

# Operation Manual

## INVERTER-DRIVEN MULTI-SPLIT SYSTEM HEAT PUMP AIR CONDITIONERS

Type	Model
Ducted (High Static)	(H,Y,C)IDH015B22S (H,Y,C)IDH018B22S (H,Y,C)IDH024B22S (H,Y,C)IDH027B22S (H,Y,C)IDH030B22S (H,Y,C)IDH036B22S (H,Y,C)IDH048B22S (H,Y,C)IDH054B22S
Ducted (Medium Static)	(H,Y,C>IDM006B22S (H,Y,C>IDM008B22S (H,Y,C>IDM012B22S (H,Y,C>IDM015B22S (H,Y,C>IDM018B22S (H,Y,C>IDM024B22S (H,Y,C>IDM027B22S (H,Y,C>IDM030B22S (H,Y,C>IDM036B22S (H,Y,C>IDM048B22S (H,Y,C>IDM054B22S

### **IMPORTANT:**

**READ AND UNDERSTAND  
THIS MANUAL BEFORE  
USING THIS HEAT PUMP  
AIR CONDITIONER.  
KEEP THIS MANUAL FOR  
FUTURE REFERENCE.**



**P5417014**



## Important Notice

- Johnson Controls, Inc. pursues a policy of continuing improvement in design and performance in its products. As such, Johnson Controls reserves the right to make changes at any time without prior notice.
- Johnson Controls cannot anticipate every possible circumstance that might involve a potential hazard.
- This heat pump air conditioning unit is designed for standard air conditioning applications only. Do not use this unit for anything other than the purposes for which it was intended.
- The installer and system specialist shall safeguard against leakage in accordance with local codes. No part of this manual may be reproduced in any way without the expressed written consent of Johnson Controls.
- This heat pump air conditioning unit will be operated and serviced in the United States of America and comes with a full complement of the appropriate Safety, Dangers, Cautions, and Warnings.
- If you have questions, please contact your distributor or contractor.
- This manual provides common descriptions, basic and advanced information to maintain and service this heat pump air conditioning unit which you operate, as well for other models.
- This heat pump air conditioning unit has been designed for a specific temperature range. For optimum performance and long life, operate this unit within the range limits according to the table below.

### Temperature

		Maximum	Minimum
Cooling Operation	Indoor	89°F DB/73°F WB (32°C DB/23°C WB)	69°F DB/59°F WB (21°C DB/15°C WB)
	Outdoor	118°F DB (48°C DB) *	14°F DB (-10°C DB) *
Heating Operation	Indoor	80°F DB (27°C DB)	59°F DB ( 15°C DB)
	Outdoor	59°F WB (15°C WB) *	-4°F WB (-20°C WB) *

DB: Dry Bulb, WB: Wet Bulb

\* The temperature may change depending on the outdoor unit.

- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.

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## 1. Introduction

Read following sections carefully before installing this product.

Read over the "Installation and Maintenance Manual" for the outdoor unit as well.



Forward this information and the warranty to all installers and users.

Ask end users to maintain copies for future reference.


(Refrigerant Piping Work) → (Electrical Wiring Work) → (Ref. Charge Work) → (Test Run) → (User)

- For details on wiring between the indoor unit and the outdoor unit, refer to the "Installation and Maintenance Manual" for the outdoor unit.
- For details on the optional controller, refer to the "Installation and Maintenance Manual" for that optional controller module.
- For details on each optional part, refer to the "Installation and Maintenance Manual" for each optional part.
- For central controller, refer to the "Installation and Maintenance Manual" for the central controller.

## 2. Safety Instructions

Signal Words	
 <b>WARNING</b>	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
<b>NOTICE</b>	Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

### General Precautions

 <b>WARNING</b>	To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. <i>Refer back to these safety instructions as needed.</i>
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- This system, including the controller, should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or an explosion. In areas where Seismic Performance requirements are specified, the appropriate measures should be taken during installation to guard against possible damage or injury that might occur in an earthquake. If the unit is not installed correctly, injuries may occur because of a falling unit.

- Use appropriate personal protective equipment (PPE), such as gloves, protective goggles and electrical protection equipment and tools suited for electrical operation purposes.
- When transporting, be careful when picking up, moving and mounting these units. Although the controller may be packed using plastic straps, do not use them for transporting from one location to another. Do not stand on or put any material on the controller.
- When installing the controller cabling to the units, do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Use only Johnson Controls recommended, provided as standardized, or replacement parts.
- Johnson Controls will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they...
  - May create hazards which could result in death, serious injury, equipment damage, or property damage.
  - Will void product warranties.
  - May invalidate product regulatory certifications.
  - May violate OSHA standards.

## NOTICE

Take the following precautions to reduce the risk of property damage.

- Do not touch the main circuit board or electronic components in the controller or remote devices. Make sure that dust and/or steam does not accumulate on the circuit board.
- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- Locate the wireless controller at a distance of at least 3 ft. (approximately 1m) between the indoor unit and electric lighting. Otherwise, the receiver part of the unit may have difficulty receiving operation commands.
- If the wired controller is installed in a location where electromagnetic radiation is generated, make sure that the wired controller is shielded and cables are sleeved inside conduit tubing.
- If there is a source of electrical interference near the power source, install noise suppression equipment (filter).
- During the test run, check the unit's operation temperature. If the unit is used in an environment where the temperature exceeds the operation boundary, it may cause severe damage. Check the operational temperature boundary in the manual. If there is no specified temperature, use the unit within the operational temperature boundary of 32° to 104°F (0 to 40°C).
- Read installation and appropriate user manuals for connection with PC or peripheral devices. If a warning window appears on the PC, the product stops, does not work properly or works intermittently, immediately stop using the equipment.

## Installation Precautions

### ! WARNING

To reduce the risk of serious injury or death, the following installation precautions must be followed.

- If the remote sensors are not used with this controller, then do not install this controller
  - in a room where there is no thermostat.
  - where the unit is exposed to direct sunshine or direct light.
  - where the unit will be in close proximity to a heat source.
  - where hot/cold air from the outdoors, or a draft from elsewhere (such as air vents, diffusers or grilles) can affect air circulation.
  - in areas with poor air circulation and ventilation.

- Perform a test run using the controller to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.

After installation work for the system has been completed, explain the “Safety Precautions,” use, and maintenance of the unit to the customer according to the information in all manuals that accompanied the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

## Electrical Precautions



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Only use electrical protection equipment and tools suited for this installation.
- Insulate the wired controller against moisture and temperature extremes.
- Use specified cables between units and the controller.
- Communication cabling should be a minimum of AWG18 (0.82mm<sup>2</sup>), 2-Conductor, Stranded Copper. Shielded cable must be considered for applications and routing in areas of high EMI and other sources of potentially excessive electrical noise to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- This equipment can be installed with a Ground Fault Circuit Breaker (GFCI), which is a recognized measure for added protection to a properly grounded unit. Install appropriate sized breakers/fuses/overcurrent protection switches, and wiring in accordance with local codes and requirements. The equipment installer is responsible for understanding and abiding by applicable codes and requirements.
- The polarity of the input terminals is important, so be sure to match the polarity when using contacts that have polarity.
- Highly dangerous electrical voltages may be used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Before installing the controller or remote devices, ensure that the indoor and outdoor unit operation has been stopped. Further, be sure to wait at least five minutes before turning off the main power switch to the indoor or outdoor units. Otherwise, water leakage or electrical breakdown may result.
- Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply. Before connecting or servicing the controller or cables to indoor or outdoor units, open and tag all disconnect switches. Never assume electrical power is disconnected. Check with a meter and equipment.
- Use an exclusive power supply at the controller's rated voltage.
- Be sure to install circuit breakers (ground fault circuit interrupter, isolating switch, molded case circuit breaker, and so forth) with the specified capacity. Ensure that the wiring terminals are tightened securely to recommended torque specifications.
- Clamp electrical wires securely with a cable clamp after all wiring is connected to the terminal block. In addition, run wires securely through the wiring access channel.
- When installing the power lines, do not apply tension to the cables. Secure the suspended cables at regular intervals, but not too tightly.
- Make sure that the terminals do not come into contact with the surface of the electrical box. If the terminals are too close to the surface, it may lead to failures at the terminal connection.
- Do not clean with, or pour water into, the controller as it could cause electric shock and/or damage the unit. Do not use strong detergent such as a solvent. Clean with a soft cloth.
- Check that the ground wiring is securely connected. Do not connect ground wiring to gas piping, water piping, lighting conductor, or telephone ground wiring.



## **WARNING**

- Do not insert fingers or objects into an air inlet/outlet. Injury can result from rotating fan blades or energized electrical components.
- Do not touch the wired controller with wet hands. A malfunction of the wired controller might result or electric shock.
- Hair spray, insecticides, lacquers, and other pressurized substances should not be used within 3.3ft (1m) of any air conditioning unit. It can react with energized electrical components and cause fire.
- Do not install the indoor unit anywhere discharge airflow can pass directly toward nearby heating equipment (space heaters). It may interfere with the combustion process in these units.
- When the indoor unit is operating in an area with heat sources, ventilate a room sufficiently. Any leaked refrigerant gases that happen to come into contact with any heat source can become toxic on contact which can cause asphyxiation in the immediate area.
- Shut down at the main power source if the GFCI activates frequently. Contact your distributor or contractor immediately. Failure to act accordingly can result in serious injury and damage to the unit.
- If you smell anything burning, shut down the unit and turn OFF the power at the main power source. Contact the fire department and your installer or electrical contractor.
- Make sure that a test for leakage of refrigerant gases has been performed. The refrigerant used for this unit (HFC R410A), is a non-flammable, non-toxic, and odorless gas. However if refrigerant should leak and make contact with sparks, fire and toxic gas will be generated. Also, because fluorocarbon is heavier than air, it will accumulate on the floor causing asphyxiation.
- If fluorocarbon gas should leak, turn OFF all heating appliances and ventilate the room immediately. Mop or vacuum floor areas to remove residual toxic particulate.
- Do not operate indoor units with the electrical box and switch panel open and exposed. Accidental contact with energized components can be fatal.

## **NOTICE**

- Air circulation should be optimized to achieve the best distribution pattern and not settle into isolated pockets creating an uncomfortable environment.

## Repair / Relocation

### **WARNING**

- When the air conditioner is to be repaired or transported to a new location, contact your distributor or contractor. If the repair and the installation are not completed correctly, it may cause an electric shock or fire.

## Other

### **WARNING**

- Turn OFF all power at the main power source before performing maintenance work. Failure to do so can result in damage to internal components with severe or fatal electrical shock.
- Insulate all electrical components and connections from exposure to moisture. Failure to do so can result in an electrical short circuit and fire.
- Do not tamper with or attempt to "repair" electrical wiring or connections. Call your installer or electrical contractor. Serious or fatal injury can occur.
- Perform all maintenance work on a firm and stable foundation to minimize the risk of injury.
- Do not attempt to "clean" indoor unit components with liquid or powdered cleaning agents during maintenance. Electric shock, sparks, flame, and serious or fatal injury can occur.
- System piping is charged with refrigerant and highly pressurized.

### **CAUTION**

- Hold the air filter and the air inlet grille firmly when attaching or removing it. Carelessness can result in accident or injury.
- Do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.

### **NOTICE**

- When cleaning the lens surface of the motion sensor, do not make unnecessary contact as it can be easily scratched.

### 3. Before Operation

## NOTICE

**Power is turned on. Apply power to the outdoor unit(s) at least 12 hours prior to operation of the system for preheating of the compressor oil. Make sure that the outdoor unit is not covered with snow or ice. If it is, remove it by using hot water that is approximately 122°F (50°C). If the water temperature is higher than 122°F (50°C), it will cause damage to plastic parts.**

- Turn OFF the main power switch when the system is stopped for a long period of time.  
If the main switch is not turned OFF, electricity is consumed because the oil heater is always energized during compressor stopping.
- When the system is started after a shutdown longer than approximately three months, it is recommended that the system be checked by your service contractor.

#### 3.1 Operating Range

This heat pump air conditioner has been designed for the following temperatures. Operate the heat pump air conditioner within this range.

Temperature

		Maximum	Minimum
Cooling Operation	Indoor	89°F DB/73°F WB (32°C DB/23°C WB)	69°F DB/59°F WB (21°C DB/15°C WB)
	Outdoor	118°F DB (48°C DB) *	14°F DB (-10°C DB) *
Heating Operation	Indoor	80°F DB (27°C DB)	59°F DB ( 15°C DB)
	Outdoor	59°F WB (15°C WB) *	-4°F WB (-20°C WB) *

DB: Dry Bulb, WB: Wet Bulb

\* The temperature may change depending on the outdoor unit.

#### 3.2 Efficient Use of Indoor Unit

- **Do not leave a window or a door open.**  
The operating efficiency will be decreased.  
It may cause condensation of the indoor unit. Ventilate a room sufficiently.
- **Attach a curtain or a blind to a window.**  
Blocking direct sunlight into a room will increase efficiency.
- **Use a circulator if warm air stays around the ceiling.**  
Comfort will be increased. Contact your distributor for details for using a circulator.
- **Turn OFF the main power source if the indoor unit is not to be used for a long period.**  
The standby electricity charges will have to be paid even if the indoor unit is unused.

#### 3.3 Efficient Use of Cooling and Heating

- **Airflow Volume**  
"AUTO", airflow volume should be used as first choice, then adjusted as needed.

## NOTE

< For VRF System >

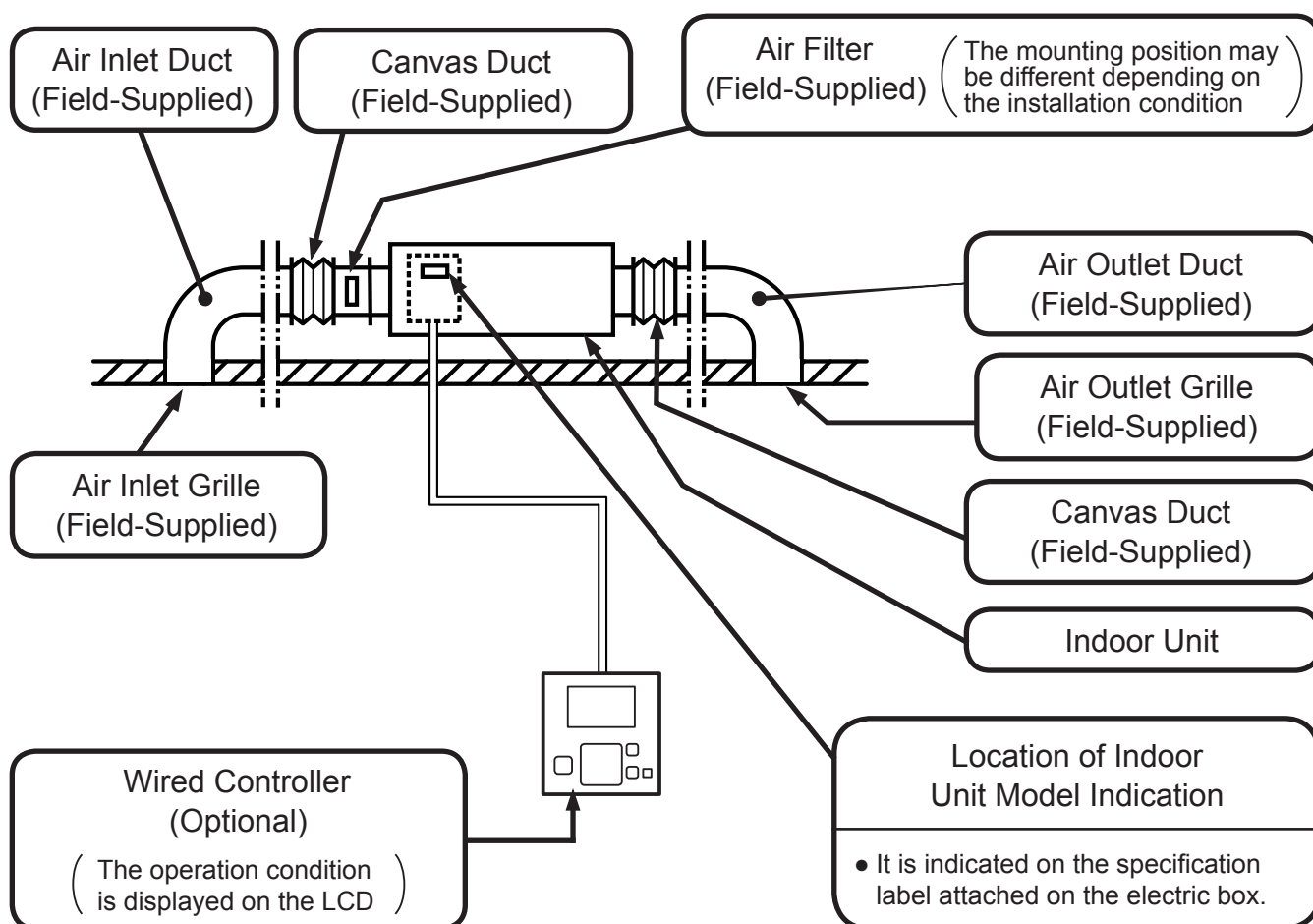
When the number of the indoor units in operation or the operating mode is changed, the change in air outlet temperature can cause the indoor temperature to change. In this situation, change the settings as follows.

- During Cooling Operation: Lower the temperature setpoint slightly.
- During Heating Operation: Raise the temperature setpoint slightly.

## 4. Names of Parts and Indications for Safety Consideration

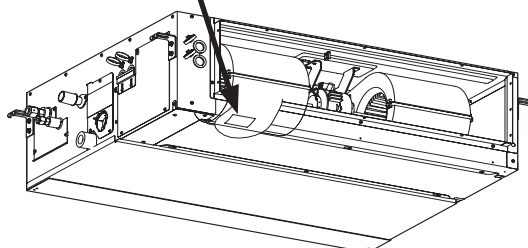
Safety labels are affixed to the indoor unit in order to ensure safe use.  
Read and understand this manual before using the indoor unit.

### 4.1 Ducted Type

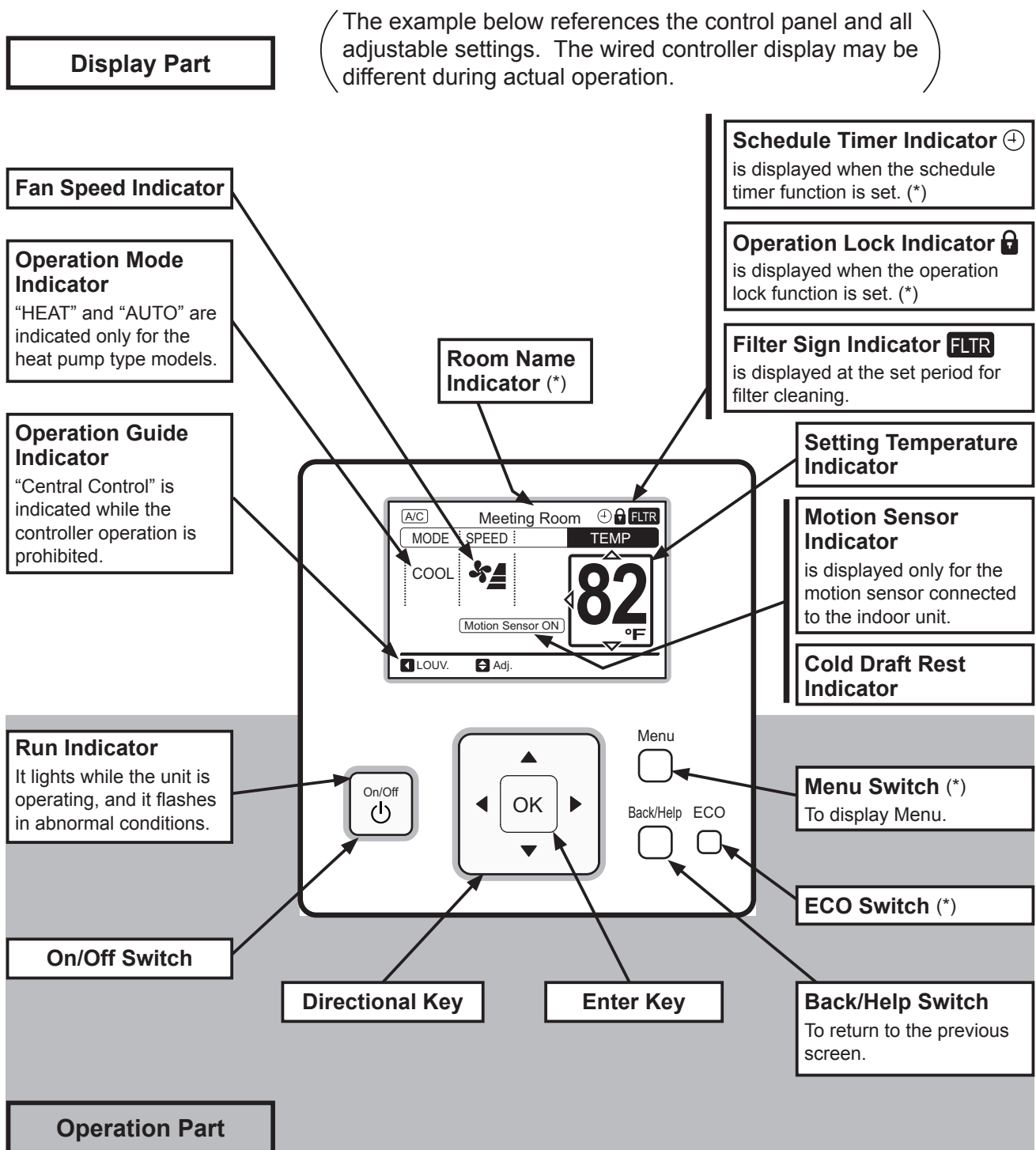


### NOTE

- Press switches lightly to control the wired controller. Do not press them with a sharp object such as a pen, as it could cause damage to the wired controller.
- The optional wireless wired controller and receiver kit operate according to each installation manual attached to them.



## 4.2 Wired Controller (CIW01)


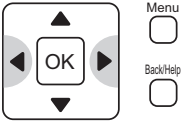
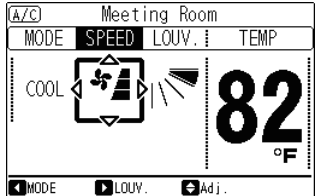
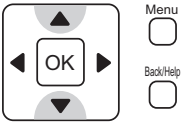
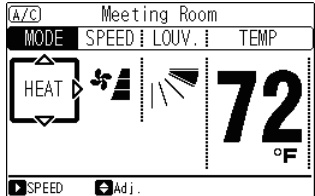


### NOTE

- This manual shows an example of how the CIW01 is utilized. If other models of the controller are utilized, operate the unit according to the manual for that controller.
- Press the switches lightly to control the wired controller. Do not press the wired controller with a sharp object such as a pen. It may cause damage to the control part.
- (\*) : For detailed description, refer to the operation manual for the wired controller.

## 5. Operation Method

### 5.1 Basic Operation

<p><b>Item Selection</b></p>	<p>By pressing “◀” or “▶”, the icon “” will move between “MODE”, “SPEED”, “LOUV.” and “TEMP”.</p>		
<p><b>Change of Settings</b></p>	<p>With (“MODE”, “SPEED”, “LOUV.” or “TEMP”) selected, press “Δ” or “∇”. The setting will be changed.</p>		

- For the ducted unit, “LOUV.” is not displayed on Liquid Crystal Display (LCD).

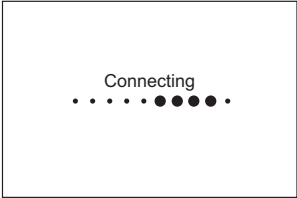
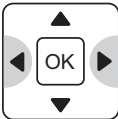
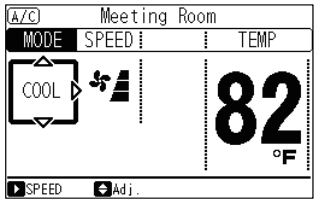


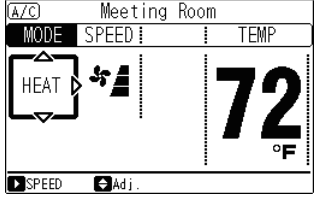
## 5.2 Cooling / Heating / Fan Operation

Heating Operation is for VRF systems only and is not available for typical systems.

### <Function>

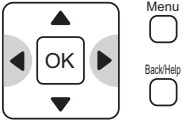
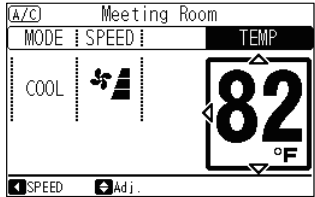
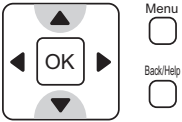
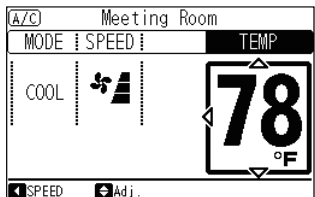
- \* Cooling Operation: To decrease the room temperature.
- \* Heating Operation: To increase the room temperature.
- \* Dry Operation: To decrease the humidity in the room.
- \* Automatic Cooling/Heating Operation (AUTO):  
To automatically changeover cooling and heating.
- \* Fan Operation: To circulate the air in the room.

- Dry operation may not be performed properly if there are other heat sources which exceed the capacity of the unit.
- The humidity control is unavailable with this unit. If you require dehumidification and the control of humidity, choose specialized equipment.
- Decreasing of the humidity during dry operation might be unavailable.

<b>Before Operation</b>	<p>Turn ON the power supply. Turn ON the main power approximately 12 hours before operation in order to preheat the compressor.</p> <p>Do not turn OFF the main power of the indoor unit during heating or cooling season.</p>		
<b>1</b>	Press "◀" or "▶" to select "MODE".		
<b>2</b>	<p>By pressing "Δ" or "▽", the mode will be changed as follows.</p> 		

- Automatic Cooling/Heating Operation (AUTO) requires an extra setting. Contact your distributor or contractor for details.


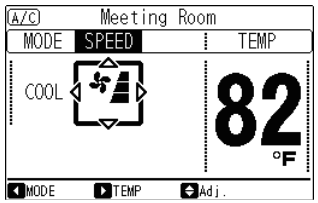


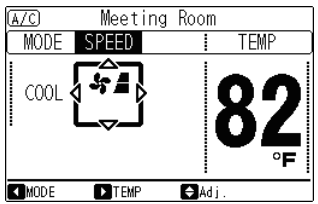
### 5.3 Temperature Setting

1	Press "◀" or "▶" and select "TEMP".		
2	<p>By pressing "Δ", the temperature is increased by 1°F (0.5°C). (Max. 86°F (30°C))</p> <p>By pressing "▽", the temperature is decreased by 1°F (0.5°C). COOL, DRY, FAN operation: Min. 66°F (19°C) HEAT operation: Min. 62°F (17°C)</p>		

- In case the optional function "Automatic Reset of Setting Temperature" is set:  
Even when changing the setting temperature on the wired controller, it automatically returns to the temperature set by "Automatic Reset Temperature" after a set time.
- Minimum and maximum temperature setpoint limits can be configured by selecting a cooling lower limit and heating upper limit in the "Function Selection" mode of the wired controller's Test Run Menu.
- Contact your distributor or dealer for details on optional functions "Automatic Reset of Setting Temperature," "Cooling Lower Limit for Setting Temperature" and "Heating Upper Limit for Setting Temperature."


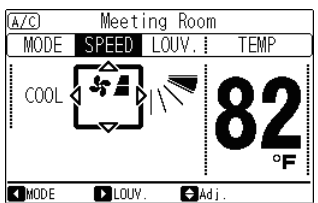


## 5.4 Fan Speed

1	Press “◀” or “▶” and select “SPEED”.		
2	By pressing “Δ” or “▽”, the fan speed is changed as follows. 		


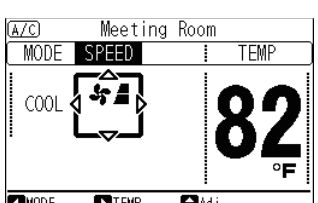
- During the dry operation, the fan speed is automatically changed to “LOW” and cannot be changed to any other fan speed. (“LOW” is NOT displayed on LCD at this time. The present setting condition is displayed on the LCD.)
- The fan speed settings “HIGH 2” and (or) “AUTO” may not be available depending on the indoor unit type.

## 5.5 Operation

<b>Operation Start</b>	Press “⏻” (On/Off). The RUN indicator is turned ON and the operation will start.		
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### Temperature/Airflow Setting

- The setting condition is memorized. Therefore, no daily setting is required. Temperature setpoint and airflow settings is retained after the indoor unit is turned OFF at the controller. In a case where the setting change is required, refer to Sections 5.2 to 5.4.

<b>Operation Stop</b>	Press “⏻” (On/Off) again. The RUN indicator will be turned OFF and the operation will stop.		
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- The indoor unit fan may continue to operate for up to two minutes following the heating cycle to dissipate residual heat from the indoor unit.

## 5.6 Motion Sensor

This setting is available only for the motion sensor kit.

### Function

- \* The motion sensor detects a human activity by the change of the infrared light. This function saves the air conditioning capacity (adjusting the set temperature and the airflow volume) automatically depending on a situation.
- \* The operation after the motion sensor detects as absence can be selected from “Running”, “Stand-by” or “Stop” on the wired controller with the capacity saving.

## NOTICE

- Do not use the motion sensor function when a baby or a handicapped person is staying alone in a room. The motion sensor may detect as absence and the operation may be stopped if someone is displaying minimal motion while in a room for a long time.
- The motion sensor detects human activity. However, if someone is displaying minimal motion while in a room for a while, the motion sensor may detect as absence.
- The motion sensor may detect human activity if the indoor unit with the motion sensor kit is installed near a moving object (ex. swing operation of a heating appliance) which is difference in temperature against atmosphere.
- In the case that the indoor units are operated by two wired controllers, the motion sensor setting is available only from the main wired controller.
- The indoor unit operation can be stopped by the motion sensor control.

### NOTE:

The indoor unit without the motion sensor kit and the indoor unit with the motion sensor kit can be mixed to install.

In this case, when the operation is stopped by the motion sensor control, the indoor unit without the motion sensor kit will also stop operation.

- While the air conditioning capacity is saved or the operation is stopped by the motion sensor control, “Motion sensor is activated” is displayed on LCD.
- If the function “Prohibiting operation by wired controller” is used from the centralized controller, select the command “Running” or “Stand-by” in “If absent” at the motion sensor control setting.

If “Stop” is selected, the motion sensor control can not be performed correctly as follows.

- \* In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by wired controller” (for all items) is set by the centralized controller, the operation is not stopped even if the motion sensor control function changes to the stoppage condition.
- \* In the case that “Stop” is selected in the motion sensor control setting and “Prohibiting operation by wired controller” (for part of items) is set by the centralized controller, the indoor unit operation can not be restarted from the centralized controller. The operation can be stopped under the stoppage condition by the motion sensor control function.

### 5.6.1 Details for Motion Sensor Control

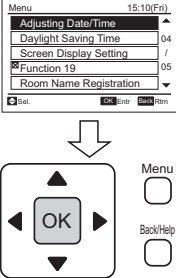
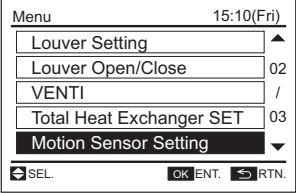

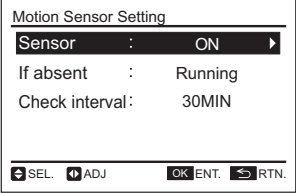

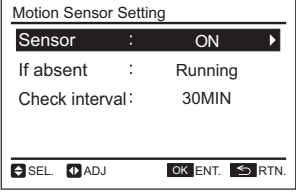

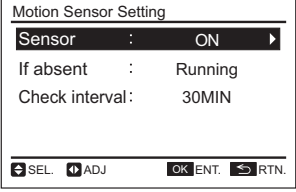

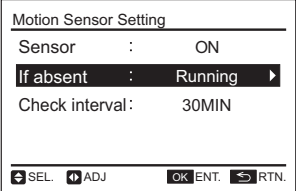

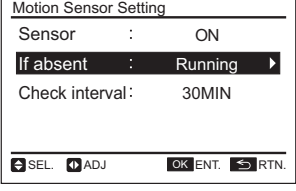
The motion sensor control automatically adjusts the following items depending on a situation.


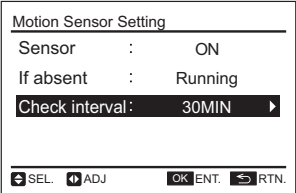

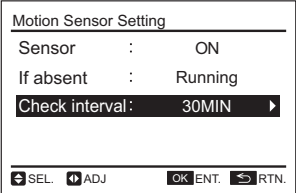
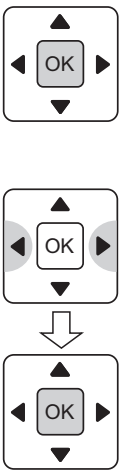
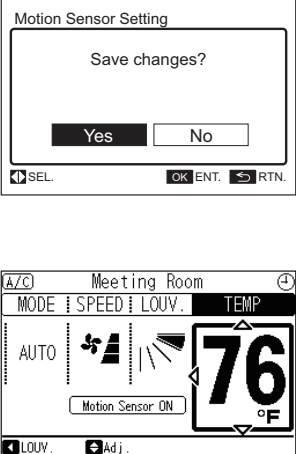
- Setting Temperature:  
The temperature is adjusted 2°F or 3°F (1°C or 2°C) for saving capacity.
- Airflow Volume:  
The airflow volume is adjusted to lower one volume or to "Slo" (except during the dry operation).

### 5.6.2 Descriptions for Setting Items

- Motion Sensor Setting
  - \* ON: The operating control function by the motion sensor is activated.
  - \* OFF: The operating control function by the motion sensor is not activated.  
(The default setting is "ON".)
- If absent
  - "If absent" is set for the indoor unit operation after the motion sensor detects as absence for set time in "Check interval". The operation can be selected from "Running", "Stand-by" or "Stop" on the wired controller.  
(The default setting is "Running".)
  - \* Running:  
The operation is continued with saving the capacity after detected as an absence.  
If human activity is detected for a period of time, the normal operation will be performed again.
  - \* Stand-by:  
The operation mode is the fan operation at "Slo" speed. If the human activity is detected for a period of time, the normal operation will be performed again.
  - \* Stop:  
The operation is stopped by the wired controller when all the indoor units with motion sensor kit detect absence which are connected to the same wired controller.  
If human activity is detected for a period of time by the stoppage, the normal operation is performed again.
- Check Interval
  - When the motion sensor detects an absence at selected check interval time, the function "If absent" will be executed. The interval can be selected from 30, 60, 90 120 or 180 minutes.  
(The default setting is 30 minutes.)

### 5.6.3 Setting of Motion Sensor

1	<p>Press "≡" (menu). Select "Motion Sensor Setting" from the menu by pressing "Δ" or "∇" and press "OK".</p>		
2	<p>"Motion Sensor Setting" is displayed. The highlighted item is shifted to "Sensor", "If absent" and "Check interval" by pressing "Δ" or "∇".</p> <ul style="list-style-type: none"> <li>To set "Sensor", move to procedure "3".</li> <li>To set "If absent", move to procedure "5".</li> <li>To set "Check interval", move to procedure "7".</li> </ul>		
3	<p>Press "Δ" or "∇" and select "Sensor".</p>		
4	<p>The display is switched "ON" and "OFF" in order by pressing "◀" or "▶" and change the setting. If other settings are not required, move to procedure "9".</p>		
5	<p>Press "Δ" or "∇" and select "If absent".</p>		
6	<p>The display is switched "Running", "Stand-by" and "Stop" in order by pressing "◀" or "▶" and change the setting. If other settings are not required, move to procedure "9".</p>		

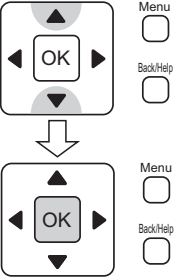
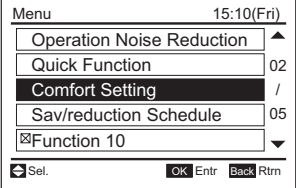
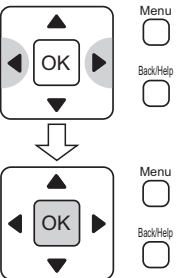
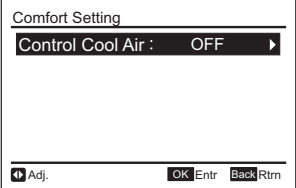
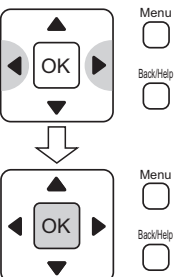
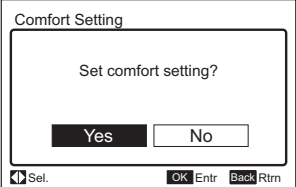
7	Press “△” or “▽” and select “Check interval”.		
8	The display is switched “30MIN”, “60MIN”, “90MIN”, “120MIN” and “180MIN” in order by pressing “◀” or “▶” and change the setting. If other settings are not required, move to procedure "9".		
9	Press “OK” after the setting is completed. The confirmation screen is displayed. Select “Yes” by pressing “◀” or “▶” and press “OK”. The motion sensor setting is confirmed and the screen will return to the normal mode (operation mode indication).		

## 5.7 Comfort Setting

This function is used to control cooling of the discharged air when in the cooling mode.

### NOTE

- The cool air level order is as follows:  
“HIGH” > “MED” > “LOW” and the temperature of the discharged air is high.
- It is possible the operation may not function if there are more than two units operating.
- When this function is set, it may take time for the entire room to cool down.

1	Select “Comfort Setting” from the “Menu” and press “OK”. The “Comfort Setting” screen is displayed.		
2	<p>By pressing “◀” or “▶” the Comfort Setting Mode will change as follows : OFF ↔ LOW ↔ MED ↔ HIGH</p> <p>Select the “Control Cool Air” level and press “OK”.</p>		
3	The setting confirmation screen is displayed. Select “Yes” with “◀” or “▶” and press “OK” to confirm the setting. The screen will return to normal mode.		

An automatic heating/cooling operation, setback operation and auxiliary heater requires extra settings. Contact your distributor or contractor for details.

## 5.8 Automatic Heating/Cooling Operation

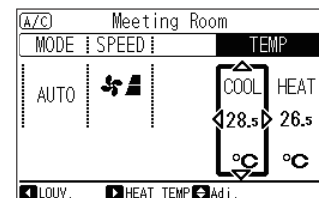
In case dual setpoint is selected in automatic heating/cooling operation, during auto mode both cooling setpoint and heating setpoint can be selected.

By default, temperature when the heating/cooling mode changes are as follows.

Cooling mode changes to heating mode when the indoor temperature is heating setpoint -2°F (-1°C).

Heating mode changes to cooling mode when the indoor temperature is cooling setpoint +2°F (+1°C).

If the temperature for changing modes requires to be changed, contact your distributor or contractor for details.



**NOTE:**  
In case of Celsius Indication.

## 5.9 Setback Operation

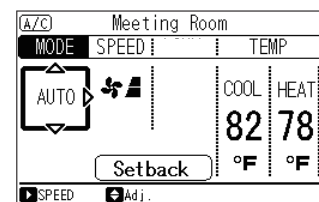
In case the setback operation is enabled and the card key is removed, setpoint is compensated and fan operate at "Low" speed. During this time, "Setback" is displayed on the LCD.

By default,

Cooling: Setpoint +4°F (+2.5°C)

Heating: Setpoint -4°F (-2.5°C)

If the compensation for setback operation requires to be changed, contact your distributor or contractor for details.



**NOTE:**  
In case of Fahrenheit Indication.

## 5.10 Auxiliary Heater

In case the auxiliary heater is connected and the setting is enabled, during following instances the auxiliary heater alone without heat pump may operate in heating mode.

- During Defrosting Operation
- Low Ambient Temperature

### NOTES:

- When the heater capacity is small, the air outlet temperature during defrost can decrease.
- Heater and fan is turned off and slowly start the heating operation for approximately three minutes to stabilize the refrigerant cycle after the defrost recovery.

## 6. Automatic Control

This air conditioner automatically starts the following operations according to the indoor conditions.

The system is equipped with the following functions.

Three-Minute Guard		<ul style="list-style-type: none"> <li>▪ <b>Enforced Stoppage:</b> The compressor remains off for at least three minutes once it has stopped. If the system is started within approximately three minutes after it has stopped, the RUN indicator is activated. However, the cooling operation or the heating operation remains off and does not start until after three minutes has elapsed.</li> <li>▪ <b>Enforced Operation:</b> If all indoor units of the system are Thermo-OFF within approximately three minutes after the compressor has started, the compressor operate continuously during those three minutes. However, if all indoor units of the system are stopped by a controller, compressor has stopped.</li> </ul>
Cooling and Dry	Frost Prevention	When the indoor unit is operating at a low discharge air temperature, the cooling operation may be changed to fan operation for a while to avoid frost formation on the indoor heat exchanger.
	Self-Cleaning of Expansion Valve	The expansion valve self-cleaning when the cooling operation has stopped. The sound of which the refrigerant flows may be heard from the indoor unit during the self-cleaning. This is not abnormal.
Fan Operation during Power Saving Control		During the operation control by the power saving function, the indoor unit fan operation is performed. At this time, the indication of the LCD of the wired controller does not change settings. (In case of using CIW01)
Heating	Hot Start	To prevent cold air discharge in the room, the fan speed is controlled from the slow position and the low position and then to the set position according to the discharge air temperature. At this time "HOT-START" is displayed on the LCD of the wired controller.
	Defrost Operation	The indoor unit fan operation is stopped to prevent cold air discharge during the defrost operation. At this time, the indication "HOT-START" is displayed on the LCD of the wired controller.
	Residual Heat Removal	When the heating operation is stopped, the indoor fan operation may be kept at the slow position for a maximum of two minutes to lower the temperature of the inside of the indoor unit.
	Prevention of Overload Operation	When the outdoor temperature is high (approx. 70°F (21°C) or more) during the heating operation, the operation is stopped by activation of the outdoor thermistor.

### NOTE

- This air conditioner adopts a hot air circulation system for the heating operation. If the space is large or the room temperature is excessively low, it takes time to heat the entire room. If the room has been heated enough and discharged air reaches a required temperature, the indication "HOT-START" is turned OFF after heating the room.
- The indication "HOT-START" may be displayed during, or right after, the defrosting operation. "HOT-START" is activated during defrost to ensure comfort by reducing the delivery of cold air in the heating cycle. This is NOT abnormal.



## 7. Maintenance

### **WARNING**

- Turn OFF the power source before the maintenance work. If the power source is not turned OFF, the result may be an electric shock or fire.
- Perform the maintenance work with a stable foothold or foundation. This may prevent falling or injury.

### **CAUTION**

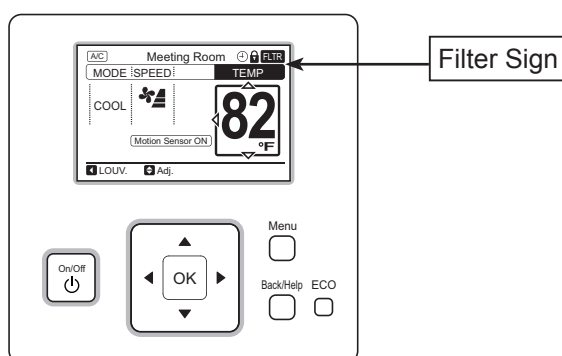
- Hold the air filter and the air inlet grille securely by hand when attaching or removing it. If not, it may cause the product to fall, resulting in an injury.

#### 7.1 Cleaning Air Filter

Clean the air filter when the filter sign is turned ON.

(1) Air filter is field-supplied.

The filter cleaning method is followed according to the manual included with the filter.



### **NOTICE**

- Do not operate the system without the air filter to protect the indoor unit heat exchanger from being clogged.

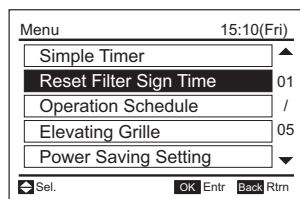
(2) The indication "FLTR" is shown on the LCD of wired controller after the time is set on the wired controller. (Default filter time for the ducted units is 1200 hours.)

- (3) Reset the filter sign.

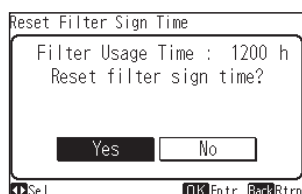
## NOTE

If the accumulated operation time is shorter than the filter sign setting, the indication "☒" is turned ON and "Setting Disabled" is displayed.

- Press "Menu".  
Select "Reset Filter Sign Time" from the menu and press "OK".  
The confirmation screen will be displayed.



- Select "Yes" by pressing "<" or ">" and press "OK".  
The "FLTR" indication will be turned OFF and the screen will return to the normal mode.



## 7.2 Maintenance

### Beginning of Start Up

- Remove obstacles around the air inlet and the air outlet of the indoor unit and outdoor unit.
- Check that the air filter is not clogged with dust and dirt.

### Regular Maintenance

- Clean air filter on a regular basis and the air inlet grille to maintain the system's peak performance and efficiency.

## 8. Troubleshooting

### 8.1 This is Not Abnormal

Event		Cause
Operation Stopped	All indicator LEDs on the wired controller are turned OFF.	The microprocessor is activated to protect the device from electromagnetic interference (EMI). Restart the operation.
	“Motion Sensor ON” is turned ON the wired controller.	The operation has stopped automatically because the motion sensor is set as “If absent: Stop”. It detected an absence of motion for a period of time. (All indoor units connected to the same controller are stopped.)
	After Power Failure	Restart the operation. If the instantaneous power failure is within two seconds, the operation restarts automatically.
White Steam from Indoor Unit	During Heating Operation	Dust that accumulated over time on the evaporative coil of the indoor unit is pushed into the occupied space, which could generate white steam coming out of the discharge side of the indoor unit.
White Smoke from Indoor Unit	At Beginning of Heating Season	This might occur when dust attached to the heat exchanger has been dried.
Mist from Indoor Unit	In Restaurant or Kitchen	This can occur when oily residue coats the fins and heat exchanger efficiency is degraded.
	During Dry Operation	This might occur due to the air outlet temperature decreasing. Change the operation mode.
	During Cooling Operation in Humid Environment	This might occur due to the air outlet temperature decreasing. Raise the set temperature and airflow volume.
Odor from Indoor Unit	Odors Emanating from Indoor Unit Air Discharge	The intake of cigarette smoke is the likely reason, with nicotine deposits coating or clogging the cells and surfaces of the air filter. Ventilate the unit well in fan mode and clean the air filter, the air outlet and air inlet grill.
Sound from Indoor Unit	A grating sound is heard when starting or stopping the operation.	This is the sound made when the components are rubbing up against one another due to expansion and contraction of plastic formed parts brought on by temperature change.
	Sound of water flowing or bubbling is heard during the operation.	This is the sound made when the refrigerant flows or the drain-up mechanism drains water. The sound may be heard especially when starting the operation or stopping the compressor (for approximately three minutes).
	A growling sound may be heard temporarily right after the airflow volume is changed.	It is generated because the fan motor makes temporary sound with change of fan speed.
Temperature Irregularity	Airflow volume and temperature irregularities exist for each outlet.	This might occur for structural reasons, such as the size of an air outlet and the location of heat exchanger.
“HOT-START” on LCD Illuminated (ON)		This might occur according to the operation mode or operational conditions.
Operation Mode on LCD Flashing		

## 8.2 Before Contacting a Contractor

Refer to the information below before contacting a contractor.

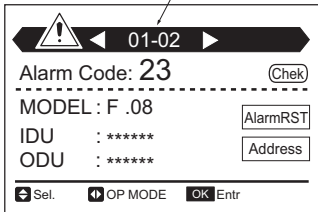
Problem		Checking Point	Action
Operation Unavailable		Check that the main power source is turned ON.	Turn ON the power at the main power source for the air conditioner.
		Check that the fuse is not blown or the circuit breaker from the main power source is not tripped.	Replace the fuse or reset the circuit breaker. If the problem recurs, contact your contractor or distributor.
Immediate shutdown after start-up	Cooling	Check that the air inlet and outlet for the outdoor unit are not obstructed.	Remove objects obstructing the air inlet and outlet.
	Heating	Check if there are any obstacles impeding the airflow near the air inlet and outlet of the outdoor unit.	Remove any obstacles obstructing airflow.
		Check that the outlet air is not redirected into the air inlet.	
Insufficient Cooling or Heating		Check that the operation mode is appropriate.	If the fan mode is selected, switch the operation mode to cooling/heating.
		Check that the set temperature is appropriate.	If not, change the temperature setting by pressing “Δ” or “▽” with the wired controller.
		Check that the airflow direction is appropriate.	If not, change the airflow direction. If the room is not heated well during the heating operation, change the louver downward.
		Check that the air filter is not clogged.	Clean the air filter.
		Verify that there are no open windows and doors.	Close windows and doors.
		Check that there are no obstacles impeding airflow near the air inlet and outlet for both indoor and outdoor units.	Remove the obstacles.

### 8.3 Contact Distributor

If problem still remains even after checking previous issues or other problems not mentioned in the previous issues occur, stop using the product and contact your distributor or contractor.

## ! WARNING

**If an abnormality such as a burnt odor or something similar occurs, stop the operation and turn OFF the main power source immediately. If the power source is not turned OFF, there may be damage of the product, an electric shock or a fire.  
Contact your distributor or contractor.**

Trouble	Action before Contacting Contractor or Distributor
The protection devices (fuse, breaker, GFCI, and so forth) are frequently activated or the operation switch does not work.	Turn OFF the power source.
Water Leakage from the Indoor Unit.	Stop the operation.
<ul style="list-style-type: none"><li>The RUN indicator (red) is flashing.</li><li>The indoor unit number, the alarm code, the unit model code and the number of connected indoor units are displayed on the LCD.</li><li>In a case where the multiple indoor units are connected to one controller, the above abnormality informations for each indoor unit is displayed individually.</li></ul> <p>Check the details on the LCD and contact your distributor.</p> <div><p>Indoor Unit Number</p></div>	<p>Refer to the alarm code table. Contact your distributor and advise the indication detail on the wired controller.</p>

**Provide the following information when contacting your distributor.**

- 1) Unit Model**
- 2) Explain the Trouble or Problem**
- 3) Alarm Code No. on the LCD or Details of a Flashing Indicator**

## 8.4 Alarm Code

Code	Category	Content of Abnormality	Code	Category	Content of Abnormality
01	Indoor Unit	Activation of Protection Device	35	System	Incorrect Setting of Indoor Unit No.
02	Outdoor Unit	Activation of Protection Device (High Pressure Cut)	36		Incorrect Indoor Unit Combination
03	Communication	Operational Irregularities between Indoor and Outdoor	38		Problem with Protective Pickup Circuit in Outdoor Unit
04		Problem between Inverter PCB and Outdoor PCB	39	Compressor	Problem with Running Current at Constant Speed Compressor
05	Supply Phase	Problem of Power Source Phases	41	Pressure	Overload Cooling
06	Voltage	Abnormal Voltage Drop in Outdoor Unit	42		Overload Heating
07	Cycle	Decrease in Superheated Discharge Gas	43	Protection Device	Activation of Pressure Ratio Decrease Protection Device
08		Increase in Discharge Gas Temperature	44		Activation of Low Pressure Decrease Protection Device
09	Outdoor Unit	Activation of Protection Device for Outdoor Fan	45		Activation of Low Pressure Increase Protection Device
11	Sensor on Indoor Unit	Inlet Air Thermistor Failure	46		Activation of High Pressure Increase Protection Device
12		Outlet Air Thermistor Failure	47		Activation of High Pressure Decrease Protection Device
13		Freeze Protection Thermistor Failure	48		Activation of Overcurrent Protection Device
14		Gas Piping Thermistor Failure	51	Inverter	Problem with Inverter Current Sensor
19	Fan Motor	Activation of Protection Device for Indoor Fan	52		Activation of Inverter Overcurrent Protection
20	Sensor on Outdoor Unit	Compressor Thermistor Failure	53		Activation of Transistor Module Protection
21		High Pressure Sensor Failure	54		Abnormality of Inverter Fin Temperature
22		Outdoor Air Thermistor Failure	56	Outdoor Fan	Abnormality of Detection for Fan Motor Position
23		Discharge Gas Thermistor Failure	57		Activation of Fan Controller Protection
24		Evaporating Thermistor Failure	58		Abnormality of Fan Controller
29		Low Pressure Sensor Failure	b0	System	Incorrect Setting of Unit Capacity
31	System	Incorrect Capacity Setting of Outdoor Unit and Indoor Unit	b1		Incorrect Setting of Unit and Refrigerant System No.
32		Incorrect Setting of Other Indoor Unit Number	EE	Compressor	Compressor Protection Alarm

