Service Manual

Multi-Split Type Air Conditioners
RMXS-L Series

[Applied Models]
● Inverter Multi : Heat Pump
Multi-Split Type Air Conditioners
RMXS-L Series

Heat Pump

Outdoor Unit
RMXS48LVJU

Branch Provider (BP) Unit
BPMKS048A2U
BPMKS049A3U

Indoor Unit
CTXG09QVJUW  FDXS09LVJU  FVXS09NVJU  FFQ09Q2VJU
CTXG09QVJUS  FDXS12LVJU  FVXS12NVJU  FFQ12Q2VJU
CTXG12QVJUW  CDXS15LVJU  FVXS15NVJU  FFQ15Q2VJU
CTXG12QVJUS  CDXS18LVJU  FVXS18NVJU  FFQ18Q2VJU
CTXG18QVJUW  CDXS24LVJU
CTXG18QVJUS

CTXS07JVJU
CTXS09HVJU
CTXS12HVJU
CTXS07LVJU
FTXS09LVJU
FTXS12LVJU
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1. Introduction

1.1 Safety Considerations

Read these SAFETY CONSIDERATIONS carefully before performing any repair work. Comply with these safety symbols without fail. Meanings of DANGER, WARNING, CAUTION, and NOTE Symbols:

- **DANGER** ................. Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING** .............. Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION** ............... Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
- **NOTE** ................. Indicates situations that may result in equipment or property-damage accidents only.

### 1.1.1 Safety Considerations for Repair

- **DANGER**
  - If refrigerant gas leaks during repair or service, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes into contact with flames. Refrigerant gas is heavier than air and replaces oxygen. In the event of an accident, a massive leak could lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur which will result in serious injury or death.
  - Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug if a plug is used. Plugging or unplugging the power cable plug to operate the equipment will result in an electrical shock or fire.

- **WARNING**
  - Use parts listed in the service parts list and appropriate tools to conduct repair work. The use of inappropriate parts or tools could result in an electrical shock or fire.
  - Disconnect power before disassembling the equipment for repairs. Working on the equipment that is connected to the power supply could result in an electric shock. If it is necessary to supply power to the equipment to conduct repairs or to inspect the circuits, do not touch any electrically charged sections of the equipment.
  - The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Discharge the capacitor completely before conducting repair work. A charged capacitor could result in an electrical shock.
  - If refrigerant gas is discharged during repair work, do not touch the discharged refrigerant gas. The refrigerant gas could result in frostbite.
  - Use only pipes, flare nuts, tools, and other materials designed specifically for R410A refrigerant systems. Never use tools or materials designed for R22 refrigerant systems on an R410A refrigerant system. Doing so could result in a serious accident or an equipment failure.
  - Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections could result in excessive heat generation, fire or electrical shock.
  - Securely fasten the outside unit terminal cover (panel). If the terminal cover/panel is not fastened properly, dust or water may enter the outside unit and could result in an electrical shock or fire.
  - If refrigerant gas leaks, locate the leaking point and repair it before charging refrigerant. After charging refrigerant, check for refrigerant leaks. If the leaking point cannot be located and the repair work must be stopped, perform a pump-down and close the service valve to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it could generate toxic gases if it comes into contact with flames.
  - Do not repair the electrical components with wet hands. Working on the equipment with wet hands could result in an electrical shock.
  - Do not clean the air conditioner by splashing water on it. Washing the unit with water could result in an electrical shock.

- **CAUTION**
  - Prior to disconnecting the suction or discharge pipe from the compressor at the welded section, pump-down the refrigerant gas completely in a well-ventilated place first. If there is refrigerant gas or oil remaining inside the compressor, the refrigerant gas or oil can discharge when the pipe is being disconnected and it may result in an injury.
  - Wear a safety helmet, gloves, and a safety belt when working at an elevated height of more than 6.5 ft (2 m). Insufficient safety measures may result in a falling injury.
  - Do not mix air or gas other than the specified refrigerant R410A to the refrigerant system. If air enters the refrigerant systems, it may cause excessive high pressure and may result in equipment damage and injury.
When relocating the equipment, check if the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and the equipment is not properly secured, the equipment may fall and result in injury.

When relocating the system, keep the refrigerant circuit free from substances other than the specified refrigerant (R-410A) such as air. Any presence of air or other foreign substance in the refrigerant circuit can result in an abnormal pressure rise or rupture, and may result in injury.

Ground the unit when repairing equipment in a humid or wet place to avoid electrical shocks.

Turn off the power when cleaning the equipment to prevent internal fans that rotate at high speed from starting suddenly or this could result in injury.

Let the refrigerant lines cool down before performing any repair work. Working on the unit when the refrigerant lines are hot may result in burns.

All welding and cutting operations must be done in a well-ventilated place to prevent the accumulation of toxic fumes or possibly oxygen deficiency to occur.

Check the grounding and repair it if the equipment is not properly grounded. Improper grounding may result in an electrical shock.

Measure the insulation resistance after the repair. The resistance must be 1MΩ or higher. Faulty insulation may result in an electrical shock.

Check the drainage of the indoor unit after finishing repair work. Faulty drainage may result in water entering the room resulting in wet floors and furniture.

Do not tilt the unit when removing it. The water inside the unit may spill resulting in wet floors and furniture.

Dismantling of the unit, disposal of the refrigerant, oil, and additional parts, should be done in accordance with the relevant local, state, and national regulations.

1.1.2 Safety Considerations for Users

DANGER

Never attempt to modify the equipment. Doing so will result in electrical shock, excessive heat generation or fire.

WARNING

If the power cable and lead wires have scratches or have become deteriorated, have them replaced.

Damaged cable and wires could result in an electrical shock or fire.

Do not use a joined power cable or an extension cord, or share the same power outlet with other electrical appliances as it could result in an electrical shock or fire.

Use an exclusive power circuit for the equipment. Insufficient circuit amperage capacity could result in an electrical shock or fire.

Never remove the fan guard of the unit. A fan rotating at high speed without the fan guard is very dangerous and could result in injury.

Check the unit foundation for damage on a continual basis, especially if it has been in use for a long time. If left in a damaged condition, the unit may fall which may result in injury. If the installation platform or frame has corroded, have it replaced. A corroded platform or frame could result in the unit falling and possible injury.

CAUTION

Do not damage or modify the power cable. Damaged or modified power cables may result in an electrical shock or fire. Placing heavy items on the power cable or pulling the power cable may result in damage to the cable.

If the unit has a power cable plug and it is dirty, clean the plug before securely inserting it into a power outlet. If the plug has a loose connection, tighten it or it may result in electrical shock or fire.

After replacing the battery in the remote controller, dispose of the old battery to prevent children from swallowing it. If a child swallows the battery, see a doctor immediately.

Before cleaning the unit, stop the operation of the unit by turning the power off or by pulling the power cable plug out from its receptacle. Otherwise an electrical shock or injury may result.

NOTE

Do not wipe the controller operation panel with benzene, thinner, chemical dust cloth, etc. The panel may get discolored or the coating can peel off. If it is extremely dirty, soak a cloth in a water-diluted neutral detergent, squeeze it well, and wipe the panel clean. Then wipe it with another dry cloth.
1.2 Icons Used

The following icons are used to attract the attention of the reader to specific information.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Type of Information</th>
<th>Description</th>
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<tbody>
<tr>
<td>![Warning Icon]</td>
<td>Warning</td>
<td>A <strong>Warning</strong> is used when there is danger of personal injury.</td>
</tr>
<tr>
<td>![Caution Icon]</td>
<td>Caution</td>
<td>A <strong>Caution</strong> is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or have to restart (part of) a procedure.</td>
</tr>
<tr>
<td>![Note Icon]</td>
<td>Note</td>
<td>A <strong>Note</strong> provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.</td>
</tr>
<tr>
<td>![Reference Icon]</td>
<td>Reference</td>
<td>A <strong>Reference</strong> guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.</td>
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1.3 Legends

- **Ta** Outdoor temperature
- **Tb** Outdoor heat exchanger temperature
- **Tc** High pressure equivalent saturation temperature
- **Tdi** Discharge pipe temperature
- **Te** Low pressure equivalent saturation temperature
- **Tfin** Radiation fin temperature
- **Tl** Liquid pipe temperature
- **Tp** Value of compressor port temperature calculated by Tc and Te, and suction superheated degree
- **Tr** Room thermistor temperature
- **Ts** Set temperature
- **Ts1** Suction pipe temperature 1
- **Ts2** Suction pipe temperature 2
- **Tsh** Subcooling heat exchanger gas pipe temperature
- **Tt** Target temperature
- **HTdi** Value of discharge pipe temperature (Tdi) compensated with outdoor temperature
- **SC** Difference between the heat exchanger temperature and liquid pipe temperature of each indoor unit
- **SH** Difference between the heat exchanger temperature and gas pipe temperature of each indoor unit
- **Pc** High pressure sensor detection value
- **Pe** Low pressure sensor detection value
Part 1
List of Functions

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# 1. Functions

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1.2 Indoor Unit

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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Program dry function</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fan only</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setback function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifestyle Convenience</td>
<td>POWERFUL operation (non-inverter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>POWERFUL operation (inverter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority-room setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COOL/HEAT mode lock</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HOME LEAVE operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECONO operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indoor unit ON/OFF button</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signal receiving sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R/C with back light</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- •: Available
- —: Not available
- ★1: With wired remote controller
- ★2: With wireless remote controller
- ★3: Receiving sound only
Part 2
Specifications

1. Specifications ........................................................................................................10
   1.1 Outdoor Unit .................................................................................................. 10
   1.2 Branch Provider (BP) Unit ............................................................................ 11
   1.3 Indoor Unit ................................................................................................... 12
1. Specifications

1.1 Outdoor Unit

<table>
<thead>
<tr>
<th>Specifications</th>
<th>60 Hz, 208 - 230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>RMXS48LVJU</td>
</tr>
<tr>
<td>Cooling Capacity Btu/h</td>
<td>48,000</td>
</tr>
<tr>
<td>Heating Capacity Btu/h</td>
<td>54,000</td>
</tr>
<tr>
<td>COP ★</td>
<td>W/W</td>
</tr>
<tr>
<td>EER ★</td>
<td>Btu/W·h</td>
</tr>
<tr>
<td>SEER ★</td>
<td></td>
</tr>
<tr>
<td>HSPF ★</td>
<td></td>
</tr>
<tr>
<td>Casing Color</td>
<td>Ivory White</td>
</tr>
<tr>
<td>Heat Exchanger</td>
<td>Cross Fin Coil</td>
</tr>
</tbody>
</table>

Notes:
1. ★ Max.: for the combination of wall mounted type indoor units
Min.: for the combination of duct connected type indoor units
2. The data are based on the conditions shown in the table below.

<table>
<thead>
<tr>
<th>Conversion Formulae</th>
</tr>
</thead>
<tbody>
<tr>
<td>kcal/h = kW × 860</td>
</tr>
<tr>
<td>Btu/h = kW × 3412</td>
</tr>
<tr>
<td>cfm = m³/min × 35.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>RMXS48LVJU</td>
</tr>
<tr>
<td>Compressor Type</td>
<td>Hermetically Sealed Scroll Type</td>
</tr>
<tr>
<td>Piston Displacement</td>
<td>791.5</td>
</tr>
<tr>
<td>Number of Revolutions</td>
<td>6,480</td>
</tr>
<tr>
<td>Motor Output (kW)</td>
<td>3.0</td>
</tr>
<tr>
<td>Starting Method</td>
<td>Direct on line</td>
</tr>
<tr>
<td>Refrigerant Oil</td>
<td>Model DAPHNE FVC068D</td>
</tr>
<tr>
<td>Charge Lbs (kg)</td>
<td>57.5 (1.7)</td>
</tr>
<tr>
<td>Refrigerant Type</td>
<td>R-410A</td>
</tr>
<tr>
<td>Charge oz (L)</td>
<td>8.8 (4.0)</td>
</tr>
<tr>
<td>Fan Type</td>
<td>Propeller Fan</td>
</tr>
<tr>
<td>Motor Output kW</td>
<td>0.070 × 2</td>
</tr>
<tr>
<td>Airflow rate cfm</td>
<td>3,740</td>
</tr>
<tr>
<td>Drive</td>
<td>Direct Drive</td>
</tr>
<tr>
<td>Dimensions (H × W × D)</td>
<td>52-15/16 × 35-7/16 × 12-5/8 (1,345 × 900 × 320)</td>
</tr>
<tr>
<td>Weight (Mass) Lbs (kg)</td>
<td>283 (129)</td>
</tr>
<tr>
<td>Piping Connections</td>
<td>Liquid φ 3/8 (φ 9.5) C1220T (Flare Connection)</td>
</tr>
<tr>
<td>Gas</td>
<td>φ 3/4 (φ 19.1) C1220T (Brazing Connection)</td>
</tr>
<tr>
<td>Defrost Method</td>
<td>Reverse Cycle Defrosting</td>
</tr>
<tr>
<td>Drawing No.</td>
<td>4D080735</td>
</tr>
</tbody>
</table>

Notes:
1. ★ Max.: for the combination of wall mounted type indoor units
Min.: for the combination of duct connected type indoor units
2. The data are based on the conditions shown in the table below.

<table>
<thead>
<tr>
<th>Piping Connections</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>O.U. – BP</td>
<td>18.4 ft (5 m)</td>
</tr>
<tr>
<td>BP – I.U.</td>
<td>9.8 ft (3 m)</td>
</tr>
<tr>
<td>Level Difference</td>
<td>0 ft (0 m)</td>
</tr>
</tbody>
</table>

Cooling Indoor : 80°FDB (26.7°CDB) / 67°FWB (19.4°CWB)
Outdoor : 95°FDB (35°CDB)

Heating Indoor : 70°FDB (21°CDB)
Outdoor : 47°FDB (8.3°CDB) / 43°FWB (6°CWB)
## 1.2 Branch Provider (BP) Unit

**60 Hz, 208 - 230 V**

<table>
<thead>
<tr>
<th>Model</th>
<th>BPMKS048A2U</th>
<th>BPMKS049A3U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Consumption</strong></td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>Running Current</strong></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Refrigerant Type</strong></td>
<td>R-410A</td>
<td>R-410A</td>
</tr>
<tr>
<td><strong>Dimensions (H × W × D)</strong></td>
<td>7-1/16 × 11-9/16 × 13-3/4 (180 × 294 [678]* × 350)</td>
<td></td>
</tr>
<tr>
<td><strong>Packaged Dimensions (H × W × D)</strong></td>
<td>10-1/8 × 29-1/16 × 16-13/16 (257 × 738 × 427)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg)</td>
<td>Lbs (kg)</td>
</tr>
<tr>
<td></td>
<td>18 (8)</td>
<td>20 (9)</td>
</tr>
<tr>
<td><strong>Gross Weight (Gross Mass)</strong></td>
<td>27 (12)</td>
<td>29 (13)</td>
</tr>
<tr>
<td><strong>Number of Wiring Connections</strong></td>
<td>3 (including ground wiring)</td>
<td>2 (for DIII transmission)</td>
</tr>
<tr>
<td><strong>Piping Connection (Flare)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Liquid</strong> O.U. side</td>
<td>in. (mm)</td>
<td>in. (mm)</td>
</tr>
<tr>
<td></td>
<td>φ 3/8 (φ 9.5) × 1</td>
<td>φ 1/4 (φ 6.4) × 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>φ 1/4 (φ 6.4) × 3</td>
</tr>
<tr>
<td><strong>Gas</strong> O.U. side</td>
<td>in. (mm)</td>
<td>in. (mm)</td>
</tr>
<tr>
<td></td>
<td>φ 5/8 (φ 15.9) × 2</td>
<td>φ 5/8 (φ 15.9) × 3</td>
</tr>
<tr>
<td><strong>Drain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drain Processless</td>
</tr>
</tbody>
</table>

| **Min. Combination** | Btu/h | 7,000 |
| **Max. Combination** | Btu/h | 48,000 | 62,000 |
| **Drawing No.**      | 4D080441 |       |

**Note:** [ ]*: including auxiliary piping length

---

### Conversion Formulae

- kcal/h = kW × 860
- Btu/h = kW × 3412
- cfm = m³/min × 35.3
### 1.3 Indoor Unit

#### 1.3.1 CTXG Series

<table>
<thead>
<tr>
<th>Model</th>
<th>CTXG09QVJUW</th>
<th>CTXG09QVJUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>Cooling 9 kBTU/h Class</td>
<td>Heating 9 kBTU/h Class</td>
</tr>
<tr>
<td><strong>Front Panel Color</strong></td>
<td>White</td>
<td>Silver</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
<td>H: 279 (7.9)</td>
<td>367 (10.4)</td>
</tr>
<tr>
<td></td>
<td>M: 212 (6.0)</td>
<td>265 (7.5)</td>
</tr>
<tr>
<td></td>
<td>L: 162 (4.6)</td>
<td>205 (5.6)</td>
</tr>
<tr>
<td></td>
<td>SL: 134 (3.8)</td>
<td>117 (3.3)</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Cross Flow Fan</td>
<td></td>
</tr>
<tr>
<td><strong>Motor Output</strong></td>
<td>W: 29</td>
<td></td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>5 Steps, Quiet, Auto</td>
<td></td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td></td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td></td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A: 0.07 - 0.07</td>
<td></td>
</tr>
<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W: 13 - 13</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm): 11-15/16 x 39-5/16 x 8-3/8 (303 x 998 x 212)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg): 27 (12)</td>
<td></td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>H / M / L / SL dB(A): 38 / 32 / 25 / 21</td>
<td></td>
</tr>
<tr>
<td><strong>Heat Insulation</strong></td>
<td>Both Liquid and Gas Pipes</td>
<td></td>
</tr>
<tr>
<td><strong>Piping Connections</strong></td>
<td>Liquid in. (mm): ø 1/4 (ø 6.4)</td>
<td></td>
</tr>
<tr>
<td><strong>Drawing No.</strong></td>
<td>3D105562</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>CTXG12QVJUW</th>
<th>CTXG12QVJUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>Cooling 12 kBTU/h Class</td>
<td>Heating 12 kBTU/h Class</td>
</tr>
<tr>
<td><strong>Front Panel Color</strong></td>
<td>White</td>
<td>Silver</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
<td>H: 353 (10.0)</td>
<td>420 (11.9)</td>
</tr>
<tr>
<td></td>
<td>M: 230 (6.5)</td>
<td>300 (6.5)</td>
</tr>
<tr>
<td></td>
<td>L: 162 (4.6)</td>
<td>219 (6.2)</td>
</tr>
<tr>
<td></td>
<td>SL: 134 (3.8)</td>
<td>124 (3.5)</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Cross Flow Fan</td>
<td></td>
</tr>
<tr>
<td><strong>Motor Output</strong></td>
<td>W: 29</td>
<td></td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>5 Steps, Quiet, Auto</td>
<td></td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td></td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td></td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A: 0.13 - 0.12</td>
<td></td>
</tr>
<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W: 26 - 26</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm): 11-15/16 x 39-5/16 x 8-3/8 (303 x 998 x 212)</td>
<td></td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg): 27 (12)</td>
<td></td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>H / M / L / SL dB(A): 45 / 34 / 26 / 22</td>
<td></td>
</tr>
<tr>
<td><strong>Heat Insulation</strong></td>
<td>Both Liquid and Gas Pipes</td>
<td></td>
</tr>
<tr>
<td><strong>Piping Connections</strong></td>
<td>Liquid in. (mm): ø 1/4 (ø 6.4)</td>
<td></td>
</tr>
<tr>
<td><strong>Drawing No.</strong></td>
<td>3D105563</td>
<td></td>
</tr>
</tbody>
</table>

Conversion Formulae:
- kcal/h = kW x 860
- Btu/h = kW x 3412
- cfm = m³/min x 35.3
### Specifications

#### 60 Hz, 208 - 230 V

<table>
<thead>
<tr>
<th>Model</th>
<th>CTXG18QVJUW</th>
<th>CTXG18QVJUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Capacity</td>
<td>Cooling 18 kBtu/h Class</td>
<td>Heating 18 kBtu/h Class</td>
</tr>
<tr>
<td>Front Panel Color</td>
<td>White</td>
<td>Silver</td>
</tr>
<tr>
<td>Airmass Rate</td>
<td>H</td>
<td>364 (10.3)</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>286 (8.1)</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>233 (6.6)</td>
</tr>
<tr>
<td></td>
<td>SL</td>
<td>219 (6.2)</td>
</tr>
<tr>
<td>Fan</td>
<td>Speed</td>
<td>5 Steps, Quiet, Auto</td>
</tr>
<tr>
<td></td>
<td>Type</td>
<td>Cross Flow Fan</td>
</tr>
<tr>
<td></td>
<td>Motor Output</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Fan Type</td>
<td>Cross Flow Fan</td>
</tr>
<tr>
<td></td>
<td>Speed Steps</td>
<td>5 Steps, Quiet, Auto</td>
</tr>
<tr>
<td></td>
<td>Fan Type</td>
<td>Cross Flow Fan</td>
</tr>
<tr>
<td>Air Direction Control</td>
<td>Right, Left, Horizontal, Downward</td>
<td>Right, Left, Horizontal, Downward</td>
</tr>
<tr>
<td>Air Filter</td>
<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
<tr>
<td>Running Current (Rated)</td>
<td>A</td>
<td>0.14 - 0.14</td>
</tr>
<tr>
<td>Power Consumption (Rated)</td>
<td>W</td>
<td>28 - 28</td>
</tr>
<tr>
<td>Power Factor (Rated)</td>
<td>%</td>
<td>96.1 - 87.0</td>
</tr>
<tr>
<td>Temperature Control</td>
<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>in. (mm)</td>
<td>11-15/16 x 39-5/16 x 8-3/8 (303 x 998 x 212)</td>
</tr>
<tr>
<td>Packaged Dimensions (H x W x D)</td>
<td>in. (mm)</td>
<td>12-11/16 x 43-3/8 x 15-5/16 (322 x 1,101 x 389)</td>
</tr>
<tr>
<td>Weight (Mass)</td>
<td>Lbs (kg)</td>
<td>27 (12)</td>
</tr>
<tr>
<td>Gross Weight (Gross Mass)</td>
<td>Lbs (kg)</td>
<td>36 (16)</td>
</tr>
<tr>
<td>Sound Pressure Level</td>
<td>H / M / L / SL</td>
<td>dB(A)</td>
</tr>
<tr>
<td>Sound Power Level</td>
<td>dB</td>
<td>—</td>
</tr>
<tr>
<td>Heat Insulation</td>
<td>Both Liquid and Gas Pipes</td>
<td>Both Liquid and Gas Pipes</td>
</tr>
<tr>
<td>Piping Connections</td>
<td>Liquid</td>
<td>in. (mm)</td>
</tr>
<tr>
<td></td>
<td>Gas</td>
<td>in. (mm)</td>
</tr>
<tr>
<td></td>
<td>Drain</td>
<td>in. (mm)</td>
</tr>
<tr>
<td>Drawing No.</td>
<td>3D105564</td>
<td>3D105567</td>
</tr>
</tbody>
</table>

**Conversion Formulae**

- kcal/h = kW × 860
- Btu/h = kW × 3412
- cfm = m³/min × 35.3
## 1.3.2 CTXS, FTXS Series

### Specifications

**60 Hz, 208 - 230 V**

<table>
<thead>
<tr>
<th>Model</th>
<th>CTXS07JVJU</th>
<th>CTXS09HVJU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>Cooling 7 kBtu/h Class</td>
<td>Heating 9 kBtu/h Class</td>
</tr>
<tr>
<td><strong>Front Panel Color</strong></td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
<td>H cfm (m³/min)</td>
<td>M 335 (9.5)</td>
</tr>
<tr>
<td></td>
<td>388 (11.0)</td>
<td>357 (10.1)</td>
</tr>
<tr>
<td><strong>Fan</strong></td>
<td>Type</td>
<td>Cross Flow Fan</td>
</tr>
<tr>
<td><strong>Motor Output</strong></td>
<td>W</td>
<td>40</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>Steps 5 Steps, Quiet, Auto</td>
<td>5 Steps, Quiet, Auto</td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td>Right, Left, Horizontal, Downward</td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W</td>
<td>40</td>
</tr>
<tr>
<td><strong>Power Factor (Rated)</strong></td>
<td>%</td>
<td>96.6</td>
</tr>
<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm)</td>
<td>11-7/16 x 31-5/16 x 9-3/8 (290 x 795 x 238)</td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg)</td>
<td>20 (9)</td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>dB(A)</td>
<td>44 / 40 / 35 / –</td>
</tr>
<tr>
<td><strong>Sound Power Level</strong></td>
<td>– –</td>
<td>– –</td>
</tr>
<tr>
<td><strong>Heat Insulation</strong></td>
<td>Both Liquid and Gas Pipes</td>
<td>Both Liquid and Gas Pipes</td>
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<tr>
<td><strong>Piping Connections</strong></td>
<td>Liquid in. (mm) φ 1/4</td>
<td>φ 1/4 (φ 6.4)</td>
</tr>
<tr>
<td></td>
<td>Gas in. (mm) φ 3/8</td>
<td>φ 3/8 (φ 9.5)</td>
</tr>
<tr>
<td></td>
<td>Drain in. (mm) φ 11/16</td>
<td>φ 11/16 (φ 18.0)</td>
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<tr>
<td><strong>Drawing No.</strong></td>
<td>3D066156A</td>
<td>3D062870A</td>
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<th>CTXS07LVJU</th>
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<td>Heating 7 kBtu/h Class</td>
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<tr>
<td><strong>Airflow Rate</strong></td>
<td>H cfm (m³/min)</td>
<td>M 335 (9.5)</td>
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<tr>
<td></td>
<td>388 (11.0)</td>
<td>357 (10.1)</td>
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<tr>
<td><strong>Fan</strong></td>
<td>Type</td>
<td>Cross Flow Fan</td>
</tr>
<tr>
<td><strong>Motor Output</strong></td>
<td>W</td>
<td>40</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>Steps 5 Steps, Quiet, Auto</td>
<td>5 Steps, Quiet, Auto</td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td>Right, Left, Horizontal, Downward</td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
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<td><strong>Power Consumption (Rated)</strong></td>
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<td><strong>Power Factor (Rated)</strong></td>
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<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm)</td>
<td>11-7/16 x 31-5/16 x 9-3/8 (290 x 795 x 238)</td>
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<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg)</td>
<td>20 (9)</td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>dB(A)</td>
<td>44 / 40 / 36 / –</td>
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<td><strong>Sound Power Level</strong></td>
<td>– –</td>
<td>54</td>
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<td>Both Liquid and Gas Pipes</td>
<td>Both Liquid and Gas Pipes</td>
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<tr>
<td><strong>Piping Connections</strong></td>
<td>Liquid in. (mm) φ 1/4</td>
<td>φ 1/4 (φ 6.4)</td>
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<tr>
<td></td>
<td>Gas in. (mm) φ 3/8</td>
<td>φ 3/8 (φ 9.5)</td>
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<tr>
<td></td>
<td>Drain in. (mm) φ 11/16</td>
<td>φ 11/16 (φ 18.0)</td>
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<td><strong>Drawing No.</strong></td>
<td>3D066281A</td>
<td>3D075490</td>
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### Conversion Formulae

- kcal/h = kW × 860
- Btu/h = kW × 3412
- cfm = m³/min × 35.3
## Specifications

### FTXS09LVJU

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<thead>
<tr>
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<td>M</td>
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<tr>
<td>cfm (m³/min)</td>
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<tr>
<td></td>
<td>420 (11.9)</td>
<td>321 (9.1)</td>
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<td>H</td>
<td>M</td>
</tr>
<tr>
<td>Type</td>
<td>Cross Flow Fan</td>
<td>Cross Flow Fan</td>
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<td>W</td>
<td>W</td>
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<td>Right, Left, Horizontal, Downward</td>
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<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
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<td>Running Current (Rated)</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Power Consumption (Rated)</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Power Factor (Rated)</td>
<td>%</td>
<td>%</td>
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<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>in. (mm)</td>
<td>11-5/8 x 31-1/2 x 8-7/16 (295 x 800 x 215)</td>
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<tr>
<td>Weight (Mass)</td>
<td>Lbs (kg)</td>
<td>20 (9)</td>
</tr>
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<td>Gross Weight (Gross Mass)</td>
<td>Lbs (kg)</td>
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<td>41 / 33 / 25 / 22</td>
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<td>dB</td>
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<td>Both Liquid and Gas Pipes</td>
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<td>Liquid in. (mm)</td>
<td>φ 1/4 (6.4)</td>
</tr>
<tr>
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<td>Gas in. (mm)</td>
<td>φ 3/8 (9.5)</td>
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<td></td>
<td>Drain in. (mm)</td>
<td>φ 5/8 (16)</td>
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### FTXS12LVJU

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<td>M</td>
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<td>cfm (m³/min)</td>
<td>568 (16.1)</td>
<td>477 (13.5)</td>
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<td>593 (16.8)</td>
<td>505 (14.3)</td>
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<td>H</td>
<td>M</td>
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<td>Type</td>
<td>Cross Flow Fan</td>
<td>Cross Flow Fan</td>
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<td>W</td>
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<td>Right, Left, Horizontal, Downward</td>
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<td>Removable, Washable, Mildew Proof</td>
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<td>Running Current (Rated)</td>
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<td>Power Consumption (Rated)</td>
<td>W</td>
<td>W</td>
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<tr>
<td>Power Factor (Rated)</td>
<td>%</td>
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<td>Microcomputer Control</td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>in. (mm)</td>
<td>13-3/8 x 41-5/16 x 9-3/4 (340 x 1,050 x 248)</td>
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<td>Lbs (kg)</td>
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<td>Lbs (kg)</td>
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<td>dB(A)</td>
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<td>dB</td>
<td>61</td>
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<td>Both Liquid and Gas Pipes</td>
<td>Both Liquid and Gas Pipes</td>
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<tr>
<td>Piping Connections</td>
<td>Liquid in. (mm)</td>
<td>φ 1/4 (6.4)</td>
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<td></td>
<td>Gas in. (mm)</td>
<td>φ 1/2 (12.7)</td>
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<tr>
<td></td>
<td>Drain in. (mm)</td>
<td>φ 5/8 (16)</td>
</tr>
<tr>
<td>Drawing No.</td>
<td>3D075043A</td>
<td>3D075044A</td>
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### Conversion Formulas

- kcal/h = kW x 860
- Btu/h = kW x 3412
- cfm = m³/min x 35.3
### Specifications

**Model**: FTXS24LVJU

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<td>H: White</td>
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<td><strong>Airlflow Rate</strong></td>
<td>H: 643 (18.2)</td>
<td>699 (19.8)</td>
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<td></td>
<td>M: 494 (14.0)</td>
<td>572 (16.2)</td>
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<tr>
<td></td>
<td>L: 350 (10.9)</td>
<td>445 (12.6)</td>
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<tr>
<td></td>
<td>SL: 328 (9.3)</td>
<td>403 (11.4)</td>
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<tr>
<td><strong>Motor Output</strong></td>
<td>W: 48</td>
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</tr>
<tr>
<td><strong>Speed</strong></td>
<td>5 Steps, Quiet, Auto</td>
<td></td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td></td>
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<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td></td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A: 0.57 - 0.51</td>
<td>0.57 - 0.51</td>
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<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W: 69 - 68</td>
<td>69 - 68</td>
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<tr>
<td><strong>Power Factor (Rated)</strong></td>
<td>%: 58.2 - 58.0</td>
<td>58.2 - 58.0</td>
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<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td></td>
</tr>
<tr>
<td><strong>Packaged Dimensions (H × W × D)</strong></td>
<td>in. (mm): 13 × 45-11/16 × 16-7/8 (331 × 1,160 × 429)</td>
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<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg): 31 (14)</td>
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</tr>
<tr>
<td><strong>Gross Weight (Gross Mass)</strong></td>
<td>Lbs (kg): 46 (21)</td>
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<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>H / M / L / SL dB(A): 51 / 44 / 37 / 34</td>
<td>48 / 42 / 37 / 34</td>
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<tr>
<td><strong>Sound Power Level</strong></td>
<td>dB: 67</td>
<td>64</td>
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<td>Both Liquid and Gas Pipes</td>
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<tr>
<td><strong>Piping Connections</strong></td>
<td>Liquid: &amp; 1/4 (± 6.4)</td>
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<tr>
<td></td>
<td>Gas: &amp; 5/8 (± 15.9)</td>
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<td></td>
<td>Drain: &amp; 5/8 (± 16)</td>
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<td><strong>Drawing No.</strong></td>
<td>3D075045A</td>
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### Conversion Formulae

- \( \text{kcal/h} = \text{kW} \times 860 \)
- \( \text{Btu/h} = \text{kW} \times 3412 \)
- \( \text{cfm} = \text{m}^3/\text{min} \times 35.3 \)
## 1.3.3 CDXS, FDXS Series

### Specifications

**Model**

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<td>12 kBtu/h Class</td>
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<tr>
<td><strong>External Static Pressure</strong></td>
<td>0.12 (30)</td>
<td>0.12 (30)</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
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</tr>
<tr>
<td>H cfm (m³/min)</td>
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<td>305 (8.6)</td>
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<tr>
<td>M cfm (m³/min)</td>
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<td>280 (7.9)</td>
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<td>260 (7.4)</td>
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<tr>
<td>SL cfm (m³/min)</td>
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<td>235 (6.7)</td>
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<td><strong>Fan</strong></td>
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<td>Type</td>
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<td>Sirocco Fan</td>
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<tr>
<td><strong>Motor Output</strong></td>
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<td>W</td>
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<td>Removable, Washable, Mildew Proof</td>
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<tr>
<td><strong>Running Current (Rated)</strong></td>
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<td>A</td>
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<td>0.58 - 0.52</td>
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<td>W</td>
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<td>72 - 72</td>
<td>72 - 72</td>
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<td>%</td>
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<td>59.7 - 60.2</td>
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<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td><strong>Packaged Dimensions (H x W x D)</strong></td>
<td>in (mm)</td>
<td>in (mm)</td>
</tr>
<tr>
<td>7-7/8 x 27-9/16 x 24-7/16 (200 x 700 x 620)</td>
<td>7-7/8 x 27-9/16 x 24-7/16 (200 x 700 x 620)</td>
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<td>Lbs (kg)</td>
<td>Lbs (kg)</td>
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<td>47 (21)</td>
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<td>dB(A)</td>
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<td>35 / 33 / 31</td>
<td>35 / 33 / 31</td>
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<td>dB</td>
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<td>CDXS18LVJU</td>
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<td><strong>External Static Pressure</strong></td>
<td>0.16 (40)</td>
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<td>424 (12.0)</td>
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<td>353 (10.0)</td>
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<td>297 (8.4)</td>
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<td><strong>Fan</strong></td>
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</tr>
<tr>
<td>Type</td>
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<td>Sirocco Fan</td>
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<td>130</td>
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<td><strong>Air Filter</strong></td>
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<td>Removable, Washable, Mildew Proof</td>
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<tr>
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<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
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<tr>
<td><strong>Packaged Dimensions (H x W x D)</strong></td>
<td>in (mm)</td>
<td>in (mm)</td>
</tr>
<tr>
<td>7-7/8 x 35-7/16 x 24-7/16 (200 x 900 x 620)</td>
<td>10-1/2 x 43-9/16 x 29-9/16 (266 x 1,106 x 751)</td>
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<td>Lbs (kg)</td>
<td>Lbs (kg)</td>
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<td>60 (27)</td>
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<td>dB(A)</td>
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<td>H / M / L / SL</td>
<td>37 / 35 / 33 / 31</td>
<td>37 / 35 / 33 / 31</td>
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<tr>
<td><strong>Heat Insulation</strong></td>
<td>Both Liquid and Gas Pipes</td>
<td>Both Liquid and Gas Pipes</td>
</tr>
<tr>
<td><strong>Piping Connections</strong></td>
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</tr>
<tr>
<td>Liquid in. (mm)</td>
<td>φ 1/4 (6.4)</td>
<td>φ 1/4 (6.4)</td>
</tr>
<tr>
<td>Gas in. (mm)</td>
<td>φ 3/16 (6.4)</td>
<td>φ 3/16 (6.4)</td>
</tr>
<tr>
<td>Drain in. (mm)</td>
<td>VP20 (O.D. φ 1-1/32 (26), I.D. φ 25/32 (20))</td>
<td>VP20 (O.D. φ 1-1/32 (26), I.D. φ 25/32 (20))</td>
</tr>
<tr>
<td><strong>Drawing No.</strong></td>
<td>C: 3D075493</td>
<td>C: 3D075494</td>
</tr>
</tbody>
</table>

### Conversion Formulae

- kcal/h = kW x 860
- Btu/h = kW x 3412
- cfm = m³/min x 35.3

---

**Specifications**

17
## Specifications

**Model**

| CDXS24LVJU |

<table>
<thead>
<tr>
<th><strong>Cooling</strong></th>
<th><strong>Heating</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>60 Hz, 208 - 230 V</td>
<td>24 kBTU/h Class</td>
</tr>
</tbody>
</table>

### Rated Capacity

<table>
<thead>
<tr>
<th>External Static Pressure</th>
<th>inH₂O (Pa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>565 (16.0)</td>
</tr>
<tr>
<td>M</td>
<td>523 (14.8)</td>
</tr>
<tr>
<td>L</td>
<td>477 (13.3)</td>
</tr>
<tr>
<td>SL</td>
<td>395 (11.2)</td>
</tr>
</tbody>
</table>

### External Static Pressure

<table>
<thead>
<tr>
<th>Rated Capacity</th>
<th>24 kBTU/h Class</th>
</tr>
</thead>
</table>

### Airflow Rate

<table>
<thead>
<tr>
<th>Airflow Rate</th>
<th>CFM (M³/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>565 (16.0)</td>
</tr>
<tr>
<td>M</td>
<td>523 (14.8)</td>
</tr>
<tr>
<td>L</td>
<td>477 (13.3)</td>
</tr>
<tr>
<td>SL</td>
<td>395 (11.2)</td>
</tr>
</tbody>
</table>

### Fan Type

- Sirocco Fan

### Motor Performance

<table>
<thead>
<tr>
<th>Speed Steps</th>
<th>5 Steps, Quiet, Auto</th>
</tr>
</thead>
</table>

### Air Filter

- Removable, Washable, Mildew Proof

### Running Current (Rated)

<table>
<thead>
<tr>
<th>Current (A)</th>
<th>0.79</th>
</tr>
</thead>
</table>

### Power Consumption (Rated)

<table>
<thead>
<tr>
<th>Power Consumption (W)</th>
<th>160</th>
</tr>
</thead>
</table>

### Power Factor (Rated)

<table>
<thead>
<tr>
<th>Power Factor (%)</th>
<th>90.3</th>
</tr>
</thead>
</table>

### Temperature Control

- Microcomputer Control

### Dimensions (H x W x D)

<table>
<thead>
<tr>
<th>Dimensions (H x W x D)</th>
<th>in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-7/8 x 43-5/16 x 24-7/16</td>
<td>200 x 1,100 x 620</td>
</tr>
</tbody>
</table>

### Packaged Dimensions (H x W x D)

<table>
<thead>
<tr>
<th>Packaged Dimensions (H x W x D)</th>
<th>in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-3/4 x 52-1/16 x 30-1/4</td>
<td>266 x 1,323 x 768</td>
</tr>
</tbody>
</table>

### Weight (Mass)

<table>
<thead>
<tr>
<th>Weight (Lbs (kg))</th>
<th>66 (30)</th>
</tr>
</thead>
</table>

### Gross Weight (Gross Mass)

<table>
<thead>
<tr>
<th>Gross Weight (Lbs (kg))</th>
<th>84 (38)</th>
</tr>
</thead>
</table>

### Sound Pressure Level

<table>
<thead>
<tr>
<th>Sound Pressure Level</th>
<th>H / M / L / SL</th>
<th>38 / 36 / 34 / 32</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>38 / 36 / 34 / 32</td>
</tr>
</tbody>
</table>

### Heat Insulation

- Both Liquid and Gas Pipes

### Piping Connections

<table>
<thead>
<tr>
<th>Piping Connections</th>
<th>Liquid (in. (mm))</th>
<th>1/4 (6.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gas (in. (mm))</td>
<td>5/8 (15.9)</td>
</tr>
<tr>
<td></td>
<td>Drain (in. (mm))</td>
<td>VP20 (O.D. ø 1-1/32 (0.24), O.D. ø 25/32 (0.79))</td>
</tr>
</tbody>
</table>

### Drawing No.

30080590
## 1.3.4 FVXS Series

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>FVXS09NVJU</th>
<th>FVXS12NVJU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>9 kBtu/h Class</td>
<td>12 kBtu/h Class</td>
</tr>
<tr>
<td><strong>Front Panel Color</strong></td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Turbo Fan</td>
<td>Turbo Fan</td>
</tr>
<tr>
<td>Motor Output</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Speed</td>
<td>12.3</td>
<td>13.4</td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td>Right, Left, Horizontal, Downward</td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.14 - 0.13</td>
<td>0.14 - 0.13</td>
</tr>
<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>15 - 15</td>
<td>15 - 15</td>
</tr>
<tr>
<td><strong>Power Factor (Rated)</strong></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>51.5 - 50.2</td>
<td>54.5 - 52.8</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm)</td>
<td>23-5/8 x 27-9/16 x 8-1/4 (600 x 700 x 210)</td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg)</td>
<td>31 (14)</td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>dB(A)</td>
<td>38 / 32 / 26 / 23</td>
</tr>
<tr>
<td><strong>Heating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>15 kBtu/h Class</td>
<td>18 kBtu/h Class</td>
</tr>
<tr>
<td><strong>Front Panel Color</strong></td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td><strong>Airflow Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Turbo Fan</td>
<td>Turbo Fan</td>
</tr>
<tr>
<td>Motor Output</td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td>Speed</td>
<td>23.3</td>
<td>23.3</td>
</tr>
<tr>
<td><strong>Air Direction Control</strong></td>
<td>Right, Left, Horizontal, Downward</td>
<td>Right, Left, Horizontal, Downward</td>
</tr>
<tr>
<td><strong>Air Filter</strong></td>
<td>Removable, Washable, Mildew Proof</td>
<td>Removable, Washable, Mildew Proof</td>
</tr>
<tr>
<td><strong>Running Current (Rated)</strong></td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>0.21 - 0.19</td>
<td>0.21 - 0.19</td>
</tr>
<tr>
<td><strong>Power Consumption (Rated)</strong></td>
<td>W</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>34 - 34</td>
<td>34 - 34</td>
</tr>
<tr>
<td><strong>Power Factor (Rated)</strong></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>68.3 - 69.1</td>
<td>77.8 - 77.8</td>
</tr>
<tr>
<td><strong>Temperature Control</strong></td>
<td>Microcomputer Control</td>
<td>Microcomputer Control</td>
</tr>
<tr>
<td><strong>Dimensions (H x W x D)</strong></td>
<td>in. (mm)</td>
<td>23-5/8 x 27-9/16 x 8-1/4 (600 x 700 x 210)</td>
</tr>
<tr>
<td><strong>Weight (Mass)</strong></td>
<td>Lbs (kg)</td>
<td>31 (14)</td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>dB(A)</td>
<td>44 / 40 / 36 / 32</td>
</tr>
</tbody>
</table>

### Conversion Formulae

- kcal/h = kW × 860
- Btu/h = kW × 3412
- cfm = m³/min ÷ 35.3
### 1.3.5 FFQ Series

#### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>FFQ09Q2VJU</th>
<th>FFQ12Q2VJU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>9 kBtu/h Class</td>
<td>12 kBtu/h Class</td>
</tr>
</tbody>
</table>

#### Decoration Panel (1)

<table>
<thead>
<tr>
<th>Dimensions (H x W x D)</th>
<th>in (mm)</th>
<th>2-3/16 x 27-9/16 x 27-9/16 (55 x 700 x 700)</th>
<th>2-3/16 x 27-9/16 x 27-9/16 (55 x 700 x 700)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>6 (2.7)</td>
<td>6 (2.7)</td>
<td></td>
</tr>
</tbody>
</table>

| Color | White | White |

#### Decoration Panel (2)

<table>
<thead>
<tr>
<th>Dimensions (H x W x D)</th>
<th>in (mm)</th>
<th>1-13/16 x 24-7/16 x 24-7/16 (46 x 620 x 620)</th>
<th>1-13/16 x 24-7/16 x 24-7/16 (46 x 620 x 620)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>6.2 (2.8)</td>
<td>6.2 (2.8)</td>
<td></td>
</tr>
</tbody>
</table>

| Color | White / Silver | White / Silver |

#### Airflow Rate

<table>
<thead>
<tr>
<th>H</th>
<th>cfm (m³/min)</th>
<th>378 (10.7)</th>
<th>396 (11.5)</th>
<th>406 (11.5)</th>
<th>427 (12.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>339 (9.6)</td>
<td>357 (10.1)</td>
<td>353 (10.5)</td>
<td>371 (10.5)</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>268 (7.6)</td>
<td>282 (8.0)</td>
<td>268 (7.6)</td>
<td>282 (8.0)</td>
<td></td>
</tr>
</tbody>
</table>

#### Fan

<table>
<thead>
<tr>
<th>Type</th>
<th>Turbo Fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Output</td>
<td>W</td>
</tr>
<tr>
<td>Speed</td>
<td>3 Steps</td>
</tr>
</tbody>
</table>

#### Temperature Control

<table>
<thead>
<tr>
<th>Microcomputer Control</th>
<th>Microcomputer Control</th>
</tr>
</thead>
</table>

#### Dimensions (H x W x D)

<table>
<thead>
<tr>
<th>in (mm)</th>
<th>10-1/4 x 22-5/8 x 22-5/8 (260 x 575 x 575)</th>
<th>10-1/4 x 22-5/8 x 22-5/8 (260 x 575 x 575)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>36 (16)</td>
<td>36 (16)</td>
</tr>
</tbody>
</table>

#### Gross Weight (Mass) Lbs (kg)

| 40 (18) | 40 (18) |

#### Sound Pressure Level dB(A)

| 38 / 35 / 29 | 38 / 35 / 29 | 39 / 36 / 30 | 39 / 36 / 30 |

#### Heat Insulation

| Both Liquid and Gas Pipes | Both Liquid and Gas Pipes |

### Model

<table>
<thead>
<tr>
<th>FFQ15Q2VJU</th>
<th>FFQ18Q2VJU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rated Capacity</strong></td>
<td>15 kBtu/h Class</td>
</tr>
</tbody>
</table>

#### Decoration Panel (1)

<table>
<thead>
<tr>
<th>Dimensions (H x W x D)</th>
<th>in (mm)</th>
<th>2-3/16 x 27-9/16 x 27-9/16 (55 x 700 x 700)</th>
<th>2-3/16 x 27-9/16 x 27-9/16 (55 x 700 x 700)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>6 (2.7)</td>
<td>6 (2.7)</td>
<td></td>
</tr>
</tbody>
</table>

| Color | White | White |

#### Decoration Panel (2)

<table>
<thead>
<tr>
<th>Dimensions (H x W x D)</th>
<th>in (mm)</th>
<th>1-13/16 x 24-7/16 x 24-7/16 (46 x 620 x 620)</th>
<th>1-13/16 x 24-7/16 x 24-7/16 (46 x 620 x 620)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>6.2 (2.8)</td>
<td>6.2 (2.8)</td>
<td></td>
</tr>
</tbody>
</table>

| Color | White / Silver | White / Silver |

#### Airflow Rate

<table>
<thead>
<tr>
<th>H</th>
<th>cfm (m³/min)</th>
<th>420 (11.9)</th>
<th>441 (12.5)</th>
<th>448 (12.7)</th>
<th>498 (14.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>367 (10.4)</td>
<td>385 (10.9)</td>
<td>378 (10.7)</td>
<td>420 (11.9)</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>293 (8.3)</td>
<td>307 (8.7)</td>
<td>275 (7.8)</td>
<td>307 (8.7)</td>
<td></td>
</tr>
</tbody>
</table>

#### Fan

<table>
<thead>
<tr>
<th>Type</th>
<th>Turbo Fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Output</td>
<td>W</td>
</tr>
<tr>
<td>Speed</td>
<td>3 Steps</td>
</tr>
</tbody>
</table>

#### Temperature Control

<table>
<thead>
<tr>
<th>Microcomputer Control</th>
<th>Microcomputer Control</th>
</tr>
</thead>
</table>

#### Dimensions (H x W x D)

<table>
<thead>
<tr>
<th>in (mm)</th>
<th>10-1/4 x 22-5/8 x 22-5/8 (260 x 575 x 575)</th>
<th>10-1/4 x 22-5/8 x 22-5/8 (260 x 575 x 575)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (Mass)</strong> Lbs (kg)</td>
<td>36 (16)</td>
<td>36 (16)</td>
</tr>
</tbody>
</table>

#### Gross Weight (Mass) Lbs (kg)

| 40 (18) | 40 (18) |

#### Sound Pressure Level dB(A)

| 40 / 37 / 31 | 40 / 37 / 31 | 44 / 40 / 32 | 44 / 40 / 32 |

#### Heat Insulation

| Both Liquid and Gas Pipes | Both Liquid and Gas Pipes |

### Drawing No.

| 3D106061A | 3D106062 |

---

**Conversion Formulae**

- kcal/h = kW × 860
- Btu/h = kW × 3412
- cfm = m³/min × 35.3

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**Specifications SIUS181631EA**

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1. Outdoor Unit

1.1 RMXS48LVJU

Main PCB (A1P)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) X5A</td>
<td>Connector to service PCB (A2P)</td>
</tr>
<tr>
<td>2) X11A</td>
<td>Connector for outdoor temperature thermistor</td>
</tr>
<tr>
<td>3) X12A</td>
<td>Connector for thermistors (suction pipe 1, suction pipe 2, outdoor heat exchanger, discharge pipe)</td>
</tr>
<tr>
<td>4) X13A</td>
<td>Connector for thermistors (subcooling outlet, liquid pipe)</td>
</tr>
<tr>
<td>5) X17A</td>
<td>Connector for high pressure sensor</td>
</tr>
<tr>
<td>6) X18A</td>
<td>Connector for low pressure sensor</td>
</tr>
<tr>
<td>7) X21A</td>
<td>Connector for electronic expansion valve coil (main)</td>
</tr>
<tr>
<td>8) X22A</td>
<td>Connector for electronic expansion valve coil (subcooling)</td>
</tr>
<tr>
<td>9) X25A</td>
<td>Connector for solenoid valve coil (four way valve)</td>
</tr>
<tr>
<td>10) X26A</td>
<td>Connector for solenoid valve coil (hot gas bypass valve)</td>
</tr>
<tr>
<td>11) X27A</td>
<td>Connector for solenoid valve coil (unloading)</td>
</tr>
<tr>
<td>12) X28A</td>
<td>Connector for crankcase heater</td>
</tr>
<tr>
<td>13) X32A</td>
<td>Connector for high pressure switch</td>
</tr>
<tr>
<td>14) X37A</td>
<td>Connector for power supply for optional PCB (16 VDC)</td>
</tr>
<tr>
<td>15) X66A</td>
<td>Connector for cool/heat selector PCB (A4P)</td>
</tr>
<tr>
<td>16) X81A</td>
<td>Connector for terminal strip (inter-unit wiring)</td>
</tr>
<tr>
<td>17) X106A</td>
<td>Connector for DC fan motor (upper)</td>
</tr>
<tr>
<td>18) X107A</td>
<td>Connector for DC fan motor (lower)</td>
</tr>
<tr>
<td>19) X111A</td>
<td>Connector for radiation fin thermistor</td>
</tr>
<tr>
<td>20) LD, LE</td>
<td>Connector for reactor</td>
</tr>
<tr>
<td>21) LC, NC</td>
<td>Terminal for noise filter PCB (A3P)</td>
</tr>
<tr>
<td>22) P</td>
<td>Connector for capacitor C4 +</td>
</tr>
<tr>
<td>23) N</td>
<td>Connector for capacitor C4 –</td>
</tr>
<tr>
<td>24) U, V, W</td>
<td>Connector for compressor</td>
</tr>
<tr>
<td>25) F4U</td>
<td>Fuse (6.3 A / 250 V)</td>
</tr>
<tr>
<td>26) F6U</td>
<td>Fuse (5.0 A / 250 V)</td>
</tr>
<tr>
<td>27) HAP</td>
<td>Operation pilot lamp (LED for service monitor: green)</td>
</tr>
<tr>
<td>28) HBP</td>
<td>Inverter pilot lamp (LED for service monitor: green)</td>
</tr>
</tbody>
</table>
Service PCB (A2P)

1) X205A  Connector for main PCB (A1P)
2) H1P - H8P  LED for service monitor (orange)
3) BS1 - BS5  Push button switch (mode, set, return, test, reset)
4) DS1  DIP switch for cool/heat selector

Noise Filter PCB (A3P)

1) LA, NA  Terminal for terminal strip (power supply)
2) LB, NB  Terminal for main PCB (A1P)
3) E  Terminal for ground wire
4) F1U  Fuse (6.3 A / 250 V)

Cool/Heat Selector PCB (A4P)

1) X1A  Connector for main PCB (A1P)
2) X1M  Terminal for cool/heat selector
2. Branch Provider (BP) Unit

2.1 BPMKS048A2U, BPMKS049A3U

PCB ASSY

1) X20A Connector for bypass electronic expansion valve
2) X21A - X23A Connector for electronic expansion valve for room A, B, C
   (X23A for room C: BPMKS049A3U only)
3) X90A Connector for thermistors
4) F2U Fuse (3.15 A / 250 V)
5) X3M Terminal for inter-connecting wire to room A
6) X4M Terminal for inter-connecting wire to room B
7) X5M Terminal for inter-connecting wire to room C (BPMKS049A3U only)
8) F1, F2 (on X6M) Terminal for transmission to outdoor unit or other BP units
9) L1, L2 (on X1M) Terminal for power supply (60 Hz, 208 ~ 230 V)
10) E1 Terminal for ground wire
11) H1P (LED A) LED for service monitor (green)
12) H2P - H5P (LED 1 - 4) LED for error indication (red)
13) DS2 DIP switch
3. Indoor Unit

3.1 CTXG09/12/18QVJUW(S)

Control PCB (A1P)

1) S21 Connector for centralized control (HA)
2) S25 Connector for INTELLIGENT EYE sensor PCB (A3P)
3) S32 Indoor heat exchanger thermistor
4) S41 Connector for swing motors
5) S42 Connector for reduction motor (front panel mechanism) and limit switch
6) S46 Connector for display/signal receiver PCB (A2P)
7) S200 Connector for DC fan motor
8) H1, H2, H3 Connector for terminal strip (indoor - outdoor transmission)
9) FG Connector for terminal strip (frame ground)
10) JB Fan speed setting when compressor stops for thermostat OFF
    * Refer to page 143 for details.
11) JC Power failure recovery function (auto-restart)
    * Refer to page 143 for details.
12) LED A LED for service monitor (green)
13) F1U, F2U Fuse (3.15 A, 250 V)
14) V1 Varistor

Caution Replace the PCB if you accidentally cut a wrong jumper.
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.
Display/Signal Receiver PCB (A2P)

1) S51  Connector for control PCB (A1P)
2) S52  Connector for room temperature thermistor
3) S1W  Indoor unit ON/OFF button
4) H1P  LED for operation (multi-color)
5) H2P  LED for INTELLIGENT EYE (green)
6) JA  Address setting jumper

* Refer to page 141 for details.

Caution Replace the PCB if you accidentally cut a wrong jumper. Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

INTELLIGENT EYE Sensor PCB (A3P)

1) S36  Connector for control PCB (A1P)
# 3.2 CTXS07JVJU, CTXS09/12HVJU

## Control PCB (PCB1)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) S1</td>
<td>Connector for DC fan motor</td>
</tr>
<tr>
<td>2) S6</td>
<td>Connector for swing motor (horizontal blades)</td>
</tr>
<tr>
<td>3) S8</td>
<td>Connector for swing motor (vertical blades)</td>
</tr>
<tr>
<td>4) S21</td>
<td>Connector for centralized control (HA)</td>
</tr>
<tr>
<td>5) S26</td>
<td>Connector for buzzer PCB (PCB3)</td>
</tr>
<tr>
<td>6) S28</td>
<td>Connector for signal receiver PCB (PCB2)</td>
</tr>
<tr>
<td>7) S32</td>
<td>Indoor heat exchanger thermistor</td>
</tr>
<tr>
<td>8) S35</td>
<td>Connector for INTELLIGENT EYE sensor PCB (PCB5)</td>
</tr>
<tr>
<td>9) H1, H2, H3, FG</td>
<td>Connector for terminal strip</td>
</tr>
<tr>
<td>10) JA</td>
<td>Address setting jumper</td>
</tr>
<tr>
<td>11) JB</td>
<td>Fan speed setting when compressor stops for thermostat OFF</td>
</tr>
<tr>
<td>12) JC</td>
<td>Power failure recovery function (auto-restart)</td>
</tr>
<tr>
<td>13) LED A</td>
<td>LED for service monitor (green)</td>
</tr>
<tr>
<td>14) FU1 (Fu), FU3</td>
<td>Fuse (3.15 A, 250 V)</td>
</tr>
<tr>
<td>15) V1</td>
<td>Varistor</td>
</tr>
</tbody>
</table>

### Caution
Replace the PCB if you accidentally cut a wrong jumper.
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

### Note
The symbols in the parenthesis are the names on the appropriate wiring diagram.
Signal Receiver PCB (PCB2)

1) S29 Connector for control PCB (PCB1)
2) SW1 (S1W) Indoor unit ON/OFF button

Buzzer PCB (PCB3)

1) S27 Connector for control PCB (PCB1)
2) S38 Connector for display PCB (PCB4)
3) RTH1 (R1T) Room temperature thermistor

Display PCB (PCB4)

1) S37 Connector for buzzer PCB (PCB3)
2) LED1 (H1P) LED for operation (green)
3) LED2 (H2P) LED for timer (yellow)
4) LED3 (H3P) LED for HOME LEAVE operation (red)

INTELLIGENT EYE Sensor PCB (PCB5)

1) S36 Connector for control PCB (PCB1)

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.
### 3.3 CTXS07LVJU, FTXS09/12LVJU

**Control PCB (PCB1)**

1. **S1** Connector for DC fan motor
2. **S21** Connector for centralized control (HA)
3. **S25** Connector for INTELLIGENT EYE sensor PCB (PCB4)
4. **S32** Indoor heat exchanger thermistor
5. **S41** Connector for swing motors
6. **S46** Connector for display PCB (PCB3)
7. **S47** Connector for signal receiver PCB (PCB2)
8. **H1, H2, H3, FG** Connector for terminal strip
9. **JA** Address setting jumper
   - Refer to page 141 for details.
10. **JB** Fan speed setting when compressor stops for thermostat OFF
    - Refer to page 143 for details.
11. **JC** Power failure recovery function (auto-restart)
    - Refer to page 143 for details.
12. **LED A** LED for service monitor (green)
13. **FU1 (F1U), FU2** Fuse (3.15 A, 250 V)
14. **V1** Varistor

---

**Caution**

*Replace the PCB if you accidentally cut a wrong jumper.*

Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

**Note:** The symbols in the parenthesis are the names on the appropriate wiring diagram.
### Signal Receiver PCB (PCB2)

1. **S48** Connector for control PCB (PCB1)

```
+-------------------+
|       S48         |
|                  |
|                  |
|                  |
|                  |
|                  |
+-------------------+

![Diagram of S48 connector]
```

### Display PCB (PCB3)

1. **S49** Connector for control PCB (PCB1)
2. **SW1** Indoor unit **ON/OFF** button
3. **LED1 (H1P)** LED for operation (green)
4. **LED2 (H2P)** LED for timer (yellow)
5. **LED3 (H3P)** LED for INTELLIGENT EYE (green)
6. **RTH1 (R1T)** Room temperature thermistor

```
+-------------------+
|       S49         |
|                  |
|                  |
|                  |
|                  |
+-------------------+

![Diagram of S49 connector]
```

### INTELLIGENT EYE Sensor PCB (PCB4)

1. **S26** Connector for control PCB (PCB1)

```
+-------------------+
|       S26         |
|                  |
|                  |
|                  |
|                  |
+-------------------+

![Diagram of S26 connector]
```

**Note:** The symbols in the parenthesis are the names on the appropriate wiring diagram.
### 3.4 FTXS15/18/24LVJU

#### Control PCB (PCB1)

<table>
<thead>
<tr>
<th>Connector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Connector for DC fan motor</td>
</tr>
<tr>
<td>S21</td>
<td>Connector for centralized control (HA)</td>
</tr>
<tr>
<td>S25</td>
<td>Connector for INTELLIGENT EYE sensor PCB (PCB4)</td>
</tr>
<tr>
<td>S32</td>
<td>Indoor heat exchanger thermistor</td>
</tr>
<tr>
<td>S41</td>
<td>Connector for swing motors</td>
</tr>
<tr>
<td>S46</td>
<td>Connector for display PCB (PCB3)</td>
</tr>
<tr>
<td>S47</td>
<td>Connector for signal receiver PCB (PCB2)</td>
</tr>
<tr>
<td>H1, H2, H3, FG</td>
<td>Connector for terminal strip</td>
</tr>
<tr>
<td>JA</td>
<td>Address setting jumper</td>
</tr>
<tr>
<td>JB</td>
<td>Fan speed setting when compressor stops for thermostat OFF</td>
</tr>
<tr>
<td>JC</td>
<td>Power failure recovery function (auto-restart)</td>
</tr>
<tr>
<td>LED A</td>
<td>LED for service monitor (green)</td>
</tr>
<tr>
<td>FU1 (F1U), FU2 (F2U)</td>
<td>Fuse (3.15 A, 250 V)</td>
</tr>
<tr>
<td>V1</td>
<td>Varistor</td>
</tr>
</tbody>
</table>

---

**Caution:** Replace the PCB if you accidentally cut a wrong jumper. Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

**Note:** The symbols in the parenthesis are the names on the appropriate wiring diagram.
Signal Receiver PCB (PCB2)

1) S48 Connector for control PCB (PCB1)

![Signal Receiver PCB Diagram]

Display PCB (PCB3)

1) S49 Connector for control PCB (PCB1)
2) SW1 Indoor unit **ON/OFF** button
3) LED1 (H1P) LED for operation (green)
4) LED2 (H2P) LED for timer (yellow)
5) LED3 (H3P) LED for INTELLIGENT EYE (green)
6) RTH1 (R1T) Room temperature thermistor

![Display PCB Diagram]

INTELLIGENT EYE Sensor PCB (PCB4)

1) S36 Connector for control PCB (PCB1)

![INTELLIGENT EYE Sensor PCB Diagram]

**Note:** The symbols in the parenthesis are the names on the appropriate wiring diagram.
3.5 FDXS09/12LVJU, CDXS15/18/24LVJU

Control PCB (A1P)

1) S1 Connector for AC fan motor
2) S7 Connector for AC fan motor (Hall IC)
3) S21 Connector for centralized control (HA)
4) S26 Connector for display/signal receiver PCB (A2P)
5) S32 Connector for indoor heat exchanger thermistor
6) H1, H2, H3 Connector for terminal strip
7) FG (GND) Connector for terminal strip (ground)
8) JA Address setting jumper
   * Refer to page 141 for details.
9) JB Fan speed setting when compressor stops for thermostat OFF
   * Refer to page 143 for details.
10) JC Power failure recovery function (auto-restart)
    * Refer to page 143 for details.
11) LED A LED for service monitor (green)
12) FU1 (F1U) Fuse (3.15 A, 250 V)
13) V1 Varistor

⚠️ Caution ⚠️ Replace the PCB if you accidentally cut a wrong jumper.
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

ℹ️ Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.
Display/Signal Receiver PCB (A2P)

1) S1 Connector for control PCB (A1P)
2) SW1 (S1W) Indoor unit ON/OFF button
3) LED2 (H2P) LED for timer (yellow)
4) LED3 (H3P) LED for operation (green)
5) RTH1 (R1T) Room temperature thermistor

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.
### 3.6 FVXS09/12/15/18NVJU

**Control PCB (PCB2)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S1</td>
</tr>
<tr>
<td>2</td>
<td>S21</td>
</tr>
<tr>
<td>3</td>
<td>S26</td>
</tr>
<tr>
<td>4</td>
<td>S32</td>
</tr>
<tr>
<td>5</td>
<td>S41</td>
</tr>
<tr>
<td>6</td>
<td>S42</td>
</tr>
<tr>
<td>7</td>
<td>S46</td>
</tr>
<tr>
<td>8</td>
<td>S48</td>
</tr>
<tr>
<td>9</td>
<td>H1, H2, H3</td>
</tr>
<tr>
<td>10</td>
<td>E1</td>
</tr>
<tr>
<td>11</td>
<td>JA</td>
</tr>
<tr>
<td>12</td>
<td>JB</td>
</tr>
<tr>
<td>13</td>
<td>JC</td>
</tr>
<tr>
<td>14</td>
<td>FU1 (F1U), FU2 (F2U)</td>
</tr>
<tr>
<td>15</td>
<td>LED A</td>
</tr>
<tr>
<td>16</td>
<td>V1, V2</td>
</tr>
</tbody>
</table>

- S1: Connector for DC fan motor
- S21: Connector for centralized control (HA)
- S26: Connector for service PCB (PCB3)
- S32: Indoor heat exchanger thermistor
- S41: Connector for lower air outlet motor
- S42: Connector for swing motor
- S46: Connector for display/signal receiver PCB (PCB4)
- S48: Connector for sensor PCB (PCB1)
- H1, H2, H3: Connector for terminal strip
- E1: Terminal for ground wire
- JA: Address setting jumper
- JB: Fan speed setting when compressor stops for thermostat OFF
- JC: Power failure recovery function
- FU1 (F1U), FU2 (F2U): Fuse (3.15 A, 250 V)
- LED A: LED for service monitor (green)
- V1, V2: Varistor

---

**Caution** Replace the PCB if you accidentally cut a wrong jumper.

Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

**Note:** The symbols in the parenthesis are the names on the appropriate wiring diagram.
Sensor PCB (PCB1)

1) S49 Connector for control PCB (PCB2)
2) RTH2 (R1T) Room temperature thermistor

Service PCB (PCB3)

1) S27 Connector for control PCB (PCB2)
2) SW2 (S2W)-4 Switch for upward airflow limit setting
   * Refer to page 143 for details.
   * Keep the other switches as factory setting.
3) SW4 (S4W) Switch for airflow selection
   * Refer to page 76 for details.

Display/Signal Receiver PCB (PCB4)

1) S47 Connector for control PCB (PCB2)
2) SW1 (S1W) Indoor unit ON/OFF button
3) LED1 (H1P) LED for operation (green)
4) LED2 (H2P) LED for timer (yellow)

* LED3 does not function.

Note: The symbols in the parenthesis are the names on the appropriate wiring diagram.
### Control PCB (A1P)

1. **X15A**  
   Connector for float switch
2. **X16A**  
   Connector for room temperature thermistor (suction air thermistor)
3. **X17A, X18A**  
   Connector for indoor heat exchanger thermistor
4. **X20A**  
   Connector for DC fan motor
5. **X24A**  
   Connector for transmitter board (A2P)  
   (when the wireless remote controller (option) is used)
6. **X25A**  
   Connector for drain pump motor
7. **X27A**  
   Connector for terminal strip (for inter-unit wiring)
8. **X30A**  
   Connector for terminal strip (for wired remote controller)
9. **X33A**  
   Connector for adaptor for wiring (option)
10. **X35A**  
    Connector for wiring adaptor for electrical appendices (option)
11. **X36A**  
    Connector for swing motors on decoration panel (option)
12. **X80A**  
    Connector for decoration panel (BYFQ60B3W1) (option)
13. **X81A**  
    Connector for sensor kit (BRYQ60A2W(S)) (option)
14. **HAP**  
    LED for service monitor (green)
15. **DS1**  
    DIP switch
16. **F1U**  
    Fuse (5A, 250V)
4. Wired Remote Controller

4.1 BRC1E73

PCB ASSY

1) P1, P2  Terminal for indoor unit
2) R4T    Room temperature thermistor
5. Wireless Remote Controller Kit

5.1 BRC082A41W, BRC082A42W(S)

Transmitter Board (A2P)

1) X1A Connector for receiver (A3P)
2) X2A Connector for control PCB (A1P)
3) SS1 MAIN/SUB setting switch
   * Refer to page 149 for details.
4) SS2 Address setting switch
   * Refer to page 149 for details.

![Transmitter Board Diagram]

Receiver (A3P)

1) X1A Connector for transmitter board (A2P)
2) BS1 Emergency operation switch
3) LED1 (H1P) LED for operation (red)
4) LED2 (H2P) LED for timer (green)
5) LED3 (H3P) LED for filter cleaning sign (red)
6) LED4 (H4P) LED for defrost operation (orange)

![Receiver Diagram]

* LED5 and LED6 do not function.
Part 4
Refrigerant Circuit

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   3.4 Heating Oil Return Operation & Defrost Operation ............................... 49
## 1. Refrigerant Circuit

### 1.1 Outdoor Unit

<table>
<thead>
<tr>
<th>No. in diagram</th>
<th>Symbol</th>
<th>Name</th>
<th>Major Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M1C</td>
<td>Compressor motor</td>
<td>The compressor is operated on frequencies between 36 Hz and 195 Hz by using the inverter. (31 steps)</td>
</tr>
<tr>
<td>D</td>
<td>M1F M2F</td>
<td>Fan motor</td>
<td>Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter.</td>
</tr>
<tr>
<td>E</td>
<td>Y1E</td>
<td>Electronic expansion valve (Main)</td>
<td>While in heating operation, PI control is applied to keep the outlet superheated degree of the air heat exchanger constant.</td>
</tr>
<tr>
<td>F</td>
<td>Y3E</td>
<td>Electronic expansion valve (Subcooling)</td>
<td>PI control is applied to keep the outlet superheated degree of the subcooling heat exchanger constant.</td>
</tr>
<tr>
<td>G</td>
<td>Y2S</td>
<td>Solenoid valve (Hot gas bypass)</td>
<td>Used to prevent the low pressure from temporary falling.</td>
</tr>
<tr>
<td>H</td>
<td>Y3S</td>
<td>Solenoid valve (Unload circuit)</td>
<td>Used for the unloading operation of the compressor.</td>
</tr>
<tr>
<td>M</td>
<td>Y1S</td>
<td>Four way valve</td>
<td>Used to switch the operation mode between cooling and heating.</td>
</tr>
<tr>
<td>N</td>
<td>S1NPH</td>
<td>High pressure sensor</td>
<td>Used to detect high pressure.</td>
</tr>
<tr>
<td>O</td>
<td>S1NPL</td>
<td>Low pressure sensor</td>
<td>Used to detect low pressure.</td>
</tr>
<tr>
<td>P</td>
<td>S1PH</td>
<td>High pressure switch</td>
<td>In order to prevent the increase of high pressure when an error occurs, this switch is activated at high pressure of 4.0 MPa (1338 ftAq) or more to stop the compressor operation.</td>
</tr>
<tr>
<td>S</td>
<td>—</td>
<td>Fusible plug</td>
<td>In order to prevent the increase of pressure when abnormal heating is caused by fire, etc., the fusible part of the plug melts at a temperature of 70 ~ 75°C (158 ~ 167°F) to release the pressure into the atmosphere.</td>
</tr>
<tr>
<td>T</td>
<td>—</td>
<td>Pressure regulating valve (Receiver to discharge pipe)</td>
<td>This valve opens at a pressure of 4.0 MPa (1338 ftAq) to prevent pressure increase, thus protecting functional parts from damage due to the increase of pressure in transportation or storage.</td>
</tr>
<tr>
<td>1</td>
<td>R1T</td>
<td>Thermistor (Outdoor temperature: Ta)</td>
<td>Used to detect outdoor temperature, correct discharge pipe temperature, etc.</td>
</tr>
<tr>
<td>2</td>
<td>R2T</td>
<td>Thermistor (Discharge pipe: Tdi)</td>
<td>Used to detect discharge pipe temperature, for temperature protection control of the compressor, etc.</td>
</tr>
<tr>
<td>3</td>
<td>R3T</td>
<td>Thermistor (Suction pipe 1: Ts1)</td>
<td>Used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, etc.</td>
</tr>
<tr>
<td>4</td>
<td>R4T</td>
<td>Thermistor (Outdoor heat exchanger: Tb)</td>
<td>Used to detect liquid pipe temperature of the outdoor heat exchanger, determine defrosting operation, etc.</td>
</tr>
<tr>
<td>5</td>
<td>R5T</td>
<td>Thermistor (Suction pipe 2: Ts2)</td>
<td>Used to calculate the internal temperature of the compressor etc.</td>
</tr>
<tr>
<td>6</td>
<td>R6T</td>
<td>Thermistor (Subcooling heat exchanger gas pipe: Tsh)</td>
<td>Used to control the subcooling electronic expansion valve.</td>
</tr>
<tr>
<td>7</td>
<td>R7T</td>
<td>Thermistor (Liquid pipe: Tl)</td>
<td>Used to detect refrigerant overcharge in check operation, etc.</td>
</tr>
</tbody>
</table>

![Diagram of Refrigerant Circuit](image-url)
1.2 Branch Provider (BP) Unit

<table>
<thead>
<tr>
<th>No. in diagram</th>
<th>Symbol</th>
<th>Name</th>
<th>Major Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>EVU</td>
<td>Electronic expansion valve (for operating room)</td>
<td>Among EVA, EVB and EVC, the electronic expansion valve of operating room is called EVU.</td>
</tr>
<tr>
<td>B</td>
<td>EVT</td>
<td>Electronic expansion valve (for non-operating room)</td>
<td>Among EVA, EVB and EVC, the electronic expansion valve of stopping room is called EVT.</td>
</tr>
<tr>
<td>C</td>
<td>EVH</td>
<td>Electronic expansion valve (Bypass)</td>
<td>During oil return operation, used to adjust the refrigerant circulating rate of the indoor unit.</td>
</tr>
<tr>
<td>1</td>
<td>DGA - DGC</td>
<td>Thermistor (Gas pipe)</td>
<td>During cooling operation, used to carry out the indoor unit SH control and cooling gas pipe isothermal control.</td>
</tr>
<tr>
<td>2</td>
<td>DLA - DLC</td>
<td>Thermistor (Liquid pipe)</td>
<td>During heating operation, used to carry out the indoor unit SC control.</td>
</tr>
<tr>
<td>3</td>
<td>R1T</td>
<td>Thermistor (Room temperature)</td>
<td>Used to detect room air temperature and instruct the capacity supply to the BP unit.</td>
</tr>
<tr>
<td>4</td>
<td>R2T</td>
<td>Thermistor (Indoor heat exchanger)</td>
<td>Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.</td>
</tr>
<tr>
<td>5</td>
<td>R1T</td>
<td>Thermistor (Room temperature)</td>
<td>Used to detect room air temperature and instruct the capacity supply to the BP unit.</td>
</tr>
<tr>
<td>6</td>
<td>R2T</td>
<td>Thermistor (Indoor heat exchanger 1: liquid pipe)</td>
<td>Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.</td>
</tr>
<tr>
<td>7</td>
<td>R3T</td>
<td>Thermistor (Indoor heat exchanger 2)</td>
<td>Used to detect heat exchanger temperature and carry out various protection functions and controls of capacity.</td>
</tr>
</tbody>
</table>
2. Functional Parts Layout

Front View

- **L1R**: Reactor lead wire (High voltage)
- **Y2S**: Solenoid valve (hot gas bypass) lead wire (Connector: black) (High voltage)
- **Y1S**: Four way valve lead wire (Connector: blue) (High voltage)
- **S1NPH**: High pressure sensor lead wire (Connector: red) (Low voltage)
- **S1NPL**: Low pressure sensor lead wire (Connector: blue) (Low voltage)
- **Y3S**: Solenoid valve (unload circuit) lead wire (Connector: pink) (High voltage)
- **R5T**: Thermistor (suction pipe 2) (Marking: green)
- **S1PH**: High pressure switch lead wire (Connector: white) (Low voltage)
- **E1HC**: Crankcase heater lead wire (Connector: gray) (High voltage)
- **R2T**: Thermistor (discharge pipe)
Back View

- **R6T**: Thermistor (subcooling heat exchanger gas pipe) (Marking: white)
- **R3T**: Thermistor (suction pipe 1) (Marking: red)
- **R5T**: Thermistor (suction pipe 2) (Marking: green)
- **R1T**: Thermistor (outdoor temperature) (Marking: yellow)
- **R7T**: Thermistor (liquid pipe) (Marking: blue)
- **R4T**: Thermistor (outdoor heat exchanger) (Connector: blue)
3. Refrigerant Flow for Each Operation Mode

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3.3 Cooling Oil Return Operation
3.4 Heating Oil Return Operation & Defrost Operation
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Functions and Control

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1. Operation Mode

- **Operation in stop mode**
  - Indoor unit stop or thermostat OFF

- **Indoor unit thermostat ON**

- **Pressure equalization prior to startup**

- **Startup control**
  - Cooling startup control
  - Heating startup control

- **Normal operation**
  - Compressor PI control
  - Electronic expansion valve PI control
  - Protection control

- **Cooling or heating operation**

- **Oil return IN conditions are met**
  - Yes
  - No

- **Defrost IN conditions are met**
  - Yes
  - No

- **Operation mode change**
  - Yes
  - No

**Note:**
If the indoor unit stops or the thermostat turns OFF while in oil return operation or defrosting operation, pump-down residual operation is performed on completion of the oil return operation or defrosting operation.
2. Basic Control

2.1 Normal Operation

Cooling Operation

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Compressor PI control</td>
<td>Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>Cooling fan control</td>
<td>—</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>OFF</td>
<td>—</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>480 pulse</td>
<td>—</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>PI control</td>
<td>—</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>This valve turns on with low pressure protection control.</td>
</tr>
</tbody>
</table>

Heating Operation

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Operation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Compressor PI control</td>
<td>Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control.</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>STEP 7 or 8</td>
<td>—</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>ON</td>
<td>—</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>PI control</td>
<td>—</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>PI control</td>
<td>—</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>This valve turns on with low pressure protection control.</td>
</tr>
</tbody>
</table>

★Heating operation does not start when the outdoor temperature is above 24°CDB (75.2°FDB).

2.2 Compressor PI Control

The PI control of the compressor capacity is carried out to keep Te constant during cooling operation and Tc constant during heating operation to ensure stable unit performance.

Cooling operation

- Controls compressor capacity to adjust Te to achieve target value (TeS).
- Te: Low pressure equivalent saturation temperature
- TeS: Target Te value
- (Varies depending on Te setting, operating frequency, etc.)

**Te setting (Set in setting mode 2)**

<table>
<thead>
<tr>
<th>L</th>
<th>M (Normal)</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>3°C (37.4°F)</td>
<td>6°C (42.8°F)</td>
<td>9°C (48.2°F)</td>
</tr>
</tbody>
</table>

Heating operation

- Controls compressor capacity to adjust Tc to achieve target value (TcS).
- Tc: High pressure equivalent saturation temperature
- TcS: Target Tc value
- (Varies depending on Tc setting, operating frequency, etc.)

**Tc setting (Set in setting mode 2)**

<table>
<thead>
<tr>
<th>L</th>
<th>M (Normal)</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>43°C (109.4°F)</td>
<td>46°C (114.8°F)</td>
<td>49°C (120.2°F)</td>
</tr>
</tbody>
</table>
Compressors may operate in a pattern other than those listed in the above tables subject to the operating conditions. Selection of full load operation to/from unload operation is made with the unload circuit solenoid valve (Y3S). The full load operation is performed with the Y3S set to OFF, while the unload operation is performed with the Y3S set to ON.

2.3 Electronic Expansion Valve PI Control

Main Electronic Expansion Valve

The PI control of the main electronic expansion valve (Y1E) is carried out to keep the evaporator outlet superheated degree (SH) constant during heating operation in order to make maximum use of the outdoor unit heat exchanger (evaporator).

\[ SH = Ts1 - Te \]

- \( SH \): Evaporator outlet superheated degree
- \( Ts1 \): Suction pipe temperature detected by thermistor \( R3T \)
- \( Te \): Low pressure equivalent saturation temperature

The optimum initial value of the evaporator outlet superheated degree is 3°C (5.4°F), but varies depending on the discharge pipe superheated degree of the inverter compressor.

Subcooling Electronic Expansion Valve

The PI control of the subcooling electronic expansion valve (Y3E) is carried out to keep the evaporator outlet superheated degree (SH) of the gas pipe in order to make maximum use of the subcooling heat exchanger.

\[ SH = Tsh - Te \]

- \( SH \): Evaporator outlet superheated degree
- \( Tsh \): Subcooling heat exchanger gas pipe temperature detected by thermistor \( R6T \)
- \( Te \): Low pressure equivalent saturation temperature
2.4 Cooling Operation Fan Control

In cooling operation with low outdoor temperature, cooling operation fan control provides the adequate amount of circulating air with liquid pressure secured by high pressure control using the outdoor fan.

When the outdoor temperature is $\geq 20^\circ$C (68°F), the fan operates in STEP 7 or higher.

When the outdoor temperature is $\geq 18^\circ$C (64.4°F), it operates in STEP 5 or higher.

When the outdoor temperature is $\geq 12^\circ$C (53.6°F), it operates in STEP 1 or higher.

![Diagram of cooling operation fan control](image)

**Fan Steps**

<table>
<thead>
<tr>
<th>Cooling</th>
<th>M1F</th>
<th>M2F</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP 0</td>
<td>0 rpm</td>
<td>0 rpm</td>
</tr>
<tr>
<td>STEP 1</td>
<td>250 rpm</td>
<td>0 rpm</td>
</tr>
<tr>
<td>STEP 2</td>
<td>400 rpm</td>
<td>0 rpm</td>
</tr>
<tr>
<td>STEP 3</td>
<td>285 rpm</td>
<td>250 rpm</td>
</tr>
<tr>
<td>STEP 4</td>
<td>360 rpm</td>
<td>325 rpm</td>
</tr>
<tr>
<td>STEP 5</td>
<td>445 rpm</td>
<td>410 rpm</td>
</tr>
<tr>
<td>STEP 6</td>
<td>580 rpm</td>
<td>545 rpm</td>
</tr>
<tr>
<td>STEP 7</td>
<td>715 rpm</td>
<td>680 rpm</td>
</tr>
<tr>
<td>STEP 8</td>
<td>850 rpm</td>
<td>815 rpm</td>
</tr>
</tbody>
</table>

Pc: High pressure sensor detection value

- Pc < 2.75 MPa (920 ftAq)
- Pc > 3.24 MPa (1084 ftAq)
3. Special Control

3.1 Startup Control

Startup control equalizes the pressure in the front and back of the compressor before the startup of the compressor, thus reducing startup loads. Furthermore, the inverter is turned ON to charge the capacitor.

To avoid stresses to the compressor due to oil return operation, etc. after startup, the following control is made and the position of the four way valve is also determined. To position the four way valve, the master and slave units simultaneously start up.

3.1.1 Startup Control in Cooling Operation

<table>
<thead>
<tr>
<th>Thermostat ON</th>
<th>Pressure equalization control before startup</th>
<th>Startup control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STEP 1</td>
<td>STEP 2</td>
</tr>
<tr>
<td>Compressor</td>
<td>0 Hz</td>
<td>57 Hz Unload</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+2 steps / 20 sec. (until Pc – Pe &gt; 0.39 MPa (130 ftAq))</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>STEP 7</td>
<td>Ta &lt; 20°C: OFF (68°F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ta ≥ 20°C: STEP 4 (68°F)</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>Holds</td>
<td>OFF</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>0 pulse</td>
<td>480 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>or</td>
<td>A lapse of 10 sec. or</td>
</tr>
<tr>
<td></td>
<td>• Pc – Pe &lt; 0.3 MPa (100 ftAq)</td>
<td>• A lapse of 130 sec.</td>
</tr>
<tr>
<td></td>
<td>• A lapse of 1 to 5 min.</td>
<td>• Pc – Pe &gt; 0.39 MPa (130 ftAq)</td>
</tr>
</tbody>
</table>

3.1.2 Startup Control in Heating Operation

<table>
<thead>
<tr>
<th>Thermostat ON</th>
<th>Pressure equalization control before startup</th>
<th>Startup control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STEP 1</td>
<td>STEP 2</td>
</tr>
<tr>
<td>Compressor</td>
<td>0 Hz</td>
<td>57 Hz Unload</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+2 steps / 20 sec. (until Pc – Pe &gt; 0.39 MPa (130 ftAq))</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>From starting</td>
<td>STEP 8</td>
</tr>
<tr>
<td></td>
<td>~ 1 min.: STEP 7</td>
<td>STEP 8</td>
</tr>
<tr>
<td></td>
<td>1 ~ 3 min.: STEP 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 ~ 5 min.: OFF</td>
<td></td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>Holds</td>
<td>ON</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>or</td>
<td>A lapse of 10 sec. or</td>
</tr>
<tr>
<td></td>
<td>• Pc – Pe &lt; 0.3 MPa (100 ftAq)</td>
<td>• A lapse of 130 sec.</td>
</tr>
<tr>
<td></td>
<td>• A lapse of 1 to 5 min.</td>
<td>• Pc &gt; 2.70 MPa (903 ftAq)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pc – Pe &gt; 0.39 MPa (130 ftAq)</td>
</tr>
</tbody>
</table>
3.2 Oil Return Operation

In order to prevent the compressor from running out of oil, the oil return operation is conducted to recover oil flown out from the compressor to the system side.

3.2.1 Oil Return Operation in Cooling Operation

Conditions to start

Oil return operation in cooling operation is started referring to the following conditions:

- Cumulative oil feed rate
- Timer setting (Make this setting so as to start the oil return operation when the initial cumulative operating time reaches 2 hours after power supply is turned ON and then every 8 hours.)

The cumulative oil feed rate is computed from Tc, Te, and compressor loads.

<table>
<thead>
<tr>
<th>Outdoor unit actuator</th>
<th>Oil return preparation operation</th>
<th>Oil return operation</th>
<th>Post-oil-return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Take the current step as the upper limit.</td>
<td>52 Hz Full load (→ Low pressure constant control)</td>
<td>Same as in oil return operation mode.</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>Fan control (Normal cooling)</td>
<td>Fan control (Normal cooling)</td>
<td>Fan control (Normal cooling)</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>480 pulse</td>
<td>480 pulse</td>
<td>480 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>SH control</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>20 sec.</td>
<td>or [3 min.  Ts1 – Te &lt; 5°C (9°F) or [3 min. Pe &lt; 0.6 MPa (201 ftAq) HTdi &gt; 110°C (230°F)]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indoor unit actuator</th>
<th>Cooling oil return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fan</td>
<td>Thermostat ON unit</td>
</tr>
<tr>
<td></td>
<td>Stopping unit</td>
</tr>
<tr>
<td></td>
<td>Thermostat OFF unit</td>
</tr>
<tr>
<td>Electronic expansion valve of BP unit</td>
<td>Thermostat ON unit</td>
</tr>
<tr>
<td></td>
<td>Stopping unit</td>
</tr>
<tr>
<td></td>
<td>Thermostat OFF unit</td>
</tr>
</tbody>
</table>

Thermostat ON unit
Thermostat OFF unit
Remote controller setting
OFF

Indoor fan
Stopping unit
Thermostat OFF unit
Remote controller setting

Electronic expansion valve of BP unit
Thermostat ON unit
SH control
77 pulse
SH control
3.2.2 Oil Return Operation in Heating Operation

**Conditions to start**

Oil return operation in heating operation is started referring to the following conditions:
- Integrated amount of displaced oil
- Timer setting (Make this setting so as to start the oil return operation when the initial cumulative operating time reaches 2 hours after power supply is turned ON and then every 8 hours.)

The integrated amount of displaced oil is derived from Tc, Te, and the compressor load.

### Outdoor unit actuator

<table>
<thead>
<tr>
<th>Outdoor unit actuator</th>
<th>Oil return preparation operation</th>
<th>Oil return operation</th>
<th>Post-oil-return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Upper limit control</td>
<td>140 Hz Full load</td>
<td>36 Hz Unload +2 steps / 20 sec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(until Pc - Pe &gt; 0.4 MPa (134 ftAq))</td>
<td></td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>STEP 8</td>
<td>OFF</td>
<td>STEP 8</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>SH control</td>
<td>480 pulse</td>
<td>55 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Ending conditions</td>
<td>2 min.</td>
<td>or 12 min. or 160 sec. 12 min. or 160 sec.</td>
<td></td>
</tr>
</tbody>
</table>

*From the preparation to the oil return operation, and from the oil return operation to the post-oil-return operation, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

### Indoor unit actuator

<table>
<thead>
<tr>
<th>Indoor unit actuator</th>
<th>Heating oil return operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fan</td>
<td></td>
</tr>
<tr>
<td>Thermostat ON unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Stopping unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Thermostat OFF unit</td>
<td>OFF</td>
</tr>
<tr>
<td>Electronic expansion valve of BP unit</td>
<td></td>
</tr>
<tr>
<td>Thermostat ON unit</td>
<td>SH control</td>
</tr>
<tr>
<td>Stopping unit</td>
<td>80 pulse</td>
</tr>
<tr>
<td>Thermostat OFF unit</td>
<td>SH control</td>
</tr>
</tbody>
</table>
3.3 Defrosting Operation

The defrosting operation is performed to solve frost on the outdoor unit heat exchanger when heating, in order to recover heating capacity.

**Conditions to start**

The defrosting operation is started referring to the following conditions:

- Outdoor heat exchanger heat transfer co-efficiency
- Outdoor heat exchanger temperature (Tb)
- Timer (2 hours at the minimum)

Outdoor heat-exchange co-efficiency is derived from Tc, Te, and the compressor load.

<table>
<thead>
<tr>
<th>Outdoor unit actuator</th>
<th>Defrost preparation operation</th>
<th>Defrost operation</th>
<th>Post defrost operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Upper limit control</td>
<td>140 Hz Full load</td>
<td>36 Hz Unload +2 steps / 20 sec. (until Pc - Pe &gt; 0.4 MPa) (134 ftAq)</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>STEP 8</td>
<td>OFF</td>
<td>STEP 8</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>SH control</td>
<td>480 pulse</td>
<td>55 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
<td>0 pulse</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>2 min.</td>
<td>or (15 min.</td>
<td>or (160 sec.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tb &gt; 11°C (51.8°F)</td>
<td>Pc - Pe &gt; 0.4 MPa (134 ftAq)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ts1 – Te &lt; 5°C (9°F)</td>
<td></td>
</tr>
</tbody>
</table>

* From the preparation to the defrost operation, and from the defrost operation to the post defrost operation, the compressor stops for 1 minute to reduce noise on changing of the four way valve.

<table>
<thead>
<tr>
<th>Indoor unit actuator</th>
<th>Operation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor fan</td>
<td>Thermostat ON unit OFF</td>
<td>Stopping unit OFF</td>
</tr>
<tr>
<td>Electronic expansion valve of BP unit</td>
<td>Thermostat ON unit SH control</td>
<td>Stopping unit 80 pulse</td>
</tr>
</tbody>
</table>

3.4 Pump-down Residual Operation

**Outline**

When activating the compressor, if there is liquid refrigerant remaining in the heat exchanger, the liquid refrigerant enters into the compressor and dilutes the oil inside resulting in a decrease of lubricity. Therefore, the pump-down residual operation is performed to collect the refrigerant in the heat exchanger when the compressor is down.
3.4.1 Pump-down Residual Operation in Cooling Operation

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Pump-down residual operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>124 Hz Full load</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>52 Hz Full load</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>OFF</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>480 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>2 sec.</td>
</tr>
</tbody>
</table>

3.4.2 Pump-down Residual Operation in Heating Operation

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Pump-down residual operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>124 Hz Full load</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>STEP 7</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>ON</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>4 sec.</td>
</tr>
</tbody>
</table>

3.5 Restart Standby

Restart is prohibited to prevent frequent ON/OFF and to equalize pressure in the refrigerant system.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>OFF</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>Ta &gt; 30°C (86°F): STEP 4</td>
</tr>
<tr>
<td></td>
<td>Ta ≤ 30°C (86°F): OFF</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>Former condition remains.</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>2 min.</td>
</tr>
</tbody>
</table>

3.6 Stopping Operation

Operation of the actuator is cleared up when the system is down.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>OFF</td>
</tr>
<tr>
<td>Outdoor fan</td>
<td>OFF</td>
</tr>
<tr>
<td>Four way valve (Y1S)</td>
<td>Former condition remains.</td>
</tr>
<tr>
<td>Main electronic expansion valve (Y1E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Subcooling electronic expansion valve (Y3E)</td>
<td>0 pulse</td>
</tr>
<tr>
<td>Hot gas bypass solenoid valve (Y2S)</td>
<td>OFF</td>
</tr>
<tr>
<td>Ending conditions</td>
<td>Indoor unit thermostat is turned ON.</td>
</tr>
</tbody>
</table>
4. Protection Control

4.1 High Pressure Protection Control

Outline

High pressure protection control is used to prevent the activation of protection devices due to an abnormal increase of high pressure and to protect compressors against the temporary increase of high pressure.

Cooling Operation

Heating Operation

When occurring 10 times within 60 minutes, the high pressure switch is activated without high pressure standby, and the error code E3 is output.
4.2 Low Pressure Protection Control

Outline
Low pressure protection control is used to protect compressors against the temporary decrease of low pressure.

Cooling Operation

```
Pe < 0.25 MPa (84 ftAq) → Pe > 0.39 MPa (130 ftAq)

Low pressure limited

36 Hz Unload

Pe < 0.07 MPa (23 ftAq) → Low pressure standby
```

Pe: Low pressure sensor detection value

- Hot gas bypass valve = OFF
- Pe < 0.15 MPa (50 ftAq)
- Pe > 0.30 MPa (100 ftAq)
- Hot gas bypass valve = ON

(R19081)

Heating Operation

```
Pe < 0.17 MPa (57 ftAq) → Pe > 0.09 MPa (30 ftAq)

Low pressure not limited

or

Ts1 - Te < 8˚C (14.4˚F)

Pe > 0.06 MPa (20 ftAq)

Low pressure limited

Upper limit frequency: 3-step down

Pe < 0.17 MPa (57 ftAq) → After 10 sec.

Current step limited

Pe > 0.20 MPa (67 ftAq) → After 15 sec.

Upper limit frequency: 1-step up

Pe < 0.07 MPa (23 ftAq) → Low pressure standby
```

Pe: Low pressure sensor detection value

- Hot gas bypass valve = OFF
- Pe < 0.12 MPa (40 ftAq)
- Pe > 0.17 MPa (57 ftAq)
- Hot gas bypass valve = ON

(R19082)

When occurring 3 times within 30 minutes, the error code E4 is output.
4.3 Discharge Pipe Temperature Protection Control

Outline
Discharge pipe temperature protection control protects the compressor internal temperature against a malfunction or temporary increase of discharge pipe temperature.

Compressor

Discharge pipe temperature protection control not limited

Upper limit frequency: 1-step down from current compressor frequency

Discharge pipe temperature protection control

Upper limit frequency: 1-step up from current compressor frequency

Discharge pipe temperature standby

When occurring 3 times within 100 minutes, the error code F3 is output.

HTdi : Value of discharge pipe temperature (Tdi) compensated with outdoor temperature
Tp : Value of compressor port temperature calculated by Tc and Te, and suction superheated degree.

HTdi > 115˚C (239˚F) or Tp > 135˚C (275˚F)

HTdi > 115˚C (239˚F) or Tp > 135˚C (275˚F) after 30 sec.

HTdi > 115˚C (239˚F) or Tp > 135˚C (275˚F) for 90 sec. or more.

HTdi > 130˚C (266˚F) or HTdi > 120˚C (248˚F) for 10 min. or more.

36 Hz Unload

HTdi < 100˚C (212˚F) and Tp < 110˚C (230˚F)

HTdi < 100˚C (212˚F) and Tp < 125˚C (257˚F) after 20 sec.

HTdi > 135˚C (275˚F) or HTdi > 120˚C (248˚F) for 10 min. or more.
4.4 Inverter Protection Control

Outline
Inverter overcurrent protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, temporary inverter overcurrent, or radiation fin temperature increase.

Inverter overcurrent protection control

- **Not limited**
- **Limited**
  - Inverter current > 23.8 A
    - Upper limit frequency: 1-step down
    - 10 sec. Matching of frequency
    - Keeping the current step.
    - Inverter current ≤ 23.8 A continues for 3 min.
    - Upper limit frequency: 1-step up
    - Inverter current ≥ 24.9 A continues for 260 sec.

- **Inverter current standby**
  - When occurring 4 times within 60 minutes, the error code L8 is output.

(R15610)

Inverter fin temperature control

- **Not limited**
- **Limited**
  - Tfin ≥ 78°C (172.4°F)
    - Upper limit frequency: 1-step down
    - 10 sec. Matching of frequency
    - Keeping the current step.
    - Tfin ≤ 75°C (167°F) continues for 3 min.
    - Upper limit frequency: 1-step up
  - Tfin ≥ 83°C (181.4°F)

- **Fin temperature standby**
  - When occurring 4 times within 60 minutes, the error code L4 is output.

(R19084)
4.5 Freeze-up Protection Control

Outline
According to the freeze prevention status sent from the BP unit, the compressor output frequency is regulated to decrease compressor capacity in order to prevent the indoor heat exchanger from freezing.

Details
Zones are divided based on the freeze prevention status signal sent from the BP unit (indoor unit), and the freeze prevention control prevents freezing of the indoor unit.

Recovery zone: Lift the control
Increase zone: 1 step up / 60 sec.
Keep zone: Frequency is not controlled
Decrease zone: 1 step down / 60 sec.
Stop zone: Thermostat-OFF (only the target indoor unit)

The temperature in the above figure depends on the model (reference value).
### 4.6 Dew Condensation Prevention Control

**Outline**
According to the dew condensation prevention status sent from the BP unit, the compressor output frequency is regulated to decrease compressor capacity in order to prevent the indoor unit from dew condensation.

**Details**
Zones are divided based on the dew condensation prevention status signal sent from the BP unit (indoor unit), and the dew condensation prevention control prevents dew condensation of the indoor unit.

Recovery zone: Lift the control  
Increase zone: 1 step up / 60 sec.  
Keep zone: Frequency is not controlled  
Decrease zone: 1 step down / 60 sec.

The temperature in the above figure depends on the model and actual room temperature (reference value).
5. Other Control

5.1 Demand Control

In order to lower power consumption, the capacity of the outdoor unit is forcibly lowered using the Demand 1 Setting.
To operate the unit with this mode, additional setting of Constant Demand Setting is necessary.

Demand 1 setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Standard for upper limit of power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand 1 setting 1</td>
<td>Approximately 60%</td>
</tr>
<tr>
<td>Demand 1 setting 2 (factory setting)</td>
<td>Approximately 70%</td>
</tr>
<tr>
<td>Demand 1 setting 3</td>
<td>Approximately 80%</td>
</tr>
</tbody>
</table>

★ Other protection control functions have precedence over the above operation.

5.2 Heating Operation Prohibition Control

Heating operation is prohibited when the outdoor temperature is above 24°CDB (75.2°FDB).
6. Branch Provider (BP) Unit Control

6.1 Branch Provider (BP) Unit Command Conversion

1. $\Delta D$ (room thermistor temperature – target temperature) signals from BP units are converted to a capacity up/down signal.

$\Delta D$ signals from BP units are used as the capacity up/down signal in frequency commands (excludes during POWERFUL operation).

<table>
<thead>
<tr>
<th>$\Delta D$ Signal</th>
<th>Capacity up/down signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Thermostat OFF</td>
</tr>
<tr>
<td>1</td>
<td>Down</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Keep</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Up</td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

2. Processing during POWERFUL operation

(1) When POWERFUL command is received from one or more indoor units
(2) Thermostats are not OFF at the indoor units from which POWERFUL commands are issued

When the above conditions are met, the POWERFUL operation is activated, and the POWERFUL operation signal is sent to the outdoor unit.
6.2 Branch Provider (BP) Unit Electronic Expansion Valve Control

This function provides instructions regarding the absolute flow rate, relative flow rate and fully closing from the outdoor unit to the BP unit in order to ensure outdoor unit compressor safety and optimum refrigerating cycle of the system.

With the transmission a permit/prohibit flag for each distribution control in the BP unit, the distribution control startup timing is controlled by the outdoor unit.

6.2.1 Electronic Expansion Valve Initial Opening Setting

**Outline**
This function improves stability of the system to set initial opening of the electronic expansion valve at starting operation.
When the EV opening command from outdoor unit is lifted, the following opening setting is performed.

**Details**

**Cooling Operation**

Tr: room thermistor temperature
Ta: outdoor temperature

Target opening (pulse) = \( \frac{5}{2} \times (\text{Tr} \ (^\circ\text{C}) - 14) + A - B \times (\text{Ta} \ (^\circ\text{C}) - \text{Tr} \ (^\circ\text{C})) \)

\[ = \frac{25}{18} \times (\text{Tr} \ (^\circ\text{F}) - \frac{286}{5}) + A - \frac{5}{9} \times (\text{Ta} \ (^\circ\text{F}) - \text{Tr} \ (^\circ\text{F})) \]

<table>
<thead>
<tr>
<th>Class</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 ~ 12 class</td>
<td>140</td>
<td>Ta ≤ Tr</td>
</tr>
<tr>
<td>15 ~ 18 class</td>
<td>156</td>
<td>0</td>
</tr>
<tr>
<td>24 class</td>
<td>170</td>
<td>Tr &lt; Ta</td>
</tr>
</tbody>
</table>

**Heating Operation**
Target opening = 350 pulse

6.2.2 Electronic Expansion Valve Flow Rate Restriction

**Outline**
This function prevents deviation from the specified electronic expansion valve range by restricting the electronic expansion valve flow rates of the operating and non-operating indoor units during compressor operation. It also prevents the generation of abnormal noise such as refrigerant flowing sound by restricting the circulation of refrigerant according to the operating conditions (unit ON/OFF) of indoor units.

**Details**

Restriction of electronic expansion valve opening degrees of operating indoor units;
... Restriction of maximum and minimum flow rates based on constant

Restriction of electronic expansion valve opening degrees of non-heating indoor units;
... Restriction of minimum flow rate based on constant

... Maximum flow rate determined based on flow rates of operating indoor units
6.2.3 Full Closing of Electronic Expansion Valves

Outline
The electronic expansion valves are initialized when the power is turned on.

Details
The following processes are conducted.
1. Conducts P1 pulses close when power is turned on, and sets current opening to 0 pulse (fully closing process).
2. Sends electronic expansion valve initialization signal to outdoor unit.
3. Closes the electronic expansion valve of each chamber (sets the electronic expansion valve pulse to 0).
4. Stops transmission of electronic expansion valve initialization signal when EVH (bypass electronic expansion valve) retightening is completed.

6.2.4 Control Based on EV Opening Command from Outdoor Unit

Outline
This function operates the electronic expansion valve based on EV opening command sent from the outdoor unit.

Details
The electronic expansion valve operation based on EV opening command provides the following functions.
1) Pressure equalization prior to startup
2) Startup control
3) Restart standby
4) Pump-down residual operation
5) Oil return operation
6) Defrosting operation
6.3 SH Control in Cooling Operation

Outline
This function ensures appropriate refrigerant distribution when many indoor units are operating in cooling operation.

Details
The heat exchanger temperatures and gas pipe temperatures of operating indoor units are detected by the gas pipe thermistors, and the flow rates of the electronic expansion valve are corrected so as to adjust the difference between the heat exchanger temperature and gas pipe temperature of each indoor unit (hereafter referred to as SH) close to the target values.

When SH is higher than target value → Opens the valve of that indoor unit
When SH is lower than target value → Closes the valve of that indoor unit

When the liquid pipe temperature is lower than the heat exchanger temperature, the electronic expansion valve is opened more than normal opening.
(Protection function to prevent rotor dew condensation)

The gas pipe temperature and indoor heat exchanger temperature are detected with a sampling time of 40 seconds for the cooling SH control.

In order to prevent dew condensation in the connection pipe, the gas pipe lower-limit temperature is set as follows.

\[
\text{Gas pipe lower limit temperature (°C)} = \frac{240}{256} \times \text{outdoor temperature (°C)} - 17
\]

(Gas pipe lower limit temperature (°F) = \frac{240}{256} \times \text{outdoor temperature (°F)} - 28.6)

Gas pipe lower limit temperature \leq 8°C (46.4°F)

Notes:
1. In SkyAir models, the indoor units are equipped with distribution capillary tubes; as a result, the heat exchangers may superheat even when the condition is met.
2. In SkyAir models, the heat exchanger intermediate position is provided on the liquid connection pipe side; as a result, superheated condition is difficult to detect.
6.4 SC Control in Heating Operation

Outline
This function ensures appropriate refrigerant distribution when many indoor units are operating in heating operation.

Details
The heat exchanger temperatures and liquid pipe temperatures of operating indoor units are detected by the liquid pipe thermistors, and the flow rates of the electronic expansion valve are corrected so as to adjust the difference between the heat exchanger temperature and liquid pipe temperature of each indoor unit (hereafter referred to as SC) close to the target values.

When SC is higher than target value → Opens the valve of that indoor unit
When SC is lower than target value → Closes the valve of that indoor unit

The liquid pipe temperature and indoor heat exchanger temperature are detected with a sampling time of 20 seconds for the heating SC control.

6.5 Heat Exchanger Isothermal Control in Heating Operation

Outline
This function ensures appropriate refrigerant distribution when indoor units are operating in heating operation.
It prevents abnormal increase of the high pressure and operation with gas shortage due to uneven refrigerant distribution (Protection function).

Details
The indoor heat exchanger thermistors (of all connected indoor units to the same BP unit including non-operating indoor units) in heating operation are detected. Then, the highest heat exchanger temperature is compared with the heat exchanger temperature of each indoor unit. If the temperature difference exceeds the predetermined value, it is judged that the indoor heat exchanger thermistor position is in subcooled zone, and the electronic expansion valves of indoor units with the temperature difference exceeding the predetermined level are opened to return to the saturation zone.
Since this is a protection function, it is effective for all connected indoor units in heating operation excluding those in defrosting operation. This function is inactive in indoor units with transmission problems.

The heat exchanger temperature is detected with a sampling time of 20 seconds of the heat exchanger isothermal control, and maximum value of each heat exchanger temperature is obtained.

If the temperature difference between the heat exchanger temperature and maximum heat exchanger temperature value exceeds 8°C (14.4°F), it is judged that the heat exchanger intermediate is in the subcooled zone, and the electronic expansion valve is opened.
7. CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series Functions

7.1 Temperature Control

Definitions of Temperatures

The definitions of temperatures are classified as following.

- Room temperature: temperature of lower part of the room
- Set temperature: temperature set by remote controller
- Room thermistor temperature: temperature detected by room temperature thermistor
- Target temperature: temperature determined by microcomputer

Temperature Control

The temperature of the room is detected by the room temperature thermistor. However, there is difference between the temperature detected by room temperature thermistor and the temperature of lower part of the room, depending on the type of the indoor unit or installation condition. Practically, the temperature control is done by the target temperature appropriately adjusted for the indoor unit and the temperature detected by room temperature thermistor.

7.2 Airflow Direction Control

Applicable Models

- CTXG09/12/18QVJUW(S)
- CTXS07JVJU
- CTXS09/12HVJU
- CTXS07LVJU
- FTXS09/12/15/18/24LVJU
- FVXS09/12/15/18NVJU

Power-Airflow (Dual) Flap(s)

The large flap sends a large volume of air downward to the floor and provides an optimum control in cooling, dry, and heating operation.

Cooling/Dry

During cooling or dry operation, the flap retracts into the indoor unit. Then, cool air can be blown far and distributed all over the room.
**Heating**
During heating operation, the large flap directs airflow downward to spread the warm air to the entire room.

**Wide-Angle Louvers**
The louvers, made of elastic synthetic resin, provide a wide range of airflow that guarantees comfortable air distribution.

**Auto-Swing**
The following tables explain the auto-swing process for cooling, dry, heating and fan:

### CTXG Series

<table>
<thead>
<tr>
<th>Flap (up and down)</th>
<th>Louver (right and left)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling/Dry</td>
<td>Heating</td>
</tr>
<tr>
<td><img src="R23915" alt="Diagram" /></td>
<td><img src="R23916" alt="Diagram" /></td>
</tr>
<tr>
<td>30˚</td>
<td>30˚</td>
</tr>
<tr>
<td>50˚</td>
<td>65˚</td>
</tr>
<tr>
<td><img src="R21085" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

### CTXS07JVJU, CTXS09/12HVJU

<table>
<thead>
<tr>
<th>Flap (up and down)</th>
<th>Louver (right and left)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling</td>
<td>Dry</td>
</tr>
<tr>
<td><img src="R2814" alt="Diagram" /></td>
<td><img src="R2815" alt="Diagram" /></td>
</tr>
<tr>
<td>10˚</td>
<td>5˚</td>
</tr>
<tr>
<td>40˚</td>
<td>35˚</td>
</tr>
<tr>
<td>10˚</td>
<td>35˚</td>
</tr>
<tr>
<td><img src="R2817" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

### CTXS07LVJU, FTXS09/12LVJU

<table>
<thead>
<tr>
<th>Flap (up and down)</th>
<th>Louver (right and left)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling/Dry</td>
<td>Heating</td>
</tr>
<tr>
<td><img src="R13527" alt="Diagram" /></td>
<td><img src="R11402" alt="Diagram" /></td>
</tr>
<tr>
<td>15˚</td>
<td>30˚</td>
</tr>
<tr>
<td>45˚</td>
<td>70˚</td>
</tr>
<tr>
<td>35˚</td>
<td>30˚</td>
</tr>
<tr>
<td>15˚</td>
<td>45˚</td>
</tr>
<tr>
<td><img src="R11404" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

### FTXS15/18/24LVJU

<table>
<thead>
<tr>
<th>Flap (up and down)</th>
<th>Louver (right and left)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling/Dry</td>
<td>Heating</td>
</tr>
<tr>
<td><img src="R9303" alt="Diagram" /></td>
<td><img src="R9304" alt="Diagram" /></td>
</tr>
<tr>
<td>15˚</td>
<td>30˚</td>
</tr>
<tr>
<td>50˚</td>
<td>70˚</td>
</tr>
<tr>
<td>25˚</td>
<td>70˚</td>
</tr>
<tr>
<td><img src="R9306" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>
**FVXS Series**

<table>
<thead>
<tr>
<th>Upward airflow limit</th>
<th>Cooling/Dry</th>
<th>Heating</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td><img src="R6831" alt="Diagram" /></td>
<td><img src="R6829" alt="Diagram" /></td>
</tr>
<tr>
<td>ON</td>
<td><img src="R6832" alt="Diagram" /></td>
<td><img src="R6830" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**3-D Airflow**

**CTXG, CTXS, FTXS Series**

Alternative repetition of vertical and horizontal swing motions enables uniform air-conditioning of the entire room.

When the horizontal swing and vertical swing are both set to automatic operation, the airflow becomes 3-D airflow. The horizontal and vertical swing motions are alternated and the airflow direction changes in the order shown in the following diagram.

1. The louvers move from the right to the left.
2. The flaps move downward.
3. The louvers move from the left to the right.
4. The flaps move upward.

![Diagram](R19554)

**COMFORT AIRFLOW Operation**

**CTXG, CTXS-L, FTXS-L Series**

The horizontal blades (louvers) are controlled not to blow the air directly at the people in the room.

The airflow will be in the upward direction while in cooling operation and in the downward direction while in heating operation, which will provide a comfortable wind that will not come in direct contact with people.
Airflow Selection Setting

**FVXS Series**

Airflow direction can be set with the airflow selection switch. Open the front panel

- Open the front panel.

![Airflow Selection Switch](image)

**Caution:**

Before opening the front panel, be sure to stop the operation and turn the breaker off. Do not touch the aluminum fins (indoor heat exchanger) inside of the indoor unit, as it may result in injury.

**When setting the airflow selection switch to ▲.**

- The air conditioner automatically decides the appropriate blowing pattern depending on the operating mode/situation.

<table>
<thead>
<tr>
<th>Operating mode</th>
<th>Situation</th>
<th>Blowing pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooling operation</strong></td>
<td>When the room has become fully cool, or when 1 hour has passed since turning on the air conditioner.</td>
<td>Air is blown from the upper air outlet, so that air does not come into direct contact with people, and room temperature is equalized.</td>
</tr>
<tr>
<td></td>
<td>At the start of operation or when the room is not fully cooled.</td>
<td></td>
</tr>
<tr>
<td><strong>Heating operation</strong></td>
<td>Normal time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Air is blown from the upper and lower air outlets for high speed cooling during cooling operation, and for filling the room with warm air during heating operation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the start or when air temperature is low.</td>
<td></td>
</tr>
</tbody>
</table>

- During Dry operation, air is blown upper air outlet, so that cold air does not come into direct contact with people.

**When setting the airflow selection switch to ▼.**

- Regardless of the operating mode or situation, air is blown from the upper air outlet.
- Use this switch when you do not want air coming out of the lower air outlet (e.g., while sleeping).
7.3 Fan Speed Control for Indoor Unit

Outline

Phase control and fan speed control contains 9 steps: LLL, LL, SL, L, ML, M, MH, H, and HH. The airflow rate can be automatically controlled depending on the difference between the room thermistor temperature and the target temperature.

Automatic Fan Speed Control

In automatic fan speed control, the step SL is not available.

### Automatic Fan Speed Control

<table>
<thead>
<tr>
<th>Step</th>
<th>CTXS-J, CTXS-H series</th>
<th>CTXG, CTXS-L, FTXS-L, CDXS, FDXS, FVXS series</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ML</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HH (POWERFUL)</td>
<td>(R6833)</td>
<td>(R6834)</td>
</tr>
</tbody>
</table>

= The airflow rate is automatically controlled within this range when FAN button is set to automatic.

Cooling

The following drawings explain the principle of fan speed control for cooling.

#### CTXS-J, CTXS-H Series

Room thermistor temperature – target temperature

Fan speed

+1.5°C (+2.7°F)

+0.5°C (+0.9°F)

+2°C (+3.6°F)

+1°C (+1.8°F)

(R17357)

#### CTXG, CTXS-L, FTXS-L, CDXS, FDXS, FVXS Series

Room thermistor temperature – target temperature

Fan speed

MH+

MH

M

ML

L

+3°C (+5.4°F)

+2°C (+3.6°F)

+1°C (+1.8°F)

+2.5°C (+4.5°F)

+1.5°C (+2.7°F)

+0.5°C (+0.9°F)

(R16967)

*For CTXG, CTXS-L, FTXS-L, and FVXS series, the upper limit is M tap in 30 minutes from the operation start.

Heating

In heating operation, the fan speed is regulated according to the indoor heat exchanger temperature and the difference between the room thermistor temperature and the target temperature.

Note: The fan stops during defrost operation.
COMFORT AIRFLOW Operation

CTXG, CTXS-L, FTXS-L Series

- The fan speed is automatically controlled within the following steps.

  **Cooling**
  L tap ~ MH tap (same as AUTOMATIC)

  **Heating**
  In order to obtain a comfortable airflow, the fan speed may be set to a rate different from automatic fan speed control.

- The latest command has the priority between POWERFUL and COMFORT AIRFLOW.

### 7.4 Program Dry Operation

**Outline**
Program dry operation removes humidity while preventing the room temperature from lowering. Since the microcomputer controls both the temperature and airflow rate, the temperature adjustment and **FAN** setting buttons are inoperable.

**Details**
The microcomputer automatically sets the temperature and airflow rate. The difference between the room thermistor temperature at start-up and the target temperature is divided into two zones. Then, the unit operates in an appropriate capacity for each zone to maintain the temperature and humidity at a comfortable level.

<table>
<thead>
<tr>
<th>Room thermistor temperature at start-up</th>
<th>Target temperature X</th>
<th>Thermostat OFF point Y</th>
<th>Thermostat ON point Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>24°C or more (75.2°F or more)</td>
<td>X</td>
<td>X – 2.5°C (X – 4.5°F)</td>
<td>X – 0.5°C (X – 0.9°F)</td>
</tr>
<tr>
<td>18 ~ 23.5°C (64.4 ~ 74.3°F)</td>
<td>Room thermistor temperature at start-up</td>
<td>X – 2.0°C (X – 3.6°F)</td>
<td>X – 0.5°C (X – 0.9°F)</td>
</tr>
<tr>
<td>17.5°C or less (63.5°F or less)</td>
<td>18°C (64.4°F)</td>
<td>X – 2.0°C (X – 3.6°F)</td>
<td>X – 0.5°C = 17.5°C (X – 0.9°F = 63.5°F)</td>
</tr>
</tbody>
</table>

★ Thermostat turns on also when the room temperature is in the zone B for 10 minutes.
7.5 Automatic Operation

Outline

Automatic Cooling/Heating Function
When the automatic operation is selected with the remote controller, the microcomputer automatically determines the operation mode as cooling or heating according to the room temperature and the set temperature at start-up.

The unit automatically switches the operation mode to maintain the room temperature at the set temperature.

Details

Ts: set temperature (set by remote controller)
Tt: target temperature (determined by microcomputer)
Tr: room thermistor temperature (detected by room temperature thermistor)
C: correction value

1. The set temperature (Ts) determines the target temperature (Tt).
   (Ts = 18 ~ 30°C, 64.4 ~ 86°F).
2. The target temperature (Tt) is calculated as:
   Tt = Ts + C
   where C is the correction value.
   C = 0°C (32°F)
3. Thermostat ON/OFF point and operation mode switching point are as follows:
   (1) Heating → Cooling switching point:
       Tr ≥ Tt + 3.0°C (+5.4°F) (CTXG, CTXS, FTXS series)
       Tr ≥ Tt + 2.5°C (+4.5°F) (CDXS, FDXS, FVXS series)
   (2) Cooling → Heating switching point:
       Tr < Tt – 2.5°C (–4.5°F) (CTXG series)
       Tr < Tt – 3.0°C (–5.4°F) (CTXS, FTXS, CDXS, FDXS, FVXS series)
   (3) Thermostat ON/OFF point is the same as the ON/OFF point of cooling or heating operation.
4. During initial operation
   Tr ≥ Ts : Cooling operation
   Tr < Ts : Heating operation

CTXG series

Ex: When the target temperature is 25°C (77°F)
   Cooling → 23°C (73.4°F): Thermostat OFF → 22.5°C (72.5°F): Switch to heating
   Heating → 26.5°C (79.7°F): Thermostat OFF → 28°C (82.4°F): Switch to cooling

CTXS, FTXS series

Ex: When the target temperature is 25°C (77°F)
   Cooling → 23°C (73.4°F): Thermostat OFF → 22°C (71.6°F): Switch to heating
   Heating → 27°C (80.6°F): Thermostat OFF → 28°C (82.4°F): Switch to cooling
7.6 Thermostat Control

Outline
Thermostat control is based on the difference between the room thermistor temperature and the target temperature.

Details

Thermostat OFF Condition
- The temperature difference is in the zone A.

Thermostat ON Conditions
- The temperature difference returns to the zone C after being in the zone A.
- The system resumes from defrost control in any zones except A.
- The operation turns on in any zones except A.
- The monitoring time has passed while the temperature difference is in the zone B. (Cooling: 10 minutes, Heating: 10 seconds)

Cooling

Room thermistor temperature – target temperature

Heating

CTXG series

Room thermistor temperature – target temperature
7.7 NIGHT SET Mode

Outline
When the OFF timer is set, NIGHT SET Mode is automatically activated. NIGHT SET Mode keeps the airflow rate setting.

Details
NIGHT SET Mode continues operation at the target temperature for the first one hour, then automatically raises the target temperature slightly in cooling, or lowers it slightly in heating. This prevents excessive cooling or heating to ensure comfortable sleeping conditions, and also conserves electricity.

Cooling

Heating

Refer to Temperature Control on page 73 for details.
### 7.8 ECONO Operation

**Applicable Models**
- CTXG09/12/18QVJUW(S)
- CTXS07LVJU
- FTXS09/12/15/18/24LVJU
- FDXS09/12LVJU
- CDXS15/18/24LVJU
- FVXS09/12/15/18NVJU

**Outline**
ECONO operation reduces the maximum operating current and the power consumption. This operation is particularly convenient for energy-saving. It is also a major bonus when breaker capacity does not allow the use of multiple electrical devices and air conditioners. It can be easily activated by pressing **ECONO** button on the wireless remote controller.

**Details**
- When this function is activated, the maximum capacity also decreases.
- The remote controller can send the ECONO command when the unit is in cooling, heating, dry, or automatic operation. This function can only be set when the unit is running. Press **ON/OFF** button on the remote controller to cancel the function.
- This function and Inverter POWERFUL operation cannot be used at the same time. The latest command has the priority.

---

### 7.9 HOME LEAVE Operation

**Applicable Models**
- CTXS07JVJU
- CTXS09/12HVJU

**Outline**
HOME LEAVE operation is a function that allows you to record your preferred set temperature and airflow rate. You can start your preferred operation mode simply by pressing **HOME LEAVE** button on the remote controller.

**Details**
The indoor unit is operated according to the set temperature and airflow rate for HOME LEAVE which were preset in the memory of the remote controller.

**Start of Function**
The function starts when **HOME LEAVE** button is pressed in cooling operation, heating operation (including POWERFUL operation), or while the operation is stopped. A mark representing HOME LEAVE is indicated on the display of the remote controller, and the LED (red) of indoor unit representing HOME LEAVE lights up. (It goes out when the operation is stopped.)
If this button is pressed in POWERFUL operation, the POWERFUL operation is canceled and this function becomes effective.

- HOME LEAVE button is ineffective in dry operation and fan operation.

**End of Function**
The function ends when HOME LEAVE button is pressed again during HOME LEAVE operation or when POWERFUL button is pressed.

**Cooling**

![Diagram of cooling operation]

**Setting Temperature and Airflow Rate**
When using HOME LEAVE operation for the first time, set your preferred temperature and airflow rate for HOME LEAVE operation.

1. Press HOME LEAVE button.
   Make sure 🏡 is displayed on the remote controller.
2. Adjust the temperature with ▲ or ▼ button.
3. Adjust the airflow rate with FAN button.

HOME LEAVE operation will run with these settings the next time you start HOME LEAVE operation. To change the recorded information, repeat steps 1 – 3.

**Notes:**
1. The set temperature and airflow rate are recorded in the remote controller. When the remote controller is reset due to battery replacement, the temperature and airflow rate for HOME LEAVE operation needs to be set again.
2. The operation mode cannot be changed while HOME LEAVE operation is being used.
7.10 2-Area INTELLIGENT EYE Operation

Applicable Models
CTXG09/12/18QVJUW(S)

Outline
The following functions can be performed by the microcomputer with a motion sensor.
1. Reduction of the capacity when there is nobody in the room in order to save electricity (energy saving operation)
2. Dividing the room into plural areas and detecting presence of humans in each area.
   Moving the airflow direction to the area with no human automatically to avoid direct airflow on humans.

Details

1. INTELLIGENT EYE detection method

   ■ The motion sensor detects human motion by receiving infrared rays and sends the pulse wave output.
   ■ The microcomputer in the indoor unit carries out a sampling every 20 msec. If the motion sensor detects 10 times or more of the waveform output in one second in total, and the High signal continues for 3 sec., the microcomputer judges humans are in the room as the human detection signal is ON.
   ■ 2-area INTELLIGENT EYE motion sensor divides the area into 2 and detects presence of humans in each area.

Image of 2-area INTELLIGENT EYE

A microcomputer judges human presence by the human detection signal from each area A and B.
2. Motions (in cooling)

★ In FAN operation, the fan speed is reduced by 60 rpm when no one is in the area.

■ When there is no signal from the motion sensor in 20 minutes, the microcomputer judges that nobody is in the room and operates the unit at a temperature shifted from the target temperature. (Cooling/Dry: 1 ~ 2°C (1.8 ~ 3.6°F) higher, Heating: 2°C (3.6°F) lower, Auto: according to the operation mode at that time.)

3. Airflow direction in 2-area INTELLIGENT EYE operation

■ Detection method: The opposite area of detected area is set as the target direction.

1. Human detection signal ON in both area A and B: Shift the airflow direction to area B (left side)
2. Human detection signal ON in area A: Shift the airflow direction to area B (left side)
3. Human detection signal ON in area B: Shift the airflow direction to area A (right side)
4. Human detection signal OFF in both area A and B: No change

*When the human detection signal is OFF for 20 minutes in both area A and B, the unit starts energy saving operation.

Note: For dry operation, the target temperature is shifted internally. The temperature cannot be set with the remote controller.
7.11 INTELLIGENT EYE Operation

Applicable Models
- CTXS07JVJU
- CTXS09/12HVJU
- CTXS07LVJU
- FTXS09/12/15/18/24LVJU

Outline
The microcomputer detects the presence of humans in the room with a motion sensor and reduces the capacity when there is nobody in the room in order to save electricity.

Details

1. INTELLIGENT EYE detection method

- The motion sensor detects human motion by receiving infrared rays and sends the pulse wave output.
- The microcomputer in the indoor unit carries out a sampling every 20 msec. If the motion sensor detects 10 times/sec. or more, the microcomputer judges the detection signal from the motion sensor is High.

2. Motions (in cooling)

★ In FAN operation, the fan speed is reduced by 60 rpm when no one is in the area.
When there is no signal from the motion sensor in 20 minutes, the microcomputer judges that nobody is in the room and operates the unit at a temperature shifted from the target temperature. (Cooling/Dry: 1 ~ 2°C (1.8 ~ 3.6°F) higher, Heating: 2°C (3.6°F) lower, Auto: according to the operation mode at that time.)

Note: For dry operation, the target temperature is shifted internally. The temperature cannot be set with the remote controller.

### 7.12 POWERFUL Operation

**Outline**

In order to exploit the cooling and heating capacity to full extent, the air conditioner can be operated by increasing the indoor fan rotating speed and the compressor frequency.

**Details**

When **POWERFUL** button is pressed, the fan speed and target temperature are converted to the following states for 20 minutes.

<table>
<thead>
<tr>
<th>Operation mode</th>
<th>Fan speed</th>
<th>Target temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOL</td>
<td>H tap + A rpm</td>
<td>18°C (64.4°F)</td>
</tr>
<tr>
<td>DRY</td>
<td>Dry rotating speed + A rpm</td>
<td>Lowered by 2 ~ 2.5°C (3.6 ~ 4.5°F)</td>
</tr>
<tr>
<td>HEAT</td>
<td>H tap + A rpm</td>
<td>30 ~ 31.5°C (86 ~ 88.7°F)</td>
</tr>
<tr>
<td>FAN</td>
<td>H tap + A rpm</td>
<td>—</td>
</tr>
<tr>
<td>AUTO</td>
<td>Same as cooling/heating in <strong>POWERFUL</strong> operation</td>
<td>The target temperature is kept unchanged.</td>
</tr>
</tbody>
</table>

**A** = 50 ~ 90 rpm (depending on the model)

Ex: **POWERFUL** operation in cooling

**Note:** **POWERFUL** operation cannot be used together with **ECONO**, **COMFORT AIRFLOW** or **OUTDOOR UNIT QUIET** operation.
7.13 Multi-Monitor Lamp/TIMER Lamp

Applicable Models

CTXG09/12/18QVJUW(S)

Features

Current operation mode is displayed in color of the lamp of the indoor unit. Operating status can be monitored even in automatic operation in accordance with the actual operation mode.

The lamp color changes according to the operation.
- AUTO ........................................................ Red/Blue
- DRY ........................................................ Green
- COOL ....................................................... Blue
- HEAT ....................................................... Red
- FAN ........................................................ White
- TIMER ..................................................... Orange

Brightness Setting

Each time Brightness button on the remote controller is pressed, the brightness of the multi-monitor lamp/TIMER lamp changes to high, low, or off.
7.14 Clock Setting

The clock can be set by taking the following steps:

1. Press **CLOCK** button.
   → **0:00** is displayed. **MON** and **Q** blink.
2. Press **SELECT ▲** or **SELECT ▼** button to set the clock to the current day of the week.
3. Press **CLOCK** button.
   → **Q** blinks.
4. Press **SELECT ▲** or **SELECT ▼** button to set the clock to the present time.
   Holding down **SELECT ▲** or **SELECT ▼** button increases or decreases the time display rapidly.
5. Press **CLOCK** button to set the clock. (Point the remote controller at the indoor unit when pressing the button.)
   → **•** blinks and clock setting is completed.
7.15 WEEKLY TIMER Operation

Applicable Models
CTXG09/12/18QVJUW(S)
CTXS07LVJU
FTXS09/12/15/18/24LVJU
FVXS09/12/15/18NVJU

Outline
Up to 4 timer settings can be saved for each day of the week (up to 28 settings in total). The 3 items: ON/OFF, temperature, and time can be set.

Details
★ The illustrations are for CTXG series as representative.

Setting example of the WEEKLY TIMER

The same timer settings are used from Monday through Friday, while different timer settings are used for the weekend.

- **Monday**
  - Make timer settings for programs 1-4.
  - [6:00 8:30 17:30 22:00]
  - [77˚F (25˚C) 81˚F (27˚C)]
  - [ON OFF ON OFF]

- **Tuesday** to **Friday**
  - Use the copy mode to make settings for Tuesday to Friday, because these settings are the same as those for Monday.
  - [6:00 8:30 17:30 22:00]
  - [77˚F (25˚C) 81˚F (27˚C)]
  - [ON OFF OFF ON]

- **Saturday**
  - No timer settings

- **Sunday**
  - Make timer settings for programs 1-4.
  - [6:00 8:00 10:00 19:00 21:00]
  - [77˚F (25˚C) 81˚F (27˚C) 77˚F (25˚C)]
  - [ON OFF OFF ON]

- **Up to 4 reservations per day and 28 reservations per week can be set using the WEEKLY TIMER. The effective use of the copy mode simplifies timer programming.**
- **The use of ON-ON-ON-ON settings, for example, makes it possible to schedule operating mode and set temperature changes. Furthermore, by using OFF-OFF-OFF-OFF settings, only the turn off time of each day can be set. This will turn off the air conditioner automatically if you forget to turn it off.**
To use WEEKLY TIMER operation

Setting mode

- Make sure the day of the week and time are set.
  If not, set the day of the week and time.

![Image of controller interface with settings]

Programs:
- [Monday]
  - 6:00 ON 8:30 OFF
  - 17:30 ON 22:00 OFF
  - 77˚F (25˚C) program 1
  - 81˚F (27˚C) program 2

Setting Displays

Day and number
ON/OFF
Time
Temperature

1. Press **.**
   - The day of the week and the reservation number of the current day will be displayed.
   - 1 to 4 settings can be made per day.

2. Press **to select the desired day of the week and reservation number.**
   - Pressing **changes the reservation number and the day of the week.**

3. Press **.**
   - The day of the week and reservation number will be set.
   - "WEEKLY" and "ON" blink.

4. Press **to select the desired mode.**
   - Pressing **changes the "ON" or "OFF" setting in sequence.**

   ![Diagram of ON and OFF settings]

   - In case the reservation has already been set, selecting "blank" deletes the reservation.
   - Proceed to STEP 9 if "blank" is selected.
   - To return to the day of the week and reservation number setting, press **Back**.

5. Press **.**
   - The ON/OFF TIMER mode will be set.
   - "WEEKLY" and the time blink.
6. Press to select the desired time.
   • The time can be set between 0:00 and 23:50 in 10-minute intervals.
   • To return to the ON/OFF TIMER mode setting, press .
   • Proceed to STEP 9 when setting the OFF TIMER.

7. Press .
   • The time will be set.
   • “ ” and the temperature blink.

8. Press to select the desired temperature.
   • The temperature can be set between 50°F (10°C) and 90°F (32°C).
     COOL or AUTO: The unit operates at 64°F (18°C) even if it is set at 50°F (10°C) to 63°F (17°C).
     HEAT or AUTO: The unit operates at 86°F (30°C) even if it is set at 87°F (31°C) to 90°F (32°C).
   • To return to the time setting, press .
   • The set temperature is only displayed when the mode setting is on.

   • Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
   • The multi-monitor lamp blinks twice.
   • The temperature will be set and go to the next reservation.
   • Temperature and time are set in the case of ON TIMER operation, and the time is set in the case of OFF TIMER operation.
   • The next reservation screen will appear.
   • To continue further settings, repeat the procedure from STEP 4.

10. Press to complete the setting.
    • “ ” is displayed on the LCD and WEEKLY TIMER operation is activated.
    • The TIMER lamp periodically lights orange.
    The multi-monitor lamp will not light orange if all the reservation settings are deleted.

   • A reservation made once can be easily copied and the same settings used for another day of the week. Refer to Copy mode .

**NOTE**

---

**Notes on WEEKLY TIMER operation**

- The day of the week, ON/OFF TIMER mode, time and set temperature (only for ON TIMER mode) can be set with the WEEKLY TIMER.
- Other settings for the ON TIMER are based on the settings just before the operation.
- WEEKLY TIMER and ON/OFF TIMER operation cannot be used at the same time. The ON/OFF TIMER operation has priority if it is set while WEEKLY TIMER is still active. The WEEKLY TIMER will enter the standby state, and “ ” will disappear from the LCD. When the ON/OFF TIMER is up, the WEEKLY TIMER will automatically become active.
- Only the time and temperature can be set with the WEEKLY TIMER. Set the WEEKLY TIMER only after setting the operation mode, the airflow rate and the airflow direction ahead of time.
- Turning off the circuit breaker, power failure, and other similar events will render operation of the indoor unit’s internal clock inaccurate. Reset the clock.
- can be used only for the time and temperature settings. It cannot be used to go back to the reservation number.
Copy mode

- A reservation made once can be copied to another day of the week. The whole reservation of the selected day of the week will be copied.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>6:00</td>
<td>6:00</td>
<td>6:00</td>
<td>6:00</td>
</tr>
<tr>
<td>8:30</td>
<td>77°F (25°C)</td>
<td>81°F (27°C)</td>
<td>8:30</td>
<td>8:30</td>
</tr>
<tr>
<td>17:30</td>
<td>8:30</td>
<td>17:30</td>
<td>17:30</td>
<td>17:30</td>
</tr>
<tr>
<td>22:00</td>
<td>17:30</td>
<td>22:00</td>
<td>22:00</td>
<td>22:00</td>
</tr>
</tbody>
</table>

1. Press .

2. Press to confirm the day of the week to be copied.

3. Press .
   - The whole reservation of the selected day of the week will be copied.

4. Press to select the destination day of the week.

5. Press .
   - Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
   - The multi-monitor lamp blinks twice.
   - The reservation will be copied to the selected day of the week. The whole reservation of the selected day of the week will be copied.
   - To continue copying the settings to other days of the week, repeat step 4 and step 5.

6. Press to complete the setting.

- " O WEEKLY " is displayed on the LCD and WEEKLY TIMER operation is activated.
- The TIMER lamp periodically lights orange.

**NOTE**

**Note on COPY MODE**
- The entire reservation of the source day of the week is copied in the copy mode.
- In the case of making a reservation change for any day of the week individually after copying the content of weekly reservations, press and change the settings in the steps of **Setting mode**.

---

Setting Displays

- Confirmation
- Copy
- Paste
- Normal
Confirming a reservation

- The reservation can be confirmed.

### Setting Displays

<table>
<thead>
<tr>
<th>Normal</th>
<th>Confirmation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Display" /></td>
<td></td>
</tr>
</tbody>
</table>

**1. Press **

- The day of the week and the reservation number of the current day will be displayed.

**2. Press ** to select the day of the week and the reservation number to be confirmed.

- Pressing ** displays the reservation details.
- To change the confirmed reserved settings, select the reservation number and press **.
  - The mode is switched to setting mode. Proceed to [Setting mode](#) STEP 4.

**3. Press ** to exit the confirmation mode.

- "**" is displayed on the LCD and WEEKLY TIMER operation is activated.
- The TIMER lamp periodically lights orange.
  - The multi-monitor lamp will not light orange if all the reservation settings are deleted.

**To deactivate WEEKLY TIMER operation**

**Press ** while "**" is displayed on the LCD.

- "**" disappears from the LCD.
- The TIMER lamp goes off.
- To reactivate the WEEKLY TIMER operation, press ** again.
- If a reservation deactivated with ** is activated once again, the last reservation mode will be used.

**NOTE**

- If not all the reservation settings are reflected, deactivate the WEEKLY TIMER operation once. Then press ** again to reactivate the WEEKLY TIMER operation.
To delete reservations

An individual reservation

1. Press .
   • The day of the week and the reservation number will be displayed.

2. Press to select the day of the week and the reservation number to be deleted.

3. Press .
   • “ ” and “ON” or “OFF” blink.

4. Press until no icon is displayed.
   • Pressing changes the ON/OFF TIMER mode in sequence.
   • Selecting “blank” will cancel any reservation you may have.

5. Press .
   • The selected reservation will be deleted.
   • Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.

6. Press .
   • If there are still other reservations, WEEKLY TIMER operation will be activated.

Reservations for each day of the week

• This function can be used for deleting reservations for each day of the week.
• It can be used while confirming or setting reservations.

1. Press .
   • The day of the week and the reservation number will be displayed.

2. Press to select the day of the week to be deleted.

3. Hold for about 5 seconds.
   • Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
   • The reservation of the selected day of the week will be deleted.

4. Press .
   • If there are still other reservations, WEEKLY TIMER operation will be activated.

All reservations

Hold for about 5 seconds with the normal display.

• Be sure to direct the remote controller toward the indoor unit and check for a receiving tone and blinking of the multi-monitor lamp.
• The TIMER lamp goes off.
• This operation cannot be used for the WEEKLY TIMER setting display.
• All reservations will be deleted.
7.16 Other Functions

7.16.1 Hot-Start Function

In order to prevent the cold air blast that normally occurs when heating operation starts, the temperature of the indoor heat exchanger is detected, and the airflow is either stopped or significantly weakened resulting in comfortable heating.

**Note:** The cold air blast is prevented using similar control when defrost control starts or when the thermostat is turned ON.

7.16.2 Signal Receiving Sign

When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound and the operation lamp blinks.

7.16.3 Indoor Unit ON/OFF Button

- **ON/OFF** button is provided on the display of the unit.
- Press **ON/OFF** button once to start operation. Press once again to stop it.
- **ON/OFF** button is useful when the remote controller is missing or the battery has run out.

<table>
<thead>
<tr>
<th>Operation mode</th>
<th>Temperature setting</th>
<th>Airflow rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>25°C (77°F)</td>
<td>Automatic</td>
</tr>
</tbody>
</table>

- In the case of multi system operation, there are times when the unit does not activate with this button.

**CTXG Series**

![CTXG Series ON/OFF button](R23923)

**CTXS/FTXS Series**

![CTXS/FTXS Series ON/OFF button](R23924)

**CDXS/FDXS Series**

![CDXS/FDXS Series ON/OFF button](R23925)
7.16.4 Auto-restart Function

If a power failure (even a momentary one) occurs during the operation, the system restarts automatically in the same conditions as before when the power supply is restored to the conditions prior to the power failure.

Note: It takes 3 minutes to restart the operation because the 3-minute standby function is activated.
# 8. FFQ Series Function

## 8.1 Temperature Control

### Definitions of Temperatures

The definitions of temperatures are classified as following.

- Room temperature: temperature of lower part of the room
- Set temperature: temperature set by remote controller
- Room thermistor temperature: temperature detected by room temperature thermistor
- Target temperature: temperature determined by microcomputer

<table>
<thead>
<tr>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature</td>
</tr>
<tr>
<td>Set temperature</td>
</tr>
<tr>
<td>Room thermistor temp</td>
</tr>
<tr>
<td>Target temp</td>
</tr>
</tbody>
</table>

The temperature of the room is detected by the room temperature thermistor. However, there is a difference between the temperature detected by room temperature thermistor and the temperature of lower part of the room, depending on the installation condition. Practically, the temperature control is done by the target temperature appropriately adjusted for the indoor unit and the temperature detected by room temperature thermistor.
8.2 Airflow Direction Control

Outline
There are two types of airflow direction settings.

- **Automatic swing setting**
  The flaps automatically oscillate up and down.

- **Airflow direction fixed setting**
  You can select from one of the fixed directions.
  The display of the remote controller and the actual angle of the flap do not match.

Flaps Movement
Under the operating conditions shown below, airflow direction is controlled automatically. Actual operation may be different from what is displayed on the remote controller.

- Room temperature is higher than the remote controller’s set temperature in heating operation.
- When defrosting in heating operation. The airflow discharges horizontally to avoid blowing cold air directly on the room occupants.
- Under continuous operation with the airflow discharging horizontally.

Individual Flap Control
With decoration panels BYFQ60C2W1W(S) and wired remote controller (BRC1E73), you can control each one of the four flaps individually. The following marks are beside each air outlet: ⬤, ⬤⬤, ⬤⬤⬤, ⬤⬤⬤⬤

8.3 Fan Speed Control for Indoor Unit

- **With Wired Remote Controller (BRC1E73)**
  To change the fan speed, press Fan Speed button and select the fan speed from Low/Medium/High/Auto for three-speed.
  - The system may change the fan speed automatically for equipment protection purposes.
  - The system may turn off the fan when the room temperature is satisfied.
  - It is normal for a delay to occur when changing the fan speed.
  - If the Auto is selected for the fan speed, the fan speed varies automatically based on the difference between set temperature and room temperature.

- **With Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))**
  Press FAN button to select the fan speed, LOW, MEDIUM or HIGH.
8.4 Program Dry Operation

Outline
Program dry operation removes humidity while preventing the room temperature from lowering. Since the microcomputer controls both the temperature and airflow rate, the temperature adjustment and FAN setting buttons are inoperable.

Details
The microcomputer automatically sets the temperature and airflow rate. The difference between the room thermistor temperature at start-up and the target temperature is divided into two zones. Then, the unit operates in an appropriate capacity for each zone to maintain the temperature and humidity at a comfortable level.

<table>
<thead>
<tr>
<th>Room thermistor temperature at start-up</th>
<th>Target temperature X</th>
<th>Thermostat OFF point Y</th>
<th>Thermostat ON point Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.5°C or more (76.1°F or more)</td>
<td>Room thermistor temperature at start-up</td>
<td>X - 2.5°C (X - 4.5°F)</td>
<td>X - 1.0°C (X - 1.8°F)</td>
</tr>
<tr>
<td>16.5 ~ 24°C (61.7 ~ 75.2°F)</td>
<td>Room thermistor temperature at start-up</td>
<td>X - 2.0°C (X - 3.6°F)</td>
<td>X - 1.0°C (X - 1.8°F)</td>
</tr>
<tr>
<td>16°C or less (60.8°F or less)</td>
<td>16°C (60.8°F)</td>
<td>X - 2.0°C (X - 3.6°F)</td>
<td>X - 1.0°C = 15°C (X - 1.8°F = 59°F)</td>
</tr>
</tbody>
</table>
8.5 Clock and Calendar Setting (With Wired Remote Controller BRC1E73)

1. Press Menu/OK button to display the main menu screen.
2. Press ▼ buttons to select Clock & Calendar on the main menu screen.
3. Press Menu/OK button to display the clock & calendar screen.

2. Press ▼ buttons to select Date & Time on the clock & calendar screen.
3. Press Menu/OK button to display the date & time screen.

3. Select Year with ◀▶ buttons.
   Change the year with ▼▲ buttons.
   Holding down the button causes the number to change continuously.

4. Select Month with ◀▶ buttons.
   Change the month with ▼▲ buttons.
   Holding down the button causes the number to change continuously.

5. Select Day with ◀▶ buttons.
   Change the day with ▼▲ buttons.
   Holding down the button causes the number to change continuously.
   Days of the week change automatically.
6. Select **Hour** with **ʼʼ** buttons. Change the hour with **ʼʼ** buttons. Holding down the button causes the number to change continuously.

7. Select **Minute** with **ʼʼ** buttons. Change the minute with **ʼʼ** buttons. Holding down the button causes the number to change continuously. Press **Menu/OK** button. The confirmation screen will appear.

   **Note:**
   The date can be set between January 1, 2015 and December 31, 2099.

8. Press **ʼʼ** button to select **Yes** on the confirmation screen. Press **Menu/OK** button to confirm the clock and return to the basic screen.

   * When setting the schedule, the display returns to the settings screen.

(R24072)
8.6 Schedule TIMER Operation (With Wired Remote Controller BRC1E73)

Outline
Day settings are selected from 4 patterns:
• 7Days
• Weekday/Sat/Sun
• Weekday/Weekend
• Everyday

Up to 5 actions can be set for each day.

Details
Set the startup time and operation stop time.
ON: Startup time, cooling and heating temperature setpoints can be configured.
OFF: Operation stop time, cooling and heating setback temperature setpoints can be configured.
( --: Indicates that the setback function is disabled for this time period. )
__: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.

Refer to Setback function on page 107 for details of setback function.

Setting the schedule

1. Press Menu/OK button to display the main menu screen.
   • Press ▼▲ buttons to select Schedule.
   • Press Menu/OK button to display the schedule screen.
   • Before setting the schedule, the clock must be set.
   • If the clock has not been set, a screen like the one on the left will appear.
     Press ◀▶ buttons to select Yes and press Menu/OK button.
   • The date & time screen will appear.
   • Set the current year, month, day, and time.

2. Press ▼▲ buttons to select the desired function on the schedule screen and press Menu/OK button.
## Daily Patterns

1. The schedule screen will appear.
2. Press ▲ buttons to select **Daily Patterns** on the schedule screen.
   The daily patterns screen will appear when **Menu/OK** button is pressed.

3. Press ▼ buttons to select **7 Days**, **Weekday/Sat/Sun**, **Weekday/Weekend**, or **Everyday** on the daily patterns screen.
   The confirmation screen will appear when **Menu/OK** button is pressed.

4. Press ◀ buttons to select **Yes** on the confirmation screen.
   Pressing **Menu/OK** button enters the daily patterns in the schedule and takes you back to the main menu screen.

## Settings

1. The schedule screen will appear.
2. Press ▲ buttons to select **Settings** on the schedule screen.
   The settings screen will appear when **Menu/OK** button is pressed.

3. Press ▼ buttons to select the day to be set.
   * It cannot be selected in the case of **EVDY**.

4. Input the time for the selected day.
5. Press ◀ buttons to move the highlighted item and press ▲ buttons to input the desired operation start time.
   Each press of ▲ buttons moves the numbers by 1 hour or 1 minute.
4. Press ▲▼ buttons to move the highlighted item and press ▼▲ buttons to configure ON/OFF/— settings. 

---, ON, or OFF changes in sequence when ▼▲ buttons are pressed.

- ON: The temperature setpoints can be configured.
- OFF: The setback temperature setpoints can be configured.
- --: The temperature setpoints and setback temperature setpoints become disabled.

The cooling and heating temperature setpoints for both ON and OFF (Setback) are configured.

- --: Indicates that the temperature setpoint and setback temperature setpoint for this time period is not specified. The last active setpoint will be utilized.
- --: Indicates that the setback function is disabled for this time period.

5. A maximum of five actions per day can be set.

- Press Menu/OK button when settings for each day are completed. The confirmation screen will appear.

To copy the settings for the previous day, press Mode button so that the existing settings will be copied.

Example: The contents for Monday are copied by pressing Mode button after selecting Tuesday.

6. Press ▲▼ buttons to select Yes on the confirmation screen.

Pressing Menu/OK button confirms the settings for each day and takes you back to the basic screen.
## Enabling or disabling the schedule

1. Display the schedule screen.
2. Press ▼▲ buttons to select Enable / Disable on the schedule screen.
   Press Menu/OK button to display the enable/disable screen.
3. Press ▼▲ buttons to select Enable or Disable on the enable/disable screen.
   Press Menu/OK button after selecting the item. The confirmation screen is displayed.
4. Press ◀▶ buttons to select Yes on the confirmation screen.
   Pressing Menu/OK button confirms the enable/disable setting for the schedule and takes you back to the basic screen.
8.7 Setback Function (With Wired Remote Controller BRC1E73)

The Setback function can be used to maintain the space temperature in an assigned range for an unoccupied period.

The setback icon flashes on the LCD of wired remote controller when the unit is turned on by the setback control.

- When enabled, the Setback mode becomes active when the indoor unit is turned off by either the user, a schedule event or an off timer.
- Setback function is not available by default. It can be enabled by the system installer.

8.8 Drain Pump Control

8.8.1 Normal Operation

- The float switch is ON in normal operation.
- When cooling operation starts (thermostat ON), the drain pump turns ON simultaneously.
- After the thermostat turns OFF, the drain pump continues to operate.
8.8.2 If the Float Switch is OFF with the Thermostat ON in Cooling Operation

- When the float switch stays OFF for 5 sec., the thermostat turns OFF.
- After the thermostat turns OFF, the drain pump continues to operate for another 5 minutes.
  *1: If the float switch turns ON again during the residual operation of the drain pump, cooling operation also turns on again (thermostat ON).
  *2: If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code \( R3 \) is determined.
  *3: The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.
  *4: After \( R3 \) is determined and the unit comes to an abnormal stop, the thermostat will remain OFF even if the float switch turns ON again.

8.8.3 If the Float Switch is OFF with the Thermostat OFF in Cooling Operation

- When the float switch stays OFF for 5 sec., the drain pump turns ON.
- If the float switch remains OFF even after the residual operation of the drain pump has ended, the error code \( R3 \) is determined.
- The drain pump turns OFF once residual operation has ended, then turns ON again after 5 seconds.
8.8.4 If the Float Switch Turns OFF and ON Continuously, or the Float Switch Turns OFF While $\text{AF}$ Displayed

- When the float switch stays OFF for 5 sec., the drain pump turns ON.
- 1: If the float switch continues to turn OFF and ON 5 times consecutively, it is judged as a drain system error and the error code $\text{AF}$ is determined.
- 2: The drain pump continues to turn ON/OFF in accordance with the float switch OFF/ON even after $\text{AF}$ is determined.
- 3: While the error code $\text{AF}$ is active, if the float switch remains OFF even after the residual operation of the drain pump has ended, the error code $\text{A3}$ will be determined.

8.9 Hot Start Control (In Heating Operation Only)

Outline
At startup with thermostat ON or after the completion of defrosting in heating operation, the indoor unit fan is controlled to prevent cold air from blasting out and ensure startup capacity.

Details

Defrost ending or oil return ending or Thermostat ON

Hot start ending conditions
- Lapse of 3 minutes
- $\text{TH}_3 > 34^\circ\text{C} (93.2^\circ\text{F})$

Hot start control

- H/M/L remote controller setting
- LL
- OFF

Remote controller setting
- Level position

Normal operation

$\text{TH}_3$: Temperature detected by the indoor heat exchanger thermistor (R3T)
8.10 Presence and Floor Sensors (Option)

Outline

With the human presence signal and the floor temperature signal from the optional sensor kit, the system provides the energy saving control, or the comfortable temperature control and airflow direction control preventing the direct draft to the human. To use sensor related functions, a wired remote controller (BRC1E73) and optional sensor kit (BRYQ60A2W(S)) are necessary to be installed.

Details

1. Draft prevention (with presence sensor)

When the sensor detects human presence during auto-swing operation, the system sets the airflow direction parallel to the floor (position 0) to reduce unpleasant draft. The operation returns to the normal auto-swing as the sensor detects no human in the room.

- Draft prevention is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and draft prevention is set to “enabled” on the wired remote controller.
- Factory setting is “disabled”.
- Draft prevention cannot be activated when individual flap control is set, even if draft prevention is enabled on the wired remote controller.

Setting on the wired remote controller

1. Press Menu/OK button to display the main menu screen.
2. Press ▼▲ buttons to select Configuration and press Menu/OK button.
4. Press ▼▲ buttons to select Enable.

The confirmation screen will appear when Menu/OK button is pressed.

5. Press ▼▲ buttons to select Yes.
6. Press Menu/OK button to confirm the settings and to return to the basic screen.
2. Auto-setback by sensor (with presence sensor)
After pre-determined time has elapsed without detection of human presence, the unit automatically shifts the target temperature gradually for energy saving.
The target temperature displayed on the remote controller remains same as the initial set value during the above change of target temperature.
The target temperature shifts within the range of the highest programmable temperature while in cooling operation and the lowest programmable temperature while in heating operation.
Upon human detection, the target temperature returns to the original setting.

- Auto-setback by sensor is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and auto-setback by sensor is set to "enabled" on the wired remote controller.
- Factory setting is “disabled”.

Setting on the remote controller

1. Press Cancel button for 4 seconds on the basic screen to display Service Settings menu.
2. Press ▼ ▼ buttons to select Energy Saving Options.
3. Press Menu/OK button to display Energy Saving Options menu.
4. Press ▼ ▼ buttons to select Auto-setback by Sensor.
5. Press Menu/OK button to display Auto-setback by Sensor menu.
6. Press ▼ ▼ buttons to select Enable/Disable.
7. Press Menu/OK button.
8. Press ▼ ▼ buttons to select Enable.
9. Press Menu/OK button after selecting the item. Then the confirmation screen is displayed.
10. Press ▼ ▼ buttons to select Yes.
11. Press Menu/OK button to confirm the settings and to return to the Service Settings menu.
3. Auto-off by sensor (with presence sensor)
After pre-determined time has elapsed without detection of human presence, the unit automatically stops operation.
The auto-off time can be set between 1-24 hours by the hour.
Once the unit stops operation by auto-off function, the system would not restart even if the human is detected again.
- Auto-off by sensor is enabled only when decoration panel BYFQ60C2W1W(S), sensor kit BRYQ60A2W(S) and wired remote controller BRC1E73 are connected to the main unit and auto-off by sensor is set to “enabled” on the wired remote controller.
- Factory setting is “disabled”.

Setting on the remote controller

1. Press \textit{Cancel} button for 4 seconds on the basic screen to display Service Settings menu.
2. Press \textit{▲} buttons to select Energy Saving Options.
3. Press \textit{Menu/OK} button to display Energy Saving Options menu.
4. Press \textit{▼} buttons to select Auto-off by Sensor.
5. Press \textit{Menu/OK} button to display Auto-off by Sensor menu.

3. \textbf{ Enable }.

4. \textbf{ Enable }.

5. Save the settings?
   - Yes
   - No

4. Room temperature adjustment by sensing (with floor sensor)
The system uses living space temperature calculated from temperatures detected by room temperature thermistor (suction air thermistor in the indoor unit) and floor sensor, as the target temperature.
Operation becomes more optimized by using not only suction air temperature but floor temperature.
- This function is enabled when decoration panel BYFQ60C2WAW(S) and sensor kit BRYQ60A2W(S) is connected to the main unit.
8.11 Other Functions

8.11.1 Signal Receiving Sign
When the indoor unit receives a signal from the remote controller, the unit emits a signal receiving sound.

8.11.2 Auto-restart Function
If a power failure (even a momentary one) occurs during the operation, the system restarts automatically in the same conditions as before when the power supply is restored to the conditions prior to the power failure.

Note: It takes 3 minutes to restart the operation because the 3-minute standby function is activated.

8.11.3 Emergency Operation Switch (With Wireless Remote Controller Kit BRC082A41W, BRC082A42W(S))
When the remote controller does not work due to battery failure or the absence thereof, use the emergency operation switch.

Start
Press emergency operation switch.

- The unit runs in the previous mode.
- The system operates with the previously set airflow direction.

Stop
Press emergency operation switch again.
Part 6

Test Operation and Field Settings

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1. Test Operation

1.1 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

1.1.1 Check Work Prior to Turn Power Supply On

Check the below items.

- Power wiring
- Control transmission wiring between units
- Ground wire

○ Is the power supply single-phase 208 ~ 230 V, 60 Hz?
○ Have you finished a duct work to drain?
○ Have you detach transport fitting?
○ Is the wiring performed as specified?
○ Are the designated wires used?
○ Is the grounding work completed?
  - Use a 500 V Megger tester to measure the insulation.
  - Do not use a Megger tester for other than 208 - 230 V circuit.
○ Are the screws of wiring not loose?
○ Is the electrical component box covered with an insulation cover completely?

Check on refrigerant piping.

○ Is pipe size proper? (The design pressure of this product is 4.0 MPa (1338 ftAq).)
○ Are pipe insulation materials installed securely?
  - Liquid and gas pipes need to be insulated, (Otherwise causes water leak.)
○ Are respective stop valves on liquid and gas line securely open?

Check on amount of refrigerant charge.

○ Is refrigerant charged up to the specified amount?
  - If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power on.

(R12942)

1.1.2 Turn Power On

Turn outdoor unit power on.

○ Be sure to turn the power on 6 hours before starting operation to protect compressors.
○ Close outside panels of the outdoor unit.

Turn indoor unit power on.

Carry out field setting on outdoor PCB.

(R12995)
1.1.3 Check Operation

- During check operation, mount front panel to avoid the misjudging.
- Check operation is mandatory for normal unit operation.
  (When the check operation is not executed, alarm code U3 is displayed.)

Press and hold the TEST (BS4) button on outdoor unit PCB for 5 seconds.

- The test operation is started automatically.
- The following judgments are conducted within 15 minutes (about 30 minutes at the maximum).
  - Check for wrong wiring
  - Check stop valve for not open
- The following indications are conducted while in test operation.
  - LED on outdoor unit PCB — H2P Blinks (test operation)
  - Remote controller (Only for SkyAir)
    - Indicates (during centralized control) on upper right.
    - Indicates (test operation) on lower left

On completion of test operation, LED on outdoor unit PCB displays the following.
H3P ON: Normal completion
H2P and H3P ON: Abnormal completion → Check the indoor unit remote controller for error code display and correct it.

<table>
<thead>
<tr>
<th>Error code</th>
<th>Nonconformity during installation</th>
<th>Remedial action</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>The stop valve of the outdoor unit is left closed.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant overcharged</td>
<td>Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.</td>
</tr>
<tr>
<td>E4</td>
<td>The stop valve of the outdoor unit is left closed.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant shortage</td>
<td>Check if the additional refrigerant charge has been finished correctly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.</td>
</tr>
<tr>
<td>F3</td>
<td>Refrigerant overcharged</td>
<td>Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.</td>
</tr>
<tr>
<td></td>
<td>The stop valve of the outdoor unit is left closed.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>Refrigerant shortage</td>
<td>Check if the additional refrigerant charge has been finished correctly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recalculate the required amount of refrigerant from the piping length and add an adequate amount of refrigerant.</td>
</tr>
<tr>
<td>F6</td>
<td>Refrigerant overcharged</td>
<td>Recalculate the required amount of refrigerant from the piping length and correct the refrigerant charge level by recovering any excessive refrigerant with a refrigerant recovery machine.</td>
</tr>
<tr>
<td>U2</td>
<td>Insufficient power supply voltage</td>
<td>Check if the power supply voltage is supplied properly.</td>
</tr>
<tr>
<td>U3</td>
<td>If a check operation has not been performed.</td>
<td>Perform a check operation.</td>
</tr>
<tr>
<td>U4</td>
<td>No power is supplied to the outdoor unit.</td>
<td>Turn the power on for the outdoor unit.</td>
</tr>
<tr>
<td>UA</td>
<td>If no dedicated indoor unit is being used.</td>
<td>Check the indoor unit. If it is not a dedicated unit, replace the indoor unit.</td>
</tr>
<tr>
<td>UF</td>
<td>The stop valve of the outdoor unit is left closed.</td>
<td>Open the gas-side stop valve and the liquid-side stop valve.</td>
</tr>
<tr>
<td></td>
<td>If the right indoor unit piping and wiring are not properly connected to the outdoor unit.</td>
<td>Make sure that the right indoor unit piping and wiring are properly connected to the outdoor unit.</td>
</tr>
<tr>
<td>UH</td>
<td>If the interunit wiring has not been connected or it has shorted.</td>
<td>Make sure the interunit wiring is correctly attached to terminals (X2M) F1/F2 on the outdoor unit circuit board.</td>
</tr>
</tbody>
</table>
1.1.4 Confirmation on Normal Operation

- Conduct normal unit operation after the check operation has been completed. (When outdoor air temperature is 24°CDB (75.2°FDB) or higher, the unit can not be operated with heating operation. See the installation manual attached.)
- Confirm that the indoor/outdoor units can be operated normally. (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and turn on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and flow rate control button to check the function of the devices.

1.2 Operation when Power is Turned On

1.2.1 When Turning On Power First Time

The unit cannot be run for up to 12 minutes to automatically set the master power and address (indoor-outdoor address, etc.).

<table>
<thead>
<tr>
<th>Status</th>
<th>Outdoor unit Test lamp H2P .... Blinks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can also be set during operation described above.</td>
</tr>
</tbody>
</table>

| Indoor unit | If ON button is pushed during operation described above, the UH malfunction indicator blinks. (Returns to normal when automatic setting is complete.) |

1.2.2 When Turning On Power the Second Time and Subsequent

Push the RESET (BS5) button on the outdoor unit PCB. Operation becomes possible for about 2 minutes. If you do not push RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

<table>
<thead>
<tr>
<th>Status</th>
<th>Outdoor unit Test lamp H2P .... Blinks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can also be set during operation described above.</td>
</tr>
</tbody>
</table>

| Indoor unit | If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.) |

1.2.3 When an Indoor Unit or Outdoor Unit has been Added, or Indoor or Outdoor Unit PCB has been Changed

Be sure to push and hold RESET button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.).

<table>
<thead>
<tr>
<th>Status</th>
<th>Outdoor unit Test lamp H2P .... ON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can also be set during operation described above.</td>
</tr>
</tbody>
</table>

| Indoor unit | If ON button is pushed during operation described above, the UH or U4 malfunction indicator blinks. (Returns to normal when automatic setting is complete.) |

Test Operation and Field Settings 117
1.3 Branch Provider (BP) Unit

1.3.1 Judging and reprogramming in case of redundant BP addresses

The BP unit of this system is provided with specific addresses in its production stage. These addresses are for various controls. If by any chance (on 3 out of 260000 units) these addresses are redundant, the system may get in trouble. When replacing the PCB of the BP unit too, these addresses may be used repeatedly.

Address redundancy checking flowchart

- With the system set up, power on both the outdoor unit and BP unit.

- Give a start command from the indoor unit. Does the compressor start in 20 minutes? (Test operation cannot be made either.)
  
  - Yes, Normal

- Set the outdoor unit PCB in the monitor mode and check the number of indoor units being connected.

- Is the number of connected indoor units correct?
  
  - Yes, The compressor is in a non-startup condition. Example: thermostat control off, alarm being issued, heating with high outdoor air temperature, compressor failure, etc.

  - No, BP addresses redundancy. Reprogram the addresses.

Reprogramming the PCB addresses of BP unit

Modify the DIP switch (DS2) settings on the BP unit's PCB in the following way.
### Example of DIP switch (DS2) settings on the BP unit's PCB

<table>
<thead>
<tr>
<th></th>
<th>DS2-1</th>
<th>DS2-2</th>
<th>DS2-3</th>
<th>DS2-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP unit 1</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>BP unit 2</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>BP unit 3</td>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

DS1 ~ 4 : Factory setting is OFF.

The BP unit 1 through 3 show the first through third unit, respectively. The order of these BP units is flexible.

The above table is only for your reference. The redundancy of addresses can be avoided when the DIP switch settings are individually specified.

With the DIP switch settings reprogrammed, power on the outdoor unit and BP unit again. Check for address redundancy.

**Note:** If an error message is displayed on the indoor unit, BP unit or outdoor unit, follow its code and description.
1.4 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

Outline

Carry out the trial operation in accordance with the operation manual to ensure that all functions and parts, such as flap movement, are working properly.

Trial operation should be carried out in either cooling or heating operation.

Details

1. Measure the power supply voltage and make sure that it falls within the specified range.
2. In cooling operation, select the lowest programmable temperature (18°C (64°F)); in heating operation, select the highest programmable temperature (30°C (86°F)).
   • Trial operation may be disabled in either operation mode depending on the room temperature.
   • After trial operation is complete, set the temperature to a normal level (26 ~ 28°C (78 ~ 82°F) in cooling, 20 ~ 24°C (68 ~ 75°F) in heating).
   • For protection, the system does not start for 3 minutes after it is turned off.

ARC452 Series

(1) Press ON/OFF button to turn on the system.
(2) Press both of TEMP buttons and MODE button at the same time.
(3) Press MODE button twice.
   (‘*’ is displayed on the screen to indicate that test operation is selected.)
(4) Press MODE button and select the operation mode.
(5) Test operation terminates in about 30 minutes and switches into normal mode. To quit test operation, press ON/OFF button.
**ARC466 Series**

1. Press **On/Off** button to turn on the system.
2. Press the center of **Temp** button and **Mode** button at the same time.
3. Select '?' (test operation) with **Temp ▲** or **Temp ▼** button.
4. Press **Mode** button to start the test operation.
5. Press **Mode** button and select operation mode.
6. Test operation terminates in about 30 minutes and switches into normal mode. To quit test operation, press **On/Off** button.

---

### Test Items

<table>
<thead>
<tr>
<th>Test items</th>
<th>Symptom (diagnostic display on RC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor and outdoor units are installed properly on solid bases.</td>
<td>Fall, vibration, noise</td>
</tr>
<tr>
<td>No refrigerant gas leaks.</td>
<td>Incomplete cooling/heating function</td>
</tr>
<tr>
<td>Refrigerant gas and liquid pipes and indoor drain hose extension are</td>
<td>Water leakage</td>
</tr>
<tr>
<td>thermally insulated.</td>
<td></td>
</tr>
<tr>
<td>Draining line is properly installed.</td>
<td>Water leakage</td>
</tr>
<tr>
<td>System is properly grounded.</td>
<td>Electrical leakage</td>
</tr>
<tr>
<td>The specified wires are used for inter-unit wiring.</td>
<td>Inoperative or burn damage</td>
</tr>
<tr>
<td>Indoor or outdoor unit’s air inlet or air outlet has clear path of air.</td>
<td>Incomplete cooling/heating function</td>
</tr>
<tr>
<td>Stop valves are opened.</td>
<td></td>
</tr>
<tr>
<td>Indoor unit properly receives remote control commands.</td>
<td>Inoperative</td>
</tr>
<tr>
<td>The heat pump or cooling only mode is selectable with the DIP switch of</td>
<td>Remote controller malfunctioning</td>
</tr>
<tr>
<td>the remote controller.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The test items above are for CTXS, FTXS as representative. Refer to the installation manual for other series.
1.5 FFQ Series

Outline

- Make sure to install the decoration panel before carrying out trial operation if the wireless remote controller is used.
- Trial operation should be carried out in either cooling or heating operation.

1. Measure the supply voltage and make sure that it is within the specified range.
2. In cooling operation, select the lowest programmable temperature; in heating operation, select the highest programmable temperature.
3. Carry out the trial operation following the instructions in the operation manual to ensure that all functions and parts, such as the movement of the flaps, are working properly.
   - To protect the air conditioner, restart operation is disabled for 3 minutes after the system has been turned off.
4. After trial operation is complete, set the temperature to a normal level (78°F to 82°F (26°C to 28°C) in cooling operation, 68°F to 75°F (20°C to 24°C) in heating operation).

Caution

When performing field settings or trial operation without attaching the decoration panel, do not touch the drain pump. This may cause electric shock.

After finishing the construction of refrigerant piping, drain piping, and electric wiring, conduct trial operation accordingly to protect the unit.

Procedure

When operating the air conditioner in cooling operation in winter, or heating operation in summer, set it to the trial operation mode using the following method.
With Wired Remote Controller (BRC1E73)

1. Set to COOL or HEAT operation using the remote controller.

2. Press and hold Cancel button for 4 seconds or longer. Service settings menu is displayed.

3. Select Test Operation in the service settings menu, and press Menu/OK button. Basic screen returns and “Test Operation” is displayed at the bottom.

4. Press On/Off button within 10 seconds, and the test operation starts.

   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool/heat regardless of the temperature setpoint and room temperature.

   • In the case of above-mentioned procedures 3 and 4 in reverse order, test operation can start as well.

5. Press Menu/OK button in the basic screen. Main menu is displayed.

6. Select Airflow Direction in the main menu and press Menu/OK button. Check that airflow direction is actuated according to the setting. For operation of airflow direction setting, see the operation manual.

7. After the operation of airflow direction is confirmed, press Menu/OK button. Basic screen returns.

8. Press and hold Cancel button for 4 seconds or longer in the basic screen.

   Service settings menu is displayed.

9. Select Test Operation in the service settings menu, and press Menu/OK button. Basic screen returns and normal operation is conducted.

   • Test operation will stop automatically after 15 ~ 30 minutes. To stop the operation, press On/Off button.

10. If the decoration panel has not been installed, turn off the power after the test operation.
With Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))

1. Press  button and select the COOL or HEAT operation.

2. Press  button twice. “TEST” is displayed.

3. Press  button within 10 seconds, and the test operation starts.
   Monitor the operation of the indoor unit for a minimum of 10 minutes. During test operation, the indoor unit will continue to cool/heat regardless of the temperature setpoint and room temperature.
   • In the case of above-mentioned procedures (1) and (2) in reverse order, test operation can start as well.
   • Test operation will stop automatically after 15 ~ 30 minutes. To stop the operation, press  button.
   • Some of the functions cannot be used in the test operation mode.

Test Items

<table>
<thead>
<tr>
<th>Test items</th>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor and outdoor units are installed securely.</td>
<td>Fall, vibration, noise</td>
</tr>
<tr>
<td>Is the outdoor unit fully installed?</td>
<td>No operation or burn damage</td>
</tr>
<tr>
<td>No refrigerant gas leaks.</td>
<td>Incomplete cooling/heating function</td>
</tr>
<tr>
<td>Refrigerant gas and liquid pipes and indoor drain hose extension are thermally insulated.</td>
<td>Water leakage</td>
</tr>
<tr>
<td>Draining line is properly installed.</td>
<td>Water leakage</td>
</tr>
<tr>
<td>Does the power supply voltage correspond to that shown on the name plate?</td>
<td>No operation or burn damage</td>
</tr>
<tr>
<td>Only specified wires are used for all wiring, and all wires are connected correctly.</td>
<td>No operation or burn damage</td>
</tr>
<tr>
<td>System is properly grounded.</td>
<td>Electrical leakage</td>
</tr>
<tr>
<td>Is wiring size according to specifications?</td>
<td>No operation or burn damage</td>
</tr>
<tr>
<td>Is something blocking the air outlet or inlet of either the indoor or outdoor units?</td>
<td>Incomplete cooling/heating function</td>
</tr>
<tr>
<td>Are refrigerant piping length and additional refrigerant charge noted down?</td>
<td>The refrigerant charge in the system is not clear</td>
</tr>
<tr>
<td>Pipes and wires are connected to the corresponding connection ports/terminal blocks for the connected unit.</td>
<td>No cooling/heating</td>
</tr>
<tr>
<td>Stop valves are opened.</td>
<td>Incomplete cooling/heating function</td>
</tr>
<tr>
<td>Check that the connector of the lead wires of the decoration panel is connected securely.</td>
<td>Louvers do not move</td>
</tr>
<tr>
<td>Indoor unit properly receives wireless remote control commands.</td>
<td>No operation</td>
</tr>
</tbody>
</table>
2. Field Settings

2.1 Outdoor Unit

2.1.1 Setting Mode and Monitor Mode

Outline

The following 3 modes can be changed over with the button switches on the service PCB and you can find the present mode by the status of the H1P indicator.

(1) Setting mode 1 (H1P off)
Initial status (normal) : Also indicates during abnormal.

(2) Setting mode 2 (H1P on)
Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

(3) Monitor mode (H1P blinks)
Used to check the program made in setting mode 2.
**Setting Mode 1**

This mode is used to set and check the following items.

1. **Set items**
   - In order to make COOL/HEAT selection in a batch of outdoor unit group, change the setting.
     - **COOL/HEAT selection (IND)** Used to select COOL or HEAT by individual outdoor unit (factory setting).
     - **COOL/HEAT selection (MASTER)** Used to select COOL or HEAT by outdoor unit group with the master unit.
     - **COOL/HEAT selection (SLAVE)** Used to select COOL or HEAT by outdoor unit group with the slave unit.

2. **Check items**
   - The following items can be checked.
     1. Current operating conditions (Normal/Abnormal/In check operation)
     2. Setting conditions of COOL/HEAT selection (Individual/Batch master/Batch slave)
     3. Low noise operating conditions (In normal operation/In low noise operation)
     4. Demand operating conditions (In normal operation/In demand operation)

**Procedure for changing COOL/HEAT selection setting**

- Setting mode 1 is the initial status (normal). In case of other status, press MODE (BS1) button one time and return to the setting mode 1.
- Press SET (BS2) button to set the blinking LED according to the pattern shown on the right.
- Press RETURN (BS3) button to determine the setting.
- Check the system for each condition through LED displays. (Refer to information in table on the right.)
- Press RETURN (BS3) button and return to the initial status of setting mode 1.

**Procedure for checking**

- Setting mode 1 is the initial status (normal). In case of other status, press MODE (BS1) button one time and return to the setting mode 1.
- Check the system for each condition through LED displays. (Refer to information in table on the right.)
- Press RETURN (BS3) button and return to the initial status of setting mode 1.
Setting Mode 2

Press MODE (BS1) button for 5 seconds and enter the setting mode 2.

Selection of setting items
Press SET (BS2) button and select a setting item according to the LED pattern shown in the table on the right.
↓
Press RETURN (BS3) button and decide the item. (The present setting condition is shown.)

Selection of setting conditions
Press SET (BS2) button and select to the setting condition you want.
↓
Press RETURN (BS3) button and decide the condition.

Press RETURN (BS3) button and return to the initial status of setting mode 2.

* If you become unsure of how to proceed, press MODE (BS1) button and return to the setting mode 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Setting item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cool/heat unified address</td>
<td>Sets address for cool/heat unified operation.</td>
</tr>
<tr>
<td>2</td>
<td>Low noise/demand address</td>
<td>Address for low noise/demand operation.</td>
</tr>
<tr>
<td>3</td>
<td>Test operation settings</td>
<td>Used to conduct test operation without making changes to the PCB and replacing the refrigerant, after the completion of maintenance.</td>
</tr>
<tr>
<td>5</td>
<td>Indoor unit forced fan H</td>
<td>Allows forced operation of indoor unit fan while unit is stopped. (H tap)</td>
</tr>
<tr>
<td>6</td>
<td>Indoor unit forced operation</td>
<td>Allows forced operation of indoor unit.</td>
</tr>
<tr>
<td>8</td>
<td>Te setting</td>
<td>Target evaporation temperature for cooling</td>
</tr>
<tr>
<td>9</td>
<td>Tc setting</td>
<td>Target condensation temperature for heating</td>
</tr>
<tr>
<td>10</td>
<td>Defrost changeover setting</td>
<td>Changes the temperature condition for defrost and sets to quick defrost or slow defrost.</td>
</tr>
<tr>
<td>12</td>
<td>External low noise setting/Demand setting</td>
<td>Reception of external low noise or demand signal</td>
</tr>
<tr>
<td>13</td>
<td>AIRNET address</td>
<td>Set address for AIRNET.</td>
</tr>
<tr>
<td>16</td>
<td>Setting of hot water heater</td>
<td>Make this setting to conduct heating operation with hot water heater.</td>
</tr>
<tr>
<td>20</td>
<td>Additional refrigerant charge operation setting</td>
<td>Carries out additional refrigerant charge operation.</td>
</tr>
<tr>
<td>21</td>
<td>Refrigerant recovery/vacuuming mode setting</td>
<td>Sets to refrigerant recovery or vacuuming mode.</td>
</tr>
<tr>
<td>22</td>
<td>Night-time low noise setting</td>
<td>Sets automatic nighttime low noise operation in a simple way. The operating time is based on Starting Set and Ending Set.</td>
</tr>
<tr>
<td>25</td>
<td>Setting of low noise level</td>
<td>Sets low noise level when the low noise signal is received.</td>
</tr>
<tr>
<td>26</td>
<td>Night-time low noise operation start setting</td>
<td>Sets starting time of nighttime low noise operation. (Night-time low noise setting is also required.)</td>
</tr>
<tr>
<td>27</td>
<td>Night-time low noise operation end setting</td>
<td>Sets ending time of nighttime low noise operation. (Night-time low noise setting is also required.)</td>
</tr>
<tr>
<td>28</td>
<td>Power transistor check mode</td>
<td>Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PCB.</td>
</tr>
<tr>
<td>29</td>
<td>Capacity precedence setting</td>
<td>If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation.</td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td>Changes target value of power consumption when demand control 1 is received.</td>
</tr>
<tr>
<td>32</td>
<td>Constant demand setting</td>
<td>Enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load.)</td>
</tr>
</tbody>
</table>

The numbers in the No. column represent the number of times to press SET (BS2) button.
<table>
<thead>
<tr>
<th>No.</th>
<th>Setting item display</th>
<th>Setting condition display</th>
<th>Setting condition display</th>
<th>Setting condition display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MODE H1P</td>
<td>TEST H2P</td>
<td>C/H selection</td>
<td>Low noise H6P</td>
</tr>
<tr>
<td>1</td>
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</tbody>
</table>

The numbers in the No. column represent the number of times to press SET (BS2) button.
## Field Settings

### Setting item display

<table>
<thead>
<tr>
<th>No.</th>
<th>Setting item</th>
<th>MODE H1P</th>
<th>TEST H2P</th>
<th>C/H selection</th>
<th>Low noise H6P</th>
<th>Demand H7P</th>
<th>Setting condition display</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>IND H3P</td>
<td>Master H4P</td>
<td>Slave H5P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Setting of low noise level</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Level 2 (outdoor fan with 5 step or lower) ○●●●●●●● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Level 3 (outdoor fan with 4 step or lower) ○●●●●●●● ●</td>
</tr>
<tr>
<td>26</td>
<td>Night-time low noise operation start setting</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>About 22:00 (factory setting) ○●●●●●●●● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>About 24:00 ○●●●●●●●● ●</td>
</tr>
<tr>
<td>27</td>
<td>Night-time low noise operation end setting</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>About 7:00 ○●●●●●●●●● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>About 8:00 (factory setting) ○●●●●●●●●● ●</td>
</tr>
<tr>
<td>28</td>
<td>Power transistor check mode</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>ON ○●●●●●●●●● ●</td>
</tr>
<tr>
<td>29</td>
<td>Capacity precedence setting</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON ○●●●●●●●●●● ●</td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td>○</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70% demand ○●●●●●●●●●●●● ●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80% demand ○●●●●●●●●●●●●●● ●</td>
</tr>
<tr>
<td>32</td>
<td>Constant demand setting</td>
<td>○</td>
<td>○</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ON ○●●●●●●●●●●●●●●●●●● ●</td>
</tr>
</tbody>
</table>

The numbers in the No. column represent the number of times to press SET (BS2) button.
Monitor Mode

Press MODE (BS1) button and enter the monitor mode.

Selection of check item
Press SET (BS2) button and select a check item according to the LED pattern.

Confirmation on check item
Press RETURN (BS3) button to display different data of check item.

Press RETURN (BS3) button and return to the initial status of monitor mode.

Note:
If you become unsure of how to proceed, press MODE (BS1) button and return to the setting mode 1.

### Field Settings

#### Monitor Mode

<table>
<thead>
<tr>
<th>No.</th>
<th>Check Item</th>
<th>LED display</th>
<th>Data display</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Various setting</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>See the note below.</td>
</tr>
<tr>
<td>1</td>
<td>Cool/heat unified address</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>2</td>
<td>Low noise/demand address</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>3</td>
<td>Not used</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>4</td>
<td>AIRNET address</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 4 digits: upper</td>
</tr>
<tr>
<td>5</td>
<td>Number of connected indoor units</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>7</td>
<td>Number of connected zone units (excluding outdoor and BS unit)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>8</td>
<td>Number of outdoor units</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 4 digits: lower</td>
</tr>
<tr>
<td>11</td>
<td>Number of zone units (excluding outdoor and BS unit)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 6 digits</td>
</tr>
<tr>
<td>12</td>
<td>Number of terminal blocks</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 4 digits: upper</td>
</tr>
<tr>
<td>13</td>
<td>Number of terminal blocks</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 4 digits: lower</td>
</tr>
<tr>
<td>14</td>
<td>Contents of malfunction (the latest)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>15</td>
<td>Contents of malfunction (1 cycle before)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>16</td>
<td>Contents of malfunction (2 cycle before)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>20</td>
<td>Contents of retry (the latest)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>21</td>
<td>Contents of retry (1 cycle before)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>22</td>
<td>Contents of retry (2 cycle before)</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Error code table Refer to pages 175 to 178.</td>
</tr>
<tr>
<td>25</td>
<td>Normal judgment of outdoor units PCB</td>
<td>H1P H2P H3P H4P H5P H6P H7P</td>
<td>Lower 2 digits: Abnormal ☢ Normal ☢ Undetermined ☢</td>
</tr>
</tbody>
</table>

The numbers in the No. column represent the number of times to press SET (BS2) button.

---

**Note:**

Various Settings

<table>
<thead>
<tr>
<th></th>
<th>H1P</th>
<th>H2P</th>
<th>H3P</th>
<th>H4P</th>
<th>H5P</th>
<th>H6P</th>
<th>H7P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency operation/backup operation setting</td>
<td>ON</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
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<tr>
<td></td>
<td>OFF</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
</tr>
<tr>
<td>Defrost select setting</td>
<td>Short</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
<td>☢</td>
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<tr>
<td></td>
<td>Medium</td>
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<td>Long</td>
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<tr>
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<tr>
<td>Tc setting</td>
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<td>☢</td>
<td>☢</td>
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<td>☢</td>
<td>☢</td>
<td>☢</td>
</tr>
</tbody>
</table>
Press BS2 (SET button) and match with the LEDs No. 1 - 15, press BS3 (RETURN button), and confirm the data for each setting.

★ Data such as addresses and number of units is expressed as binary numbers; the two ways of expressing are as follows:

**Figure 1**

The No. 1 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In the figure 1, the address is 010110 (binary number), which translates to $16 + 4 + 2 = 22$ (base 10 number). In other words, the address is 22.

**Figure 2**

The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)

In the figure 2, the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to $64 + 16 + 4 + 2 = 86$ (base 10 number). In other words, the number of terminal block is 86.

★ Refer to the preceding page for a list of data, etc. for No. 0 - 25.

### 2.1.2 COOL/HEAT Changeover Setting by DIP Switches

The following field settings are made by DIP switches on the service PCB.

<table>
<thead>
<tr>
<th>DIP switch</th>
<th>Setting item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1-1</td>
<td>ON (OUT)</td>
<td>Cool/Heat changeover setting</td>
</tr>
<tr>
<td>DS1-1</td>
<td>OFF (IN) (Factory setting)</td>
<td>Cool/Heat changeover setting</td>
</tr>
<tr>
<td>DS1-2</td>
<td>ON</td>
<td>Not used</td>
</tr>
<tr>
<td>DS1-2</td>
<td>OFF (Factory setting)</td>
<td>Not used</td>
</tr>
</tbody>
</table>

Test Operation and Field Settings 131
Switching Mode (1):
Set Cool/Heat Separately for Each Outdoor Unit System by Indoor Unit Remote Controller

- It does not matter whether or not there is outdoor - outdoor unit wiring.
- Set the DIP switch DS1-1 of the outdoor unit PCB (A2P) to IN (factory setting).
- Set cool/heat switching to IND (individual) in the setting mode 1 (factory setting). (Refer to page 126 for details.)

Switching Mode (2):
Set Cool/Heat Separately for Each Outdoor Unit System by Cool/Heat Selector

- Connect the cool/heat selector (option) to the terminals A, B, C on the outdoor unit PCB (A4P).
- It does not matter whether or not there is outdoor - outdoor unit wiring.
- Set the DIP switch DS1-1 of the outdoor unit PCB (A2P) to OUT.
- Set cool/heat switching to IND (individual) in the setting mode 1 (factory setting). (Refer to page 126 for details.)
Set the master unit (indoor unit having the right to select the cooling/heating operation mode).

**In the case of wired remote controllers**

- After the check operation, “CHANGEOVER UNDER CONTROL” is flashing in all connected remote controllers.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation mode selector button in the remote controller of the indoor unit selected as the master unit.
- In that remote controller, “CHANGEOVER UNDER CONTROL” disappears. That remote controller will control changeover of the cooling/heating operation mode.
- In other remote controllers, “CHANGEOVER UNDER CONTROL” lights.

**In the case of wireless remote controllers**

- After the check operation, the timer lamp is flashing in all connected indoor units.
- Select an indoor unit to be used as the master unit in accordance with the request from the customer. (It is recommended to select an indoor unit which will be used most often as the master unit.)
- Press the operation selector mode button in the remote controller of the indoor unit selected as the master unit.
  
  A “beep” sound is emitted, and the timer lamp turns off in all indoor units.
- That indoor unit will control changeover of the cooling/heating operation mode.

◆ For the details, refer to the installation manual supplied together with the indoor unit.
### 2.1.3 Setting of Low Noise Operation and Demand Operation

#### Setting of Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adaptor (optional), you can lower operating noise by 2 ~ 3 dB.

When the low noise operation is automatically carried out at night (The external control adaptor for outdoor unit is not required)

1. While in setting mode 2, select the setting condition (i.e., Mode 1, Mode 2, or Mode 3) for set item No. 22 (Setting of nighttime low noise level).

2. If necessary, while in setting mode 2, select the setting condition (i.e., 20:00, 22:00, or 24:00) for set item No. 26 (Setting of start time of nighttime low noise operation). (Use the start time as a guide since it is estimated according to outdoor temperatures.)

3. If necessary, while in setting mode 2, select the setting condition (i.e., 06:00, 07:00, or 08:00) for set item No. 27 (Setting of end time of nighttime low noise operation). (Use the end time as a guide since it is estimated according to outdoor temperatures.)

4. If necessary, while in setting mode 2, set the setting condition for set item No. 29 (Setting of capacity precedence) to ON. (If the condition is set to ON, when the air-conditioning load reaches a high level, the system enters to normal operation mode even during nighttime.)

#### Image of operation

[Operation Diagram]

- **Operation sound**
  - Rated operation sound
  - Operation sound of mode 1
  - Operation sound of mode 2
  - Operation sound of mode 3

- **Time set with Night-time low noise start setting**
  - If capacity precedence is set in Capacity precedence setting, the fan speed will be increased according to the load of air conditioning when load is heavier.

- **Time set with Night-time low noise end setting**
  - Operation sound during night-time low noise mode is instructed can be set with Night-time low noise level setting. (Factory setting is OFF.)

- **Operation sound level set with Night-time low noise setting**
  - Set with Night-time low noise start setting. (Factory setting is PM 10:00.)
  - Set with Night-time low noise end setting. (Factory setting is AM 8:00.)
Setting of Demand Operation
By connecting the external contact input to the demand input of the outdoor unit external control adaptor (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

<table>
<thead>
<tr>
<th>Set item</th>
<th>Condition</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand</td>
<td>Mode 1</td>
<td>The compressor operates at 60% or less of rating.</td>
</tr>
<tr>
<td></td>
<td>Mode 2</td>
<td>The compressor operates at 70% or less of rating.</td>
</tr>
<tr>
<td></td>
<td>Mode 3</td>
<td>The compressor operates at 80% or less of rating.</td>
</tr>
</tbody>
</table>

When the constant demand operation is carried out. (Use of the external control adaptor for outdoor unit is not required.)

1. While in setting mode 2, make setting of the set item No. 32 (Setting of constant demand) to ON.

2. While in setting mode 2, select the set item No. 30 (Setting of Demand 1 level) and then set the setting condition to targeted mode.

Image of operation

When the Constant demand setting is set to ON (OFF has been set at factory), the power consumption can be set with the Demand 1 level setting. (70% of rated power consumption has been set at factory.)

(R19196)
Detailed Setting Procedure of Low Noise Operation and Demand Control

1. Setting mode 1 (H1P off)
   In setting mode 2, press BS1 (MODE button) one time. \(\rightarrow\) The system enters setting mode 1 and the H1P goes off.
   In setting mode 1, the H6P (In low noise operation) and the H7P (In demand control) keep lighting.

2. Setting mode 2 (H1P on)
   (1) In setting mode 1, press and hold BS1 (MODE button) for more than 5 seconds. \(\rightarrow\) The system enters setting mode 2 and the H1P lights up.
   (2) Press BS2 (SET button) several times and match the LED display with the Setting No. you want.
   (3) Press BS3 (RETURN button) one time, and the present setting content is displayed.
       \(\rightarrow\) Press BS2 (SET button) several times and match the LED display with the setting content (as shown on next page) you want.
   (4) Press BS3 (RETURN button) two times. \(\rightarrow\) The system returns to (1).
   (5) Press BS1 (MODE button) one time. \(\rightarrow\) The system returns to setting mode 1 and the H1P goes off.

<table>
<thead>
<tr>
<th>Setting No.</th>
<th>Setting contents</th>
<th>Setting No. indication</th>
<th>Setting contents</th>
<th>Setting contents indication (Initial setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>External low noise setting/Demand setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>No (Factory setting) 0 1 0 0 0 0 0 0</td>
</tr>
<tr>
<td>22</td>
<td>Night-time low noise setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>Off (Factory setting) 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>26</td>
<td>Night-time low noise operation start setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 PM 0:00 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>27</td>
<td>Night-time low noise operation end setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 AM 6:00 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>29</td>
<td>Capacity precedence setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 Low noise precedence (Factory setting) 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>30</td>
<td>Demand setting 1</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>32</td>
<td>Constant demand setting</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
<td>0 Off (Factory setting) 0 0 0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

O: ON  ●: OFF  ●: Blink
2.1.4 Setting of Refrigerant Additional Charging Operation

When the outdoor unit is stopped and the entire quantity of refrigerant cannot be charged from the stop valve on the liquid side, make sure to charge the remaining quantity of refrigerant using this procedure. If the refrigerant quantity is insufficient, the unit may malfunction.

1. Turn ON the power of the indoor unit and the outdoor unit.
2. Make sure to completely open the stop valve on the gas side and the stop valve on the liquid side.
3. Connect the refrigerant charge hose to the service port (for additionally charging the refrigerant).
4. In the stopped status, set to ON the refrigerant additional charging operation (A) in setting mode 2 (H1P: Turn on).
5. The operation is automatically started.
   (The LED indicator H2P flickers, and Test Operation and Under Centralized Control are displayed on the remote controller.)
6. After charging the specified quantity of refrigerant, press RETURN (BS3) button to stop the operation.
   - The operation is automatically stopped within 30 minutes.
   - If charging is not completed within 30 minutes, set and perform the refrigerant additional charging operation (A) again.
   - If the refrigerant additional charging operation is stopped soon, the refrigerant may be overcharged.
   - Never charge extra refrigerant.
7. Disconnect the refrigerant charge hose.

2.1.5 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units.
All indoor and outdoor unit's operation are prohibited.

Operation procedure
1. In setting mode 2 with units in stop mode, set the item No.21 (refrigerant recovery/vacuuming mode) to ON. The respective expansion valve of indoor and outdoor units are fully opened. Test Operation and Under Centralized Control are displayed on the remote controller, and the indoor/outdoor unit operation is prohibited.
   After setting, do not cancel setting mode 2 until completion of refrigerant recovery operation.
2. Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detail.)
3. Press MODE (BS1) button once and return to setting mode 2.
2.1.6 Setting of Vacuuming Mode

In order to perform vacuuming operation at site, fully open the expansion valves of indoor and outdoor units and turn on some solenoid valves.

Operating procedure
(1) In setting mode 2 with units in stop mode, set the item No.21 (refrigerant recovery/vacuuming mode) to ON. The respective expansion valve of indoor and outdoor units are fully opened. Test Operation and Under Centralized Control are displayed on the remote controller, and the indoor/outdoor unit operation is prohibited. After setting, do not cancel setting mode 2 until completion of Vacuuming operation.
(2) Use the vacuum pump to perform vacuuming operation.
(3) Press MODE (BS1) button once and reset setting mode 2.

2.1.7 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, coming out (or misplacing with suction pipe thermistor) or discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of electronic expansion valve.

![Flowchart of Check Operation]

LED display (H1P~H7P) (○:ON ●:OFF ○:BLINK)
- Press the TEST button for 5 seconds.
- 10 seconds to 10 minutes
- 20 seconds to 2 minutes
- 10 minutes
- 3 minutes
- 15 minutes
- 5 seconds
- 2 minutes
- Completion

(R12957)
2.2  CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

2.2.1  Model Type Setting

ARC452A21, ARC452A23
- The remote controller is common to the heat pump model and cooling only model.
- Make sure the DIP switch is set to the left side. The heating operation will not be available when the DIP switch is set to the right side.

ARC466A21, ARC466A36
- The remote controller is common to the heat pump model and cooling only model.

Caution

Replace the remote controller if you cut the jumper on the left side.
The heating operation will not be available when the jumper on the left side is cut.
2.2.2 Temperature Display Switch

You can select Fahrenheit or Celsius for temperature display.

**ARC452A9, ARC452A21, ARC452A23**
- Press **TEMP▲** and **TEMP▼** buttons at the same time for 5 seconds to change the unit of temperature display.

**ARC466A21, ARC466A36**
- Press the upper side of **Temp** button and **On** button at the same time for 5 seconds to change the unit of temperature display.
2.2.3 When 2 Units are Installed in 1 Room

**Outline**

When 2 indoor units are installed in 1 room, 1 of the 2 indoor units and the corresponding wireless remote controller can be set for different address. Both the indoor unit PCB and the wireless remote controller need alteration.

The method of address setting varies depending on the type of indoor unit and the series of wired remote controller. Refer to the following pages for the appropriate indoor unit and wireless remote controller.

**CTXG, CTXS, FTXS Series**

1. Remove the front grille.
2. Remove the electrical box.
3. Remove the shield plate of the electrical box.
4. Cut the address setting jumper JA on the PCB.

---

**CTXG Series**

![Diagram of CTXG Series](image1)

(Received 2120)

**CTXS07JVJU, CTXS09/12HVJU**

![Diagram of CTXS07JVJU, CTXS09/12HVJU](image2)

(R17414)

**CTXS07LVJU, FTXS09/12LVJU**

![Diagram of CTXS07LVJU, FTXS09/12LVJU](image3)

(R17375)

**FTXS15/18/24LVJU**

![Diagram of FTXS15/18/24LVJU](image4)

(R9665)

---

**Caution**

Replace the PCB if you accidentally cut a wrong jumper.

Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.
CDXS, FDXS Series

- Cut the jumper JA on PCB.

**Caution**

*Replace the PCB if you accidentally cut a wrong jumper.*
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

FVXS Series

1. Remove the front grille.
2. Lift the sensor PCB fixing plate and remove the front shield plate.
3. Disconnect the connectors S1, S41, S42.
4. Remove the electric box (1 screw).
5. Pull out the indoor heat exchanger thermistor.
6. Remove the shield plate (8 tabs).
7. Cut the address setting jumper JA on the indoor unit PCB.

**Caution**

*Replace the PCB if you accidentally cut a wrong jumper.*
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.
Wireless Remote Controller

(1) Remove the cover and take it off.
(2) Cut the address setting jumper.

ARC452 series

ARC466 series

Caution

Replace the remote controller if you accidentally cut a wrong jumper.
Jumpers are necessary for electronic circuit. Improper operation may occur if you cut any of them.

2.2.4 Jumper and Switch Settings

CTXG, CTXS, FTXS, CDXS, FDXS, FVXS series

<table>
<thead>
<tr>
<th>Jumper (on indoor unit PCB)</th>
<th>Function</th>
<th>When connected (factory set)</th>
<th>When cut</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB</td>
<td>Fan speed setting when compressor stops for thermostat OFF. (effective only at cooling operation)</td>
<td>Fan speed setting; Remote controller setting</td>
<td>The fan stops.</td>
</tr>
<tr>
<td>JC</td>
<td>Power failure recovery function</td>
<td>Auto-restart</td>
<td>The unit does not resume operation after recovering from a power failure. Timer settings are cleared.</td>
</tr>
</tbody>
</table>

FVXS series only

<table>
<thead>
<tr>
<th>Switch (on indoor unit PCB)</th>
<th>Function</th>
<th>OFF (factory setting)</th>
<th>ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW2-4</td>
<td>Upward airflow limit setting</td>
<td>Exposed or half embedded installation</td>
<td>Set the switch to ON position when you install the indoor unit embedded in the wall to avoid condensation.</td>
</tr>
</tbody>
</table>

For the location of the jumper and the switch, refer to the following pages.

- CTXG09/12/18QVJUW(S): page 26
- CTXS07JVJU, CTXS09/12HVJU: page 28
- CTXS07LVJU, FTXS09/12LVJU: page 30
- FTXS15/18/24LVJU: page 32
- FDXS09/12LVJU, CDXS15/18/24LVJU: page 34
- FVXS09/12/15/18NVJU: page 36, 37
2.3 FFQ Series
2.3.1 How to Change the Field Settings

Outline
If optional accessories are mounted on the indoor unit, the indoor unit setting may have to be changed. Refer to the instruction manual for each optional accessory.

Note: When using 2 remote controllers for 1 indoor unit, change the field settings from MAIN remote controller. Note that the field settings can not be set from SUB remote controller.

Wired Remote Controller (BRC1E73)

<table>
<thead>
<tr>
<th>a</th>
<th>Unit No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>First code No.</td>
</tr>
<tr>
<td>c</td>
<td>Second code No.</td>
</tr>
<tr>
<td>d</td>
<td>Mode</td>
</tr>
</tbody>
</table>

1. Press and hold Cancel button for 4 seconds or longer. Service settings menu is displayed.

2. Select Field Settings in the Service Settings menu, and press Menu/OK button. Field settings screen is displayed.
3. Highlight the mode, and select desired “Mode No.” by using ▲ ▼ (Up/Down) button.

4. In the case of setting per indoor unit during group control (When Mode No. such as 20, 22, 23, 25 are selected), highlight the unit No., and select “Indoor unit No.” to be set by using ▲ ▼ (Up/Down) button. (In the case of group setting, this operation is not needed.)

   - In the case of individual setting per indoor unit, current settings are displayed. And, SECOND CODE NO. “ - ” means no function.

5. Highlight SECOND CODE NO. of the FIRST CODE NO. to be changed, and select desired “SECOND CODE NO.” by using ▲ ▼ (Up/Down) button. Multiple identical mode number settings are available.

   - In the case of setting for all indoor units in the remote control group, available SECOND CODE NO. is displayed as “*” which means it can be changed. When SECOND CODE NO. is displayed as “- -”, there is no function.

6. Press Menu/OK button. Setting confirmation screen is displayed.

7. Select Yes and press Menu/OK button. Setting details are determined and field settings screen returns.

8. In the case of multiple setting changes, repeat 3 to 7.

9. After all setting changes are completed, press Cancel button twice.

10. Backlight goes out, and [Checking the connection. Please stand by.] is displayed for initialization. After the initialization, the basic screen returns.
To set the field settings, you have to change:

- Mode No.
- First code No.
- Second code No.

1. When in normal mode, hold down the /TEST button for at least 4 seconds to enter the Field Set mode.
2. Select the desired Mode No. with the MODE button.
3. Press the button and select the First code No.
4. Press the button and select the Second code No.
5. Press the RESERVE button to confirm the settings.
6. Press the /TEST button to quit the Field Set mode and to return to normal display again.
### 2.3.2 Overview of the Field Settings

<table>
<thead>
<tr>
<th>Mode No.</th>
<th>First Code No.</th>
<th>Description of setting</th>
<th>Second Code No.</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (20)</td>
<td>0</td>
<td>Filter cleaning sign interval</td>
<td>Light</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Longlife filter</td>
<td>Light</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Heavy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Approx. 2,500 hrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Approx. 1,250 hrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Remote controller thermistor</td>
<td>Enabled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Disabled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Filter cleaning sign</td>
<td>Display</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No display</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 (22)</td>
<td>0</td>
<td>Optional accessories output selection (field selection of output for adaptor for wiring)</td>
<td>Compressor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Operation output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Error output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Outdoor air intake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Presence sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 (23)</td>
<td>0</td>
<td>High air outlet velocity (for high ceiling applications)</td>
<td>≤ 2.7 m (≤ 8-7/8 ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.7 ~ 3.0 m (8-7/8~9-13/16 ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.0 ~ 3.5 m (9-13/16~11-1/2 ft)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Airflow direction range setting</td>
<td>Upper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Normal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 (25)</td>
<td>3</td>
<td>Drain pump operation with humidifying</td>
<td>Not equipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Equipped</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Any function that is not available on the indoor unit is not displayed.
2.3.3 MAIN/SUB Setting when Using 2 Wired Remote Controllers

Outline
The MAIN/SUB setting is necessary when 1 indoor unit is controlled by 2 remote controllers. When you use 2 remote controllers, set one to MAIN and the other to SUB.

Details
1. The following message is displayed after power-on.
   - **Checking the connection.**
   - **Please stand by.**
   When the above message is displayed, the backlight will not be ON.
   - **[In the case that 1 indoor unit is controlled by 2 remote controllers:]**
   Make sure to set the sub remote controller when the above message is displayed.
   - Hold **Mode** button for 4 seconds or longer to set.
   When the display is changed from “Main RC” to “Sub RC” the setting is completed.

2. Basic screen is displayed.
2.3.4 Address and MAIN/SUB Setting for Wireless Remote Controller

Outline
- If setting multiple wireless remote controllers to operate in one room, perform address setting for the receiver and the wireless remote controller.
- If using both a wired remote controller and a wireless remote controller with 1 indoor unit, change the MAIN/SUB switch of the transmitter board.

Transmitter Board

Wireless address switch
Set the wireless address setting switch (SS2) on the transmitter board according to the table below.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>No.1</th>
<th>No.2</th>
<th>No.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless address switch (SS2)</td>
<td><img src="image1" alt="Wireless address switch" /></td>
<td><img src="image2" alt="Wireless address switch" /></td>
<td><img src="image3" alt="Wireless address switch" /></td>
</tr>
</tbody>
</table>

MAIN/SUB switch
When using both a wired and a wireless remote controller for 1 indoor unit, the wired controller should be set to MAIN. Therefore, set the MAIN/SUB switch (SS1) of the transmitter board to SUB.

<table>
<thead>
<tr>
<th>MAIN/SUB switch (SS1)</th>
<th>MAIN</th>
<th>SUB</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="MAIN/SUB switch" /></td>
<td><img src="image4" alt="MAIN/SUB switch" /></td>
<td><img src="image5" alt="MAIN/SUB switch" /></td>
</tr>
</tbody>
</table>
Wireless Remote Controller Address

Factory set is 1. Change the wireless remote controller address setting by the following steps, if necessary.

1. Hold down button and TEST button at the same time for at least 4 seconds to enter the field setting mode. (SETTING is indicated on the display).
2. Press FAN button and select display setting ( or ). Each time the button is pressed, the display switches between and .
3. Press button and button to set the address.

Address can be set from 1 ~ 6, but set it to 1 ~ 3 and to same address as the transmitter board. (The transmitter board does not work with address 4 ~ 6.)

4. Press RESERVE button to confirm the setting.
5. Hold down TEST button to quit the field setting mode and return to the normal display.

Display Settings or

When the indoor unit is controlled by an outside controller (central remote controller, etc.), the indoor unit sometimes does not respond to ON/OFF command or temperature setting command from the wireless remote controller. Check what setting the customer needs and make the multiple setting as shown below.

<table>
<thead>
<tr>
<th>Display setting</th>
<th>Remote controller display</th>
<th>Result of the display setting in case the target indoor unit is simultaneously being controlled by more than 1 device</th>
</tr>
</thead>
<tbody>
<tr>
<td>:= standard</td>
<td>All operational items are permanently displayed.</td>
<td>In the operation mode changeover, temperature setting or the like are carried out from the wireless remote controller, the indoor unit rejects the instruction. (Signal receiving sound, 1 long beep or 3 short beeps) As a result, a display discrepancy between the operation state of the indoor unit and the indication on the wireless remote controller display occurs.</td>
</tr>
<tr>
<td>:= multi system</td>
<td>Operations only remain displayed for a short time after execution of the commands.</td>
<td>Since the indications on the wireless remote controller are turned off, a discrepancy such as described above no longer occurs.</td>
</tr>
</tbody>
</table>
After Setting

Affix corresponding unit number labels onto both air outlet of the decoration panel and onto back of the wireless remote controller.

Note: Set the unit No. of the receiver and the wireless remote controller to be the equal. If the settings differ, the signal from the remote controller cannot be transmitted.
Part 7
Remote Controller

1. Applicable Remote Controller .................................................................153
2. ARC466A36 ............................................................................................154
3. ARC452A9 ..............................................................................................156
4. ARC452A21 ............................................................................................158
5. ARC452A23 ............................................................................................160
6. ARC466A21 ............................................................................................162
7. BRC1E73 (Wired Remote Controller) .....................................................164
8. BRC082A41W, BRC082A42W(S) (Wireless Remote Controller Kit) .....170
# 1. Applicable Remote Controller

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Remote Controller</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTXG09QVJUW(S)</td>
<td>ARC466A36</td>
<td>154</td>
</tr>
<tr>
<td>CTXG12QVJUW(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTXG18QVJUW(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTXS07JVJU</td>
<td>ARC452A9</td>
<td>156</td>
</tr>
<tr>
<td>CTXS09HVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTXS12HVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTXS07LVJU</td>
<td>ARC452A21</td>
<td>158</td>
</tr>
<tr>
<td>FTXS09LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTXS12LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTXS15LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTXS18LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FTXS24LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDXS09LVJU</td>
<td>ARC452A23</td>
<td>160</td>
</tr>
<tr>
<td>FDXS12LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDXS15LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDXS18LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDXS24LVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FVXS09NVJU</td>
<td>ARC466A21</td>
<td>162</td>
</tr>
<tr>
<td>FVXS12NVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FVXS15NVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FVXS18NVJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFQ09Q2VJU</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| FFQ12Q2VJU     | ● Wired Remote Controller  
BRC1E73          | 164            |
| FFQ15Q2VJU     | ● Wireless Remote Controller  
BRC082A41W       |                |
| FFQ18Q2VJU     | ● Wired Remote Controller  
BRC082A42W(S)    | 170            |

**Note:** Refer to the operation manual of applicable model for details. You can download operation manuals from Daikin Business Portal: Daikin Business Portal → Document Search → Item Category → Installation/Operation Manual (URL: https://global1d.daikin.com/business_portal/login/)
2. ARC466A36

Signal transmitter

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- The maximum distance for communication is about 19-11/16 ft (6 m).

Make sure that there are no obstacles within 19-11/16 inch (50 cm) under the signal receiver. Such obstacles, if any, may have an adverse influence on the reception performance of the receiver and the reception distance may be shortened.

Display (LCD)
- Displays the current settings.
  (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

Temperature adjustment buttons
- Changes the temperature setting.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>18 ~ 30 °C (64 ~ 86 °F)</td>
</tr>
<tr>
<td>DRY</td>
<td>Not available</td>
</tr>
<tr>
<td>COOL</td>
<td>18 ~ 32 °C (64 ~ 90 °F)</td>
</tr>
<tr>
<td>HEAT</td>
<td>10 ~ 30 °C (50 ~ 86 °F)</td>
</tr>
<tr>
<td>FAN</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Fan setting button
- Selects the airflow rate setting.

- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.

On/Off button
- Press this button once to start operation. Press once again to stop it.

Powerful**1 button
- Starts POWERFUL operation.

Reference
Refer to the following pages for details.
★1 POWERFUL operation ................................................................. P.87
Open the Front Cover

Mode button
- Selects the operation mode.

Econo** / Quiet button
- Every time you press Econo/Quiet button, the setting changes in the following order.

Select button
- Changes the ON/OFF TIMER and WEEKLY TIMER settings.

Clock*7 button
- Press this button and adjust the day and time with Select button. Press this button again to complete TIMER setting.

On Timer button
- Press this button and adjust the day and time with Select button. Press this button again to complete TIMER setting.

Weekly button (WEEKLY TIMER Operation*6)
Weekly:
- Weekly button
Copy:
- Copy button
Back:
- Back button
Next:
- Next button

Swing*5 buttons
- Adjusts the airflow direction.
- When you press Swing button, the flap moves up and down, or (and) the louver moves right and left. The flap (louver) stops when you press Swing button again.

Weekly button (WEEKLY TIMER Operation*6)
Weekly:
- Weekly button
Copy:
- Copy button
Back:
- Back button
Next:
- Next button

Lamp brightness setting button
- Each time you press Brightness button, the brightness of the indoor unit display changes to high, low, off.

Comfort/Sensor button (COMFORT AIRFLOW Operation*2/INTELLIGENT EYE Operation*3)
- Every time you press Comfort/Sensor button, the setting changes in the following order.

Off Timer button (NIGHT SET mode)
- Press this button and adjust the day and time with Select button. Press this button again to complete TIMER setting.

Timer Cancel button
- Cancels the timer setting.
- It cannot be used for the WEEKLY TIMER operation.

Reference
Refer to the following pages for details.
★ 2 COMFORT AIRFLOW operation......................................................P.75, 78
★ 3 2-area INTELLIGENT EYE operation..............................................P.84
★ 4 ECONO operation...........................................................................P.82
★ 5 Auto-swing......................................................................................P.74
★ 6 WEEKLY TIMER operation..............................................................P.90
★ 7 Clock setting ..................................................................................P.89
3. ARC452A9

**Signal transmitter**
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 23 ft. (7 m).

**Display (LCD)**
- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

**TEMPERATURE adjustment buttons**
- Changes the temperature setting.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>18 ~ 30 °C</td>
<td>(64 ~ 86 °F)</td>
</tr>
<tr>
<td>DRY</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>COOL</td>
<td>18 ~ 32 °C</td>
<td>(64 ~ 90 °F)</td>
</tr>
<tr>
<td>HEAT</td>
<td>10 ~ 30 °C</td>
<td>(50 ~ 86 °F)</td>
</tr>
<tr>
<td>FAN</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

**FAN setting button**
- Selects the airflow rate setting every time you press this button.

- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.

**ON/OFF button**
- Press this button once to start operation. Press once again to stop it.

**POWERFUL *1 button**
- Starts POWERFUL operation.

---

**Reference**
Refer to the following pages for details.

*POWERFUL operation* P.87
Remote Controller

Open the Front Cover

**MODE button**
- Selects the operation mode.

- AUTO
- DRY
- COOL
- HEAT
- FAN

**HOME LEAVE** button
- Press this button to start HOME LEAVE operation. The HOME LEAVE lamp lights up.

- Press the button again to cancel HOME LEAVE operation.

**SWING** button
- Adjusts the airflow direction.
- When you press SWING button, the louver moves up and down, or (and) the fin moves right and left. The louver (fin) stops when you press SWING button again.

**ON TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**CLOCK** button
- Changes the ON/OFF TIMER settings.

**SELECT button**
- Cancels the timer setting.

**OFF TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**QUIET button**
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

**SENSOR button**
- To start INTELLIGENT EYE operation, press SENSOR button.
- Press the button again to cancel the INTELLIGENT EYE operation, press SENSOR button again. disappears from the LCD.

**OFF TIMER button (NIGHT SET mode)**
- Press this button and adjust the time with SELECT button.

**SELECT button**
- Cancels the timer setting.

**ON TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**HOME LEAVE** button
- Press this button to start HOME LEAVE operation. The HOME LEAVE lamp lights up.

- Press the button again to cancel HOME LEAVE operation.

**SWING** button
- Adjusts the airflow direction.
- When you press SWING button, the louver moves up and down, or (and) the fin moves right and left. The louver (fin) stops when you press SWING button again.

**ON TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**CLOCK** button
- Changes the ON/OFF TIMER settings.

**SELECT button**
- Cancels the timer setting.

**OFF TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**QUIET button**
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

**SENSOR button**
- To start INTELLIGENT EYE operation, press SENSOR button.
- Press the button again to cancel the INTELLIGENT EYE operation, press SENSOR button again. disappears from the LCD.

**OFF TIMER button (NIGHT SET mode)**
- Press this button and adjust the time with SELECT button.

**SELECT button**
- Cancels the timer setting.

**ON TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**CLOCK** button
- Changes the ON/OFF TIMER settings.

**SELECT button**
- Cancels the timer setting.

**OFF TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.

**QUIET button**
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

**SENSOR button**
- To start INTELLIGENT EYE operation, press SENSOR button.
- Press the button again to cancel the INTELLIGENT EYE operation, press SENSOR button again. disappears from the LCD.

**OFF TIMER button (NIGHT SET mode)**
- Press this button and adjust the time with SELECT button.

**SELECT button**
- Cancels the timer setting.

**ON TIMER** button
- Press this button and adjust the time with SELECT button.
- Press this button again to complete TIMER setting.
4. ARC452A21

Signal transmitter

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller. Do not get it wet.
- The maximum distance for communication is about 23 ft. (7 m).

Display (LCD)
- Displays the current settings.
  (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

TEMPERATURE adjustment buttons
- Changes the temperature setting.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Symbol</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>A</td>
<td>18 ~ 30 °C (64 ~ 86 °F)</td>
</tr>
<tr>
<td>DRY</td>
<td>D</td>
<td>Not available</td>
</tr>
<tr>
<td>COOL</td>
<td>C</td>
<td>18 ~ 32 °C (64 ~ 90 °F)</td>
</tr>
<tr>
<td>HEAT</td>
<td>H</td>
<td>10 ~ 30 °C (50 ~ 86 °F)</td>
</tr>
<tr>
<td>FAN</td>
<td>F</td>
<td>Not available</td>
</tr>
</tbody>
</table>

FAN setting button
- Selects the airflow rate setting every time you press this button.

- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.

ON/OFF button
- Press this button once to start operation. Press once again to stop it.

POWERFUL*1 button
- Starts POWERFUL operation.

Reference
Refer to the following pages for details.
★ 1 POWERFUL operation ................................................................. P.87
Remote Controller

Reference

Refer to the following pages for details.
★ 2 COMFORT AIRFLOW operation ................................................................. P.75, 78
★ 3 INTELLIGENT EYE operation ................................................................. P.86
★ 4 ECONO operation ................................................................................. P.82
★ 5 Auto-swing .......................................................................................... P.74
★ 6 WEEKLY TIMER operation ................................................................. P.90
★ 7 Clock setting ......................................................................................... P.89
5. ARC452A23

**Signal transmitter**
- To use the remote controller, aim the transmitter at the indoor unit. If there is anything to block signals between the unit and the remote controller, such as a curtain, the unit will not operate.
- Do not drop the remote controller.
- Do not get it wet.
- The maximum distance for communication is about 13 ft (4 m).

**Display (LCD)**
- Displays the current settings.
  (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

**TEMPERATURE adjustment buttons**
- Changes the temperature setting.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Range</th>
<th>Temperature Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>18 ~ 30 °C</td>
<td>(64 ~ 86 °F)</td>
</tr>
<tr>
<td>DRY</td>
<td>Not available</td>
<td></td>
</tr>
<tr>
<td>COOL</td>
<td>18 ~ 32 °C</td>
<td>(64 ~ 90 °F)</td>
</tr>
<tr>
<td>HEAT</td>
<td>10 ~ 30 °C</td>
<td>(50 ~ 86 °F)</td>
</tr>
<tr>
<td>FAN</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

**ON/OFF button**
- Press this button once to start operation.
- Press once again to stop it.

**POWERFUL** button
- Starts POWERFUL operation.

**FAN setting button**
- Selects the airflow rate setting every time you press this button.

- In indoor unit quiet operation, operation sound becomes weak. (The airflow rate also decreases.)
- In DRY operation, the airflow rate setting is not available.

**Reference**
Refer to the following pages for details.
★1 POWERFUL operation .................................................................P.87
Open the Front Cover

**MODE button**
- Selects the operation mode.

**ECONO*2 button**
- Starts ECONO operation.

**SELECT button**
- Changes the ON/OFF TIMER settings.

**ON TIMER button**
- Press this button and adjust the time with SELECT button. Press this button again to complete TIMER setting.

**CLOCK*3 button**

**QUIET button**
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

**OFF TIMER button (NIGHT SET mode)**
- Press this button and adjust the time with SELECT button. Press this button again to complete TIMER setting.

**TIMER CANCEL button**
- Cancels the timer setting.

---

**Reference**
Refer to the following pages for details.

★2 ECONO operation ........................................... P.82
★3 Clock setting .................................................. P.89
6. ARC466A21

Signal transmitter

- To use the remote controller, aim the transmitter at the indoor unit. If there is anything blocking the signals between the unit and the remote controller, such as a curtain, the unit may not operate.
- The maximum transmission distance is about 23 ft (7 m).

Display (LCD)
- Displays the current settings. (In this illustration, each section is shown with all its displays on for the purpose of explanation.)

Temperature adjustment buttons
- Changes the temperature setting.

Fan setting button
- Selects the airflow rate setting every time you press this button.

On/Off button
- Press this button once to start operation. Press once again to stop it.

Powerful**1 button
- Starts POWERFUL operation.

Reference
Refer to the following pages for details.
★ 1 POWERFUL operation ................................................................. P.87

(R24602)
Open the Front Cover

**Mode button**
- Selects the operation mode.
  - AUTO, DRY, COOL, HEAT, FAN

**Econo**
- Starts ECONO operation.

**Swing**
- Adjusts the airflow direction.
  - When you press Swing button, the flap moves up and down. The flap stops when you press Swing button again.

**Weekly button**
(WEEKLY TIMER Operation)
- Weekly button
- Program button
- Copy button
- Back button
- Next button

- Press this button and adjust the day and time with Select button.
- Press this button again to complete TIMER setting.

**Off Timer button**
(NIGHT SET mode)
- Press this button and adjust the day and time with Select button.
- Press this button again to complete TIMER setting.

**Timer Cancel button**
- Cancels the timer setting.
- Cannot be used for the WEEKLY TIMER operation.

**Select button**
- It changes the ON/OFF TIMER and WEEKLY TIMER settings.

**Quiet button**
- OUTDOOR UNIT QUIET operation.
- OUTDOOR UNIT QUIET operation is not available in FAN and DRY operation.
- OUTDOOR UNIT QUIET operation and POWERFUL operation cannot be used at the same time. Priority is given to the function you pressed last.

**Quiet button**

**Reference**
Refer to the following pages for details.
- ★2 ECONO operation.................................................................P.82
- ★3 Auto-swing..............................................................................P.74
- ★4 WEEKLY TIMER operation................................................P.90
- ★5 Clock setting........................................................................P.89

(R24619)
7. BRC1E73 (Wired Remote Controller)

1. Operation mode selector button
2. Fan speed control button
3. Menu/OK button
4. Up button
5. Down button
6. Right button
7. Left button
8. On/Off button
9. Operation lamp
10. Cancel button
11. LCD (with backlight)
1. **Operation mode selector button**
   - Press this button to select the operation mode of your preference.
   - * Available modes vary with the indoor unit model.

2. **Fan speed control button**
   - Press this button to select the fan speed of your preference.
   - * Available fan speeds vary with the indoor unit model.

3. **Menu/OK button**
   - Used to enter the main menu.
   - Used to enter the selected item.

4. **Up button ▲**
   - Used to raise the setpoint.
   - The item above the current selection will be highlighted.
   - (The highlighted items will be scrolled continuously when the button is continuously pressed.)
   - Used to change the selected item.

5. **Down button ▼**
   - Used to lower the setpoint.
   - The item below the current selection will be highlighted.
   - (The highlighted items will be scrolled continuously when the button is continuously pressed.)
   - Used to change the selected item.

6. **Right button ►**
   - Used to highlight the next items on the right-hand side.
   - Each screen is scrolled in the right-hand direction.

7. **Left button ◀**
   - Used to highlight the next items on the left-hand side.
   - Each screen is scrolled in the left-hand direction.

8. **On/Off button**
   - Press this button and system will start.
   - Press this button again to stop the system.

9. **Operation lamp**
   - This lamp illuminates solid green during normal operation.
   - This lamp flashes if an error occurs.

10. **Cancel button**
    - Used to return to the previous screen.

11. **LCD (with backlight)**
    - The backlight will be illuminated for approximately 30 seconds by pressing any button.
    - If two remote controllers are used to control a single indoor unit, only the controller accessed first will have backlight functionality.
Liquid Crystal Display

- Three types of display mode (Standard, Detailed and Simple) are available.
- Standard display is set by default.
- Detailed and Simple displays can be selected in the main menu.

**Standard display**

10. Changeover controlled by the master indoor unit
9. Under centralized control
1. Operation mode
2. Fan Speed
6. Ventilation

**Detailed display**

- The airflow direction, clock, and selectable item appear on Detailed display screen in addition to the items appearing on Standard display.

12. Airflow Direction
   (Displayed only when the indoor unit is turned on.)
13. Current Day/Time
   (12/24 hour time display)
14. Selectable Display Item

**Simple display**

- No Fan speed display
  (with no fan speed control function)
- No Airflow Direction display
  (with no airflow direction settings)

- No Clock display
  (when the clock has not been set yet)
- No Selectable Display Item
  (with no selectable display item selected)
Simple display

1. Operation mode
   - Auto
   - Cool
   - Set to
   - Heat
   - Cool

2. Fan speed
   - 70°F
   - 74°F

3. Setpoint
   - 74°F

4. Stand by for Defrost/
   Hot start

11. Setback

14. Selectable Display
   Item

Note for all display modes

- Depending on the field settings, while the indoor unit is stopped, OFF may be displayed instead of
  the operation mode and/or the setpoint may not be displayed.
1. **Operation mode**
   - Used to display the current operation mode: Cool, Heat, Vent, Fan, Dry or Auto.
   - In Auto mode, the actual operation mode (Cool or Heat) will also be displayed.
   - Operation mode cannot be changed when OFF is displayed.
   - Operation mode can be changed after starting operation.

   **Note:**
   - Operation mode cannot be changed when OFF is displayed.
   - Operation mode can be changed after starting operation.

2. **Fan Speed**
   - Used to display the fan speed that is set for the indoor unit.
   - The fan speed will not be displayed if the connected model does not have fan speed control functionality.

3. **Setpoint**
   - Used to display the setpoint for the indoor unit.
   - Use the Celsius/Fahrenheit item in the main menu to select the temperature unit (Celsius or Fahrenheit).

4. **Stand by for Defrost/Hot start**
   - **STAND BY**
   - If ventilation icon is displayed in this field:
     - Indicates that an energy recovery ventilator (ERV) is connected.
     - For details, refer to the Operation Manual of the ERV.

5. **Message**
   - The following messages may be displayed.
     - **This function is not available**
     - Displayed for a few seconds when an Operation button is pressed and the indoor unit does not provide the corresponding function.
     - In a remote control group, the message will not appear if at least one of the indoor units provides the corresponding function.

   **Error:**
   - **Push Menu button**
   - **Warning:** Push Menu button
   - Displayed if an error or warning is detected.

   **Time to clean filter**
   - **Time to clean element**
   - **Time to clean filter & element**
   - Displayed as a reminder when it is time to clean the filter and/or element.

6. **Ventilation**
   - Displayed if an energy recovery ventilator is connected.
   - **Ventilation Mode icon.** [ERV ERV BYPASS]
     - These icons indicate the current ventilation mode (ERV only) (AUTO, ERV, BYPASS).
   - **Air Purify ICON** [AIR PURIFY]
     - This icon indicates that the air purifying unit (Optional) is in operation.

7. **Key Lock**
   - **LOCK**
   - Displayed when the key lock is set.

8. **Scheduled**
   - **SCHEDULE**
   - Displayed if the Schedule or Off timer is enabled.

9. **Under Centralized control**
   - **CENTRAL**
   - Displayed if the system is under the management of a multi-zone controller (Optional) and the operation of the system through the remote controller is limited.

10. **Changeover controlled by the master indoor unit**
    - (VRV only)
    - **MASTER**
    - Displayed when another indoor unit on the system has the authority to change the operation mode between cool and heat.
11. Setback “SETBACK”

- The setback icon flashes when the unit is turned on by the setback control.

12. Airflow Direction “\_\_”

- Displayed when the airflow direction and swing are set.
- If the connected indoor unit model does not include oscillating louvers this item will not be displayed.

13. Current Day/Time (12/24 hour time display)

- Displayed if the clock is set.
- If the clock is not set, “-- : --” will be displayed.
- 12 hour time format is displayed by default.
- Select 12/24 hour time display option in the main menu under “Clock & Calendar”.

14. Selectable Display Item

- Room temperature is selected by default.
- For other choices see the operation manual.

15. Unable to schedule

- Displayed when the clock needs to be set.
- The schedule function will not work unless the clock is set.
8. BRC082A41W, BRC082A42W(S) (Wireless Remote Controller Kit)
<table>
<thead>
<tr>
<th>1</th>
<th>DISPLAY ▲ (SIGNAL TRANSMISSION)</th>
<th>This lights up when a signal is being transmitted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>DISPLAY ▼, ▼, ▼ (OPERATION MODE)</td>
<td>This display shows the current OPERATION MODE.</td>
</tr>
<tr>
<td>3</td>
<td>DISPLAY H - 9 - 9, △ (SET TEMPERATURE)</td>
<td>This display shows the set temperature.</td>
</tr>
<tr>
<td>4</td>
<td>DISPLAY n - 3 - 3, n - 3 - 3 (PROGRAMMED TIME)</td>
<td>This display shows PROGRAMMED TIME of the system start or stop.</td>
</tr>
<tr>
<td>5</td>
<td>DISPLAY ▼ (SWING FLAP)</td>
<td>The display shows the set fan speed.</td>
</tr>
<tr>
<td>6</td>
<td>DISPLAY ✔ ✔ ✔ (FAN SPEED)</td>
<td>The display shows the fan speed.</td>
</tr>
<tr>
<td>7</td>
<td>DISPLAY ✔/TEST (INSPECTION/TEST OPERATION)</td>
<td>When the INSPECTION/TEST OPERATION button is pressed, the display shows the system mode is in.</td>
</tr>
<tr>
<td>8</td>
<td>ON/OFF BUTTON</td>
<td>Press the button and the system will start. Press the button again and the system will stop.</td>
</tr>
<tr>
<td>9</td>
<td>FAN SPEED CONTROL BUTTON</td>
<td>Press this button to select the fan speed, LOW, MEDIUM or HIGH, of your choice.</td>
</tr>
<tr>
<td>10</td>
<td>TEMPERATURE SETTING BUTTON</td>
<td>Use this button for setting temperature.</td>
</tr>
<tr>
<td>11</td>
<td>TIMER MODE START/STOP BUTTON</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>TIMER RESERVE/CANCEL BUTTON</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>AIRFLOW DIRECTION ADJUST BUTTON</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>OPERATION MODE SELECTOR BUTTON</td>
<td>Press this button to select OPERATION MODE.</td>
</tr>
<tr>
<td>15</td>
<td>FILTER SIGN RESET BUTTON</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>INSPECTION/TEST OPERATION BUTTON</td>
<td>This button is used only by qualified service persons for maintenance purposes.</td>
</tr>
<tr>
<td>17</td>
<td>EMERGENCY OPERATION SWITCH</td>
<td>This switch is readily used if the remote controller does not work.</td>
</tr>
<tr>
<td>18</td>
<td>RECEIVER</td>
<td>This receives the signals from the remote controller.</td>
</tr>
<tr>
<td>19</td>
<td>OPERATION LAMP (Red)</td>
<td>This lamp stays lit while the air conditioner runs. It blinks when the unit is in trouble.</td>
</tr>
<tr>
<td>20</td>
<td>TIMER LAMP (Green)</td>
<td>This lamp stays lit while the timer is set.</td>
</tr>
<tr>
<td>21</td>
<td>AIR FILTER CLEANING TIME INDICATOR LAMP (Red)</td>
<td>Lights up when it is time to clean the air filter.</td>
</tr>
<tr>
<td>22</td>
<td>DEFROST LAMP (Orange)</td>
<td>Lights up when the defrosting operation has started.</td>
</tr>
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1. Troubleshooting with LED

1.1 Outdoor Unit

1.1.1 Main PCB (A1P)

The main PCB (A1P) has green LEDs (HAP, HBP). When the microprocessors work in order, the LEDs blink.

1.1.2 Service PCB (A2P)

The error code can be identified with the orange LEDs (H1P~H7P) on the service PCB (A2P) in monitor mode.
Troubleshooting with LED

**Error code indication in monitor mode**

**Monitor mode**

Press MODE (BS1) button and enter the monitor mode.

**Selection of check item**

Press SET (BS2) button and select a check item according to the LED pattern of No.14–16 and No.20–22. Refer to page 130 for check items.

**Confirmation of malfunction 1**

Press RETURN (BS3) button once to display the first digit of error code.

**Confirmation of malfunction 2**

Press SET (BS2) button once to display the second digit of error code.

**Confirmation of malfunction 3**

Press SET (BS2) button once to display the malfunction location.

**Confirmation of malfunction 4**

Press SET (BS2) button once to display the malfunction unit and the malfunction location.

Press RETURN (BS3) button and return to the initial status of monitor mode.

* If you become unsure of how to proceed, press MODE (BS1) button and return to the setting mode 1.

---

### Contents of malfunction

<table>
<thead>
<tr>
<th>Failure Location</th>
<th>Error code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor unit PCB abnormality</td>
<td>Detection of DIII-Net</td>
</tr>
<tr>
<td>Actuation of high pressure switch</td>
<td>High pressure switch activated (S1PH)</td>
</tr>
<tr>
<td>Actuation of low pressure sensor</td>
<td>Abnormal Pp</td>
</tr>
<tr>
<td>Compressor motor lock</td>
<td>Detection of compressor lock</td>
</tr>
<tr>
<td>Outdoor fan motor abnormality</td>
<td>Detection of fan motor lock (M1F)</td>
</tr>
<tr>
<td>Moving part of electronic expansion valve (Y1E, Y3E) abnormality</td>
<td>Y1E (main)</td>
</tr>
<tr>
<td>Outdoor temperature thermistor (R1T) abnormality</td>
<td>Short or open circuit (R1T)</td>
</tr>
<tr>
<td>Discharge pipe temperature abnormality</td>
<td>Abnormal Tdi</td>
</tr>
<tr>
<td>Refrigerant overcharged</td>
<td>Refrigerant overcharge</td>
</tr>
<tr>
<td>Suction pipe thermistor (R3T, R5T) abnormality</td>
<td>Short or open circuit (suction 1: R3T)</td>
</tr>
<tr>
<td>Outdoor heat exchanger thermistor (R4T) abnormality</td>
<td>Short or open circuit (R4T)</td>
</tr>
<tr>
<td>Outdoor liquid pipe thermistor (R7T) abnormality</td>
<td>Short or open circuit (R7T)</td>
</tr>
<tr>
<td>Subcooling heat exchanger gas pipe thermostor (R6T) abnormality</td>
<td>Short or open circuit (R6T)</td>
</tr>
<tr>
<td>High pressure sensor abnormality</td>
<td>Short or open circuit (S1NPH)</td>
</tr>
<tr>
<td>Low pressure sensor abnormality</td>
<td>Short or open circuit (S1NPL)</td>
</tr>
<tr>
<td>Outdoor unit PCB abnormality</td>
<td>Faulty IPM</td>
</tr>
<tr>
<td>Abnormal current sensor offset</td>
<td>L1</td>
</tr>
<tr>
<td>Abnormal IGBT</td>
<td></td>
</tr>
<tr>
<td>Faulty current sensor</td>
<td></td>
</tr>
<tr>
<td>Abnormal SP-PAM overvoltage</td>
<td></td>
</tr>
<tr>
<td>Radiation fin temperature rise</td>
<td>Overheating (FINTH)</td>
</tr>
<tr>
<td>Inverter compressor abnormality</td>
<td>Inverter instantaneous overcurrent</td>
</tr>
<tr>
<td>Inverter current abnormality</td>
<td>Electronic thermal switch 1</td>
</tr>
<tr>
<td>Out-of-step</td>
<td>Electronic thermal switch 2</td>
</tr>
<tr>
<td>Speed down after startup</td>
<td>Out-of-step</td>
</tr>
<tr>
<td>Lightening detection</td>
<td>Stall prevention (Current increasing)</td>
</tr>
<tr>
<td>Compressor start-up error</td>
<td>Stall prevention (Faulty start up)</td>
</tr>
<tr>
<td>Abnormal waveform in startup</td>
<td>Abnormal waveform in startup</td>
</tr>
<tr>
<td>Out-of-step</td>
<td>Out-of-step</td>
</tr>
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---

---

---
## Troubleshooting with LED SiUS181631EA

### Display of contents of malfunction (first digit)

<table>
<thead>
<tr>
<th>Error code</th>
<th>Confirmation of malfunction 1</th>
<th>Confirmation of malfunction 2</th>
<th>Confirmation of malfunction 3</th>
<th>Confirmation of malfunction 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>E3</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>E4</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>E5</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>E7</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>E9</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>H1P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H2P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H3P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H4P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H5P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H6P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>H7P</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L1</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L2</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L3</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L4</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L5</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L6</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L7</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L8</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>L9</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

### Display of contents of malfunction (second digit)

- Master
- Slave1
- Slave2
- System

### Display 1 of malfunction in detail

- ON
- OFF
- Blink

### Display 2 of malfunction in detail

# Confirmation of malfunction

1. Confirmation of malfunction 1
2. Confirmation of malfunction 2
3. Confirmation of malfunction 3
4. Confirmation of malfunction 4

## Troubleshooting

- Error code:
- Confirmation of malfunction:
  - ON
  - OFF
  - Blink

### Troubleshooting Table

- Device Troubleshooting Table
- Troubleshooting Procedure
- Error Code Interpretation

---

176 Troubleshooting
Monitor mode

Press MODE (BS1) button and enter the monitor mode.

Selection of check item

Press SET (BS2) button and select a check item according to the LED pattern of No.14~16 and No.20~22. Refer to page 130 for check items.

Confirmation of malfunction 1

Press RETURN (BS3) button once to display the first digit of error code.

Confirmation of malfunction 2

Press SET (BS2) button once to display the second digit of error code.

Confirmation of malfunction 3

Press SET (BS2) button once to display the malfunction location.

Confirmation of malfunction 4

Press SET (BS2) button once to display the malfunction unit and the malfunction location.

Press RETURN (BS3) button and return to the initial status of monitor mode.

* If you become unsure of how to proceed, press MODE (BS1) button and return to the setting mode 1.

---

### Contents of malfunction

<table>
<thead>
<tr>
<th>Error code</th>
<th>Error code</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Imbalance of inverter power supply voltage</td>
</tr>
<tr>
<td>P4</td>
<td>Faulty thermistor of inverter fin</td>
</tr>
<tr>
<td>U0</td>
<td>Refrigerant shortage alarm</td>
</tr>
<tr>
<td>U2</td>
<td>Insufficient Inverter voltage</td>
</tr>
<tr>
<td>U3</td>
<td>Check operation is not conducted.</td>
</tr>
<tr>
<td>U4</td>
<td>I/O transmission error</td>
</tr>
<tr>
<td>U9</td>
<td>Indoor unit system abnormal in other system or other indoor unit system abnormal in own system</td>
</tr>
<tr>
<td>UA</td>
<td>System transmission malfunction</td>
</tr>
<tr>
<td>UH</td>
<td>Wiring error (Auto-address error)</td>
</tr>
<tr>
<td>UF</td>
<td>Conflict in wiring and piping</td>
</tr>
</tbody>
</table>

---

Check operation is not conducted. U3

Transmission error between indoor unit and BP unit I/O transmission error U4

Transmission error between indoor unit and outdoor unit in the same system Indoor unit system abnormal in other system or other indoor unit system abnormal in own system U9

Field setting switch abnormality or Excessive number of indoor units System transmission malfunction UA

Refrigerant abnormal

Connect error (BP unit)

System abnormality, refrigerant system address undefined Wiring error (Auto-address error) UH

System is not set yet Conflict in wiring and piping UF
<table>
<thead>
<tr>
<th>Error code</th>
<th>Confirmation of malfunction 1</th>
<th>Confirmation of malfunction 2</th>
<th>Confirmation of malfunction 3</th>
<th>Confirmation of malfunction 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H1P</td>
<td>H2P</td>
<td>H3P</td>
<td>H4P</td>
</tr>
<tr>
<td>P1</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>P4</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U0</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U2</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U3</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U4</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>U9</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>UA</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>UH</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>UF</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Display of contents of malfunction (first digit)
Display of contents of malfunction (second digit)
Display 1 of malfunction in detail
Display 2 of malfunction in detail

〇: ON  ●: OFF  ●: Blink
1.2 Branch Provider (BP) Unit

☀: ON, ●: OFF, ♂: Blinks, —: No matter

Green: Blinks in normal condition
Red: OFF in normal condition

<table>
<thead>
<tr>
<th>BP Unit LED Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Red</td>
</tr>
<tr>
<td>1</td>
<td>●</td>
</tr>
<tr>
<td>2</td>
<td>●</td>
</tr>
<tr>
<td>3</td>
<td>●</td>
</tr>
<tr>
<td>4</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>—</td>
</tr>
</tbody>
</table>

Note: Turn the power off then on again. If the LED display recurs, the BP unit PCB is defective.
1.3 Indoor Unit

**Operation Lamp**
The operation lamp blinks when any of the following errors is detected.
- When a protection device of the indoor or outdoor unit is activated, or when the thermistor malfunctions.
- When a signal transmission error occurs between the indoor and outdoor units.
In either case, conduct the diagnostic procedure described in the following pages.

**CTXG series**

**CTXS/FTXS series**

**CDXS/FDXS series**

**FVXS series**
Troubleshooting with LED

**FFQ series with wired remote controller (BRC1E73)**

![Image of FFQ series with wired remote controller](image1)

- The error or warning message also blinks on the basic screen. (R23942)

**FFQ series with wireless remote controller kit (BRC082A41W, BRC082A42W(S))**

In case of wireless remote controller, a transmitter board (A2P) and a receiver (A3P) are installed on indoor unit. When the error occurs, the operation lamp on the receiver (A3P) blinks.

![Image of FFQ series with wireless remote controller](image2)

**Caution:** When operation stops suddenly and the operation lamp blinks, it could be operation mode conflict. For FFQ models, even if the operation mode conflict occurs, the operation lamp does not blink.

1. Check if the operation modes all the same for the indoor units connected to multi system outdoor unit?
2. If not, set all the indoor units to the same operation mode and confirm that the operation lamp is not blinking.
3. Moreover, when the operation mode is automatic, set all the indoor unit operation mode as cooling or heating and check again if the operation lamp is normal.

If the lamp stops blinking after the above steps, there is no malfunction.

*Operation stops and operation lamp blinks only for the indoor unit that has a different operation mode set later. (The first set operation mode has priority.)*

**Service Monitor**

The indoor unit has a green LED (LED A or HAP) on the control PCB. When the microcomputer works in order, the LED blinks. (Refer to pages 26, 28, 30, 32, 34, 36 and 38 for the location of LED.)
2. Service Diagnosis

2.1 CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

2.1.1 ARC452 Series Remote Controller

Method 1

1. When TIMER CANCEL button is held down for 5 seconds, 00 is displayed on the temperature display screen.

2. Press TIMER CANCEL button repeatedly until a long beep sounds.
   - The code indication changes in the sequence shown below.

   **ARC452A9, A21, A23**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>00</td>
<td>13</td>
<td>C7</td>
<td>25</td>
<td>UA</td>
</tr>
<tr>
<td>2</td>
<td>U4</td>
<td>14</td>
<td>A3</td>
<td>26</td>
<td>UH</td>
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<tr>
<td>3</td>
<td>L5</td>
<td>15</td>
<td>H8</td>
<td>27</td>
<td>P4</td>
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<td>E6</td>
<td>16</td>
<td>HS</td>
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<td>L3</td>
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<td>11</td>
<td>F5</td>
<td>23</td>
<td>R1</td>
<td>35</td>
<td>H1</td>
</tr>
<tr>
<td>12</td>
<td>F6</td>
<td>24</td>
<td>E1</td>
<td>36</td>
<td>P9</td>
</tr>
</tbody>
</table>

**Notes:**

1. A short beep or two consecutive beeps indicate non-corresponding codes.
2. To return to the normal mode, hold down TIMER CANCEL button for 5 seconds. When the remote controller is left untouched for 60 seconds, it also returns to the normal mode.
3. Not all the error codes are displayed. When you cannot find the error code, try method 2. (Refer to page 183.)
Method 2

1. Press the 3 buttons (TEMP▲, TEMP▼, MODE) at the same time to enter the diagnosis mode.

   The left-side number blinks.

2. Press TEMP▲ or TEMP▼ button and change the number until you hear the two consecutive beeps or the long beep.

3. Diagnose by the sound.
   ★ beep : The left-side number does not correspond with the error code.
   ★ two consecutive beeps : The left-side number corresponds with the error code but the right-side number does not.
   ★ long beep : Both the left-side and right-side number correspond with the error code. The numbers indicated when you hear the long beep are the error code. Refer to page 194, 195.

4. Press MODE button.

   The right-side number blinks.
5. Press TEMP ▲ or TEMP ▼ button and change the number until you hear the long beep.

6. Diagnose by the sound.
   ★ beep: The left-side number does not correspond with the error code.
   ★ two consecutive beeps: The left-side number corresponds with the error code but the right-side number does not.
   ★ long beep: Both the left-side and right-side number corresponds with the error code.

7. Determine the error code.
   The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

8. Press MODE button to exit from the diagnosis mode.

The display γ means the test operation mode.
Refer to page 120 for test operation.

9. Press ON/OFF button twice to return to the normal mode.

**Note:** When the remote controller is left untouched for 60 seconds, it returns to the normal mode.
2.1.2 ARC466 Series Remote Controller

Method 1

1. When Timer Cancel button is held down for 5 seconds, 00 is displayed on the temperature display screen.

2. Press Timer Cancel button repeatedly until a long beep sounds.

The code indication changes in the sequence shown below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>00</td>
<td>14</td>
<td>U0</td>
<td>27</td>
<td>U3</td>
</tr>
<tr>
<td>2</td>
<td>A5</td>
<td>15</td>
<td>C7</td>
<td>28</td>
<td>UH</td>
</tr>
<tr>
<td>3</td>
<td>E7</td>
<td>16</td>
<td>A3</td>
<td>29</td>
<td>P4</td>
</tr>
<tr>
<td>4</td>
<td>F3</td>
<td>17</td>
<td>H8</td>
<td>30</td>
<td>H7</td>
</tr>
<tr>
<td>5</td>
<td>F6</td>
<td>18</td>
<td>H9</td>
<td>31</td>
<td>U2</td>
</tr>
<tr>
<td>6</td>
<td>L3</td>
<td>19</td>
<td>C9</td>
<td>32</td>
<td>EA</td>
</tr>
<tr>
<td>7</td>
<td>L4</td>
<td>20</td>
<td>C4</td>
<td>33</td>
<td>AH</td>
</tr>
<tr>
<td>8</td>
<td>L5</td>
<td>21</td>
<td>C5</td>
<td>34</td>
<td>FA</td>
</tr>
<tr>
<td>9</td>
<td>H6</td>
<td>22</td>
<td>J3</td>
<td>35</td>
<td>H1</td>
</tr>
<tr>
<td>10</td>
<td>E6</td>
<td>23</td>
<td>J6</td>
<td>36</td>
<td>P3</td>
</tr>
<tr>
<td>11</td>
<td>H8</td>
<td>24</td>
<td>E6</td>
<td>37</td>
<td>E3</td>
</tr>
<tr>
<td>12</td>
<td>H0</td>
<td>25</td>
<td>R1</td>
<td>38</td>
<td>H3</td>
</tr>
<tr>
<td>13</td>
<td>R6</td>
<td>26</td>
<td>E1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. A short beep or two consecutive beeps indicate non-corresponding codes.
2. To return to the normal mode, hold down Timer Cancel button for 5 seconds. When the remote controller is left untouched for 60 seconds, it also returns to the normal mode.
3. Not all the error codes are displayed. When you cannot find the error code, try method 2.

(R24045)
Method 2

1. Press the center of Temp button and Mode button at the same time.

SC is displayed on the LCD.

2. Select SC (service check) with Temp ▲ or Temp ▼ button.

3. Press Mode button to enter the service check mode.

The left-side number blinks.

4. Press Temp ▲ or Temp ▼ button and change the number until you hear the two consecutive beeps or the long beep.
5. Diagnose by the sound.
★ beep: The left-side number does not correspond with the error code.
★ two consecutive beeps: The left-side number corresponds with the error code but the right-side number does not.
★ long beep: Both the left-side and right-side numbers correspond with the error code.
   The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

6. Press **Mode** button.

   ![Diagram](R24047)

   The right-side number blinks.

   ![Diagram](R11673)

7. Press **Temp ▲** or **Temp ▼** button and change the number until you hear the long beep.

   ![Diagram](R24048)

8. Diagnose by the sound.
★ beep: The left-side number does not correspond with the error code.
★ two consecutive beeps: The left-side number corresponds with the error code but the right-side number does not.
★ long beep: Both the left-side and right-side numbers correspond with the error code.

9. Determine the error code.
   The numbers indicated when you hear the long beep are the error code.
   Refer to page 194, 195.

10. Press **Mode** button for 5 seconds to exit from the service check mode.
    (When the remote controller is left untouched for 60 seconds, it returns to the normal mode also.)

   ![Diagram](R24047)
2.2 FFQ Series
2.2.1 Wired Remote Controller (BRC1E73)

Relations Between Modes

On power-up, the message Checking the connection. Please standby. will be displayed on the remote controller screen temporarily and then the basic screen will be displayed. To access a mode from the basic screen, refer to the figure below.

When any of the operation buttons is pressed, the backlight will come on and remain lit for about 30 seconds. Be sure to press a button while the backlight is on.

The items shown on the remote controller are different depending on the connected indoor unit.
Service Diagnosis

The following message is displayed on the screen when an error (or a warning) occurs during operation. Check the error code and take the corrective action specified for the particular model.

![Diagram of Daikin control panel]

1. **Operation**
   - If an error occurs, either one of the following items will flash in the basic screen.
     - **Error: Push Menu button**
       - The Operation lamp will flash.
       - For Simple display, the message is not displayed, and only the Operation lamp flashes.
     - **Warning: Push Menu button**
       - The Operation lamp will not flash.
       - For Simple display, the message is not displayed, and the Operation lamp does not flash, either.
     - Press **Menu/OK button**.

2. **Operation**
   - The error code will flash and the service contact and model name or code may be displayed.
   - Notify your Daikin dealer of the Error code and model name or code.
2.2.2 Wireless Remote Controller Kit (BRC082A41W, BRC082A42W(S))

Relations Between Modes

The following modes can be selected by using **INSPECTION/TEST OPERATION** button on the remote controller.

- **Normal mode**
  - Press **INSPECTION/TEST OPERATION** button once.
  - Press **INSPECTION/TEST OPERATION** button for more than 4 seconds.
  - After 60 seconds

- **Test operation mode**
  - After 10 seconds without starting test operation or press **INSPECTION/TEST OPERATION** button once or 30 min. after the test operation start

- **Inspection mode**
  - Press **INSPECTION/TEST OPERATION** button once.

- **Service mode**
  - Press **INSPECTION/TEST OPERATION** button once.
  - Service data can be obtained.
    - Error code history
    - Temperature data of various sections
  - Service settings can be made.
    - Forced fan ON
    - Airflow rate setting

Indoor unit settings can be made.
- Filter cleaning sign time
- Others

Following codes can be checked.
- Error codes
- Indoor model code

Service Diagnosis

To find the error code, proceed as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Press <strong>INSPECTION/TEST OPERATION</strong> button to enter the inspection mode. Then the figure 0 blinks on the UNIT No. display.</td>
</tr>
</tbody>
</table>

(R24049)
### Troubleshooting

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Press <strong>UP</strong> or <strong>DOWN</strong> button and change the UNIT No. until the indoor unit starts to beep.</td>
</tr>
</tbody>
</table>

**If you hear...** | **Then...**
--- | ---
3 short beeps | Follow all steps below.
1 short beep | Follow steps 3 and 4. Continue the operation in step 4 until you hear a long beep. This long beep indicates that the error code is confirmed.
1 long beep | There is no abnormality.

| 3    | Press **OPERATION MODE SELECTOR** button. The left 0 (upper digit) indication of the error code blinks. |

**If you hear...** | **Then...**
--- | ---
3 short beeps | Follow all steps below.
1 short beep | Follow steps 3 and 4. Continue the operation in step 4 until you hear a long beep. This long beep indicates that the error code is confirmed.
1 long beep | There is no abnormality. |
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Press <strong>UP</strong> or <strong>DOWN</strong> button to change the error code upper digit until the indoor unit beeps.</td>
</tr>
</tbody>
</table>

If you hear... | Then... |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 short beeps</td>
<td>The upper digit matches.</td>
</tr>
<tr>
<td>1 short beep</td>
<td>No digits match.</td>
</tr>
<tr>
<td>1 long beep</td>
<td>Both upper and lower digits match.</td>
</tr>
</tbody>
</table>

| 5    | Press **OPERATION MODE SELECTOR** button. The right 0 (lower digit) indication of the error code blinks. |

(R15411) 
(R24052)
<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>Press <strong>UP</strong> or <strong>DOWN</strong> button and change the error code lower digit until the indoor unit generates long beep.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If you hear...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 short beeps</td>
<td>No digits match.</td>
</tr>
<tr>
<td>1 long beep</td>
<td>Both upper and lower digits match.</td>
</tr>
</tbody>
</table>

| 7.0 | Press **OPERATION MODE SELECTOR** button to return to the normal mode. If you do not press any button for 1 minute, the remote controller automatically returns to the normal mode. |

(R15413)

(R24053)
## 3. Error Codes and Description

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>RA Indoor Unit</th>
<th>SA Indoor Unit</th>
<th>BP Unit</th>
<th>Outdoor Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indoor Unit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Indoor unit PCB abnormality</td>
<td>196</td>
<td>207</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A3</td>
<td>Drain level control system abnormality</td>
<td>—</td>
<td>208</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A5</td>
<td>Freeze-up protection control/heating peak-cut control</td>
<td>198</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A6</td>
<td>Indoor fan motor or related abnormality</td>
<td>199, 201</td>
<td>209</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A9</td>
<td>Electronic expansion valve abnormality</td>
<td>—</td>
<td>—</td>
<td>219</td>
<td>—</td>
</tr>
<tr>
<td>AF</td>
<td>Humidifier or Related abnormality</td>
<td>—</td>
<td>211</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>C4</td>
<td>Indoor heat exchanger thermistor 1 (liquid pipe) or related abnormality</td>
<td>203</td>
<td>212</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>C5</td>
<td>Indoor heat exchanger thermistor 2 or related abnormality</td>
<td>—</td>
<td>212</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>C7</td>
<td>Front panel open/close fault</td>
<td>204</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>C9</td>
<td>Room temperature thermistor or related abnormality</td>
<td>203</td>
<td>212</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>CE</td>
<td>Presence sensor or floor sensor abnormality</td>
<td>—</td>
<td>213</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>CJ</td>
<td>Remote controller thermistor abnormality</td>
<td>—</td>
<td>214</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Outdoor Unit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Outdoor unit PCB abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>226</td>
</tr>
<tr>
<td>E2</td>
<td>Branch provider (BP) unit PCB abnormality</td>
<td>—</td>
<td>—</td>
<td>220</td>
<td>—</td>
</tr>
<tr>
<td>E3</td>
<td>Actuation of high pressure switch</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>227</td>
</tr>
<tr>
<td>E4</td>
<td>Actuation of low pressure sensor</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>229</td>
</tr>
<tr>
<td>E5</td>
<td>Compressor motor lock</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>231</td>
</tr>
<tr>
<td>E7</td>
<td>Outdoor fan motor abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>232</td>
</tr>
<tr>
<td>E9</td>
<td>Moving part of electronic expansion valve (Y1E, Y3E) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>233</td>
</tr>
<tr>
<td>F3</td>
<td>Discharge pipe temperature abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>235</td>
</tr>
<tr>
<td>F6</td>
<td>Refrigerant overcharged</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>236</td>
</tr>
<tr>
<td>H9</td>
<td>Outdoor temperature thermistor (R1T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>237</td>
</tr>
<tr>
<td>J0</td>
<td>Branch provider (BP) liquid or gas pipe thermistor abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>221</td>
</tr>
<tr>
<td>J3</td>
<td>Discharge pipe thermistor (R2T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>238</td>
</tr>
<tr>
<td>J5</td>
<td>Suction pipe thermistor (R3T, R5T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>239</td>
</tr>
<tr>
<td>J6</td>
<td>Outdoor heat exchanger thermistor (R4T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>240</td>
</tr>
<tr>
<td>J7</td>
<td>Outdoor liquid pipe thermistor (R7T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>241</td>
</tr>
<tr>
<td>J9</td>
<td>Subcooling heat exchanger gas pipe thermistor (R6T) abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>242</td>
</tr>
<tr>
<td>JA</td>
<td>High pressure sensor abnormality</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>243</td>
</tr>
<tr>
<td>Error code</td>
<td>Description</td>
<td>Reference page</td>
<td></td>
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<td>------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------------</td>
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<tr>
<td><strong>Outdoor Unit</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>JC</td>
<td>Low pressure sensor abnormality</td>
<td>244</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>Outdoor unit PCB abnormality</td>
<td>245</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L4</td>
<td>Radiation fin temperature rise</td>
<td>246</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>Inverter compressor abnormality</td>
<td>247</td>
<td></td>
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</tr>
<tr>
<td>L8</td>
<td>Inverter current abnormality</td>
<td>248</td>
<td></td>
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</tr>
<tr>
<td>L9</td>
<td>Compressor start-up error</td>
<td>249</td>
<td></td>
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<td></td>
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<tr>
<td>P1</td>
<td>High voltage of capacitor in main inverter circuit</td>
<td>250</td>
<td></td>
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</tr>
<tr>
<td>P4</td>
<td>Radiation fin thermistor abnormality</td>
<td>251</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>U0</td>
<td>Low pressure drop due to refrigerant shortage or electronic expansion valve abnormality</td>
<td>252</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U2</td>
<td>Power supply insufficient or instantaneous failure</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U3</td>
<td>Check operation is not conducted</td>
<td>255</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U4</td>
<td>Signal transmission error between indoor unit and Branch provider (BP) unit</td>
<td>222</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U5</td>
<td>Signal transmission error between indoor unit and remote controller</td>
<td>215</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U8</td>
<td>Signal transmission error between MAIN remote controller and SUB remote controller</td>
<td>216</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U9</td>
<td>Signal transmission error between indoor unit and outdoor unit in the same system</td>
<td>256</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UA</td>
<td>Mismatching of indoor unit and outdoor unit</td>
<td>217</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excessive number of indoor units</td>
<td>257</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>UC</td>
<td>Address duplication of central remote controller</td>
<td>258</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UE</td>
<td>Transmission error between centralized remote controller and indoor unit</td>
<td>259</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UF</td>
<td>System is not set yet</td>
<td>261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UH</td>
<td>System abnormality, refrigerant system address undefined</td>
<td>262</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UJ</td>
<td>Transmission error between outdoor unit and Branch provider (BP) unit</td>
<td>224</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The system keeps operating even though the error code is indicated, however, be sure to check and repair.
# 4. Troubleshooting for CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

## 4.1 Indoor Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>A1</th>
</tr>
</thead>
</table>

### Method of Error Detection

The system checks if the circuit works properly within the microcomputer of the indoor unit.

### Error Decision Conditions

The system cannot set the internal settings.

### Supposed Causes

- Wrong models interconnected
- Defective indoor unit PCB
- Disconnection of connector
- Reduction of power supply voltage
**Troubleshooting**

**Caution** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Flowchart](image)

**Note:** Check the following connector.

<table>
<thead>
<tr>
<th>Model Type</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTXG, CTXS, FTXS, FVXS series</td>
<td>Terminal strip ~ Control PCB (H1, H2, H3)</td>
</tr>
<tr>
<td>CDXS, FDXS series</td>
<td>Terminal block ~ Control PCB (H1, H2, H3)</td>
</tr>
</tbody>
</table>
4.2 Freeze-up Protection Control/Heating Peak-cut Control

**Error Code**

A5

**Method of Error Detection**

- **Freeze-up protection control**
  During cooling operation, the freeze-up protection control (operation halt) is activated according to the temperature detected by the indoor heat exchanger thermistor.

- **Heating peak-cut control**
  During heating operation, the temperature detected by the indoor heat exchanger thermistor is used for the heating peak-cut control (operation halt, outdoor fan stop, etc.)

**Error Decision Conditions**

- **Freeze-up protection control**
  During cooling operation, the indoor heat exchanger temperature is below 0°C (32°F).

- **Heating peak-cut control**
  During heating operation, the indoor heat exchanger temperature is above 65°C (149°F).

**Supposed Causes**

- Short-circuited air
- Clogged air filter of the indoor unit
- Dust accumulation on the indoor heat exchanger
- Defective indoor heat exchanger thermistor
- Defective indoor unit PCB

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Flowchart diagram](image.png)
### 4.3 Indoor Fan Motor or Related Abnormality

#### 4.3.1 Indoor Fan Motor (DC Motor) or Related Abnormality

<table>
<thead>
<tr>
<th>Applicable Models</th>
<th>CTXG09/12QVJUW(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CTXS07JVJU</td>
</tr>
<tr>
<td></td>
<td>CTXS09/12HVJU</td>
</tr>
<tr>
<td></td>
<td>CTXS07LVJU</td>
</tr>
<tr>
<td></td>
<td>FTXS09/12/15/18/24LVJU</td>
</tr>
<tr>
<td></td>
<td>FVXS09/12/15/18NVJU</td>
</tr>
</tbody>
</table>

| Error Code | A6 |

| Method of Error Detection | The rotation speed detected by the Hall IC during indoor fan motor operation is used to determine abnormal fan motor operation. |

| Error Decision Conditions | The detected rotation speed does not reach the demanded rotation speed of the target tap, and is less than 50% of the maximum fan motor rotation speed. |

<table>
<thead>
<tr>
<th>Supposed Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarkable decrease in power supply voltage</td>
</tr>
<tr>
<td>Layer short inside the fan motor winding</td>
</tr>
<tr>
<td>Breaking of wire inside the fan motor</td>
</tr>
<tr>
<td>Breaking of the fan motor lead wires</td>
</tr>
<tr>
<td>Defective capacitor of the fan motor</td>
</tr>
<tr>
<td>Defective indoor unit PCB</td>
</tr>
</tbody>
</table>
Troubleshooting

Check No.02
Refer to P.206

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the power supply voltage.

- If the voltage fluctuation is within ±10% from the rated value, turn off the power and rotate the fan by hand.
- If the voltage fluctuation is not within ±10% from the rated value, correct the power supply.

Turn off the power and disconnect the fan motor connector, then turn the power on.

- Does the motor rotate smoothly?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

Check No.02
Check the output of the fan motor connector.

- Motor power supply voltage 310 ~ 340 VDC?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

- Motor control voltage 15 VDC generated?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

- Rotation command voltage 1 ~ 6.5 VDC?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

- Indoor fan motor rotation pulse generated?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

Stop the fan motor.

Check No.02
Check the output of the fan motor connector.

- Indoor fan motor rotation pulse generated?
  - Yes: Replace the indoor unit PCB (control PCB).
  - No: Replace the indoor fan motor.

Note: The rotation pulse is the feedback signal from the indoor fan motor.
### 4.3.2 Indoor Fan Motor (AC Motor) or Related Abnormality (CDXS, FDXS Series)

| Applicable Models | FDXS09/12LVJU  
|                  | CDXS15/18/24LVJU |

**Error code**

| A6 |

**Method of Error Detection**
The rotation speed detected by the Hall IC during indoor fan motor operation determines abnormal fan motor operation.

**Error Decision Conditions**
The detected rotation speed does not reach the demanded rotation speed of the target tap.

**Supposed Causes**
- Power supply voltage out of specification
- Layer short inside the fan motor winding
- Breaking of wire inside the fan motor
- Breaking of the fan motor lead wires
- Defective capacitor of the fan motor
- Defective indoor unit PCB
Troubleshooting for CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series SiUS181631EA

**Caution**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the power supply voltage.

- **Is the voltage fluctuation within ±10% from the rated value?**
  - **NO**
    - Correct the power supply.
  - **YES**
    - Start operation.

- **Does the fan rotate?**
  - **NO**
    - Turn off the power and rotate the fan by hand.
  - **YES**
    - Check No. 04
      - Check Hall IC
        - **Is there an output?**
          - **NO**
            - Replace the indoor fan motor or the indoor unit PCB (control PCB).
          - **YES**
            - Replace the indoor fan motor.

- **Does the fan rotate smoothly?**
  - **NO**
    - Turn on the power and check the fan motor voltage. (immediately after restart)
  - **YES**
    - Check the fan motor voltage.
      - **Voltage as rated?**
        - **NO**
          - Replace the indoor unit PCB (control PCB).
        - **YES**
          - Replace the indoor unit PCB (control PCB).
        - *Measure the voltage between the black and white lead wires of the fan motor, and check if the maximum voltage reaches the rated voltage.

- **Voltage as rated?**
  - **NO**
    - Replace the indoor fan motor.
  - **YES**
    - Check the capacitor's continuity.
      - **Is there continuity?**
        - **NO**
          - Replace the indoor fan motor.
        - **YES**
          - Replace the capacitor. (Replace the indoor unit PCB (control PCB)).

(R22267)
4.4 Thermistor or Related Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>C4, C9</th>
</tr>
</thead>
</table>

**Method of Error Detection**
The temperatures detected by the thermistors are used to determine thermistor errors.

**Error Decision Conditions**
The voltage between both ends of the thermistor is either 4.96 V or more, or 0.04 V or less during compressor operation.

**Supposed Causes**
- Disconnection of connector
- Thermistor corresponding to the error code is defective.
- Defective indoor unit PCB

**Troubleshooting**

**Check No. 01**
Refer to P.205

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. **Check the connection of connectors.**
   - **Normal?**
     - **NO**  Correct the connection.
     - **YES**

2. **Check No. 01**
   - Check the thermistor resistance value.
     - **Normal?**
       - **NO**  Replace the defective thermistor.
       - **YES**  Replace the indoor unit PCB (control PCB).

**C4**: Indoor heat exchanger thermistor
**C9**: Room temperature thermistor

**Note**: When replacing the defective thermistor(s), replace the thermistors as ASSY.
4.5 Front Panel Open/Close Fault

Applicable Models

CTXG09/12QVJUW(S)

Error Code

C7

Error Decision Conditions

- If the error repeats, the system is shut down.

Supposed Causes

- Defective reduction motor
- Malfunction or deterioration of the front panel mechanism
- Defective limit switch

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Note: You cannot operate the unit by the remote controller when the front panel mechanism breaks down.  
<To the dealers: temporary measure before repair>
1. Turn off the power.
2. Remove the front panel.
3. Turn on the power.  
   (Wait until the initialization finishes.)
4. Operate the unit by the indoor unit ON/OFF button.
4.6 Check for CTXG, CTXS, FTXS, CDXS, FDXS, FVXS Series

4.6.1 Thermistor Resistance Check

Check No.01

Disconnect the connectors of the thermistors from the PCB, and measure the resistance of each thermistor using a multimeter. The data is for reference purpose only.

<table>
<thead>
<tr>
<th>Thermistor temperature</th>
<th>Resistance (kΩ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>–20</td>
<td>–4</td>
</tr>
<tr>
<td>–15</td>
<td>5</td>
</tr>
<tr>
<td>–10</td>
<td>14</td>
</tr>
<tr>
<td>–5</td>
<td>23</td>
</tr>
<tr>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>15</td>
<td>59</td>
</tr>
<tr>
<td>20</td>
<td>68</td>
</tr>
<tr>
<td>25</td>
<td>77</td>
</tr>
<tr>
<td>30</td>
<td>86</td>
</tr>
<tr>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>40</td>
<td>104</td>
</tr>
<tr>
<td>45</td>
<td>113</td>
</tr>
<tr>
<td>50</td>
<td>122</td>
</tr>
</tbody>
</table>

(R25°C (77°F) = 20 kΩ, B = 3950 K)

- When the room temperature thermistor is soldered on a PCB, remove the PCB from the control PCB to measure the resistance.
- When the connector of indoor heat exchanger thermistor is soldered on a PCB, remove the thermistor and measure the resistance.
4.6.2 Indoor Fan Motor Connector Check

Check No.02  CTXG, CTXS, FTXS, FVXS Series
1. Check the connection of connector.
2. Check motor power supply voltage output (pins 4 - 7).
3. Check motor control voltage (pins 4 - 3).
4. Check rotation command voltage output (pins 4 - 2).
5. Check rotation pulse input (pins 4 - 1).

<table>
<thead>
<tr>
<th>S1 or S200</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Motor power supply voltage (310 ~ 340 VDC)</td>
</tr>
<tr>
<td>6</td>
<td>Unused</td>
</tr>
<tr>
<td>5</td>
<td>Unused</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Motor control voltage (15 VDC)</td>
</tr>
<tr>
<td>2</td>
<td>Rotation command voltage (1~ 5 VDC)</td>
</tr>
<tr>
<td>1</td>
<td>Rotation pulse input</td>
</tr>
</tbody>
</table>

4.6.3 Hall IC Check

Check No.04  CDXS, FDXS Series
1. Check the connector connection.
2. With the power on, operation off, and the connector connected, check the following.
   (1) Output voltage of about 5 V between pins 1 and 3.
   (2) Generation of 3 pulses between pins 2 and 3 when the fan motor is operating.

If NG in step (1)  →  Defective PCB  →  Replace the PCB (control PCB).
If NG in step (2)  →  Defective Hall IC  →  Replace the fan motor.
If OK in both steps (1) and (2)  →  Replace the PCB (control PCB).

<table>
<thead>
<tr>
<th>S7</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gray (power supply)</td>
</tr>
<tr>
<td>2</td>
<td>Purple (signals)</td>
</tr>
<tr>
<td>3</td>
<td>Blue (grounding)</td>
</tr>
</tbody>
</table>
5. Troubleshooting for FFQ Series

5.1 Indoor Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>A1</th>
</tr>
</thead>
</table>

**Method of Error Detection**
The system checks the data from EEPROM.

**Error Decision Conditions**
The data from the EEPROM is not received correctly.

EEPROM (Electrically Erasable Programmable Read Only Memory): A memory chip that holds its content without power. It can be erased, either within the computer or externally and usually requires more voltage for erasure than the common +5 volts used in logic circuits. It functions like non-volatile RAM, but writing to EEPROM is slower than writing to RAM.

**Supposed Causes**
- Defective indoor unit PCB
- External factor (noise etc.)

**Troubleshooting**

⚠️ **Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Turn off the power, Then, turn on the power to restart the system.

- Normal?
  - NO
    - Replace the indoor unit PCB (control PCB).
  - YES
    - External factor other than malfunction (for example, noise etc.)

(R2247)
5.2 Drain Level Control System Abnormality

**Error Code**
A3

**Method of Error Detection**
The float switch detects error.

**Error Decision Conditions**
The water level reaches its upper limit and the float switch turns OFF.

**Supposed Causes**
- Defective drain pump
- Improper drain piping work
- Clogged drain piping
- Defective float switch
- Defective indoor unit PCB
- Defective short circuit connector X15A on indoor unit PCB

---

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

```
Is the drain pump connected to the indoor unit PCB?
  NO Connect the drain pump.
  YES

Does the drain pump work after the power supply is on?
  NO Replace the indoor unit PCB (control PCB).
  YES

Is the drain water level abnormally high?
  NO
  YES

Is the float switch connected to X15A?
  NO
  YES

Remove the float switch from X15A, short circuit X15A, and restart operation.

Does A3 appear on the remote controller display?
  NO Replace the float switch.
  YES Replace the indoor unit PCB (control PCB).
```
5.3 Indoor Fan Motor (DC Motor) or Related Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>A6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>The rotation speed detected by the Hall IC during fan motor operation determines abnormal fan motor operation.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The fan motor is not revved up.</td>
</tr>
</tbody>
</table>
| Supposed Causes | ■ Layer short inside the fan motor winding  
                  ■ Breaking of wire inside the fan motor  
                  ■ Breaking of the fan motor lead wires  
                  ■ Defective indoor unit PCB |
Troubleshooting for FFQ Series SiUS181631EA

Check No.02
Refer to P.218

Caution

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the power supply voltage.

Is the voltage fluctuation within ±10% from the rated value?

NO

Correct the power supply.

YES

Turn off the power supply. (Unplug the power cable or turn the breaker off.)

Check the connector for connection.

OK?

NO

Correct the connection.

YES

Foreign matters in or around the fan?

NO

Remove the foreign matters.

YES

Rotate the fan by hand.

Does the fan rotate smoothly?

NO

Replace the indoor fan motor.

YES

Turn on the power on again and start operation.

Check No.02
Check the output of the fan motor connector.

Motor power supply voltage 290 – 330 VDC or more?

NO

Replace the indoor unit PCB (control PCB).

YES

Motor control voltage 15 VDC generated?

NO

Replace the indoor unit PCB (control PCB).

YES

Rotation command voltage 0 – 2 VDC when stopped, 2 – 5 VDC when operated

NO

Replace the indoor unit PCB (control PCB).

YES

Note: The motor may break when the motor connector is disconnected while the power is turned on. (Be sure to turn off the power before reconnecting the connector.)

Remove the foreign matters.

(R24054)
5.4 Humidifier or Related Abnormality

Error Code | AF
---|---
Method of Error Detection | Water leakage from humidifier(s) is detected based on the float switch ON/OFF changeover while the system is not operating.

Error Decision Conditions | The float switch changes from ON to OFF while the system is OFF.

Supposed Causes
- Defective float switch
- Error in water drain system of humidifier(s)
- Clogged electric expansion value in humidifier(s)
- Defective indoor unit PCB

Troubleshooting

Caution: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Note: The system continues to operate with the thermostat OFF even while the error code is displayed.
5.5 Thermistor or Related Abnormality

Error Code: C4, C5, C9

Method of Error Detection
The temperatures detected by the thermistors determine thermistor errors.

Error Decision Conditions
The voltage between the both ends of the thermistor is 4.96 V and more or 0.04 V and less during compressor operation.

Supposed Causes
- Disconnection of connector
- Thermistor corresponding to the error code is defective.
- Defective indoor unit PCB

Troubleshooting
If the cause of the problem is related to the thermistors, the thermistors should be checked prior to changing the indoor unit PCB.

To check the thermistors, proceed as follows:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disconnect the thermistor from the indoor unit PCB.</td>
</tr>
<tr>
<td>2</td>
<td>Read the temperature and the resistance value.</td>
</tr>
<tr>
<td>3</td>
<td>Check if the measured values correspond with the values in the table of thermistor resistance check.</td>
</tr>
</tbody>
</table>

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

C4: Indoor heat exchanger thermistor 1 (liquid pipe) (R2T)
C5: Indoor heat exchanger thermistor 2 (R3T)
C9: Room temperature thermistor (R1T)

Note: When replacing the defective thermistor(s), replace the thermistors as ASSY.
Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
5.6 Presence Sensor or Floor Sensor Abnormality

Error Code: **CE**

**Method of Error Detection**: The system detects abnormality by the output signal from the sensor(s).

**Error Decision Conditions**: The sensor is disconnected or shorted while the unit is running.

**Supposed Causes**:
- Disconnection of connector
- Breaking of wires
- Defective sensor(s)
- Defective sensor kit PCB

**Troubleshooting**: If the cause of the problem is related to the sensors, the sensors should be checked prior to changing the indoor unit PCB.

---

**Caution**: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Check the connection of connectors X81 on indoor unit PCB.
   - **YES**: Normal?  
     - **YES**: Normal?  
       - **YES**: Normal?  
         - Turn off the power. Then, turn on the power to restart the system.
         - **NO**: Replace the sensor kit.
       - **NO**: Connect the connectors properly.
     - **NO**: Correct the connection.
   - **NO**: Check the connection of connectors on the sensor kit.

---

**Note**: When replacing the defective sensor(s), replace the sensor kit as ASSY.
5.7 Remote Controller Thermistor Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>CJ</th>
</tr>
</thead>
</table>

**Method of Error Detection**
Even if remote controller thermistor is faulty, system is possible to operate by system thermistor. Malfunction detection is carried out by the temperature detected by the remote controller thermistor.

**Error Decision Conditions**
The remote controller thermistor disconnected or shorted while the unit is running.

**Supposed Causes**
- Defective room temperature thermistor in the wired remote controller
- Defective wired remote controller PCB
- External factor such as noise

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Delete the record of error codes. (Refer to Note)
- Replace the remote controller.
- External factor other than equipment malfunction. (for example, noise etc.)

**Note:**
To delete the record of error codes, press **ON/OFF** button for 4 seconds or more while the error code is displayed in the inspection mode.
5.8 Signal Transmission Error (Between Indoor Unit and Remote Controller)

**Error Code**: U5

**Method of Error Detection**: In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between indoor unit and remote controller (main and sub) is normal.

**Error Decision Conditions**: Normal transmission does not continue for specified period.

**Supposed Causes**:
- Connection of 2 main remote controllers (when using 2 remote controllers)
- Defective indoor unit PCB
- Defective remote controller
- Signal transmission error caused by noise

**Troubleshooting**

![Flowchart]

---

**Caution**: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

**Note**: For the way to change MAIN/SUB setting of remote controllers, refer to pages 148 and 149.
5.9 Signal Transmission Error (Between MAIN Remote Controller and SUB Remote Controller)

Error Code  
U8

Method of Error Detection  
In case of controlling 1 indoor unit with 2 remote controllers, check the system using microcomputer if signal transmission between MAIN remote controller and SUB remote controller is normal.

Error Decision Conditions  
Normal transmission does not continue for specified period.

Supposed Causes  
- Remote controller is set to SUB when using 1 remote controller
- Connection of 2 sub remote controllers (when using 2 remote controllers)
- Defective remote controller PCB

Troubleshooting  
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Caution

Using 2 remote controllers for 1 indoor unit?  

NO

Set the remote controller to MAIN; turn the power supply off and then back on.

YES

Is the remote controller set to MAIN?  

NO

Turn the power off and then back on. If a malfunction occurs, replace the remote controller.

YES

Are both remote controllers set to SUB?  

NO

Turn the power off and then back on. If a malfunction occurs, replace the remote controller.

YES

(R24058)

Note:  
For the way to change MAIN/SUB setting of remote controllers, refer to pages 148 and 149.
5.10 Mismatching of Indoor Unit and Outdoor Unit

<table>
<thead>
<tr>
<th>Error Code</th>
<th>UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error Decision Conditions</td>
<td>Improper combination of indoor and outdoor units</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>Defective indoor unit PCB</td>
</tr>
<tr>
<td></td>
<td>Indoor-outdoor unit transmission wiring error</td>
</tr>
<tr>
<td></td>
<td>Defective optional unit(s) wirings</td>
</tr>
<tr>
<td></td>
<td>Improper power supply wiring of indoor unit</td>
</tr>
<tr>
<td></td>
<td>Improper wiring of connecting wires between indoor/outdoor units</td>
</tr>
</tbody>
</table>

Troubleshooting

Caution: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Is the combination of indoor/outdoor units correct? NO: Connect the indoor/outdoor units correctly. YES: Continue.
  - Do the service monitors of all the indoor units blink? Blink: Continue.
    - Are the wirings between indoor unit and outdoor unit correctly connected? NO: Connect the wirings correctly. YES: Continue.
      - Is the optional units power supply connected from the indoor unit terminal block No.1 and No.2? NO: Connect the wirings correctly. YES: Continue.
        - Is the voltage between No.1 and No.2 on the indoor unit terminal block 208 – 230 VAC? NO: Could be incorrect wiring. Check again. YES: Continue.
          - Does the system conduct normal operation? NO: Connect the wirings correctly. YES: Continue.
            - Are the wirings between indoor unit and outdoor unit correctly connected? NO: Connect the wirings correctly. YES: Replace the indoor unit PCB (control PCB). Normal

(R24059)
5.11 Check for FFQ Series
5.11.1 Indoor Fan Motor Connector Check

Check No.02  FFQ Series
1. Check the connection of connector.
2. Check motor power supply voltage output (pins 5 - 8).
3. Check motor control voltage (pins 5 - 4).
4. Check rotation command voltage output (pins 5 - 3).

X20A
8 → Motor power supply voltage (290 ~ 330 VDC)
7 → Unused
6 → Unused
5 → GND
4 → Motor control voltage (15 VDC)
3 → Rotation command voltage (0 ~ 5 VDC)
2 ← Rotation pulse input
1 → Unused

(R24373)
## 6. Troubleshooting for Branch Provider (BP) Unit

### 6.1 Electronic Expansion Valve Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>A9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method of Error Detection</strong></td>
<td>Detection by checking continuity and lack of connector</td>
</tr>
<tr>
<td><strong>Error Decision Conditions</strong></td>
<td>No voltage applied when turning the power supply on</td>
</tr>
</tbody>
</table>
| **Supposed Causes** | - Broken harness of electronic expansion valve coil  
- Incorrect connection of connectors for electronic expansion valve coil |

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Is malfunction regenerated?  
   - NO: Keep using. (Could be other causes than malfunction.)  
   - YES: Replace the electronic expansion valve coil.

2. Is the electronic expansion valve coil connected properly?  
   - NO: Correct the connection.  
   - YES: Replace the electronic expansion valve coil.

3. Is the resistance of the electronic expansion valve coil normal? (46 ± 4 Ω  
   20°C (68°F))  
   - NO: Replace the BP unit PCB.  
   - YES: Replace the electronic expansion valve coil.
6.2 Branch Provider (BP) Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Check data from EEPROM</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When data could not be correctly received from the EEPROM. EEPROM: Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.</td>
</tr>
</tbody>
</table>

**Supposed Causes**
- Defective BP unit PCB

**Troubleshooting**

![Flowchart]

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Turn off the power once and turn on again.
- Return to normal?
  - NO: Replace the BP unit PCB.
  - YES: Could be other causes than malfunction (for example, noise etc.).

(R22092)
6.3 Branch Provider (BP) Liquid or Gas Pipe Thermistor Abnormality

Error Code

**J0**

Method of Error Detection

Error Decision Conditions

When the BP liquid or gas pipe thermistor has short circuit or open circuit

Supposed Causes

- Defective BP liquid or gas pipe thermistor
- Incorrect connection of BP liquid or gas pipe thermistor

Troubleshooting

⚠️ **Caution**  
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Disconnect the thermistor connectors from the BP unit PCB and measure the resistance.

Is the resistance normal?

- **NO**  
  Replace the thermistor or the thermistor assembly.

- **YES**  
  Replace the BP unit PCB.

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
### 6.4 Signal transmission Error between Indoor Unit and Branch Provider (BP) Unit

<table>
<thead>
<tr>
<th>Error Code</th>
<th>U4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>The signal transmission data from the BP unit is checked whether it is normal.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the data sent from the BP unit cannot be received normally, or when the content of the data is abnormal.</td>
</tr>
</tbody>
</table>
| Supposed Causes | - Defective BP unit PCB  
- Defective indoor unit PCB  
- Signal transmission error due to wiring error  
- Signal transmission error due to disturbed power supply waveform  
- Signal transmission error due to breaking of connection wires (wire No. 2) |
Troubleshooting

**Caution**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

**Check No. 11**
Refer to P.225

Push and hold the RESET button on the outdoor unit PCB for 5 seconds.

Does the malfunction occur again?

- **NO**
  - Normal (Address Setting was not conducted)

  Check the indoor unit - BP unit connection wires.

  Is there any wiring error?

  - **YES**
    - Correct the indoor unit - BP unit connection wires.

  - **NO**
    - Continuously ON or OFF

    Is service monitor on the indoor unit PCB blinking?

    - **Blink**
      - Turn the power off and then on again.

    Is service monitor on the indoor unit PCB blinking?

    - **Blink**
      - Continuously ON or OFF

    Defective indoor unit PCB or malfunction of power supply system.

    Resets normally. Could be other causes than malfunction (for example, noise etc.).

    Check the HAP on the outdoor unit.

    Is HAP blinking?

    - **Continuously ON or OFF**

    - **Blink**
      - Turn the power off and then on again.

    Is HAP blinking?

    - **Continuously ON or OFF**

    Defective BP unit PCB or malfunction of power supply system.

    Could be other causes than malfunction (for example, noise etc.).

    Check the voltage of the indoor unit - BP unit connection wires between No. 1 and No. 2, and between No. 2 and No. 3.

    Is the voltage 0 V?

    - **YES**
      - Replace the connection wires between the indoor and BP units.

    - **NO**
      - Replace the indoor unit PCB.

Check **No. 11**
Check power supply waveform.

Is there any disturbance?

- **YES**
  - Locate the cause of the disturbance of the power supply waveform, and correct it.

(R24603)
6.5 Transmission Error between Outdoor Unit and Branch Provider (BP) Unit

Error Code: UJ

Method of Error Detection: Transmission error is detected when the outdoor unit could not received the data from BP unit correctly.

Error Decision Conditions: When the data from BP unit could not be correctly received continuously for 10 minutes

Supposed Causes:
- Incorrect connection of transmission wire
- Faulty outdoor unit power supply
- Defective BP unit PCB
- Defective outdoor unit PCB
- Distortion of power supply waveform

Troubleshooting:

Check No. 11
Refer to P.225

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Turn the power supply off.

Check the transmission wire between outdoor unit - BP unit

Normal?

NO

Check the transmission wire and the connection orders.

YES

Turn the power supply back on.

Is HAP on the outdoor unit PCB blinking?

Blink

NO

Continuous ON or OFF

Replace the main PCB (A1P) of the outdoor unit.

YES

Check the causes for deformation of power supply waveform and apply remedy required.

Is UJ displayed again?

YES

No disturbance?

NO

Replace the main PCB (A1P) of the outdoor unit.

YES

Probe the causes for deformation of power supply waveform and apply remedy required.

(R22094)
6.6 Check for Branch Provider (BP) Unit
6.6.1 Power Supply Waveforms Check

Check No.11

Measure the power supply waveform between the pins L1 and L2 on the terminal board, and check the waveform disturbance.

- Check if the power supply waveform is a sine wave (Fig.1).
- Check if there is waveform disturbance near the zero-cross (sections circled in Fig.2)

Fig.1

Fig.2
7. Troubleshooting for Outdoor Unit

7.1 Outdoor Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Check data from EEPROM</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When data could not be correctly received from the EEPROM. EEPROM: Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>■ Defective main PCB (A1P)</td>
</tr>
</tbody>
</table>

**Troubleshooting**

- **Caution**: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **Flowchart**:
  - Turn the power off and then on again.
  - Return to normal?
    - NO: Replace the main PCB (A1P).
    - YES: Could be other causes than malfunction (for example, noise etc.).

(R22095)
7.2 Actuation of High Pressure Switch

<table>
<thead>
<tr>
<th>Error Code</th>
<th>E3</th>
</tr>
</thead>
</table>

**Method of Error Detection**
Abnormality is detected when the contact of the high pressure switch opens.

**Error Decision Conditions**
When the high pressure switch activation count reaches the number specific to the operation mode (Reference)
- Operating pressure: 4.0 MPa (1338 ftAq)
- Reset pressure: 3.0 MPa (1004 ftAq)

**Supposed Causes**
- Actuation of high pressure switch
- Defective high pressure switch
- Defective outdoor unit PCB
- Instantaneous power failure
- Defective high pressure sensor
**Troubleshooting**

*Caution*
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check No.30
Refer to P.263

---

**Check for the points shown below.**
1. Is the stop valve open?
2. Is the high pressure switch connector properly connected to the main PCB (A1P)?
3. Does the high pressure switch have continuity?

---

**Are the three points above OK?**

**NO** → Rectify the defective points.

**YES** →

1. Mount a pressure gauge on the high pressure service port.
2. Reset the operation using the remote controller, and then restart the operation.

**Does the stop due to malfunction (E3) recur?**

**YES** →

Is the high pressure switch operating value normal (4.0 MPa (1338 ftAq))?**

**NO** → Replace the high pressure switch.

**YES** →

Are the characteristics of the high pressure sensor normal? (See +1.)

---

**Are the three points above OK?**

**NO** → Replace the high pressure sensor.

**YES** →

**Serve Checker**
Connect the service checker to compare the high pressure value and the actual measurement value by pressure sensor by using the service checker. (See +2)

---

**Are the high pressure value and the actual measurement value by pressure sensor the same?**

**NO** → Replace the main PCB (A1P).

**YES** →

- The high pressure sensor is normal, and the pressure detected with the PCB is also normal.
- The high pressure has really become high.

---

**Check No.30**
Remove the causes by which the high pressure has become high.

---

*1:* Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

*2:* Measure the voltage of the pressure sensor.

---

**Service Checker**
Connect the service checker to compare the high pressure value and the actual measurement value by pressure sensor by using the service checker. (See +2)

---

**Are the high pressure value and the actual measurement value by pressure sensor the same?**

**NO** → Replace the main PCB (A1P).

**YES** →

- The high pressure sensor is normal, and the pressure detected with the PCB is also normal.
- The high pressure has really become high.

---

**Check No.30**
Remove the causes by which the high pressure has become high.

---

*1:* Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

*2:* Measure the voltage of the pressure sensor.

---

**Service Checker**
Connect the service checker to compare the high pressure value and the actual measurement value by pressure sensor by using the service checker. (See +2)

---

**Are the high pressure value and the actual measurement value by pressure sensor the same?**

**NO** → Replace the main PCB (A1P).

**YES** →

- The high pressure sensor is normal, and the pressure detected with the PCB is also normal.
- The high pressure has really become high.

---

**Check No.30**
Remove the causes by which the high pressure has become high.

---

*1:* Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

*2:* Measure the voltage of the pressure sensor.
### 7.3 Actuation of Low Pressure Sensor

<table>
<thead>
<tr>
<th>Error Code</th>
<th>E4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Detection by the pressure value with the low pressure sensor</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the low pressure is dropped under specific pressure</td>
</tr>
<tr>
<td>Operating pressure: 0.07 MPa (23 ftAq)</td>
<td></td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>- Abnormal drop of low pressure (Lower than 0.07 MPa (23 ftAq))</td>
</tr>
<tr>
<td>- Defective low pressure sensor</td>
<td></td>
</tr>
<tr>
<td>- Defective outdoor unit PCB</td>
<td></td>
</tr>
<tr>
<td>- Stop valve not opened</td>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting

Check No. 31
Refer to P. 264

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Is the stop valve open?

NO

Open the stop valve.

YES

Are the characteristics of the low pressure sensor normal? (See *1.)

NO

Replace the low pressure sensor.

YES

Service Checker
Connect the service checker to compare the low pressure value and the actual measurement value by pressure sensor by using the service checker. (See *2)

Check if the low pressure value and the actual measurement value by pressure sensor are the same.

NO

Replace the main PCB (A1P).

YES

- The low pressure sensor is normal, and the pressure detected with the PCB is also normal.
- The low pressure has really become low.

*1: Compare the voltages of the pressure sensor and the pressure gauge.
(For the voltage of the pressure sensor, measure the voltage at the connector, and then convert it to pressure, referring to page 269.)

*2: Measure the voltage of the pressure sensor.

---

![Diagram of connections and measurements](image-url)
7.4 Compressor Motor Lock

Error Code: E5

Method of Error Detection
The position signal is taken from UVW line, and the malfunction is detected when any abnormality is observed in the phase-current waveform.

Error Decision Conditions
When the compressor motor does not start up even in forced startup mode

Supposed Causes
- Compressor lock
- High differential pressure (0.5 MPa (167 ftAq) or more)
- Incorrect UVW wiring
- Defective outdoor unit PCB
- Stop valve left closed

Troubleshooting

![Flowchart of troubleshooting for Compressor Motor Lock]

Caution:
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check the installation conditions.

Is the stop valve open?
- NO: Open the stop valve.
- YES: Proceed to the next step.

Are the UVW wirings normal?
- NO: Connect them correctly.
- YES: Proceed to the next step.

Is high differential pressure starting? (0.5 MPa (167 ftAq) or more)
- YES: Remedy the cause.
- NO: Proceed to the next step.

Check if the compressor is short circuited or grounded.
- Short circuited: Replace the compressor.
- Grounded: Replace the main PCB (A1P).

Are inverter output voltages the same for 3 phases?
- NO: Replace the main PCB (A1P).
- YES: Replace the compressor.

Does low or high pressure vary even instantaneously when restarting compressor?
- YES: Replace the main PCB (A1P).
- NO: Replace the compressor.
### 7.5 Outdoor Fan Motor Abnormality

**Error Code**

- **E7**

**Method of Error Detection**

The error is determined according to the fan speed detected by Hall IC when the fan motor runs.

**Error Decision Conditions**

- When the fan runs with speed less than a specified one for 6 seconds or more when the fan motor running conditions are met
- When the error is generated 4 times, the system shuts down.
- Clearing condition: Operate for 5 minutes (normal)

**Supposed Causes**

- Defective fan motor
- Disconnection of connector
- Fan does not rotate due to tangled foreign matters

**Troubleshooting**

**Check No.32**

Refer to P.265

**Note:** Refer to page 175 for details about monitor mode.

---

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Outdoor unit has 2 fan motors. Identify the defective one (M1F or M2F) in monitor mode. (Refer to Note)

- **Turn off the power and wait for 10 minutes.**

- **Is the connector of the fan motor disconnected?**
  - **YES** → Connect the connector.
  - **NO**

- **Is there any obstacle around the outdoor fan?**
  - **YES** → Remove the obstacle.
  - **NO**

- **Can the outdoor fan be turned smoothly by hand after disconnecting the connector?**
  - **NO** → Replace the fan motor.
  - **YES**

**Check No.32**

Check the resistance of fan motor connector.

- **Are the resistances between pins above judgment?**
  - **NO** → Replace the fan motor.
  - **YES**

---

**Caution:**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **Turn off the power and wait for 10 minutes.**

- **Is the connector of the fan motor disconnected?**
  - **YES** → Connect the connector.
  - **NO**

- **Is there any obstacle around the outdoor fan?**
  - **YES** → Remove the obstacle.
  - **NO**

- **Can the outdoor fan be turned smoothly by hand after disconnecting the connector?**
  - **NO** → Replace the fan motor.
  - **YES**

**Check No.32**

Check the resistance of fan motor connector.

- **Are the resistances between pins above judgment?**
  - **NO** → Replace the fan motor.
  - **YES**

---

(R23966)
### 7.6 Moving Part of Electronic Expansion Valve (Y1E, Y3E) Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>E9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>System checks if the connector is disconnected, and the detection is based on the continuity of electronic expansion valve coil.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>No current is detected in the common (COM +) when power supply is ON.</td>
</tr>
</tbody>
</table>
| Supposed Causes  | 1. Disconnection of connectors for electronic expansion valve Y1E or Y3E  
2. Defective moving part of electronic expansion valve  
3. Defective main PCB (A1P) |
Troubleshooting

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Make measurement of resistance between the connector pins, and then make sure the resistance falls in the range of 40 to 50 Ω.

2. Ensure correct connection.

3. Return to normal?

   *YES*

4. Could be other causes than malfunction (for example, noise etc.).

5. Identify the defective electronic expansion valve (Y1E or Y3E) in monitor mode. (Refer to Note)

6. The connector of main PCB (A1P) for electronic expansion valve is connected.

   *YES*

7. The coil resistance of electronic expansion valve is normal. (Refer to *1.)*

   *YES*

8. Replace the connecting cable.

   *NO*

9. Replace the main PCB (A1P).

   *YES*

10. The connector of main PCB (A1P) for electronic expansion valve is connected.

    *NO*

11. Ensure correct connection.

**Note:** Refer to page 175 for details about monitor mode.
7.7 Discharge Pipe Temperature Abnormality

Error Code F3

Method of Error Detection
The temperature detected by the discharge pipe thermistor determines the error.

Error Decision Conditions
- When the discharge pipe temperature rises to an abnormally high level (135 °C (275°F) and above)
- When the discharge pipe temperature rises suddenly (120 °C (248°F) and above for 10 successive minutes)

Supposed Causes
- Defective discharge pipe thermistor
- Disconnection of discharge pipe thermistor (R2T)
- Defective main PCB (A1P)

Troubleshooting

Check No.33 Refer to P.266

！Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Discharge pipe thermistor is normal and the temperature detection of the main PCB (A1P) is also normal.
- Actually the temperature of discharge pipe is high.

Check No.33 Remove the factor of overheat operation.

*1: Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.
*2: Compare the resistance value of discharge pipe thermistor and the value based on the surface thermometer.
7.8 Refrigerant Overcharged

Error Code: F6

Method of Error Detection
Excessive charging of refrigerant is detected during check operation by using outdoor temperature, outdoor heat exchanger temperature, and liquid pipe temperature.

Error Decision Conditions
When the amount of refrigerant, which is calculated during check operation by using outdoor temperature, outdoor heat exchanger temperature, and liquid pipe temperature, exceeds the standard.

Supposed Causes
- Refrigerant overcharge
- Incorrect installation of outdoor temperature thermistor, outdoor heat exchanger thermistor, liquid pipe thermistor (R1T, R4T, R7T)
- Defective outdoor temperature thermistor, outdoor heat exchanger thermistor, liquid pipe thermistor (R1T, R4T, R7T)

Troubleshooting

![Decision Tree](image)

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
7.9 Outdoor Temperature Thermistor (R1T) Abnormality

**Error Code**

H9

**Method of Error Detection**

The temperature detected by the outdoor temperature thermistor determines the error.

**Error Decision Conditions**

When the outdoor temperature thermistor has short circuit or open circuit

**Supposed Causes**

- Disconnection of thermistor
- Defective outdoor temperature thermistor (R1T)
- Defective main PCB (A1P)

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. Is the thermistor connected to X11A on the main PCB (A1P)?
   - NO: Connect the thermistor and turn on again.
   - YES: Is the resistance normal when measured after disconnecting the thermistor (R1T)?
     - NO: Replace the outdoor temperature thermistor (R1T).
     - YES: Replace the main PCB (A1P).

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
7.10 Discharge Pipe Thermistor (R2T) Abnormality

**Error Code**: J3

**Method of Error Detection**: The temperature detected by discharge pipe thermistor determines the error.

**Error Decision Conditions**: When a short circuit or an open circuit in the discharge pipe thermistor is detected

**Supposed Causes**:
- Disconnection of thermistor
- Defective discharge pipe thermistor (R2T)
- Defective main PCB (A1P)

**Troubleshooting**

![Flowchart]

- **Caution**: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **Troubleshooting**:
  - Is the thermistor ASSY connected to X12A on the main PCB (A1P)?
    - **NO**: Connect the thermistor and turn on again.
    - **YES**: Is the resistance normal when measured after disconnecting the thermistor (R2T)? (5.0 kΩ – 640 kΩ)
      - **NO**: Replace the discharge pipe thermistor (R2T).
      - **YES**: Replace the main PCB (A1P).

- **Refer to** Thermistor Resistance/Temperature Characteristics table 2 on page 268.
7.11 Suction Pipe Thermistor (R3T, R5T) Abnormality

Error Code

J5

Method of Error Detection

The temperature detected by the suction pipe thermistor determines the error.

Error Decision Conditions

When a short circuit or an open circuit in the suction pipe thermistor is detected

Supposed Causes

- Disconnection of thermistor
- Defective suction pipe thermistor (R3T, R5T)
- Defective main PCB (A1P)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

Refer to page 175 for details about monitor mode.
7.12 Outdoor Heat Exchanger Thermistor (R4T) Abnormality

**Error Code**

J6

**Method of Error Detection**

The temperature detected by the outdoor heat exchanger thermistor determines the error.

**Error Decision Conditions**

When a short circuit or an open circuit in the outdoor heat exchanger thermistor is detected

**Supposed Causes**

- Disconnection of thermistor
- Defective outdoor heat exchanger thermistor (R4T)
- Defective main PCB (A1P)

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Flowchart]

1. Is the thermistor ASSY connected to X12A on the main PCB (A1P)?
   - NO: Connect the thermistor and turn on again.
   - YES: Proceed to the next step.

2. Is the resistance normal when measured after disconnecting the thermistor (R4T)? (3.5 kΩ~ 360 kΩ)
   - NO: Replace the outdoor heat exchanger thermistor (R4T).
   - YES: Replace the main PCB (A1P).

(R13028)

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
7.13 Outdoor Liquid Pipe Thermistor (R7T) Abnormality

Error Code: J7

Method of Error Detection: The temperature detected by the outdoor liquid pipe thermistor determines the error.

Error Decision Conditions: When a short circuit or an open circuit in the outdoor liquid pipe thermistor is detected

Supposed Causes:
- Disconnection of thermistor
- Defective outdoor liquid pipe thermistor (R7T)
- Defective main PCB (A1P)

Troubleshooting:

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

caution

Connect the thermistor and turn on again.

YES

NO

Is the resistance normal when measured after disconnecting the thermistor (R7T)?

(3.5 kΩ ~ 360 kΩ)

YES

Replace the main PCB (A1P).

NO

Replace the outdoor liquid pipe thermistor (R7T).

NO

Connect the thermistor and turn on again.

YES

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
7.14 Subcooling Heat Exchanger Gas Pipe Thermistor (R6T) Abnormality

Error Code

J9

Method of Error Detection

The temperature detected by subcooling heat exchanger gas pipe thermistor determines the error.

Error Decision Conditions

When the subcooling heat exchanger gas pipe thermistor is short circuited or open

Supposed Causes

- Disconnection of thermistor
- Defective subcooling heat exchanger gas pipe thermistor (R6T)
- Defective main PCB (A1P)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Is the thermistor ASSY is connected to X13A on the main PCB (A1P)?

NO

Connect the thermistor and turn on again.

YES

Is the resistance is normal when measured after disconnecting the thermistor (R6T)? (3.5 kΩ – 360 kΩ)

NO

Replace the subcooling heat exchanger gas pipe thermistor (R6T).

YES

Replace the main PCB (A1P).

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.
7.15 High Pressure Sensor Abnormality

Error Code: JA

Method of Error Detection
The pressure detected by high pressure sensor determines the error.

Error Decision Conditions
When the high pressure sensor is short circuit or open circuit.

Supposed Causes
- Defective high pressure sensor
- Wrong connection with low pressure sensor
- Defective main PCB (A1P)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the high pressure sensor connected to X17A (red) on the main PCB (A1P)?</td>
<td>Connect the high pressure sensor and turn on again.</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Is the voltage normal when measured between the pins 1 and 3 of X17A? (See *1)</td>
<td>Replace the high pressure sensor.</td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Replace the main PCB (A1P).</td>
<td></td>
</tr>
</tbody>
</table>

*1: Voltage measurement point

For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.
7.16 Low Pressure Sensor Abnormality

Error Code: JC

Method of Error Detection
The pressure detected by low pressure sensor determines the error.

Error Decision Conditions
When the low pressure sensor is short circuit or open circuit

Supposed Causes
- Defective low pressure sensor
- Wrong connection with high pressure sensor
- Defective main PCB (A1P)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

*1: Voltage measurement point

For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.
7.17 Outdoor Unit PCB Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>L1</th>
</tr>
</thead>
</table>

Method of Error Detection
- The error is detected based on the current value during waveform output before starting compressor.
- The error is detected based on the value from current sensor during synchronous operation when starting the unit.

Error Decision Conditions
- Overcurrent (OCP) flows during waveform output.
- Malfunction of current sensor during synchronous operation
- IPM failure

Supposed Causes
- Defective main PCB (A1P)
  - IPM failure
  - Current sensor failure
  - Failure of IGBT or drive circuit

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Turn the power off and then on again.

Return to normal?
- NO: Replace the main PCB (A1P).
- YES: Could be other causes than malfunction (for example, noise etc.).

(R22095)
### 7.18 Radiation Fin Temperature Rise

#### Error Code

**L4**

#### Method of Error Detection

Fin temperature is detected by the thermistor of the radiation fin.

#### Error Decision Conditions

When the radiation fin temperature increases above 83°C (181.4°F)

#### Supposed Causes

- Defective main PCB (A1P)
- Defective radiation fin thermistor (FINTH)

#### Troubleshooting

**Caution**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. The radiation fin temperature exceeds 83°C (181.4°F)?
   - **YES**: Faulty radiation from the power unit
     - Blocked air suction port
     - Stained radiation fin
     - High outdoor temperature
   - **NO**: Continue operation.

2. Turn OFF the power supply, and then make measurement of resistance of the radiation fin thermistor.
   - **NO**: Replace the radiation fin thermistor.
   - **YES**: Is the thermistor resistance normal?
     - **NO**: Replace the main PCB (A1P).
     - **YES**: Disconnect the connector X111A and then properly connect it.

3. Does the malfunction recur when the power supply turns ON to start the compressor?
   - **NO**: Continue operation.
     - **YES**: It is supposed that the radiation fin temperature became high due to some field factors. In this connection, check the following points:
       - Stained radiation fin
       - Airflow obstructed with dirt or foreign matters
       - Damage to fan impellers
       - Too high outdoor temperature

Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.
7.19 Inverter Compressor Abnormality

Error Code: L5

Method of Error Detection: The error is detected from current flowing in the power transistor.

Error Decision Conditions: When an excessive current flows in the power transistor (Instantaneous overcurrent also causes activation.)

Supposed Causes:
- Defective compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defective main PCB (A1P)

Troubleshooting:

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Note: Higher voltage than actual is displayed when the inverter output voltage is checked by multimeter.
7.20 Inverter Current Abnormality

**Error Code**  
**L8**

**Method of Error Detection**  
The error is detected by current flowing in the power transistor.

**Error Decision Conditions**  
When overload in the compressor is detected. (Inverter secondary current 16.1 A)
1. 19.0 A and over continues for 5 seconds.
2. 16.1 A and over continues for 260 seconds.

**Supposed Causes**
- Compressor overload
- Compressor coil disconnected
- Defective main PCB (A1P)

---

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

---

![Troubleshooting Diagram]

- **Is the secondary current of the inverter higher than 16.1 A, 260 sec. for each phase?**
  - YES  
  - Compressor overload. Inspect the compressor and refrigerant system.
  - NO

- **Is the compressor's coil disconnected?**
  - YES  
  - Replace the compressor.
  - NO

- Disconnect the connection between the compressor and the main PCB. Turn the power transistor check mode setting ON in setting mode 2.

- **Is the inverter output voltage balanced?** (Normal if within ±5 V. Must be measured when frequency is stable.)
  - NO  
  - Replace the main PCB (A1P).
  - YES

- **After turning on again, L8 blinks again.**
  - YES  
  - Inspect the compressor according to the diagnosis procedure for odd noises, vibration and operating status of the compressor.
  - NO  
  - Reset and restart.
7.21 Compressor Start-up Error

**Error Code**

L9

**Method of Error Detection**

The error is detected from current flowing in the power transistor.

**Error Decision Conditions**

Starting control of the compressor does not complete.

**Supposed Causes**

- Defective compressor
- Large pressure difference before starting the compressor
- Defective main PCB (A1P)

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. The difference between high and low pressure when starting is above 0.2 MPa (67 ftAq).
   - NO: Unsatisfactory pressure equalization. Check refrigerant system.
   - YES: Disconnect the connection between the compressor and the main PCB. Turn the power transistor check mode setting ON in setting mode 2.

2. Is the inverter output voltage balanced? (Normal if within ±5 V. Must be measured when frequency is stable.)
   - NO: Replace the main PCB (A1P).
   - YES: After turning on again, L9 blinks again.

3. NO: Reset and restart.
   - YES: Inspect the compressor according to the diagnosis procedure for odd noises, vibration and operating status of the compressor.

(R22103)
### 7.22 High Voltage of Capacitor in Main Inverter Circuit

<table>
<thead>
<tr>
<th>Error Code</th>
<th>P1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Method of Error Detection</th>
<th>The error is detected according to the voltage waveform of main circuit capacitor built in the inverter.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error Decision Conditions</td>
<td>When the voltage waveform becomes identical with the waveform of the power supply open phase</td>
</tr>
</tbody>
</table>
| Supposed Causes | ■ Defective main circuit capacitor  
■ Improper main circuit wiring  
■ Defective main PCB (A1P) |

#### Troubleshooting

**Caution**
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Check for the connection of the main circuit capacitor C4.

Is the capacitor C4 properly connected?

- **NO**
  - Connect the capacitor C4.
- **YES**
  - Replace the main PCB (A1P). (R23971)
7.23 Radiation Fin Thermistor Abnormality

Error Code | P4
---|---

Method of Error Detection
Resistance of radiation fin thermistor is detected when the compressor is not operating.

Error Decision Conditions
When the resistance value of thermistor becomes a value equivalent to open or short circuited status
★ Malfunction is not decided while the unit operation is continued.
P4 is displayed by pressing the inspection button.

Supposed Causes
- Defective radiation fin thermistor (FINTH)
- Defective main PCB (A1P)

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Caution

Power OFF

- Is the resistance of the radiation fin thermistor normal?
  - Yes: Disconnect the lead wires from the compressor, and then check the compressor for the insulation resistance.
  - No: Replace the radiation fin thermistor.

Power ON

- Turn ON the power supply, and then check whether or not the malfunction recurs.
  - No: Completed.
  - Yes: Replace the main PCB (A1P).

Refer to Thermistor Resistance/Temperature Characteristics table 2 on page 268.
### 7.24 Low Pressure Drop due to Refrigerant Shortage or Electronic Expansion Valve Abnormality

<table>
<thead>
<tr>
<th>Error Code</th>
<th>U0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method of Error Detection</strong></td>
<td>Refrigerant shortage is detected by discharge pipe thermistor and low pressure saturation temperature.</td>
</tr>
<tr>
<td><strong>Error Decision Conditions</strong></td>
<td>Microcomputer judge and detect if the system is short of refrigerant. ★The error is not decided while the operation continues.</td>
</tr>
</tbody>
</table>
| **Supposed Causes** | - Refrigerant shortage or refrigerant system clogging (incorrect piping)  
- Defective low pressure sensor  
- Defective main PCB (A1P)  
- Defective thermistor (R3T) |
Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

<table>
<thead>
<tr>
<th>Cooling?</th>
<th>YES</th>
<th>Low pressure is 0.25 MPa (84 ftAq) or less?</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>The voltage between the pins 2 and 3 of X18A is 1.0 VDC or less? (Low pressure sensor output voltage)</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Replace the low pressure sensor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Refrigerant shortage or refrigerant system is clogged. Check the refrigerant system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Refrigerant shortage, closed stop valve or refrigerant system is clogged. Check the refrigerant system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Replace the defective thermistor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>Replace the low pressure sensor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Replace the main PCB (A1P).</td>
<td></td>
</tr>
</tbody>
</table>

*1: Voltage measurement point

Refer to Thermistor Resistance/Temperature Characteristics table 1 on page 267.

For pressure/voltage characteristics graph, refer to Pressure Sensor on page 269.
7.25 Power Supply Insufficient or Instantaneous Failure

Error Code U2

Method of Error Detection
Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.

Error Decision Conditions
When the abnormal voltage of main circuit capacitor built in the inverter and abnormal power supply voltage are detected

Supposed Causes
- Power supply insufficient
- Instantaneous power failure
- Defective outdoor fan motor
- Defective main PCB (A1P)

Troubleshooting

Check No.32 Refer to P.265

- Is the power supply voltage 200 ~ 240V ±10%? NO Correct the power supply.
- Is the P - N resistance not less than several hundred of ohms? NO Field factors
- Check No.32 Is the resistance between each pin of the fan motor above standard value? NO Replace the fan motor.
- When the compressor is running, measure the voltage between + and – of electrolytic capacitor (C+, C–).
- Is the measured voltage 220 ~ 240 VDC or more? YES
  - NO Replace the main PCB (A1P).
  - YES Monitor the voltage (Instantaneous voltage drop)

Caution
Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.
## 7.26 Check Operation is not Conducted

<table>
<thead>
<tr>
<th>Error Code</th>
<th>U3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Check operation is executed or not</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When the unit starts operation without check operation</td>
</tr>
<tr>
<td>Supposed Causes</td>
<td>Check operation is not executed.</td>
</tr>
</tbody>
</table>

### Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Decision Tree](image)

- **NO**
  - Press and hold BS4 on the service PCB (A2P) for 5 seconds or more, or turn ON the local setting mode 2-3 to conduct a check operation.
  - Performs the check operation again and completes the check operation.
- **YES**
  - When a leakage detection function is needed, normal operation of charging refrigerant must be completed. Start once again and complete a check operation.

(R13045)
7.27 Signal Transmission Error between Indoor Unit and Outdoor Unit in the Same System

Error Code

**U9**

Method of Error Detection

Error Decision Conditions

Supposed Causes
- Signal transmission error within system
- Defective electronic expansion valve in indoor unit of other system
- Defective indoor unit PCB in other system
- Improper connection of transmission wiring between indoor and outdoor unit

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- **U9** has been displayed for 2 minutes or more?
  - **YES**: Re-diagnose by display after passage of 2 minutes or more.
  - **NO**: Turn on all indoor units.

- **UA** blinks on the other remote controllers within the same system?
  - **YES**: Refer to troubleshooting for **UA** error code.
  - **NO**: **A1** blinks on the other remote controllers within the same system?
    - **YES**: Refer to troubleshooting for **A1** error code.
    - **NO**: **A9** blinks on the other remote controllers within the same system?
      - **YES**: Refer to troubleshooting for **A9** error code.
      - **NO**: **U4** blinks on the other remote controllers within the same system?
        - **YES**: Refer to troubleshooting for **U4** error code.
        - **NO**: Refer to troubleshooting for **U5** error code.
7.28 Excessive Number of Indoor Units

Error Code

UA

Method of Error Detection

- A difference occurs in data by the type of refrigerant between indoor and outdoor units.
- The number of indoor units is out of the allowable range.
- Incorrect signals are transmitted among the indoor unit, BP unit, and outdoor unit.

Error Decision Conditions

The malfunction decision is made as soon as either of the abnormalities is detected.

Supposed Causes

- Excess of connected indoor units
- Defective main PCB (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor unit PCB was not conducted after replacing to spare parts PCB.

Troubleshooting

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Troubleshooting Diagram]

- Push and hold the RESET button (BS5) on the service PCB (A2P) for 5 seconds.
- Does a malfunction occur?
  - NO: Normal
  - YES: Does the refrigerant type of indoor and outdoor unit match?
    - NO: Match the refrigerant type of indoor and outdoor unit.
    - YES: Replace the main PCB (A1P).
7.29 Address Duplication of Central Remote Controller

<table>
<thead>
<tr>
<th>Error Code</th>
<th>UC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>The principal indoor unit detects the same address as that of its own on any other indoor unit.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>The malfunction decision is made as soon as the abnormality is detected.</td>
</tr>
</tbody>
</table>
| Supposed Causes | - Address duplication of centralized remote controller  
- Defective indoor unit PCB |

Troubleshooting

⚠️ Caution: Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

Centralized address is duplicated?  
YES: Change the setting so that the centralized address is not be duplicated.  
NO: Replace the defective indoor unit PCB (control PCB).
### 7.30 Transmission Error between Centralized Remote Controller and Indoor Unit

<table>
<thead>
<tr>
<th>Error Code</th>
<th>UE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Error Detection</td>
<td>Microcomputer checks if transmission between indoor unit and centralized remote controller is normal.</td>
</tr>
<tr>
<td>Error Decision Conditions</td>
<td>When transmission is not carried out normally for a certain amount of time</td>
</tr>
</tbody>
</table>
| Supposed Causes | - Transmission error between optional controllers for centralized control and indoor unit  
- Connector for setting master controller is disconnected.  
- Defective PCB of centralized remote controller  
- Defective indoor unit PCB |
Troubleshooting

Caution

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

- Has an indoor unit once connected been remove or its address changed? NO
  YES
  Reset power supply simultaneously for all optional controllers for centralized control.

- Is the power supply turned on for indoor units displaying malfunction? NO
  YES
  Turn indoor unit's power supply.

- Is the transmission wiring disconnected or wired incorrectly? NO
  YES
  Fix the wiring correctly.

- Is the transmission with all indoor units malfunctioning? NO
  YES
  Replace the indoor unit PCB (control PCB).

- Is the transmission wiring with the master controller disconnected or wired incorrectly? NO
  YES
  Fix the wiring correctly.

- Is the master controller's connector for setting master controller disconnected? NO
  YES
  Connect the connector correctly.

(R22253)

Set the group No. of malfunctioning indoor units set?
7.31 System is not Set yet

Error Code **UF**

Method of Error Detection
On check operation, the number of indoor units in terms of transmission is not corresponding to that of indoor units that have made changes in temperature.

Error Decision Conditions
The malfunction is determined as soon as the abnormality aforementioned is detected through checking the system for any erroneous connection of units on the check operation.

Supposed Causes
- Improper connection of transmission wiring between indoor unit - outdoor unit
- Failure to execute check operation
- Defective indoor unit PCB
- Stop valve is left closed

Troubleshooting

**Caution:** Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

![Flowchart Diagram]

- **Are the stop valves opened?**
  - NO: Open the stop valve(s).
  - YES:
    - **Is the check operation carried out?**
      - NO: After fixing incorrect wiring, push and hold the RESET button (BS5) on the service PCB (A2P) for 5 seconds. The unit does not run for up to 12 minutes.
      - YES:
        - **Is the transmission wiring normal?**
          - NO: After fixing incorrect wiring, push and hold the RESET button (BS5) on the service PCB (A2P) for 5 seconds. The unit does not run for up to 12 minutes.
          - YES: Wiring check operation may not have been carried out successfully.
    - YES: Replace the indoor unit PCB (control PCB).

**Note:** Wiring check operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.
7.32 System Abnormality, Refrigerant System Address Undefined

**Error Code**

UH

**Method of Error Detection**

The system detects an indoor unit to which auto address has not been assigned.

**Error Decision Conditions**

The malfunction decision is made as soon as the abnormality is detected.

**Supposed Causes**

- Improper connection of transmission wiring between indoor and outdoor unit
- Defective indoor unit PCB
- Defective main PCB (A1P)

**Troubleshooting**

Be sure to turn off the power switch before connecting or disconnecting connectors, or parts may be damaged.

1. After fixing incorrect wiring, push and hold the RESET button (BS5) on the service PCB (A2P) for 5 seconds.

2. If the unit does not run for up to 12 minutes, then:
   - **YES**: Normal
   - **NO**: After fixing incorrect wiring, push and hold the RESET button on the outdoor unit PCB for 5 seconds. The unit does not run for up to 12 minutes.

3. Is the indoor unit - outdoor unit transmission wiring normal?
   - **YES**: After fixing incorrect wiring, push and hold the RESET button (BS5) on the service PCB (A2P) for 5 seconds.
   - **NO**: Does a malfunction occur?
     - **YES**: Replace the indoor unit PCB (control PCB).
     - **NO**: Replace the main PCB (A1P).

(R22254)
### 7.33 Check for Outdoor Unit

#### 7.33.1 Check for Causes of Rise in High Pressure

**Check No.30**

Referring to the Fault Tree Analysis (FTA) shown below, probe the faulty points.

- **Rise in high pressure**
  - Local pressure rise
  - High pipe resistance
  - If the outdoor unit electronic expansion valve is throttled: (See *1.*)
    - Faulty outdoor unit electronic expansion valve
      - A temperature difference in excess of 10°C (18°F) between the inlet and the outlet is deemed to be abnormal.
    - Faulty valve coil
    - Faulty valve body
  - Faulty high pressure control
    - Faulty control
  - Faulty high pressure sensor
    - Faulty control PCB
  - Check to be sure the stop valve is open.
  - Conduct visual checks for pipe conditions.
  - Is there any temperature difference caused before and after the filter or branch pipe?
  - Are the coil resistance and insulation normal?
  - Are the electrical characteristics normal?
  - Is the pressure value checked with the Service Checker corresponding to the measurement of the pressure sensor?

- **In cooling**
  - High suction air temperature of outdoor unit
  - High ambient temperature
  - Short-circuit
  - High suction air temperature of indoor unit
  - High ambient temperature
  - Short-circuit
  - Faulty suction air thermistor of indoor unit
  - Faulty outdoor temperature thermistor of outdoor unit
  - Is the suction air temperature not more than 46°C (114.8°F)?
  - Is the outdoor temperature not more than 46°C (114.8°F)?
  - Is the suction air temperature not more than 27°C (80.6°F)?
  - Is the indoor temperature not more than 27°C (80.6°F)?
  - Is the connector properly connected?
  - Are the thermistor resistance characteristics normal?
  - Is there any obstacle in the air passage?

- **In heating**
  - High suction air temperature of outdoor unit
  - High suction air temperature of indoor unit
  - Faulty suction air thermistor of indoor unit
  - Dirty condenser
  - Mixing of non-condensable gas
  - Decreased fan airflow rate
  - Faulty fan motor
  - Decreased fan output
  - Faulty control PCB (including capacity setting)
  - High air passage resistance
  - Dirty filter
  - Obstacle
  - Excessive refrigerant charging
  - Improper model selection

*1: In cooling, it is normal if the outdoor unit electronic expansion valve (Y1E) is fully open.
7.33.2 Check for Causes of Drop in Low Pressure

Referring to the Fault Tree Analysis (FTA) shown below, probe the faulty points.

**Check No.31**

<table>
<thead>
<tr>
<th>Faulty low pressure capacity control</th>
<th>Faulty low pressure sensor</th>
<th>Faulty control PCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faulty low pressure protection control</td>
<td>Faulty pressure sensor</td>
<td>Faulty control PCB</td>
</tr>
<tr>
<td>Faulty electronic expansion valve control</td>
<td>Faulty valve coil</td>
<td>Faulty valve body</td>
</tr>
<tr>
<td>Faulty control</td>
<td>Faulty low pressure sensor</td>
<td>Faulty suction pipe thermistor</td>
</tr>
<tr>
<td>Faulty control PCB</td>
<td>Are the electrical characteristics normal?</td>
<td>Are the electrical characteristics normal?</td>
</tr>
<tr>
<td>Are the electrical characteristics normal?</td>
<td>Is the pressure value checked with the Service Checker corresponding to the measurement of the pressure sensor?</td>
<td>Is the pressure value checked with the Service Checker corresponding to the measurement of the pressure sensor?</td>
</tr>
<tr>
<td>Are the coil resistance and insulation normal?</td>
<td>Are the coil resistance and insulation normal?</td>
<td>Are the coil resistance and insulation normal?</td>
</tr>
<tr>
<td>Check for the thermistor resistance and connection.</td>
<td>Are the coil resistance and insulation normal?</td>
<td>Are the coil resistance and insulation normal?</td>
</tr>
</tbody>
</table>

In both cooling and heating (See *2.*):

- **Faulty low pressure protection control**
- **Faulty electronic expansion valve control**
- **Faulty outdoor unit electronic expansion valve**
- **Faulty control**

**In cooling**

- Low suction air temperature of indoor unit
- Short-circuit
- Is the suction air temperature not less than 14°C (57.2°F)

- Low ambient temperature
- Is the indoor temperature not less than 14°C (57.2°F)

- Low suction air temperature of outdoor unit
- Is the outdoor temperature not less than –15°C (5°F)

- Faulty outdoor temperature thermistor of outdoor unit
- Are the electrical characteristics normal?

- Abnormal piping length
- Bent or crashed pipe
- Clogging of foreign particles
- Stop valve closed
- Check to be sure the stop valve is open.

- **Faulty electronic expansion valve control**
- **Faulty outdoor unit electronic expansion valve**
- **Faulty control**

**In heating**

- Low suction air temperature of the evaporator
- High pipe resistance

- Inadequate refrigerant quantity
- Moisture refrigerant quantity

- Dirty evaporator
- Degradation in condensing capacity

- Decreased fan airflow rate
- Decreased fan output
- High air passage resistance

- Dirty filter
- Obstacle

- **Faulty fan motor**
- **Faulty control PCB** (including capacity setting)

- Can the fan motor be rotated with hands?
- Are the motor coil resistance and insulation normal?

- If a spare PCB is mounted, is the capacity setting properly made?

- Is the air filter clogged?

- Is there any obstacle in the air passage?

---

*1: For details of the compressor capacity control while in cooling, refer to Compressor PI Control.
*2: The Low Pressure Protection Control includes low pressure protection control and hot gas bypass control.
*3: In heating, the outdoor unit electronic expansion valve (Y1E) is used for superheated degree control of outdoor unit heat exchanger. (For details, refer to Electronic Expansion Valve PI Control.)
7.33.3 Outdoor Fan Motor Connector Check

Check No. 32

(1) Turn the power supply off.
(2) With the fan motor connector disconnected, measure the resistance between each pin, then make sure that the resistance is more than the value mentioned in the following table.

<table>
<thead>
<tr>
<th>Measurement point</th>
<th>Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>1 MΩ or more</td>
</tr>
<tr>
<td>2 - 4</td>
<td>100 kΩ or more</td>
</tr>
<tr>
<td>3 - 4</td>
<td>100 Ω or more</td>
</tr>
<tr>
<td>4 - 7</td>
<td>100 kΩ or more</td>
</tr>
</tbody>
</table>

![Diagram of X106A, X107A (M1F, M2F) with pin connections and resistance values listed in the table.]
### 7.33.4 Check for the Factors of Overheat Operation

Check No. 33

Identify the defective points referring to the failure factor analysis (FTA) as follows.

*1: Refer to Low Pressure Protection Control for hot gas bypass control.
*2: Refer to Electronic Expansion Valve PI Control for subcooling electronic expansion valve control.
*3: Superheating temperature control in heating operation is conducted by outdoor unit electronic expansion valve.

- Compressor overheat
- Superheat due to shaft damage
- Superheat due to defective compressor
- Refrigerant gas shortage
- Faulty discharge pipe temperature control
- Faulty of 4 way switch valve operation
- Faulty superheated degree control.
- In cooling mode only
- Faulty subcooling electronic expansion valve control (Y3E)
- Hot gas circuit clogging
- Defective solenoid valve coil
- Defective solenoid valve body
- Defective control PCB
- Condenser motor operated valve failure
- Subcooling motor operated valve failure
- Defective valve coil
- Defective valve body
- Defective control PCB
- Defective low pressure sensor
- Defective subcooling heat exchanger outlet thermistor
- Defective control PCB
- Defective control PCB
- Defective low pressure sensor
- Defective thermistor for suction pipe
- Defective control PCB
- Defective solenoid valve coil
- Defective solenoid valve body
- Defective control PCB
- Faulty of 4 way switch valve operation
- Leak from hot gas bypass valve
- 4 way switch valve is in the middle position.
- Temperature increase of discharge pipe
- Refrigerant gas shortage
- Irregular piping length
- Bend/collapse
- (Including moisture choke)
- Stop valve is closed.
- Compressor overheat
- Superheat due to shaft damage
- Superheat due to defective compressor
- Refrigerant gas shortage
- Faulty discharge pipe temperature control
- Faulty of 4 way switch valve operation
- Faulty superheated degree control.
- In cooling mode only
- Faulty subcooling electronic expansion valve control (Y3E)
- Hot gas circuit clogging
- Defective solenoid valve coil
- Defective solenoid valve body
- Defective control PCB
- Condenser motor operated valve failure
- Subcooling motor operated valve failure
- Defective valve coil
- Defective valve body
- Defective control PCB
- Defective low pressure sensor
- Defective subcooling heat exchanger outlet thermistor
- Defective control PCB
- Defective control PCB
- Defective low pressure sensor
- Defective thermistor for suction pipe
- Defective control PCB
- Defective solenoid valve coil
- Defective solenoid valve body
- Defective control PCB
- Faulty of 4 way switch valve operation
- Leak from hot gas bypass valve
- 4 way switch valve is in the middle position.
- Temperature increase of discharge pipe
- Refrigerant gas shortage
- Irregular piping length
- Bend/collapse
- (Including moisture choke)
- Stop valve is closed.

- Does the piping length fall in the permissible range?
- Conduct visual checks.
- Remove the moisture by vacuum break.
- Check if the stop valve is open.

(R23973)
8. Thermistor Resistance/Temperature Characteristics

Table 1

<table>
<thead>
<tr>
<th>Applicable thermistor</th>
<th>Indoor unit</th>
<th>Indoor unit</th>
<th>Outdoor unit</th>
<th>BP unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R2T: Indoor heat exchanger 1 (liquid pipe)</td>
<td>R3T: Indoor heat exchanger 2 (liquid pipe)</td>
<td>R3T: Suction pipe 1</td>
<td>DGA - DGC: Gas pipe</td>
</tr>
<tr>
<td></td>
<td>R4T: Outdoor heat exchanger</td>
<td>R5T: Suction pipe 2</td>
<td>R4T: Outdoor heat exchanger</td>
<td>DLA - DLC: Liquid pipe</td>
</tr>
<tr>
<td></td>
<td>R6T: Subcooling heat exchanger gas pipe</td>
<td>R7T: Liquid pipe</td>
<td>R5T: Suction pipe 2</td>
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</tr>
<tr>
<td></td>
<td>R7T: Liquid pipe</td>
<td>R6T: Subcooling heat exchanger gas pipe</td>
<td>R5T: Suction pipe 2</td>
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</tr>
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<td>R4T: Outdoor heat exchanger</td>
<td>R5T: Suction pipe 2</td>
<td>R4T: Outdoor heat exchanger</td>
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<tr>
<td></td>
<td>R3T: Suction pipe 1</td>
<td>R4T: Outdoor heat exchanger</td>
<td>R5T: Suction pipe 2</td>
<td></td>
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<tr>
<td></td>
<td>R2T: Indoor heat exchanger 1 (liquid pipe)</td>
<td>R3T: Indoor heat exchanger 2 (liquid pipe)</td>
<td>R3T: Suction pipe 1</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Thermistor temperature °C (°F)</th>
<th>Resistance (kΩ)</th>
<th>Resistance (kΩ)</th>
<th>Resistance (kΩ)</th>
<th>Resistance (kΩ)</th>
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<td>20.0000</td>
<td>20.0395</td>
<td>20.00</td>
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<td>10.6281</td>
<td>10.6490</td>
<td>10.62</td>
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<tr>
<td>45 (113)</td>
<td>8.669</td>
<td>8.7097</td>
<td>8.7269</td>
<td>8.707</td>
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<td>7.143</td>
<td>7.1764</td>
<td>7.1905</td>
<td>7.176</td>
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<tr>
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<td>5.9407</td>
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<td>2.9407</td>
<td>2.946</td>
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<tr>
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<td>2.4894</td>
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<tr>
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<td>3SA48001 (AD87A001)</td>
<td>3PA50504 (AD87A001)</td>
<td>3P150006 (ED97B002, ED01B012)</td>
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### Table 2

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<tr>
<th>Applicable thermistor</th>
<th>Outdoor unit FINTH: Radiation fin</th>
<th>Outdoor unit R2T: Discharge pipe</th>
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<td>Thermostat temperature °C (°F)</td>
<td>Resistance (kΩ)</td>
<td>Resistance (kΩ)</td>
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<td>–20 (–4)</td>
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<td>2534</td>
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<td>–15 (5)</td>
<td>144.2</td>
<td>1877</td>
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<td>–10 (14)</td>
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<td>1404</td>
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<td>806.5</td>
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<td>618.9</td>
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<td>231.4</td>
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<tr>
<td>95 (203)</td>
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<td>15.33</td>
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<td>100 (212)</td>
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<tr>
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**Drawing No.**

3PA61998 (AD92A057)  
3SA48009 (AD970175)
9. Pressure Sensor

\[
\begin{align*}
PH (\text{MPa}) &= \frac{4.15}{3.0} \times VH - \frac{4.15}{3.0} \times 0.5 \\
PL (\text{MPa}) &= \frac{1.7}{3.0} \times VL - \frac{1.7}{3.0} \times 0.5 \\
1 \text{ MPa} &= 334.6 \text{ ftAq}
\end{align*}
\]

PH : High pressure
PL : Low pressure
VH : Output Voltage (High Side) (VDC)
VL : Output Voltage (Low Side) (VDC)

<table>
<thead>
<tr>
<th>Detected Pressure</th>
<th>PH, PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ftAq) (kgf/cm²)</td>
<td>MPa</td>
</tr>
<tr>
<td>1673</td>
<td>51.0</td>
</tr>
<tr>
<td>1505</td>
<td>45.9</td>
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<td>1338</td>
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<td>669</td>
<td>20.4</td>
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<td>502</td>
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<td>335</td>
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<td>167</td>
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<tr>
<td>0</td>
<td>0.0</td>
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<tr>
<td>-167</td>
<td>-5.1</td>
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</table>

Diagram showing the relationship between detected pressure and output voltage.
10.Method of Replacing Inverter’s Power Transistors Modules

Check the power semiconductors mounted on the main PCB (A1P) with a multimeter.

**Items to be prepared**
- Multimeter: Prepare the digital type of multimeter with diode check function.

**Preparation**
- Turn OFF the power supply. Then, after a lapse of 10 minutes or more, make measurement of resistance.
- To make measurement, disconnect all connectors and terminals.

Main PCB (A1P)
Power module checking
When using the digital type of multimeter, make measurement in diode check mode.

<table>
<thead>
<tr>
<th>Multimeter terminal</th>
<th>Criterion</th>
<th>Remark</th>
</tr>
</thead>
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<tr>
<td>+</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>U</td>
<td>Not less than 0.3 V (including ∞)∗</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>C−</td>
<td>Not less than 0.3 V (including ∞)∗</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>C+</td>
<td>0.3 ~ 0.7 V (including ∞)∗</td>
</tr>
<tr>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C−</td>
<td>U</td>
<td>0.3 ~ 0.7 V (including ∞)∗</td>
</tr>
<tr>
<td></td>
<td>V</td>
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</tr>
<tr>
<td></td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

∗There needs to be none of each value variation.

The following abnormalities are also doubted besides the PCB abnormality.

● Defective compressor (ground fault, ground leakage)
● Defective fan motor (ground leakage)
Part 9
Appendix

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1. Piping Diagrams

1.1 Outdoor Unit

Stop valve (With service port on field piping 5/16" flare connection)
1.2 Branch Provider (BP) Unit

BPMKS048A2U

1.2 Branch Provider (BP) Unit

BPMKS049A3U
1.3 Indoor Unit

**CTXG09/12QVJUW(S)**

Indoor unit

- Heat exchanger thermistor
- Heat exchanger
- Crossflow fan
- Fan motor

Field piping
- 1/4 CuT
- 3/8 CuT

Refrigerant flow
- Cooling
- Heating

**CTXG18QVJUW(S)**

Indoor unit

- Heat exchanger thermistor
- Heat exchanger
- Crossflow fan
- Fan motor

Field piping
- 1/4 CuT
- 1/2 CuT
- 3/8 CuT

Refrigerant flow
- Cooling
- Heating

**CTXS07JVJU, CTXS09/12HVJU**

**CTXS07LVJU, FTXS09/12LVJU**
2. Wiring Diagrams

2.1 Outdoor Unit

RMX48LVJU

Note:
- A1P: Main PCB
- A2P: Service PCB
- A3P: Noise filter PCB
- A4P: Cool/heat selector PCB

Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
2.2 Branch Provider (BP) Unit

BPMKS048A2U

BPMKS049A3U
2.3 Indoor Unit

CTXG09/12/18QVJUW(S)

**Note:**
- A1P: Control PCB
- A2P: Display/signal receiver PCB
- A3P: INTELLIGENT EYE sensor PCB

Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.

*Note:* When the main power is turned off and then back on again, operation will resume automatically.
Note:

PCB1: Control PCB
PCB2: Signal receiver PCB
PCB3: Buzzer PCB
PCB4: Display PCB
PCB5: INTELLIGENT EYE sensor PCB

Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
Note:

PCB1: Control PCB
PCB2: Signal receiver PCB
PCB3: Display/signal receiver PCB
PCB4: INTELLIGENT EYE sensor PCB

Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
Note: PCB1: Control PCB  
PCB2: Signal receiver PCB  
PCB3: Display PCB  
PCB4: INTELLIGENT EYE sensor PCB  
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
FDXS09/12LVJU, CDXS15/18/24LVJU

**Note:**

- A1P: Control PCB
- A2P: Display/signal receiver PCB
- Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
Appendix 285

FVXS09/12/15/18NVJU

Note: PCB1: Sensor PCB
PCB2: Control PCB
PCB3: Service PCB
PCB4: Display/signal receiver PCB

Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
**Note:**
A1P: Control PCB  
A2P: Transmitter board for wireless remote controller  
A3P: Receiver for wireless remote controller  
Refer to Part 3 for Printed Circuit Board Connector Wiring Diagram.
3. Operation Limit

Notes:
The graphs are based on the following conditions.
- Equivalent piping length
  - From outdoor unit to BP unit: 16.4ft
  - From BP unit to each indoor units: 9.8ft
- Level difference: 0ft
- Air flow rate: High

Indoor temp. (˚FDB)  Outdoor temp. (˚FDB)

Pull-down period  Warming up period

Continuous operation  Continuous operation

Indoor temp. (˚FWB)  Outdoor temp. (˚FWB)
## Revision History

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<th>Month / Year</th>
<th>Version</th>
<th>Revised contents</th>
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<td>SiUS181631E</td>
<td>First edition</td>
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<tr>
<td>03 / 2017</td>
<td>SiUS181631EA</td>
<td>Model addition: FFQ18Q2VJU</td>
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Warning

- Daikin products are manufactured for export to numerous countries throughout the world. Prior to purchase, please confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.

- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.

- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.

- Read the user's manual carefully before using this product. The user's manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.