

OWNER'S MANUAL AIR CONDITIONER

Please read this manual carefully before operating your set and retain it for future reference.

TYPE : AHU CONTROL KIT



P/NO : MFL62171707

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AHU CONTROL KIT Owner's Manual

TABLE OF CONTENTS

| Safety Precautions Necessary sensor by operating mode Part Description | 6 |
|---|--|
| Basic operation of wired remote controller | 8 |
| Main function of wired remote controller | 9 |
| Supplementary function of wired remote controller | |
| Humidifier | |
| Desired humidity control | |
| Auto ventilation | |
| ■ Desired CO2 level control | 14 |
| | |
| Reservation function of wired remote controller | 15 |
| Changing Current Time | 15 |
| Programming : Setting Simple Reservation | 17 |
| Programming : Setting ON Reservation | |
| Programming : Setting OFF Reservation | |
| Programming : Weekly Reservation | |
| Programming : Holiday Reservation | 22 |
| | |
| | ~~~ |
| Setting function of wired remote controller installation | |
| How to start installation setting mode | 23 |
| How to start installation setting mode Setting function by code | 23 24 |
| How to start installation setting mode Setting function by code Central control address setting | 23 24 25 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting | 23 24 25 26 |
| How to start installation setting mode Setting function by code Central control address setting | 23 24 25 26 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting | 23 24 25 26 28 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting Manual operating mode | 23 24 25 26 28 29 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting Manual operating mode SA fan operation | 23 24 25 26 28 29 29 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting Manual operating mode SA fan operation RA fan operation | 23 24 25 26 28 29 29 29 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting Manual operating mode SA fan operation | 23 24 25 26 28 29 29 29 |
| How to start installation setting mode Setting function by code Central control address setting Damper opening setting Remote control Master/Slave setting Manual operating mode SA fan operation RA fan operation | 23 24 25 26 28 29 29 29 29 30 |
| How to start installation setting mode | 23 24 25 26 28 29 29 29 30 31 |
| How to start installation setting mode | 23 24 25 26 28 29 29 29 30 31 32 |

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Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed. ■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

| | This symbol indicates the possibilit | y of death or serious injury. | | |
|--|---|---|--|--|
| | This symbol indicates the possibility of injury or damage. | | | |
| Meanings of symbols used | in this manual are as shown bel | ow. | | |
| \bigcirc | Be sure not | to do. | | |
| | Be sure to follow th | e instruction. | | |
| | A WARNING |) | | |
| ■ Installation ——— | | | | |
| System air conditioner can only be installed by specialized service provider with air condition installation certifications. | When moving or reinstalling the air conditioner, please contact the MULTI VTM AHU installation service provider. | Do not disassemble, repair or reconfigure the product arbitrarily. | | |
| Inappropriate installation can cause leakage, fire and electric shock. | Inappropriate installation can cause leakage, fire and electric shock. | It can cause a fire and electric shock. | | |
| Do not store or use flammable gas or volatile substance near the air conditioner. | Do not bend or damage the power cable. | For the electric construction, request for service to the distributor or the service center. | | |
| It can cause a fire or problem to the product. | It can cause a fire or an electric shock. | Arbitrary disassembly or repair can cause a fire or an electric shock. | | |
| Always ground the product. | When installing the product, always install the electric circuit breaker and the exclusive switch. | Do not use damaged circuit breaker or exclusive switch. | | |
| If the product is not grounded properly, it can cause an electric shock. | If they are not installed, it can cause a fire or an electric shock. | • It can cause a fire or an electric shock. | | |

| When opening the box or installing the product, be careful of any sharp objects. | Use the fuse of rated capacity. | For the product installation, request for service to the service center or the installation service provider |
|---|--|---|
| It can cause an injury. | It can cause a fire or an electric shock. | It can cause a fire , an electric shock, an explosion or an injury |
| The electric construction must be performed by an electrician for electric installation based on the installation manual and designated circuit diagram. | Use designated installation material at the designated location for the product installation. | Do not install the product outdoors. |
| Use of inappropriate wire and electric construction, can result in an electric shock or a fire. Technical standard for electric equipment | | |
| Operation | | |
| Do not let water get inside (Controller) the product. Especially do not wash the product with water. | Do not leave the product near a heating device. | Do not change or expend the power cord arbitrarily. |
| • It can cause an electric shock or a problem to the product. | • It can cause a fire. | It can cause a fire or an electric shock. |
| Use exclusive cable for the product. | If you hear or smell a weird sound or odor, or if you see smoke from the product or if you experience a power outage, pull down the main power switch. | Do not put any heavy objects on top of the power cable. |
| It can cause a fire or an electric shock. | If not, it can cause a fire or an electric shock. | It can cause a fire or an electric shock. |
| Do not let the work or the user get on top of the product. | Do not use any heating devices near the power cable. | Do not turn off the power with the main power switch while the product is operating. |
| He or she can fall over to get injured. | It can cause a fire or an electric shock. | It can cause a fire or an electric shock. |
| Do not operate the switch with wet hands. | If you are not planning to use the product for a long period of time, pull down the main power switch. | If the gas leaks, open the window to ventilate the room before operating the product. |
| It can cause a fire or an electric shock. | It can cause a fire or an electric shock. | It can cause an explosion or a fire. |

Do not put containers with water on top of the product.

• If the water spills over, it can cause a fire or an electric shock.

Operation

When installing the product, make sure to level the product.

• It can cause vibration or leakage.

Do not install the product at a location where flammable gas is leaking.

• It can cause a fire or a problem to the product.

Do not carry the product by yourself.

• You can get injured by doing so.

Necessary sensor by operating mode

| Operating mode | Necessary sensor | Function |
|------------------|---|--|
| Cooling | SA temperature sensor RA temperature sensor | This runs indoor cooling. Initial external air inlet setting is 30% of the air supply during the air conditioning and this can be changed by the user. But, when the damper actuator is installed on AHU, the setting can be changed. |
| Heating | SA temperature sensor RA temperature sensor | This runs the indoor heating. Initial external air inlet setting is 30% of the air supply during the heating and this can be changed by the user. But, when the damper actuator is installed on AHU, the setting can be changed. |
| Energy saving | SA temperature sensor RA temperature sensor OA temperature/ humidity sensor Damper actuator | This is the operating function to run indoor air conditioning by controlling multiple outdoor units by comparing the enthalpy of the indoor/outdoor air. During the Energy saving operation, the operation switches between partial air conditioning operation (Controlling multiple outdoor units) and fresh air conditioning operation (Outdoor unit OFF, 100% external air flow). This is operating function is mainly used in between seasons. But if there is no OA temperature/humidity sensor on the AHU, the energy saving operation cannot be selected. |
| Dehumidification | SA temperature sensor RA temperature sensor OA temperature/ humidity sensor | This is the operating function to remove the indoor humidity when the humidity level indoor is excessive. During the dehumidification operation, the set value is 50%RH and the user cannot change this setting. But if there is no OA temperature/humidity sensor and RA temperature/humidity sensor on the AHU, the dehumidification operation cannot be selected. |
| Humidification | SA temperature sensor RA temperature sensor | This is the operating function to control the humidity to the set value by detecting the indoor humidity level. This can be selected during heating operation. But if there is no humidifier/humidifying valve and RA temperature/humidity sensor on the AHU, the humidification operation cannot be selected. |
| Auto ventilation | SA temperature sensor RA temperature sensor CO ₂ sensor Damper actuator | This is the operating function to control the amount of external air flow so that the CO₂ level is controlled within the set level by detecting the indoor CO₂ level. The initial CO₂ level is set to 1000ppm, and can be changed by the user. This function operates when auto ventilation operation (Additional operation) is selected during air conditioning or heating operation. But if there is no CO₂ sensor and damper actuator on the AHU, the auto ventilation operation cannot be selected. |
| Preheating | SA temperature sensor RA temperature sensor Mixing temperature/ humidity sensor | - When the mixing temperature during the heating operation is below the set value (5°C), preheating device automatically operates. The preheating device and mixing temperature sensor must be installed on AHU for this to operate automatically. |

Part Description

Name and Function of Remote Controller



- 1 OPERATION INDICATION SCREEN
- **2** SET TEMPERATURE Button
- WIRELESS REMOTE
 CONTROLLER RECEIVER
 Some products don't receive the
 - wireless signals.
- **4** VENTILATION Button
- **5** OPERATION MODE SELECTION Button
- **6** SUBFUNCTION Button
- **7** FUNCTION SETTING Button
- 8 EXIT Button
- **9** ON/ OFF Button
- **10** ROOM TEMPERATURE Button
- **1** RESET Button
- FAN SPEED Button
- **1** AIR FLOW Button
- RESERVATION/ TIME SETTING Button
- SETTING/ CANCEL Button
- **16** UP, DOWN, LEFT, RIGHT Button

• 3/4/12/13 does not work.

• 6 Additional operation button depends on the application of the sensor.

Basic operation of wired remote controller



Main function of wired remote controller





<Current CO2 level: 1500ppm>

Supplementary function of wired remote controller

Humidifier



Desired humidity control





Desired CO₂ level control



Reservation function of wired remote controller

Changing Current Time





Programming : Setting Simple Reservation

In case of there is not any reservation setup on system, it is possible to make a SIMPLE reservation on indoor unit.



* If the indoor is ON, we can make the reservation for turning OFF. In reserve, if the indoor is OFF, we can set the timer for turning ON. The reservation time is from 1 to 7 hours.

Programming : Setting ON Reservation

This function is able to turn air conditioner ON after a setting time.



Programming : Setting OFF Reservation

This function is able to turn air conditioner OFF after a setting time.



Programming : Weekly Reservation

The weekly reservation is active after setting current time

| 1 | Press programming button to enter the Programming mode. Repeat pressing button to select [Weekly reservation]. (The segment will be flashed) | |
|---|--|--|
| | Ex) Setting one action as below. - Day : TUE - ON Time : 11:30 AM - OFF Time : 12:30 PM | |
| 2 | Press left, right button to adjust the current day. | SUN MON TUE WED THU FRI SAT |
| 3 | Press up, down button to adjust the action number. | RESERVATION WEEKLY SUN MON THE WED THU FIL SAT WEEKLY SUN MON THE WED THU FIL SAT SUN MON THE WED THU FIL SAT |
| 4 | Press right button to move to 'Hour' Part on ON Time section. (The 'Hour' segment will be flashed) | RESERVATION WVEEKLY SUN MON TURNENT THU FRI SAT SUN MON TURNENT THU FRI SAT Start Time Section |
| 5 | Press up, down button to adjust the Hour on Start Time section. | RESERVATION WEEKLY SUN MON TUE WED THU FRI SAT M K K K K K K K K K K K K K K K K K K |
| 6 | Press right button to move to 'Minute' Part on Start time section. (The 'Minute' segment will be flashed) | |

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Programming : Holiday Reservation

This function is to automatically stop the machine working on some days.



Setting function of wired remote controller installation

How to start installation setting mode



Setting function by code

| Code 10: Test run (AHU has no function) | | 10:0 1 |
|--|--|------------|
| Code 11: Central control address setting | - C V | 1 1:00 |
| Code 12: Damper opening setting | - - - - - - - - - - - - - - | 12:0 1:040 |
| Code 13: Remote controller Master/Slave setting | | 1301 |
| Display C: Installation setting display | | |

Central control address setting Enter the Installation Setting mode. 1 100 Press the Function Setting button TEME 2 0 $\overline{\bigtriangledown}$ $(\bigcirc$ repeatedly to reach function Remote Controller 6 code of '11'. ~ . FAN SPEED OPER MODE 300 VENT < Σ 1760 Flashes SUB 0 ESC 0 AIR FLOW Press the Right button to 3 ~ move to 'Setting of 1'. < 1 (00 Flashes Press the Up/Down button 4 to set the central control < > address. \triangleleft 1 (<u>F</u>F) Central control address Press the Set/Cancel button 5 to complete the central control address setting. * This is the function to set the central control address of AHU. Display C: Installation setting display Function Setting1 Setting2 Code





Remote control Master/Slave setting



Manual operating mode

SA fan operation



1

Inspect light operation

When you set the Inspect Light switch to ON, the Inspect Light will lights up



3 When you set the Inspect Light switch to OFF, the Inspect Light will stop operating and can be operated automatically with the wired remote controller.

* The Inspect Light switch of the control kit during AHU operation with the wired remote controller must be maintained at OFF condition.



Check before requesting for service

When there is a problem with the product, check the following detail before requesting for service to the service center.

| Symptom | Check | Action |
|-----------------------|----------------------------------|---|
| The product does | * Is the main switch turned off? | * Turn on the main power switch. |
| not work at all. | * Is there a power outage? | * Check the other electric appliances. |
| | | (If the power works, try operating the product again.) |
| | * The fuse inside the product | * Request for service to the installation service provider or |
| | can be disconnected. | the service center. |
| The cool air does not | * Is the desired temperature set | * Set the desired temperature to be lower than the indoor |
| flow continuously. | higher than the indoor | temperature. |
| | temperature? | |
| | * Is the product running in | * Change the operating mode to air conditioning. |
| | Dehumidifier/Power save | |
| | mode? | |
| I cannot set the | * Is the schedule properly set? | * Refer to the manual and try setting up the schedule again. |
| scheduled operation. | * Did you check the current | * If the current time is incorrect, try setting again. |
| | time? | |
| AHU automatically | * Is the OFF schedule set? | * Check the remote controller and cancel the OFF schedule. |
| goes off. | | |

Test run

Self diagnosis function

Error display

- This function displays the self diagnosis and the type of error if identified.
- For the error display, the applicable code is displayed on the 7 segment LED on the wired remote controller and AHU controller.
- If there are 2 or more errors simultaneously, the codes are displayed in the order of occurrence.
- Once you resolve the error, the error code will disappear.

Error display method

The first display on the 7 segment display refers to the error code and the second part refers to the location information of the communication PCB address or sensor location. Refer to the following for details.

| Error type | Display condition | Example of output | Detail description |
|-------------------------|----------------------------|-------------------|---|
| Basic error | CH [Error code] 0 | CH30 | Error #3 |
| Communication PCB error | CH [Error code] [Address] | CH204 | Error #2 in communication PCB with |
| | | | address of '#4' |
| Sensor error | CH [Error code] [Location] | CH1302 | Air supply temperature sensor error |
| Outdoor unit error | CH [Error code] [Address] | CH17304 | Error #173 on the outdoor unit connected |
| | | | to communication PCB with address of '#4' |

* The address the communication PCB refers to the rotary switch number on the communication PCB.

| Location number | Location name | Applicable sensor type |
|-----------------|-----------------------|-------------------------------------|
| 01 | RA | Temperature sensor, humidity sensor |
| 02 | SA | Temperature sensor, humidity sensor |
| 03 | OA | Temperature sensor, humidity sensor |
| 04 | Mixing | Temperature sensor |
| 05 | Differential pressure | Differential pressure sensor |
| 06 | Static pressure | Static pressure sensor |

* The above table shows the information of the attached location by sensor.

Error display (AHU)

■ '##' refers to the address information of the communication PCB.

| Display number | | | Error item | Cause of error | Cause or error |
|-------------------|----|----|---|---|--|
| СН | 2 | ## | Temperature sensor error at pipe inlet of indoor unit | Communication PCB rotary switch number ## | Temperature sensor disconnection or short circuit at pipe inlet of indoor unit |
| СН | 3 | 00 | Communication error between wired remote controller and AHU controller | | No communication signal for more than 3 minutes from wired remote controller to the AHU controller |
| СН | 4 | ## | Communication error between AHU controller and communication PCB | Communication PCB rotary switch number ## | No communication signal for more than 3 minutes from communication PCB to AHU controller |
| СН | 5 | ## | Communication error between communication PCB and outdoor unit | Communication PCB rotary switch number ## | No communication signal for 5 minutes continuously from communication PCB to outdoor unit |
| СН | 6 | ## | Temperature sensor error on pipe outlet of indoor unit | Communication PCB rotary switch number ## | Temperature sensor disconnection or short circuit on pipe outlet of indoor unit |
| СН | 8 | 00 | Emergency operation | - | The operating status of the smoke control mode through smoke detector is displayed |
| СН | 13 | 01 | Temperature sensor error | RA | Temperature sensor (RA/SA/Mixing) disconnection/short circuit/misconnection or when the sensor value is in the error |
| | | 02 | | SA | range |
| | | 04 | | Mixing | |
| СН | 14 | 01 | Humidity sensor error | RA | Humidity sensor (RA/SA/OA) disconnection/short |
| | | 02 | | SA | circuit/misconnection or when the sensor value is in the error |
| | 45 | 03 | 20 | OA | |
| СН | 15 | 00 | CO ₂ sensor error | - | $\ensuremath{\text{CO}}_2$ sensor disconnection/short circuit/misconnection or when the sensor value is in the error range |
| СН | 16 | 05 | Pressure sensor error | Differential pressure | Pressure sensor (Differential pressure, static pressure) disconnection/short |
| | | 06 | | Static pressure | circuit/misconnection or when the sensor value is in the error range |
| СН | 17 | 01 | Air flow sensor error | RA | Air flow sensor (RA, SA) disconnection/short circuit/misconnection |
| | | 02 | | SA | or when the sensor value is in the error range |

Example of error

| Situation | Error |
|--|------------------------------------|
| Pipe inlet temperature sensor error (Communication PCB rotary switch number: 01) | $CH \rightarrow 2 \rightarrow 01$ |
| Communication error between communication PCB and outdoor unit | $CH \rightarrow 5 \rightarrow 05$ |
| (Communication PCB rotary switch number: 05) | |
| SA duct temperature error | $CH \rightarrow 13 \rightarrow 02$ |
| RA duct humidity error | $CH \rightarrow 14 \rightarrow 01$ |

Sequence of error



* The occurrence of error is displays in the order of $(1 \rightarrow (2) \rightarrow (3))$ on 7 segment.

* Refer to page 43 for details of 2 and 3.

Refer to the MULTI V technical material for details on error code and checkpoints of the outdoor unit.

