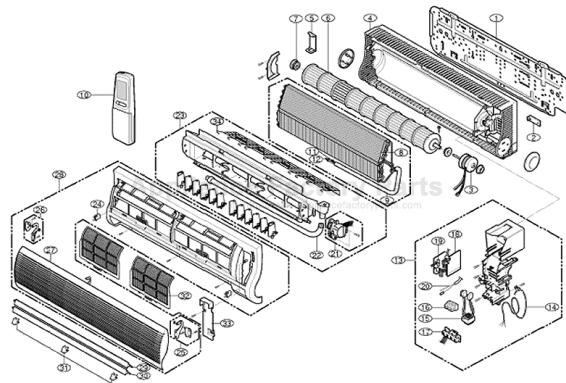


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LG LM-1860HL Owner's Manual

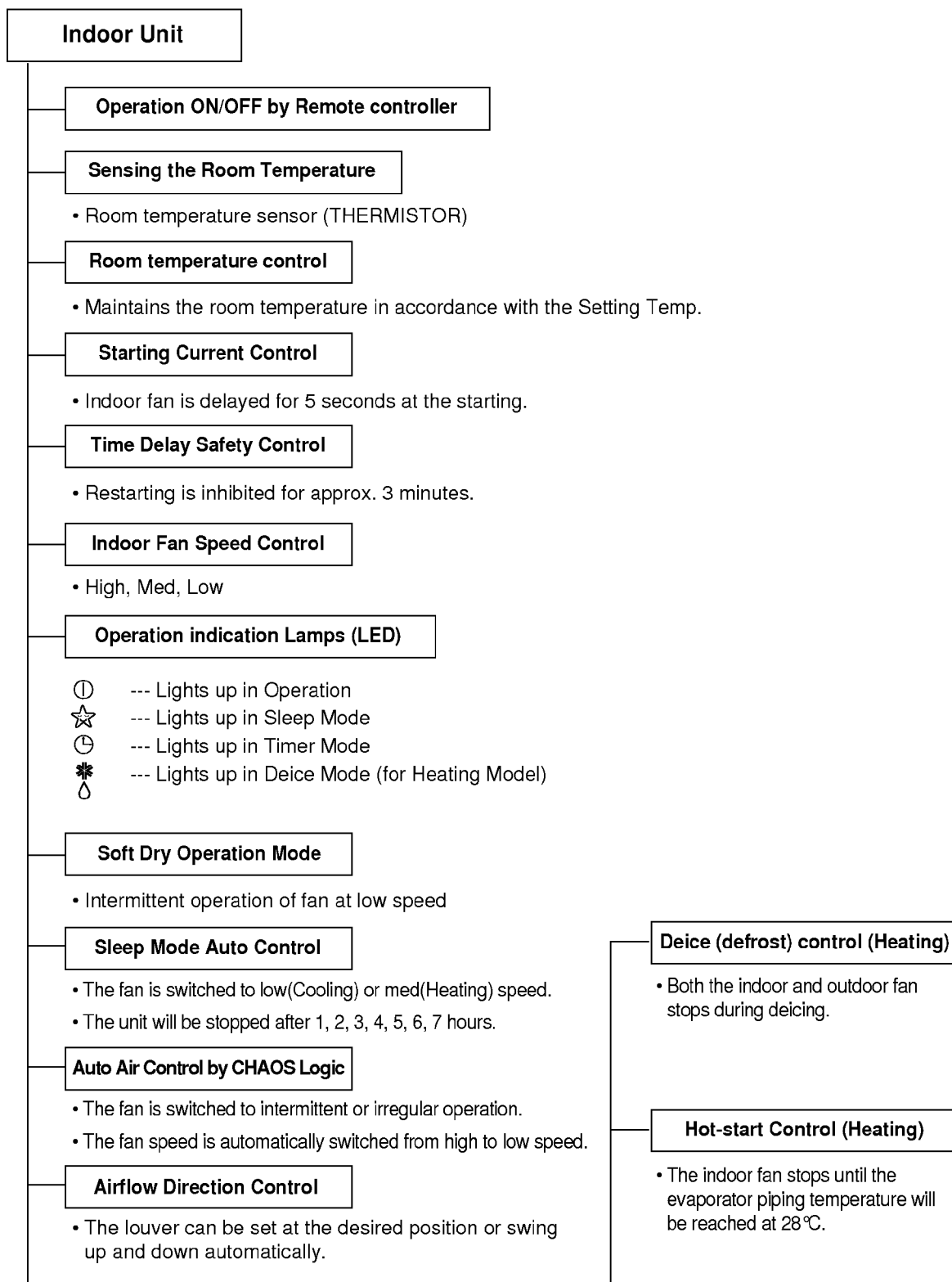
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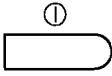
----- Manual continues below -----

Functions



Remote Controller

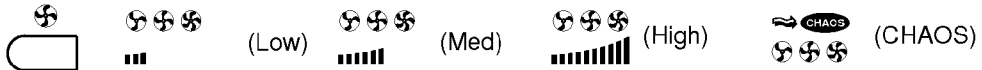
Operation ON/OFF



Operation Mode Selection

Cooling Operation Mode (*) Heating Operation Mode.(*)
 Soft Dry Operation Mode (Δ) Auto Operation Mode (▲)

Fan Speed Selection



Room Temperature Display

: High:39°C ↔ LOW : 11°C

Temperature Setting

TEMPERATURE LOW HIGH :Cooling [Down to 20°C Up to 30°C] :Heating [Down to 16°C Up to 30°C]

Setting the Time or Time



Timer Selection

: OFF, ON, OFF ↔ ON

Timer Setting



Timer Cancel

: Cancel Sleep Mode, Timer ON or Timer OFF.

Sleep Operation

: 1, 2, 3, 4, 5, 6, 7 Off Timer.

Airflow Direction Control



Fan Operation Mode

: Cooling model only

Reset



Operation Details

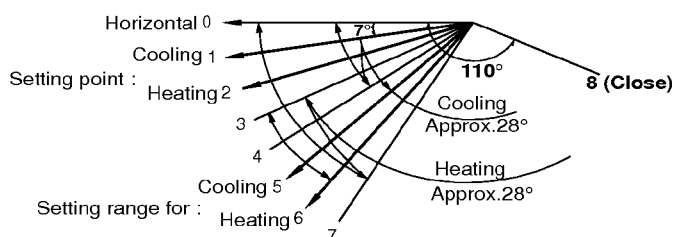
(1) The function of main control

1. Time Delay Safety Control

- 3min... The compressor is ceased for 3 minutes to balance the pressure in the refrigeration cycle. (Protection of compressor)
- 2sec... The indoor fan is ceased for 2 sec. to prevent relay noise. (Protection of fan relay and micro chip)
- 30sec... The 4-way valve is ceased for 30 sec. to prevent the refrigerant-gas abnormal noise when the Heating operation is OFF or switched to the other operation mode.

2. Airflow Direction Control

- This function is to swing the louver up and down automatically and to set it at the desired position.
- The procedure is as the following.
 - 1st ; Press the ON/OFF Button to operate the product.
 - 2nd ; Press the Airflow Direction Control Button to swing the louver up and down automatically.
 - 3rd ; Reprress the Airflow Direction Control Button to set the louver as the desired position.



3. Cooling Mode Operation

- When selecting the Cooling(*) Mode Operation, the unit will operate according to the setting by the remote controller and the operation diagram is as following.

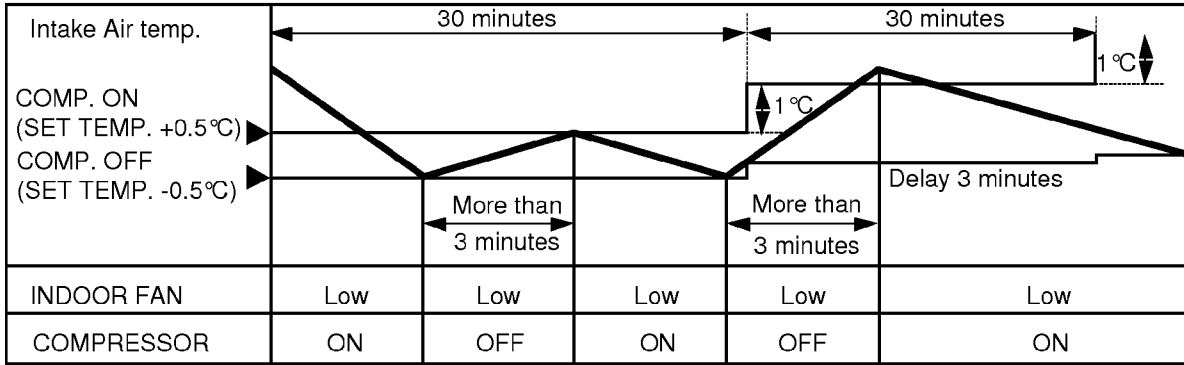
Intake Air temp.					
COMP. ON (SET TEMP. +0.5°C)					
COMP. OFF (SET TEMP. -0.5°C)	More than 3 minutes		More than 3 minutes		
INDOOR FAN	Selecting fan speed	Low	Selecting fan speed	Low	Selecting fan speed
COMPRESSOR	ON	OFF	ON	OFF	ON

4. Cooling or Heating Mode with Sleep Mode Auto Operation

- When selecting the Cooling(*) or the Heating(*) combined with the Sleep Mode Auto Operation(☆), the operation diagram is as following.

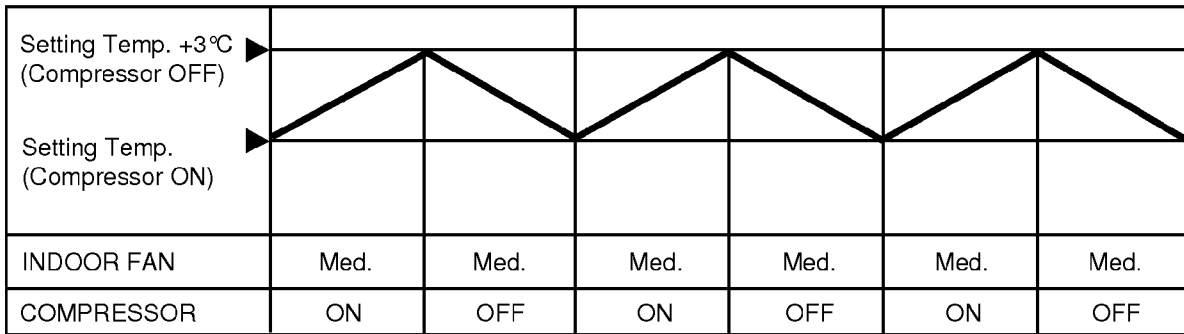
■ **Cooling Mode with the Sleep Mode**

- The setting temperature will be raised by 1 °C 30minutes later and by 2°C 1 hour later.
- The operation will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.



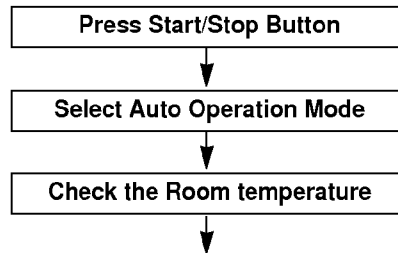
■ **Heating Mode with the Sleep Mode.**

- The operation will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.



5. Auto Operation

•The operation procedure is as following.

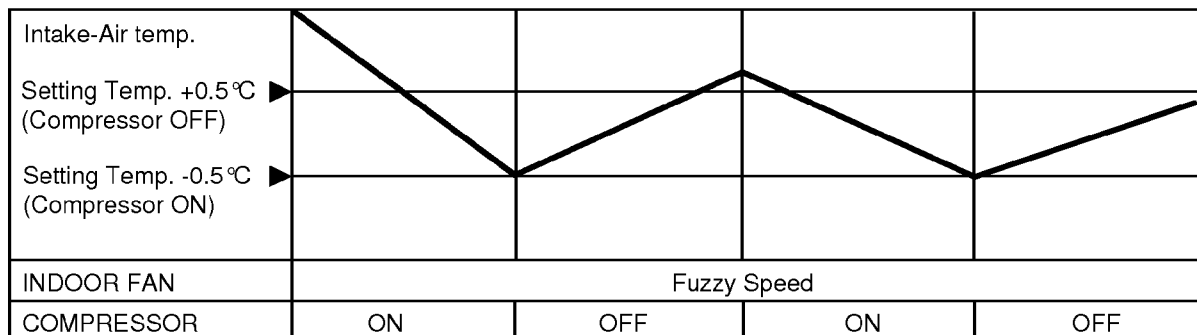


Operation mode Indoor fan speed Setting temperature				are automatically decided by Fuzzy rule.
Intake-air temperature	below 21 °C	Over 21 °C ~ below 24 °C	Over 24 °C	
Operation Mode	Heating	Soft Dry	Cooling	

* If initial mode is decided, that mode is continued without of the room temperature changing.

■ Auto Operation for Cooling

Operation condition	Intake-air Temperature	Setting Temperature	Fan speed	Air DirectionControl
When Auto Operation initial start	Over 26 °C	25 °C	Controlled by Fuzzy logic	1/f rhythm
	Over 24 °C~below 26 °C	Intake air -1 °C		
	Over 22 °C~below 24 °C	Intake air -0.5 °C		
	Over 20 °C~below 22 °C	Intake air temperature		
	below 20 °C	20 °C		
When Switch to AutoOperation	Over 20 °C~below 30 °C	Fuzzy control		
	below 20 °C	20 °C		
	over 30 °C	30 °C		



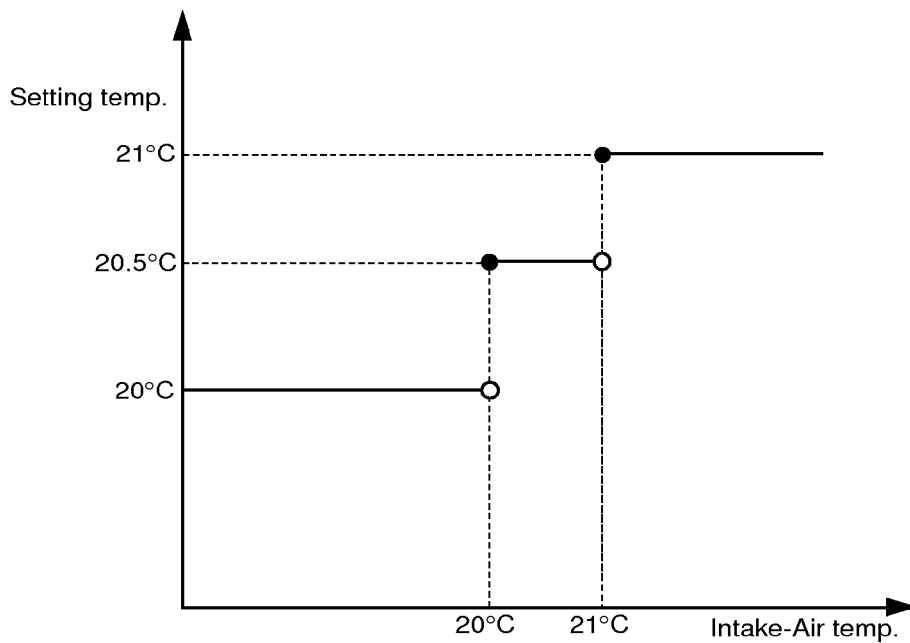
■ **Auto Operation for Soft Dry**

The Setting temperature will be set to the same that of the current intake-air temperature.

- Compressor ON temperature; Setting temperature +1 °C
- Compressor OFF temperature; Setting temperature -0.5 °C

■ **Auto Operation for Heating**

Intake Air temp.	Below 20°C	Over 20°C~below 21 °C
Setting temp.	20°C	Intake air temperature +0.5°C



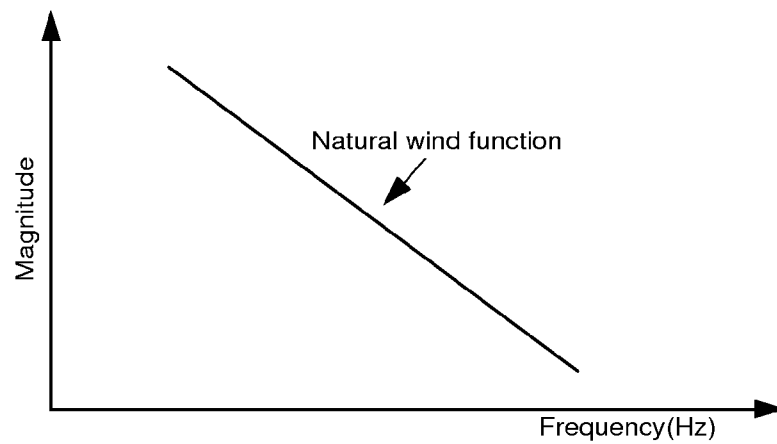
6. Natural Wind by CHAOS logic

There are common rules in the irregular changes amid the breeze of highlands and valleys, the sound of streams, the songs of birds in the forest and brain waves of relaxation.

Mmm... the breath-taking and touchy feeling of wind from the deep mountains and dark valleys.

Through analysis in its chaos simulator, Goldstar has successfully created such a feeling of freshness and serenity by analyzing the frequency of natural wind.

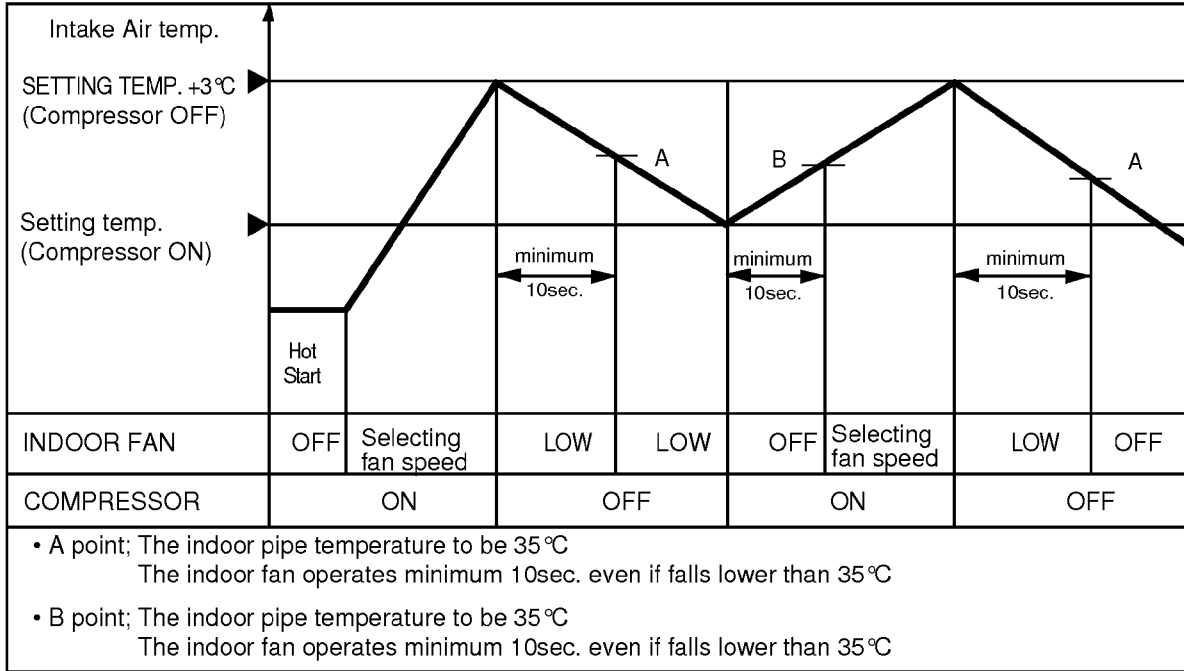
Generally natural wind has the following character (frequency-Magnitude), for example dark valley, sea, mountain wind.



So as to make a similar Natural wind function, Indoor fan speed is shifted to high from low or reversely in according to the CHAOS logic.

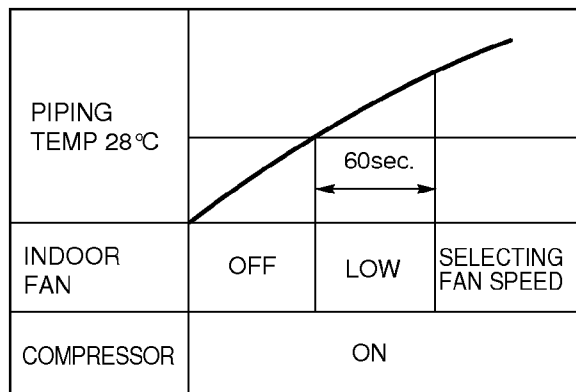
7. Heating Mode Operation

The unit will operate according to the setting by the remote controller and the operation diagram is shown as following.



8. Hot- Start Control

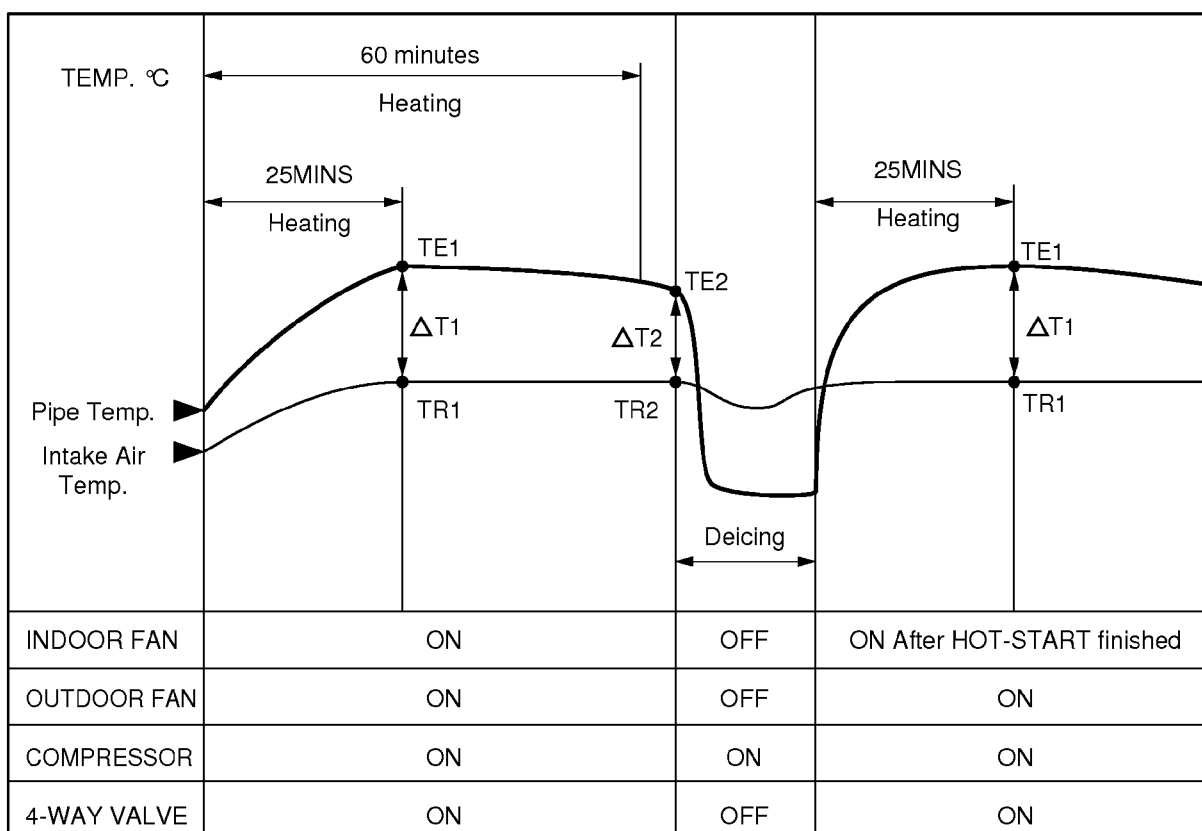
- The indoor fan stops until the evaporator piping temperature will be reached at 28°C.(BY TEMPERATURE)
- The operation diagram is as following.



(HOT-START BY TEMPERATURE)

9. Deice Control

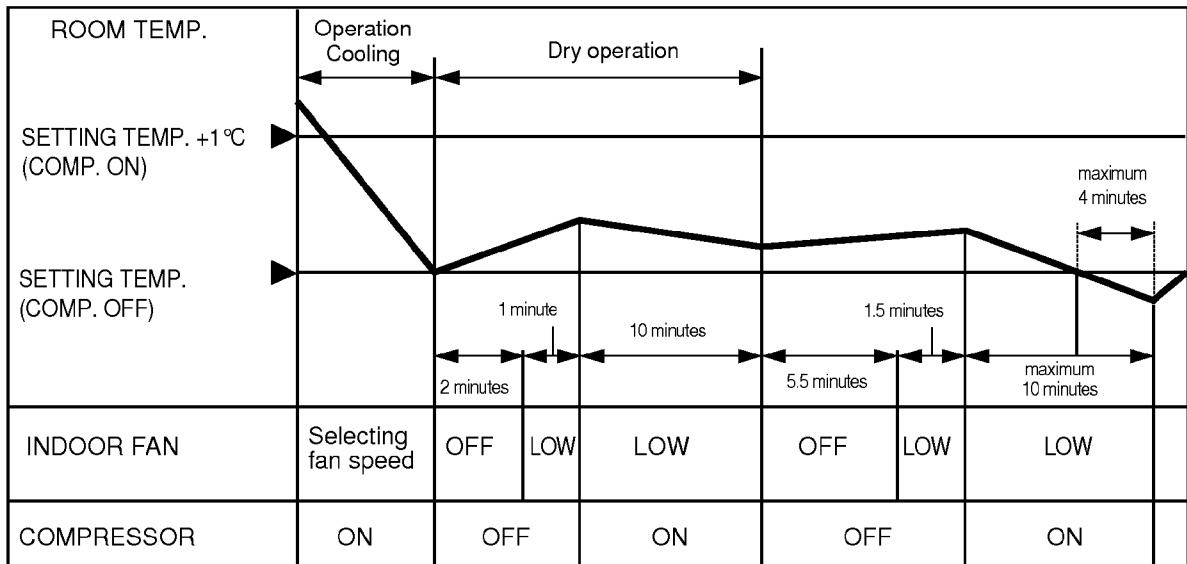
- Deicing operation is controlled by timer and sensing the indoor pipe temperature.
- Deicing operation checks the indoor pipe temperature and Intake-air temperature at 25 minutes and 60 minutes on starting of heating operation, and discriminates by temperature difference.
- When the heating operation passed 25 minutes, the temperature ($\Delta T1 = TE1 - TR1$) is checked and memorized with checking the indoor pipe temperature (TE1) and the indoor Intake-air temperature (TR1).
- When the heating operation passed 60 minutes, deicing operation checks the indoor pipe temperature (TE2) and the indoor Intake-air temperature (TR2), and checks the temperature difference ($\Delta T2 = TE2 - TR2$) and the temperature difference $\Delta Td (= \Delta T1 - \Delta T2)$ of $\Delta T1$, $\Delta T2$.
If the temperature difference (ΔTd) become more than the option temperature, deicing operation starts.
- At that time, deicing operation time is decided.
- The deicing operation time stops after deicing operation started.
- If deicing operation start, above heating operation time is reset, so if deicing operation is finished, the heating operation time is recounted.
- The deicing time and the operation diagram are as following.



$\Delta Td (= \Delta T1 - \Delta T2)$	Over 3.5°C	3.0~3.5°C	2.5~3.0°C	2.0~2.5°C	below 2.0°C
Deicing Time	12 mins	11 mins	10 mins	9 mins	Heating Operation

10. Soft Dry Operation

- During Soft Dry Operation, the compressor ON temperature is the setting temperature plus 1 °C, the compressor OFF temperature is the setting temperature minus 0.5°C.
- When the room temperature rises over the compressor ON temperature, the operation mode is switched to the cooling mode.
- When the room temperature falls between the compressor ON temperature and OFF temperature, the operation mode is switched to the Soft Dry Operation.
In this temperature range, 10min. Dry Operation, 5.5min operation OFF, 1.5min. only fan operation repeat. During 10min Dry operation, even if the room temperature falls below compressor OFF temperature, 10min(MAX) Compressor ON from starting of Dry operation which includes 4 min. Compressor ON operation below the compressor OFF temperature.
- In micom dehumidify mode, control of fan speed is as following.

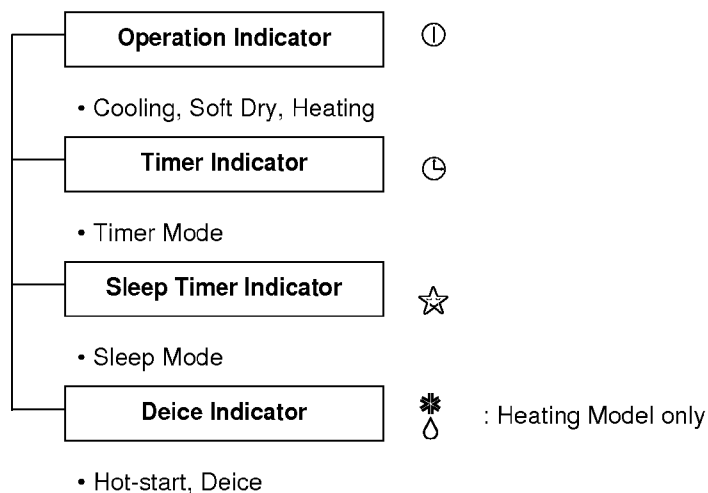


11. Forced Operation.

- If you lose wireless remote controller, you can operate the unit with forced operation switch.
- The standard conditions are as following.

	Cooling Model	Heat pump Model		
		Room Temp $\geq 24^{\circ}\text{C}$	$21^{\circ}\text{C} \leq \text{Room Temp} < 24^{\circ}\text{C}$	Room temp $< 21^{\circ}\text{C}$
Operation Mode	Cooling	Cooling	Soft Dry	Heating
FAN Speed	High	High	Low	High
Setting Temp.	24°C	24°C	Room Temp.	22°C

Display Function



Note: For normal operation after checking by test mode, you should press SW1 nine times for resetting or reconnect the power cord.

Self-diagnosis Function

1. Protection of the evaporator pipe from frosting

If the temperature of the indoor pipe is below 0°C after 7 mins from starting the compressor, the compressor and the outdoor fan is stopped, and then after 3 mins delay of the compressor and the temperature of the indoor pipe is over 7°C, the compressor and the outdoor fan is reoperated.

2. Thermistor Cut Off or Short

Cut Off/Short : Blinks on and off the operation mode LED. (0.5 sec ON/3 sec OFF).

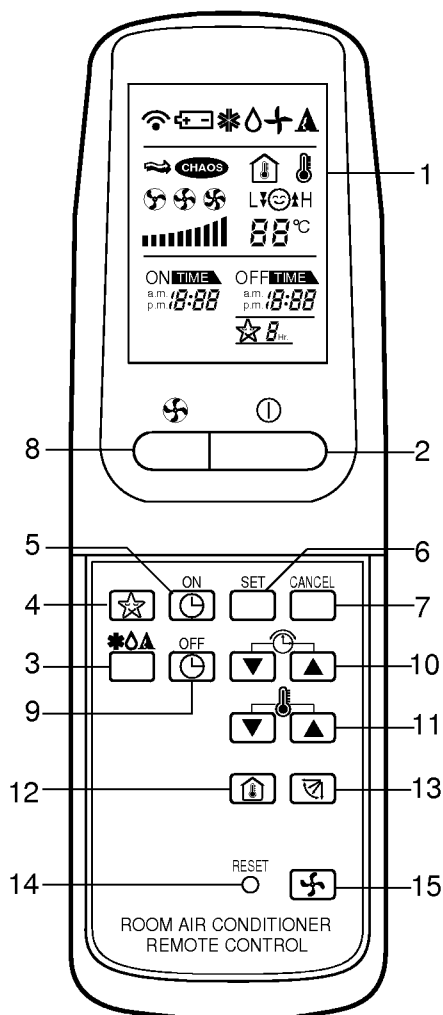
Operation

(1) Name and Function-Remote Controller (Cooling Models)

Remote Controller

Signal transmitter

Transmits the signals to the room air conditioner.



↙A Operation Display

Displays the operation conditions.

↙B Start/Stop Button

Operation start when this button is pressed, and stops when the button is pressed again.

↙C Operation Mode Selection Button

Used to select the type of operation mode.

- Cooling Operation Mode.
- Soft Dry Operation Mode.
- Auto Operation Mode.

↙D Sleep Mode Auto Button

For Sleep Mode Auto Operation.

↙E ON Timer Button

Used to set the time of starting operation.

↙F Timer Set Button

Press to set the timer operation.

↙G Timer CANCEL Button

Press to cancel the timer operation.

↙H Indoor Fan Speed Selector

↙I OFF Timer Button

Used to set the time of stopping operation.

↙J Time Setting Button

↙K Room Temperature Setting Button

Used to adjust the temperature.

↙L Room Temperature

↙M Airflow Direction Control Button

Press to set the desired airflow direction.

↙N Reset Button

↙O Fan Operation Button

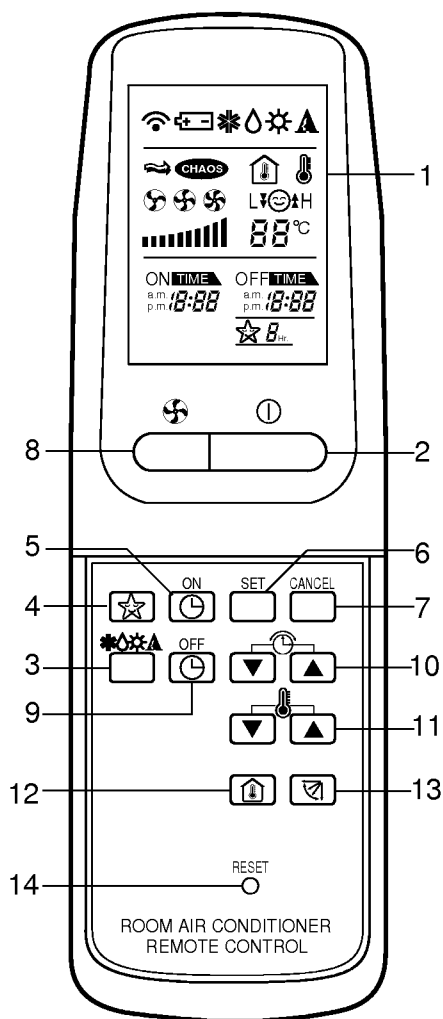
Used to operation the indoor fan only.

(2) Name and Function-Remote Controller (Heat pump Models)

Remote Controller

Signal transmitter

Transmits the signals to the room air conditioner.



↙A **Operation Display**

Displays the operation conditions.

↙B **Start/Stop Button**

Operation start when this button is pressed, and stops when the button is pressed again.

↙C **Operation Mode Selection Button**

Used to select the type of operation mode.

- Cooling Operation Mode.
- Soft Dry Operation Mode.
- Heating Operation Mode.
- Auto Operation Mode.

↙D **Sleep Mode Auto Button**

For Sleep Mode Auto Operation.

↙E **ON Timer Button**

Used to set the time of starting operation.

↙F **Timer Set button**

Press to set the timer operation.

↙G **Timer CANCEL Button**

Press to cancel the timer operation.

↙H **Indoor Fan Speed Selector**

↙I **OFF Timer Button**

Used to set the time of stopping operation.

↙J **Time Setting Button**

↙K **Room Temperature Setting Button**

Used to adjust the temperature.

↙L **Room Temperature**

↙M **Airflow Direction Control Button**

Press to set the desired airflow direction.

↙N **Reset Button**