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# LG AHU CONTROL KIT

# **Owner's Manual**

Models: PRCKD20E PRCKD40E



- Please read this installation manual completely before installing the product.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

AHU CONTROL KIT Owner's Manual

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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 possibili	ty of death or serious injury.	
	This symbol indicates the possibility of injury or damage.		
Meanings of symbols use	d in this manual are as shown be	low.	
	Be sure not	to do.	
	Be sure to follow th	ne instruction.	
		)	
- to station			
■ Installation			
System air conditioner can only be installed by specialized service provide with air condition installation certifications.	When moving or reinstalling the air conditioner, please contact the MULTI V™ AHU installation service provider.	Do not disassemble, repair or reconfigure the product arbitrarily.	
<ul> <li>Inappropriate installation can cause leakage, fire and electric shock.</li> </ul>	<ul> <li>Inappropriate installation can cause leakage, fire and electric shock.</li> </ul>	<ul> <li>It can cause a fire and electric shock.</li> </ul>	
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.	
<ul> <li>It can cause a fire or problem to the product.</li> </ul>	It can cause a fire or an electric shock.	<ul> <li>Arbitrary disassembly or repair can cause a fire or an electric shock.</li> </ul>	
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.	
<ul> <li>If the product is not grounde properly, it can cause an electric shock.</li> </ul>	d • 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.	<ul> <li>It can cause a fire , an electric shock, an explosion or an injury.</li> </ul>
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.	<ul> <li>It can cause a fire or an electric shock.</li> </ul>
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.	<ul> <li>If not, it can cause a fire or an electric shock.</li> </ul>	<ul> <li>It can cause a fire or an electric shock.</li> </ul>
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.	<ul> <li>It can cause a fire or an electric shock.</li> </ul>	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.

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#### 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
Air conditioning	SA temperature sensor RA temperature sensor	<ul> <li>This runs indoor air conditioning.</li> <li>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.</li> </ul>
Heating	SA temperature sensor RA temperature sensor	<ul> <li>This runs the indoor heating.</li> <li>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.</li> </ul>
Power save	SA temperature sensor RA temperature sensor OA temperature/ humidity sensor Damper actuator	<ul> <li>This is the operating function to run indoor air conditioning by controlling multiple outdoor units by comparing the enthalpy of the indoor/outdoor air.</li> <li>During the power save operation, the operation switches between partial air conditioning operation (Controlling multiple outdoor units) and external air conditioning operation (Outdoor unit OFF, 100% external air flow).</li> <li>This is operating function is mainly used in between seasons. But if there is no OA temperature/humidity sensor and RA temperature/humidity sensor on the AHU, the power save operation cannot be selected.</li> </ul>
Dehumidify	SA temperature sensor RA temperature sensor OA temperature/ humidity sensor	<ul> <li>This is the operating function to remove the indoor humidity when the humidity level indoor is excessive.</li> <li>During the dehumidifier 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 dehumidifier operation cannot be selected.</li> </ul>
Humidification	SA temperature sensor RA temperature sensor	<ul> <li>This is the operating function to control the humidity to the set value by detecting the indoor humidity level.</li> <li>This can be selected during heating operation. But if there is no humidifier/humidifying valve and RA temperature/humidity sensor on the AHU, the humidifier operation cannot be selected.</li> </ul>
Auto ventilation	SA temperature sensor RA temperature sensor CO <sub>2</sub> sensor Damper actuator	<ul> <li>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.</li> <li>The initial CO2 level is set to 1000ppm, and can be changed by the user.</li> <li>This function operates when auto ventilator (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 ventilator operation cannot be selected.</li> </ul>
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.

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# **Part Description**

### Name and Function of Remote Controller

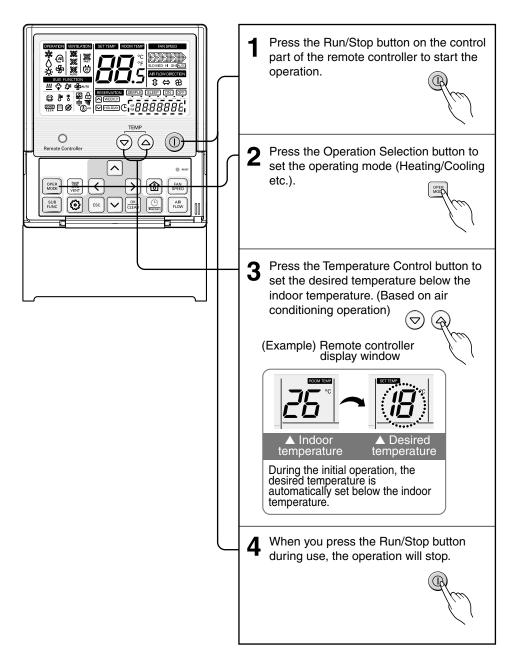
മ 20 x ٨ Se l **滅** 世 î LE SLEEP \* Ø ⊖ Ø ⊕ HOLIDAY o=88888888 20NE 🖬 🗭 2 3 Ð  $(\bigcirc$  $\nabla$ )  $(\triangle$ 9 Remote Controlle 10 4 ~ φ. Ð 5 Û OPER 300 VENT < × FAN SPEED 12 6 ß  $\odot$ ESC  $\sim$ 14 7 15 8 16 Please attach the inform label inside of the door. Please choose proper language defend on your country.

- OPERATION INDICATION SCREEN
- **2** SET TEMPERATURE Button
- **3 WIRELESS REMOTE** 
  - 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
- RESET Button
- 2 FAN SPEED Button
- AIR FLOW Button
- **1** RESERVATION/ TIME SETTING Button
- **15** SETTING/ CANCEL Button
- **I** UP, DOWN, LEFT, RIGHT Button

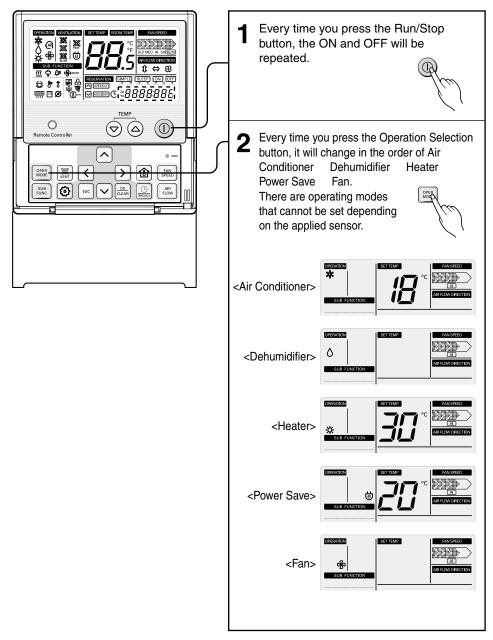
• 3/4/12/13 does not work.

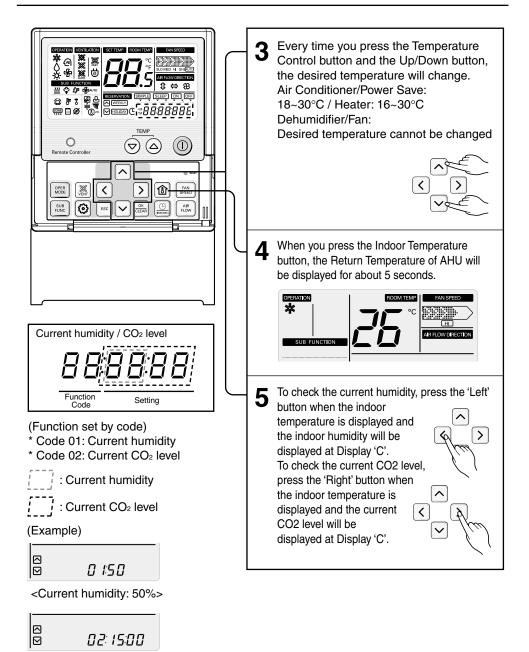
• 6 Additional operation button depends on the application of the sensor.

# Basic operation of wired remote controller



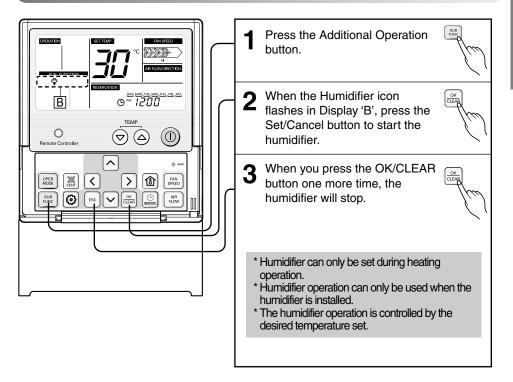
# Main function of wired remote controller



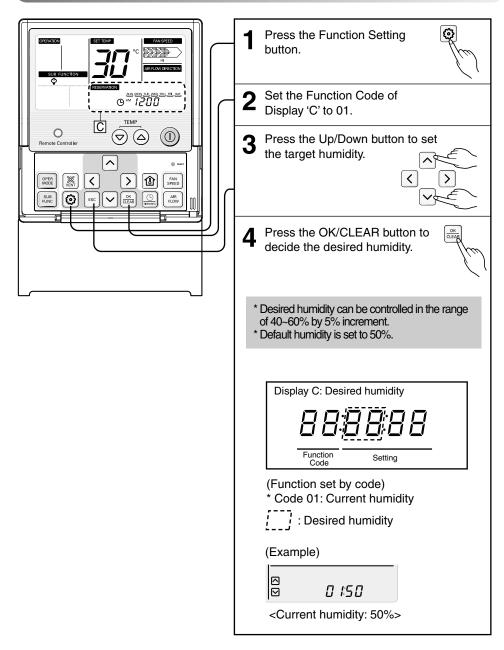


# Supplementary function of wired remote controller

## Humidifier

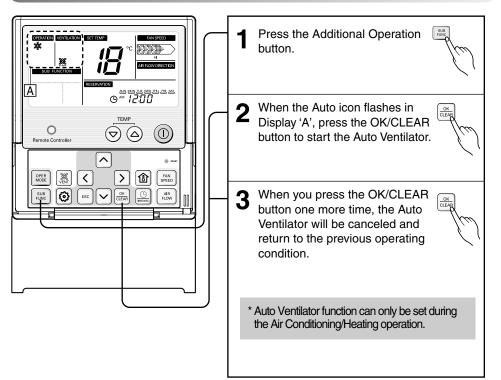


### Desired humidity control

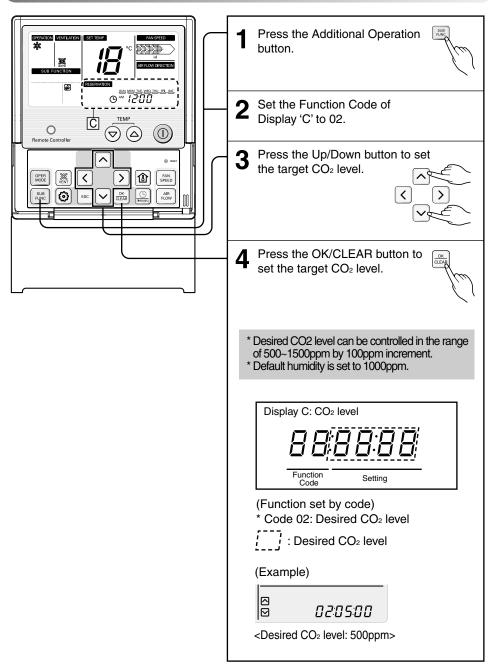


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### Auto ventilaton

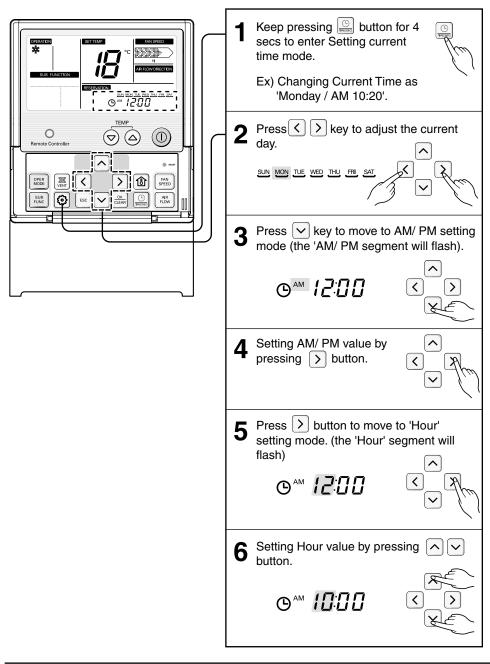


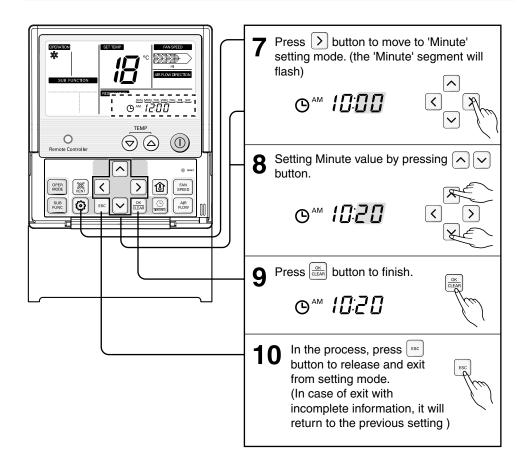
### Desired CO<sub>2</sub> level control



# Reservation function of wired remote controller

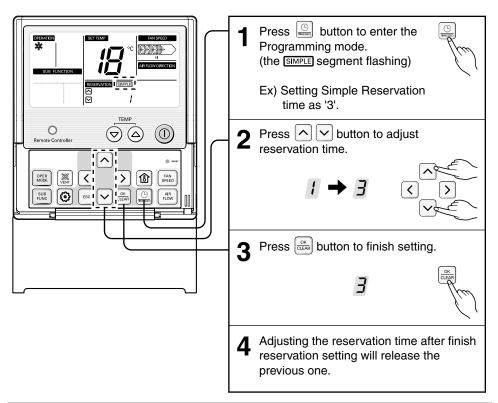
### Changing Current Time





## Programming : Setting Simple Reservation

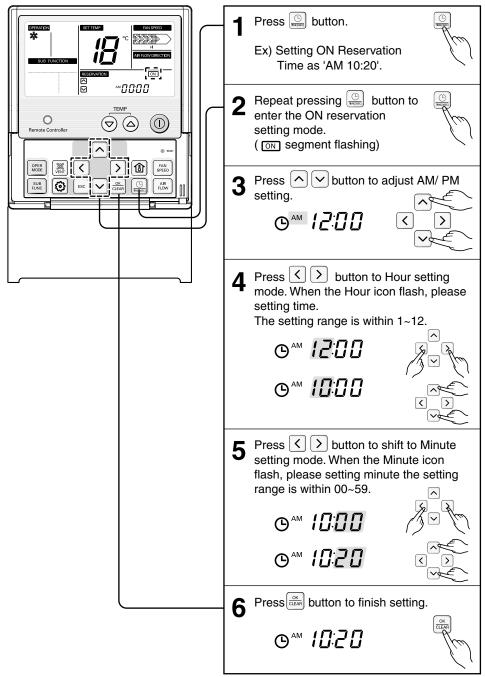
In case of there is not any reservation setup on system, it is possible to make a SIMPLE reservation on indoor unit.



\* 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.

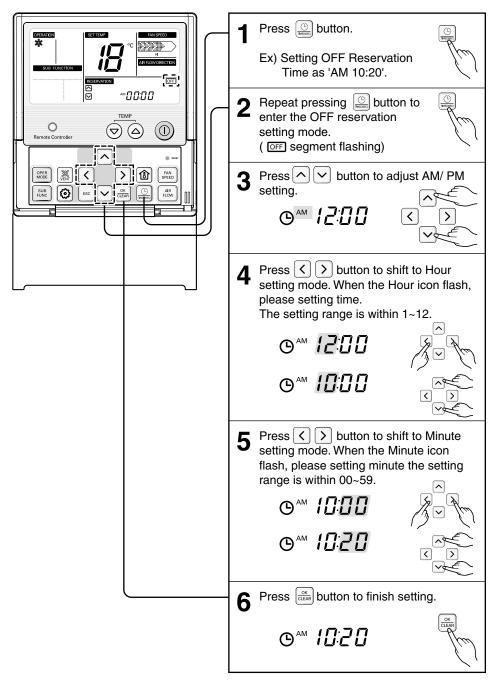


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# Programming : Setting OFF Reservation

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



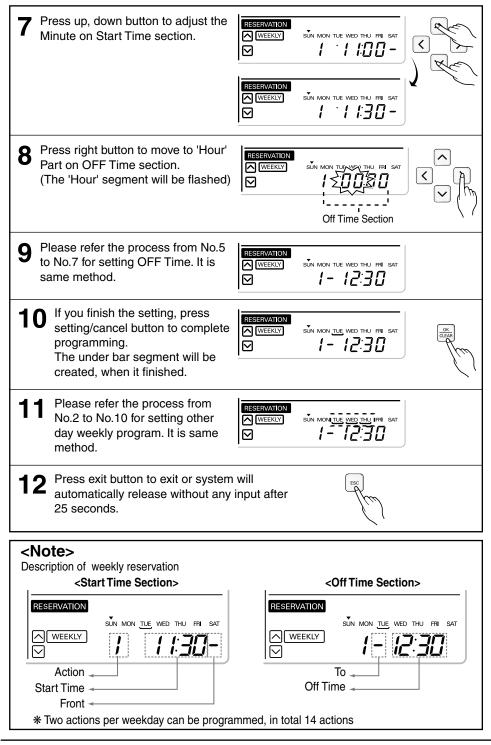
# Programming : Weekly Reservation

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.	
4	Press right button to move to 'Hour' Part on ON Time section. (The 'Hour' segment will be flashed)	RESERVATION SUN MON TURNER THU FIL SAT VWEEKLY SUN MON TURNER THU FIL SAT SUN MON
5	Press up, down button to adjust the Hour on Start Time section.	RESERVATION SUN MON TUE WED THU FRI SAT MESERVATION SUN MON TUE WED THU FRI SAT MESERVATION SUN MON TUE WED THU FRI SAT MESERVATION SUN MON TUE WED THU FRI SAT MESERVATION
6	Press right button to move to 'Minute' Part on Start time section. (The 'Minute' segment will be flashed)	

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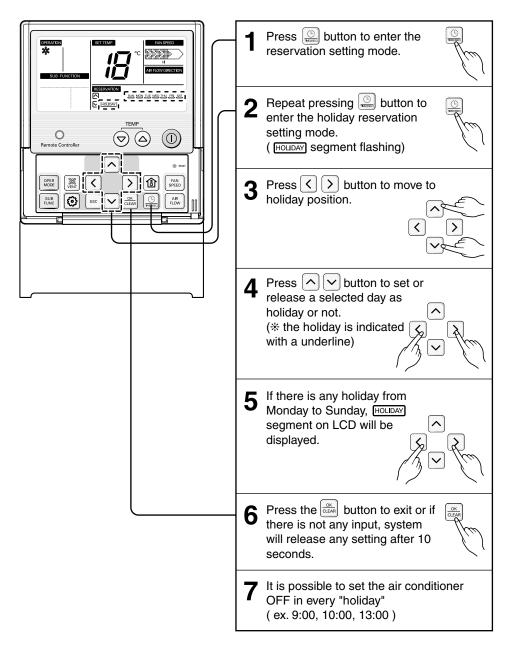
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## **Programming : Holiday Reservation**

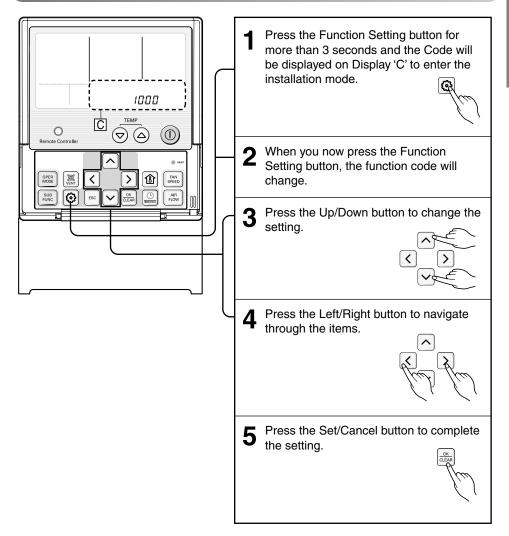
This function is to automatically stop the machine working on some days.



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# Setting function of wired remote controller installation

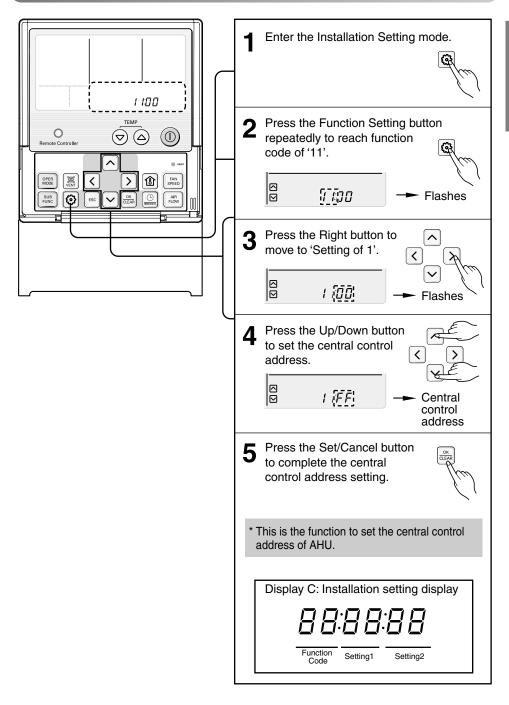
## How to start installation setting mode

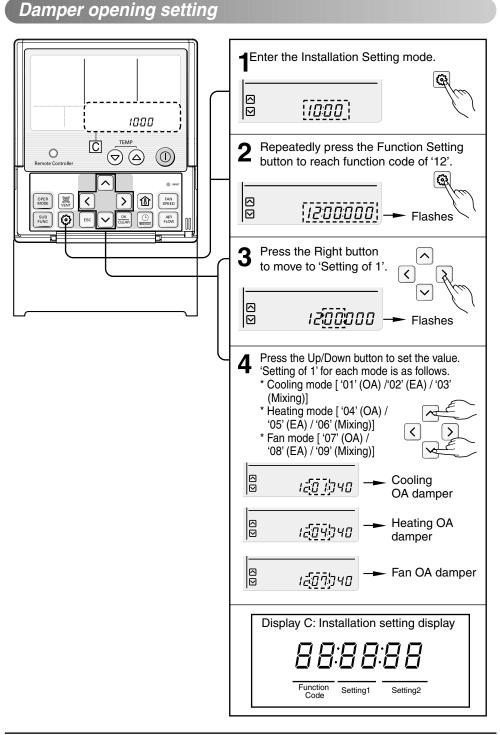


# Setting function by code Code 10: Test run (AHU has no function) $\stackrel{{\scriptstyle \land}}{\scriptstyle \bigtriangledown}$ 10:0 1 Code 11: Central control address setting $\leq$ 1:00 Code 12: Damper opening setting $\square$ 12:0 1:040 Code 13: Remote controller Master/Slave setting $\leq$ 13:01 Display C: Installation setting display 1 H:H H Function Setting2 Setting1 Code

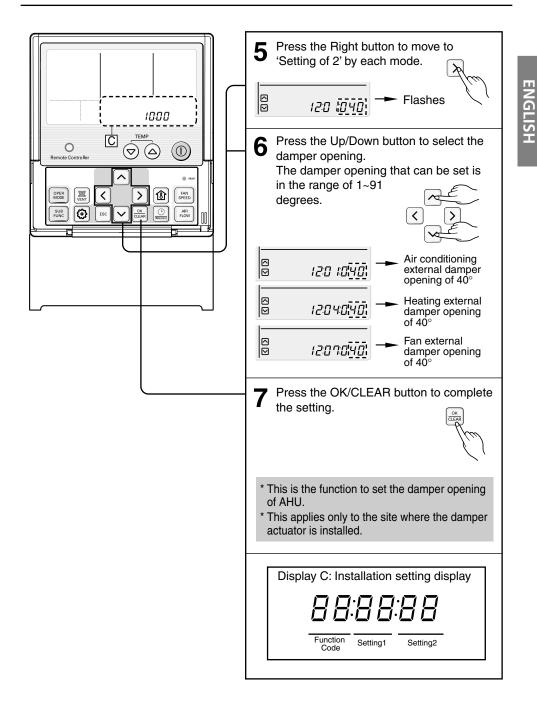
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# Central control address setting

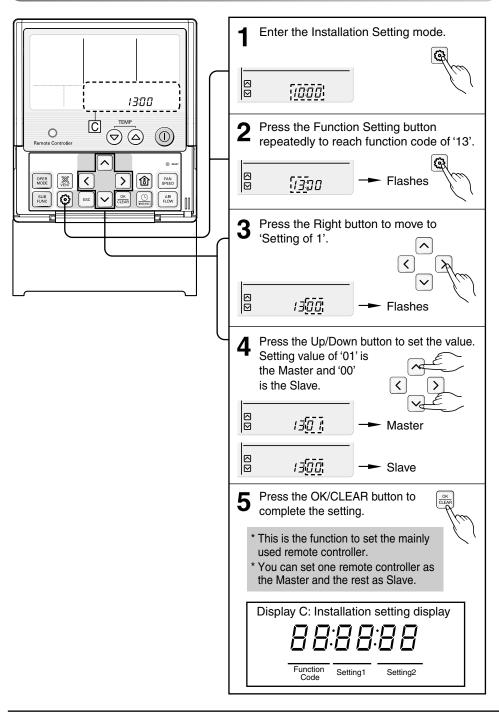




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### Remote control Master/Slave setting

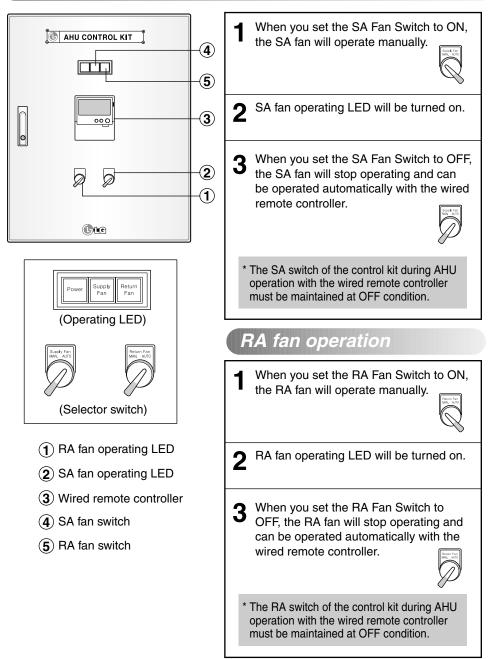


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# Manual operating mode

# SA fan operation



# 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)

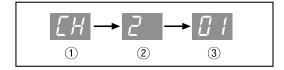
■ '##' refers to the address information of the communication PCB.

	ispla umb		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	RA	Temperature sensor (RA/SA/Mixing) disconnection/short
		00	error	0.4	circuit/misconnection or when the sensor value is in the error
		02 04		SA	range
СН	14	04	Humidity sensor error	Mixing RA	Humidity sensor (RA/SA/OA) disconnection/short
		02		SA	circuit/misconnection or when the sensor value is in the error
		03		OA	range
СН	15	00	CO <sub>2</sub> sensor error	•	CO <sub>2</sub> 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)	$CH \rightarrow 2 \rightarrow 01$	п
Communication error between communication PCB and outdoor unit	$CH \rightarrow 5 \rightarrow 05$	
(Communication PCB rotary switch number: 05)		
SA duct temperature error	CH →13→02	L L
RA duct humidity error	CH →14→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.



P/No.: MFL62171702 Printed in Korea After reading this manual, keep it in a place easily accessible to the user for future reference.

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