	6.20
	7.0	6.0	37.0	7.71	32.0	7.68	29.0	7.54	27.0	7.40	24.0	7.10	22.0	6.85	17.0	6.03
	8.6	7.5	37.0	7.06	32.0	7.13	29.0	7.04	27.0	6.93	24.0	6.69	22.0	6.48	17.0	5.75
	11.2	10.0	37.0	7.00	32.0	6.27	29.0	6.26	27.0	6.21	24.0	6.05	22.0	5.89	17.0	5.29
	16.4	15.0	37.0	7.00	32.0	6.22	29.0	5.76	27.0	5.45	24.0	4.98	22.0	4.72	17.0	4.35
24.0	18.0	37.0	7.00	32.0	6.22	29.0	5.76	27.0	5.45	24.0	4.98	22.0	4.67	17.0	3.90	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	25.3	11.7	22.2	11.2	20.4	10.9	19.1	10.6	17.2	10.1	15.9	9.74	12.5	8.55
	-14.7	-15.0	30.4	12.5	26.7	11.8	24.2	11.3	22.5	10.9	20.0	10.2	18.3	9.72	14.2	8.33
	-9.6	-10.0	30.8	11.1	26.7	10.7	24.2	10.2	22.5	9.80	20.0	9.16	18.3	8.69	14.2	7.41
	-4.4	-5.0	30.8	9.50	26.7	9.27	24.2	9.00	22.5	8.76	20.0	8.31	18.3	7.93	14.2	6.70
	-1.8	-2.5	30.8	8.70	26.7	8.55	24.2	8.33	22.5	8.13	20.0	7.74	18.3	7.43	14.2	6.43
	0.8	0.0	30.8	7.91	26.7	7.85	24.2	7.68	22.5	7.52	20.0	7.19	18.3	6.91	14.2	6.04
	2.8	2.0	30.8	7.31	26.7	7.31	24.2	7.18	22.5	7.05	20.0	6.76	18.3	6.51	14.2	5.71
	6.0	5.0	30.8	6.39	26.7	6.45	24.2	6.37	22.5	6.27	20.0	6.06	18.3	5.86	14.2	5.19
	7.0	6.0	30.8	6.05	26.7	6.15	24.2	6.10	22.5	6.02	20.0	5.83	18.3	5.66	14.2	5.06
	8.6	7.5	30.8	5.95	26.7	5.72	24.2	5.71	22.5	5.66	20.0	5.51	18.3	5.36	14.2	4.83
	11.2	10.0	30.8	5.95	26.7	5.31	24.2	5.10	22.5	5.09	20.0	5.00	18.3	4.90	14.2	4.47
	16.4	15.0	30.8	5.95	26.7	5.31	24.2	4.93	22.5	4.68	20.0	4.30	18.3	4.04	14.2	3.69
24.0	18.0	30.8	5.95	26.7	5.31	24.2	4.93	22.5	4.68	20.0	4.30	18.3	4.04	14.2	3.41	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	24.7	10.3	21.3	9.76	19.3	9.37	18.0	9.08	16.0	8.60	14.7	8.23	11.3	7.13
	-14.7	-15.0	24.7	9.37	21.3	8.75	19.3	8.35	18.0	8.07	16.0	7.59	14.7	7.25	11.3	6.26
	-9.6	-10.0	24.7	8.15	21.3	7.92	19.3	7.63	18.0	7.28	16.0	6.85	14.7	6.52	11.3	5.60
	-4.4	-5.0	24.7	6.96	21.3	6.84	19.3	6.67	18.0	6.51	16.0	6.20	14.7	5.95	11.3	5.09
	-1.8	-2.5	24.7	6.37	21.3	6.31	19.3	6.18	18.0	6.05	16.0	5.79	14.7	5.57	11.3	4.89
	0.8	0.0	24.7	5.80	21.3	5.80	19.3	5.69	18.0	5.58	16.0	5.36	14.7	5.17	11.3	4.57
	2.8	2.0	24.7	5.30	21.3	5.34	19.3	5.27	18.0	5.19	16.0	5.01	14.7	4.85	11.3	4.32
	6.0	5.0	24.7	4.58	21.3	4.68	19.3	4.67	18.0	4.63	16.0	4.51	14.7	4.39	11.3	3.96
	7.0	6.0	24.7	4.58	21.3	4.48	19.3	4.49	18.0	4.46	16.0	4.36	14.7	4.25	11.3	3.86
	8.6	7.5	24.7	4.58	21.3	4.18	19.3	4.22	18.0	4.21	16.0	4.13	14.7	4.04	11.3	3.70
	11.2	10.0	24.7	4.58	21.3	4.12	19.3	3.84	18.0	3.81	16.0	3.77	14.7	3.71	11.3	3.43
	16.4	15.0	24.7	4.58	21.3	4.12	19.3	3.84	18.0	3.65	16.0	3.37	14.7	3.19	11.3	2.86
24.0	18.0	24.7	4.58	21.3	4.12	19.3	3.84	18.0	3.65	16.0	3.37	14.7	3.19	11.3	2.72	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	18.5	7.13	16.0	6.77	14.5	6.52	13.5	6.33	12.0	6.01	11.0	5.77	8.5	5.05
	-14.7	-15.0	18.5	6.48	16.0	6.11	14.5	5.85	13.5	5.66	12.0	5.35	11.0	5.12	8.5	4.47
	-9.6	-10.0	18.5	5.64	16.0	5.51	14.5	5.35	13.5	5.17	12.0	4.85	11.0	4.64	8.5	4.02
	-4.4	-5.0	18.5	4.82	16.0	4.77	14.5	4.67	13.5	4.57	12.0	4.38	11.0	4.23	8.5	3.67
	-1.8	-2.5	18.5	4.37	16.0	4.37	14.5	4.30	13.5	4.23	12.0	4.07	11.0	3.94	8.5	3.51
	0.8	0.0	18.5	3.94	16.0	3.98	14.5	3.95	13.5	3.89	12.0	3.78	11.0	3.67	8.5	3.30
	2.8	2.0	18.5	3.60	16.0	3.69	14.5	3.67	13.5	3.64	12.0	3.55	11.0	3.46	8.5	3.14
	6.0	5.0	18.5	3.37	16.0	3.27	14.5	3.29	13.5	3.28	12.0	3.22	11.0	3.16	8.5	2.90
	7.0	6.0	18.5	3.37	16.0	3.14	14.5	3.17	13.5	3.17	12.0	3.12	11.0	3.06	8.5	2.83
	8.6	7.5	18.5	3.37	16.0	3.05	14.5	3.00	13.5	3.00	12.0	2.97	11.0	2.93	8.5	2.72
	11.2	10.0	18.5	3.37	16.0	3.05	14.5	2.86	13.5	2.74	12.0	2.74	11.0	2.71	8.5	2.55
	16.4	15.0	18.5	3.37	16.0	3.05	14.5	2.86	13.5	2.73	12.0	2.54	11.0	2.42	8.5	2.15
24.0	18.0	18.5	3.37	16.0	3.05	14.5	2.86	13.5	2.73	12.0	2.54	11.0	2.42	8.5	2.10	



# 1. Capacity Ratio of Outdoor Unit

## 1-9. U-16MF2E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
100%	-10.0	30.0	3.99	34.1	4.53	40.9	5.42	45.0	5.96	46.5	6.16	50.3	6.65	54.0	7.15
	-5.0	30.0	4.02	34.1	4.56	40.9	5.45	45.0	5.99	46.5	6.18	50.3	6.68	54.0	7.17
	0.0	30.0	4.07	34.1	4.60	40.9	5.50	45.0	6.03	46.5	6.23	50.3	6.72	54.0	7.21
	5.0	30.0	4.18	34.1	4.71	40.9	5.59	45.0	6.12	46.5	6.32	50.3	6.81	54.0	7.29
	10.0	30.0	4.43	34.1	4.95	40.9	5.81	45.0	6.33	46.5	6.52	50.3	7.00	54.0	7.48
	15.0	30.0	4.60	34.1	5.14	40.9	6.04	45.0	6.99	46.5	7.37	50.3	8.37	54.0	9.45
	20.0	30.0	5.17	34.1	6.13	40.9	7.95	45.0	9.17	46.5	9.64	50.3	10.9	54.0	12.2
	25.0	30.0	6.65	34.1	7.85	40.9	10.1	45.0	11.6	46.5	12.1	50.3	13.6	54.0	15.2
	30.0	30.0	8.25	34.1	9.70	40.9	12.4	45.0	14.1	46.5	14.8	50.3	16.5	54.0	18.3
	35.0	30.0	9.97	34.1	11.7	40.9	14.8	45.0	16.9	46.5	17.6	49.1	18.8	50.3	18.8
	40.0	30.0	11.8	34.1	13.8	40.9	17.5	43.7	18.8	44.2	18.8	45.4	18.8	45.6	18.0
43.0	30.0	13.0	34.1	15.2	37.5	16.4	37.5	15.5	37.5	15.1	37.5	14.4	37.5	13.6	
46.0	29.6	13.9	29.6	13.2	29.6	12.0	29.6	11.3	29.6	11.1	29.6	10.5	29.6	9.98	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
90%	-10.0	27.0	3.60	30.7	4.08	36.8	4.89	40.5	5.37	41.9	5.55	45.2	6.00	48.6	6.44
	-5.0	27.0	3.62	30.7	4.11	36.8	4.91	40.5	5.40	41.9	5.57	45.2	6.02	48.6	6.46
	0.0	27.0	3.67	30.7	4.15	36.8	4.95	40.5	5.43	41.9	5.61	45.2	6.05	48.6	6.50
	5.0	27.0	3.76	30.7	4.24	36.8	5.03	40.5	5.51	41.9	5.68	45.2	6.12	48.6	6.56
	10.0	27.0	3.98	30.7	4.43	36.8	5.21	40.5	5.67	41.9	5.84	45.2	6.27	48.6	6.70
	15.0	27.0	4.21	30.7	4.70	36.8	5.51	40.5	6.00	41.9	6.18	45.2	6.62	48.6	7.08
	20.0	27.0	4.26	30.7	4.98	36.8	6.30	40.5	7.18	41.9	7.52	45.2	8.40	48.6	9.34
	25.0	27.0	5.52	30.7	6.44	36.8	8.11	40.5	9.20	41.9	9.61	45.2	10.7	48.6	11.8
	30.0	27.0	6.91	30.7	8.03	36.8	10.1	40.5	11.4	41.9	11.8	45.2	13.1	48.6	14.5
	35.0	27.0	8.40	30.7	9.74	36.8	12.1	40.5	13.7	41.9	14.3	45.2	15.8	48.6	17.3
	40.0	27.0	9.96	30.7	11.5	36.8	14.4	40.5	16.2	41.9	16.9	45.2	18.6	45.6	18.0
43.0	27.0	11.0	30.7	12.7	36.8	15.8	37.5	15.5	37.5	15.1	37.5	14.4	37.5	13.6	
46.0	27.0	12.0	29.6	13.2	29.6	12.0	29.6	11.3	29.6	11.1	29.6	10.5	29.6	9.98	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
80%	-10.0	24.0	3.20	27.3	3.64	32.7	4.35	36.0	4.79	37.2	4.95	40.2	5.34	43.2	5.74
	-5.0	24.0	3.23	27.3	3.66	32.7	4.37	36.0	4.80	37.2	4.96	40.2	5.36	43.2	5.76
	0.0	24.0	3.27	27.3	3.70	32.7	4.41	36.0	4.84	37.2	5.00	40.2	5.39	43.2	5.78
	5.0	24.0	3.35	27.3	3.77	32.7	4.47	36.0	4.90	37.2	5.06	40.2	5.45	43.2	5.84
	10.0	24.0	3.53	27.3	3.94	32.7	4.62	36.0	5.03	37.2	5.18	40.2	5.56	43.2	5.94
	15.0	24.0	3.82	27.3	4.26	32.7	4.98	36.0	5.35	37.2	5.49	40.2	5.84	43.2	6.20
	20.0	24.0	3.86	27.3	4.29	32.7	5.02	36.0	5.54	37.2	5.77	40.2	6.37	43.2	6.99
	25.0	24.0	4.54	27.3	5.22	32.7	6.42	36.0	7.20	37.2	7.49	40.2	8.24	43.2	9.03
	30.0	24.0	5.73	27.3	6.57	32.7	8.06	36.0	9.01	37.2	9.36	40.2	10.3	43.2	11.2
	35.0	24.0	7.00	27.3	8.02	32.7	9.81	36.0	10.9	37.2	11.4	40.2	12.5	43.2	13.6
	40.0	24.0	8.32	27.3	9.54	32.7	11.7	36.0	13.0	37.2	13.5	40.2	14.8	43.2	16.1
43.0	24.0	9.17	27.3	10.5	32.7	12.9	36.0	14.4	37.2	14.9	37.5	14.4	37.5	13.6	
46.0	24.0	10.1	27.3	11.6	29.6	12.0	29.6	11.3	29.6	11.1	29.6	10.5	29.6	9.98	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
70%	-10.0	21.0	2.65	23.9	3.00	28.6	3.59	31.5	3.95	32.6	4.08	35.2	4.41	37.8	4.74
	-5.0	21.0	2.67	23.9	3.02	28.6	3.61	31.5	3.97	32.6	4.10	35.2	4.42	37.8	4.75
	0.0	21.0	2.70	23.9	3.05	28.6	3.64	31.5	3.99	32.6	4.12	35.2	4.45	37.8	4.77
	5.0	21.0	2.77	23.9	3.11	28.6	3.69	31.5	4.04	32.6	4.17	35.2	4.49	37.8	4.81
	10.0	21.0	2.91	23.9	3.24	28.6	3.80	31.5	4.14	32.6	4.26	35.2	4.58	37.8	4.89
	15.0	21.0	3.23	23.9	3.57	28.6	4.07	31.5	4.37	32.6	4.49	35.2	4.78	37.8	5.07
	20.0	21.0	3.27	23.9	3.62	28.6	4.22	31.5	4.58	32.6	4.71	35.2	5.04	37.8	5.37
	25.0	21.0	3.48	23.9	3.93	28.6	4.72	31.5	5.21	32.6	5.39	35.2	5.86	37.8	6.35
	30.0	21.0	4.42	23.9	5.00	28.6	5.99	31.5	6.61	32.6	6.84	35.2	7.43	37.8	8.03
	35.0	21.0	5.43	23.9	6.14	28.6	7.36	31.5	8.11	32.6	8.39	35.2	9.10	37.8	9.83
	40.0	21.0	6.47	23.9	7.32	28.6	8.79	31.5	9.69	32.6	10.0	35.2	10.9	37.8	11.7
43.0	21.0	7.13	23.9	8.08	28.6	9.71	31.5	10.7	32.6	11.1	35.2	12.0	37.5	12.8	
46.0	21.0	7.84	23.9	8.89	28.6	10.70	29.6	10.7	29.6	10.44	29.6	9.91	29.6	9.40	

## 1. Capacity Ratio of Outdoor Unit

## U-16MF2E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
60%	-10.0	18.0	2.02	20.5	2.30	24.5	2.75	27.0	3.02	27.9	3.12	30.2	3.37	32.4	3.62
	-5.0	18.0	2.04	20.5	2.31	24.5	2.76	27.0	3.03	27.9	3.13	30.2	3.38	32.4	3.63
	0.0	18.0	2.07	20.5	2.34	24.5	2.78	27.0	3.05	27.9	3.15	30.2	3.40	32.4	3.65
	5.0	18.0	2.12	20.5	2.38	24.5	2.82	27.0	3.09	27.9	3.19	30.2	3.43	32.4	3.68
	10.0	18.0	2.23	20.5	2.48	24.5	2.90	27.0	3.16	27.9	3.26	30.2	3.49	32.4	3.73
	15.0	18.0	2.51	20.5	2.72	24.5	3.09	27.0	3.32	27.9	3.41	30.2	3.63	32.4	3.85
	20.0	18.0	2.58	20.5	2.85	24.5	3.31	27.0	3.58	27.9	3.68	30.2	3.93	32.4	4.15
	25.0	18.0	2.61	20.5	2.89	24.5	3.34	27.0	3.61	27.9	3.71	30.2	3.97	32.4	4.22
	30.0	18.0	3.18	20.5	3.53	24.5	4.13	27.0	4.50	27.9	4.63	30.2	4.97	32.4	5.30
	35.0	18.0	3.92	20.5	4.37	24.5	5.13	27.0	5.58	27.9	5.75	30.2	6.17	32.4	6.58
	40.0	18.0	4.68	20.5	5.23	24.5	6.15	27.0	6.70	27.9	6.90	30.2	7.41	32.4	7.92
43.0	18.0	5.17	20.5	5.78	24.5	6.81	27.0	7.42	27.9	7.65	30.2	8.22	32.4	8.79	
46.0	18.0	5.68	20.5	6.36	24.5	7.51	27.0	8.20	27.9	8.45	29.6	8.82	29.6	8.37	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
50%	-10.0	15.0	1.52	17.0	1.73	20.5	2.07	22.5	2.27	23.3	2.35	25.1	2.53	27.0	2.72
	-5.0	15.0	1.54	17.0	1.74	20.5	2.08	22.5	2.28	23.3	2.36	25.1	2.54	27.0	2.73
	0.0	15.0	1.56	17.0	1.76	20.5	2.10	22.5	2.30	23.3	2.37	25.1	2.56	27.0	2.74
	5.0	15.0	1.60	17.0	1.80	20.5	2.13	22.5	2.32	23.3	2.40	25.1	2.58	27.0	2.76
	10.0	15.0	1.69	17.0	1.87	20.5	2.19	22.5	2.38	23.3	2.45	25.1	2.63	27.0	2.80
	15.0	15.0	1.90	17.0	2.05	20.5	2.32	22.5	2.49	23.3	2.56	25.1	2.72	27.0	2.89
	20.0	15.0	2.03	17.0	2.23	20.5	2.57	22.5	2.78	23.3	2.83	25.1	2.95	27.0	3.08
	25.0	15.0	2.06	17.0	2.26	20.5	2.60	22.5	2.81	23.3	2.88	25.1	3.07	27.0	3.26
	30.0	15.0	2.28	17.0	2.49	20.5	2.83	22.5	3.03	23.3	3.10	25.1	3.28	27.0	3.45
	35.0	15.0	2.82	17.0	3.09	20.5	3.54	22.5	3.79	23.3	3.89	25.1	4.12	27.0	4.34
	40.0	15.0	3.37	17.0	3.71	20.5	4.26	22.5	4.58	23.3	4.70	25.1	4.99	27.0	5.27
43.0	15.0	3.71	17.0	4.10	20.5	4.72	22.5	5.09	23.3	5.22	25.1	5.54	27.0	5.86	
46.0	15.0	4.08	17.0	4.51	20.5	5.21	22.5	5.62	23.3	5.77	25.1	6.14	27.0	6.50	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
40%	-10.0	12.0	1.12	13.6	1.27	16.4	1.52	18.0	1.67	18.6	1.72	20.1	1.86	21.6	1.99
	-5.0	12.0	1.13	13.6	1.28	16.4	1.53	18.0	1.68	18.6	1.73	20.1	1.87	21.6	2.00
	0.0	12.0	1.15	13.6	1.30	16.4	1.54	18.0	1.69	18.6	1.74	20.1	1.88	21.6	2.01
	5.0	12.0	1.19	13.6	1.33	16.4	1.57	18.0	1.71	18.6	1.76	20.1	1.90	21.6	2.03
	10.0	12.0	1.26	13.6	1.39	16.4	1.61	18.0	1.75	18.6	1.80	20.1	1.93	21.6	2.06
	15.0	12.0	1.42	13.6	1.52	16.4	1.71	18.0	1.84	18.6	1.88	20.1	2.00	21.6	2.12
	20.0	12.0	1.58	13.6	1.73	16.4	1.96	18.0	2.04	18.6	2.07	20.1	2.16	21.6	2.25
	25.0	12.0	1.61	13.6	1.76	16.4	2.01	18.0	2.16	18.6	2.22	20.1	2.35	21.6	2.49
	30.0	12.0	1.64	13.6	1.79	16.4	2.04	18.0	2.19	18.6	2.24	20.1	2.38	21.6	2.52
	35.0	12.0	2.02	13.6	2.18	16.4	2.42	18.0	2.55	18.6	2.60	20.1	2.72	21.6	2.82
	40.0	12.0	2.40	13.6	2.61	16.4	2.92	18.0	3.10	18.6	3.16	20.1	3.31	21.6	3.45
43.0	12.0	2.65	13.6	2.88	16.4	3.24	18.0	3.44	18.6	3.51	20.1	3.69	21.6	3.85	
46.0	12.0	2.90	13.6	3.16	16.4	3.57	18.0	3.80	18.6	3.88	20.1	4.08	21.6	4.28	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
30%	-10.0	9.0	0.790	10.2	0.900	12.3	1.07	13.5	1.18	14.0	1.21	15.1	1.31	16.2	1.40
	-5.0	9.0	0.800	10.2	0.910	12.3	1.08	13.5	1.18	14.0	1.22	15.1	1.31	16.2	1.41
	0.0	9.0	0.820	10.2	0.920	12.3	1.09	13.5	1.19	14.0	1.23	15.1	1.32	16.2	1.42
	5.0	9.0	0.850	10.2	0.950	12.3	1.11	13.5	1.21	14.0	1.25	15.1	1.34	16.2	1.43
	10.0	9.0	0.900	10.2	0.990	12.3	1.15	13.5	1.24	14.0	1.28	15.1	1.37	16.2	1.45
	15.0	9.0	1.03	10.2	1.10	12.3	1.22	13.5	1.31	14.0	1.34	15.1	1.42	16.2	1.50
	20.0	9.0	1.23	10.2	1.33	12.3	1.41	13.5	1.45	14.0	1.48	15.1	1.53	16.2	1.60
	25.0	9.0	1.25	10.2	1.36	12.3	1.53	13.5	1.64	14.0	1.68	15.1	1.77	16.2	1.84
	30.0	9.0	1.28	10.2	1.38	12.3	1.56	13.5	1.66	14.0	1.70	15.1	1.80	16.2	1.89
	35.0	9.0	1.45	10.2	1.53	12.3	1.65	13.5	1.70	14.0	1.73	15.1	1.83	16.2	1.92
	40.0	9.0	1.71	10.2	1.82	12.3	1.98	13.5	2.06	14.0	2.09	15.1	2.16	16.2	2.22
43.0	9.0	1.87	10.2	2.00	12.3	2.19	13.5	2.29	14.0	2.33	15.1	2.41	16.2	2.48	
46.0	9.0	2.04	10.2	2.19	12.3	2.41	13.5	2.53	14.0	2.57	15.1	2.67	16.2	2.75	

# 1. Capacity Ratio of Outdoor Unit

## 1-10. U-16MF2E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	27.9	13.4	24.9	13.0	23.0	12.6	21.7	12.4	19.7	11.8	18.3	11.4	14.7	9.92
	-14.7	-15.0	33.1	14.1	29.6	13.6	27.5	13.1	25.9	12.8	23.6	12.2	22.0	11.7	17.7	10.2
	-9.6	-10.0	39.3	15.2	35.3	14.5	32.7	14.0	31.0	13.6	28.2	12.9	26.3	12.3	21.3	10.7
	-4.4	-5.0	45.9	16.8	41.3	15.6	38.4	14.8	36.4	14.3	33.2	13.5	31.0	12.9	25.0	11.0
	-1.8	-2.5	49.5	17.4	45.1	16.5	41.9	15.6	39.7	14.9	36.2	14.0	33.8	13.3	27.3	11.4
	0.8	0.0	52.3	17.4	49.1	17.4	45.6	16.4	43.2	15.6	39.4	14.4	36.8	13.8	29.8	11.7
	2.8	2.0	54.7	17.4	51.4	17.4	48.3	16.7	45.8	15.9	41.8	14.7	39.1	13.8	31.5	11.9
	6.0	5.0	58.6	17.4	55.1	17.4	53.0	17.3	50.0	16.4	44.4	14.4	40.7	13.1	31.5	10.7
	7.0	6.0	60.0	17.4	56.4	17.4	53.7	17.1	50.0	15.7	44.4	13.8	40.7	12.6	31.5	10.3
	8.6	7.5	62.1	17.4	58.4	17.4	53.7	16.0	50.0	14.7	44.4	12.9	40.7	11.8	31.5	9.77
	11.2	10.0	66.0	17.4	59.3	15.9	53.7	14.2	50.0	13.1	44.4	11.6	40.7	10.6	31.5	8.89
	16.4	15.0	68.5	14.5	59.3	12.4	53.7	11.2	50.0	10.4	44.4	9.21	40.7	8.46	31.5	7.25
24.0	18.0	68.5	12.3	59.3	10.5	53.7	9.42	50.0	8.74	44.4	7.74	40.7	7.09	31.5	6.09	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	27.1	13.3	24.1	12.9	22.3	12.5	21.0	12.2	19.0	11.7	17.6	11.2	14.1	9.84
	-14.7	-15.0	32.3	14.0	28.8	13.5	26.6	13.0	25.1	12.7	22.8	12.1	21.2	11.6	17.0	10.2
	-9.6	-10.0	38.4	15.1	34.4	14.4	31.8	13.8	30.1	13.4	27.3	12.7	25.5	12.2	20.5	10.6
	-4.4	-5.0	46.0	16.9	41.2	15.8	38.2	15.1	36.1	14.6	32.9	13.7	30.6	13.0	24.6	11.2
	-1.8	-2.5	50.2	17.9	45.0	16.6	41.7	15.7	39.4	15.0	35.8	14.2	33.3	13.5	26.8	11.5
	0.8	0.0	53.6	18.2	49.0	17.4	45.4	16.4	42.9	15.6	39.0	14.5	36.4	13.9	28.3	11.6
	2.8	2.0	56.1	18.2	51.9	17.8	48.1	16.7	45.0	15.6	40.0	13.9	36.7	13.1	28.3	11.0
	6.0	5.0	60.1	18.2	53.3	16.5	48.3	15.1	45.0	14.1	40.0	12.6	36.7	11.9	28.3	9.96
	7.0	6.0	60.2	18.2	53.3	16.3	48.3	14.7	45.0	13.6	40.0	12.1	36.7	11.4	28.3	9.62
	8.6	7.5	61.7	17.8	53.3	15.2	48.3	13.7	45.0	12.7	40.0	11.3	36.7	10.7	28.3	9.11
	11.2	10.0	61.7	15.6	53.3	13.4	48.3	12.2	45.0	11.4	40.0	10.2	36.7	9.64	28.3	8.31
	16.4	15.0	61.7	11.9	53.3	10.4	48.3	9.47	45.0	8.88	40.0	8.01	36.7	7.68	28.3	6.78
24.0	18.0	61.7	10.6	53.3	9.30	48.3	8.55	45.0	8.04	40.0	7.29	36.7	6.78	28.3	5.66	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	26.4	13.2	23.5	12.8	21.6	12.4	20.3	12.1	18.4	11.6	17.0	11.2	13.5	9.78
	-14.7	-15.0	31.6	14.0	28.1	13.4	25.9	13.0	24.4	12.6	22.1	12.0	20.5	11.6	16.4	10.1
	-9.6	-10.0	37.7	15.0	33.6	14.4	31.0	13.8	29.3	13.4	26.6	12.7	24.7	12.2	19.8	10.6
	-4.4	-5.0	46.2	17.1	41.2	16.0	38.1	15.3	36.0	14.9	32.6	13.9	30.3	13.3	24.3	11.4
	-1.8	-2.5	50.4	18.0	45.0	16.7	41.6	15.8	39.2	15.1	35.6	14.4	32.6	13.6	25.2	11.2
	0.8	0.0	54.8	18.9	47.4	16.5	43.0	15.1	40.0	14.2	35.6	13.3	32.6	12.6	25.2	10.7
	2.8	2.0	54.8	17.4	47.4	15.4	43.0	14.2	40.0	13.3	35.6	12.5	32.6	11.9	25.2	10.1
	6.0	5.0	54.8	15.6	47.4	13.9	43.0	12.8	40.0	12.1	35.6	11.3	32.6	10.8	25.2	9.18
	7.0	6.0	54.8	15.6	47.4	13.6	43.0	12.4	40.0	11.6	35.6	10.9	32.6	10.4	25.2	8.87
	8.6	7.5	54.8	14.4	47.4	12.6	43.0	11.6	40.0	10.9	35.6	10.2	32.6	9.76	25.2	8.41
	11.2	10.0	54.8	12.6	47.4	11.1	43.0	10.2	40.0	9.66	35.6	9.16	32.6	8.81	25.2	7.69
	16.4	15.0	54.8	9.94	47.4	8.77	43.0	8.07	40.0	7.60	35.6	7.22	32.6	7.02	25.2	6.27
24.0	18.0	54.8	9.94	47.4	8.77	43.0	8.07	40.0	7.60	35.6	6.90	32.6	6.43	25.2	5.26	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	26.0	13.3	23.0	12.8	21.2	12.5	19.9	12.2	17.9	11.6	16.6	11.2	13.2	9.81
	-14.7	-15.0	31.1	14.1	27.6	13.5	25.4	13.1	23.9	12.7	21.6	12.1	20.0	11.6	15.9	10.1
	-9.6	-10.0	37.3	15.0	33.2	14.6	30.6	14.0	28.8	13.5	26.0	12.8	24.2	12.2	19.2	10.6
	-4.4	-5.0	46.8	17.5	41.5	16.2	37.6	15.2	35.0	14.7	31.1	13.7	28.5	12.8	22.0	10.7
	-1.8	-2.5	48.0	16.6	41.5	14.9	37.6	14.1	35.0	13.6	31.1	12.8	28.5	12.2	22.0	10.2
	0.8	0.0	48.0	15.2	41.5	13.7	37.6	13.0	35.0	12.6	31.1	11.9	28.5	11.4	22.0	9.71
	2.8	2.0	48.0	14.1	41.5	12.8	37.6	12.1	35.0	12.2	31.1	11.2	28.5	10.7	22.0	9.18
	6.0	5.0	48.0	12.6	41.5	11.5	37.6	10.9	35.0	10.6	31.1	10.1	28.5	9.69	22.0	8.34
	7.0	6.0	48.0	12.4	41.5	11.1	37.6	10.5	35.0	10.2	31.1	9.73	28.5	9.32	22.0	8.08
	8.6	7.5	48.0	11.4	41.5	10.3	37.6	9.78	35.0	9.56	31.1	9.14	28.5	8.79	22.0	7.67
	11.2	10.0	48.0	9.88	41.5	9.01	37.6	8.65	35.0	8.52	31.1	8.22	28.5	7.95	22.0	7.03
	16.4	15.0	48.0	9.23	41.5	8.17	37.6	7.53	35.0	7.10	31.1	6.48	28.5	6.34	22.0	5.74
24.0	18.0	48.0	9.23	41.5	8.17	37.6	7.53	35.0	7.10	31.1	6.46	28.5	6.03	22.0	4.97	

## 1. Capacity Ratio of Outdoor Unit

## U-16MF2E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	26.2	13.3	23.1	12.8	21.2	12.5	19.9	12.2	17.9	11.6	16.6	11.2	13.1	9.80
	-14.7	-15.0	31.4	14.2	27.8	13.6	25.5	13.1	24.0	12.7	21.6	12.1	20.0	11.6	15.9	10.1
	-9.6	-10.0	37.7	15.0	33.4	14.7	30.7	14.0	28.9	13.6	26.1	12.8	24.2	12.3	18.9	10.5
	-4.4	-5.0	41.1	14.2	35.6	13.5	32.2	13.0	30.0	12.6	26.7	11.9	24.4	11.3	18.9	9.42
	-1.8	-2.5	41.1	13.0	35.6	12.4	32.2	12.1	30.0	11.7	26.7	11.1	24.4	10.6	18.9	9.01
	0.8	0.0	41.1	11.9	35.6	11.4	32.2	11.1	30.0	10.8	26.7	10.3	24.4	9.84	18.9	8.50
	2.8	2.0	41.1	11.0	35.6	10.6	32.2	10.4	30.0	10.1	26.7	9.66	24.4	9.27	18.9	8.04
	6.0	5.0	41.1	9.68	35.6	9.46	32.2	9.29	30.0	9.10	26.7	8.70	24.4	8.37	18.9	7.27
	7.0	6.0	41.1	9.32	35.6	9.06	32.2	8.89	30.0	8.72	26.7	8.36	24.4	8.06	18.9	7.08
	8.6	7.5	41.1	8.54	35.6	8.40	32.2	8.29	30.0	8.16	26.7	7.87	24.4	7.61	18.9	6.74
	11.2	10.0	41.1	8.23	35.6	7.36	32.2	7.36	30.0	7.29	26.7	7.10	24.4	6.90	18.9	6.19
	16.4	15.0	41.1	8.23	35.6	7.30	32.2	6.75	30.0	6.37	26.7	5.82	24.4	5.51	18.9	5.06
24.0	18.0	41.1	8.23	35.6	7.30	32.2	6.75	30.0	6.37	26.7	5.82	24.4	5.45	18.9	4.52	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	27.2	13.4	24.0	12.9	22.0	12.5	20.6	12.2	18.5	11.7	17.1	11.2	13.5	9.83
	-14.7	-15.0	32.7	14.4	28.9	13.7	26.5	13.2	24.9	12.8	22.2	12.1	20.4	11.5	15.7	9.83
	-9.6	-10.0	34.3	13.2	29.6	12.7	26.9	12.1	25.0	11.6	22.2	10.8	20.4	10.3	15.7	8.72
	-4.4	-5.0	34.3	11.2	29.6	11.0	26.9	10.6	25.0	10.3	22.2	9.80	20.4	9.35	15.7	7.87
	-1.8	-2.5	34.3	10.3	29.6	10.1	26.9	9.83	25.0	9.59	22.2	9.12	20.4	8.75	15.7	7.55
	0.8	0.0	34.3	9.33	29.6	9.25	26.9	9.05	25.0	8.86	22.2	8.46	20.4	8.13	15.7	7.09
	2.8	2.0	34.3	8.61	29.6	8.60	26.9	8.45	25.0	8.29	22.2	7.95	20.4	7.66	15.7	6.69
	6.0	5.0	34.3	7.52	29.6	7.58	26.9	7.49	25.0	7.37	22.2	7.11	20.4	6.88	15.7	6.06
	7.0	6.0	34.3	7.11	29.6	7.23	26.9	7.17	25.0	7.07	22.2	6.84	20.4	6.63	15.7	5.91
	8.6	7.5	34.3	6.98	29.6	6.71	26.9	6.70	25.0	6.64	22.2	6.46	20.4	6.28	15.7	5.64
	11.2	10.0	34.3	6.98	29.6	6.22	26.9	5.97	25.0	5.95	22.2	5.85	20.4	5.72	15.7	5.20
	16.4	15.0	34.3	6.98	29.6	6.22	26.9	5.76	25.0	5.45	22.2	5.00	20.4	4.69	15.7	4.27
24.0	18.0	34.3	6.98	29.6	6.22	26.9	5.76	25.0	5.45	22.2	5.00	20.4	4.69	15.7	3.93	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	27.4	12.2	23.7	11.6	21.5	11.09	20.0	10.75	17.8	10.16	16.3	9.72	12.6	8.41
	-14.7	-15.0	27.4	11.1	23.7	10.4	21.5	9.87	20.0	9.53	17.8	8.96	16.3	8.55	12.6	7.37
	-9.6	-10.0	27.4	9.63	23.7	9.35	21.5	9.00	20.0	8.59	17.8	8.07	16.3	7.67	12.6	6.57
	-4.4	-5.0	27.4	8.20	23.7	8.06	21.5	7.85	20.0	7.66	17.8	7.30	16.3	7.00	12.6	5.96
	-1.8	-2.5	27.4	7.49	23.7	7.42	21.5	7.27	20.0	7.11	17.8	6.80	16.3	6.54	12.6	5.72
	0.8	0.0	27.4	6.81	23.7	6.81	21.5	6.68	20.0	6.55	17.8	6.29	16.3	6.06	12.6	5.34
	2.8	2.0	27.4	6.22	23.7	6.26	21.5	6.18	20.0	6.08	17.8	5.87	16.3	5.68	12.6	5.04
	6.0	5.0	27.4	5.35	23.7	5.48	21.5	5.47	20.0	5.41	17.8	5.27	16.3	5.13	12.6	4.61
	7.0	6.0	27.4	5.35	23.7	5.23	21.5	5.24	20.0	5.21	17.8	5.08	16.3	4.96	12.6	4.49
	8.6	7.5	27.4	5.35	23.7	4.88	21.5	4.92	20.0	4.90	17.8	4.81	16.3	4.71	12.6	4.29
	11.2	10.0	27.4	5.35	23.7	4.79	21.5	4.46	20.0	4.42	17.8	4.38	16.3	4.31	12.6	3.98
	16.4	15.0	27.4	5.35	23.7	4.79	21.5	4.46	20.0	4.24	17.8	3.90	16.3	3.68	12.6	3.29
24.0	18.0	27.4	5.35	23.7	4.79	21.5	4.46	20.0	4.24	17.8	3.90	16.3	3.68	12.6	3.12	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	20.6	8.42	17.8	7.99	16.1	7.69	15.0	7.46	13.3	7.08	12.2	6.79	9.4	5.93
	-14.7	-15.0	20.6	7.64	17.8	7.20	16.1	6.88	15.0	6.66	13.3	6.28	12.2	6.01	9.4	5.23
	-9.6	-10.0	20.6	6.64	17.8	6.48	16.1	6.29	15.0	6.07	13.3	5.69	12.2	5.43	9.4	4.70
	-4.4	-5.0	20.6	5.66	17.8	5.59	16.1	5.47	15.0	5.35	13.3	5.12	12.2	4.94	9.4	4.28
	-1.8	-2.5	20.6	5.12	17.8	5.11	16.1	5.03	15.0	4.94	13.3	4.76	12.2	4.60	9.4	4.09
	0.8	0.0	20.6	4.59	17.8	4.65	16.1	4.60	15.0	4.54	13.3	4.40	12.2	4.27	9.4	3.83
	2.8	2.0	20.6	4.19	17.8	4.29	16.1	4.28	15.0	4.24	13.3	4.12	12.2	4.02	9.4	3.63
	6.0	5.0	20.6	3.91	17.8	3.79	16.1	3.82	15.0	3.81	13.3	3.74	12.2	3.66	9.4	3.35
	7.0	6.0	20.6	3.91	17.8	3.64	16.1	3.68	15.0	3.67	13.3	3.62	12.2	3.55	9.4	3.27
	8.6	7.5	20.6	3.91	17.8	3.53	16.1	3.47	15.0	3.47	13.3	3.44	12.2	3.38	9.4	3.14
	11.2	10.0	20.6	3.91	17.8	3.53	16.1	3.30	15.0	3.16	13.3	3.15	12.2	3.12	9.4	2.93
	16.4	15.0	20.6	3.91	17.8	3.53	16.1	3.30	15.0	3.15	13.3	2.92	12.2	2.77	9.4	2.45
24.0	18.0	20.6	3.91	17.8	3.53	16.1	3.30	15.0	3.15	13.3	2.92	12.2	2.77	9.4	2.39	

# 1. Capacity Ratio of Outdoor Unit

## 1-11. U-8MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	14.9	1.57	17.0	1.79	20.4	2.14	22.4	2.36	23.1	2.44	25.0	2.63	26.9	2.83
	-5.0	14.9	1.58	17.0	1.79	20.4	2.15	22.4	2.36	23.1	2.44	25.0	2.64	26.9	2.83
	0.0	14.9	1.58	17.0	1.80	20.4	2.15	22.4	2.37	23.1	2.44	25.0	2.64	26.9	2.84
	5.0	14.9	1.59	17.0	1.81	20.4	2.16	22.4	2.38	23.1	2.45	25.0	2.65	26.9	2.85
	10.0	14.9	1.62	17.0	1.83	20.4	2.19	22.4	2.40	23.1	2.48	25.0	2.67	26.9	2.87
	15.0	14.9	1.71	17.0	1.92	20.4	2.27	22.4	2.47	23.1	2.55	25.0	2.74	26.9	2.94
	20.0	14.9	1.86	17.0	2.07	20.4	2.47	22.4	2.79	23.1	2.91	25.0	3.23	26.9	3.57
	25.0	14.9	2.25	17.0	2.60	20.4	3.23	22.4	3.64	23.1	3.80	25.0	4.20	26.9	4.63
	30.0	14.9	2.85	17.0	3.29	20.4	4.07	22.4	4.58	23.1	4.77	25.0	5.26	26.9	5.77
	35.0	14.9	3.49	17.0	4.03	20.4	4.97	22.4	5.58	23.1	5.81	25.0	6.39	26.9	7.00
	40.0	14.9	4.17	17.0	4.81	20.4	5.93	22.4	6.64	23.1	6.91	25.0	7.59	26.0	7.80
	43.0	14.9	4.60	17.0	5.30	20.4	6.53	22.4	7.32	23.1	7.61	24.1	7.80	24.8	7.80
46.0	14.9	5.05	17.0	5.82	20.4	7.18	20.4	6.84	20.4	6.70	20.4	6.35	20.4	6.02	
52.0	7.5	2.44	7.5	2.32	7.5	2.12	7.5	2.01	7.5	1.97	7.5	1.87	7.5	1.78	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	13.4	1.42	15.3	1.61	18.3	1.93	20.2	2.13	20.8	2.20	22.5	2.37	24.2	2.55
	-5.0	13.4	1.42	15.3	1.61	18.3	1.94	20.2	2.13	20.8	2.20	22.5	2.38	24.2	2.55
	0.0	13.4	1.43	15.3	1.62	18.3	1.94	20.2	2.13	20.8	2.20	22.5	2.38	24.2	2.56
	5.0	13.4	1.44	15.3	1.63	18.3	1.95	20.2	2.14	20.8	2.21	22.5	2.39	24.2	2.56
	10.0	13.4	1.46	15.3	1.65	18.3	1.97	20.2	2.16	20.8	2.23	22.5	2.41	24.2	2.58
	15.0	13.4	1.53	15.3	1.71	18.3	2.02	20.2	2.21	20.8	2.28	22.5	2.45	24.2	2.62
	20.0	13.4	1.71	15.3	1.90	18.3	2.22	20.2	2.41	20.8	2.48	22.5	2.63	24.2	2.79
	25.0	13.4	1.89	15.3	2.16	18.3	2.63	20.2	2.93	20.8	3.04	22.5	3.33	24.2	3.63
	30.0	13.4	2.41	15.3	2.75	18.3	3.35	20.2	3.73	20.8	3.87	22.5	4.23	24.2	4.60
	35.0	13.4	2.97	15.3	3.39	18.3	4.12	20.2	4.58	20.8	4.75	22.5	5.18	24.2	5.63
	40.0	13.4	3.56	15.3	4.06	18.3	4.93	20.2	5.48	20.8	5.68	22.5	6.20	24.2	6.73
	43.0	13.4	3.93	15.3	4.49	18.3	5.45	20.2	6.05	20.8	6.28	22.5	6.85	24.2	7.43
46.0	13.4	4.32	15.3	4.94	18.3	6.00	20.2	6.66	20.4	6.70	20.4	6.35	20.4	6.02	
52.0	7.5	2.44	7.5	2.32	7.5	2.12	7.5	2.01	7.5	1.97	7.5	1.87	7.5	1.78	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	11.9	1.26	13.6	1.44	16.3	1.72	17.9	1.89	18.5	1.96	20.0	2.11	21.5	2.27
	-5.0	11.9	1.27	13.6	1.44	16.3	1.72	17.9	1.90	18.5	1.96	20.0	2.12	21.5	2.27
	0.0	11.9	1.27	13.6	1.44	16.3	1.73	17.9	1.90	18.5	1.96	20.0	2.12	21.5	2.28
	5.0	11.9	1.28	13.6	1.45	16.3	1.74	17.9	1.91	18.5	1.97	20.0	2.13	21.5	2.28
	10.0	11.9	1.30	13.6	1.47	16.3	1.75	17.9	1.92	18.5	1.98	20.0	2.14	21.5	2.30
	15.0	11.9	1.35	13.6	1.51	16.3	1.79	17.9	1.96	18.5	2.02	20.0	2.17	21.5	2.32
	20.0	11.9	1.55	13.6	1.70	16.3	1.94	17.9	2.08	18.5	2.14	20.0	2.28	21.5	2.42
	25.0	11.9	1.58	13.6	1.78	16.3	2.12	17.9	2.33	18.5	2.40	20.0	2.60	21.5	2.81
	30.0	11.9	2.02	13.6	2.28	16.3	2.72	17.9	2.99	18.5	3.09	20.0	3.35	21.5	3.61
	35.0	11.9	2.51	13.6	2.83	16.3	3.38	17.9	3.71	18.5	3.84	20.0	4.15	21.5	4.47
	40.0	11.9	3.01	13.6	3.40	16.3	4.06	17.9	4.46	18.5	4.61	20.0	4.99	21.5	5.38
	43.0	11.9	3.33	13.6	3.76	16.3	4.50	17.9	4.95	18.5	5.11	20.0	5.53	21.5	5.96
46.0	11.9	3.66	13.6	4.14	16.3	4.96	17.9	5.45	18.5	5.64	20.0	6.11	20.4	6.02	
52.0	7.5	2.44	7.5	2.32	7.5	2.12	7.5	2.01	7.5	1.97	7.5	1.87	7.5	1.78	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	10.5	1.04	11.9	1.18	14.3	1.42	15.7	1.56	16.2	1.62	17.5	1.75	18.8	1.88
	-5.0	10.5	1.05	11.9	1.19	14.3	1.42	15.7	1.57	16.2	1.62	17.5	1.75	18.8	1.88
	0.0	10.5	1.05	11.9	1.19	14.3	1.43	15.7	1.57	16.2	1.62	17.5	1.75	18.8	1.88
	5.0	10.5	1.06	11.9	1.20	14.3	1.43	15.7	1.57	16.2	1.63	17.5	1.76	18.8	1.89
	10.0	10.5	1.07	11.9	1.21	14.3	1.44	15.7	1.58	16.2	1.64	17.5	1.76	18.8	1.89
	15.0	10.5	1.11	11.9	1.24	14.3	1.47	15.7	1.61	16.2	1.66	17.5	1.79	18.8	1.91
	20.0	10.5	1.25	11.9	1.37	14.3	1.56	15.7	1.69	16.2	1.73	17.5	1.85	18.8	1.97
	25.0	10.5	1.33	11.9	1.47	14.3	1.71	15.7	1.85	16.2	1.90	17.5	2.03	18.8	2.16
	30.0	10.5	1.58	11.9	1.76	14.3	2.05	15.7	2.23	16.2	2.29	17.5	2.45	18.8	2.62
	35.0	10.5	1.97	11.9	2.20	14.3	2.57	15.7	2.79	16.2	2.88	17.5	3.08	18.8	3.29
	40.0	10.5	2.37	11.9	2.64	14.3	3.10	15.7	3.38	16.2	3.48	17.5	3.73	18.8	3.98
	43.0	10.5	2.62	11.9	2.93	14.3	3.44	15.7	3.75	16.2	3.86	17.5	4.15	18.8	4.43
46.0	10.5	2.88	11.9	3.23	14.3	3.80	15.7	4.15	16.2	4.27	17.5	4.58	18.8	4.90	
52.0	7.5	2.30	7.5	2.18	7.5	1.99	7.5	1.89	7.5	1.85	7.5	1.76	7.5	1.68	

## 1. Capacity Ratio of Outdoor Unit

## U-8MF3E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	9.0	0.80	10.2	0.91	12.2	1.09	13.4	1.20	13.9	1.24	15.0	1.33	16.1	1.43
	-5.0	9.0	0.80	10.2	0.91	12.2	1.09	13.4	1.20	13.9	1.24	15.0	1.34	16.1	1.44
	0.0	9.0	0.80	10.2	0.91	12.2	1.09	13.4	1.20	13.9	1.24	15.0	1.34	16.1	1.44
	5.0	9.0	0.81	10.2	0.92	12.2	1.10	13.4	1.20	13.9	1.24	15.0	1.34	16.1	1.44
	10.0	9.0	0.82	10.2	0.93	12.2	1.10	13.4	1.21	13.9	1.25	15.0	1.35	16.1	1.45
	15.0	9.0	0.85	10.2	0.95	12.2	1.12	13.4	1.23	13.9	1.27	15.0	1.36	16.1	1.46
	20.0	9.0	0.94	10.2	1.03	12.2	1.18	13.4	1.27	13.9	1.31	15.0	1.40	16.1	1.49
	25.0	9.0	1.05	10.2	1.16	12.2	1.34	13.4	1.45	13.9	1.49	15.0	1.55	16.1	1.61
	30.0	9.0	1.16	10.2	1.27	12.2	1.44	13.4	1.55	13.9	1.58	15.0	1.67	16.1	1.76
	35.0	9.0	1.45	10.2	1.59	12.2	1.82	13.4	1.95	13.9	2.00	15.0	2.12	16.1	2.24
	40.0	9.0	1.74	10.2	1.92	12.2	2.21	13.4	2.38	13.9	2.44	15.0	2.59	16.1	2.74
43.0	9.0	1.92	10.2	2.12	12.2	2.45	13.4	2.64	13.9	2.71	15.0	2.88	16.1	3.05	
46.0	9.0	2.12	10.2	2.34	12.2	2.71	13.4	2.93	13.9	3.00	15.0	3.20	16.1	3.38	
52.0	7.5	2.05	7.5	1.94	7.5	1.77	7.5	1.68	7.5	1.65	7.5	1.57	7.5	1.49	
50%	-10.0	7.5	0.60	8.5	0.68	10.2	0.82	11.2	0.90	11.6	0.93	12.5	1.00	13.4	1.08
	-5.0	7.5	0.60	8.5	0.68	10.2	0.82	11.2	0.90	11.6	0.93	12.5	1.00	13.4	1.08
	0.0	7.5	0.60	8.5	0.69	10.2	0.82	11.2	0.90	11.6	0.93	12.5	1.01	13.4	1.08
	5.0	7.5	0.61	8.5	0.69	10.2	0.82	11.2	0.90	11.6	0.93	12.5	1.01	13.4	1.08
	10.0	7.5	0.62	8.5	0.70	10.2	0.83	11.2	0.91	11.6	0.94	12.5	1.01	13.4	1.09
	15.0	7.5	0.64	8.5	0.71	10.2	0.84	11.2	0.92	11.6	0.95	12.5	1.02	13.4	1.10
	20.0	7.5	0.70	8.5	0.77	10.2	0.88	11.2	0.95	11.6	0.98	12.5	1.05	13.4	1.12
	25.0	7.5	0.83	8.5	0.91	10.2	1.02	11.2	1.06	11.6	1.08	12.5	1.13	13.4	1.18
	30.0	7.5	0.85	8.5	0.92	10.2	1.06	11.2	1.14	11.6	1.17	12.5	1.25	13.4	1.32
	35.0	7.5	1.06	8.5	1.14	10.2	1.28	11.2	1.36	11.6	1.38	12.5	1.45	13.4	1.51
	40.0	7.5	1.27	8.5	1.38	10.2	1.56	11.2	1.66	11.6	1.69	12.5	1.78	13.4	1.86
43.0	7.5	1.40	8.5	1.53	10.2	1.73	11.2	1.85	11.6	1.89	12.5	1.98	13.4	2.08	
46.0	7.5	1.54	8.5	1.69	10.2	1.91	11.2	2.04	11.6	2.09	12.5	2.20	13.4	2.31	
52.0	7.5	1.84	7.5	1.75	7.5	1.60	7.5	1.51	7.5	1.48	7.5	1.41	7.5	1.34	
40%	-10.0	6.0	0.44	6.8	0.50	8.1	0.60	9.0	0.66	9.3	0.68	10.0	0.74	10.8	0.79
	-5.0	6.0	0.44	6.8	0.50	8.1	0.60	9.0	0.66	9.3	0.68	10.0	0.74	10.8	0.79
	0.0	6.0	0.44	6.8	0.50	8.1	0.60	9.0	0.66	9.3	0.68	10.0	0.74	10.8	0.79
	5.0	6.0	0.45	6.8	0.51	8.1	0.60	9.0	0.66	9.3	0.69	10.0	0.74	10.8	0.79
	10.0	6.0	0.45	6.8	0.51	8.1	0.61	9.0	0.67	9.3	0.69	10.0	0.74	10.8	0.80
	15.0	6.0	0.47	6.8	0.53	8.1	0.62	9.0	0.68	9.3	0.70	10.0	0.75	10.8	0.80
	20.0	6.0	0.52	6.8	0.56	8.1	0.64	9.0	0.70	9.3	0.72	10.0	0.77	10.8	0.82
	25.0	6.0	0.65	6.8	0.70	8.1	0.73	9.0	0.76	9.3	0.78	10.0	0.81	10.8	0.85
	30.0	6.0	0.66	6.8	0.72	8.1	0.82	9.0	0.88	9.3	0.90	10.0	0.96	10.8	1.00
	35.0	6.0	0.77	6.8	0.82	8.1	0.90	9.0	0.94	9.3	0.95	10.0	0.98	10.8	1.02
	40.0	6.0	0.92	6.8	0.99	8.1	1.09	9.0	1.14	9.3	1.16	10.0	1.21	10.8	1.25
43.0	6.0	1.01	6.8	1.09	8.1	1.21	9.0	1.28	9.3	1.30	10.0	1.35	10.8	1.40	
46.0	6.0	1.11	6.8	1.20	8.1	1.34	9.0	1.41	9.3	1.44	10.0	1.50	10.8	1.56	
52.0	6.0	1.32	6.8	1.44	7.5	1.46	7.5	1.39	7.5	1.36	7.5	1.29	7.5	1.23	
30%	-10.0	4.5	0.31	5.1	0.35	6.1	0.42	6.7	0.46	6.9	0.48	7.5	0.52	8.1	0.56
	-5.0	4.5	0.31	5.1	0.35	6.1	0.42	6.7	0.47	6.9	0.48	7.5	0.52	8.1	0.56
	0.0	4.5	0.31	5.1	0.36	6.1	0.42	6.7	0.47	6.9	0.48	7.5	0.52	8.1	0.56
	5.0	4.5	0.32	5.1	0.36	6.1	0.43	6.7	0.47	6.9	0.48	7.5	0.52	8.1	0.56
	10.0	4.5	0.32	5.1	0.36	6.1	0.43	6.7	0.47	6.9	0.49	7.5	0.52	8.1	0.56
	15.0	4.5	0.33	5.1	0.37	6.1	0.44	6.7	0.48	6.9	0.49	7.5	0.53	8.1	0.57
	20.0	4.5	0.37	5.1	0.40	6.1	0.46	6.7	0.49	6.9	0.51	7.5	0.54	8.1	0.58
	25.0	4.5	0.50	5.1	0.49	6.1	0.51	6.7	0.53	6.9	0.54	7.5	0.57	8.1	0.60
	30.0	4.5	0.52	5.1	0.56	6.1	0.63	6.7	0.67	6.9	0.69	7.5	0.68	8.1	0.68
	35.0	4.5	0.56	5.1	0.59	6.1	0.64	6.7	0.68	6.9	0.70	7.5	0.74	8.1	0.78
	40.0	4.5	0.67	5.1	0.70	6.1	0.76	6.7	0.78	6.9	0.79	7.5	0.81	8.1	0.83
43.0	4.5	0.73	5.1	0.77	6.1	0.84	6.7	0.87	6.9	0.88	7.5	0.90	8.1	0.93	
46.0	4.5	0.79	5.1	0.85	6.1	0.92	6.7	0.96	6.9	0.97	7.5	1.00	8.1	1.03	
52.0	4.5	0.94	5.1	1.01	6.1	1.11	6.7	1.16	6.9	1.18	7.5	1.22	7.5	1.15	

# 1. Capacity Ratio of Outdoor Unit

## 1-12. U-8MF3E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
100%	-19.8	-20.0	15.2	6.49	13.6	6.26	12.6	6.07	11.9	5.91	10.8	5.62	10.0	5.39	8.0	4.67
	-14.7	-15.0	18.1	6.84	16.2	6.55	15.0	6.32	14.2	6.14	12.9	5.83	12.0	5.58	9.6	4.83
	-9.6	-10.0	21.5	7.34	19.3	6.98	17.9	6.71	16.9	6.50	15.4	6.14	14.4	5.87	11.6	5.05
	-4.4	-5.0	25.1	7.77	22.6	7.43	21.0	7.09	19.9	6.85	18.1	6.44	16.9	6.13	13.6	5.23
	-1.8	-2.5	27.4	8.09	24.6	7.69	22.9	7.41	21.7	7.14	19.8	6.67	18.4	6.34	14.9	5.38
	0.8	0.0	29.7	8.43	26.8	7.89	24.9	7.55	23.6	7.34	21.5	6.93	20.1	6.59	15.7	5.38
	2.8	2.0	31.1	8.43	28.4	8.02	26.4	7.55	25.0	7.31	22.2	6.70	20.4	6.28	15.7	5.13
	6.0	5.0	33.4	8.43	29.6	7.56	26.9	6.80	25.0	6.42	22.2	5.93	20.4	5.57	15.7	4.60
	7.0	6.0	34.2	8.43	29.6	7.20	26.9	6.49	25.0	6.02	22.2	5.67	20.4	5.34	15.7	4.43
	8.6	7.5	34.3	7.79	29.6	6.66	26.9	6.01	25.0	5.70	22.2	5.30	20.4	5.01	15.7	4.19
	11.2	10.0	34.3	6.75	29.6	5.82	26.9	5.28	25.0	5.03	22.2	4.72	20.4	4.49	15.7	3.81
	16.4	15.0	34.3	4.94	29.6	4.35	26.9	4.00	25.0	3.85	22.2	3.69	20.4	3.55	15.7	3.08
24.0	18.0	34.3	4.79	29.6	4.20	26.9	3.84	25.0	3.60	22.2	3.25	20.4	3.01	15.7	2.57	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
90%	-19.8	-20.0	14.8	6.37	13.2	6.15	12.2	5.96	11.5	5.80	10.4	5.53	9.6	5.31	7.7	4.61
	-14.7	-15.0	17.6	6.74	15.7	6.44	14.5	6.22	13.7	6.04	12.4	5.73	11.6	5.49	9.3	4.76
	-9.6	-10.0	21.0	7.27	18.8	6.90	17.4	6.62	16.4	6.41	14.9	6.06	13.9	5.79	11.2	4.98
	-4.4	-5.0	25.1	7.77	22.5	7.54	20.9	7.22	19.7	6.95	17.9	6.52	16.7	6.20	13.4	5.28
	-1.8	-2.5	27.4	8.06	24.6	7.69	22.8	7.44	21.5	7.23	19.6	6.78	18.2	6.42	14.2	5.26
	0.8	0.0	29.9	8.46	26.7	7.80	24.2	7.29	22.5	6.97	20.0	6.44	18.3	6.06	14.2	4.98
	2.8	2.0	30.8	8.21	26.7	7.14	24.2	6.70	22.5	6.42	20.0	5.96	18.3	5.63	14.2	4.72
	6.0	5.0	30.8	7.06	26.7	6.22	24.2	5.94	22.5	5.74	20.0	5.40	18.3	5.11	14.2	4.27
	7.0	6.0	30.8	7.02	26.7	6.12	24.2	5.77	22.5	5.55	20.0	5.18	18.3	4.90	14.2	4.12
	8.6	7.5	30.8	6.45	26.7	5.64	24.2	5.35	22.5	5.16	20.0	4.84	18.3	4.60	14.2	3.90
	11.2	10.0	30.8	5.55	26.7	4.91	24.2	4.70	22.5	4.56	20.0	4.32	18.3	4.13	14.2	3.55
	16.4	15.0	30.8	4.55	26.7	3.99	24.2	3.66	22.5	3.50	20.0	3.38	18.3	3.26	14.2	2.87
24.0	18.0	30.8	4.55	26.7	3.99	24.2	3.66	22.5	3.43	20.0	3.10	18.3	2.88	14.2	2.37	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
80%	-19.8	-20.0	14.5	6.21	12.8	6.00	11.8	5.82	11.1	5.68	10.0	5.41	9.3	5.20	7.4	4.54
	-14.7	-15.0	17.2	6.67	15.3	6.38	14.1	6.15	13.3	5.97	12.1	5.67	11.2	5.43	8.9	4.71
	-9.6	-10.0	20.6	7.23	18.4	6.85	17.0	6.57	16.0	6.36	14.5	6.00	13.5	5.74	10.8	4.94
	-4.4	-5.0	25.3	7.79	22.5	7.59	20.8	7.34	19.7	7.10	17.8	6.61	16.3	6.19	12.6	5.08
	-1.8	-2.5	27.4	7.99	23.7	7.34	21.5	6.97	20.0	6.69	17.8	6.22	16.3	5.86	12.6	4.81
	0.8	0.0	27.4	7.13	23.7	6.61	21.5	6.31	20.0	6.10	17.8	5.73	16.3	5.44	12.6	4.58
	2.8	2.0	27.4	6.47	23.7	6.11	21.5	5.90	20.0	5.71	17.8	5.38	16.3	5.11	12.6	4.33
	6.0	5.0	27.4	5.73	23.7	5.46	21.5	5.30	20.0	5.15	17.8	4.87	16.3	4.63	12.6	3.93
	7.0	6.0	27.4	5.71	23.7	5.33	21.5	5.13	20.0	4.96	17.8	4.67	16.3	4.45	12.6	3.79
	8.6	7.5	27.4	5.22	23.7	4.92	21.5	4.76	20.0	4.62	17.8	4.37	16.3	4.18	12.6	3.59
	11.2	10.0	27.4	4.45	23.7	4.28	21.5	4.19	20.0	4.09	17.8	3.91	16.3	3.76	12.6	3.27
	16.4	15.0	27.4	4.27	23.7	3.75	21.5	3.44	20.0	3.24	17.8	3.05	16.3	2.97	12.6	2.64
24.0	18.0	27.4	4.27	23.7	3.75	21.5	3.44	20.0	3.24	17.8	2.92	16.3	2.72	12.6	2.20	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
	°CDB	°CWB	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
70%	-19.8	-20.0	14.2	6.25	12.6	6.02	11.6	5.84	10.9	5.69	9.8	5.43	9.1	5.22	7.2	4.55
	-14.7	-15.0	17.0	6.70	15.1	6.39	13.9	6.16	13.1	5.98	11.8	5.67	11.0	5.44	8.7	4.72
	-9.6	-10.0	20.4	7.18	18.1	6.90	16.7	6.60	15.8	6.39	14.2	6.02	13.2	5.75	10.5	4.95
	-4.4	-5.0	24.0	7.24	20.7	6.87	18.8	6.57	17.5	6.35	15.6	5.92	14.3	5.53	11.0	4.60
	-1.8	-2.5	24.0	6.54	20.7	6.31	18.8	6.08	17.5	5.88	15.6	5.53	14.3	5.26	11.0	4.38
	0.8	0.0	24.0	5.94	20.7	5.78	18.8	5.59	17.5	5.42	15.6	5.12	14.3	4.88	11.0	4.15
	2.8	2.0	24.0	5.49	20.7	5.37	18.8	5.21	17.5	5.07	15.6	4.80	14.3	4.59	11.0	3.92
	6.0	5.0	24.0	4.83	20.7	4.79	18.8	4.67	17.5	4.56	15.6	4.33	14.3	4.14	11.0	3.55
	7.0	6.0	24.0	4.74	20.7	4.63	18.8	4.50	17.5	4.38	15.6	4.16	14.3	3.98	11.0	3.43
	8.6	7.5	24.0	4.32	20.7	4.27	18.8	4.18	17.5	4.08	15.6	3.90	14.3	3.74	11.0	3.26
	11.2	10.0	24.0	3.95	20.7	3.72	18.8	3.68	17.5	3.62	15.6	3.49	14.3	3.37	11.0	2.97
	16.4	15.0	24.0	3.95	20.7	3.48	18.8	3.20	17.5	3.01	15.6	2.72	14.3	2.66	11.0	2.40
24.0	18.0	24.0	3.95	20.7	3.48	18.8	3.20	17.5	3.01	15.6	2.72	14.3	2.54	11.0	2.06	

## 1. Capacity Ratio of Outdoor Unit

## U-8MF3E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	14.3	6.28	12.7	6.04	11.6	5.85	10.9	5.70	9.8	5.43	9.1	5.22	7.2	4.56
	-14.7	-15.0	17.2	6.69	15.2	6.40	14.0	6.16	13.1	5.98	11.8	5.67	11.0	5.44	8.7	4.72
	-9.6	-10.0	20.6	7.08	17.8	6.74	16.1	6.35	15.0	6.08	13.3	5.65	12.2	5.35	9.4	4.50
	-4.4	-5.0	20.6	6.02	17.8	5.82	16.1	5.62	15.0	5.44	13.3	5.12	12.2	4.84	9.4	4.03
	-1.8	-2.5	20.6	5.50	17.8	5.35	16.1	5.19	15.0	5.04	13.3	4.76	12.2	4.54	9.4	3.85
	0.8	0.0	20.6	4.98	17.8	4.90	16.1	4.76	15.0	4.64	13.3	4.40	12.2	4.21	9.4	3.62
	2.8	2.0	20.6	4.59	17.8	4.54	16.1	4.44	15.0	4.33	13.3	4.13	12.2	3.96	9.4	3.42
	6.0	5.0	20.6	4.03	17.8	4.04	16.1	3.96	15.0	3.88	13.3	3.70	12.2	3.56	9.4	3.08
	7.0	6.0	20.6	3.87	17.8	3.86	16.1	3.78	15.0	3.71	13.3	3.55	12.2	3.42	9.4	2.99
	8.6	7.5	20.6	3.53	17.8	3.56	16.1	3.52	15.0	3.46	13.3	3.34	12.2	3.22	9.4	2.84
	11.2	10.0	20.6	3.51	17.8	3.11	16.1	3.11	15.0	3.08	13.3	3.00	12.2	2.91	9.4	2.60
	16.4	15.0	20.6	3.51	17.8	3.09	16.1	2.85	15.0	2.68	13.3	2.44	12.2	2.30	9.4	2.10
24.0	18.0	20.6	3.51	17.8	3.09	16.1	2.85	15.0	2.68	13.3	2.44	12.2	2.27	9.4	1.86	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	15.0	6.35	13.2	6.09	12.1	5.90	11.3	5.74	10.2	5.47	9.4	5.26	7.4	4.59
	-14.7	-15.0	17.1	6.52	14.8	6.06	13.4	5.76	12.5	5.55	11.1	5.20	10.2	4.94	7.9	4.21
	-9.6	-10.0	17.1	5.69	14.8	5.48	13.4	5.22	12.5	4.99	11.1	4.65	10.2	4.40	7.9	3.72
	-4.4	-5.0	17.1	4.83	14.8	4.71	13.4	4.56	12.5	4.44	11.1	4.20	10.2	4.00	7.9	3.35
	-1.8	-2.5	17.1	4.40	14.8	4.33	13.4	4.21	12.5	4.10	11.1	3.90	10.2	3.73	7.9	3.20
	0.8	0.0	17.1	3.99	14.8	3.95	13.4	3.87	12.5	3.78	11.1	3.61	10.2	3.46	7.9	3.00
	2.8	2.0	17.1	3.67	14.8	3.67	13.4	3.60	12.5	3.53	11.1	3.38	10.2	3.25	7.9	2.82
	6.0	5.0	17.1	3.18	14.8	3.21	13.4	3.17	12.5	3.12	11.1	3.00	10.2	2.90	7.9	2.55
	7.0	6.0	17.1	3.00	14.8	3.05	13.4	3.03	12.5	2.99	11.1	2.89	10.2	2.80	7.9	2.48
	8.6	7.5	17.1	2.95	14.8	2.83	13.4	2.82	12.5	2.80	11.1	2.72	10.2	2.64	7.9	2.36
	11.2	10.0	17.1	2.95	14.8	2.62	13.4	2.50	12.5	2.50	11.1	2.45	10.2	2.39	7.9	2.17
	16.4	15.0	17.1	2.95	14.8	2.62	13.4	2.41	12.5	2.28	11.1	2.08	10.2	1.94	7.9	1.75
24.0	18.0	17.1	2.95	14.8	2.62	13.4	2.41	12.5	2.28	11.1	2.08	10.2	1.94	7.9	1.61	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	13.7	5.27	11.9	4.98	10.7	4.78	10.0	4.63	8.9	4.37	8.1	4.18	6.3	3.60
	-14.7	-15.0	13.7	4.78	11.9	4.45	10.7	4.24	10.0	4.09	8.9	3.84	8.1	3.66	6.3	3.14
	-9.6	-10.0	13.7	4.13	11.9	4.01	10.7	3.86	10.0	3.68	8.9	3.45	8.1	3.27	6.3	2.78
	-4.4	-5.0	13.7	3.50	11.9	3.44	10.7	3.35	10.0	3.26	8.9	3.10	8.1	2.97	6.3	2.51
	-1.8	-2.5	13.7	3.19	11.9	3.16	10.7	3.09	10.0	3.02	8.9	2.88	8.1	2.77	6.3	2.41
	0.8	0.0	13.7	2.89	11.9	2.88	10.7	2.83	10.0	2.77	8.9	2.66	8.1	2.56	6.3	2.24
	2.8	2.0	13.7	2.62	11.9	2.64	10.7	2.61	10.0	2.56	8.9	2.47	8.1	2.39	6.3	2.11
	6.0	5.0	13.7	2.25	11.9	2.30	10.7	2.29	10.0	2.27	8.9	2.21	8.1	2.14	6.3	1.92
	7.0	6.0	13.7	2.25	11.9	2.19	10.7	2.19	10.0	2.18	8.9	2.12	8.1	2.07	6.3	1.86
	8.6	7.5	13.7	2.25	11.9	2.03	10.7	2.05	10.0	2.04	8.9	2.00	8.1	1.96	6.3	1.78
	11.2	10.0	13.7	2.25	11.9	2.00	10.7	1.85	10.0	1.83	8.9	1.81	8.1	1.78	6.3	1.64
	16.4	15.0	13.7	2.25	11.9	2.00	10.7	1.85	10.0	1.75	8.9	1.60	8.1	1.51	6.3	1.33
24.0	18.0	13.7	2.25	11.9	2.00	10.7	1.85	10.0	1.75	8.9	1.60	8.1	1.51	6.3	1.26	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	10.3	3.61	8.9	3.42	8.1	3.29	7.5	3.19	6.7	3.02	6.1	2.89	4.7	2.51
	-14.7	-15.0	10.3	3.27	8.9	3.07	8.1	2.93	7.5	2.83	6.7	2.67	6.1	2.55	4.7	2.20
	-9.6	-10.0	10.3	2.82	8.9	2.75	8.1	2.67	7.5	2.58	6.7	2.41	6.1	2.29	4.7	1.97
	-4.4	-5.0	10.3	2.39	8.9	2.36	8.1	2.31	7.5	2.25	6.7	2.15	6.1	2.07	4.7	1.78
	-1.8	-2.5	10.3	2.15	8.9	2.15	8.1	2.11	7.5	2.07	6.7	1.99	6.1	1.92	4.7	1.70
	0.8	0.0	10.3	1.92	8.9	1.94	8.1	1.92	7.5	1.90	6.7	1.83	6.1	1.78	4.7	1.58
	2.8	2.0	10.3	1.74	8.9	1.79	8.1	1.78	7.5	1.76	6.7	1.71	6.1	1.67	4.7	1.50
	6.0	5.0	10.3	1.62	8.9	1.56	8.1	1.58	7.5	1.57	6.7	1.54	6.1	1.51	4.7	1.37
	7.0	6.0	10.3	1.62	8.9	1.50	8.1	1.51	7.5	1.51	6.7	1.49	6.1	1.46	4.7	1.33
	8.6	7.5	10.3	1.62	8.9	1.45	8.1	1.42	7.5	1.42	6.7	1.41	6.1	1.39	4.7	1.28
	11.2	10.0	10.3	1.62	8.9	1.45	8.1	1.35	7.5	1.29	6.7	1.28	6.1	1.27	4.7	1.18
	16.4	15.0	10.3	1.62	8.9	1.45	8.1	1.35	7.5	1.28	6.7	1.18	6.1	1.12	4.7	0.97
24.0	18.0	10.3	1.62	8.9	1.45	8.1	1.35	7.5	1.28	6.7	1.18	6.1	1.12	4.7	0.95	

# 1. Capacity Ratio of Outdoor Unit

## 1-13. U-10MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	18.7	2.06	21.2	2.34	25.5	2.81	28.0	3.09	28.9	3.19	31.3	3.45	33.6	3.71
	-5.0	18.7	2.07	21.2	2.35	25.5	2.82	28.0	3.10	28.9	3.20	31.3	3.46	33.6	3.71
	0.0	18.7	2.08	21.2	2.36	25.5	2.82	28.0	3.10	28.9	3.21	31.3	3.46	33.6	3.72
	5.0	18.7	2.10	21.2	2.37	25.5	2.84	28.0	3.12	28.9	3.22	31.3	3.48	33.6	3.74
	10.0	18.7	2.14	21.2	2.42	25.5	2.88	28.0	3.16	28.9	3.26	31.3	3.52	33.6	3.77
	15.0	18.7	2.28	21.2	2.55	25.5	3.01	28.0	3.28	28.9	3.38	31.3	3.63	33.6	3.88
	20.0	18.7	2.42	21.2	2.70	25.5	3.36	28.0	3.82	28.9	3.99	31.3	4.45	33.6	4.93
	25.0	18.7	3.01	21.2	3.50	25.5	4.38	28.0	4.96	28.9	5.18	31.3	5.75	33.6	6.35
	30.0	18.7	3.81	21.2	4.41	25.5	5.50	28.0	6.20	28.9	6.47	31.3	7.16	33.6	7.87
	35.0	18.7	4.66	21.2	5.39	25.5	6.70	28.0	7.54	28.9	7.85	31.3	8.67	33.6	9.51
	40.0	18.7	5.56	21.2	6.43	25.5	7.97	28.0	8.95	28.9	9.32	31.3	10.28	32.5	10.54
	43.0	18.7	6.13	21.2	7.09	25.5	8.78	28.0	9.86	28.9	10.27	30.1	10.54	31.0	10.54
46.0	18.7	6.73	21.2	7.78	23.4	8.33	23.4	7.87	23.4	7.70	23.4	7.30	23.4	6.92	
52.0	8.5	2.90	8.5	2.75	8.5	2.52	8.5	2.39	8.5	2.34	8.5	2.23	8.5	2.12	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	16.8	1.86	19.1	2.11	22.9	2.53	25.2	2.79	26.0	2.88	28.1	3.11	30.2	3.34
	-5.0	16.8	1.86	19.1	2.12	22.9	2.54	25.2	2.79	26.0	2.88	28.1	3.12	30.2	3.35
	0.0	16.8	1.87	19.1	2.12	22.9	2.55	25.2	2.80	26.0	2.89	28.1	3.12	30.2	3.35
	5.0	16.8	1.89	19.1	2.14	22.9	2.56	25.2	2.81	26.0	2.90	28.1	3.13	30.2	3.37
	10.0	16.8	1.92	19.1	2.17	22.9	2.59	25.2	2.84	26.0	2.93	28.1	3.16	30.2	3.39
	15.0	16.8	2.03	19.1	2.27	22.9	2.68	25.2	2.92	26.0	3.01	28.1	3.24	30.2	3.46
	20.0	16.8	2.22	19.1	2.47	22.9	2.89	25.2	3.15	26.0	3.24	28.1	3.47	30.2	3.79
	25.0	16.8	2.53	19.1	2.90	22.9	3.55	25.2	3.98	26.0	4.14	28.1	4.55	30.2	4.97
	30.0	16.8	3.22	19.1	3.69	22.9	4.51	25.2	5.04	26.0	5.23	28.1	5.74	30.2	6.26
	35.0	16.8	3.96	19.1	4.53	22.9	5.54	25.2	6.17	26.0	6.41	28.1	7.01	30.2	7.63
	40.0	16.8	4.74	19.1	5.42	22.9	6.62	25.2	7.37	26.0	7.65	28.1	8.36	30.2	9.10
	43.0	16.8	5.23	19.1	5.99	22.9	7.31	25.2	8.13	26.0	8.44	28.1	9.23	30.2	10.05
46.0	16.8	5.75	19.1	6.58	22.9	8.04	23.4	7.87	23.4	7.70	23.4	7.30	23.4	6.92	
52.0	8.5	2.90	8.5	2.75	8.5	2.52	8.5	2.39	8.5	2.34	8.5	2.23	8.5	2.12	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	14.9	1.66	17.0	1.88	20.4	2.26	22.4	2.48	23.1	2.57	25.0	2.77	26.9	2.98
	-5.0	14.9	1.66	17.0	1.88	20.4	2.26	22.4	2.49	23.1	2.57	25.0	2.78	26.9	2.98
	0.0	14.9	1.67	17.0	1.89	20.4	2.27	22.4	2.49	23.1	2.57	25.0	2.78	26.9	2.99
	5.0	14.9	1.68	17.0	1.90	20.4	2.28	22.4	2.50	23.1	2.58	25.0	2.79	26.9	3.00
	10.0	14.9	1.71	17.0	1.93	20.4	2.30	22.4	2.52	23.1	2.61	25.0	2.81	26.9	3.02
	15.0	14.9	1.79	17.0	2.01	20.4	2.37	22.4	2.58	23.1	2.66	25.0	2.86	26.9	3.06
	20.0	14.9	2.01	17.0	2.24	20.4	2.60	22.4	2.79	23.1	2.86	25.0	3.04	26.9	3.22
	25.0	14.9	2.10	17.0	2.38	20.4	2.85	22.4	3.14	23.1	3.25	25.0	3.54	26.9	3.82
	30.0	14.9	2.69	17.0	3.04	20.4	3.65	22.4	4.03	23.1	4.17	25.0	4.53	26.9	4.89
	35.0	14.9	3.33	17.0	3.77	20.4	4.52	22.4	4.99	23.1	5.16	25.0	5.59	26.9	6.04
	40.0	14.9	3.99	17.0	4.52	20.4	5.43	22.4	5.99	23.1	6.19	25.0	6.72	26.9	7.25
	43.0	14.9	4.41	17.0	5.00	20.4	6.01	22.4	6.63	23.1	6.86	25.0	7.44	26.9	8.03
46.0	14.9	4.86	17.0	5.51	20.4	6.62	22.4	7.31	23.1	7.56	23.4	7.30	23.4	6.92	
52.0	8.5	2.90	8.5	2.75	8.5	2.52	8.5	2.39	8.5	2.34	8.5	2.23	8.5	2.12	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	13.1	1.37	14.8	1.55	17.8	1.86	19.6	2.05	20.3	2.12	21.9	2.29	23.5	2.46
	-5.0	13.1	1.37	14.8	1.56	17.8	1.87	19.6	2.05	20.3	2.12	21.9	2.29	23.5	2.46
	0.0	13.1	1.38	14.8	1.56	17.8	1.87	19.6	2.06	20.3	2.12	21.9	2.30	23.5	2.47
	5.0	13.1	1.39	14.8	1.57	17.8	1.88	19.6	2.06	20.3	2.13	21.9	2.30	23.5	2.47
	10.0	13.1	1.41	14.8	1.59	17.8	1.90	19.6	2.08	20.3	2.15	21.9	2.32	23.5	2.49
	15.0	13.1	1.47	14.8	1.65	17.8	1.94	19.6	2.12	20.3	2.19	21.9	2.35	23.5	2.52
	20.0	13.1	1.70	14.8	1.84	17.8	2.09	19.6	2.25	20.3	2.31	21.9	2.46	23.5	2.61
	25.0	13.1	1.72	14.8	1.91	17.8	2.22	19.6	2.41	20.3	2.48	21.9	2.65	23.5	2.82
	30.0	13.1	2.10	14.8	2.34	17.8	2.74	19.6	2.99	20.3	3.08	21.9	3.31	23.5	3.54
	35.0	13.1	2.61	14.8	2.92	17.8	3.43	19.6	3.74	20.3	3.85	21.9	4.14	23.5	4.42
	40.0	13.1	3.13	14.8	3.51	17.8	4.14	19.6	4.51	20.3	4.65	21.9	5.00	23.5	5.35
	43.0	13.1	3.47	14.8	3.89	17.8	4.59	19.6	5.01	20.3	5.16	21.9	5.55	23.5	5.94
46.0	13.1	3.81	14.8	4.28	17.8	5.06	19.6	5.53	20.3	5.71	21.9	6.14	23.5	6.57	
52.0	8.5	2.73	8.5	2.59	8.5	2.37	8.5	2.25	8.5	2.20	8.5	2.10	8.5	2.00	

# 1. Capacity Ratio of Outdoor Unit

## U-10MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	11.2	1.05	12.7	1.19	15.3	1.42	16.8	1.57	17.4	1.62	18.8	1.75	20.2	1.88
	-5.0	11.2	1.05	12.7	1.19	15.3	1.43	16.8	1.57	17.4	1.62	18.8	1.75	20.2	1.88
	0.0	11.2	1.05	12.7	1.20	15.3	1.43	16.8	1.57	17.4	1.62	18.8	1.75	20.2	1.88
	5.0	11.2	1.06	12.7	1.20	15.3	1.44	16.8	1.58	17.4	1.63	18.8	1.76	20.2	1.89
	10.0	11.2	1.08	12.7	1.22	15.3	1.45	16.8	1.59	17.4	1.64	18.8	1.77	20.2	1.90
	15.0	11.2	1.12	12.7	1.26	15.3	1.48	16.8	1.62	17.4	1.67	18.8	1.79	20.2	1.92
	20.0	11.2	1.28	12.7	1.38	15.3	1.57	16.8	1.69	17.4	1.74	18.8	1.86	20.2	1.97
	25.0	11.2	1.36	12.7	1.51	15.3	1.74	16.8	1.89	17.4	1.94	18.8	2.07	20.2	2.16
	30.0	11.2	1.53	12.7	1.68	15.3	1.92	16.8	2.06	17.4	2.12	18.8	2.24	20.2	2.37
	35.0	11.2	1.91	12.7	2.10	15.3	2.42	16.8	2.60	17.4	2.67	18.8	2.84	20.2	3.00
	40.0	11.2	2.29	12.7	2.53	15.3	2.93	16.8	3.16	17.4	3.25	18.8	3.46	20.2	3.66
	43.0	11.2	2.53	12.7	2.81	15.3	3.26	16.8	3.52	17.4	3.61	18.8	3.85	20.2	4.08
46.0	11.2	2.79	12.7	3.10	15.3	3.60	16.8	3.89	17.4	4.00	18.8	4.26	20.2	4.52	
52.0	8.5	2.43	8.5	2.31	8.5	2.11	8.5	2.00	8.5	1.96	8.5	1.87	8.5	1.78	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	9.3	0.79	10.6	0.89	12.7	1.07	14.0	1.18	14.5	1.22	15.6	1.31	16.8	1.41
	-5.0	9.3	0.79	10.6	0.90	12.7	1.07	14.0	1.18	14.5	1.22	15.6	1.32	16.8	1.41
	0.0	9.3	0.79	10.6	0.90	12.7	1.08	14.0	1.18	14.5	1.22	15.6	1.32	16.8	1.42
	5.0	9.3	0.80	10.6	0.90	12.7	1.08	14.0	1.19	14.5	1.23	15.6	1.32	16.8	1.42
	10.0	9.3	0.81	10.6	0.92	12.7	1.09	14.0	1.20	14.5	1.23	15.6	1.33	16.8	1.43
	15.0	9.3	0.85	10.6	0.94	12.7	1.11	14.0	1.21	14.5	1.25	15.6	1.35	16.8	1.44
	20.0	9.3	0.95	10.6	1.03	12.7	1.17	14.0	1.26	14.5	1.30	15.6	1.38	16.8	1.47
	25.0	9.3	1.07	10.6	1.18	12.7	1.36	14.0	1.44	14.5	1.46	15.6	1.51	16.8	1.58
	30.0	9.3	1.11	10.6	1.20	12.7	1.37	14.0	1.48	14.5	1.52	15.6	1.62	16.8	1.72
	35.0	9.3	1.39	10.6	1.51	12.7	1.69	14.0	1.80	14.5	1.83	15.6	1.92	16.8	2.01
	40.0	9.3	1.66	10.6	1.82	12.7	2.06	14.0	2.19	14.5	2.24	15.6	2.36	16.8	2.47
	43.0	9.3	1.84	10.6	2.01	12.7	2.29	14.0	2.44	14.5	2.50	15.6	2.64	16.8	2.77
46.0	9.3	2.02	10.6	2.22	12.7	2.53	14.0	2.71	14.5	2.77	15.6	2.92	16.8	3.07	
52.0	8.5	2.19	8.5	2.08	8.5	1.90	8.5	1.80	8.5	1.77	8.5	1.68	8.5	1.60	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	7.5	0.58	8.5	0.66	10.2	0.79	11.2	0.86	11.6	0.89	12.5	0.96	13.4	1.04
	-5.0	7.5	0.58	8.5	0.66	10.2	0.79	11.2	0.87	11.6	0.89	12.5	0.97	13.4	1.04
	0.0	7.5	0.58	8.5	0.66	10.2	0.79	11.2	0.87	11.6	0.90	12.5	0.97	13.4	1.04
	5.0	7.5	0.59	8.5	0.67	10.2	0.79	11.2	0.87	11.6	0.90	12.5	0.97	13.4	1.04
	10.0	7.5	0.60	8.5	0.67	10.2	0.80	11.2	0.88	11.6	0.91	12.5	0.98	13.4	1.05
	15.0	7.5	0.62	8.5	0.70	10.2	0.82	11.2	0.89	11.6	0.92	12.5	0.99	13.4	1.06
	20.0	7.5	0.70	8.5	0.75	10.2	0.86	11.2	0.92	11.6	0.95	12.5	1.01	13.4	1.08
	25.0	7.5	0.84	8.5	0.92	10.2	0.99	11.2	1.03	11.6	1.04	12.5	1.09	13.4	1.14
	30.0	7.5	0.86	8.5	0.93	10.2	1.06	11.2	1.14	11.6	1.17	12.5	1.24	13.4	1.31
	35.0	7.5	1.01	8.5	1.08	10.2	1.18	11.2	1.23	11.6	1.25	12.5	1.29	13.4	1.33
	40.0	7.5	1.20	8.5	1.29	10.2	1.43	11.2	1.51	11.6	1.53	12.5	1.59	13.4	1.65
	43.0	7.5	1.33	8.5	1.43	10.2	1.59	11.2	1.68	11.6	1.71	12.5	1.78	13.4	1.85
46.0	7.5	1.46	8.5	1.58	10.2	1.76	11.2	1.86	11.6	1.90	12.5	1.98	13.4	2.06	
52.0	7.5	1.73	8.5	1.89	8.5	1.74	8.5	1.65	8.5	1.62	8.5	1.54	8.5	1.47	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	5.6	0.41	6.4	0.46	7.6	0.55	8.4	0.61	8.7	0.63	9.4	0.68	10.1	0.73
	-5.0	5.6	0.41	6.4	0.46	7.6	0.56	8.4	0.61	8.7	0.63	9.4	0.68	10.1	0.73
	0.0	5.6	0.41	6.4	0.47	7.6	0.56	8.4	0.61	8.7	0.63	9.4	0.68	10.1	0.73
	5.0	5.6	0.42	6.4	0.47	7.6	0.56	8.4	0.61	8.7	0.63	9.4	0.68	10.1	0.73
	10.0	5.6	0.43	6.4	0.48	7.6	0.57	8.4	0.62	8.7	0.64	9.4	0.69	10.1	0.74
	15.0	5.6	0.44	6.4	0.49	7.6	0.58	8.4	0.63	8.7	0.65	9.4	0.70	10.1	0.74
	20.0	5.6	0.50	6.4	0.54	7.6	0.61	8.4	0.65	8.7	0.67	9.4	0.71	10.1	0.76
	25.0	5.6	0.65	6.4	0.69	7.6	0.69	8.4	0.72	8.7	0.73	9.4	0.76	10.1	0.80
	30.0	5.6	0.67	6.4	0.72	7.6	0.81	8.4	0.87	8.7	0.89	9.4	0.94	10.1	0.93
	35.0	5.6	0.73	6.4	0.77	7.6	0.83	8.4	0.88	8.7	0.90	9.4	0.95	10.1	1.00
	40.0	5.6	0.86	6.4	0.91	7.6	0.99	8.4	1.02	8.7	1.03	9.4	1.06	10.1	1.08
	43.0	5.6	0.95	6.4	1.01	7.6	1.09	8.4	1.14	8.7	1.15	9.4	1.19	10.1	1.21
46.0	5.6	1.03	6.4	1.10	7.6	1.21	8.4	1.26	8.7	1.28	9.4	1.32	10.1	1.35	
52.0	5.6	1.22	6.4	1.31	7.6	1.45	8.4	1.52	8.7	1.54	8.5	1.44	8.5	1.37	



# 1. Capacity Ratio of Outdoor Unit

## 1-14. U-10MF3E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	21.3	9.54	19.1	9.17	17.7	8.85	16.7	8.60	15.2	8.14	14.1	7.77	11.3	6.66
	-14.7	-15.0	25.3	10.04	22.7	9.59	21.0	9.23	19.9	8.95	18.1	8.46	16.9	8.08	13.6	6.92
	-9.6	-10.0	29.9	10.75	26.9	10.20	25.0	9.78	23.7	9.46	21.6	8.91	20.2	8.50	16.4	7.25
	-4.4	-5.0	33.3	10.78	31.5	10.78	29.3	10.30	27.8	9.94	25.4	9.32	23.7	8.86	19.3	7.50
	-1.8	-2.5	35.0	10.78	33.2	10.78	32.0	10.72	30.3	10.32	27.7	9.65	25.7	9.06	19.8	7.21
	0.8	0.0	37.1	10.78	34.9	10.78	33.7	10.78	31.5	10.15	28.0	9.14	25.7	8.44	19.8	6.75
	2.8	2.0	38.8	10.78	36.6	10.78	33.8	10.01	31.5	9.42	28.0	8.58	25.7	8.00	19.8	6.45
	6.0	5.0	41.7	10.78	37.3	9.76	33.8	8.73	31.5	8.26	28.0	7.57	25.7	7.08	19.8	5.79
	7.0	6.0	42.8	10.78	37.3	9.29	33.8	8.32	31.5	7.70	28.0	7.24	25.7	6.79	19.8	5.58
	8.6	7.5	43.2	10.14	37.3	8.60	33.8	7.71	31.5	7.32	28.0	6.76	25.7	6.36	19.8	5.26
	11.2	10.0	43.2	8.78	37.3	7.49	33.8	6.75	31.5	6.44	28.0	6.00	25.7	5.68	19.8	4.77
	16.4	15.0	43.2	6.38	37.3	5.56	33.8	5.07	31.5	4.91	28.0	4.67	25.7	4.47	19.8	3.84
24.0	18.0	43.2	5.93	37.3	5.18	33.8	4.74	31.5	4.44	28.0	3.99	25.7	3.72	19.8	3.21	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	20.7	9.23	18.5	8.89	17.1	8.59	16.1	8.35	14.6	7.92	13.6	7.58	10.9	6.52
	-14.7	-15.0	24.6	9.75	22.0	9.31	20.4	8.97	19.2	8.70	17.5	8.23	16.3	7.87	13.1	6.76
	-9.6	-10.0	29.2	10.49	26.2	9.94	24.3	9.54	23.0	9.23	20.9	8.69	19.5	8.29	15.7	7.08
	-4.4	-5.0	34.1	11.27	31.4	10.85	29.1	10.36	27.6	9.98	25.1	9.36	23.1	8.73	17.9	7.04
	-1.8	-2.5	36.1	11.27	33.6	11.09	30.5	10.27	28.4	9.67	25.2	8.77	23.1	8.17	17.9	6.59
	0.8	0.0	38.2	11.27	33.6	10.01	30.5	9.36	28.4	8.91	25.2	8.19	23.1	7.67	17.9	6.23
	2.8	2.0	38.8	10.61	33.6	9.16	30.5	8.60	28.4	8.21	25.2	7.56	23.1	7.15	17.9	5.94
	6.0	5.0	38.8	9.11	33.6	7.96	30.5	7.61	28.4	7.34	25.2	6.87	23.1	6.47	17.9	5.36
	7.0	6.0	38.8	9.11	33.6	7.86	30.5	7.41	28.4	7.09	25.2	6.58	23.1	6.20	17.9	5.16
	8.6	7.5	38.8	8.36	33.6	7.24	30.5	6.86	28.4	6.59	25.2	6.14	23.1	5.81	17.9	4.87
	11.2	10.0	38.8	7.18	33.6	6.28	30.5	6.01	28.4	5.81	25.2	5.47	23.1	5.20	17.9	4.42
	16.4	15.0	38.8	5.62	33.6	4.92	30.5	4.51	28.4	4.43	25.2	4.25	23.1	4.10	17.9	3.56
24.0	18.0	38.8	5.62	33.6	4.92	30.5	4.50	28.4	4.22	25.2	3.80	23.1	3.52	17.9	2.95	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	20.1	8.97	17.9	8.64	16.5	8.36	15.5	8.13	14.1	7.72	13.0	7.40	10.4	6.39
	-14.7	-15.0	24.0	9.51	21.4	9.08	19.7	8.74	18.6	8.48	16.9	8.02	15.7	7.68	12.5	6.61
	-9.6	-10.0	28.6	10.28	25.5	9.74	23.6	9.33	22.3	9.03	20.3	8.50	18.8	8.11	15.1	6.94
	-4.4	-5.0	34.5	11.40	29.9	10.34	27.1	9.64	25.2	9.11	22.4	8.33	20.5	7.79	15.9	6.35
	-1.8	-2.5	34.5	10.25	29.9	9.39	27.1	8.88	25.2	8.50	22.4	7.85	20.5	7.36	15.9	6.00
	0.8	0.0	34.5	9.14	29.9	8.45	27.1	8.03	25.2	7.75	22.4	7.24	20.5	6.86	15.9	5.72
	2.8	2.0	34.5	8.26	29.9	7.81	27.1	7.51	25.2	7.25	22.4	6.80	20.5	6.45	15.9	5.42
	6.0	5.0	34.5	7.32	29.9	6.98	27.1	6.75	25.2	6.54	22.4	6.16	20.5	5.84	15.9	4.90
	7.0	6.0	34.5	7.36	29.9	6.85	27.1	6.54	25.2	6.31	22.4	5.90	20.5	5.60	15.9	4.72
	8.6	7.5	34.5	6.72	29.9	6.31	27.1	6.06	25.2	5.87	22.4	5.52	20.5	5.25	15.9	4.46
	11.2	10.0	34.5	5.71	29.9	5.47	27.1	5.32	25.2	5.18	22.4	4.92	20.5	4.71	15.9	4.05
	16.4	15.0	34.5	5.27	29.9	4.61	27.1	4.22	25.2	3.96	22.4	3.82	20.5	3.70	15.9	3.26
24.0	18.0	34.5	5.27	29.9	4.61	27.1	4.22	25.2	3.96	22.4	3.57	20.5	3.31	15.9	2.68	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	19.7	8.82	17.4	8.48	16.0	8.21	15.1	7.99	13.6	7.59	12.6	7.28	10.0	6.30
	-14.7	-15.0	23.5	9.38	20.9	8.94	19.2	8.60	18.1	8.35	16.4	7.90	15.2	7.56	12.1	6.52
	-9.6	-10.0	28.1	10.22	25.0	9.63	23.1	9.22	21.8	8.91	19.6	8.33	18.0	7.83	13.9	6.47
	-4.4	-5.0	30.2	9.25	26.1	8.72	23.7	8.30	22.1	7.99	19.6	7.40	18.0	6.93	13.9	5.73
	-1.8	-2.5	30.2	8.32	26.1	7.99	23.7	7.67	22.1	7.42	19.6	6.95	18.0	6.59	13.9	5.44
	0.8	0.0	30.2	7.58	26.1	7.33	23.7	7.06	22.1	6.84	19.6	6.43	18.0	6.11	13.9	5.17
	2.8	2.0	30.2	6.99	26.1	6.80	23.7	6.58	22.1	6.39	19.6	6.03	18.0	5.74	13.9	4.87
	6.0	5.0	30.2	6.16	26.1	6.06	23.7	5.90	22.1	5.74	19.6	5.44	18.0	5.19	13.9	4.41
	7.0	6.0	30.2	6.10	26.1	5.90	23.7	5.69	22.1	5.53	19.6	5.22	18.0	4.98	13.9	4.26
	8.6	7.5	30.2	5.56	26.1	5.44	23.7	5.28	22.1	5.14	19.6	4.88	18.0	4.68	13.9	4.03
	11.2	10.0	30.2	4.86	26.1	4.71	23.7	4.64	22.1	4.55	19.6	4.36	18.0	4.20	13.9	3.67
	16.4	15.0	30.2	4.86	26.1	4.26	23.7	3.91	22.1	3.67	19.6	3.38	18.0	3.30	13.9	2.95
24.0	18.0	30.2	4.86	26.1	4.26	23.7	3.91	22.1	3.67	19.6	3.31	18.0	3.08	13.9	2.48	

## 1. Capacity Ratio of Outdoor Unit

## U-10MF3E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	19.6	8.64	17.3	8.30	15.9	8.03	14.9	7.82	13.4	7.43	12.4	7.13	9.8	6.18
	-14.7	-15.0	23.5	9.23	20.8	8.78	19.1	8.45	18.0	8.19	16.2	7.75	15.0	7.42	11.9	6.39
	-9.6	-10.0	25.9	8.98	22.4	8.45	20.3	7.94	18.9	7.60	16.8	7.05	15.4	6.66	11.9	5.57
	-4.4	-5.0	25.9	7.59	22.4	7.31	20.3	7.04	18.9	6.81	16.8	6.39	15.4	6.01	11.9	4.98
	-1.8	-2.5	25.9	6.93	22.4	6.73	20.3	6.50	18.9	6.30	16.8	5.94	15.4	5.66	11.9	4.75
	0.8	0.0	25.9	6.28	22.4	6.15	20.3	5.97	18.9	5.80	16.8	5.49	15.4	5.24	11.9	4.47
	2.8	2.0	25.9	5.79	22.4	5.70	20.3	5.55	18.9	5.41	16.8	5.14	15.4	4.92	11.9	4.22
	6.0	5.0	25.9	5.08	22.4	5.07	20.3	4.96	18.9	4.85	16.8	4.62	15.4	4.43	11.9	3.80
	7.0	6.0	25.9	4.93	22.4	4.87	20.3	4.75	18.9	4.64	16.8	4.43	15.4	4.25	11.9	3.68
	8.6	7.5	25.9	4.48	22.4	4.49	20.3	4.41	18.9	4.33	16.8	4.15	15.4	4.00	11.9	3.49
	11.2	10.0	25.9	4.30	22.4	3.90	20.3	3.88	18.9	3.84	16.8	3.71	15.4	3.60	11.9	3.18
16.4	15.0	25.9	4.30	22.4	3.78	20.3	3.47	18.9	3.26	16.8	2.95	15.4	2.82	11.9	2.56	
24.0	18.0	25.9	4.30	22.4	3.78	20.3	3.47	18.9	3.26	16.8	2.95	15.4	2.74	11.9	2.23	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	20.1	8.54	17.7	8.19	16.3	7.92	15.3	7.71	13.7	7.33	12.7	7.03	9.9	6.05
	-14.7	-15.0	21.6	8.12	18.7	7.56	16.9	7.18	15.8	6.91	14.0	6.47	12.8	6.14	9.9	5.21
	-9.6	-10.0	21.6	7.12	18.7	6.84	16.9	6.47	15.8	6.20	14.0	5.76	12.8	5.45	9.9	4.59
	-4.4	-5.0	21.6	6.04	18.7	5.87	16.9	5.68	15.8	5.51	14.0	5.20	12.8	4.94	9.9	4.11
	-1.8	-2.5	21.6	5.50	18.7	5.39	16.9	5.23	15.8	5.09	14.0	4.83	12.8	4.61	9.9	3.93
	0.8	0.0	21.6	4.97	18.7	4.92	16.9	4.80	15.8	4.68	14.0	4.46	12.8	4.27	9.9	3.68
	2.8	2.0	21.6	4.57	18.7	4.55	16.9	4.46	15.8	4.37	14.0	4.17	12.8	4.01	9.9	3.47
	6.0	5.0	21.6	3.99	18.7	4.01	16.9	3.95	15.8	3.87	14.0	3.72	12.8	3.58	9.9	3.11
	7.0	6.0	21.6	3.77	18.7	3.81	16.9	3.77	15.8	3.70	14.0	3.57	12.8	3.44	9.9	3.03
	8.6	7.5	21.6	3.60	18.7	3.52	16.9	3.50	15.8	3.46	14.0	3.35	12.8	3.24	9.9	2.87
	11.2	10.0	21.6	3.60	18.7	3.18	16.9	3.09	15.8	3.07	14.0	3.01	12.8	2.93	9.9	2.63
16.4	15.0	21.6	3.60	18.7	3.18	16.9	2.92	15.8	2.75	14.0	2.50	12.8	2.33	9.9	2.11	
24.0	18.0	21.6	3.60	18.7	3.18	16.9	2.92	15.8	2.75	14.0	2.50	12.8	2.33	9.9	1.90	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	17.3	6.56	14.9	6.20	13.5	5.94	12.6	5.74	11.2	5.42	10.3	5.17	7.9	4.43
	-14.7	-15.0	17.3	5.94	14.9	5.52	13.5	5.25	12.6	5.06	11.2	4.74	10.3	4.51	7.9	3.85
	-9.6	-10.0	17.3	5.13	14.9	4.97	13.5	4.77	12.6	4.55	11.2	4.25	10.3	4.02	7.9	3.41
	-4.4	-5.0	17.3	4.34	14.9	4.25	13.5	4.13	12.6	4.02	11.2	3.82	10.3	3.65	7.9	3.06
	-1.8	-2.5	17.3	3.94	14.9	3.90	13.5	3.81	12.6	3.72	11.2	3.54	10.3	3.39	7.9	2.93
	0.8	0.0	17.3	3.56	14.9	3.56	13.5	3.49	12.6	3.42	11.2	3.27	10.3	3.14	7.9	2.73
	2.8	2.0	17.3	3.27	14.9	3.27	13.5	3.22	12.6	3.16	11.2	3.03	10.3	2.93	7.9	2.56
	6.0	5.0	17.3	2.76	14.9	2.83	13.5	2.82	12.6	2.79	11.2	2.70	10.3	2.62	7.9	2.32
	7.0	6.0	17.3	2.72	14.9	2.69	13.5	2.69	12.6	2.67	11.2	2.59	10.3	2.52	7.9	2.25
	8.6	7.5	17.3	2.72	14.9	2.49	13.5	2.51	12.6	2.50	11.2	2.44	10.3	2.38	7.9	2.14
	11.2	10.0	17.3	2.72	14.9	2.41	13.5	2.22	12.6	2.23	11.2	2.20	10.3	2.16	7.9	1.96
16.4	15.0	17.3	2.72	14.9	2.41	13.5	2.22	12.6	2.10	11.2	1.91	10.3	1.79	7.9	1.58	
24.0	18.0	17.3	2.72	14.9	2.41	13.5	2.22	12.6	2.10	11.2	1.91	10.3	1.79	7.9	1.48	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	12.9	4.47	11.2	4.23	10.1	4.06	9.5	3.93	8.4	3.72	7.7	3.55	6.0	3.07
	-14.7	-15.0	12.9	4.04	11.2	3.78	10.1	3.61	9.5	3.48	8.4	3.27	7.7	3.12	6.0	2.68
	-9.6	-10.0	12.9	3.48	11.2	3.39	10.1	3.28	9.5	3.15	8.4	2.94	7.7	2.79	6.0	2.38
	-4.4	-5.0	12.9	2.93	11.2	2.90	10.1	2.83	9.5	2.77	8.4	2.64	7.7	2.53	6.0	2.15
	-1.8	-2.5	12.9	2.65	11.2	2.64	10.1	2.59	9.5	2.54	8.4	2.43	7.7	2.34	6.0	2.05
	0.8	0.0	12.9	2.36	11.2	2.38	10.1	2.35	9.5	2.31	8.4	2.23	7.7	2.16	6.0	1.90
	2.8	2.0	12.9	2.13	11.2	2.18	10.1	2.17	9.5	2.14	8.4	2.08	7.7	2.01	6.0	1.79
	6.0	5.0	12.9	1.94	11.2	1.90	10.1	1.91	9.5	1.90	8.4	1.86	7.7	1.81	6.0	1.64
	7.0	6.0	12.9	1.94	11.2	1.81	10.1	1.83	9.5	1.82	8.4	1.79	7.7	1.75	6.0	1.59
	8.6	7.5	12.9	1.94	11.2	1.73	10.1	1.71	9.5	1.71	8.4	1.69	7.7	1.66	6.0	1.52
	11.2	10.0	12.9	1.94	11.2	1.73	10.1	1.60	9.5	1.54	8.4	1.53	7.7	1.51	6.0	1.40
16.4	15.0	12.9	1.94	11.2	1.73	10.1	1.60	9.5	1.52	8.4	1.39	7.7	1.31	6.0	1.14	
24.0	18.0	12.9	1.94	11.2	1.73	10.1	1.60	9.5	1.52	8.4	1.39	7.7	1.31	6.0	1.10	

# 1. Capacity Ratio of Outdoor Unit

## 1-15. U-12MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	22.3	2.93	25.4	3.33	30.5	3.99	33.5	4.39	34.6	4.54	37.4	4.90	40.2	5.27
	-5.0	22.3	2.94	25.4	3.34	30.5	4.00	33.5	4.40	34.6	4.55	37.4	4.91	40.2	5.28
	0.0	22.3	2.96	25.4	3.36	30.5	4.02	33.5	4.41	34.6	4.56	37.4	4.92	40.2	5.29
	5.0	22.3	2.99	25.4	3.39	30.5	4.05	33.5	4.45	34.6	4.59	37.4	4.96	40.2	5.32
	10.0	22.3	3.08	25.4	3.47	30.5	4.13	33.5	4.52	34.6	4.66	37.4	5.03	40.2	5.39
	15.0	22.3	3.35	25.4	3.73	30.5	4.36	33.5	4.75	34.6	4.89	37.4	5.24	40.2	5.59
	20.0	22.3	3.61	25.4	4.01	30.5	4.95	33.5	5.60	34.6	5.84	37.4	6.49	40.2	7.17
	25.0	22.3	4.46	25.4	5.15	30.5	6.41	33.5	7.23	34.6	7.54	37.4	8.35	40.2	9.20
	30.0	22.3	5.60	25.4	6.46	30.5	8.01	33.5	9.00	34.6	9.38	37.4	10.36	40.2	11.38
	35.0	22.3	6.83	25.4	7.87	30.5	9.72	33.5	10.91	34.6	11.36	37.4	12.51	40.2	13.72
	40.0	22.3	8.11	25.4	9.34	30.5	11.52	33.5	12.92	34.6	13.44	37.4	14.80	39.0	15.26
	43.0	22.3	8.92	25.4	10.27	30.5	12.67	33.5	14.20	34.6	14.78	36.1	15.26	37.1	15.25
46.0	22.3	9.77	25.4	11.26	28.0	12.04	28.0	11.38	28.0	11.15	28.0	10.58	28.0	10.03	
52.0	10.2	4.33	10.2	4.12	10.2	3.78	10.2	3.60	10.2	3.53	10.2	3.37	10.2	3.22	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	20.1	2.64	22.8	3.00	27.4	3.60	30.2	3.96	31.2	4.09	33.7	4.42	36.2	4.75
	-5.0	20.1	2.65	22.8	3.01	27.4	3.61	30.2	3.97	31.2	4.10	33.7	4.43	36.2	4.76
	0.0	20.1	2.67	22.8	3.02	27.4	3.62	30.2	3.98	31.2	4.11	33.7	4.44	36.2	4.77
	5.0	20.1	2.70	22.8	3.05	27.4	3.65	30.2	4.00	31.2	4.13	33.7	4.46	36.2	4.79
	10.0	20.1	2.76	22.8	3.12	27.4	3.70	30.2	4.06	31.2	4.19	33.7	4.51	36.2	4.84
	15.0	20.1	2.97	22.8	3.31	27.4	3.87	30.2	4.22	31.2	4.34	33.7	4.66	36.2	4.97
	20.0	20.1	3.33	22.8	3.69	27.4	4.28	30.2	4.64	31.2	4.78	33.7	5.10	36.2	5.56
	25.0	20.1	3.78	22.8	4.30	27.4	5.23	30.2	5.83	31.2	6.06	33.7	6.64	36.2	7.25
	30.0	20.1	4.77	22.8	5.43	27.4	6.60	30.2	7.35	31.2	7.63	33.7	8.34	36.2	9.08
	35.0	20.1	5.83	22.8	6.65	27.4	8.07	30.2	8.97	31.2	9.30	33.7	10.16	36.2	11.05
	40.0	20.1	6.93	22.8	7.91	27.4	9.60	30.2	10.67	31.2	11.07	33.7	12.08	36.2	13.13
	43.0	20.1	7.63	22.8	8.71	27.4	10.58	30.2	11.76	31.2	12.20	33.7	13.32	36.2	14.47
46.0	20.1	8.37	22.8	9.55	27.4	11.62	28.0	11.38	28.0	11.14	28.0	10.58	28.0	10.03	
52.0	10.2	4.33	10.2	4.12	10.2	3.78	10.2	3.60	10.2	3.53	10.2	3.37	10.2	3.22	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	17.9	2.35	20.3	2.67	24.4	3.21	26.8	3.53	27.7	3.64	29.9	3.94	32.2	4.23
	-5.0	17.9	2.36	20.3	2.68	24.4	3.21	26.8	3.53	27.7	3.65	29.9	3.94	32.2	4.24
	0.0	17.9	2.37	20.3	2.69	24.4	3.22	26.8	3.54	27.7	3.66	29.9	3.95	32.2	4.25
	5.0	17.9	2.40	20.3	2.72	24.4	3.24	26.8	3.56	27.7	3.68	29.9	3.97	32.2	4.26
	10.0	17.9	2.46	20.3	2.77	24.4	3.29	26.8	3.61	27.7	3.72	29.9	4.01	32.2	4.30
	15.0	17.9	2.62	20.3	2.91	24.4	3.41	26.8	3.72	27.7	3.83	29.9	4.11	32.2	4.39
	20.0	17.9	3.04	20.3	3.36	24.4	3.86	26.8	4.11	27.7	4.20	29.9	4.44	32.2	4.69
	25.0	17.9	3.18	20.3	3.56	24.4	4.23	26.8	4.65	27.7	4.81	29.9	5.21	32.2	5.62
	30.0	17.9	4.02	20.3	4.52	24.4	5.38	26.8	5.92	27.7	6.12	29.9	6.63	32.2	7.15
	35.0	17.9	4.94	20.3	5.56	24.4	6.63	26.8	7.29	27.7	7.53	29.9	8.15	32.2	8.78
	40.0	17.9	5.88	20.3	6.63	24.4	7.92	26.8	8.71	27.7	9.00	29.9	9.74	32.2	10.50
	43.0	17.9	6.48	20.3	7.31	24.4	8.74	26.8	9.62	27.7	9.94	29.9	10.77	32.2	11.61
46.0	17.9	7.10	20.3	8.03	24.4	9.61	26.8	10.58	27.7	10.94	28.0	10.58	28.0	10.03	
52.0	10.2	4.33	10.2	4.12	10.2	3.78	10.2	3.60	10.2	3.53	10.2	3.37	10.2	3.22	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	15.6	1.94	17.8	2.21	21.3	2.65	23.5	2.91	24.2	3.01	26.2	3.25	28.1	3.49
	-5.0	15.6	1.95	17.8	2.21	21.3	2.65	23.5	2.92	24.2	3.01	26.2	3.26	28.1	3.50
	0.0	15.6	1.96	17.8	2.22	21.3	2.66	23.5	2.92	24.2	3.02	26.2	3.26	28.1	3.51
	5.0	15.6	1.98	17.8	2.24	21.3	2.68	23.5	2.94	24.2	3.04	26.2	3.28	28.1	3.52
	10.0	15.6	2.03	17.8	2.28	21.3	2.71	23.5	2.97	24.2	3.07	26.2	3.30	28.1	3.54
	15.0	15.6	2.15	17.8	2.39	21.3	2.80	23.5	3.05	24.2	3.14	26.2	3.37	28.1	3.60
	20.0	15.6	2.59	17.8	2.76	21.3	3.08	23.5	3.29	24.2	3.37	26.2	3.57	28.1	3.78
	25.0	15.6	2.62	17.8	2.89	21.3	3.33	23.5	3.59	24.2	3.69	26.2	3.93	28.1	4.18
	30.0	15.6	3.17	17.8	3.51	21.3	4.08	23.5	4.43	24.2	4.56	26.2	4.88	28.1	5.21
	35.0	15.6	3.90	17.8	4.34	21.3	5.07	23.5	5.50	24.2	5.67	26.2	6.07	28.1	6.48
	40.0	15.6	4.64	17.8	5.18	21.3	6.07	23.5	6.61	24.2	6.80	26.2	7.30	28.1	7.79
	43.0	15.6	5.12	17.8	5.71	21.3	6.71	23.5	7.31	24.2	7.53	26.2	8.08	28.1	8.63
46.0	15.6	5.61	17.8	6.28	21.3	7.39	23.5	8.05	24.2	8.30	26.2	8.91	28.1	9.53	
52.0	10.2	4.08	10.2	3.88	10.2	3.56	10.2	3.39	10.2	3.33	10.2	3.18	10.2	3.03	

# 1. Capacity Ratio of Outdoor Unit

## U-12MF3E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	13.4	1.49	15.2	1.69	18.3	2.02	20.1	2.23	20.8	2.30	22.4	2.49	24.1	2.67
	-5.0	13.4	1.49	15.2	1.69	18.3	2.03	20.1	2.23	20.8	2.30	22.4	2.49	24.1	2.67
	0.0	13.4	1.50	15.2	1.70	18.3	2.04	20.1	2.24	20.8	2.31	22.4	2.50	24.1	2.68
	5.0	13.4	1.52	15.2	1.71	18.3	2.05	20.1	2.25	20.8	2.32	22.4	2.50	24.1	2.69
	10.0	13.4	1.55	15.2	1.74	18.3	2.07	20.1	2.27	20.8	2.34	22.4	2.52	24.1	2.71
	15.0	13.4	1.64	15.2	1.82	18.3	2.13	20.1	2.32	20.8	2.39	22.4	2.57	24.1	2.75
	20.0	13.4	1.93	15.2	2.06	18.3	2.31	20.1	2.47	20.8	2.53	22.4	2.69	24.1	2.85
	25.0	13.4	2.09	15.2	2.30	18.3	2.63	20.1	2.83	20.8	2.91	22.4	3.09	24.1	3.21
	30.0	13.4	2.34	15.2	2.55	18.3	2.89	20.1	3.10	20.8	3.17	22.4	3.35	24.1	3.53
	35.0	13.4	2.88	15.2	3.16	18.3	3.61	20.1	3.87	20.8	3.97	22.4	4.20	24.1	4.43
	40.0	13.4	3.43	15.2	3.77	18.3	4.34	20.1	4.67	20.8	4.79	22.4	5.08	24.1	5.37
	43.0	13.4	3.77	15.2	4.16	18.3	4.80	20.1	5.17	20.8	5.31	22.4	5.64	24.1	5.97
46.0	13.4	4.14	15.2	4.57	18.3	5.28	20.1	5.70	20.8	5.85	22.4	6.23	24.1	6.60	
52.0	10.2	3.63	10.2	3.45	10.2	3.17	10.2	3.02	10.2	2.96	10.2	2.83	10.2	2.70	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	11.2	1.12	12.7	1.27	15.2	1.52	16.8	1.67	17.3	1.73	18.7	1.87	20.1	2.01
	-5.0	11.2	1.12	12.7	1.27	15.2	1.52	16.8	1.68	17.3	1.73	18.7	1.87	20.1	2.01
	0.0	11.2	1.13	12.7	1.28	15.2	1.53	16.8	1.68	17.3	1.74	18.7	1.87	20.1	2.01
	5.0	11.2	1.14	12.7	1.29	15.2	1.54	16.8	1.69	17.3	1.75	18.7	1.88	20.1	2.02
	10.0	11.2	1.17	12.7	1.31	15.2	1.56	16.8	1.71	17.3	1.76	18.7	1.90	20.1	2.03
	15.0	11.2	1.23	12.7	1.37	15.2	1.60	16.8	1.74	17.3	1.79	18.7	1.93	20.1	2.06
	20.0	11.2	1.43	12.7	1.53	15.2	1.71	16.8	1.83	17.3	1.88	18.7	2.00	20.1	2.12
	25.0	11.2	1.67	12.7	1.82	15.2	2.07	16.8	2.17	17.3	2.19	18.7	2.24	20.1	2.32
	30.0	11.2	1.73	12.7	1.86	15.2	2.10	16.8	2.25	17.3	2.31	18.7	2.45	20.1	2.59
	35.0	11.2	2.13	12.7	2.29	15.2	2.56	16.8	2.71	17.3	2.76	18.7	2.89	20.1	3.01
	40.0	11.2	2.52	12.7	2.74	15.2	3.08	16.8	3.27	17.3	3.34	18.7	3.51	20.1	3.67
	43.0	11.2	2.77	12.7	3.02	15.2	3.41	16.8	3.63	17.3	3.71	18.7	3.90	20.1	4.08
46.0	11.2	3.03	12.7	3.31	15.2	3.75	16.8	4.00	17.3	4.09	18.7	4.31	20.1	4.52	
52.0	10.2	3.27	10.2	3.11	10.2	2.86	10.2	2.72	10.2	2.67	10.2	2.55	10.2	2.43	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	8.9	0.82	10.2	0.93	12.2	1.12	13.4	1.23	13.8	1.27	15.0	1.37	16.1	1.47
	-5.0	8.9	0.83	10.2	0.94	12.2	1.12	13.4	1.23	13.8	1.27	15.0	1.37	16.1	1.47
	0.0	8.9	0.83	10.2	0.94	12.2	1.12	13.4	1.23	13.8	1.28	15.0	1.38	16.1	1.48
	5.0	8.9	0.84	10.2	0.95	12.2	1.13	13.4	1.24	13.8	1.28	15.0	1.38	16.1	1.48
	10.0	8.9	0.86	10.2	0.97	12.2	1.15	13.4	1.25	13.8	1.29	15.0	1.39	16.1	1.49
	15.0	8.9	0.91	10.2	1.01	12.2	1.18	13.4	1.28	13.8	1.32	15.0	1.41	16.1	1.51
	20.0	8.9	1.05	10.2	1.12	12.2	1.25	13.4	1.34	13.8	1.37	15.0	1.46	16.1	1.55
	25.0	8.9	1.32	10.2	1.43	12.2	1.51	13.4	1.54	13.8	1.56	15.0	1.61	16.1	1.67
	30.0	8.9	1.35	10.2	1.46	12.2	1.65	13.4	1.76	13.8	1.80	15.0	1.90	16.1	2.00
	35.0	8.9	1.57	10.2	1.67	12.2	1.82	13.4	1.89	13.8	1.92	15.0	1.98	16.1	2.04
	40.0	8.9	1.85	10.2	1.98	12.2	2.18	13.4	2.28	13.8	2.32	15.0	2.40	16.1	2.48
	43.0	8.9	2.03	10.2	2.18	12.2	2.41	13.4	2.53	13.8	2.57	15.0	2.67	16.1	2.77
46.0	8.9	2.21	10.2	2.38	12.2	2.64	13.4	2.79	13.8	2.84	15.0	2.96	16.1	3.07	
52.0	8.9	2.61	10.2	2.83	10.2	2.62	10.2	2.49	10.2	2.44	10.2	2.33	10.2	2.23	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	6.7	0.58	7.6	0.66	9.1	0.79	10.1	0.86	10.4	0.89	11.2	0.96	12.1	1.03
	-5.0	6.7	0.58	7.6	0.66	9.1	0.79	10.1	0.87	10.4	0.89	11.2	0.97	12.1	1.04
	0.0	6.7	0.59	7.6	0.66	9.1	0.79	10.1	0.87	10.4	0.90	11.2	0.97	12.1	1.04
	5.0	6.7	0.60	7.6	0.67	9.1	0.80	10.1	0.88	10.4	0.90	11.2	0.97	12.1	1.04
	10.0	6.7	0.61	7.6	0.69	9.1	0.81	10.1	0.88	10.4	0.91	11.2	0.98	12.1	1.05
	15.0	6.7	0.65	7.6	0.72	9.1	0.83	10.1	0.90	10.4	0.93	11.2	1.00	12.1	1.06
	20.0	6.7	0.75	7.6	0.80	9.1	0.89	10.1	0.95	10.4	0.97	11.2	1.03	12.1	1.09
	25.0	6.7	1.05	7.6	1.08	9.1	1.06	10.1	1.07	10.4	1.09	11.2	1.12	12.1	1.17
	30.0	6.7	1.08	7.6	1.15	9.1	1.28	10.1	1.36	10.4	1.39	11.2	1.46	12.1	1.41
	35.0	6.7	1.17	7.6	1.23	9.1	1.31	10.1	1.39	10.4	1.42	11.2	1.49	12.1	1.56
	40.0	6.7	1.36	7.6	1.43	9.1	1.53	10.1	1.59	10.4	1.60	11.2	1.64	12.1	1.67
	43.0	6.7	1.48	7.6	1.57	9.1	1.69	10.1	1.75	10.4	1.77	11.2	1.82	12.1	1.86
46.0	6.7	1.60	7.6	1.70	9.1	1.85	10.1	1.92	10.4	1.95	11.2	2.00	12.1	2.05	
52.0	6.7	1.87	7.6	2.00	9.1	2.19	10.1	2.29	10.4	2.32	10.2	2.18	10.2	2.08	



# 1. Capacity Ratio of Outdoor Unit

## 1-16. U-12MF3E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	23.5	11.59	20.9	11.16	19.3	10.79	18.1	10.50	16.4	9.98	15.2	9.56	12.1	8.26
	-14.7	-15.0	28.0	12.29	25.0	11.72	23.1	11.29	21.7	10.96	19.7	10.37	18.3	9.92	14.6	8.55
	-9.6	-10.0	33.4	13.27	29.9	12.59	27.6	12.06	26.1	11.67	23.7	10.99	22.0	10.48	17.7	8.97
	-4.4	-5.0	39.2	14.23	35.1	13.43	32.5	12.85	30.7	12.34	27.8	11.56	25.9	10.98	20.8	9.29
	-1.8	-2.5	42.2	14.70	38.3	13.90	35.4	13.24	33.4	12.84	30.4	12.03	28.2	11.30	22.7	9.58
	0.8	0.0	44.7	14.70	41.6	14.56	38.5	13.66	36.4	13.04	33.1	12.35	30.6	11.68	23.6	9.47
	2.8	2.0	46.9	14.70	43.9	14.70	40.3	13.55	37.5	12.58	33.3	11.52	30.6	10.83	23.6	8.93
	6.0	5.0	50.4	14.70	44.4	13.12	40.3	11.85	37.5	11.02	33.3	10.17	30.6	9.58	23.6	7.99
	7.0	6.0	51.4	14.55	44.4	12.50	40.3	11.30	37.5	10.50	33.3	9.71	30.6	9.19	23.6	7.69
	8.6	7.5	51.4	13.44	44.4	11.56	40.3	10.47	37.5	9.76	33.3	9.07	30.6	8.61	23.6	7.26
	11.2	10.0	51.4	11.67	44.4	10.12	40.3	9.21	37.5	8.61	33.3	8.07	30.6	7.70	23.6	6.59
	16.4	15.0	51.4	8.59	44.4	7.59	40.3	6.97	37.5	6.56	33.3	6.25	30.6	6.03	23.6	5.27
24.0	18.0	51.4	8.55	44.4	7.47	40.3	6.82	37.5	6.39	33.3	5.74	30.6	5.30	23.6	4.30	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	23.0	11.51	20.4	11.08	18.8	10.72	17.7	10.43	15.9	9.92	14.8	9.51	11.7	8.23
	-14.7	-15.0	27.5	12.24	24.4	11.67	22.5	11.24	21.2	10.90	19.2	10.32	17.8	9.88	14.2	8.52
	-9.6	-10.0	32.9	13.33	29.3	12.57	27.0	12.04	25.5	11.64	23.1	10.96	21.4	10.45	17.1	8.94
	-4.4	-5.0	39.4	14.42	35.2	13.63	32.5	13.16	30.6	12.68	27.7	11.83	25.8	11.23	20.6	9.49
	-1.8	-2.5	43.0	15.21	38.3	14.05	35.4	13.40	33.4	13.03	30.0	12.19	27.5	11.41	21.3	9.24
	0.8	0.0	45.8	15.37	40.0	13.63	36.3	12.49	33.8	11.99	30.0	11.14	27.5	10.52	21.3	8.73
	2.8	2.0	46.2	14.26	40.0	12.47	36.3	11.46	33.8	11.04	30.0	10.30	27.5	9.75	21.3	8.21
	6.0	5.0	46.2	12.18	40.0	10.89	36.3	10.12	33.8	9.82	30.0	9.27	27.5	8.81	21.3	7.42
	7.0	6.0	46.2	12.11	40.0	10.61	36.3	9.77	33.8	9.45	30.0	8.88	27.5	8.45	21.3	7.15
	8.6	7.5	46.2	11.13	40.0	9.80	36.3	9.05	33.8	8.79	30.0	8.30	27.5	7.92	21.3	6.75
	11.2	10.0	46.2	9.59	40.0	8.53	36.3	7.93	33.8	7.75	30.0	7.39	27.5	7.09	21.3	6.13
	16.4	15.0	46.2	8.10	40.0	7.08	36.3	6.47	33.8	6.06	30.0	5.71	27.5	5.54	21.3	4.89
24.0	18.0	46.2	8.10	40.0	7.08	36.3	6.47	33.8	6.06	30.0	5.45	27.5	5.05	21.3	4.03	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	22.7	11.56	20.1	11.12	18.5	10.76	17.4	10.48	15.6	9.96	14.5	9.56	11.5	8.29
	-14.7	-15.0	27.2	12.34	24.1	11.75	22.2	11.31	20.9	10.97	18.9	10.38	17.5	9.93	13.9	8.58
	-9.6	-10.0	32.6	13.34	29.0	12.63	26.7	12.14	25.1	11.74	22.7	11.05	21.1	10.53	16.8	9.00
	-4.4	-5.0	40.0	14.82	35.6	13.93	32.2	13.24	30.0	12.68	26.7	11.64	24.4	10.89	18.9	8.94
	-1.8	-2.5	41.1	13.98	35.6	12.61	32.2	12.04	30.0	11.59	26.7	10.83	24.4	10.25	18.9	8.44
	0.8	0.0	41.1	12.47	35.6	11.31	32.2	10.92	30.0	10.58	26.7	9.96	24.4	9.47	18.9	8.01
	2.8	2.0	41.1	11.39	35.6	10.49	32.2	10.16	30.0	9.87	26.7	9.32	24.4	8.88	18.9	7.54
	6.0	5.0	41.1	10.05	35.6	9.31	32.2	9.07	30.0	8.84	26.7	8.38	24.4	7.99	18.9	6.79
	7.0	6.0	41.1	9.84	35.6	8.99	32.2	8.71	30.0	8.47	26.7	8.02	24.4	7.67	18.9	6.56
	8.6	7.5	41.1	9.00	35.6	8.28	32.2	8.08	30.0	7.88	26.7	7.51	24.4	7.19	18.9	6.20
	11.2	10.0	41.1	7.68	35.6	7.17	32.2	7.08	30.0	6.96	26.7	6.69	24.4	6.45	18.9	5.64
	16.4	15.0	41.1	7.58	35.6	6.64	32.2	6.07	30.0	5.69	26.7	5.15	24.4	5.02	18.9	4.49
24.0	18.0	41.1	7.58	35.6	6.64	32.2	6.07	30.0	5.69	26.7	5.13	24.4	4.75	18.9	3.80	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	22.8	11.84	20.1	11.37	18.5	11.00	17.3	10.71	15.6	10.19	14.4	9.77	11.4	8.49
	-14.7	-15.0	27.4	12.68	24.2	12.05	22.2	11.59	20.9	11.23	18.9	10.63	17.4	10.17	13.8	8.78
	-9.6	-10.0	32.9	13.56	29.1	13.10	26.8	12.48	25.2	12.05	22.7	11.33	21.1	10.80	16.5	9.12
	-4.4	-5.0	36.0	12.43	31.1	11.95	28.2	11.50	26.3	11.13	23.3	10.43	21.4	9.82	16.5	8.10
	-1.8	-2.5	36.0	11.30	31.1	10.97	28.2	10.60	26.3	10.27	23.3	9.68	21.4	9.22	16.5	7.73
	0.8	0.0	36.0	10.23	31.1	10.01	28.2	9.71	26.3	9.44	23.3	8.93	21.4	8.52	16.5	7.26
	2.8	2.0	36.0	9.39	31.1	9.27	28.2	9.03	26.3	8.80	23.3	8.35	21.4	7.98	16.5	6.83
	6.0	5.0	36.0	8.21	31.1	8.20	28.2	8.03	26.3	7.84	23.3	7.46	21.4	7.15	16.5	6.12
	7.0	6.0	36.0	7.88	31.1	7.82	28.2	7.65	26.3	7.49	23.3	7.14	21.4	6.86	16.5	5.94
	8.6	7.5	36.0	7.16	31.1	7.21	28.2	7.10	26.3	6.97	23.3	6.69	21.4	6.44	16.5	5.62
	11.2	10.0	36.0	6.99	31.1	6.25	28.2	6.23	26.3	6.17	23.3	5.98	21.4	5.79	16.5	5.11
	16.4	15.0	36.0	6.99	31.1	6.13	28.2	5.61	26.3	5.27	23.3	4.75	21.4	4.49	16.5	4.06
24.0	18.0	36.0	6.99	31.1	6.13	28.2	5.61	26.3	5.27	23.3	4.75	21.4	4.40	16.5	3.54	

## 1. Capacity Ratio of Outdoor Unit

## U-12MF3E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	23.5	12.10	20.7	11.61	19.0	11.23	17.8	10.93	16.0	10.40	14.8	9.99	11.7	8.68
	-14.7	-15.0	28.3	13.05	24.9	12.40	22.9	11.92	21.5	11.55	19.4	10.93	17.9	10.45	14.1	9.02
	-9.6	-10.0	30.8	12.43	26.7	11.92	24.2	11.25	22.5	10.77	20.0	10.00	18.3	9.45	14.2	7.92
	-4.4	-5.0	30.8	10.51	26.7	10.20	24.2	9.86	22.5	9.56	20.0	9.01	18.3	8.55	14.2	7.07
	-1.8	-2.5	30.8	9.55	26.7	9.35	24.2	9.07	22.5	8.82	20.0	8.34	18.3	7.96	14.2	6.76
	0.8	0.0	30.8	8.62	26.7	8.51	24.2	8.30	22.5	8.10	20.0	7.69	18.3	7.36	14.2	6.31
	2.8	2.0	30.8	7.91	26.7	7.87	24.2	7.71	22.5	7.54	20.0	7.19	18.3	6.89	14.2	5.93
	6.0	5.0	30.8	6.85	26.7	6.88	24.2	6.77	22.5	6.64	20.0	6.36	18.3	6.13	14.2	5.30
	7.0	6.0	30.8	6.45	26.7	6.53	24.2	6.45	22.5	6.34	20.0	6.10	18.3	5.89	14.2	5.16
	8.6	7.5	30.8	6.17	26.7	6.02	24.2	5.99	22.5	5.91	20.0	5.72	18.3	5.53	14.2	4.88
	11.2	10.0	30.8	6.17	26.7	5.42	24.2	5.26	22.5	5.24	20.0	5.12	18.3	4.98	14.2	4.45
	16.4	15.0	30.8	6.17	26.7	5.42	24.2	4.97	22.5	4.67	20.0	4.22	18.3	3.92	14.2	3.53
24.0	18.0	30.8	6.17	26.7	5.42	24.2	4.97	22.5	4.67	20.0	4.22	18.3	3.92	14.2	3.17	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	25.1	12.57	22.1	12.04	20.1	11.60	18.8	11.21	16.7	10.55	15.3	10.06	11.8	8.59
	-14.7	-15.0	25.7	11.60	22.2	10.76	20.1	10.23	18.8	9.84	16.7	9.21	15.3	8.75	11.8	7.43
	-9.6	-10.0	25.7	10.03	22.2	9.68	20.1	9.25	18.8	8.83	16.7	8.21	15.3	7.77	11.8	6.54
	-4.4	-5.0	25.7	8.45	22.2	8.26	20.1	8.01	18.8	7.79	16.7	7.37	15.3	7.03	11.8	5.86
	-1.8	-2.5	25.7	7.67	22.2	7.56	20.1	7.37	18.8	7.18	16.7	6.82	15.3	6.53	11.8	5.60
	0.8	0.0	25.7	6.91	22.2	6.88	20.1	6.74	18.8	6.59	16.7	6.29	15.3	6.03	11.8	5.20
	2.8	2.0	25.7	6.32	22.2	6.31	20.1	6.20	18.8	6.08	16.7	5.82	15.3	5.60	11.8	4.87
	6.0	5.0	25.7	5.32	22.2	5.44	20.1	5.40	18.8	5.33	16.7	5.15	15.3	4.98	11.8	4.38
	7.0	6.0	25.7	5.17	22.2	5.16	20.1	5.15	18.8	5.10	16.7	4.94	15.3	4.79	11.8	4.25
	8.6	7.5	25.7	5.17	22.2	4.76	20.1	4.79	18.8	4.76	16.7	4.64	15.3	4.51	11.8	4.03
	11.2	10.0	25.7	5.17	22.2	4.55	20.1	4.22	18.8	4.22	16.7	4.16	15.3	4.07	11.8	3.68
	16.4	15.0	25.7	5.17	22.2	4.55	20.1	4.18	18.8	3.94	16.7	3.57	15.3	3.32	11.8	2.92
24.0	18.0	25.7	5.17	22.2	4.55	20.1	4.18	18.8	3.94	16.7	3.57	15.3	3.32	11.8	2.70	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	20.6	9.37	17.8	8.85	16.1	8.48	15.0	8.20	13.3	7.74	12.2	7.38	9.4	6.34
	-14.7	-15.0	20.6	8.45	17.8	7.88	16.1	7.50	15.0	7.23	13.3	6.77	12.2	6.44	9.4	5.50
	-9.6	-10.0	20.6	7.27	17.8	7.05	16.1	6.80	15.0	6.50	13.3	6.06	12.2	5.74	9.4	4.86
	-4.4	-5.0	20.6	6.11	17.8	6.01	16.1	5.85	15.0	5.71	13.3	5.42	12.2	5.19	9.4	4.37
	-1.8	-2.5	20.6	5.54	17.8	5.49	16.1	5.36	15.0	5.24	13.3	4.99	12.2	4.79	9.4	4.15
	0.8	0.0	20.6	4.90	17.8	4.92	16.1	4.84	15.0	4.75	13.3	4.56	12.2	4.40	9.4	3.84
	2.8	2.0	20.6	4.41	17.8	4.49	16.1	4.45	15.0	4.38	13.3	4.23	12.2	4.09	9.4	3.61
	6.0	5.0	20.6	3.89	17.8	3.88	16.1	3.89	15.0	3.86	13.3	3.76	12.2	3.66	9.4	3.27
	7.0	6.0	20.6	3.89	17.8	3.69	16.1	3.71	15.0	3.69	13.3	3.61	12.2	3.52	9.4	3.16
	8.6	7.5	20.6	3.89	17.8	3.44	16.1	3.46	15.0	3.46	13.3	3.40	12.2	3.32	9.4	3.01
	11.2	10.0	20.6	3.89	17.8	3.44	16.1	3.17	15.0	3.08	13.3	3.06	12.2	3.01	9.4	2.76
	16.4	15.0	20.6	3.89	17.8	3.44	16.1	3.17	15.0	2.99	13.3	2.72	12.2	2.54	9.4	2.19
24.0	18.0	20.6	3.89	17.8	3.44	16.1	3.17	15.0	2.99	13.3	2.72	12.2	2.54	9.4	2.09	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	15.4	6.38	13.3	6.03	12.1	5.79	11.3	5.61	10.0	5.30	9.2	5.07	7.1	4.38
	-14.7	-15.0	15.4	5.74	13.3	5.40	12.1	5.15	11.3	4.96	10.0	4.67	9.2	4.45	7.1	3.82
	-9.6	-10.0	15.4	4.92	13.3	4.81	12.1	4.66	11.3	4.50	10.0	4.19	9.2	3.98	7.1	3.39
	-4.4	-5.0	15.4	4.07	13.3	4.04	12.1	3.96	11.3	3.87	10.0	3.70	9.2	3.56	7.1	3.05
	-1.8	-2.5	15.4	3.64	13.3	3.66	12.1	3.61	11.3	3.54	10.0	3.41	9.2	3.29	7.1	2.89
	0.8	0.0	15.4	3.23	13.3	3.29	12.1	3.27	11.3	3.23	10.0	3.12	9.2	3.03	7.1	2.68
	2.8	2.0	15.4	2.91	13.3	3.01	12.1	3.01	11.3	2.98	10.0	2.90	9.2	2.82	7.1	2.53
	6.0	5.0	15.4	2.77	13.3	2.62	12.1	2.65	11.3	2.64	10.0	2.60	9.2	2.54	7.1	2.30
	7.0	6.0	15.4	2.77	13.3	2.49	12.1	2.53	11.3	2.54	10.0	2.50	9.2	2.45	7.1	2.23
	8.6	7.5	15.4	2.77	13.3	2.46	12.1	2.37	11.3	2.38	10.0	2.36	9.2	2.32	7.1	2.13
	11.2	10.0	15.4	2.77	13.3	2.46	12.1	2.28	11.3	2.16	10.0	2.13	9.2	2.11	7.1	1.96
	16.4	15.0	15.4	2.77	13.3	2.46	12.1	2.28	11.3	2.16	10.0	1.97	9.2	1.85	7.1	1.58
24.0	18.0	15.4	2.77	13.3	2.46	12.1	2.28	11.3	2.16	10.0	1.97	9.2	1.85	7.1	1.55	

# 1. Capacity Ratio of Outdoor Unit

## 1-17. U-14MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	26.7	3.73	30.3	4.23	36.4	5.08	40.0	5.58	41.3	5.77	44.7	6.23	48.0	6.70
	-5.0	26.7	3.74	30.3	4.24	36.4	5.09	40.0	5.59	41.3	5.78	44.7	6.24	48.0	6.71
	0.0	26.7	3.76	30.3	4.26	36.4	5.10	40.0	5.61	41.3	5.80	44.7	6.26	48.0	6.72
	5.0	26.7	3.79	30.3	4.29	36.4	5.14	40.0	5.64	41.3	5.83	44.7	6.29	48.0	6.75
	10.0	26.7	3.88	30.3	4.38	36.4	5.22	40.0	5.72	41.3	5.90	44.7	6.37	48.0	6.83
	15.0	26.7	4.17	30.3	4.66	36.4	5.47	40.0	5.96	41.3	6.14	44.7	6.60	48.0	7.05
	20.0	26.7	4.46	30.3	4.96	36.4	6.16	40.0	6.98	41.3	7.29	44.7	8.11	48.0	8.98
	25.0	26.7	5.53	30.3	6.40	36.4	8.01	40.0	9.05	41.3	9.44	44.7	10.47	48.0	11.55
	30.0	26.7	6.97	30.3	8.06	36.4	10.03	40.0	11.30	41.3	11.78	44.7	13.02	48.0	14.31
	35.0	26.7	8.52	30.3	9.84	36.4	12.20	40.0	13.71	41.3	14.28	44.7	15.75	48.0	17.29
	40.0	26.7	10.14	30.3	11.71	36.4	14.49	40.0	16.27	41.3	16.94	44.7	18.66	46.5	19.18
	43.0	26.7	11.17	30.3	12.90	36.4	15.96	40.0	17.90	41.3	18.64	43.1	19.18	44.3	19.18
46.0	26.7	12.26	30.3	14.15	33.4	15.15	33.4	14.31	33.4	14.01	33.4	13.29	33.4	12.60	
52.0	12.2	5.34	12.2	5.07	12.2	4.64	12.2	4.41	12.2	4.32	12.2	4.12	12.2	3.93	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	24.0	3.36	27.3	3.82	32.7	4.58	36.0	5.03	37.2	5.20	40.2	5.62	43.2	6.04
	-5.0	24.0	3.37	27.3	3.83	32.7	4.59	36.0	5.04	37.2	5.21	40.2	5.63	43.2	6.05
	0.0	24.0	3.38	27.3	3.84	32.7	4.60	36.0	5.06	37.2	5.22	40.2	5.64	43.2	6.06
	5.0	24.0	3.41	27.3	3.87	32.7	4.63	36.0	5.08	37.2	5.25	40.2	5.67	43.2	6.08
	10.0	24.0	3.49	27.3	3.94	32.7	4.69	36.0	5.14	37.2	5.31	40.2	5.72	43.2	6.14
	15.0	24.0	3.71	27.3	4.14	32.7	4.87	36.0	5.31	37.2	5.47	40.2	5.87	43.2	6.28
	20.0	24.0	4.09	27.3	4.54	32.7	5.31	36.0	5.76	37.2	5.93	40.2	6.35	43.2	6.93
	25.0	24.0	4.65	27.3	5.32	32.7	6.51	36.0	7.27	37.2	7.56	40.2	8.30	43.2	9.07
	30.0	24.0	5.90	27.3	6.75	32.7	8.24	36.0	9.19	37.2	9.54	40.2	10.46	43.2	11.40
	35.0	24.0	7.25	27.3	8.29	32.7	10.10	36.0	11.24	37.2	11.67	40.2	12.76	43.2	13.89
	40.0	24.0	8.65	27.3	9.89	32.7	12.05	36.0	13.40	37.2	13.91	40.2	15.21	43.2	16.54
	43.0	24.0	9.54	27.3	10.91	32.7	13.30	36.0	14.79	37.2	15.35	40.2	16.78	43.2	18.25
46.0	24.0	10.48	27.3	11.99	32.7	14.62	33.4	14.31	33.4	14.01	33.4	13.29	33.4	12.60	
52.0	12.2	5.34	12.2	5.07	12.2	4.64	12.2	4.41	12.2	4.32	12.2	4.12	12.2	3.93	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	21.3	2.99	24.2	3.40	29.1	4.08	32.0	4.48	33.1	4.63	35.7	5.01	38.4	5.38
	-5.0	21.3	3.00	24.2	3.41	29.1	4.08	32.0	4.49	33.1	4.64	35.7	5.01	38.4	5.39
	0.0	21.3	3.01	24.2	3.42	29.1	4.09	32.0	4.50	33.1	4.65	35.7	5.02	38.4	5.40
	5.0	21.3	3.04	24.2	3.44	29.1	4.12	32.0	4.52	33.1	4.67	35.7	5.04	38.4	5.42
	10.0	21.3	3.10	24.2	3.50	29.1	4.17	32.0	4.57	33.1	4.72	35.7	5.08	38.4	5.45
	15.0	21.3	3.27	24.2	3.65	29.1	4.30	32.0	4.69	33.1	4.83	35.7	5.19	38.4	5.55
	20.0	21.3	3.72	24.2	4.13	29.1	4.77	32.0	5.10	33.1	5.23	35.7	5.54	38.4	5.86
	25.0	21.3	3.89	24.2	4.38	29.1	5.23	32.0	5.76	33.1	5.96	35.7	6.47	38.4	7.00
	30.0	21.3	4.95	24.2	5.59	29.1	6.69	32.0	7.37	33.1	7.63	35.7	8.27	38.4	8.93
	35.0	21.3	6.11	24.2	6.91	29.1	8.27	32.0	9.10	33.1	9.41	35.7	10.20	38.4	11.01
	40.0	21.3	7.31	24.2	8.27	29.1	9.90	32.0	10.91	33.1	11.28	35.7	12.23	38.4	13.19
	43.0	21.3	8.07	24.2	9.13	29.1	10.95	32.0	12.07	33.1	12.48	35.7	13.53	38.4	14.60
46.0	21.3	8.87	24.2	10.05	29.1	12.06	32.0	13.29	33.1	13.75	33.4	13.29	33.4	12.60	
52.0	12.2	5.34	12.2	5.07	12.2	4.64	12.2	4.41	12.2	4.32	12.2	4.12	12.2	3.93	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	18.7	2.47	21.2	2.80	25.5	3.36	28.0	3.70	28.9	3.83	31.3	4.13	33.6	4.44
	-5.0	18.7	2.48	21.2	2.81	25.5	3.37	28.0	3.71	28.9	3.83	31.3	4.14	33.6	4.45
	0.0	18.7	2.49	21.2	2.82	25.5	3.38	28.0	3.72	28.9	3.84	31.3	4.15	33.6	4.46
	5.0	18.7	2.51	21.2	2.84	25.5	3.40	28.0	3.73	28.9	3.85	31.3	4.16	33.6	4.47
	10.0	18.7	2.56	21.2	2.89	25.5	3.43	28.0	3.76	28.9	3.89	31.3	4.19	33.6	4.50
	15.0	18.7	2.69	21.2	3.00	25.5	3.53	28.0	3.85	28.9	3.97	31.3	4.26	33.6	4.56
	20.0	18.7	3.16	21.2	3.40	25.5	3.83	28.0	4.10	28.9	4.21	31.3	4.47	33.6	4.75
	25.0	18.7	3.19	21.2	3.53	25.5	4.09	28.0	4.43	28.9	4.55	31.3	4.86	33.6	5.17
	30.0	18.7	3.88	21.2	4.31	25.5	5.04	28.0	5.49	28.9	5.65	31.3	6.06	33.6	6.47
	35.0	18.7	4.80	21.2	5.36	25.5	6.29	28.0	6.84	28.9	7.05	31.3	7.57	33.6	8.08
	40.0	18.7	5.75	21.2	6.43	25.5	7.56	28.0	8.25	28.9	8.50	31.3	9.12	33.6	9.75
	43.0	18.7	6.35	21.2	7.11	25.5	8.38	28.0	9.14	28.9	9.42	31.3	10.12	33.6	10.82
46.0	18.7	6.98	21.2	7.83	25.5	9.24	28.0	10.09	28.9	10.40	31.3	11.18	33.6	11.97	
52.0	12.2	5.03	12.2	4.77	12.2	4.37	12.2	4.15	12.2	4.07	12.2	3.88	12.2	3.70	

## 1. Capacity Ratio of Outdoor Unit

## U-14MF3E8 (Cooling)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	16.0	1.89	18.2	2.14	21.8	2.57	24.0	2.83	24.8	2.92	26.8	3.16	28.8	3.39
	-5.0	16.0	1.89	18.2	2.15	21.8	2.58	24.0	2.83	24.8	2.93	26.8	3.16	28.8	3.40
	0.0	16.0	1.90	18.2	2.16	21.8	2.58	24.0	2.84	24.8	2.93	26.8	3.17	28.8	3.40
	5.0	16.0	1.92	18.2	2.17	21.8	2.60	24.0	2.85	24.8	2.95	26.8	3.18	28.8	3.41
	10.0	16.0	1.95	18.2	2.20	21.8	2.62	24.0	2.88	24.8	2.97	26.8	3.20	28.8	3.43
	15.0	16.0	2.05	18.2	2.28	21.8	2.69	24.0	2.93	24.8	3.02	26.8	3.25	28.8	3.48
	20.0	16.0	2.36	18.2	2.54	21.8	2.87	24.0	3.09	24.8	3.17	26.8	3.37	28.8	3.58
	25.0	16.0	2.53	18.2	2.79	21.8	3.22	24.0	3.48	24.8	3.57	26.8	3.81	28.8	3.97
	30.0	16.0	2.84	18.2	3.11	21.8	3.55	24.0	3.80	24.8	3.90	26.8	4.13	28.8	4.35
	35.0	16.0	3.52	18.2	3.88	21.8	4.45	24.0	4.78	24.8	4.91	26.8	5.20	28.8	5.50
	40.0	16.0	4.22	18.2	4.66	21.8	5.38	24.0	5.80	24.8	5.95	26.8	6.32	28.8	6.69
	43.0	16.0	4.66	18.2	5.15	21.8	5.96	24.0	6.44	24.8	6.61	26.8	7.03	28.8	7.45
46.0	16.0	5.12	18.2	5.67	21.8	6.58	24.0	7.11	24.8	7.30	26.8	7.78	28.8	8.25	
52.0	12.2	4.48	12.2	4.25	12.2	3.89	12.2	3.69	12.2	3.63	12.2	3.45	12.2	3.29	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	13.3	1.42	15.2	1.61	18.2	1.93	20.0	2.13	20.7	2.20	22.3	2.37	24.0	2.55
	-5.0	13.3	1.42	15.2	1.62	18.2	1.94	20.0	2.13	20.7	2.20	22.3	2.38	24.0	2.55
	0.0	13.3	1.43	15.2	1.62	18.2	1.94	20.0	2.14	20.7	2.21	22.3	2.38	24.0	2.56
	5.0	13.3	1.45	15.2	1.63	18.2	1.95	20.0	2.14	20.7	2.21	22.3	2.39	24.0	2.56
	10.0	13.3	1.47	15.2	1.66	18.2	1.97	20.0	2.16	20.7	2.23	22.3	2.40	24.0	2.58
	15.0	13.3	1.54	15.2	1.72	18.2	2.02	20.0	2.20	20.7	2.27	22.3	2.44	24.0	2.61
	20.0	13.3	1.75	15.2	1.89	18.2	2.14	20.0	2.30	20.7	2.36	22.3	2.52	24.0	2.67
	25.0	13.3	2.00	15.2	2.20	18.2	2.52	20.0	2.66	20.7	2.68	22.3	2.77	24.0	2.88
	30.0	13.3	2.08	15.2	2.24	18.2	2.55	20.0	2.74	20.7	2.82	22.3	2.99	24.0	3.17
	35.0	13.3	2.58	15.2	2.79	18.2	3.13	20.0	3.32	20.7	3.38	22.3	3.55	24.0	3.70
	40.0	13.3	3.08	15.2	3.36	18.2	3.79	20.0	4.04	20.7	4.12	22.3	4.33	24.0	4.54
	43.0	13.3	3.40	15.2	3.71	18.2	4.21	20.0	4.49	20.7	4.59	22.3	4.83	24.0	5.07
46.0	13.3	3.73	15.2	4.08	18.2	4.64	20.0	4.96	20.7	5.08	22.3	5.36	24.0	5.62	
52.0	12.2	4.03	12.2	3.83	12.2	3.51	12.2	3.33	12.2	3.26	12.2	3.11	12.2	2.96	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	10.7	1.04	12.1	1.19	14.5	1.42	16.0	1.56	16.5	1.61	17.9	1.74	19.2	1.87
	-5.0	10.7	1.05	12.1	1.19	14.5	1.42	16.0	1.56	16.5	1.62	17.9	1.74	19.2	1.87
	0.0	10.7	1.05	12.1	1.19	14.5	1.43	16.0	1.57	16.5	1.62	17.9	1.75	19.2	1.88
	5.0	10.7	1.06	12.1	1.20	14.5	1.43	16.0	1.57	16.5	1.63	17.9	1.75	19.2	1.88
	10.0	10.7	1.09	12.1	1.22	14.5	1.45	16.0	1.59	16.5	1.64	17.9	1.76	19.2	1.89
	15.0	10.7	1.14	12.1	1.26	14.5	1.48	16.0	1.61	16.5	1.66	17.9	1.79	19.2	1.91
	20.0	10.7	1.29	12.1	1.38	14.5	1.56	16.0	1.68	16.5	1.73	17.9	1.84	19.2	1.95
	25.0	10.7	1.58	12.1	1.72	14.5	1.84	16.0	1.89	16.5	1.92	17.9	1.99	19.2	2.08
	30.0	10.7	1.61	12.1	1.75	14.5	1.99	16.0	2.13	16.5	2.18	17.9	2.31	19.2	2.44
	35.0	10.7	1.88	12.1	2.01	14.5	2.19	16.0	2.29	16.5	2.32	17.9	2.40	19.2	2.48
	40.0	10.7	2.24	12.1	2.40	14.5	2.65	16.0	2.79	16.5	2.83	17.9	2.94	19.2	3.04
	43.0	10.7	2.46	12.1	2.65	14.5	2.94	16.0	3.10	16.5	3.16	17.9	3.29	19.2	3.41
46.0	10.7	2.69	12.1	2.91	14.5	3.25	16.0	3.43	16.5	3.49	17.9	3.64	19.2	3.79	
52.0	10.7	3.20	12.1	3.48	12.2	3.21	12.2	3.05	12.2	2.99	12.2	2.85	12.2	2.71	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	8.0	0.74	9.1	0.83	10.9	1.00	12.0	1.10	12.4	1.13	13.4	1.22	14.4	1.32
	-5.0	8.0	0.74	9.1	0.84	10.9	1.00	12.0	1.10	12.4	1.14	13.4	1.23	14.4	1.32
	0.0	8.0	0.74	9.1	0.84	10.9	1.01	12.0	1.10	12.4	1.14	13.4	1.23	14.4	1.32
	5.0	8.0	0.75	9.1	0.85	10.9	1.01	12.0	1.11	12.4	1.15	13.4	1.23	14.4	1.32
	10.0	8.0	0.77	9.1	0.86	10.9	1.02	12.0	1.12	12.4	1.15	13.4	1.24	14.4	1.33
	15.0	8.0	0.81	9.1	0.90	10.9	1.05	12.0	1.14	12.4	1.17	13.4	1.26	14.4	1.35
	20.0	8.0	0.92	9.1	0.98	10.9	1.11	12.0	1.19	12.4	1.22	13.4	1.30	14.4	1.38
	25.0	8.0	1.24	9.1	1.29	10.9	1.29	12.0	1.32	12.4	1.34	13.4	1.39	14.4	1.45
	30.0	8.0	1.26	9.1	1.36	10.9	1.53	12.0	1.63	12.4	1.66	13.4	1.75	14.4	1.72
	35.0	8.0	1.38	9.1	1.45	10.9	1.56	12.0	1.66	12.4	1.69	13.4	1.79	14.4	1.87
	40.0	8.0	1.62	9.1	1.71	10.9	1.84	12.0	1.91	12.4	1.93	13.4	1.98	14.4	2.02
	43.0	8.0	1.77	9.1	1.88	10.9	2.04	12.0	2.12	12.4	2.14	13.4	2.20	14.4	2.26
46.0	8.0	1.93	9.1	2.06	10.9	2.24	12.0	2.33	12.4	2.37	13.4	2.44	14.4	2.50	
52.0	8.0	2.27	9.1	2.43	10.9	2.67	12.0	2.80	12.4	2.85	12.2	2.67	12.2	2.54	

# 1. Capacity Ratio of Outdoor Unit

## 1-18. U-14MF3E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	27.4	14.14	24.4	13.64	22.6	13.20	21.3	12.86	19.3	12.21	17.9	11.70	14.3	10.10
	-14.7	-15.0	32.6	14.95	29.1	14.29	26.9	13.78	25.4	13.37	23.1	12.67	21.5	12.12	17.2	10.46
	-9.6	-10.0	38.7	16.10	34.7	15.28	32.2	14.67	30.4	14.20	27.7	13.39	25.8	12.78	20.8	10.95
	-4.4	-5.0	45.3	17.26	40.7	16.33	37.8	15.54	35.7	14.99	32.5	14.07	30.3	13.37	24.4	11.35
	-1.8	-2.5	49.5	18.25	44.4	16.92	41.2	16.19	39.0	15.66	35.5	14.54	33.1	13.84	26.6	11.69
	0.8	0.0	53.3	18.90	48.4	17.75	44.9	16.66	42.4	15.98	38.6	15.11	36.0	14.41	28.3	11.73
	2.8	2.0	55.8	18.90	51.2	18.10	47.6	16.97	45.0	16.15	40.0	14.61	36.7	13.69	28.3	11.18
	6.0	5.0	59.9	18.90	53.3	17.03	48.3	15.29	45.0	14.16	40.0	12.89	36.7	12.11	28.3	10.00
	7.0	6.0	61.4	18.90	53.3	16.23	48.3	14.58	45.0	13.50	40.0	12.31	36.7	11.60	28.3	9.63
	8.6	7.5	61.7	17.67	53.3	15.03	48.3	13.53	45.0	12.55	40.0	11.49	36.7	10.87	28.3	9.09
	11.2	10.0	61.7	15.35	53.3	13.15	48.3	11.89	45.0	11.07	40.0	10.21	36.7	9.71	28.3	8.23
16.4	15.0	61.7	11.33	53.3	9.88	48.3	9.02	45.0	8.45	40.0	7.91	36.7	7.61	28.3	6.59	
24.0	18.0	61.7	10.52	53.3	9.18	48.3	8.38	45.0	7.85	40.0	7.04	36.7	6.51	28.3	5.42	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	26.7	13.92	23.7	13.41	21.9	12.99	20.6	12.65	18.6	12.03	17.3	11.54	13.8	9.99
	-14.7	-15.0	31.8	14.76	28.3	14.09	26.2	13.59	24.7	13.19	22.3	12.50	20.8	11.97	16.6	10.33
	-9.6	-10.0	37.9	16.04	33.9	15.13	31.3	14.51	29.6	14.05	26.9	13.24	25.0	12.64	20.0	10.83
	-4.4	-5.0	45.5	17.32	40.7	16.50	37.6	15.88	35.5	15.22	32.3	14.28	30.0	13.57	24.1	11.50
	-1.8	-2.5	49.6	18.27	44.3	16.94	41.0	16.27	38.7	15.81	35.2	14.88	32.7	14.05	25.5	11.49
	0.8	0.0	54.0	19.24	48.0	17.54	43.5	15.91	40.5	15.19	36.0	14.05	33.0	13.22	25.5	10.88
	2.8	2.0	55.5	18.54	48.0	16.07	43.5	14.61	40.5	13.98	36.0	12.99	33.0	12.26	25.5	10.27
	6.0	5.0	55.5	15.98	48.0	14.01	43.5	12.89	40.5	12.46	36.0	11.71	33.0	11.09	25.5	9.27
	7.0	6.0	55.5	15.86	48.0	13.74	43.5	12.50	40.5	12.01	36.0	11.22	33.0	10.63	25.5	8.93
	8.6	7.5	55.5	14.58	48.0	12.69	43.5	11.57	40.5	11.16	36.0	10.48	33.0	9.96	25.5	8.43
	11.2	10.0	55.5	12.58	48.0	11.05	43.5	10.13	40.5	9.83	36.0	9.32	33.0	8.91	25.5	7.64
16.4	15.0	55.5	9.97	48.0	8.71	43.5	7.95	40.5	7.46	36.0	7.21	33.0	6.97	25.5	6.11	
24.0	18.0	55.5	9.97	48.0	8.71	43.5	7.95	40.5	7.45	36.0	6.69	33.0	6.19	25.5	4.99	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	26.1	13.64	23.1	13.15	21.3	12.75	20.0	12.42	18.1	11.83	16.7	11.36	13.3	9.87
	-14.7	-15.0	31.2	14.70	27.7	14.01	25.5	13.50	24.1	13.10	21.8	12.41	20.2	11.88	16.1	10.27
	-9.6	-10.0	37.3	15.91	33.2	15.10	30.7	14.47	28.9	13.99	26.2	13.18	24.3	12.58	19.4	10.77
	-4.4	-5.0	45.8	17.50	40.8	16.68	37.7	16.16	35.5	15.65	32.0	14.50	29.3	13.57	22.7	11.10
	-1.8	-2.5	49.3	18.01	42.7	15.99	38.7	15.20	36.0	14.60	32.0	13.59	29.3	12.81	22.7	10.48
	0.8	0.0	49.3	16.09	42.7	14.37	38.7	13.76	36.0	13.30	32.0	12.48	29.3	11.85	22.7	9.96
	2.8	2.0	49.3	14.62	42.7	13.27	38.7	12.82	36.0	12.42	32.0	11.69	29.3	11.12	22.7	9.39
	6.0	5.0	49.3	12.96	42.7	11.81	38.7	11.47	36.0	11.15	32.0	10.54	29.3	10.03	22.7	8.48
	7.0	6.0	49.3	12.84	42.7	11.49	38.7	11.07	36.0	10.72	32.0	10.10	29.3	9.62	22.7	8.17
	8.6	7.5	49.3	11.75	42.7	10.58	38.7	10.25	36.0	9.97	32.0	9.44	29.3	9.02	22.7	7.72
	11.2	10.0	49.3	10.04	42.7	9.16	38.7	8.98	36.0	8.80	32.0	8.41	29.3	8.08	22.7	7.01
16.4	15.0	49.3	9.32	42.7	8.15	38.7	7.45	36.0	6.99	32.0	6.49	29.3	6.31	22.7	5.60	
24.0	18.0	49.3	9.32	42.7	8.15	38.7	7.45	36.0	6.99	32.0	6.29	29.3	5.82	22.7	4.65	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	25.9	13.82	22.9	13.30	21.0	12.88	19.7	12.54	17.8	11.94	16.5	11.47	13.0	9.97
	-14.7	-15.0	31.0	14.86	27.5	14.14	25.3	13.61	23.8	13.20	21.5	12.51	19.9	11.97	15.8	10.35
	-9.6	-10.0	37.2	15.91	33.0	15.34	30.4	14.63	28.6	14.14	25.9	13.31	24.0	12.69	19.1	10.86
	-4.4	-5.0	43.2	15.76	37.3	14.99	33.8	14.38	31.5	13.89	28.0	12.97	25.7	12.14	19.8	10.03
	-1.8	-2.5	43.2	14.24	37.3	13.76	33.8	13.26	31.5	12.84	28.0	12.07	25.7	11.47	19.8	9.53
	0.8	0.0	43.2	12.91	37.3	12.57	33.8	12.17	31.5	11.81	28.0	11.14	25.7	10.61	19.8	9.00
	2.8	2.0	43.2	11.87	37.3	11.65	33.8	11.32	31.5	11.01	28.0	10.42	25.7	9.95	19.8	8.47
	6.0	5.0	43.2	10.40	37.3	10.33	33.8	10.09	31.5	9.85	28.0	9.35	25.7	8.94	19.8	7.62
	7.0	6.0	43.2	10.13	37.3	9.94	33.8	9.67	31.5	9.43	28.0	8.96	25.7	8.58	19.8	7.38
	8.6	7.5	43.2	9.20	37.3	9.16	33.8	8.97	31.5	8.77	28.0	8.38	25.7	8.05	19.8	6.98
	11.2	10.0	43.2	8.59	37.3	7.93	33.8	7.87	31.5	7.75	28.0	7.48	25.7	7.23	19.8	6.34
16.4	15.0	43.2	8.59	37.3	7.52	33.8	6.89	31.5	6.46	28.0	5.82	25.7	5.62	19.8	5.05	
24.0	18.0	43.2	8.59	37.3	7.52	33.8	6.89	31.5	6.46	28.0	5.82	25.7	5.40	19.8	4.33	

## 1. Capacity Ratio of Outdoor Unit

## U-14MF3E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	26.3	14.00	23.2	13.45	21.2	13.02	19.9	12.68	17.9	12.06	16.6	11.58	13.1	10.07
	-14.7	-15.0	31.5	15.00	27.9	14.28	25.6	13.74	24.1	13.33	21.7	12.62	20.1	12.08	15.9	10.45
	-9.6	-10.0	37.0	15.50	32.0	14.80	29.0	13.86	27.0	13.34	24.0	12.38	22.0	11.69	17.0	9.78
	-4.4	-5.0	37.0	13.13	32.0	12.71	29.0	12.26	27.0	11.88	24.0	11.18	22.0	10.57	17.0	8.73
	-1.8	-2.5	37.0	11.95	32.0	11.66	29.0	11.29	27.0	10.96	24.0	10.36	22.0	9.88	17.0	8.33
	0.8	0.0	37.0	10.80	32.0	10.62	29.0	10.34	27.0	10.07	24.0	9.55	22.0	9.13	17.0	7.81
	2.8	2.0	37.0	9.92	32.0	9.83	29.0	9.61	27.0	9.38	24.0	8.93	22.0	8.55	17.0	7.34
	6.0	5.0	37.0	8.65	32.0	8.69	29.0	8.51	27.0	8.33	24.0	7.95	22.0	7.64	17.0	6.57
	7.0	6.0	37.0	8.23	32.0	8.25	29.0	8.11	27.0	7.95	24.0	7.62	22.0	7.33	17.0	6.39
	8.6	7.5	37.0	7.58	32.0	7.60	29.0	7.52	27.0	7.41	24.0	7.14	22.0	6.89	17.0	6.05
	11.2	10.0	37.0	7.58	32.0	6.65	29.0	6.60	27.0	6.55	24.0	6.38	22.0	6.20	17.0	5.51
	16.4	15.0	37.0	7.58	32.0	6.65	29.0	6.10	27.0	5.73	24.0	5.17	22.0	4.80	17.0	4.38
24.0	18.0	37.0	7.58	32.0	6.65	29.0	6.10	27.0	5.73	24.0	5.17	22.0	4.80	17.0	3.87	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	27.6	14.30	24.3	13.71	22.3	13.26	20.9	12.91	18.8	12.28	17.3	11.78	13.7	10.23
	-14.7	-15.0	30.8	14.34	26.7	13.31	24.2	12.65	22.5	12.17	20.0	11.38	18.3	10.81	14.2	9.16
	-9.6	-10.0	30.8	12.46	26.7	12.00	24.2	11.42	22.5	10.91	20.0	10.14	18.3	9.59	14.2	8.06
	-4.4	-5.0	30.8	10.51	26.7	10.25	24.2	9.93	22.5	9.65	20.0	9.12	18.3	8.68	14.2	7.21
	-1.8	-2.5	30.8	9.54	26.7	9.39	24.2	9.13	22.5	8.89	20.0	8.44	18.3	8.07	14.2	6.89
	0.8	0.0	30.8	8.60	26.7	8.54	24.2	8.35	22.5	8.16	20.0	7.78	18.3	7.46	14.2	6.43
	2.8	2.0	30.8	7.89	26.7	7.90	24.2	7.76	22.5	7.59	20.0	7.25	18.3	6.96	14.2	6.02
	6.0	5.0	30.8	6.73	26.7	6.83	24.2	6.76	22.5	6.65	20.0	6.41	18.3	6.19	14.2	5.40
	7.0	6.0	30.8	6.34	26.7	6.48	24.2	6.44	22.5	6.36	20.0	6.15	18.3	5.95	14.2	5.25
	8.6	7.5	30.8	6.34	26.7	5.98	24.2	5.98	22.5	5.93	20.0	5.77	18.3	5.60	14.2	4.98
	11.2	10.0	30.8	6.34	26.7	5.58	24.2	5.27	22.5	5.26	20.0	5.17	18.3	5.04	14.2	4.54
	16.4	15.0	30.8	6.34	26.7	5.58	24.2	5.12	22.5	4.82	20.0	4.36	18.3	4.06	14.2	3.61
24.0	18.0	30.8	6.34	26.7	5.58	24.2	5.12	22.5	4.82	20.0	4.36	18.3	4.06	14.2	3.30	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	24.7	11.58	21.3	10.93	19.3	10.47	18.0	10.12	16.0	9.55	14.7	9.11	11.3	7.80
	-14.7	-15.0	24.7	10.45	21.3	9.73	19.3	9.25	18.0	8.91	16.0	8.35	14.7	7.94	11.3	6.77
	-9.6	-10.0	24.7	9.00	21.3	8.72	19.3	8.39	18.0	7.99	16.0	7.46	14.7	7.07	11.3	5.97
	-4.4	-5.0	24.7	7.57	21.3	7.44	19.3	7.23	18.0	7.04	16.0	6.69	14.7	6.39	11.3	5.37
	-1.8	-2.5	24.7	6.86	21.3	6.80	19.3	6.65	18.0	6.50	16.0	6.19	14.7	5.94	11.3	5.12
	0.8	0.0	24.7	6.16	21.3	6.15	19.3	6.03	18.0	5.91	16.0	5.66	14.7	5.44	11.3	4.74
	2.8	2.0	24.7	5.54	21.3	5.61	19.3	5.54	18.0	5.45	16.0	5.24	14.7	5.06	11.3	4.44
	6.0	5.0	24.7	4.77	21.3	4.84	19.3	4.83	18.0	4.79	16.0	4.65	14.7	4.52	11.3	4.02
	7.0	6.0	24.7	4.77	21.3	4.60	19.3	4.61	18.0	4.58	16.0	4.47	14.7	4.35	11.3	3.89
	8.6	7.5	24.7	4.77	21.3	4.25	19.3	4.30	18.0	4.28	16.0	4.20	14.7	4.10	11.3	3.70
	11.2	10.0	24.7	4.77	21.3	4.21	19.3	3.88	18.0	3.81	16.0	3.78	14.7	3.71	11.3	3.38
	16.4	15.0	24.7	4.77	21.3	4.21	19.3	3.88	18.0	3.66	16.0	3.32	14.7	3.10	11.3	2.70
24.0	18.0	24.7	4.77	21.3	4.21	19.3	3.88	18.0	3.66	16.0	3.32	14.7	3.10	11.3	2.54	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	18.5	7.87	16.0	7.44	14.5	7.14	13.5	6.91	12.0	6.54	11.0	6.25	8.5	5.39
	-14.7	-15.0	18.5	7.09	16.0	6.65	14.5	6.34	13.5	6.11	12.0	5.74	11.0	5.47	8.5	4.69
	-9.6	-10.0	18.5	6.08	16.0	5.93	14.5	5.74	13.5	5.54	12.0	5.15	11.0	4.89	8.5	4.16
	-4.4	-5.0	18.5	5.07	16.0	5.02	14.5	4.90	13.5	4.79	12.0	4.57	11.0	4.39	8.5	3.73
	-1.8	-2.5	18.5	4.54	16.0	4.54	14.5	4.47	13.5	4.39	12.0	4.21	11.0	4.05	8.5	3.55
	0.8	0.0	18.5	4.02	16.0	4.09	14.5	4.05	13.5	3.99	12.0	3.85	11.0	3.73	8.5	3.30
	2.8	2.0	18.5	3.62	16.0	3.73	14.5	3.72	13.5	3.69	12.0	3.58	11.0	3.48	8.5	3.10
	6.0	5.0	18.5	3.38	16.0	3.24	14.5	3.27	13.5	3.26	12.0	3.20	11.0	3.12	8.5	2.82
	7.0	6.0	18.5	3.38	16.0	3.08	14.5	3.13	13.5	3.13	12.0	3.08	11.0	3.01	8.5	2.74
	8.6	7.5	18.5	3.38	16.0	3.01	14.5	2.92	13.5	2.93	12.0	2.90	11.0	2.85	8.5	2.61
	11.2	10.0	18.5	3.38	16.0	3.01	14.5	2.78	13.5	2.63	12.0	2.62	11.0	2.59	8.5	2.40
	16.4	15.0	18.5	3.38	16.0	3.01	14.5	2.78	13.5	2.63	12.0	2.40	11.0	2.25	8.5	1.93
24.0	18.0	18.5	3.38	16.0	3.01	14.5	2.78	13.5	2.63	12.0	2.40	11.0	2.25	8.5	1.88	

# 1. Capacity Ratio of Outdoor Unit

## 1-19. U-16MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
100%	-10.0	30.0	4.49	34.1	5.10	40.9	6.12	45.0	6.73	46.5	6.96	50.3	7.51	54.0	8.07
	-5.0	30.0	4.50	34.1	5.11	40.9	6.13	45.0	6.74	46.5	6.96	50.3	7.52	54.0	8.08
	0.0	30.0	4.52	34.1	5.13	40.9	6.15	45.0	6.76	46.5	6.98	50.3	7.54	54.0	8.10
	5.0	30.0	4.56	34.1	5.17	40.9	6.18	45.0	6.79	46.5	7.01	50.3	7.57	54.0	8.13
	10.0	30.0	4.66	34.1	5.26	40.9	6.27	45.0	6.87	46.5	7.10	50.3	7.65	54.0	8.21
	15.0	30.0	4.96	34.1	5.55	40.9	6.54	45.0	7.14	46.5	7.36	50.3	7.90	54.0	8.45
	20.0	30.0	5.27	34.1	5.88	40.9	7.32	45.0	8.31	46.5	8.69	50.3	9.68	54.0	10.73
	25.0	30.0	6.56	34.1	7.62	40.9	9.55	45.0	10.80	46.5	11.28	50.3	12.52	54.0	13.82
	30.0	30.0	8.29	34.1	9.61	40.9	11.98	45.0	13.51	46.5	14.09	50.3	15.58	54.0	17.14
	35.0	30.0	10.15	34.1	11.75	40.9	14.59	45.0	16.41	46.5	17.10	50.3	18.87	54.0	20.72
	40.0	30.0	12.11	34.1	14.00	40.9	17.36	45.0	19.49	46.5	20.30	50.3	22.38	52.2	22.96
	43.0	30.0	13.35	34.1	15.43	40.9	19.12	45.0	21.47	46.5	22.36	48.4	22.96	49.7	22.96
46.0	30.0	14.66	34.1	16.95	37.6	18.15	37.6	17.14	37.6	16.78	37.6	15.90	37.6	15.07	
52.0	13.7	6.32	13.7	5.99	13.7	5.48	13.7	5.20	13.7	5.10	13.7	4.85	13.7	4.62	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
90%	-10.0	27.0	4.05	30.7	4.60	36.8	5.52	40.5	6.07	41.9	6.27	45.2	6.77	48.6	7.28
	-5.0	27.0	4.06	30.7	4.61	36.8	5.53	40.5	6.07	41.9	6.28	45.2	6.78	48.6	7.29
	0.0	27.0	4.07	30.7	4.62	36.8	5.54	40.5	6.09	41.9	6.29	45.2	6.80	48.6	7.30
	5.0	27.0	4.11	30.7	4.65	36.8	5.57	40.5	6.12	41.9	6.32	45.2	6.82	48.6	7.33
	10.0	27.0	4.19	30.7	4.73	36.8	5.64	40.5	6.18	41.9	6.38	45.2	6.88	48.6	7.38
	15.0	27.0	4.42	30.7	4.95	36.8	5.83	40.5	6.36	41.9	6.56	45.2	7.05	48.6	7.54
	20.0	27.0	4.83	30.7	5.38	36.8	6.30	40.5	6.85	41.9	7.05	45.2	7.56	48.6	8.26
	25.0	27.0	5.50	30.7	6.31	36.8	7.74	40.5	8.66	41.9	9.01	45.2	9.90	48.6	10.83
	30.0	27.0	7.00	30.7	8.02	36.8	9.83	40.5	10.97	41.9	11.39	45.2	12.49	48.6	13.63
	35.0	27.0	8.62	30.7	9.87	36.8	12.06	40.5	13.43	41.9	13.95	45.2	15.27	48.6	16.63
	40.0	27.0	10.31	30.7	11.81	36.8	14.41	40.5	16.04	41.9	16.66	45.2	18.22	48.6	19.82
	43.0	27.0	11.39	30.7	13.04	36.8	15.91	40.5	17.71	41.9	18.39	45.2	20.11	48.6	21.88
46.0	27.0	12.52	30.7	14.34	36.8	17.50	37.6	17.14	37.6	16.77	37.6	15.90	37.6	15.07	
52.0	13.7	6.32	13.7	5.99	13.7	5.48	13.7	5.20	13.7	5.09	13.7	4.85	13.7	4.61	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
80%	-10.0	24.0	3.60	27.3	4.09	32.7	4.91	36.0	5.40	37.2	5.58	40.2	6.03	43.2	6.49
	-5.0	24.0	3.61	27.3	4.10	32.7	4.92	36.0	5.41	37.2	5.59	40.2	6.04	43.2	6.49
	0.0	24.0	3.63	27.3	4.11	32.7	4.93	36.0	5.42	37.2	5.60	40.2	6.05	43.2	6.50
	5.0	24.0	3.66	27.3	4.14	32.7	4.95	36.0	5.44	37.2	5.62	40.2	6.07	43.2	6.52
	10.0	24.0	3.72	27.3	4.20	32.7	5.01	36.0	5.49	37.2	5.67	40.2	6.12	43.2	6.56
	15.0	24.0	3.90	27.3	4.37	32.7	5.15	36.0	5.62	37.2	5.79	40.2	6.23	43.2	6.67
	20.0	24.0	4.39	27.3	4.88	32.7	5.66	36.0	6.07	37.2	6.22	40.2	6.61	43.2	7.00
	25.0	24.0	4.58	27.3	5.17	32.7	6.20	36.0	6.84	37.2	7.08	40.2	7.70	43.2	8.33
	30.0	24.0	5.86	27.3	6.63	32.7	7.95	36.0	8.78	37.2	9.08	40.2	9.86	43.2	10.66
	35.0	24.0	7.26	27.3	8.21	32.7	9.85	36.0	10.86	37.2	11.23	40.2	12.19	43.2	13.15
	40.0	24.0	8.69	27.3	9.85	32.7	11.82	36.0	13.03	37.2	13.49	40.2	14.63	43.2	15.79
	43.0	24.0	9.61	27.3	10.89	32.7	13.09	36.0	14.43	37.2	14.93	40.2	16.20	43.2	17.48
46.0	24.0	10.57	27.3	11.99	32.7	14.42	36.0	15.91	37.2	16.47	37.6	15.90	37.6	15.07	
52.0	13.7	6.32	13.7	5.99	13.7	5.48	13.7	5.20	13.7	5.09	13.7	4.85	13.7	4.62	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
70%	-10.0	21.0	2.97	23.9	3.38	28.6	4.05	31.5	4.46	32.6	4.61	35.2	4.98	37.8	5.35
	-5.0	21.0	2.98	23.9	3.39	28.6	4.06	31.5	4.47	32.6	4.61	35.2	4.99	37.8	5.36
	0.0	21.0	2.99	23.9	3.40	28.6	4.07	31.5	4.48	32.6	4.62	35.2	5.00	37.8	5.37
	5.0	21.0	3.02	23.9	3.42	28.6	4.09	31.5	4.49	32.6	4.64	35.2	5.01	37.8	5.38
	10.0	21.0	3.07	23.9	3.47	28.6	4.13	31.5	4.53	32.6	4.68	35.2	5.04	37.8	5.41
	15.0	21.0	3.21	23.9	3.59	28.6	4.23	31.5	4.62	32.6	4.76	35.2	5.12	37.8	5.48
	20.0	21.0	3.71	23.9	4.01	28.6	4.55	31.5	4.89	32.6	5.02	35.2	5.35	37.8	5.68
	25.0	21.0	3.75	23.9	4.16	28.6	4.83	31.5	5.24	32.6	5.39	35.2	5.76	37.8	6.13
	30.0	21.0	4.57	23.9	5.09	28.6	5.98	31.5	6.51	32.6	6.71	35.2	7.20	37.8	7.70
	35.0	21.0	5.68	23.9	6.35	28.6	7.47	31.5	8.14	32.6	8.39	35.2	9.01	37.8	9.63
	40.0	21.0	6.82	23.9	7.64	28.6	9.01	31.5	9.83	32.6	10.13	35.2	10.89	37.8	11.65
	43.0	21.0	7.55	23.9	8.46	28.6	9.99	31.5	10.91	32.6	11.25	35.2	12.09	37.8	12.94
46.0	21.0	8.31	23.9	9.33	28.6	11.03	31.5	12.05	32.6	12.43	35.2	13.37	37.8	14.32	
52.0	13.7	5.95	13.7	5.64	13.7	5.16	13.7	4.89	13.7	4.80	13.7	4.57	13.7	4.35	

# 1. Capacity Ratio of Outdoor Unit

## U-16MF3E8 (Cooling)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
60%	-10.0	18.0	2.27	20.5	2.58	24.5	3.10	27.0	3.41	27.9	3.52	30.2	3.81	32.4	4.09
	-5.0	18.0	2.28	20.5	2.59	24.5	3.10	27.0	3.41	27.9	3.53	30.2	3.81	32.4	4.10
	0.0	18.0	2.29	20.5	2.60	24.5	3.11	27.0	3.42	27.9	3.53	30.2	3.82	32.4	4.10
	5.0	18.0	2.31	20.5	2.61	24.5	3.13	27.0	3.43	27.9	3.55	30.2	3.83	32.4	4.11
	10.0	18.0	2.35	20.5	2.65	24.5	3.15	27.0	3.46	27.9	3.57	30.2	3.85	32.4	4.13
	15.0	18.0	2.45	20.5	2.73	24.5	3.22	27.0	3.52	27.9	3.63	30.2	3.90	32.4	4.18
	20.0	18.0	2.78	20.5	3.01	24.5	3.42	27.0	3.69	27.9	3.79	30.2	4.04	32.4	4.29
	25.0	18.0	2.97	20.5	3.28	24.5	3.79	27.0	4.10	27.9	4.22	30.2	4.50	32.4	4.71
	30.0	18.0	3.33	20.5	3.65	24.5	4.18	27.0	4.49	27.9	4.60	30.2	4.88	32.4	5.15
	35.0	18.0	4.15	20.5	4.57	24.5	5.26	27.0	5.67	27.9	5.82	30.2	6.18	32.4	6.53
	40.0	18.0	4.99	20.5	5.52	24.5	6.38	27.0	6.89	27.9	7.07	30.2	7.52	32.4	7.97
43.0	18.0	5.52	20.5	6.12	24.5	7.09	27.0	7.66	27.9	7.87	30.2	8.38	32.4	8.88	
46.0	18.0	6.07	20.5	6.74	24.5	7.84	27.0	8.48	27.9	8.71	30.2	9.28	32.4	9.85	
52.0	13.7	5.30	13.7	5.02	13.7	4.60	13.7	4.36	13.7	4.27	13.7	4.07	13.7	3.87	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
50%	-10.0	15.0	1.71	17.0	1.94	20.5	2.33	22.5	2.56	23.3	2.65	25.1	2.86	27.0	3.07
	-5.0	15.0	1.72	17.0	1.95	20.5	2.33	22.5	2.56	23.3	2.65	25.1	2.86	27.0	3.08
	0.0	15.0	1.72	17.0	1.95	20.5	2.34	22.5	2.57	23.3	2.66	25.1	2.87	27.0	3.08
	5.0	15.0	1.74	17.0	1.97	20.5	2.35	22.5	2.58	23.3	2.67	25.1	2.88	27.0	3.09
	10.0	15.0	1.77	17.0	1.99	20.5	2.37	22.5	2.60	23.3	2.68	25.1	2.89	27.0	3.10
	15.0	15.0	1.84	17.0	2.05	20.5	2.42	22.5	2.64	23.3	2.72	25.1	2.93	27.0	3.13
	20.0	15.0	2.07	17.0	2.24	20.5	2.55	22.5	2.75	23.3	2.82	25.1	3.01	27.0	3.21
	25.0	15.0	2.34	17.0	2.57	20.5	2.96	22.5	3.13	23.3	3.17	25.1	3.29	27.0	3.43
	30.0	15.0	2.42	17.0	2.61	20.5	2.99	22.5	3.22	23.3	3.31	25.1	3.52	27.0	3.74
	35.0	15.0	3.02	17.0	3.28	20.5	3.68	22.5	3.91	23.3	3.99	25.1	4.19	27.0	4.37
	40.0	15.0	3.62	17.0	3.96	20.5	4.48	22.5	4.78	23.3	4.88	25.1	5.14	27.0	5.38
43.0	15.0	4.00	17.0	4.39	20.5	4.98	22.5	5.32	23.3	5.44	25.1	5.74	27.0	6.02	
46.0	15.0	4.41	17.0	4.83	20.5	5.51	22.5	5.90	23.3	6.03	25.1	6.37	27.0	6.69	
52.0	13.7	4.77	13.7	4.52	13.7	4.14	13.7	3.92	13.7	3.85	13.7	3.66	13.7	3.49	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
40%	-10.0	12.0	1.26	13.6	1.43	16.4	1.71	18.0	1.88	18.6	1.94	20.1	2.10	21.6	2.25
	-5.0	12.0	1.26	13.6	1.43	16.4	1.71	18.0	1.88	18.6	1.95	20.1	2.10	21.6	2.26
	0.0	12.0	1.27	13.6	1.44	16.4	1.72	18.0	1.89	18.6	1.95	20.1	2.11	21.6	2.26
	5.0	12.0	1.28	13.6	1.45	16.4	1.73	18.0	1.89	18.6	1.96	20.1	2.11	21.6	2.26
	10.0	12.0	1.30	13.6	1.47	16.4	1.74	18.0	1.91	18.6	1.97	20.1	2.12	21.6	2.28
	15.0	12.0	1.35	13.6	1.51	16.4	1.78	18.0	1.94	18.6	2.00	20.1	2.15	21.6	2.30
	20.0	12.0	1.52	13.6	1.64	16.4	1.86	18.0	2.01	18.6	2.06	20.1	2.20	21.6	2.35
	25.0	12.0	1.83	13.6	2.00	16.4	2.16	18.0	2.24	18.6	2.27	20.1	2.37	21.6	2.48
	30.0	12.0	1.86	13.6	2.03	16.4	2.32	18.0	2.49	18.6	2.55	20.1	2.70	21.6	2.86
	35.0	12.0	2.19	13.6	2.34	16.4	2.56	18.0	2.68	18.6	2.72	20.1	2.82	21.6	2.90
	40.0	12.0	2.62	13.6	2.82	16.4	3.12	18.0	3.28	18.6	3.33	20.1	3.47	21.6	3.59
43.0	12.0	2.89	13.6	3.12	16.4	3.47	18.0	3.66	18.6	3.72	20.1	3.88	21.6	4.02	
46.0	12.0	3.17	13.6	3.43	16.4	3.83	18.0	4.05	18.6	4.13	20.1	4.31	21.6	4.48	
52.0	12.0	3.78	13.6	4.11	13.7	3.79	13.7	3.59	13.7	3.52	13.7	3.35	13.7	3.19	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp. °CDB	Indoor water outlet temp. : °C													
		7.0		10.0		15.0		18.0		20.0		25.0		30.0	
		TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW	TC kW	PI kW
30%	-10.0	9.0	0.89	10.2	1.01	12.3	1.20	13.5	1.32	14.0	1.37	15.1	1.48	16.2	1.58
	-5.0	9.0	0.89	10.2	1.01	12.3	1.21	13.5	1.33	14.0	1.37	15.1	1.48	16.2	1.59
	0.0	9.0	0.89	10.2	1.01	12.3	1.21	13.5	1.33	14.0	1.37	15.1	1.48	16.2	1.59
	5.0	9.0	0.90	10.2	1.02	12.3	1.22	13.5	1.33	14.0	1.38	15.1	1.49	16.2	1.59
	10.0	9.0	0.92	10.2	1.04	12.3	1.23	13.5	1.35	14.0	1.39	15.1	1.50	16.2	1.60
	15.0	9.0	0.96	10.2	1.07	12.3	1.25	13.5	1.37	14.0	1.41	15.1	1.51	16.2	1.62
	20.0	9.0	1.08	10.2	1.16	12.3	1.32	13.5	1.42	14.0	1.45	15.1	1.55	16.2	1.65
	25.0	9.0	1.42	10.2	1.49	12.3	1.51	13.5	1.56	14.0	1.59	15.1	1.65	16.2	1.73
	30.0	9.0	1.45	10.2	1.57	12.3	1.77	13.5	1.89	14.0	1.94	15.1	2.04	16.2	2.01
	35.0	9.0	1.59	10.2	1.67	12.3	1.80	13.5	1.92	14.0	1.97	15.1	2.07	16.2	2.18
	40.0	9.0	1.88	10.2	1.99	12.3	2.15	13.5	2.22	14.0	2.25	15.1	2.31	16.2	2.36
43.0	9.0	2.06	10.2	2.19	12.3	2.38	13.5	2.47	14.0	2.51	15.1	2.58	16.2	2.64	
46.0	9.0	2.25	10.2	2.40	12.3	2.62	13.5	2.74	14.0	2.78	15.1	2.87	16.2	2.94	
52.0	9.0	2.66	10.2	2.86	12.3	3.15	13.5	3.30	14.0	3.36	13.7	3.14	13.7	2.99	



# 1. Capacity Ratio of Outdoor Unit

## 1-20. U-16MF3E8 (Heating)

### Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
100%	-19.8	-20.0	29.6	15.09	26.4	14.58	24.4	14.14	23.1	13.77	20.9	13.10	19.5	12.57	15.6	10.89
	-14.7	-15.0	35.1	15.89	31.4	15.23	29.1	14.71	27.5	14.30	25.0	13.56	23.3	13.00	18.8	11.26
	-9.6	-10.0	41.6	17.03	37.4	16.21	34.7	15.60	32.8	15.12	29.9	14.29	27.9	13.66	22.6	11.76
	-4.4	-5.0	48.6	18.21	43.8	17.24	40.7	16.47	38.5	15.92	35.2	14.98	32.8	14.27	26.6	12.18
	-1.8	-2.5	53.0	19.27	47.7	17.92	44.4	17.21	42.0	16.60	38.4	15.52	35.8	14.76	29.0	12.53
	0.8	0.0	57.7	20.36	52.0	18.82	48.3	17.72	45.8	17.07	41.8	16.12	39.0	15.35	31.5	12.89
	2.8	2.0	61.1	20.83	55.0	19.18	51.2	18.02	48.5	17.18	44.3	16.14	40.7	15.15	31.5	12.31
	6.0	5.0	66.2	21.28	59.3	19.27	53.7	17.23	50.0	15.92	44.4	14.32	40.7	13.42	31.5	11.04
	7.0	6.0	67.7	21.28	59.3	18.38	53.7	16.45	50.0	15.20	44.4	13.69	40.7	12.87	31.5	10.64
	8.6	7.5	68.5	20.21	59.3	17.08	53.7	15.29	50.0	14.15	44.4	12.79	40.7	12.07	31.5	10.05
	11.2	10.0	68.5	17.63	59.3	14.98	53.7	13.47	50.0	12.51	44.4	11.38	40.7	10.80	31.5	9.12
16.4	15.0	68.5	13.10	59.3	11.33	53.7	10.30	50.0	9.62	44.4	8.88	40.7	8.52	31.5	7.37	
24.0	18.0	68.5	11.42	59.3	10.00	53.7	9.15	50.0	8.58	44.4	7.72	40.7	7.15	31.5	6.14	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
90%	-19.8	-20.0	28.7	14.60	25.6	14.13	23.6	13.72	22.3	13.38	20.2	12.76	18.7	12.26	15.0	10.67
	-14.7	-15.0	34.2	15.63	30.5	14.96	28.2	14.45	26.6	14.04	24.2	13.33	22.5	12.77	18.0	11.08
	-9.6	-10.0	40.6	16.86	36.4	16.00	33.7	15.37	31.9	14.90	29.0	14.08	27.0	13.46	21.7	11.59
	-4.4	-5.0	48.6	18.22	43.6	17.48	40.5	16.75	38.3	16.13	34.8	15.15	32.4	14.43	26.1	12.29
	-1.8	-2.5	53.0	19.22	47.6	17.90	44.1	17.28	41.7	16.79	38.0	15.76	35.4	14.92	28.3	12.60
	0.8	0.0	57.8	20.24	51.8	18.72	48.0	17.63	45.0	16.83	40.0	15.52	36.7	14.58	28.3	11.93
	2.8	2.0	61.2	20.67	53.3	18.08	48.3	16.38	45.0	15.52	40.0	14.37	36.7	13.56	28.3	11.34
	6.0	5.0	61.7	18.18	53.3	15.82	48.3	14.51	45.0	13.87	40.0	13.01	36.7	12.30	28.3	10.24
	7.0	6.0	61.7	18.13	53.3	15.58	48.3	14.11	45.0	13.40	40.0	12.47	36.7	11.80	28.3	9.87
	8.6	7.5	61.7	16.70	53.3	14.42	48.3	13.09	45.0	12.46	40.0	11.66	36.7	11.06	28.3	9.33
	11.2	10.0	61.7	14.47	53.3	12.59	48.3	11.49	45.0	11.00	40.0	10.39	36.7	9.92	28.3	8.48
16.4	15.0	61.7	10.84	53.3	9.50	48.3	8.70	45.0	8.41	40.0	8.11	36.7	7.82	28.3	6.85	
24.0	18.0	61.7	10.84	53.3	9.50	48.3	8.70	45.0	8.16	40.0	7.36	36.7	6.82	28.3	5.67	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
80%	-19.8	-20.0	28.0	14.47	24.8	13.98	22.9	13.56	21.5	13.23	19.5	12.62	18.0	12.13	14.4	10.57
	-14.7	-15.0	33.4	15.34	29.7	14.68	27.4	14.18	25.8	13.79	23.4	13.10	21.7	12.57	17.3	10.93
	-9.6	-10.0	39.8	16.72	35.5	15.85	32.8	15.22	31.0	14.74	28.1	13.92	26.1	13.30	20.9	11.45
	-4.4	-5.0	48.8	18.25	43.6	17.56	40.3	17.01	38.1	16.45	34.5	15.37	32.1	14.61	25.2	12.17
	-1.8	-2.5	53.2	19.19	47.4	17.78	43.0	16.81	40.0	16.12	35.6	14.95	32.6	14.06	25.2	11.50
	0.8	0.0	54.8	18.15	47.4	16.01	43.0	15.22	40.0	14.70	35.6	13.77	32.6	13.07	25.2	10.97
	2.8	2.0	54.8	16.50	47.4	14.81	43.0	14.22	40.0	13.76	35.6	12.93	32.6	12.28	25.2	10.37
	6.0	5.0	54.8	14.69	47.4	13.23	43.0	12.78	40.0	12.40	35.6	11.71	32.6	11.13	25.2	9.39
	7.0	6.0	54.8	14.69	47.4	12.95	43.0	12.38	40.0	11.96	35.6	11.23	32.6	10.68	25.2	9.05
	8.6	7.5	54.8	13.48	47.4	11.94	43.0	11.48	40.0	11.13	35.6	10.51	32.6	10.02	25.2	8.57
	11.2	10.0	54.8	11.57	47.4	10.37	43.0	10.08	40.0	9.85	35.6	9.38	32.6	9.00	25.2	7.80
16.4	15.0	54.8	10.17	47.4	8.92	43.0	8.18	40.0	7.68	35.6	7.31	32.6	7.10	25.2	6.29	
24.0	18.0	54.8	10.17	47.4	8.92	43.0	8.18	40.0	7.68	35.6	6.94	32.6	6.44	25.2	5.20	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
70%	-19.8	-20.0	27.5	14.48	24.3	13.96	22.4	13.54	21.0	13.20	19.0	12.59	17.6	12.10	13.9	10.55
	-14.7	-15.0	32.9	15.42	29.2	14.73	26.8	14.21	25.3	13.80	22.8	13.11	21.2	12.57	16.8	10.92
	-9.6	-10.0	39.3	16.46	35.0	15.90	32.3	15.22	30.4	14.73	27.5	13.91	25.5	13.29	20.3	11.45
	-4.4	-5.0	48.0	17.61	41.5	16.55	37.6	15.79	35.0	15.24	31.1	14.17	28.5	13.28	22.0	11.00
	-1.8	-2.5	48.0	15.89	41.5	15.18	37.6	14.60	35.0	14.13	31.1	13.28	28.5	12.61	22.0	10.43
	0.8	0.0	48.0	14.46	41.5	13.91	37.6	13.44	35.0	13.03	31.1	12.28	28.5	11.69	22.0	9.92
	2.8	2.0	48.0	13.35	41.5	12.92	37.6	12.53	35.0	12.18	31.1	11.51	28.5	10.99	22.0	9.36
	6.0	5.0	48.0	11.77	41.5	11.52	37.6	11.22	35.0	10.94	31.1	10.39	28.5	9.93	22.0	8.48
	7.0	6.0	48.0	11.59	41.5	11.16	37.6	10.82	35.0	10.52	31.1	9.97	28.5	9.53	22.0	8.19
	8.6	7.5	48.0	10.57	41.5	10.30	37.6	10.04	35.0	9.80	31.1	9.34	28.5	8.96	22.0	7.76
	11.2	10.0	48.0	9.40	41.5	8.95	37.6	8.84	35.0	8.69	31.1	8.36	28.5	8.06	22.0	7.08
16.4	15.0	48.0	9.40	41.5	8.26	37.6	7.58	35.0	7.13	31.1	6.50	28.5	6.35	22.0	5.70	
24.0	18.0	48.0	9.40	41.5	8.26	37.6	7.58	35.0	7.13	31.1	6.45	28.5	5.99	22.0	4.86	

## 1. Capacity Ratio of Outdoor Unit

## U-16MF3E8 (Heating)

## Capacity Ratio 30-100%

TC: Total capacity (kW), PI: Power input (kW)

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
60%	-19.8	-20.0	27.5	14.45	24.3	13.91	22.3	13.47	20.9	13.13	18.9	12.52	17.4	12.03	13.8	10.50
	-14.7	-15.0	33.0	15.45	29.2	14.72	26.8	14.19	25.2	13.78	22.8	13.07	21.1	12.52	16.7	10.88
	-9.6	-10.0	39.6	16.36	35.1	15.97	32.2	15.20	30.0	14.55	26.7	13.52	24.4	12.78	18.9	10.73
	-4.4	-5.0	41.1	14.45	35.6	13.96	32.2	13.46	30.0	13.04	26.7	12.25	24.4	11.56	18.9	9.60
	-1.8	-2.5	41.1	13.20	35.6	12.84	32.2	12.42	30.0	12.06	26.7	11.39	24.4	10.86	18.9	9.16
	0.8	0.0	41.1	11.97	35.6	11.74	32.2	11.41	30.0	11.11	26.7	10.53	24.4	10.06	18.9	8.62
	2.8	2.0	41.1	11.02	35.6	10.89	32.2	10.62	30.0	10.37	26.7	9.86	24.4	9.45	18.9	8.13
	6.0	5.0	41.1	9.67	35.6	9.68	32.2	9.49	30.0	9.29	26.7	8.86	24.4	8.50	18.9	7.33
	7.0	6.0	41.1	9.32	35.6	9.26	32.2	9.07	30.0	8.88	26.7	8.49	24.4	8.17	18.9	7.12
	8.6	7.5	41.1	8.50	35.6	8.55	32.2	8.44	30.0	8.29	26.7	7.97	24.4	7.69	18.9	6.75
	11.2	10.0	41.1	8.33	35.6	7.45	32.2	7.44	30.0	7.36	26.7	7.15	24.4	6.94	18.9	6.17
	16.4	15.0	41.1	8.33	35.6	7.34	32.2	6.75	30.0	6.35	26.7	5.76	24.4	5.45	18.9	4.97
24.0	18.0	41.1	8.33	35.6	7.34	32.2	6.75	30.0	6.35	26.7	5.76	24.4	5.37	18.9	4.38	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
50%	-19.8	-20.0	28.6	14.51	25.2	13.94	23.1	13.49	21.6	13.14	19.4	12.52	18.0	12.03	14.2	10.49
	-14.7	-15.0	34.3	15.58	29.6	14.50	26.9	13.79	25.0	13.27	22.2	12.42	20.4	11.81	15.7	10.04
	-9.6	-10.0	34.3	13.63	29.6	13.11	26.9	12.45	25.0	11.92	22.2	11.09	20.4	10.50	15.7	8.86
	-4.4	-5.0	34.3	11.56	29.6	11.26	26.9	10.90	25.0	10.59	22.2	10.02	20.4	9.53	15.7	7.96
	-1.8	-2.5	34.3	10.53	29.6	10.34	26.9	10.06	25.0	9.79	22.2	9.29	20.4	8.89	15.7	7.61
	0.8	0.0	34.3	9.53	29.6	9.44	26.9	9.23	25.0	9.02	22.2	8.59	20.4	8.24	15.7	7.13
	2.8	2.0	34.3	8.77	29.6	8.75	26.9	8.59	25.0	8.41	22.2	8.05	20.4	7.74	15.7	6.71
	6.0	5.0	34.3	7.63	29.6	7.68	26.9	7.57	25.0	7.44	22.2	7.16	20.4	6.91	15.7	6.04
	7.0	6.0	34.3	7.19	29.6	7.30	26.9	7.23	25.0	7.13	22.2	6.88	20.4	6.65	15.7	5.88
	8.6	7.5	34.3	7.00	29.6	6.75	26.9	6.74	25.0	6.66	22.2	6.47	20.4	6.27	15.7	5.59
	11.2	10.0	34.3	7.00	29.6	6.19	26.9	5.96	25.0	5.94	22.2	5.82	20.4	5.68	15.7	5.12
	16.4	15.0	34.3	7.00	29.6	6.19	26.9	5.70	25.0	5.38	22.2	4.90	20.4	4.57	15.7	4.13
24.0	18.0	34.3	7.00	29.6	6.19	26.9	5.70	25.0	5.38	22.2	4.90	20.4	4.57	15.7	3.76	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
40%	-19.8	-20.0	27.4	12.60	23.7	11.91	21.5	11.42	20.0	11.05	17.8	10.42	16.3	9.96	12.6	8.56
	-14.7	-15.0	27.4	11.41	23.7	10.62	21.5	10.12	20.0	9.75	17.8	9.15	16.3	8.71	12.6	7.45
	-9.6	-10.0	27.4	9.87	23.7	9.56	21.5	9.19	20.0	8.74	17.8	8.20	16.3	7.78	12.6	6.60
	-4.4	-5.0	27.4	8.35	23.7	8.20	21.5	7.97	20.0	7.77	17.8	7.38	16.3	7.06	12.6	5.96
	-1.8	-2.5	27.4	7.60	23.7	7.52	21.5	7.35	20.0	7.18	17.8	6.85	16.3	6.58	12.6	5.70
	0.8	0.0	27.4	6.87	23.7	6.87	21.5	6.75	20.0	6.60	17.8	6.32	16.3	6.08	12.6	5.31
	2.8	2.0	27.4	6.27	23.7	6.30	21.5	6.21	20.0	6.10	17.8	5.87	16.3	5.67	12.6	4.99
	6.0	5.0	27.4	5.31	23.7	5.46	21.5	5.45	20.0	5.39	17.8	5.23	16.3	5.08	12.6	4.52
	7.0	6.0	27.4	5.31	23.7	5.20	21.5	5.21	20.0	5.17	17.8	5.03	16.3	4.90	12.6	4.40
	8.6	7.5	27.4	5.31	23.7	4.83	21.5	4.86	20.0	4.85	17.8	4.75	16.3	4.63	12.6	4.19
	11.2	10.0	27.4	5.31	23.7	4.72	21.5	4.36	20.0	4.33	17.8	4.29	16.3	4.21	12.6	3.85
	16.4	15.0	27.4	5.31	23.7	4.72	21.5	4.36	20.0	4.12	17.8	3.77	16.3	3.53	12.6	3.12
24.0	18.0	27.4	5.31	23.7	4.72	21.5	4.36	20.0	4.12	17.8	3.77	16.3	3.53	12.6	2.94	

Combination(%) :Indoor/outdoor capacity ratio	Outdoor air temp.		Indoor water outlet temp. : °C													
			25.0		30.0		33.0		35.0		38.0		40.0		45.0	
			TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI	TC	PI
	°CDB	°CWB	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	
30%	-19.8	-20.0	20.6	8.61	17.8	8.15	16.1	7.83	15.0	7.59	13.3	7.18	12.2	6.88	9.4	5.96
	-14.7	-15.0	20.6	7.79	17.8	7.31	16.1	6.98	15.0	6.73	13.3	6.34	12.2	6.05	9.4	5.22
	-9.6	-10.0	20.6	6.72	17.8	6.55	16.1	6.34	15.0	6.11	13.3	5.71	12.2	5.43	9.4	4.65
	-4.4	-5.0	20.6	5.68	17.8	5.61	16.1	5.48	15.0	5.35	13.3	5.11	12.2	4.91	9.4	4.21
	-1.8	-2.5	20.6	5.11	17.8	5.10	16.1	5.01	15.0	4.92	13.3	4.72	12.2	4.55	9.4	4.00
	0.8	0.0	20.6	4.56	17.8	4.61	16.1	4.56	15.0	4.49	13.3	4.34	12.2	4.20	9.4	3.73
	2.8	2.0	20.6	4.13	17.8	4.23	16.1	4.21	15.0	4.17	13.3	4.05	12.2	3.93	9.4	3.52
	6.0	5.0	20.6	3.81	17.8	3.70	16.1	3.72	15.0	3.71	13.3	3.63	12.2	3.55	9.4	3.22
	7.0	6.0	20.6	3.81	17.8	3.53	16.1	3.57	15.0	3.56	13.3	3.51	12.2	3.43	9.4	3.13
	8.6	7.5	20.6	3.81	17.8	3.41	16.1	3.35	15.0	3.36	13.3	3.32	12.2	3.26	9.4	2.99
	11.2	10.0	20.6	3.81	17.8	3.41	16.1	3.17	15.0	3.02	13.3	3.02	12.2	2.98	9.4	2.77
	16.4	15.0	20.6	3.81	17.8	3.41	16.1	3.17	15.0	3.01	13.3	2.76	12.2	2.60	9.4	2.27
24.0	18.0	20.6	3.81	17.8	3.41	16.1	3.17	15.0	3.01	13.3	2.76	12.2	2.60	9.4	2.20	

