SPLIT TYPE
ROOM AIR CONDITIONER

WALL MOUNTED type
INVERTER

# SERVICE INSTRUCTION

| Models | Indoor unit | Outdoor unit |
|---|---|---|
| | AS*G18KMTA | AO*G18KMTA |
| | AS*G24KMTA | AO*G24KMTA |
| | RSG18KMTA | ROG18KMTA |
| | RSG24KMTA | ROG24KMTA |

Refrigerant
R32

FUJITSU GENERAL LIMITED

# 1. CONTROL AND FUNCTIONS

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# 1. CONTROL AND FUNCTIONS


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# 1. Compressor frequency control

## 1-1. Cooling operation

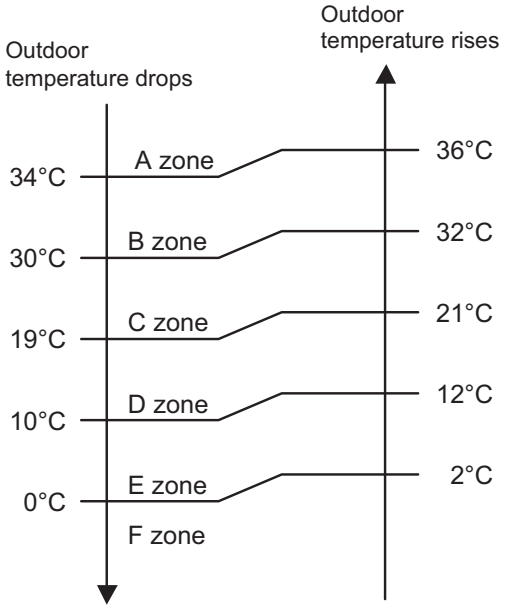
A sensor (room temperature thermistor) built in the indoor unit body will usually perceive difference or variation between a set temperature and present room temperature, and controls the operation frequency of the compressor.

- If the room temperature is 6.0 °C higher than a set temperature, the compressor operation frequency will attain to maximum performance.
- If the room temperature is 1.0 °C lower than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +6.0°C to -1.0°C of the setting temperature, the compressor frequency is controlled within the range shown in the table below. However, the maximum frequency is limited in the range shown in the figure below based on the indoor fan mode and the outdoor temperature.

- **Compressor frequency range**

| Model name | Minimum frequency | Maximum frequency |
|---|---|---|
| ASHG18KMTA | 8 rps | 80 rps |
| ASHG24KMTA | 10 rps | 111 rps |

- **Limit of maximum speed based on outdoor temperature**




Unit: rps

| Model name | Outdoor temperature zone | Indoor unit fan mode | | | |
|---|---|---|---|---|---|
| | | HIGH | MED | LOW | QUIET |
| ASHG18KMTA | A zone | 80 | 50 | 36 | 26 |
| | B zone | 80 | 50 | 36 | 26 |
| | C zone | 80 | 50 | 36 | 26 |
| | D zone | 58 | 42 | 34 | 26 |
| | E zone | 58 | 42 | 34 | 26 |
| | F zone | 58 | 42 | 34 | 26 |
| ASHG24KMTA | A zone | 111 | 46 | 34 | 24 |
| | B zone | 111 | 46 | 34 | 24 |
| | C zone | 111 | 46 | 34 | 24 |
| | D zone | 50 | 39 | 30 | 24 |
| | E zone | 50 | 39 | 30 | 24 |
| | F zone | 50 | 39 | 30 | 24 |

CONTROL AND FUNCTIONS

# 1-2. Heating operation

A sensor (room temperature thermistor) built in indoor unit body will usually perceive difference or variation between setting temperature and present room temperature, and controls operation frequency of compressor.

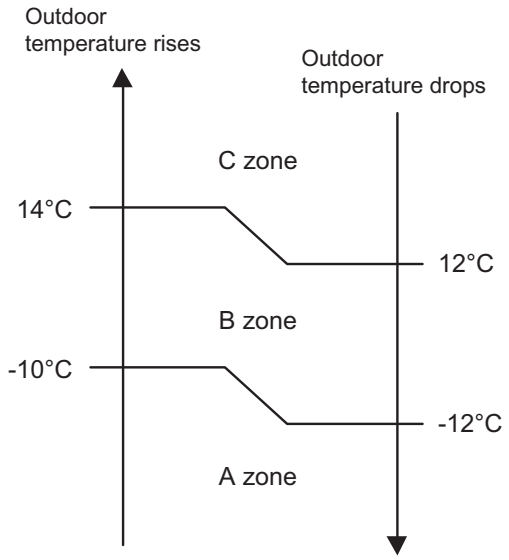
- If the room temperature is 6.0 °C lower than a set temperature, the compressor operation frequency will attain to maximum performance.
- If the room temperature is 1.0 °C higher than a set temperature, the compressor will be stopped.
- When the room temperature is within the range of +1.0°C to -6.0°C of the setting temperature, the compressor frequency is controlled within the range shown below.

- **Compressor frequency range**

Unit: rps

| Model name | Minimum frequency | Maximum frequency |
|---|---|---|
| ASHG18KMTA | 8 | 120 |
| ASHG24KMTA | 10 | 130 |

- **Limit of maximum speed based on outdoor temperature**
  In heating operation, maximum frequency is defined by outdoor temperature and fan mode.




Unit: rps

| Model name | Outdoor temperature zone | Indoor unit fan mode | | | |
|---|---|---|---|---|---|
| | | HIGH | MED | LOW | QUIET |
| ASHG18KMTA | A zone | 120 | 94 | 68 | 39 |
| | B zone | 120 | 94 | 68 | 39 |
| | C zone | 120 | 94 | 68 | 39 |
| ASHG24KMTA | A zone | 130 | 87 | 63 | 36 |
| | B zone | 130 | 87 | 63 | 36 |
| | C zone | 130 | 87 | 63 | 36 |

CONTROL AND FUNCTIONS

# 1-3. Dry operation

The compressor rotation frequency shall change according to the temperature, set temperature, and room temperature variation which the room temperature sensor of the indoor unit has detected as shown in the table below.

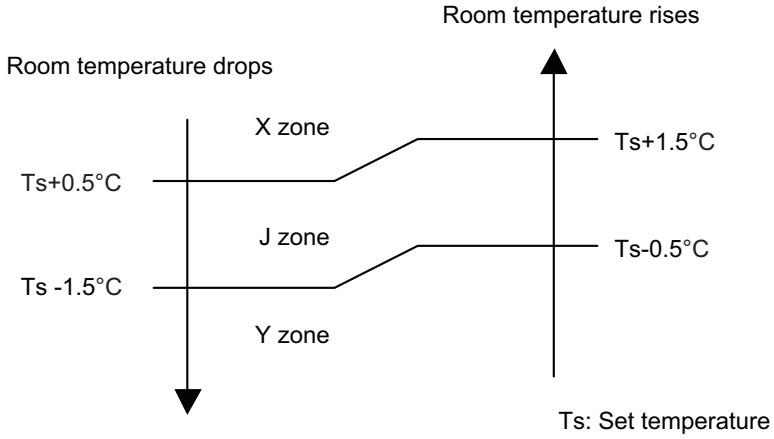
Zone is defined by set temperature and room temperature.

- **Compressor frequency range**

Unit: rps

| Model name | Outdoor temperature zone | Operating frequency |
|---|---|---|
| ASHG18KMTA | X zone | 26 |
| | J zone | 20 |
| | Y zone | 0 |
| ASHG24KMTA | X zone | 24 |
| | J zone | 18 |
| | Y zone | 0 |

- **Compressor control based on room temperature**

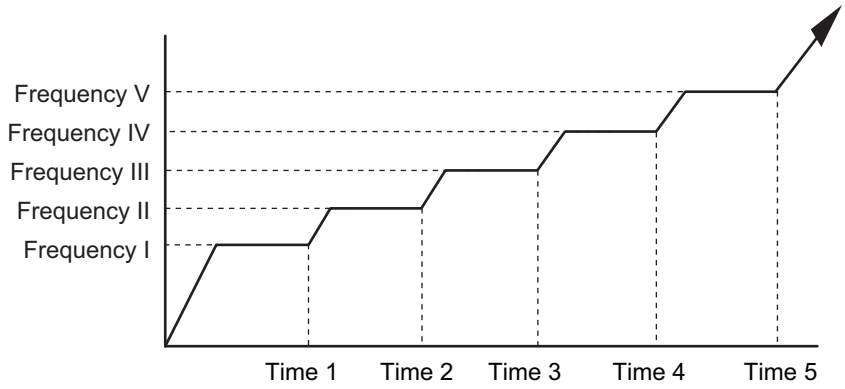


CONTROL AND FUNCTIONS

# 1-4. Compressor frequency at normal start-up

## ■ Model: AOHG18KMTA

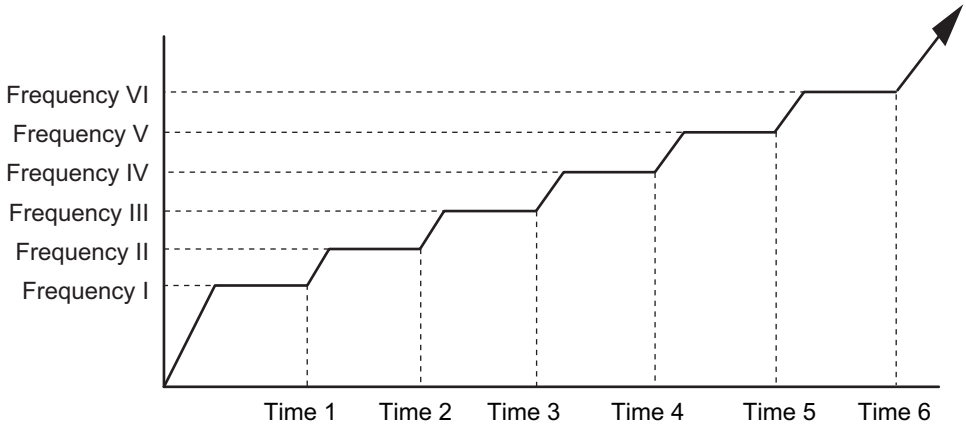
Compressor frequency soon after starting is controlled as below.




| | | | | | |
|---|---|---|---|---|---|
| Frequency (rps) | I | II | III | IV | V |
| | 40 | 56 | 77 | 90 | 99 |
| Time (sec) | 1 | 2 | 3 | 4 | 5 |
| | 60 | 240 | 280 | 360 | 400 |

## ■ Model: AOHG24KMTA

Compressor frequency soon after starting is controlled as below.



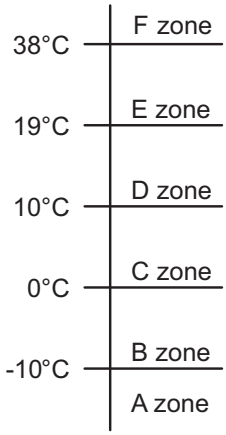

| | | | | | | |
|---|---|---|---|---|---|---|
| Frequency (rps) | I | II | III | IV | V | VI |
| | 35 | 52 | 64 | 71 | 89 | 97 |
| Time (sec) | 1 | 2 | 3 | 4 | 5 | 6 |
| | 60 | 140 | 170 | 200 | 350 | 410 |

CONTROL AND FUNCTIONS

# 1-5. Compressor frequency limitation by outdoor temperature

The minimum compressor frequency is limited by outdoor temperature as below.

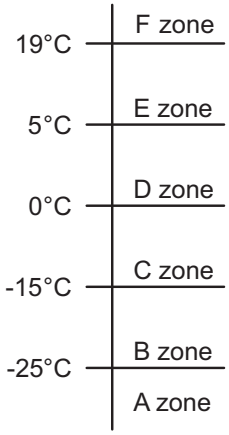
- **Cooling/Dry mode**




| Model name | Outdoor temperature zone | Limitation of compressor frequency |
|---|---|---|
| AOHG18KMTA | A zone | 26 rps |
| | B zone | 26 rps |
| | C zone | 26 rps |
| | D zone | 16 rps |
| | E zone | 12 rps |
| | F zone | 18 rps |
| AOHG24KMTA | A zone | 24 rps |
| | B zone | 24 rps |
| | C zone | 24 rps |
| | D zone | 14 rps |
| | E zone | 14 rps |
| | F zone | 22 rps |

CONTROL AND FUNCTIONS

- **Heating mode**




| Model name | Outdoor temperature zone | Limitation of compressor frequency |
|---|---|---|
| AOHG18KMTA | A zone | 25 rps |
| | B zone | 25 rps |
| | C zone | 17 rps |
| | D zone | 10 rps |
| | E zone | 1 rps |
| | F zone | 1 rps |
| AOHG24KMTA | A zone | 31 rps |
| | B zone | 31 rps |
| | C zone | 21 rps |
| | D zone | 13 rps |
| | E zone | 1 rps |
| | F zone | 1 rps |

CONTROL AND FUNCTIONS

# 2. Auto changeover operation

When the air conditioner is set to AUTO mode by remote controller, operation starts in the optimum mode from among heating, cooling, dry and monitoring modes. During operation, the optimum mode is automatically switched in accordance with temperature changes. The temperature can be set between 18°C and 30°C in 1.0°C steps.

- When operation starts, indoor fan and outdoor fan are operated for around 1 minute.
  Room temperature and outdoor temperature are sensed, and the operation mode is selected in accordance with the table below.

| Room temperature | Operation mode |
|---|---|
| Tr > Ts + 2°C | Cooling |
| Ts + 2°C ≥ Tr ≥ Ts - 2°C | Middle zone |
| Tr < Ts - 2°C | Heating |

Tr: Room temperature

Ts: Setting temperature

**NOTE:** When the operation mode is middle zone, indoor unit operation mode is selected as below.

- Same operation mode is selected as outdoor unit.
  If outdoor unit is operating in cooling and heating mode, indoor unit will be operated by the same operation mode.
- Selected by outdoor temperature.
  If outdoor unit is operating in other than cooling and heating mode, indoor unit will be operated according to the outdoor temperature as below.

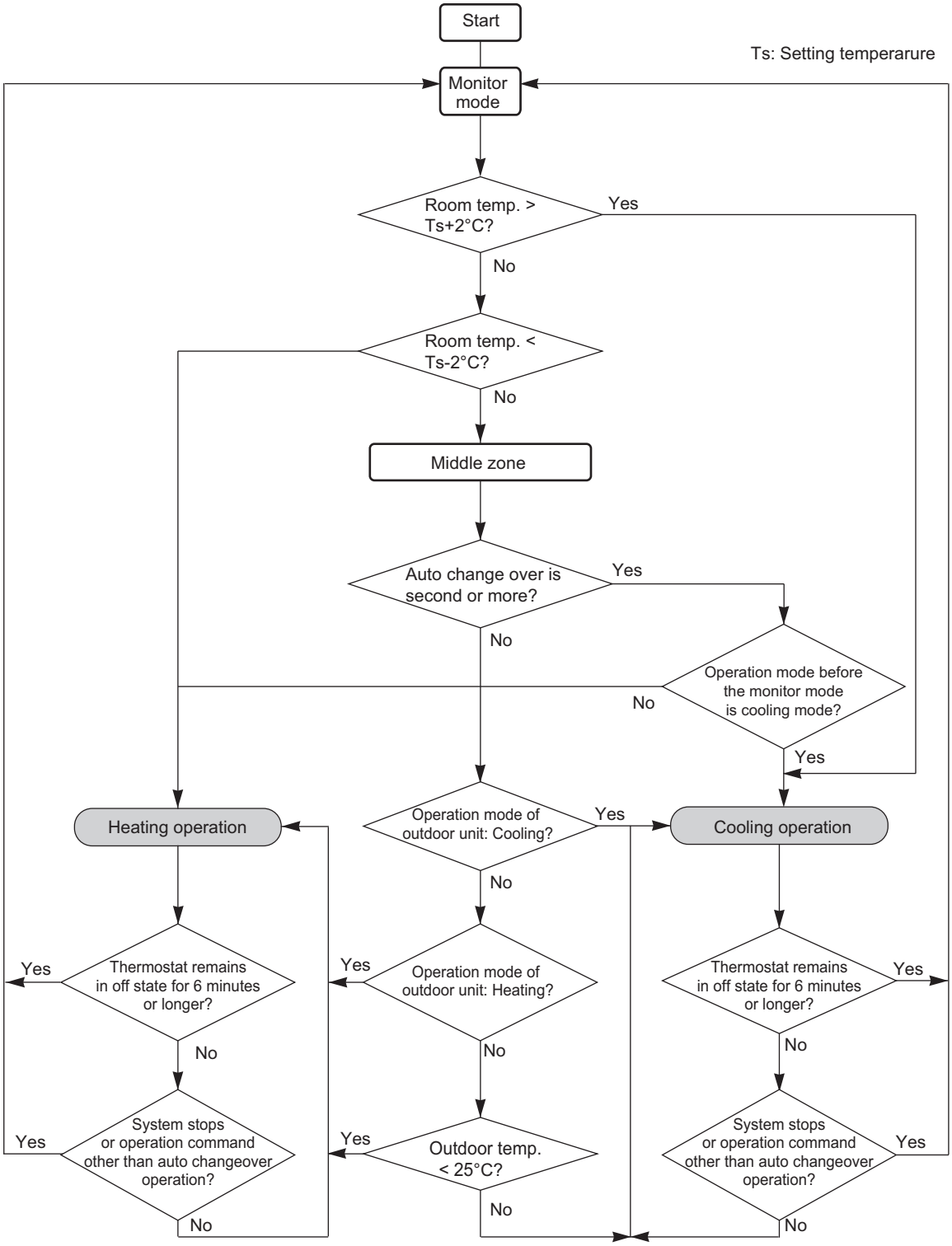
| Outdoor temp. | Operation mode |
|---|---|
| 25°C or more | Cooling |
| Less than 25°C | Heating |

- When the compressor was stopped for 6 consecutive minutes by temperature control function after the cooling or heating mode was selected as above, operation is switched to monitoring mode and the operation mode selection is done again.

- When the middle zone is selected on the predetermining of the operation mode, the operation mode before the changing to the monitoring mode is selected.

CONTROL AND FUNCTIONS

## Operation flow chart



# 3. Fan control

Tr: Room temperature
Ts: Setting temperature

## 3-1. Indoor fan control

### ■ Fan speed

Indoor fan speed is defined as below.

| Operation mode | Fan mode | Speed (rpm) | |
|---|---|---|---|
| | | ASHG18KMTA | ASHG24KMTA |
| Heating | POWERFUL | 1,400 | 1,570 |
| | HIGH | 1,300 | 1,470 |
| | MED+ | 1,230 | 1,230 |
| | MED | 1,130 | 1,130 |
| | LOW | 900 | 900 |
| | QUIET | 760 | 760 |
| | Cool air prevention | 650 | 650 |
| | S-LOW | 520 | 520 |
| Cooling/Fan | POWERFUL | 1,400 | 1,570 |
| | HIGH | 1,260 | 1,470 |
| | MED | 1,080 | 1,130 |
| | LOW | 900 | 900 |
| | QUIET | 760 | 760 |
| | Soft quiet | 650*1 | 650*1 |
| | S-LOW | 520*2 | 520*2 |
| Dry | | X zone: 760<br>J zone:670 | X zone: 760<br>J zone:670 |

*1: Fan mode only
*2: Cooling mode only

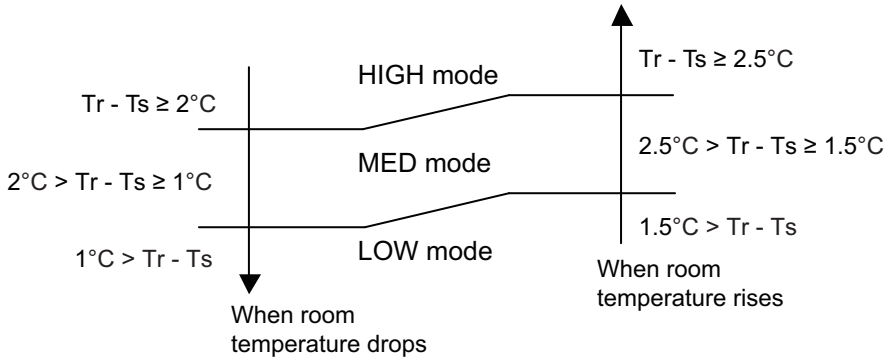
### ■ Fan operation

Airflow can be switched in 5 steps such as AUTO, QUIET, LOW, MED, HIGH while indoor unit fan only runs.
When fan mode is set at AUTO, it operates on MED fan speed.

### ■ Cooling operation

Switch the airflow AUTO, and indoor fan motor will run according to room temperature, as below.
On the other hand, if switched in HIGH—QUIET, indoor motor will run at a constant airflow of COOL operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

Airflow change over (Cooling: Auto)



CONTROL AND FUNCTIONS

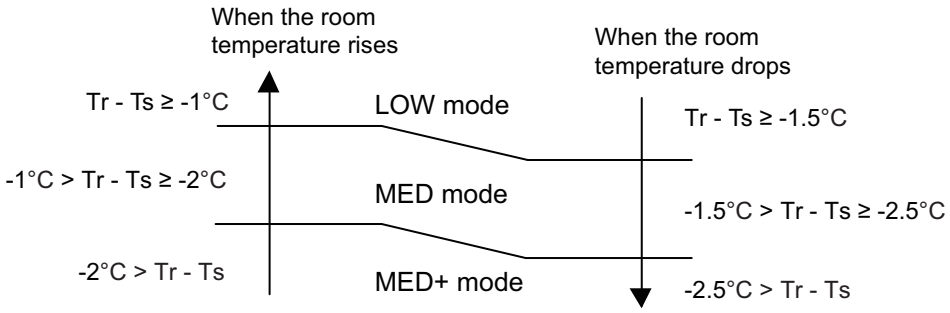
## ■ Dry operation

During dry operation, fan speed setting can not be changed as shown in “Fan speed” above.

## ■ Heating operation

Switch the airflow AUTO, and the indoor fan motor will run according to a room temperature, as below.
On the other hand, if switched in HIGH—QUIET, the indoor motor will run at a constant airflow of HEAT operation modes QUIET, LOW, MED, HIGH as shown in “Fan speed” above.

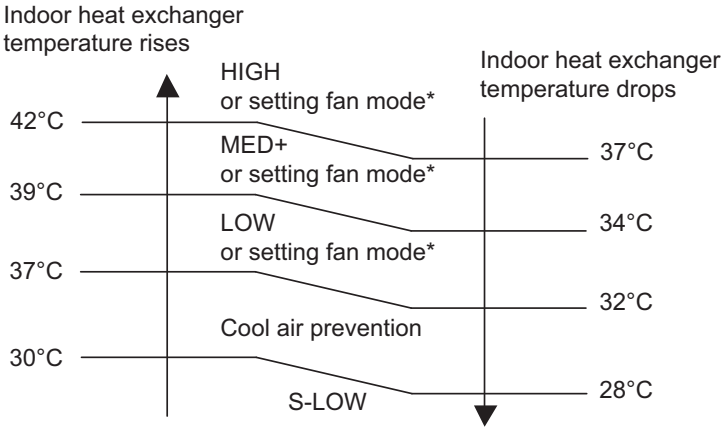
Airflow change over (Heating: Auto)




## ■ Cool air prevention control (heating mode)

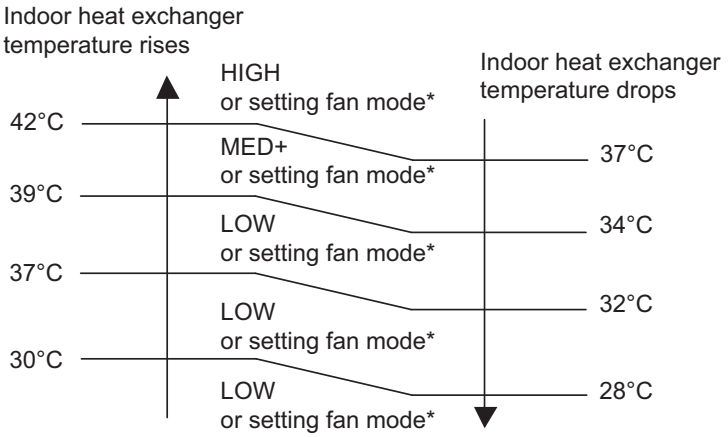
The maximum value of the indoor fan speed is set as shown below, based on the detected temperature by the indoor heat exchanger sensor on heating mode.

- **Normal operation**



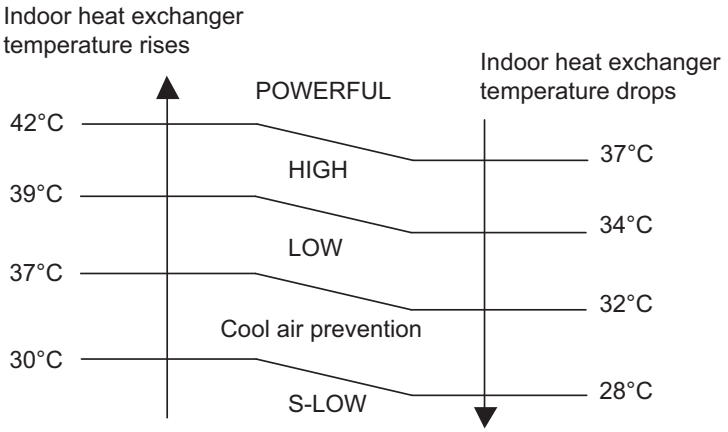

*: Lower speed is selected.

7 minutes later:

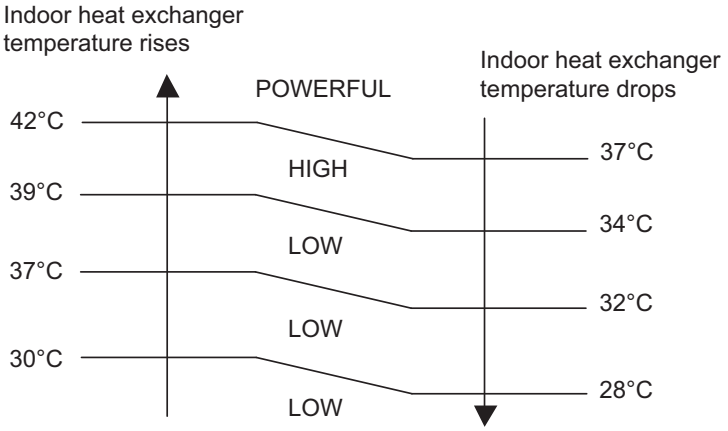



*: Lower speed is selected.

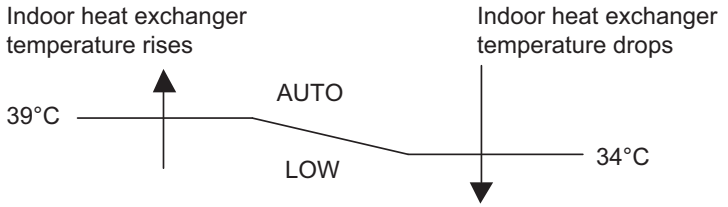
- **Powerful operation**




7 minutes later:

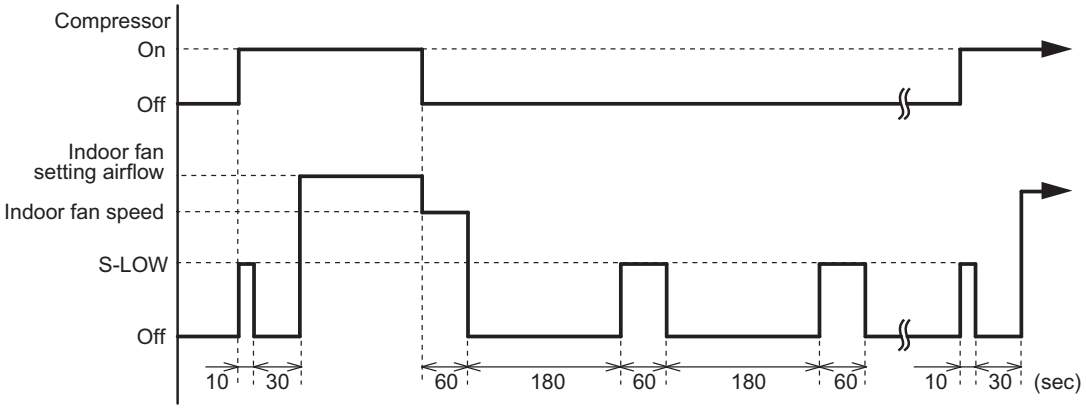



- **10 °C HEAT operation**




## ■ Moisture return prevention control (cooling and dry mode)

Switch the airflow AUTO at cooling mode, and the indoor fan motor will run as shown below.



CONTROL AND FUNCTIONS

# 3-2. Outdoor fan control

## ■ Outdoor fan motor

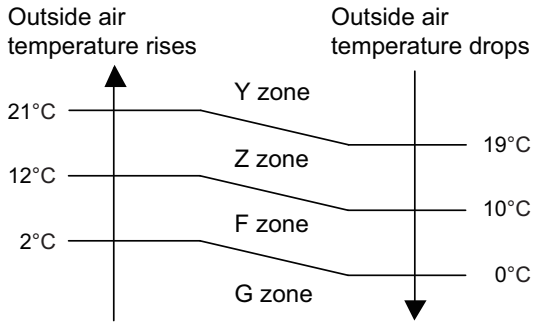
This outdoor unit has a DC fan motor. (Control method is different between AC and DC motors.)

## ■ Fan speed

### ● Model: AOHG18KMTA

Fan speed is defined by outdoor temperature and compressor frequency.

- **Outside air temperature zone selection**




Unit: rpm

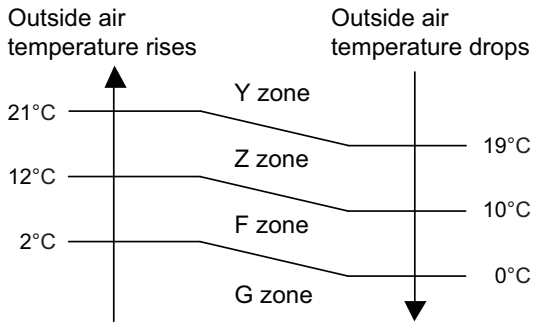
| Fan step | Cooling | Heating | Dry | Cooling or dry at low outdoor temp. | | |
|---|---|---|---|---|---|---|
| | Y zone | | Y zone | Z zone | F zone | G zone |
| S-HIGH2 | — | 1,100 | — | — | — | — |
| S-HIGH1 | 1,050 | 1,100 | — | — | — | — |
| HIGH | 1,050 | 1,100 | — | — | — | — |
| 10 | — | 1,100 | — | — | — | — |
| 9 | 1,050 | 1,100 | 1,050 | 850 | 320 | 270 |
| 8 | 1,050 | 850 | 1,050 | 850 | 320 | 270 |
| 7 | 940 | 680 | 940 | 770 | 270 | 270 |
| 6 | 890 | 570 | 890 | 630 | 230 | 210 |
| 5 | 770 | 500 | 770 | 440 | 200 | 180 |
| 4 | 630 | 470 | 630 | 320 | 200 | 180 |
| 3 | 510 | 420 | 510 | 320 | 200 | 180 |
| 2 | 400 | 420 | 400 | 320 | 200 | 180 |
| 1 | 400 | 420 | 400 | 320 | 200 | 180 |

CONTROL AND FUNCTIONS

# ● Model: AOHG24KMTA

Fan speed is defined by outdoor temperature and compressor frequency.

- **Outside air temperature zone selection**



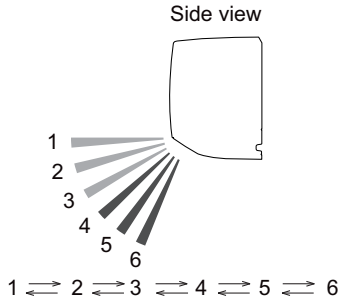

Unit: rpm

| Fan step | Cooling | Heating | Dry | Cooling or dry | | |
|---|---|---|---|---|---|---|
| | Y zone | | Y zone | Z zone | F zone | G zone |
| S-HIGH2 | — | 1,200 | — | — | — | — |
| S-HIGH1 | 1,180 | 1,200 | — | — | — | — |
| HIGH1 | 1,180 | 1,200 | — | — | — | — |
| 10 | — | 1,170 | — | — | — | — |
| 9 | 1,180 | 1,170 | 1,180 | 1,180 | 1,180 | 1,180 |
| 8 | 1,140 | 1,000 | 1,140 | 600 | 320 | 220 |
| 7 | 900 | 860 | 900 | 600 | 320 | 220 |
| 6 | 800 | 750 | 800 | 450 | 260 | 200 |
| 5 | 690 | 700 | 690 | 320 | 230 | 180 |
| 4 | 610 | 610 | 610 | 320 | 230 | 180 |
| 3 | 550 | 570 | 550 | 320 | 230 | 180 |
| 2 | 450 | 510 | 450 | 320 | 230 | 180 |
| 1 | 400 | 470 | 400 | 320 | 230 | 180 |

# 4. Louver control

## 4-1. Vertical airflow direction louver control

Each time the button is pressed, the air direction range will change as below:



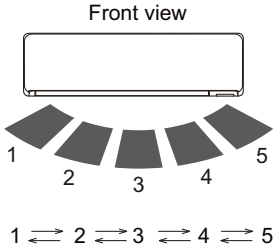

- Remote controller display is not changed.
- Vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.

| | |
|---|---|
| Cooling / Dry mode | : Horizontal flow 1 |
| Heating mode | : Downward flow 6 |

- During AUTO operation, for the first a few minutes after beginning operation, airflow will be horizontal 1; the air direction cannot be adjusted during this period.
  The airflow direction setting will temporarily become 1 when the temperature of the airflow is low at the start of the Heating mode.
- After beginning of AUTO/HEAT mode operated and automatic defrosting operation, the airflow will be horizontal 1. However, the airflow direction cannot be adjusted at beginning AUTO operation mode.

## 4-2. Horizontal airflow direction louver control

Each time the button is pressed, the air direction range will change as below:




Remote controller display is not changed.

CONTROL AND FUNCTIONS

# 4-3. Swing operation

- To select vertical airflow swing operation
  When the swing signal is received, the vertical airflow direction louver starts to swing.
  - Swinging range
    - Cooling mode/dry mode/fan mode (1 to 3): 1 ↔ 4
    - Heating mode/fan mode (4 to 6): 3 ↔ 6
  - When the indoor fan is S-LOW or stop mode, the swing operation is interrupted and it stops at either upper end or bottom end.

- To select horizontal airflow swing operation
  When the swing signal is received, the horizontal airflow direction louver starts to swing.
  - Swinging range
    - All mode: 1 ↔ 5
  - When the indoor fan is S-LOW or stop mode, the swing operation is interrupted and it stops at either upper end or bottom end.

- To select vertical and horizontal airflow swing operation
  When the swing signal is received, both of the vertical and the horizontal airflow direction louver start to swing.

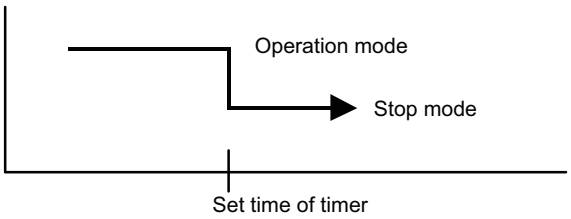
# 5. Timer operation control

## 5-1. Wireless remote control

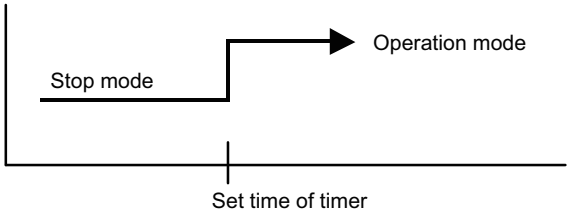
| On/Off timer | Program timer | Sleep timer | Weekly timer |
|---|---|---|---|
| ○ | ○ | ○ | ○ |

### ■ On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.

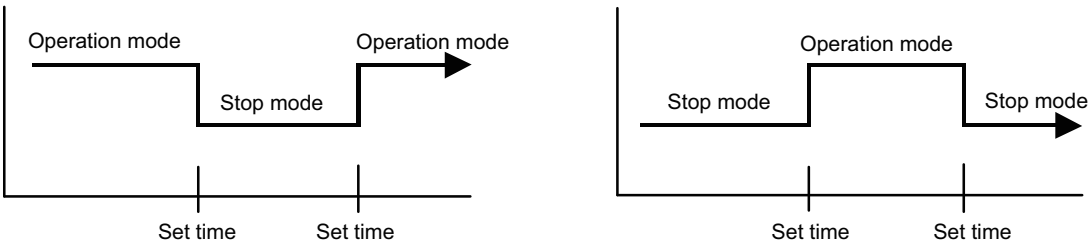



- On timer: When the clock reaches the set timer, the air conditioner will be turned on.




### ■ Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.



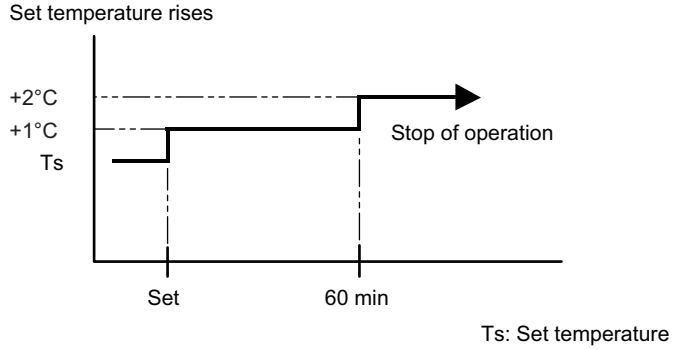

- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

CONTROL AND FUNCTIONS

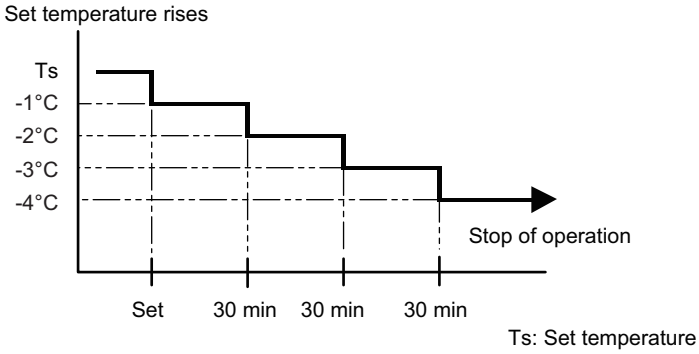
## ■ Sleep timer

If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

- In the cooling operation mode
  When the sleep timer is set, the setting temperature is increased 1°C. It increases the setting temperature another 1°C after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.




- In the heating operation mode
  When the sleep timer is set, the setting temperature is decreased 1°C. It decreases the setting temperature another 1°C every 30 minutes. Upon lowering 4°C, the setting temperature is not changed and the operation is stopped at the setting time.




## ■ Weekly timer

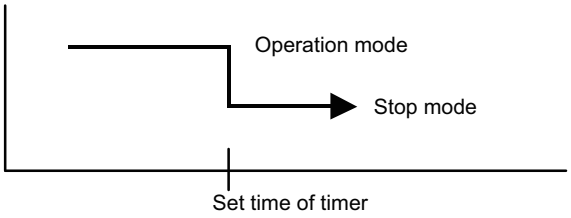
On and off timer can be combined, and up to 4 reservations per day and 28 reservations per week. Before setting the program, set the week and time of the air conditioner at first. If the week and time are not set, the weekly timer will not operate correctly at the setting time.

# 5-2. Wired remote control

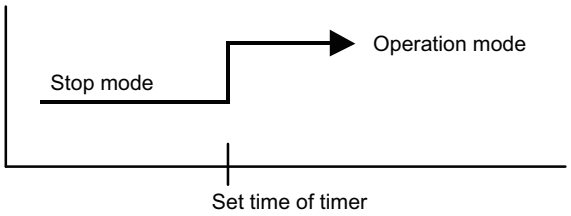
| On/Off timer | Program timer | Sleep timer | Weekly timer | Temperature set back timer |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

## ■ On/Off timer

- Off timer: When the clock reaches the set timer, the air conditioner will be turned off.

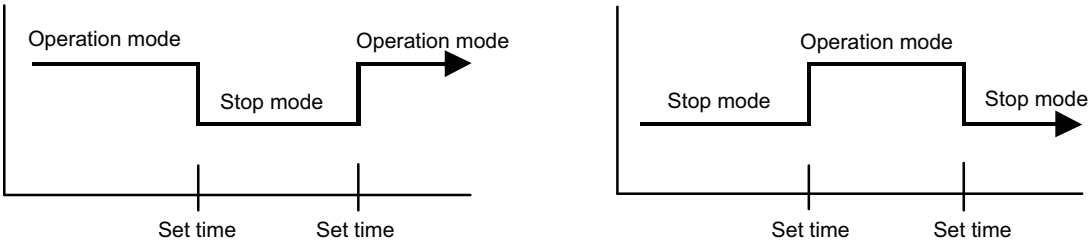



- On timer: When the clock reaches the set timer, the air conditioner will be turned on.




## ■ Program timer

- The program timer allows the off timer and the on timer to be used in combination one time.



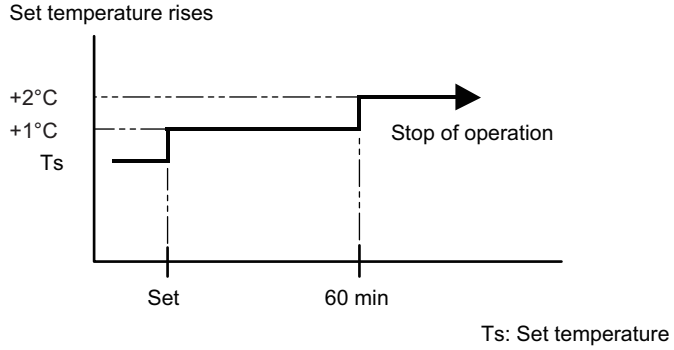

- Operation will start from the timer setting (either off timer and on timer) whichever is closest to the clock current timer setting. The order of operations is indicated by the allow in the remote controller screen.
- Sleep timer operation cannot be combined with on timer operation.

CONTROL AND FUNCTIONS

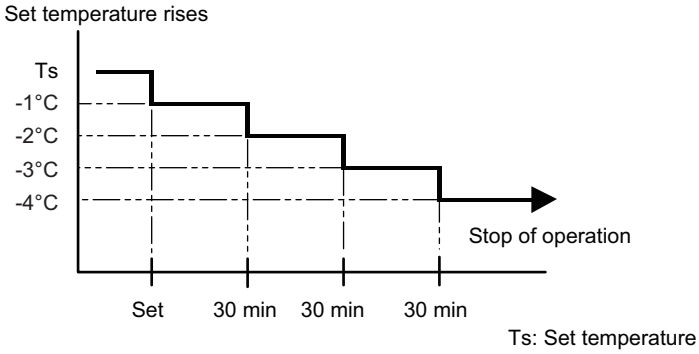
## ■ Sleep timer

If the sleep timer is set, the room temperature is monitored and the operation is stopped automatically. If the operation mode or the set temperature is change after the sleep timer is set, the operation is continued according to the changed setting of the sleep timer from that time on.

- In the cooling operation mode
  When the sleep timer is set, the setting temperature is increased 1°C. It increases the setting temperature another 1°C after 1 hour. After that, the setting temperature is not changed and the operation is stopped at the setting time.




- In the heating operation mode
  When the sleep timer is set, the setting temperature is decreased 1°C. It decreases the setting temperature another 1°C every 30 minutes. Upon lowering 4°C, the setting temperature is not changed and the operation is stopped at the setting time.




## ■ Weekly timer

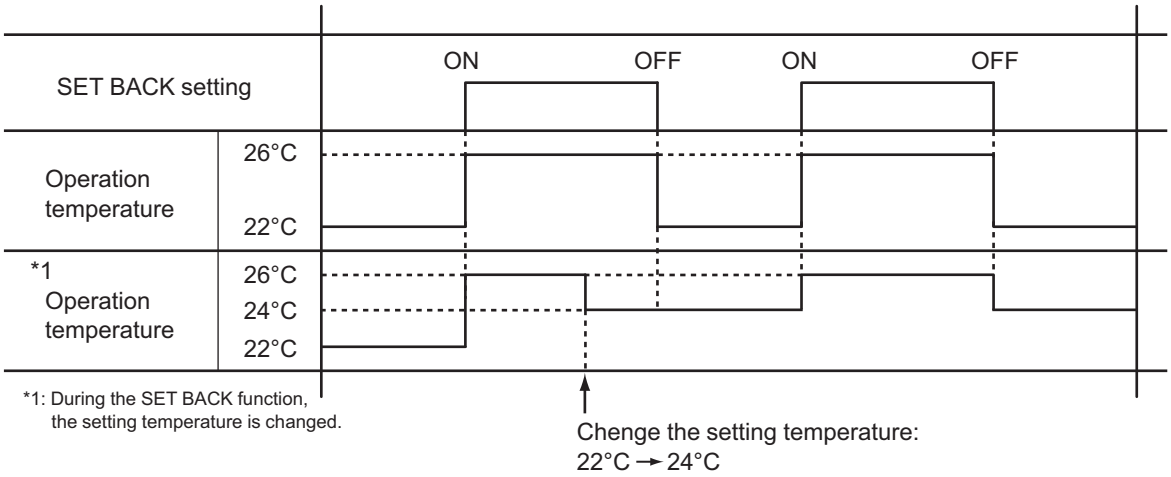
On and off timer can be combined, and up to 4 reservations per day and 28 reservations per week. Before setting the program, set the week and time of the air conditioner at first. If the week and time are not set, the weekly timer will not operate correctly at the setting time.

CONTROL AND FUNCTIONS

## ■ Temperature set back timer

- The SET BACK timer only changes the set temperature for 7 days, it cannot be used to start or stop air conditioner operation.
- The SET BACK timer can be set to operate up to two times per day but only one temperature setting can be used.
- During COOLING/DRY mode, the air conditioner will operate at a minimum of 18°C even if the SET BACK temperature is set to 17°C or lower.

Case of SET BACK timer on the Cooling operation. (Setting temperature :22°C, SET BACK temperature :26°C)



CONTROL AND FUNCTIONS

# 6. Defrost operation control

Tn: Outdoor unit heat exchanger temperature
Ta: Outdoor temperature
Tn10: Temperature at 10 minutes after compressor start
Tnb: Temperature before 5 minutes

## • Triggering condition

The defrost operation starts when outdoor unit heat exchanger temperature sensor detects the temperature lower than the values shown below.

– **1st time defrosting after starting operation**

| Compressor integrating operation time | Less than 17 min. | 17 to 57 min. | More than 57 min. |
|---|---|---|---|
| Condition | Does not operate | Tn ≤ -9°C and Tn-Ta ≥ 5 deg | Tn ≤ -5°C |

– **2nd time and after**

| Compressor integrating operation time | Less than 40 min. | More than 40 min. |
|---|---|---|
| Condition | Does not operate | Tn-Tn10 < -5 deg (Tn ≤ -6°C )<br>Tn-Tnb < -2 deg (Tn ≤ -6°C )<br>Tn ≤ -17°C (Ta ≥ -10°C)<br>Tn ≤ -7°C or Tn ≤ -20°C (Ta < -10°C) |

– **Integrating defrost (Constant monitoring)**

| Compressor integrating operation time | More than 240 min. (For long continuous operation) | More than 213 min. (For long continuous operation | Less than 10 min.* (For intermittent operation) |
|---|---|---|---|
| Condition | Tn ≤ -3°C | Tn ≤ -5°C | Count of the compressor off: 40 times |

*: If the compressor continuous operation time is less than 10 minutes, the number of the compressor off is counted. If any defrost operated, the compressor off count is cleared.

## • Release condition

The defrost operation is released when either one of the conditions below is satisfied.

| | |
|---|---|
| Outdoor unit heat exchanger temperature<br>(after 1 minute or later since compressor start) | 16°C or more |
| Compressor operation time | 15 minutes |

CONTROL AND FUNCTIONS

# 6-1. Defrost operation in heating operation stopped

If the outdoor unit is frosted when stopping the heating operation, it stops after performing the automatic defrosting operation.

In this time, if the indoor unit operation lamp flashes slowly (6 sec on/2 sec off), the outdoor unit allow the heat exchanger to defrost, and then stop.

## • Triggering condition

When all of the following conditions are satisfied in heating operation

– Compressor operation integrating time: 30 minutes or more
– Compressor continuous operation time: 10 minutes or more
– Outdoor unit heat exchanger temperature: -4°C or less

## • Release condition

The defrost operation is released when either one of the conditions below is satisfied.

| | |
|---|---|
| Outdoor unit heat exchanger temperature<br>(after 1 minute or later since compressor start) | 16°C or more |
| Compressor operation time | 15 minutes |

CONTROL AND FUNCTIONS

# 7. Various control

## 7-1. Auto restart

When the power was interrupted by a power failure etc. during operation, the operation contents at that time are memorized and when the power is recovered, operation is automatically started with the memorized operation contents.

| Operation contents memorized when the power is interrupted |
|---|
| Operation mode |
| Setting temperature |
| Fan mode setting |
| Timer mode and set time (set by wireless remote controller) |
| Airflow direction setting |
| Swing |
| ECONOMY operation |
| Outdoor low noise operation |
| Remote control setting |
| WLAN LED setting |

## 7-2. MANUAL AUTO operation

When the wireless remote controller is lost or battery power dissipated, this function will work without the remote controller.

When MANUAL AUTO button is pressed more than 3 seconds and less than 10 seconds, MANUAL AUTO operation starts as shown in the table below. To stop operation, press the MANUAL AUTO button for 3 seconds.

| | |
|---|---|
| Operation mode | Auto changeover |
| Fan mode | AUTO |
| Timer mode | Continuous (no timer setting available) |
| Setting temperature | 24°C |
| Vertical airflow direction louver setting | Standard |
| Horizontal airflow direction louver setting | According to memory position |
| SWING | Off |
| ECONOMY | Off |
| Human sensor | Off |

CONTROL AND FUNCTIONS

# 7-3. Forced cooling operation

The outdoor unit may not operate depending on the room temperature.

When FORCED COOLING OPERATION button is pressed more than 10 seconds, forced cooling operation starts as shown in the table below.

| | |
|---|---|
| Operation mode | Cooling |
| Fan mode | HIGH |
| Timer mode | Continuous (no timer setting available) |
| Setting temperature | 24°C |
| Vertical airflow direction louver setting | Standard |
| SWING | Off |
| ECONOMY | Off |
| Human sensor | Off |

- During the forced cooling operation, it operates regardless of room temperature sensor.
- Operation LED and timer LED blink at the same time during the forced cooling operation.
  They blink for 1 second ON and 1 second OFF on both operation LED and timer LED (same as test operation).

By performing one of the following action, test operation will be canceled:

- Pressing the remote controller START/STOP button
- Pressing FORCED COOLING OPERATION button for 3 seconds
- 60 minutes passed after starting forced cooling operation

**NOTE:** When HEAT operation is selected on the remote controller during forced cooling operation, heating test run will begin in about 3 minutes.

# 7-4. 10 °C HEAT operation

10 °C HEAT operation performs as below setting when pressing 10 °C HEAT button.

| | |
|---|---|
| Operation mode | Heating |
| Setting temperature | 10°C |
| Fan mode | AUTO |
| LED display | Economy |
| Defrost operation | Operate as normal |

# 7-5. ECONOMY operation

The ECONOMY operation starts by pressing ECONOMY button on the remote controller.

The ECONOMY operation is almost the same operation as below settings.

| Mode | Cooling/Dry | Heating |
|---|---|---|
| Target temperature | Setting temperature +1°C | Setting temperature -1°C |

CONTROL AND FUNCTIONS

# 7-6. POWERFUL operation

The POWERFUL operation starts by pressing POWERFUL button on the remote controller.
The indoor unit and outdoor unit operate at maximum power as shown in the table below.

| Compressor frequency | | Maximum |
|---|---|---|
| Fan mode | | POWERFUL |
| Vertical airflow direction louver setting | Cooling | 3 |
| | Dry | |
| | Heating | 6 |

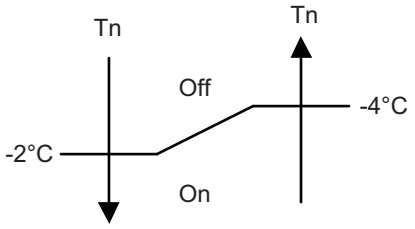
**Release condition:**

- Cooling/Dry
  Room temperature ≤ Setting temperature -0.5°C or Operation time has passed 20 minutes.
- Heating
  Room temperature ≥ Setting temperature +0.5°C or Operation time has passed 20 minutes.

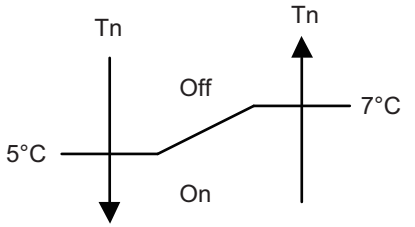
# 7-7. Compressor preheating

By preheating the compressor, warm airflow is quickly discharged when the operation is started.

- **Triggering condition**
  - 30 minutes after compressor stopped.
  - Outdoor unit heat exchanger temperature (Tn)

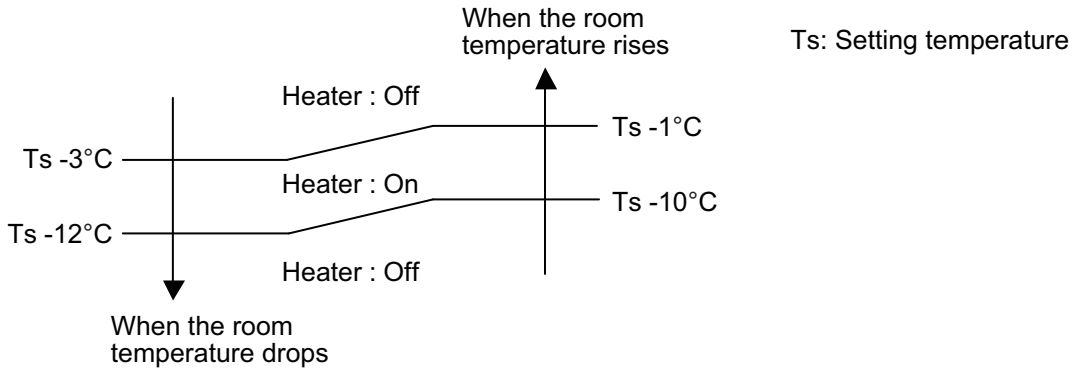



When the jumper wire (JM2) is disconnected:




# 7-8. External electrical heater control

The external electrical heater is operated as below.




**NOTES:**

- When the compressor stop, external electric heater is off.
- It operates only in heating mode and when the indoor fan operates. (However, S-LOW is excluded.)

CONTROL AND FUNCTIONS

# 7-9. Electronic expansion valve control

The most proper opening of the electronic expansion valve is calculated and controlled under the present operating condition based on the table below.

| Operation mode | Pulse range |
|---|---|
| Cooling/dry mode | Between 52 and 480 pulses |
| Heating mode | |

**NOTE:** At the time of supplying the power to the outdoor unit, the initialization of the electronic expansion valve is operated (528 pulses are input to the closing direction).

# 7-10. Prevention to restart for 3 minutes (3 minutes st)

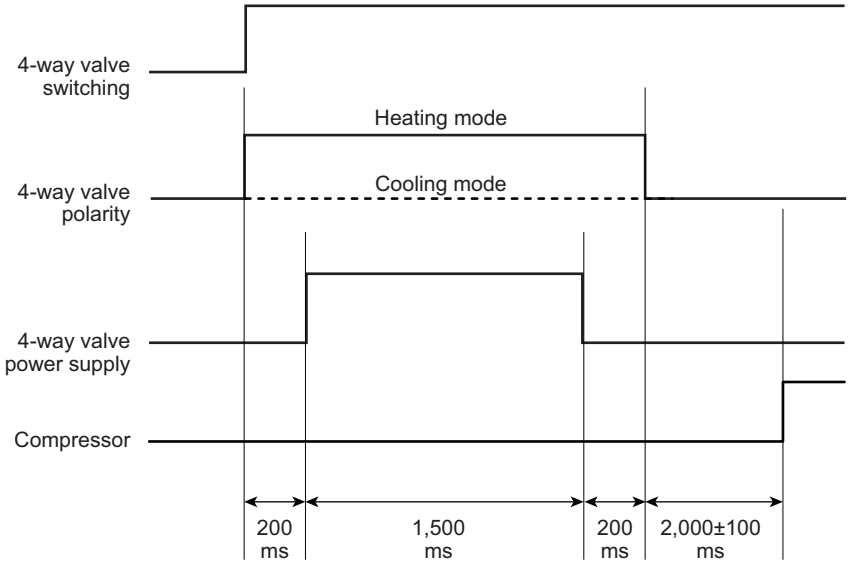
When the compressor fails to start for the number of times below, it does not enter operation status for 3 minutes.

| | |
|---|---|
| Retry number | 50 |
| Retry set number | 3 |

When the compressor fails to start in the retry set number above, the compressor is stopped.

# 7-11. 4-way valve control

- If heating mode is selected at the compressor start, 4-way valve is energized for heating.
- When the air conditioner is switched between cooling and heating mode, compressor is stopped, and the 4-way valve is switched when the 3 minutes passes and the compressor is started.




# 7-12. Outdoor unit low noise operation

The outdoor unit low noise operation functions by OUTDOOR UNIT LOW NOISE button on the remote controller.

This operation stops the PFC control, and changes the current value.

| Operation mode | Current | |
|---|---|---|
| | Trigger condition | Release condition |
| Cooling/Dry mode | 5.0 A | 4.5 A |
| Heating mode | | |

# 8. Various protections

## 8-1. Discharge gas temperature over-rise prevention control

The discharge gas temperature sensor (discharge thermistor: outdoor unit side) detects the discharge gas temperature.

- When the discharge temperature becomes higher than the trigger condition, the compressor frequency is decreased as the table below, and it continues to decrease until the discharge temperature becomes lower than the trigger condition.
- When the discharge temperature becomes lower than the release condition, control of compressor frequency is released.
- When the discharge temperature becomes higher than the compressor protection temperature, the compressor is stopped and the indoor unit LED starts blinking.

| | |
|---|---|
| Trigger condition | 104°C |
| Compressor frequency | -20 rps/120 seconds |
| Release condition | 101°C |
| Compressor protection temperature | 110°C |

## 8-2. Anti-freezing control (cooling and dry mode)

The compressor frequency is decrease in cooling and dry mode when the indoor unit heat exchanger temperature sensor detects the temperature lower than the trigger condition.

When the indoor unit heat exchanger temperature reaches release condition, the anti-freezing control is stopped.

| | | |
|---|---|---|
| Trigger condition | | 4°C |
| Release condition | Outdoor temp. ≥ 10°C*1<br>Outdoor temp. ≥ 12°C*2 | 7°C |
| | Outdoor temp. < 10°C*1<br>Outdoor temp. < 12°C*2 | 13°C |

*1: During the outdoor temperature dropping

*2: During the outdoor temperature rising

CONTROL AND FUNCTIONS

# 8-3. Current release control

The compressor frequency is controlled so that the outdoor unit input current does not exceeds current limit value set according to the outdoor temperature.

The compressor frequency returns according to the operation mode, when the current becomes lower than the release value.

## ■ Model: AOHG18KMTA

| Operation mode | Outdoor temp. (Ta) | Trigger condition | Release condition |
|---|---|---|---|
| Cooling | 50°C ≤ Ta | 7.0 A | 6.5 A |
| | 46°C ≤ Ta < 50°C | 7.0 A | 6.5 A |
| | 40°C ≤ Ta < 46°C | 8.0 A | 7.5 A |
| | 12°C ≤ Ta < 40°C | 8.5 A | 8.0 A |
| | 2°C ≤ Ta < 12°C | 8.5 A | 8.0 A |
| | Ta < 2°C | 8.5 A | 8.0 A |
| Heating | 17°C ≤ Ta | 7.0 A | 6.5 A |
| | 12°C ≤ Ta < 17°C | 9.0 A | 8.5 A |
| | 5°C ≤ Ta < 12°C | 11.0 A | 10.5 A |
| | Ta < 5°C | 13.0 A | 12.5 A |

## ■ Model: AOHG24KMTA

| Operation mode | Outdoor temp. (Ta) | Trigger condition | Release condition |
|---|---|---|---|
| Cooling | 50°C ≤ Ta | 7.0 A | 6.5 A |
| | 46°C ≤ Ta < 50°C | 7.0 A | 6.5 A |
| | 40°C ≤ Ta < 46°C | 9.5 A | 9.0A |
| | 12°C ≤ Ta < 40°C | 12.5 A | 12.0 A |
| | 2°C ≤ Ta < 12°C | 12.5 A | 12.0 A |
| | Ta < 2°C | 12.5 A | 12.0 A |
| Heating | 17°C ≤ Ta | 10.5 A | 10.0 A |
| | 12°C ≤ Ta < 17°C | 13.0 A | 12.5 A |
| | 5°C ≤ Ta < 12°C | 14.5 A | 14.0 A |
| | Ta < 5°C | 15.5 A | 15.0 A |

# 8-4. Cooling pressure over-rise protection

When the outdoor unit heat exchanger temperature reaches trigger condition below, the compressor is stopped and trouble display is performed.

| | |
|---|---|
| Trigger condition | 65°C |

# 8-5. Compressor temperature protection

When the compressor temperature sensor detects higher than the trigger condition below, the compressor is stopped. When the compressor temperature sensor detects the release condition, the protection is released.

| | |
|---|---|
| Trigger condition | 108°C |
| Release condition | 80°C<br>(3 minutes after compressor stop) |

CONTROL AND FUNCTIONS

# 8-6. High pressure protection

| | |
|---|---|
| Trigger condition | Pressure switch: Off (Open: Higher than 4.2 MPa)<br>Compressor stop |
| Release condition | Pressure switch: On (Close: Lower than 3.2 MPa)<br>(3 minutes after compressor stop)<br>Compressor restart |

# 8-7. Low outdoor temperature protection

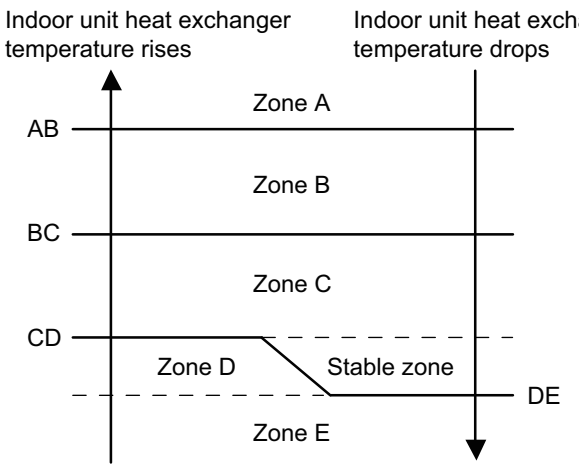
When the outdoor temperature sensor detects lower than the trigger condition below, the compressor is stopped.

| Operation mode | Cooling/Dry | Heating |
|---|---|---|
| Trigger condition | -15°C | -20°C |
| Release condition | -10°C | -15°C |

# 8-8. High temperature and high pressure release control

The compressor is controlled as follows.

## ■ Models: AOHG18KMTA and AOHG24KMTA




AB: 63°C
BC: 55°C
CD: 53°C
DE: 50°C

| Zone | Operation | |
|---|---|---|
| Zone A | Compressor is stopped. | |
| Zone B | The compressor frequency is decreased. | -25 rps/120 sec. |
| Zone C | | -3 rps/60 sec. |
| Zone D | The protection is released and the operation is returned to normal mode. | |
| Zone E | | |

Refrigerant R32

# WALL MOUNTED type INVERTER

## 2 . TROUBLE SHOOTING

# 2.TROUBLESHOOTING

## 2-1 ERROR DISPLAY

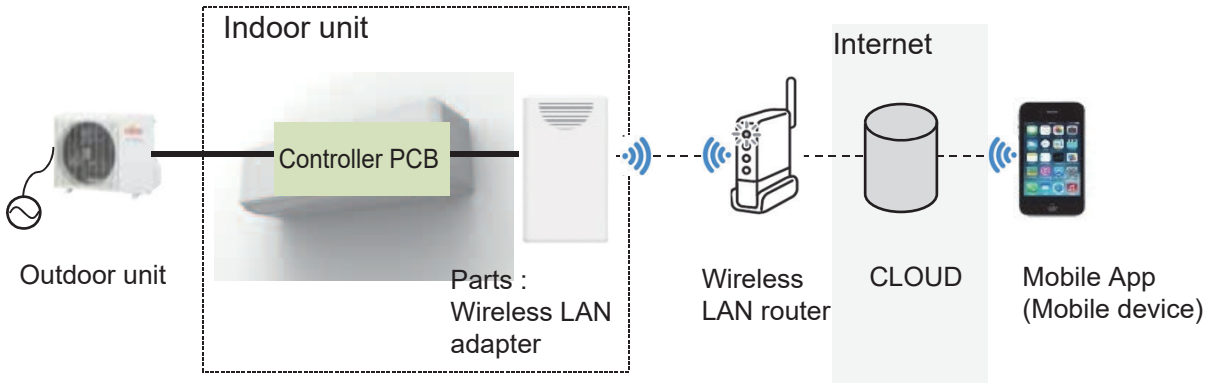
### 2-1-1 INDOOR UNIT AND WIRED REMOTE CONTROLLER DISPLAY

Please refer the flashing pattern as follows.
The OPERATION, TIMER and ECONOMY lamps operate as follows according to the error contents.

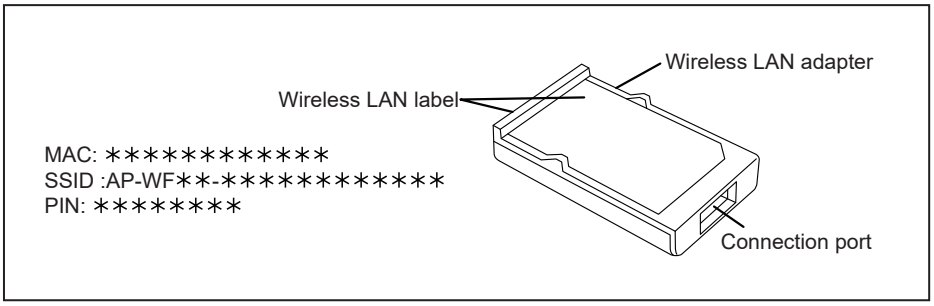
| Error Contents | Indoor Unit Display | | | Wired Remote Controller Display | Trouble shooting |
|---|---|---|---|---|---|
| | OPERATION[ ▌] (Green) | TIMER [⏲] (Orange) | ECONOMY [♘] (Green) | | |
| Serial communication error | 1 time | 1 time | Continuous | 11 | 1, 2 |
| Wired remote controller communication error | 1 time | 2 times | Continuous | 12 | 3 |
| Combination error | 2 times | 3 times | Continuous | 23 | 4 |
| Indoor unit PCB model information error | 3 times | 2 times | Continuous | 32 | 5 |
| Manual auto switch error | 3 times | 5 times | Continuous | 35 | 6 |
| Room temp. sensor error | 4 times | 1 time | Continuous | 41 | 7 |
| Indoor unit Heat Ex. Middle temp. sensor error | 4 times | 2 times | Continuous | 42 | 8 |
| Indoor unit fan motor error | 5 times | 1 time | Continuous | 51 | 9 |
| Outdoor unit main PCB model information error | 6 times | 2 times | Continuous | 62 | 10 |
| Inverter error | 6 times | 3 times | Continuous | 63 | 11 |
| PFC circuit error | 6 times | 4 times | Continuous | 64 | 12 |
| Trip terminal L error | 6 times | 5 times | Continuous | 65 | 13 |
| Discharge temp. sensor error | 7 times | 1 time | Continuous | 71 | 14 |
| Compressor temp. sensor error | 7 times | 2 times | Continuous | 72 | 15 |
| Outdoor unit Heat Ex. liquid temp. sensor error | 7 times | 3 times | Continuous | 73 | 16 |
| Outdoor temp. sensor error | 7 times | 4 times | Continuous | 74 | 17 |
| Current sensor error | 8 times | 4 times | Continuous | 84 | 18 |
| High pressure switch error | 8 times | 6 times | Continuous | 86 | 19 |
| Trip detection | 9 times | 4 times | Continuous | 94 | 20 |
| Compressor rotor position detection error | 9 times | 5 times | Continuous | 95 | 21 |
| Outdoor unit fan motor error | 9 times | 7 times | Continuous | 97 | 22 |
| 4-way valve error | 9 times | 9 times | Continuous | 99 | 23 |
| Discharge temp. error | 10 times | 1 time | Continuous | A1 | 24 |
| Compressor temp. error | 10 times | 3 times | Continuous | A3 | 25 |

## 2-1-2 WIRELESS LAN INDICATOR DISPLAY

1.WIRELESS LAN CONTROL system layout




2.NAME OF PARTS




3.WIRELESS LAN ADAPTER INDICATOR

Please refer the flashing pattern as follows.
W-LAN LED (orange) operate as follow according to the error contents.

| Error Contents | Wireless LAN adapter Indicator | Error Code | Trouble shooting |
|---|---|---|---|
| | LED (Orange) | | |
| External Communication Error<br>(Communication Error of between IndoorUnit to Wireless LAN adapter) | On or Off * | 18 | 32 |
| Network Communication Error<br>(Communication Error of between Wireless LAN Router to Wireless LAN adapter) | Flashing slow<br>On/Off=7sec/2sec | No Error | 33 |
| Network Communication Error<br>(Communication Error of between Wireless LAN Router to CLOUD) | On | No Error | 34 |
| Communication Error<br>(”Trou. 29” and “Trou. 32” are simultaneous Error) | Flashing slow<br>On/Off=7sec/2sec | 18 | 35 |
| Wireless LAN adapter Non-Energized | On or Off * | 18 | 36 |

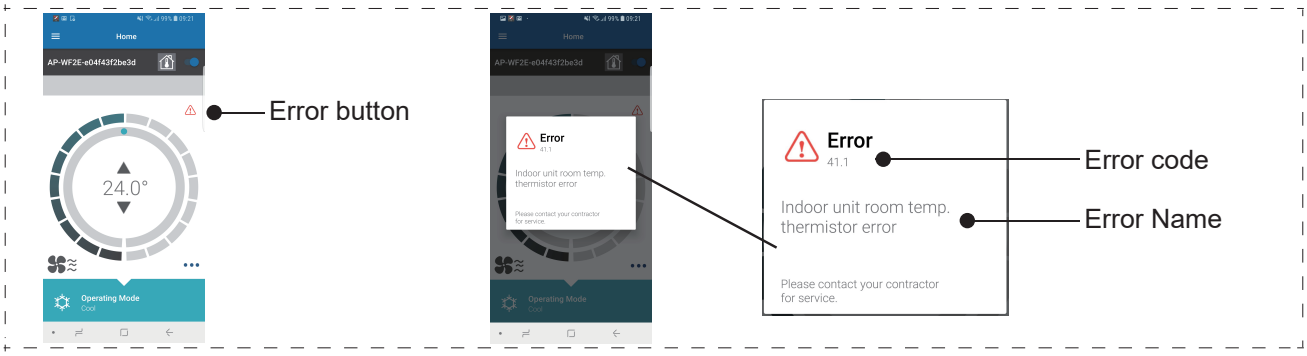
*: On; Connection information with router is available, Off; Connection information with router is unavailable.

## 2-1-3 MOBILE APP DISPLAY ( For AIR CONDITIONER )

### 1.ERROR DISPLAY

If there is an abnormality on the air conditioning, you will see ⚠ is as follows.
When you tap the "Error button" ⚠ on the home screen, Error Code and Error Name is displayed.

For Android




For iOS

### 2.ERROR CODE

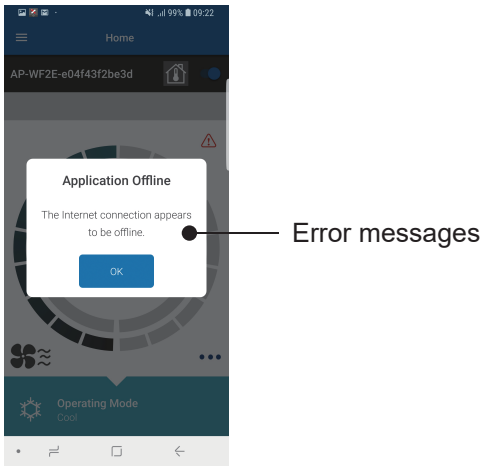
| Error message | Error Code | Trouble shooting |
|---|---|---|
| Serial communication error (Serial Reverse Transfer Error) | 11.1/ 11.2 | 1-1 |
| Serial communication error (Serial Forward Transfer Error) | 11.3/11.4 | 1-2 |
| Wired remote controller communication error | 12.1 | 2 |
| Combination error | 18.1 | 3 |
| Indoor unit PCB model information error | 32.1 | 4 |
| Manual auto switch error | 35.1 | 5 |
| Room temp. sensor error | 41.1 | 6 |
| Indoor unit Heat Ex. Middle temp. sensor error | 42.2 | 7 |
| Indoor unit fan motor error | 51.1/ 51.2 | 8 |
| Outdoor unit main PCB model information error | 62.1/ 62.2 | 9 |
| Inverter error | 63.1/ 63.2 | 10 |
| PFC circuit error | 64.1/ 64.3 | 11 |
| | 64.4/ 64.8 | |
| Trip terminal L error | 65.3 | 12 |
| Discharge temp. sensor error | 71.1 | 13 |
| Outdoor unit Heat Ex. liquid temp.sensor error | 73.3 | 14 |
| Outdoor temp. sensor error | 74.1 | 15 |
| Current sensor error | 84.1 | 16 |
| High Pressure Switch Error | 86.4 | 17 |
| Trip detection | 94.1 | 18 |
| Compressor rotor position detection error | 95.1/ 95.3 | 19 |
| Outdoor unit fan motor error | 97.3 | 20 |
| 4-way valve error | 99.1 | 21 |
| Discharge temp. error | A1.1 | 22 |

## 2-1-4 MOBILE APP DISPLAY ( In Wireless LAN Control system )

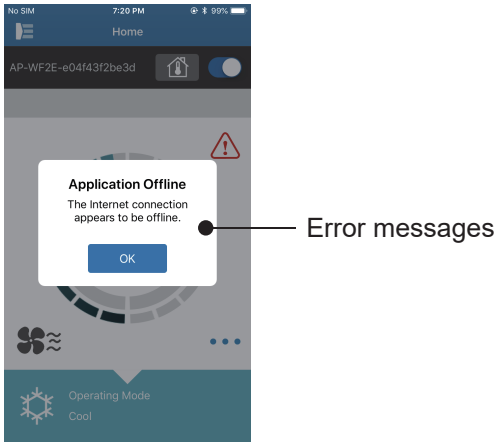
1.ERROR DISPLAY

If there is an abnormality on the Wireless LAN control system, you will see is as follows.
Error messages will disappear at 5 seconds. Then return to normal display.

For Android




For iOS




2.ERROR MESSAGES LIST

■Mobile app errors

**Registration Errors (For Android)**

| Error messages | Causes | Solutions |
|---|---|---|
| Wi-Fi must be enabled to set up new device | The user has disabled Wi-Fi on their mobile device. | Enable Wi-Fi from the Android setting. |
| We weren't able to sign you onto null. Please go to the Wi-Fi settings and join the network from there.<br>Return to the app when you're done. | The mobile device and air conditioner are connected to different Wi-Fi networks when attempting to register. | Connect the mobile device to the same network as the air conditioner, then retry the registration. |
| Could not connect to the device at this time. Please reset the device and try again. | The air conditioner is not connected to Wi-Fi. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet. |
| | Mobile device is not connected to the same network as the air conditioner. | Connect the mobile device to the same network as the air conditioner, then retry the registration. |
| The device failed to connect with service. | Your internet access may be down or blocking requests to the service. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet, then retry the registration. |

| Error messages | Causes | Solutions |
|---|---|---|
| Could not register the device. Make sure the device is ready for registration. | The air conditioner is not connected to the router. | Enter the Wi-Fi setting on the mobile device, then check if the SSID of the air conditioner (AP-WF∗∗- ∗∗∗∗∗∗∗∗∗∗∗∗) is connected. If the air conditioner is connected, retry the registration. |
| | The router the air conditioner is connected to, has no internet access. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then open the website.) If there is no access, connect the router to the internet, then retry the registration. |
| | The air conditioner is already registered. | If there is a mobile device that has already been registered to the air conditioner, unregister by using the registered mobile device. Retry the registration with the mobile device you wish to register.<br>If you do not own the mobile device registered to the air conditioner (lost, property of previous owner, etc.), please ask your maker service to unregister the mobile device. Please notify the MAC address of the WLAN adapter as written on the Wireless LAN label. |
| | * If the problem persists even if the all of the above is conducted, please contact your dealer or authorized service personnel. When asking for advice, please notify the MAC address of the WLAN adapter as written on the Wireless LAN label. | |
| Please ensure your air conditioner is ready to pair, and that you have entered its SSID and password correctly. | Occurs when pairing is executed, when the user erroneously enter the SSID of the adapter. | Enter the SSID literally. (Uppercase and lowercase letters also match) |

## Registration Errors (For iOS)

| Error messages | Causes | Solutions |
|---|---|---|
| You need an internet connection to add new devices. | The user has disabled Wi-Fi on their mobile device. | Enable Wi-Fi from the iOS setting. |
| Could not register same LAN device. Make sure both devices are in the same LAN and try again to register. | The mobile device and air conditioner are connected to different Wi-Fi networks when attempting to register. | Connect the mobile device to the same network as the air conditioner, then retry the registration. |
| No registrable device was found. Make sure Wi-Fi setup was successful. This method only works if the Wi-Fi was recently performed. | The air conditioner is not connected to Wi-Fi. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet. |
| | Mobile device is not connected to the same network as the air conditioner. | Connect the mobile device to the same network as the air conditioner, then tap register button. |
| Could not register the device. Make sure the device is ready for registration. | The air conditioner is not connected to the router. | Enter the Wi-Fi setting on the mobile device, then check if the SSID of the air conditioner (AP-WF∗∗- ∗∗∗∗∗∗∗∗∗∗∗∗) is connected. If the air conditioner is connected, retry the registration. |

| Error messages | Causes | Solutions |
|---|---|---|
| Could not register the device. Make sure the device is ready for registration. | The router the air conditioner is connected to, has no internet access. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet, then retry the registration. |
| | The air conditioner is already registered. | If there is a mobile device that has already been registered to the air conditioner, unregister by using the registered mobile device. Retry the registration with the mobile device you wish to register.<br>If you do not own the mobile device registered to the air conditioner (lost, property of previous owner, etc.), please ask your maker service to unregister the mobile device. Please notify the MAC address of the WLAN adapter as written on the Wireless LAN label. |
| | * If the problem persists even if the all of the above is conducted, please contact your dealer or authorized service personnel. When asking for advice, please notify the MAC address of the WLAN adapter as written on the Wireless LAN label. | |
| Please ensure your air conditioner is ready to pair, and that you have entered its SSID and password correctly. | Occurs when pairing is executed, when the user erroneously enter the SSID of the adapter. | Enter the SSID literally. (Uppercase and lowercase letters also match) |

## General Errors (For Android)

| Error messages | Causes | Solutions |
|---|---|---|
| No connectivity to Wi-Fi or the cloud. Please check your network connection. | The mobile device has no internet access. | Connect the mobile device to the internet. |
| An error occurred while trying to update your profile. Please try again later. | | |
| Device is offline and cannot be modified. | The router the air conditioner is connected to, has no internet access. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website.) If there is no access, connect the router to the internet. |
| | The air conditioner is not connected to the router. | Check the W-LAN LED indicators on the air conditioner. If the W-LAN LED lamp is flashing or off, please check the TROUBLESHOOTING “State of the Wireless LAN indicators”. |

## General Errors (For iOS)

| Error messages | Causes | Solutions |
|---|---|---|
| Failed to change password. | The mobile device has no internet access. | Connect the mobile device to the internet. |
| Cloud not determine service reachability. | | |
| Failed to update property. | | |
| Could not retrieve schedules. | | |
| The operation couldn't be completed. Operation timed out. | | |
| "Device name" is offline. (Device name varies depending on the air conditioner) | The router the air conditioner is connected to has no internet access. | Check if the router connected to the air conditioner has internet access. (You can check by connecting the mobile device to the router, then opening the website to check access.) If there is no access, connect the router to the internet. |
| | The air conditioner is not connected to the router. | Check the W-LAN LED indicators on the air conditioner. If the W-LAN LED lamp is flashing or off, please check the TROUBLESHOOTING "State of the Wireless LAN indicators". |

## Sign-in Errors (For Android/ iOS)

| Error messages | Causes | Solutions |
|---|---|---|
| Could not reach service. | The mobile device has no internet access. | Connect the mobile device to the internet. |

## 2-2 TROUBLESHOOTING WITH ERROR CODE

| | |
|---|---|
| **Trouble shooting 1**<br>**OUTDOOR UNIT Error Method:**<br>**Serial communication error (Serial Reverse Transfer Error)** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 11]** |

| | |
|---|---|
| **Detective Actuators:**<br>Outdoor unit Main PCB<br>Outdoor unit fan motor | **Detective details:**<br>When the indoor unit cannot receive the serial signal from Outdoor unit more than 2minutes after power ON, or the indoor unit cannot receive the serial signal more than 15seconds during normal operation. |

**Forecast of Cause:**

1.Connection failure 2. External cause 3. Main PCB failure 4. Outdoor unit fan motor failure

**Check Point 1-1 : Reset the power and operate**

- Does Error indication show again?

**NO** → **Check Point 1-2: Check external cause such as noise**

- Check the complete insulation of the grounding.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

**YES** ↓

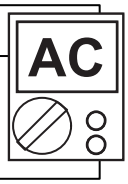
**Check Point 2 : Check Connection**

- Check any loose or removed connection line of Indoor unit and Outdoor unit.

**>>If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**

**OK** ↓

**Check Point 3 : Check the voltage of power supply**

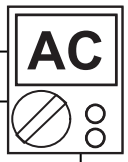



- Check the voltage of power supply

**>>Check if AC198V (AC220V -10%) - 264V (AC240V +10%) appears at Outdoor Unit Terminal L - N.**

**OK** ↓

**Check Point 4 : Check Serial Signal (Reverse Transfer Signal)**



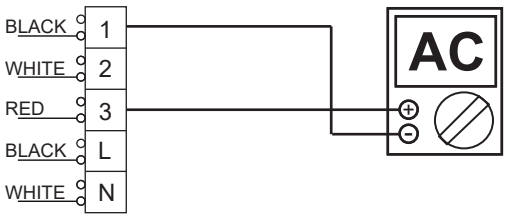

- Check Serial Signal (Reverse Transfer Signal)

**>>Check if Indicated value swings between AC90V and AC270V at Outdoor Unit Terminal 1 - 3.**

**>>If it is abnormal, Check Outdoor unit fan motor (PARTS INFORMATION 5)**

**>>If Outdoor fan motor is abnormal, replace Outdoor unit fan motor and Main PCB.**

**>>If Outdoor fan motor is normal, replace Main PCB.**



| Trouble shooting 2<br>**INDOOR UNIT Error Method:**<br>**Serial communication error (Serial Forward Transfer Error)** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 1 time Flash Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 11]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Indoor unit fan motor<br>Outdoor unit Main PCB | When the outdoor unit cannot receive the serial signal from Indoor unit more than 10seconds. |

**Forecast of Cause:**

1.Connection failure 2. External cause 3. Controller PCB failure 4. Indoor unit fan motor failure 5.Outdoor unit Main PCB

**Check Point 1-1 : Reset the power and operate**

- Does Error indication show again?

**NO** → **Check Point 1-2: Check external cause such as noise**

- Check the complete insulation of the grounding.
- Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

**YES** ↓

**Check Point 2 : Check Connection**

- Check any loose or removed connection line of Indoor unit and Outdoor unit.
  **>>If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**

**OK** ↓

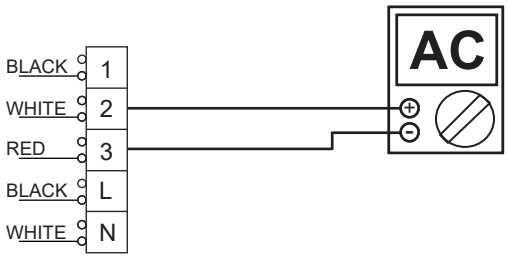
**Check Point 3 : Check the voltage of power supply**

- Check the voltage of power supply
  **>>Check if AC198V (AC220V -10%) - 264V (AC240V +10%) appears at Outdoor Unit Terminal L - N.**

**OK** ↓

**Check Point 4 : Check Serial Signal (Forward Transfer Signal)**

- Check Serial Signal (Forward Transfer Signal)
  **>>Check if Indicated value swings between AC30V and AC130V at Outdoor Unit Terminal 2 - 3.**
  **>>If it is abnormal, replace Controller PCB.**
  **>>If it is abnormal, Check Indoor unit fan motor. (PARTS INFORMATION 4)**
  **>>If Indoor unit fan motor is abnormal, replace Indoor unit fan motor and Controller PCB.**
  **>>If it is abnormal, replace Outdoor unit Main PCB.**



| Trouble shooting 3<br>**INDOOR UNIT Error Method:**<br>**Wired remote controller communication error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 1 time Flash, Timer lamp: 2 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 12]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Wired remote control | Upon receiving the signal more than 1 time from Wired Remote, but the same signal has not been received more than 1 minute (3 Wire type), 2.5 minute (2 Wire type) |

**Forecast of Cause:**

1. Terminal connection abnormal 2. Wired remote control failure 3. Controller PCB failure

Check Point 1 : Check the connection of terminal

After turning off the power, check & correct the followings.

- Check the connection of terminal between remote control and Indoor unit, and check if there is a disconnection of the cable.

**OK**

Check Point 2 : Check Remote control and Controller PCB

- Check Voltage at CN300 (Terminal 1-2) of UTY-TWRXZ2 (Communication kit). (Power supply to Remote control)

>> If it is DC12V, Remote control is failure. (Controller PCB is normal) >> Replace Remote control
>> If it is DC 0V, Controller PCB is failure. (Check Remote control once again) >> Replace Controller PCB

▶ **Upon correcting the removed connector or mis-wiring, reset the power.**

| Trouble shooting 4<br>**INDOOR UNIT Error Method:**<br>**Combination error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 2 time Flash, Timer lamp: 3 time Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 23]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit | 1. The outdoor unit receives the serial signal of applied refrigerant information from Indoor unit. When the refrigerant is R410a.<br>2. When the outdoor unit type is multi. |

**Forecast of Cause:**

1. The selection of indoor units is incorrect

Check Point 1 : Check the type of indoor unit

- Check the type of the connected indoor unit.
  **>> If abnormal condition is found, correct it.**

**OK**

Check Point 2 : Replace Main PCB

▶ **If Check Point 1 do not improve the symptom, replace Main PCB of Outdoor unit.**

| Trouble shooting 5<br>**INDOOR UNIT Error Method:**<br>**Indoor unit PCB model information error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 3 times Flash, Timer lamp: 2 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 32]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB | When power is on and there is some below case.<br>1.When model information of EEPROM is incorrect.<br>2.When the access to EEPROM failed. |

**Forecast of Cause:**

1.External cause 2. Defective connection of electric components 3. Controller PCB failure

Check Point 1-1 : Reset Power Supply and operate

・Does Error indication show again?

**NO** → Check Point 1-2 :

**YES** ↓

Check Point 2 :
Check Indoor unit electric components

・Check all connectors.
(loose connector or incorrect wiring)
・Check any shortage or corrosion on PCB.

↓

Check Point 3 : Replace Controller PCB

▶ **Change Controller PCB.**

Check Point 1-2 :
Check external cause such as noise

・Check if the ground connection is proper.
・Check if there is any equipment that causes harmonic wave near the power cable (Neon light bulb or any electronic equipment which causes harmonic wave).

**Note : EEPROM**

EEPROM(Electronically Erasable and Programmable Read Only Memory) is a non-volatile memory which keeps memorized information even if power is turned off. It can change the contents electronically.
To change the contents, it uses higher voltage than normal, and it can not change a partial contents. (Rewriting shall be done upon erasing the all contents.)
There is a limit in a number of rewriting.

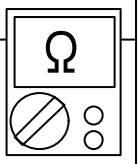
| Trouble shooting 6<br>**INDOOR UNIT Error Method:**<br>**Manual auto switch error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 3 times Flash, Timer lamp: 5 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 35]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Indicator PCB<br>Manual auto switch | When the Manual Auto Switch becomes ON for consecutive 60 or more seconds. |

**Forecast of Cause :**

1.Manual auto switch failure 2.Controller PCB and Indicator PCB failure

Check Point 1 : Check the Manual auto switch




- Check if Manual auto switch is kept pressed.
- Check ON/OFF switching operation by using a meter.

**>>If Manual Auto Switch is disabled (on/off switching), replace it.**

**OK**

Check Point 2 : Replace Controller PCB

▶ **If Check Point 1 do not improve the symptom, change Controller PCB and Indicator PCB.**

| Trouble shooting 7<br>**INDOOR UNIT Error Method:**<br>Room temp. sensor error | **Indicate or Display:**<br>Outdoor Unit : No indication<br>Indoor Unit : Operation lamp: 4 times Flash, Timer lamp: 1 time Flash<br>Economy lamp: Continuous flash.<br>ERROR CODE : [E : 41] |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Room temperature thermistor | When Room Temperature Thermistor open or short-circuit is detected. |

**Forecast of Cause :**

1.Connector connection failure 2.Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector

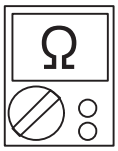
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -10°C | -5°C | 0°C | 5°C | 10°C | 15°C | 20°C | 25°C |
|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 58.2 | 44.0 | 33.6 | 25.9 | 20.2 | 15.8 | 12.5 | 10.0 |

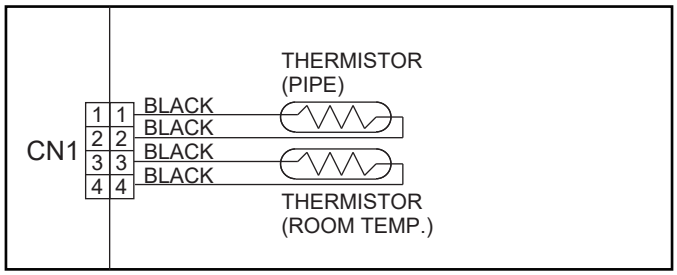
| Temperature | 30°C | 35°C | 40°C | 45°C |
|---|---|---|---|---|
| Resistance Value (kΩ) | 8.0 | 6.5 | 5.3 | 4.4 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of indoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Controller PCB.**

| Trouble shooting 8<br>**INDOOR UNIT Error Method:**<br>**Indoor unit Heat Ex. Middle temp. sensor error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 4 times Flash, Timer lamp: 2 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 42]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Heat Ex. temperature thermistor | When Heat Ex. Temperature Thermistor open or short-circuit is detected. |

**Forecast of Cause :**

1.Connector connection failure 2.Thermistor failure 3. Controller PCB failure

Check Point 1 : Check connection of Connector

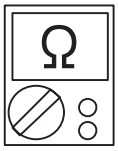
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -30°C | -20°C | -10°C | -5°C | 0°C | 5°C | 10°C | 20°C |
|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 1131.9 | 579.6 | 312.3 | 233.2 | 176.0 | 134.2 | 103.3 | 62.9 |

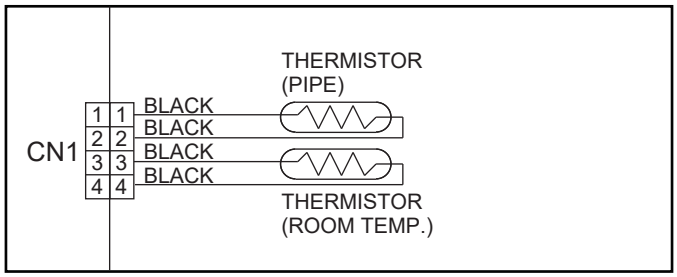
| Temperature | 30°C | 40°C | 50°C | 60°C | 63°C |
|---|---|---|---|---|---|
| Resistance Value (kΩ) | 39.6 | 25.6 | 17.1 | 11.6 | 10.4 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Controller PCB (DC5.0V)

Make sure circuit diagram of indoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Controller PCB.**

| Trouble shooting 9<br>**INDOOR UNIT Error Method:**<br>**Indoor unit fan motor error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 5 times Flash, Timer lamp: 1 time Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 51]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Indoor unit fan motor | When the condition that actual frequency of Indoor Fan is below 1/3 of target frequency is continued more than 56 seconds. |

**Forecast of Cause:**

1.Fan rotation failure 2. Fan motor winding open 3. Motor protection by surrounding temperature rise
4.Control PCB failure 5. Indoor unit fan motor failure

Check Point 1 : Check rotation of Fan

・Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
**>>If Fan or Bearing is abnormal, replace it.**

**OK**

Check Point 2 : Check ambient temp. around motor

・Check excessively high temperature around the motor.
(If there is any surrounding equipment that causes heat)
**>>Upon the temperature coming down, restart operation.**

**OK**

Check Point 3 : Check Indoor unit fan motor

・Check Indoor unit fan Motor. (PARTS INFORMATION 4)
**>>If Indoor unit fan motor is abnormal, replace Indoor unit fan motor and Controller PCB.**

**OK**

Check Point 4 : Replace Controller PCB

▶ **If Check Point 1- 3 do not improve the symptom, replace Controller PCB.**

| Trouble shooting 10<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor unit main PCB model information error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 2 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 62]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | Access to EEPROM failed due to some cause after outdoor unit started. |

**Forecast of Cause:**

1.External cause (Noise, temporary open, voltage drop) 2. Main PCB failure

Check Point 1-1 : Reset Power Supply and operate

・Does Error indication show again?

**NO** → Check Point 1-2 : Check external cause

- Check if temporary voltage drop was not generated.
- Check if momentary open was not generated.
- Check if ground is connection correctly or there are no related cables near the power line.

**YES** → Check Point 2 : Replace Main PCB

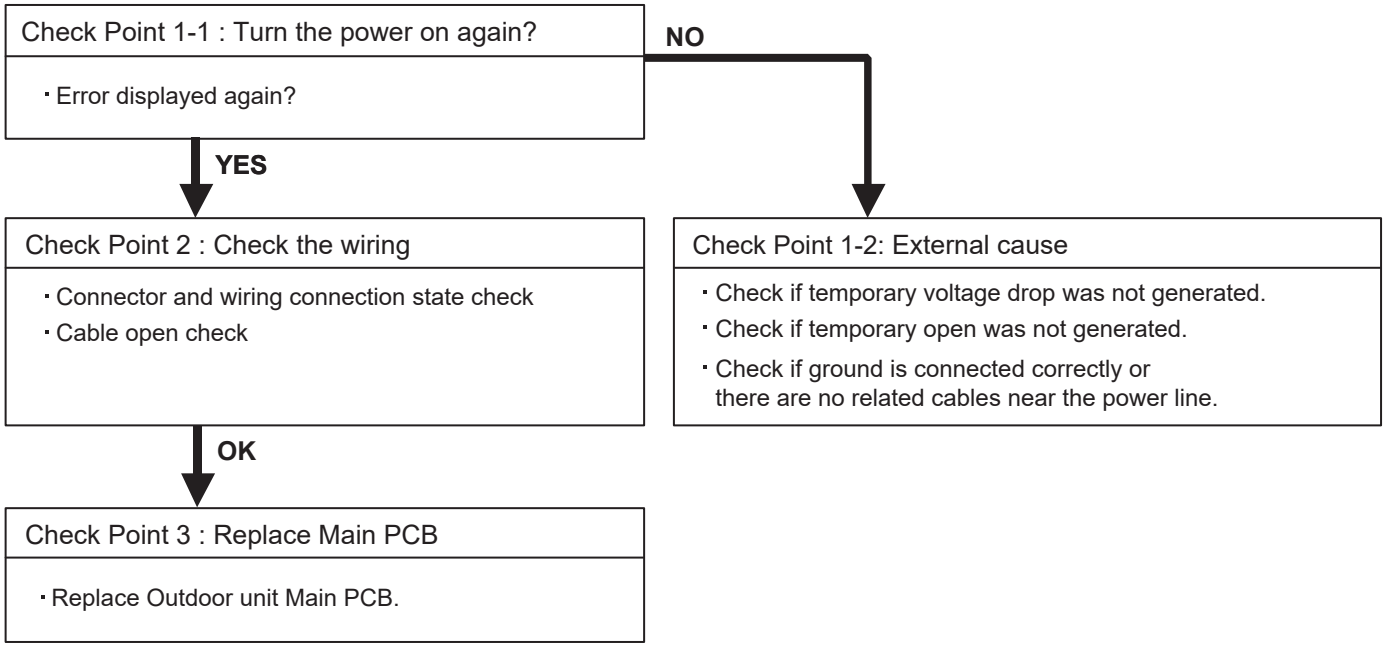
▶ **Change Main PCB.**

| Trouble shooting 11<br>**OUTDOOR UNIT Error Method:**<br><br>**Inverter error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 3 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 63]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | ・Error information received from Outdoor unit Main PCB |

**Forecast of Cause :**

1.External cause.
2.Power supply to Main PCB wiring disconnection, open
3.Outdoor unit Main PCB failure



| Trouble shooting 12<br>**OUTDOOR UNIT Error Method:**<br>**PFC circuit error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 4 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 64]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | When inverter output DC voltage is higher than 420V for over 3 seconds, the compressor stops.If the same operation is repeated 5 times, the compressor stops permanently. |

**Forecast of Cause :**

1.External cause 2. Connector connection failure 3. Main PCB failure

Check Point 1 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop : Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure : Check if there is a defective contact or leak current in the power supply circuit.
- Noise : Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding.

**OK**

Check Point 2 : Check connection of Connector

- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 3 : Replace Main PCB

▶ **If Check Point 1, 2 do not improve the symptom, change Main PCB.**

| Trouble shooting 13<br>**OUTDOOR UNIT Error Method:**<br>**Trip terminal L error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 6 times Flash, Timer lamp: 5 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 65]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | When the signal from FO terminal of IPM is "L"(=0V) while the compressor stops. |

**Forecast of Cause:**

1.Outdoor unit Main PCB failure

| Check Point 1 : Replace Main PCB |
|---|
| ▶ **Replace Outdoor unit Main PCB.** |

| Trouble shooting 14<br>**OUTDOOR UNIT Error Method:**<br>**Discharge temp. sensor error** | **Indicate or Display:**<br>**Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF**<br>**Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 1 time Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 71]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Discharge pipe temperature thermistor | When Discharge pipe temperature thermistor open or short-circuit is detected at power ON or while running the compressor. |

**Forecast of Cause :**

1.Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

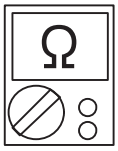
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -30°C | -20°C | -10°C | -5°C | 0°C | 5°C | 10°C | 20°C | 30°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 1013.1 | 531.6 | 292.9 | 221.1 | 168.6 | 134.2 | 100.9 | 62.6 | 40.0 |

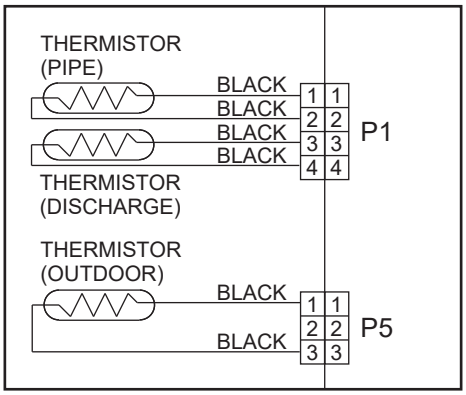
| Temperature | 40°C | 50°C | 60°C | 70°C | 80°C | 90°C | 100°C | 110°C | 120°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 26.3 | 17.8 | 12.3 | 8.7 | 6.3 | 4.6 | 3.4 | 2.6 | 2.0 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Main PCB.**

**For 24 type**

| Trouble shooting 15<br>**OUTDOOR UNIT Error Method:**<br>Compressor temp. sensor error | **Indicate or Display:**<br>Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF<br>Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 2 times Flash<br>Economy lamp: Continuous flash.<br>ERROR CODE : [E : 72] |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Compressor temperature thermistor | When Compressor temperature thermistor open or short-circuit is detected at power ON or while running the compressor. |

**Forecast of Cause :**

1.Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

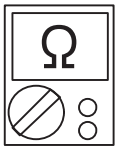
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -30°C | -20°C | -10°C | -5°C | 0°C | 5°C | 10°C | 20°C | 30°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 1013.1 | 531.6 | 292.9 | 221.1 | 168.6 | 134.2 | 100.9 | 62.6 | 40.0 |

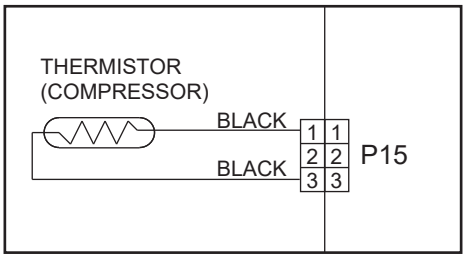
| Temperature | 40°C | 50°C | 60°C | 70°C | 80°C | 90°C | 100°C | 110°C | 120°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 26.3 | 17.8 | 12.3 | 8.7 | 6.3 | 4.6 | 3.4 | 2.6 | 2.0 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Main PCB.**

| Trouble shooting 16<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor unit Heat Ex. liquid temp. sensor error** | **Indicate or Display:**<br>**Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF**<br>**Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 3 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 73]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Heat exchanger temperature thermistor | When Heat exchanger temperature thermistor open or short-circuit is detected at power ON or while running the compressor. |

**Forecast of Cause :**

1.Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

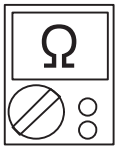
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -30°C | -20°C | -10°C | -5°C | 0°C | 5°C | 10°C | 20°C | 30°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 95.6 | 50.3 | 27.8 | 21.0 | 16.1 | 12.4 | 9.6 | 6.0 | 3.8 |

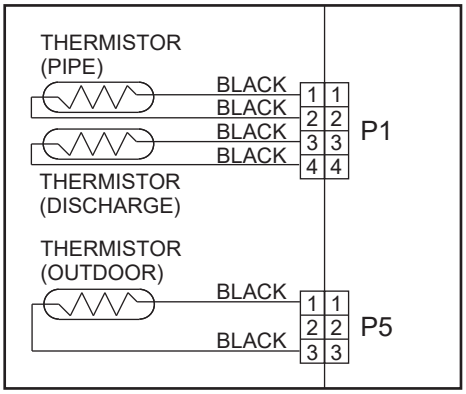
| Temperature | 40°C | 50°C | 60°C | 70°C | 80°C |
|---|---|---|---|---|---|
| Resistance Value (kΩ) | 2.5 | 1.7 | 1.2 | 0.8 | 0.6 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Main PCB.**

| Trouble shooting 17<br>**OUTDOOR UNIT Error Method:**<br>Outdoor temp. sensor error | **Indicate or Display:**<br>Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF<br>Indoor Unit : Operation lamp: 7 times Flash, Timer lamp: 4 times Flash<br>Economy lamp: Continuous flash.<br>ERROR CODE : [E : 74] |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Outdoor temperature thermistor | When Outdoor temperature thermistor open or short-circuit is detected at power ON or while running the compressor. |

**Forecast of Cause :**

1. Connector connection failure 2.Thermistor failure 3. Main PCB failure

Check Point 1 : Check connection of Connector

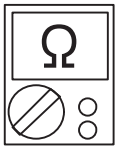
- Check if connector is removed.
- Check erroneous connection.
- Check if thermistor cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Remove connector and check Thermistor resistance value

Thermistor Characteristics (Approx. value)




| Temperature | -30°C | -25°C | -20°C | -15°C | -10°C | -5°C | 0°C | 5°C | 10°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 224.3 | 159.7 | 115.2 | 84.2 | 62.3 | 46.6 | 35.2 | 26.9 | 20.7 |

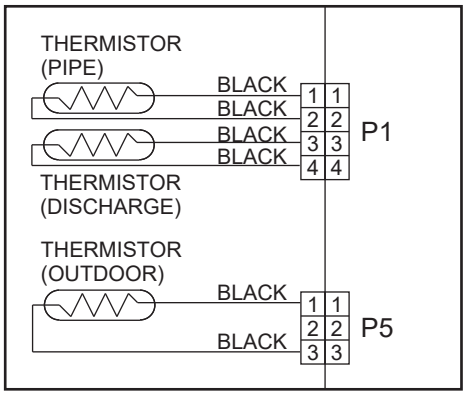
| Temperature | 15°C | 20°C | 25°C | 30°C | 35°C | 40°C | 45°C | 50°C | 55°C |
|---|---|---|---|---|---|---|---|---|---|
| Resistance Value (kΩ) | 16.1 | 12.6 | 10.0 | 8.0 | 6.4 | 5.2 | 4.2 | 3.5 | 2.8 |

▶ **If Thermistor is either open or shorted, replace it and reset the power.**

**OK**

Check Point 3 : Check voltage of Main PCB (DC5.0V)

Make sure circuit diagram of outdoor unit and check terminal voltage at Thermistor (DC5.0V)




▶ **If the voltage does not appear, replace Main PCB.**

| Trouble shooting 18<br>**OUTDOOR UNIT Error Method:**<br>Current sensor error | **Indicate or Display:**<br>Outdoor Unit : LED 2sec ON/ 2sec OFF<br>Indoor Unit : Operation lamp: 8 times Flash, Timer lamp: 4 times Flash<br>Economy lamp: Continuous flash.<br>ERROR CODE : [E : 84] |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB | When Input Current Sensor has detected 0A, while Inverter Compressor is operating at higher than 56rps, after 1minute upon starting the Compressor. (Except during the defrost operation) |

**Forecast of Cause :**

1.Defective connection of electric components 2.External cause 3.Main PCB failure

Check Point 1-1 : Reset Power Supply and operate

- Does Error indication show again?

NO → Check Point 1-2

YES ↓

Check Point 2 :
Check connections of Outdoor Unit Electrical Components

- Check if the terminal connection is loose.
- Check if connector is removed.
- Check erroneous connection.
- Check if cable is open.

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

OK ↓

Check Point 4 : Replace Main PCB

▶ **If Check Point 1, 2 do not improve the symptom, change Main PCB.**

Check Point 1-2 :
Check external cause at Indoor and Outdoor
(Voltage drop or Noise)

- Instant drop : Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure : Check if there is a defective contact or leak current in the power supply circuit.
- Noise : Check if there is any equipment causing harmonic wave near electric line.(Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding.

**For 24 type**

| **Trouble shooting 19**<br>**OUTDOOR UNIT Error Method:**<br>**High Pressure Switch Error** | **Indicate or Display:**<br>**Outdoor Unit : LED 0.1sec ON/ 0.1sec OFF**<br>**Indoor Unit : Operation lamp: 8 times Flash, Timer lamp: 6 times Flash**<br>**Economy lamp : Continuous flash.**<br>**ERROR CODE : [E : 86]** |
|---|---|
| **Detective Actuators:**<br>Outdoor unit Main PCB<br>High Pressure Switch | **Detective details:**<br>When pressure switch open is detected in 10 seconds after the power is turned on. |

**Forecast of Cause :**

1.High pressure switch connector disconnection, open
2.High pressure switch characteristics failure
3.Main PCB failure

Check Point 1 : Check the high pressure switch connection state

・Connector and wiring connection state check
・Cable open check

**OK**

Check Point 2 : Check the high pressure switch characteristics

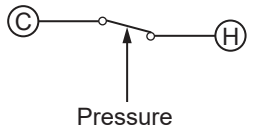
・Switch characteristics check
*For the characteristics of high pressure switch, refer to below.

**OK**

Check Point 3 : Replace Main PCB

・**Change Main PCB, and execute the check operation again.**

・Type of contact




・Characteristics of high pressure switch (P20)

| | high pressure switch |
|---|---|
| Contact : Short ⇒ Open | 4.2±0.1MPa |
| Contact : Open ⇒ Short | 3.2±0.15MPa |

| Trouble shooting 20<br>**OUTDOOR UNIT Error Method:**<br>**Trip detection** | **Indicate or Display:**<br>**Outdoor Unit : LED 0.5sec ON/ 0.5sec OFF**<br>**Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 4 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 94]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Compressor | ・"**Protection stop** by overcurrent generation after inverter compressor start processing completed" generated consecutively 10 times.<br>*The number of generations is reset if the start-up ofthe compressor succeeds. |

**Forecast of Cause :**

1. Outdoor unit fan operation defective, foreign matter on hear exchanger, excessive rise of ambient temperature
2. Main PCB
3. Inverter compressor failure (lock, winding short)

Check Point 1 : Check the outdoor unit fan operation, heat exchanger, ambient temperature

- No obstructions in air passages?
- Heat exchange fins clogged
- Outdoor unit fan motor check
- Ambient temperature not raised by the effect of other heat sources?
- Discharged air not sucked in?

**OK**

Check Point 2: Replace Main PCB

▶ **If Check Point 1 do not improve the symptom, change Main PCB.**

**OK**

Check Point 3: Replace Compressor

▶ **If Check Point 2 do not improve the symptom, change Compressor.**

| Trouble shooting 21<br>**OUTDOOR UNIT Error Method:**<br>**Compressor rotor position detection error** | **Indicate or Display:**<br>**Outdoor Unit : LED 0.1sec ON/ 2sec OFF**<br>**Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 5 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 95]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Compressor | ① While running the compressor, if the detected rotor location is out of phase with actual rotor location more than 105°, the compressor stops.<br>② After the compressor restarts, if the same operation is repeated within 40sec, the compressor stops again.<br>③ If ① and ② repeats 5 times, the compressor stops permanently. |

**Forecast of Cause :**

1.Defective connection of electric components 2. Main PCB failure 3. Compressor failure

Check Point 1 : Check Noise from Compressor

・Turn on Power and check operation noise.

▶ **If an abnormal noise show, replace Compressor.**

**OK**

Check Point 2 : Check connection of around the Compressor components

For Compressor Terminal, Main PCB

・Check if connector is removed.
・Check erroneous connection.
・Check if cable is open.
(Refer to PARTS INFORMATION 2)

**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 3: Replace Main PCB

▶ **If Check Point 1,2 do not improve the symptom, change Main PCB.**

**OK**

Check Point 4: Replace Compressor

▶ **If Check Point 3 do not improve the symptom, change Compressor.**

| Trouble shooting 22<br>**OUTDOOR UNIT Error Method:**<br>**Outdoor unit fan motor error** | **Indicate or Display:**<br>**Outdoor Unit : LED 5sec ON/ 5sec OFF**<br>**Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 7 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 97]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Outdoor unit fan motor | ① When outdoor fan rotation speed is less than 100rpm in 20 seconds after fan motor starts, fan motor stops.<br>② After fan motor restarts, if the same operation within 60sec is repeated 3 times in a row, compressor and fan motor stops.<br>③ If ① and ② repeats 5 times in a row, compressor and fan motor stops permanently. |

**Forecast of Cause:**

1.Fan rotation failure 2. Motor protection by surrounding temperature rise 3. Main PCB failure
4.Outdoor unit fan motor failure

Check Point 1 : Check rotation of Fan

・Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
**>>If Fan or Bearing is abnormal, replace it.**

**OK**

Check Point 2 : Check ambient temp. around motor

・Check excessively high temperature around the motor.
(If there is any surrounding equipment that causes heat)
**>>Upon the temperature coming down, restart operation.**

**OK**

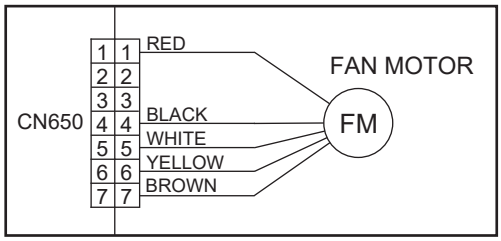
Check Point 3 : Check Outdoor unit fan motor

・Check Outdoor unit fan motor. **(PARTS INFORMATION 5)**
**>>If Outdoor Fan Motor is abnormal, replace Outdoor fan motor and Main PCB.**

**OK**

Check Point 4 : Check Output Voltage of Main PCB

・Check outdoor unit circuit diagram and the voltage. (Measure at Main PCB side connector)




| Lead wire | DC voltage |
|---|---|
| Red - Black | 280V (AC220V-10%) ~ 373V (AC240+10%) |
| White - Black | 15±1.5V |

▶ **If the voltage is not correct, replace Main PCB.**

| Trouble shooting 23<br>**OUTDOOR UNIT Error Method:**<br>**4-way valve error** | **Indicate or Display:**<br>**Outdoor Unit : No indication**<br>**Indoor Unit : Operation lamp: 9 times Flash, Timer lamp: 9 times Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : 99]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Indoor unit Controller PCB<br>Heat Ex. temperature thermistor<br>Room temperature thermistor<br>4-way valve | When the indoor heat exchanger temperature is compared with the room temperature, and either following condition is detected continuously 2 times, the compressor stops.<br>・Cooling or Dry operation<br>[Indoor heat exchanger temp.] - [Room temp.] > 10degC<br>・Heating operation<br>[Indoor heat exchanger temp.] - [room temp.] < -10degC<br>If the same operation is repeated 5 times, the compressor stops permanently. |

**Forecast of Cause :**

1.Connector connection failure 2. Thermistor failure 3. Coil failure 4. 4-way valve failure
5.Controller PCB failure

Check Point 1 : Check connection of Connector

・Check if connector is removed.
・Check erroneous connection.
・Check if thermistor cable is open.
**>>Upon correcting the removed connector or mis-wiring, reset the power.**

**OK**

Check Point 2 : Check each thermistor

・Isn't it fallen off the holder?
・Is there a cable pinched?

**>>Check characteristics of thermistor (Refer to Trouble shooting 7, 8),**
**If defective, replace the thermistor**

**OK**

Check Point 3 : Check the solenoid coil and 4-way valve

[ Solenoid coil ]
・Remove P60 from PCB and check the resistance value of coil.
Resistance value is 2780Ω
**>>If it is Open or abnormal resistance value, replace Solenoid Coil.**

[ 4-way valve ]
・Check each piping temperature,
and the location of the valve by the temperature difference.
**>>If the value location is not proper, replace 4-way valve.**

**OK**

Check Point 4 : Replace Controller PCB

▶ **If Check Point 1- 3 do not improve the symptom, replace Controller PCB.**

| Trouble shooting 24<br>**OUTDOOR UNIT Error Method:**<br>Discharge temp. error | **Indicate or Display:**<br>**Outdoor Unit : Continuously lighting**<br>**Indoor Unit : Operation lamp: 10 times Flash, Timer lamp: 1 time Flash**<br>**Economy lamp: Continuous flash.**<br>**ERROR CODE : [E : A1]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Outdoor unit Main PCB<br>Discharge pipe temperature thermistor | ① When the discharge temperature becomes higher than 110°C, the compressor stops.<br>② After the compressor restarts, if the same operation is repeated, the compressor stops permanently. |

**Forecast of Cause :**

1. Valve is close 2. EEV failure 3. Gas Leak, less 4. Discharge Thermistor failure
5. Outdoor Fan Operation failure 6. Outdoor Heat Exchanger clogged

< Cooling mode >

**Check Point 1 : Check if Gas Valve is open**

- If it is not open, open it and check the operation.

**OK**

**Check Point 2 : Check EEV and Strainer**

- Are EEV and Strainer open? (Refer to PARTS INFORMATION 3)

**>>If EEV or Strainer is defective, replace it.**

**OK**

< Heating mode >

**Check Point 1 : Check if LIquid Valve is open**

- If it is not open, open it and check the operation.

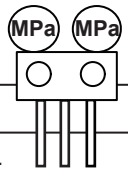
**OK**

**Check Point 2 : Check EEV and Strainer**

- Are EEV and Strainer open? (Refer to PARTS INFORMATION 3)

**>>If EEV or Strainer is defective, replace it.**

**OK**




**Check Point 3 : Check if gas leak or less gas**

- Measure Gas pressure, if there is a leak, correct it.

**>>If recharging refrigerant, make sure to perform vacuuming and recharge the specified amount.**

**OK**

**Check Point 4 : Check Discharge Thermistor**

- Isn't it fallen off the holder?
- Is there a cable pinched?

**>> Check characteristics of thermistor (Refer to Trouble shooting 14), If defective, replace the thermistor**

**OK**

**Check Point 5 : Check Outdoor FAN, Heat Exchanger**

- Is there anything obstructing the air distribution circuit?
- Is there any clogging of Outdoor Heat Exchanger?
- Is the Fan rotating? (Check by hand and if it is locked, replace the motor)
- Check Outdoor Fan Motor.

**>>If the Fan Motor is defective, replace it.**

| Trouble shooting 25<br>**OUTDOOR UNIT Error Method:**<br>Compressor temp. error | **Indicate or Display:**<br>Outdoor Unit : Continuously lighting<br>Indoor Unit : Operation lamp: 10 times Flash, Timer lamp: 3 times Flash<br>Economy lamp: Continuous flash.<br>ERROR CODE : [E : A3] |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Compressor temperature thermistor | ・"Protection stop by "compressor temperature ≧ 108°C during compressor operation"" generated 2 times within 24 hours. |

**Forecast of Cause :**
1. 3-way valve not opened
2. EEV defective, strainer clogged
3. Outdoor unit operation failure, foreign matter on heat exchanger
4. Compressor temperature thermistor failure
5. Insufficient refrigerant

< Cooling mode >

**Check Point 1 : Check if 3-way valve(gas side) is open.**
- If the 3-way valve(gas side) was closed, open the 3-way valve(gas side) and check operation.

↓ OK

**Check Point 2 : Check the EEV, strainer**
- EEV open?
- Strainer clogging check (before and after EEV, ACM, oil return) Refer to "Service Parts Information 3"

↓ OK

**Check Point 3 : Check the outdoor unit fan,heat exchanger**
- Check for foreign object at heat exchanger
- Check if fan can be rotated by hand.
- Motor check (PARTS INFORMATION 5)

↓ OK

**Check Point 4 : Check the compressor temp. thermistor**
- Compressor temp. thermistor characteristics check (Check by disconnecting thermistor from PCB. **Refer to the Troubleshooting 15**)

↓ OK

**Check Point 5 : Check the refrigerant amount**
- Leak check

< Heating mode >

**Check Point 1 : Check if 3-way valve(liquid side) is open.**
- If the 3-way valve(liquid side) was closed, open the 3-way valve(liquid side) and check operation.

↓ OK

**Check Point 2 : Check EEV and Strainer**
- EEV open?
- Strainer clogging check (before and after EEV, ACM, oil return) Refer to "Service Parts Information 3"

↓ OK → Check Point 3

# 2-3 TROUBLESHOOTING WITH NO ERROR CODE

**Trouble shooting 26**

Indoor unit - No Power

**Forecast of Cause:**

1.Power Supply failure 2. External cause
3.Electrical Components defective

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
- Check loose or removed connection cable.

**>>If abnormal condition is found, correct it by referring to Installation Manual or Data & Technical Manual.**

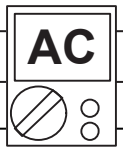
**OK**

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line. (Neon bulb or electric equipment that may cause harmonic wave) Check the complete insulation of grounding.

**OK**

Check Point 3 : Check Electrical Components




- Check the voltage of power supply.

**>>Check if AC198 - 264V appears at Outdoor unit Terminal L - N.**

**NO**

**YES**

- Check Fuse in Inverter case assy.

**>>If Fuse is open, check if the wiring between Terminal and Main PCB is loose, and replace Fuse.**

- Check Varistor in Main PCB.

**>>If Varistor is defective, there is a possibility of an abnormal power supply. Check the correct power supply and replace Varistor. Upon checking the normal power supply, replace Varistor.**

**OK**

▶ **If the symptom does not change by above Check 3, replace Main PCB.**

**Trouble shooting 27**

Outdoor unit - No Power

**Forecast of Cause:**

1.Power Supply failure 2. External cause
3.Electrical Components defective

Check Point 1 : Check Installation Condition

- Isn't the breaker down?
- Check loose or removed connection cable.

**>>If abnormal condition is found, correct it by referring to Installation Manual or Data & Technical Manual.**

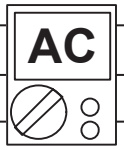
**OK**

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
  (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

**OK**

Check Point 3 : Check Electrical Components




- Check the voltage of power supply.

**>>Check if AC198 - 264V appears at Outdoor unit Terminal L - N.**

**NO**

**YES**

- Check Fuse in Main PCB.

**>>If Fuse is open, check if the wiring between Terminal and Main PCB is loose, and replace Fuse.**

**OK**

▶ **If the symptom does not change by above Check 3, replace Main PCB.**

**Trouble shooting 28**

No Operation (Power is ON)

**Forecast of Cause:**

1.Setting/ Connection failure
2. External cause
3.Electrical Component defective

Check Point 1 : Check indoor and outdoor installation condition

- Indoor unit - Check incorrect wiring between Indoor unit - Remote control.
  Or, check if there is an open cable connection.
- Are these Indoor unit, Outdoor unit, and Remote control suitable model numbers to connect?
  **>>If there is some abnormal condition, correct it by referring to Installation manual and Data & Technical Manual.**

**OK**

Turn off Power and check/ correct followings.

- Is there loose or removed communication line of Indoor unit and Outdoor unit?

**OK**

Check Point 2 : Check external cause at Indoor and Outdoor (Voltage drop or Noise)

- Instant drop ----- Check if there is a large load electric apparatus in the same circuit.
- Momentary power failure ----- Check if there is a defective contact or leak current in the power supply circuit.
- Noise ----- Check if there is any equipment causing harmonic wave near electric line.
  (Neon bulb or electric equipment that may cause harmonic wave)
  Check the complete insulation of grounding.

**OK**

Check Point 3 : Check Electrical Components at Indoor and Outdoor

- Check Voltage at CN300 (Terminal 1-2) of UTY-TWRXZ2 (Communication kit).
  (Power supply to Remote control)

**>> If it is DC12V, Remote control is failure. (Controller PCB is normal) >> Replace Remote control**
**>> If it is DC 0V, Controller PCB is failure. (Check Remote control once again) >> Replace Controller PCB**

**>>If the symptom does not change by above Check 1, 2, 3, replace Main PCB of Outdoor unit.**

**Trouble shooting 29**

No Cooling / No Heating

**Forecast of Cause:**

1.Indoor unit error 2.Outdoor unit error
3.Effect by Surrounding environment
4.Connection Pipe / Connection Wire failure 5. Refrigeration cycle failure

### Check Point 1 : Check Indoor unit

- Does Indoor unit FAN run on HIGH FAN?
- Is Air Filter dirty?
- Is Heat Exchanger clogged?
- Check if Energy save function is operated.

**OK**

### Check Point 2 : Check Outdoor unit operation

- Check if Outdoor unit is operating
- Check any objects that obstruct the air flow route.
- Check clogged Heat Exchanger.
- Is the Valve open?

**OK**

### Check Point 3 : Check Site condition

- Is capacity of Indoor unit fitted to Room size?
- Any windows open? Or direct sunlight ?

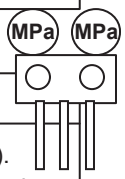
**OK**

### Check Point 4 : Check Indoor/ Outdoor Installation condition

- Check connection pipe (specified pipe length & Pipe diameter?)
- Check any loose or removed communication line.

**>> If there is an abnormal condition, correct it by referring to Installation Manual or Data & Technical Manual.**

**OK**




### Check Point 5 : Check Refrigeration cycle

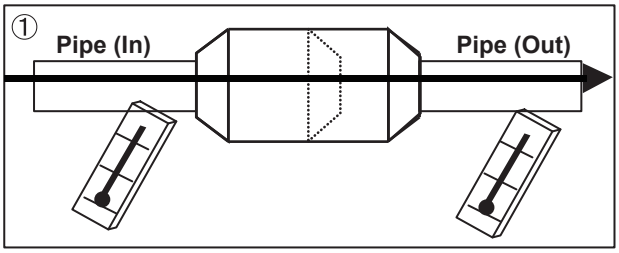
- Check if Strainer is clogged (Refer to the figure at right).
- Measure Gas Pressure and if there is a leakage, correct it.

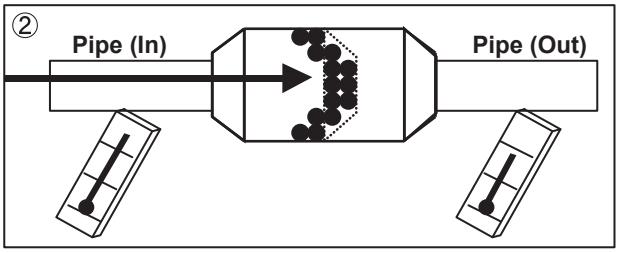
**>> When recharging the refrigerant, make sure to perform vacuuming, and recharge the specified amount.**

- Check EEV (PARTS INFORMATION 3)
- Check Compressor (PARTS INFORMATION 1,2)

**Attention**

Strainer normally does not have temperature difference between inlet and outlet as shown in ①, but if there is a difference like shown in ②, there is a possibility of inside clogged. In this case, replace Strainer.



**Trouble shooting 30**

Abnormal Noise

**Forecast of Cause :**

1. Abnormal installation (Indoor/ Outdoor)
2. Fan failure (Indoor/ Outdoor)
3. Compressor failure (Outdoor)

Diagnosis method when Abnormal Noise is occurred

- Abnormal noise is coming from Indoor Unit. (Check and correct followings)

- Is Main unit installed in stable condition?
- Is the installation of air suction grille and front panel normal?

**OK**

- Is Fan broken or deformed?
- Is the screw of Fan loose?
- Is there any object which obstruct the Fan rotation?

- Abnormal noise is coming from Outdoor Unit. (Check and correct followings)

- Is Main Unit installed in stable condition?
- Is Fan Guard installed normally?

**OK**

- Is Fan broken or deformed?
- Is the screw of Fan loose?
- Is there any object which obstruct the Fan rotation?

**OK**

- Check if vibration noise by loose bolt or contact noise of piping is happening.

**OK**

- Is Compressor locked?
  >> Check Compressor (PARTS INFORMATION 1,2)

---

**Trouble shooting 31**

Water Leaking

**Forecast of Cause:**

1. Erroneous installation 2. Drain hose failure

Diagnosis method when water leak occurs

- Is Main Unit installed in stable condition?
- Is Main Unit broken or deformed at the time of transportation or maintenance?

**OK**

- Is Drain Hose connection loose?
- Is there a trap in Drain Hose?
- Is Drain Hose clogged?

**OK**

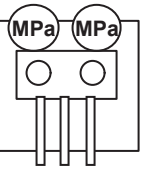
- Is Fan rotating?

Diagnosis method when water is spitting out.

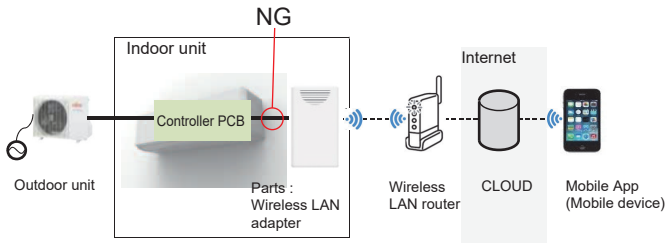
- Is the filter clogged?

**OK**

- Check Gas Pressure and correct it if there was a gas leak.



# 2-4 TROUBLESHOOTING WITH ERROR CODE (For WIRELESS LAN ADAPTER)

| | |
|---|---|
| **Trouble shooting 32**<br>**INDOOR UNIT Error Method:**<br>External Communication Error<br>(Communication Error of between IndoorUnit to WirelessLANadapter) | **Indicate of Display:**<br>**Indoor Unit :**<br>**Operation lamp: 1 times Flash**<br>**Timer lamp : 8 times Flash**<br>**W-LAN lamp : On or Off**<br>**ERROR CODE : [ 18 ]** |
| **Detective Actuators:**<br>Wireless LAN adapter PCB<br>Controller PCB | **Detective details:**<br>After receiving a signal from the wireless LAN adapter, the same a signal has not been received for 15sec.<br>  <br> |

**Forecast of Cause:**

1. Connection between A/C and Wireless LAN adapter failure
2. Wireless LAN adapter PCB failure
3. Controller PCB failure

**Check Point 1 : Check the connection**

・Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB
>If there is abnormal condition, correct it.

Check the connection condition on the Controller PCB
>If there is loose connector, open cable or miswiring, correct it.

**OK**

**Check Point 2 : Replace wireless LAN adapter**

▶If Check Point 1 do not improve the symptom, replace Wireless LAN adapter and
Please cancel the air conditioner of the registration on the Mobile App.
After the replace adapter, Please perform the pairing on the app.

>Air conditioning de-registration method, refer to page “02 - 46”
>Pairing method, refer to page “02 - 47--02-54”

**OK**

**Check Point 3 : Replace Controller PCB**

▶If Check Point 2 do not improve the symptom, replace controller PCB.

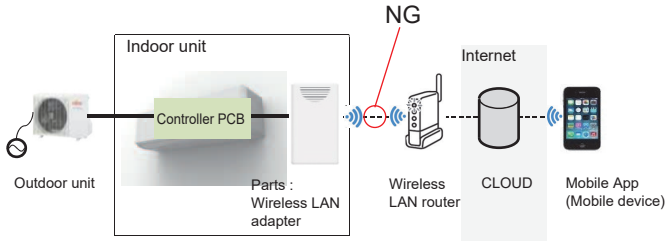
| Trouble shooting 33<br>**INDOOR UNIT Error Method:**<br>Network Communication Error<br>(Communication Error of between Wireless LAN Router to Wireless LAN adapter) | **Indicate of Display:**<br>**Indoor Unit :**<br>**Operation lamp: – Any state**<br>**Timer lamp : – Any state**<br>**W-LAN lamp : Flashing slowly (On/Off=7sec/2sec)**<br>**ERROR CODE : [ No indication ]** |
|---|---|

**Detective Actuators:**

Wireless LAN router
Wireless LAN adapter PCB

**Detective details:**

When the Not connection between Wireless LAN adapter and Wireless LAN router.




**Forecast of Cause:**

1. Connection cable failure of Wireless LAN router.
2. Connection between Wireless LAN adapter and Wireless LAN router failure
3. Wireless LAN router failure
4. Wireless LAN adapter PCB failure

**Check Point 1 : Check the connection cable**

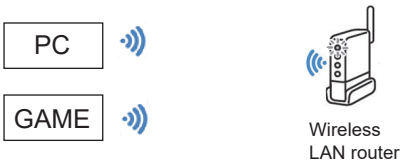
・Check the connection cable on the Wireless LAN router.
>If there is loose connector, open cable or miswiring, correct it.

**OK**

**Check Point 2-1 : Check the connection status**

・Check the connection status to the Internet and Wireless LAN router.
>If the Wireless LAN Router is not connected to the Internet,
Please check the transmission between
"Wi-Fi products of other than Air conditioner" and "Wireless LAN router".

Ex. ) Wi-Fi products




**NO**

**Check Point 2-2 : Check the transmission state**

・Check the Wireless transmission state of Wireless LAN router.(LED status)
>If the wireless transmission from the Wireless LAN router has not been outgoing,
Please the inquiry to “Wireless LAN router maker”.

**OK**

**Check Point 3 : Turn on power again of Air conditioner**

▶If Check Point 1,2 do not improve the symptom, turn on power again of the Air conditioner, please wait 60 seconds.

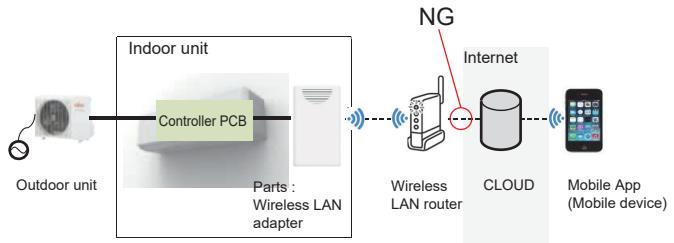
**OK**

**Check Point 4 : Replace Wireless LAN adapter**

▶If Check Point 3 do not improve the symptom, replace Wireless LAN adapter and
Please cancel the air conditioner of the registration on the Mobile App.
After the replace adapter, Please perform the pairing on the app.

>Air conditioning de-registration method, refer to page “02 - 46”
>Pairing method, refer to page “02 - 47--02-54”

| Trouble shooting 34<br>**INDOOR UNIT Error Method:**<br>Network Communication Error<br>(Communication Error of between Wireless LAN Router to Wireless CLOUD) | **Indicate of Display:**<br>**Indoor Unit :**<br>**Operation lamp: – Any state**<br>**Timer lamp : – Any state**<br>**W-LAN lamp : ON**<br>**ERROR CODE : [ No indication ]** |
|---|---|
| **Detective Actuators:**<br>Wireless LAN router | **Detective details:**<br>When the Not connection between Wireless LAN adapter and Wireless LAN router. |




**Forecast of Cause:**

1. Connection cable failure of Wireless LAN router.
2. Connection between CLOUD and Wireless LAN router failure
3. Wireless LAN router failure

**Check Point 1 : Check the connection cable**

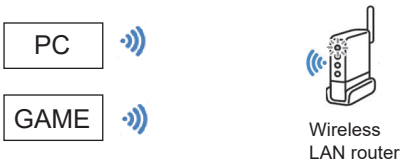
・Check the connection cable on the Wireless LAN router.
>If there is loose connector, open cable or miswiring, correct it.

**OK**

**Check Point 2-1 : Check the connection status**

・Check the connection status to the Internet and Wireless LAN router.
>If the Wireless LAN Router is not connected to the Internet,
Please check the transmission between
"Wi-Fi products of other than Air conditioner" and "Wireless LAN router".

Ex. ) Wi-Fi products




**NO**

**Check Point 2-2 : Check the transmission state**

・Check the Wireless transmission state of Wireless LAN router. (LED status)
>If the wireless transmission from the Wireless LAN router has not been outgoing,
Please the inquiry to "Wireless LAN router maker".

**OK**

**Check Point 3 : Turn on power again of Air conditioner**

▶If Check Point 1,2 do not improve the symptom, turn on power again of the Air conditioner, please wait 60 seconds.

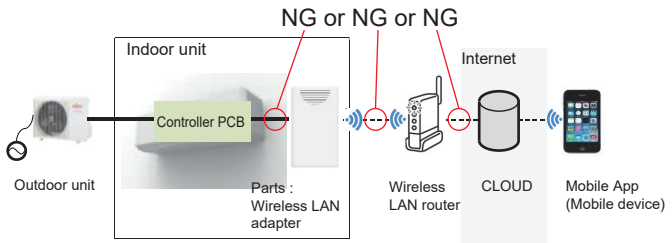
**OK**

**Check Point 4 : Replace Wireless LAN adapter**

▶If Check Point 3 do not improve the symptom, replace Wireless LAN adapter and
Please cancel the air conditioner of the registration on the Mobile App.
After the replace adapter, Please perform the pairing on the app.

>Air conditioning de-registration method, refer to page "02 - 46"
>Pairing method, refer to page "02 - 47--02 - 54"

| Trouble shooting 35<br>**INDOOR UNIT Error Method:**<br>Communication Error<br>(”Trou. 32, 33” and “Trou. 34” are simultaneous Error) | **Indicate of Display:**<br>**Indoor Unit :**<br>**Operation lamp: 1 time Flash**<br>**Timer lamp : 8 time Flash**<br>**W-LAN lamp : On or Flashing slowly (On/Off=7sec/2sec)**<br>**ERROR CODE : [ 18 ]** |
|---|---|

| **Detective Actuators:** | **Detective details:** |
|---|---|
| Wireless LAN adapter PCB<br>Indoor unit Controller PCB<br>Wireless LAN router | When the "External Communication Error" and "Network Communication Error" has occurred at the same time.<br>  <br> |

**Forecast of Cause:**

1.Connection cable failure of Wireless LAN router, 2. Wireless LAN router failure
3.Connection between A/C and Wireless LAN adapter failure
4.Connection between Wireless LAN adapter and Wireless LAN router failure
5.Wireless LAN adapter PCB failure 6. Controller PCB failure

**Check Point 1 : Check the connection cable**

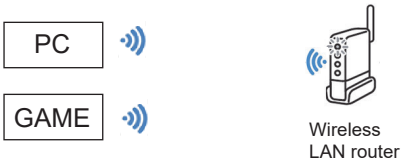
・Check the connection cable on the Wireless LAN router.
>If there is loose connector, open cable or miswiring, correct it.

**OK**

**Check Point 2 : Check the connection status and transmission state**

・Check the connection status to the Internet and Wireless LAN router.
>If the Wireless LAN Router is not connected to the Internet,
Please check the transmission between
"Wi-Fi products of other than Air conditioner" and "Wireless LAN router".

Ex. ) Wi-Fi products




・Check the Wireless transmission state of Wireless LAN router.(LED status)
>If the wireless transmission from the Wireless LAN Router has not been outgoing,
Please the inquiry to “Wireless LAN router maker”.

**OK**

**Check Point 3-1 : Check the connection**

・Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB
>If there is abnormal condition, correct it.

・Check the connection condition on the Controller PCB
>If there is loose connector, open cable or miswiring, correct it.

**OK**

To NEXT PAGE

CONTINUATION

**OK**

| Check Point 3-2 : Turn on power again of Air conditioner |
| --- |
| ・If Check Point 1,2 do not improve the symptom,<br>turn on power again of the Air conditioner,please wait 60 seconds.<br><br>>When the flashing pattern of the LED 2(Orange) is “Flashing Fast” >> Refer to “Check Point 4”. |

**OK**

| Check Point 4 : Replace Wireless LAN adapter |
| --- |
| ▶If Check Point 2,3 do not improve the symptom, replace Wireless LAN adapter and<br>Please cancel the air conditioner of the registration on the Mobile App.<br>After the replace adapter, Please perform the pairing on the app.<br><br>> Air conditioning de-registration method, refer to page “02 - 46”<br>> Pairing method, refer to page “02 - 47--02 - 54” |

**OK**

| Check Point 5 : Replace Controller PCB |
| --- |
| ▶If Check Point 4 do not improve the symptom, replace controller PCB. |

| Trouble shooting 36<br>**INDOOR UNIT Error Method:**<br>Wireless LAN adapter Non-Energized | **Indicate of Display:**<br>**Indoor Unit :**<br>**Operation lamp: 1 time Flash**<br>**Timer lamp : 8 time Flash**<br>**W-LAN lamp : On or Off**<br>**ERROR CODE : [ 18 ]** |
|---|---|
| **Detective Actuators:**<br>Indoor unit Controller PCB<br>Wireless LAN adapter PCB | **Detective details:**<br>When the does not output the DC12 voltage from Controller PCB. |

**Forecast of Cause:**

1. Indoor unit Controller PCB failure
2. Wireless LAN adapter PCB failure
3. Wiring connection failure

Check Point 1 : Check the connection

・Check any loose or removed connection of between the Wireless LAN adapter PCB and Controller PCB
>If there is abnormal condition, correct it.

Check the connection condition on the Controller PCB
>If there is loose connector, open cable or miswiring, correct it.

**OK**

Check Point 2 : Check the Wireless LAN adapter PCB and Controller PCB

・Check Voltage at CN6 (Pin #1=12V, Pin #4=GND) of Controller PCB.
>If it is DC 0V, Controller PCB is failure.
▶ Replace Controller PCB.

>If it is DC12V, Wireless LAN adapter PCB failure.
▶ Replace Wireless LAN adapter and please cancel the air conditioner of the registration on the Mobile App.
After the replace adapter, Please perform the pairing on the App.

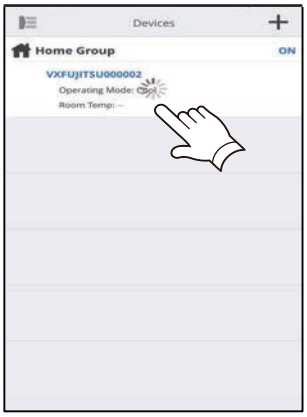
> Air conditioning de-registration method, refer to page “02 - 46
> Pairing method, refer to page “02 - 47--02 - 54”

## Air Conditioning
## De-registration Method

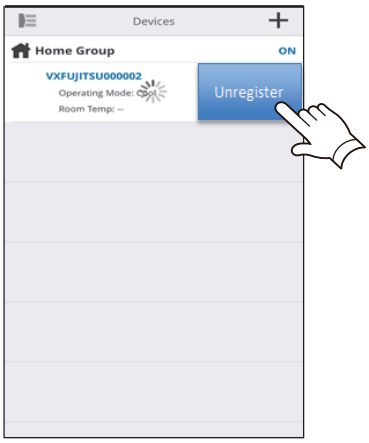
If you replace the Wireless LAN adapter, you will need to de-register all of the conditioner information on the App. Unregister method is as follows.

1 Launch the mobile app(FGL air).

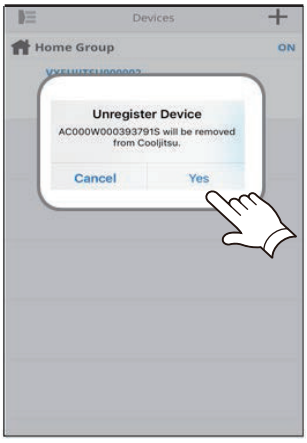
2 Please long-push the registered "Device name" of Air Conditioner.




3 Then will display the "Unregister" button. Please tap the "Unregister" button.




4 Please tap the "Yes" .




5 Air Conditioner Unregister is complete.

## Air conditioner registration
## Paring Method

Choose from the following modes to connect your Air conditioner to your Wireless LAN router.

**Note:**

- Before starting this setting, wait for 60 seconds or more after the power supply is connected to the air conditioner (via breaker or plug). Confirm that the LED 1 is not flashing.
- Check that the smartphone or tablet PC is linked to the wireless router you are connecting the air conditioner. The setting will not work if it is not connected to the same wireless router.
- To control 2 or more air conditioners with the same smartphone or tablet PC, repeat the setup of the chosen mode.
- The display contents are subject to change as a result of updates in the mobile app, and may not match the actual screen.

### ■ Manual mode (For Android OS)

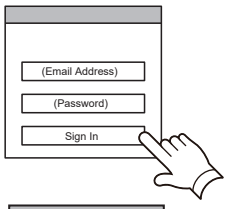
*Lighting pattern: ○ Off ● On Blinking — Any state

**NOTES:** If you do not press any buttons of the remote controller for 60 seconds, the remote controller display willreturn to the original display.

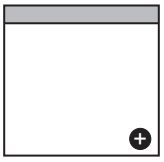
**1** ***Press ⏻/I on the remote controller until only the clock is displayed on the remote controller display.***

**2** ***Launch the mobile app.***

**3** ***Sign in with your Email address and password following the screen on the mobile app.***

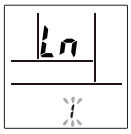



**4** ***Press [+] to add a new air conditioner.***



**5** ***Press down SEND on the remote controller for more than 5 seconds.***

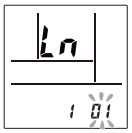
***Ln will be displayed on the remote controller display.***




(Remote controller display)

**6** ***Press ⏻/I .***

**7** ***Select 01 using TEMP. (⌃⌄) .***



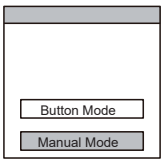

(Remote controller display)

**8** ***Press ⏻/I .***

***on the indoor unit will blink.***

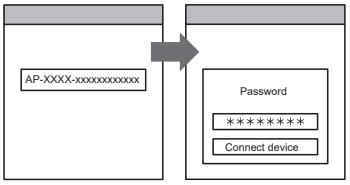
(Continued)

**9** ***Select [Manual mode] on the screen on the mobile app.***

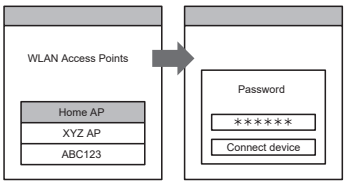



**10** ***Select the SSID of the W-LAN adapter you are connecting to.***

**11** ***Input the PIN code written on the W-LAN adapter.***




**12** ***Select the WLAN Access Point you are connecting to. Input the WLAN Access Point password then press [Connect device].***




***on the indoor unit will turn on.***

***The setting is complete.***

## ■ Manual mode (For iOS 11 or later)

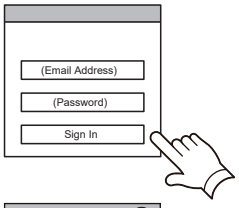
*Lighting pattern: ○ Off ● On ☀ Blinking ▬ Any state

**NOTES:** If you do not press any buttons of the remote controller for 60 seconds, the remote controller display willreturn to the original display.

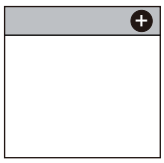
**1** ***Press ⏻/I on the remote controller until only the clock is displayed on the remote controller display.***

**2** ***Launch the mobile app.***

**3** ***Sign in with your Email address and password following the screen on the mobile app.***

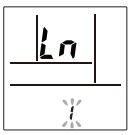



**4** ***Press [+] to add a new air conditioner.***



**5** ***Press down SEND on the remote controller for more than 5 seconds.***

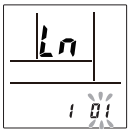
***Ln will be displayed on the remote controller display.***




(Remote controller display)

**6** ***Press ⏻/I .***

**7** ***Select 01 using TEMP. (⌃⌄) .***



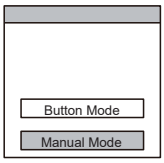

(Remote controller display)

**8** ***Press ⏻/I .***

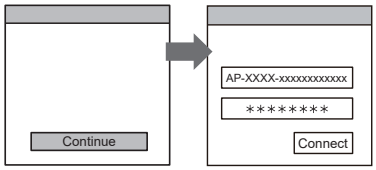
***📶 on the indoor unit will blink.***

(Continued)

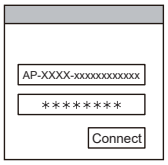
**9** ***Select [Manual mode] on the screen on the mobile app.***




**10** ***Select [Continue].***




**11** ***Input the SSID and PIN code of the air conditioner written on the WLAN label.***

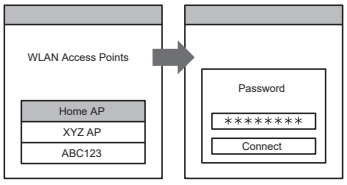



- *SSID*
  *Input "AP-XXXX-" in upper-case.*
  *Lower-case the following 12 characters.*

| A P - X X X X | - x x x x x x x x x x x x |
|---|---|
| In upper-case letters | In lower-case letters (12 characters) |

- *PIN*
  *PIN code is not available for some models.*

**12** ***Select the WLAN Access Point you are connecting to. Input the WLAN Access Point password then press [Connect].***




***on the indoor unit will turn on.***

***The setting is complete.***

## ■ Manual mode (For iOS 10 or earlier)

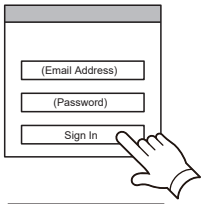
*Lighting pattern: ○ Off ● On ☀ Blinking ▬ Any state

**NOTES:** If you do not press any buttons of the remote controller for 60 seconds, the remote controller display willreturn to the original display.

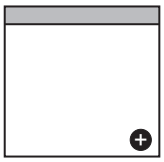
**1** ***Press ⏻/I on the remote controller until only the clockis displayed on the remote controller display.***

**2** ***Launch the mobile app.***

**3** ***Sign in with your Email address and password following the screen on the mobile app.***

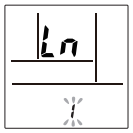



**4** ***Press [+] to add a new air conditioner.***



**5** ***Press down SEND on the remote controller for more than 5 seconds.***

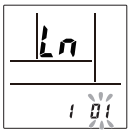
***Ln will be displayed on the remote controller display.***




(Remote controller display)

**6** ***Press ⏻/I .***

**7** ***Select 01 using TEMP. (⌃⌄) .***



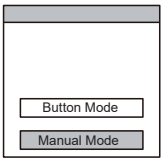

(Remote controller display)

**8** ***Press ⏻/I .***

***on the indoor unit will blink.***

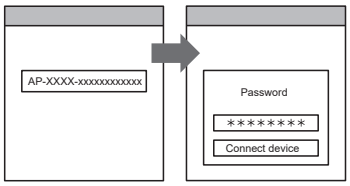
(Continued)

**9** ***Select [Manual mode] on the screen on the mobile app.***

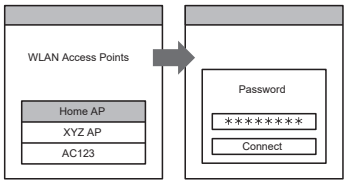



**10** ***Open [Setting] -> [Wi-fi] by following the instructions on the mobile app.***
***Select the SSID of the air conditioner you are connecting to.***

**11** ***Input the PIN code written on the W-LAN adapter.***




**12** ***Select the WLAN Access Point you are connecting to.***
***Input the WLAN Access Point password then press [Connect].***




***on the indoor unit will turn on.***

***The setting is complete.***

## ■ Button mode (For Android OS, iOS)

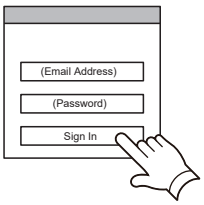
*Lighting pattern: ○ Off ● On ☀ Blinking ▬ Any state

**NOTES:** If you do not press any buttons of the remote controller for 60 seconds, the remote controller display willreturn to the original display.

**1** ***Press ⏻/I on the remote controller until only the clock is displayed on the remote controller display.***

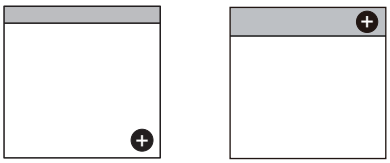
**2** ***Launch the mobile app.***

**3** ***Sign in with your Email address and password following the screen on the mobile app.***

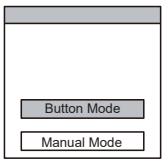



**4** ***Press [+] to add a new air conditioner.***

(Android) (iOS)



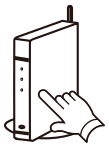
**5** ***Select [Button mode] on the screen on the mobile app.***




**6** ***Press the WPS button on the wireless router that you are connecting to.***

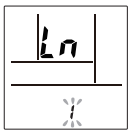
*Refer to the operating manual of the wireless router for the location of the button and how to press it.*

Wireless router



**7** ***Press down SEND on the remote controller for more than 5 seconds.***

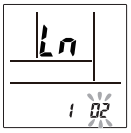
***Ln will be displayed on the remote controller display.***




(Remote controller display)

**8** ***Press ⏻/I .***

**9** ***Select 02 using TEMP. (⌃⌄).***

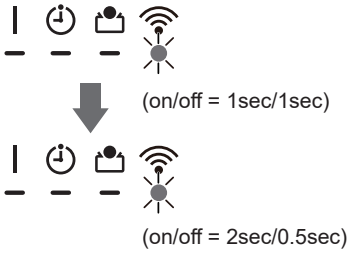



(Remote controller display)

**10** ***Press ⏻/I .***

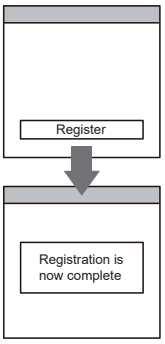
***on the indoor unit will blink.***

***When the W-LAN adapter find a connectable W-LAN access point, the blinking will become slowly.***




***NOTES:*** *Before proceeding to the next step, be sure to check that the blinking pattern has changed.*

**11** ***Press [Register] on the screen on the mobile app to start the connection with the wireless router.***




***on the indoor unit will turn on.***

***The setting is complete.***

# 2-5 SERVICE PARTS INFORMATION

**SERVICE PARTS INFORMATION 1**

Compressor

Diagnosis method of Compressor ( If Outdoor unit LED displays Error, refer to Trouble shooting )

**Does not start up**

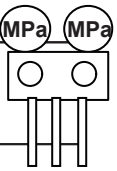
- Is there open or loose connection cable?
- Check Main PCB, connection of Compressor, and winding resistance. (Refer to the next page).

**>>If there is no failure, the defect of Compressor is considered (Locked compressor due to clogged dirt or less oil)**

Replace Compressor

**Stops soon after starting up**

- Is there open or loose connection cable?
- Is Gas pipe valve open? (Low pressure is too low)
- Check if Refrigerant is leaking. (Recharge Refrigerant)




- Check if Strainer is clogged. (PARTS INFORMATION 3)
- Check Main PCB, connection of Compressor,and winding resistance. (Refer to the next page).

**>>If there is no failure, the defect of Compressor can be considered. (Compression part broken or valve defective.)**

Replace Compressor

**Abnormal noise**

- Check if vibration noise by loose bolt or contact noise of piping is happening.

**▶Defective Compressor can be considered. (due to inside dirt clogging or broken component)**

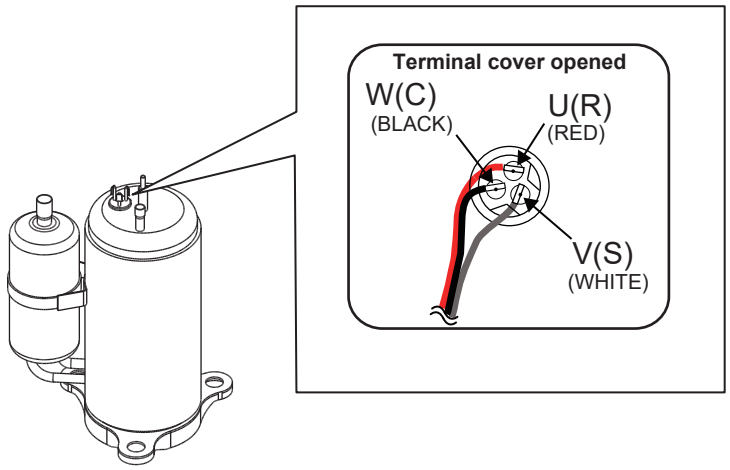
Replace Compressor

**SERVICE PARTS INFORMATION 2**

Inverter Compressor

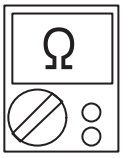
Check Point 1 : Check Connection

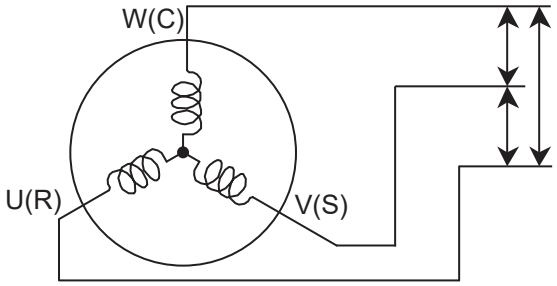
・Check terminal connection of Compressor
(loose or incorrect wiring)




Check Point 2 : Check Winding Resistance

・Check winding resistance of each terminal
▶**If the resistance value is 0Ω or infinite, replace Compressor.**




・Resistance Value :
1.91Ω at 20°C (18 type)
1.916Ω at 20°C (24 type)

Check Point 3 : Replace Main PCB

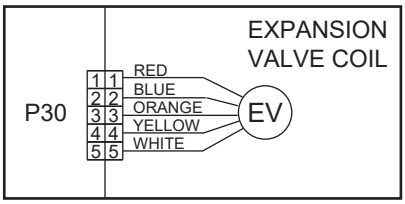
▶**If the symptom does not change with above Check 1, 2, replace Main PCB.**

## SERVICE PARTS INFORMATION 3

Outdoor unit Electronic Expansion Valve
( EEV )

### Check Point 1 : Check Connections

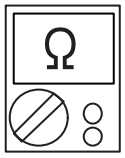
・Check connection of connector
( Loose connector or open cable )




### Check Point 2 : Check Coil of EEV

・Remove connector, check each winding resistance of Coil.

| Read wire | Resistance value |
|---|---|
| White - Red | **46**Ω ± **3**Ω at 20°C |
| Yellow - Red | |
| Orange - Red | |
| Blue - Red | |




▶ **If Resistance value is abnormal, replace EEV.**

### Check Point 3 : Check Noise at start up

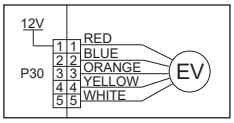
▪ Turn on Power and check operation noise.

▶ **If an abnormal noise does not show, replace Main PCB.**

### Check Point 4 : Check Voltage from Main PCB.

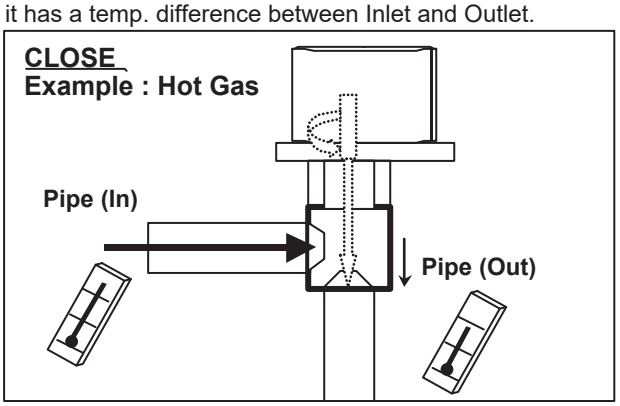
▪ Remove Connector and check Voltage (DC12V)

▶ **If it does not appear, replace Main PCB.**

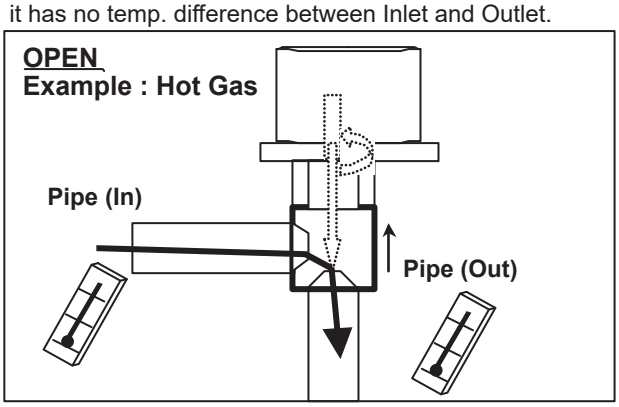


### Check Point 5 : Check Opening and Closing Operation of Valve

When Valve is closed,
it has a temp. difference between Inlet and Outlet.

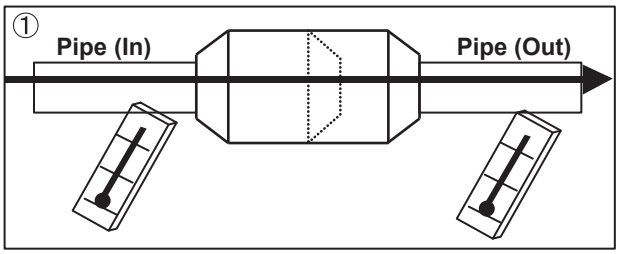


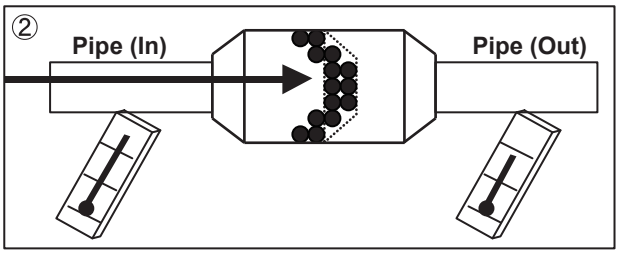

If it is open,
it has no temp. difference between Inlet and Outlet.




### Check Point 6 : Check Strainer

Strainer normally does not have temperature difference between inlet and outlet as shown in ①,
but if there is a difference as shown in ② , there is a possibility of inside clogged. In this case, replace Strainer.



## SERVICE PARTS INFORMATION 4

Indoor unit fan motor

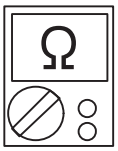
### Check Point 1 : Check rotation of Fan

・Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
**>>If Fan or Bearing is abnormal, replace it.**

### Check Point 2 : Check resistance of Indoor unit Fan Motor

・Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Earth terminal)
**>>If they are short-circuited (below 300 kΩ), replace Indoor unit fan motor and Controller PCB.**

| Pin number (wire color) | Terminal function (symbol) |
|---|---|
| 1 (Red) | DC voltage(Vm) |
| 2 | No function |
| 3 | No function |
| 4 (Black) | (GND) |
| 5 (White) | Control voltage (Vcc) |
| 6 (Yellow) | Speed command (Vsp) |
| 7 (Blue) | Feed back (FG) |




## SERVICE PARTS INFORMATION 5

Outdoor unit fan motor

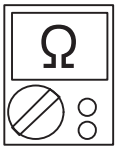
### Check Point 1 : Check rotation of Fan

・Rotate the fan by hand when operation is off.
(Check if fan is caught, dropped off or locked motor)
**>>If Fan or Bearing is abnormal, replace it.**

### Check Point 2 : Check resistance of Outdoor Fan Motor

・Refer to below. Circuit-test "Vm" and "GND" terminal.
(Vm: DC voltage, GND: Earth terminal)
**>>If they are short-circuited (below 300 kΩ), replace Outdoor fan motor and Main PCB.**

| Pin number (wire color) | Terminal function (symbol) |
|---|---|
| 1 (Red) | DC voltage (Vm) |
| 2 | No function |
| 3 | No function |
| 4 (Black) | Earth terminal (GND) |
| 5 (White) | Control voltage (Vcc) |
| 6 (Yellow) | Speed command (Vsp) |
| 7 (Brown) | Feed back (FG) |



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