Wall mounted Fan Coil

Operation&Installation manual
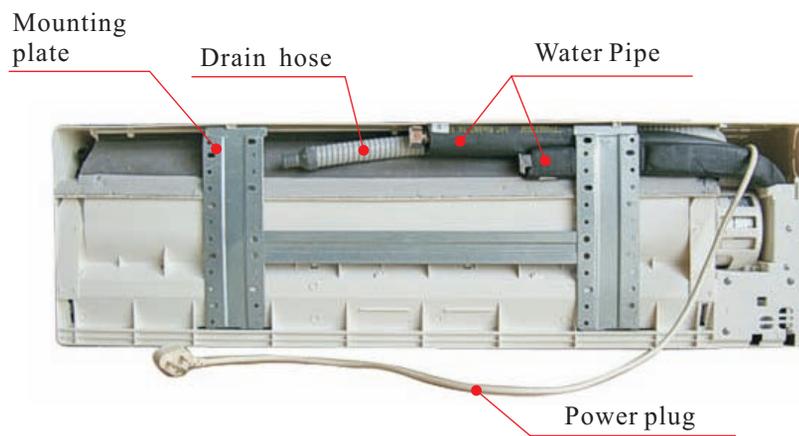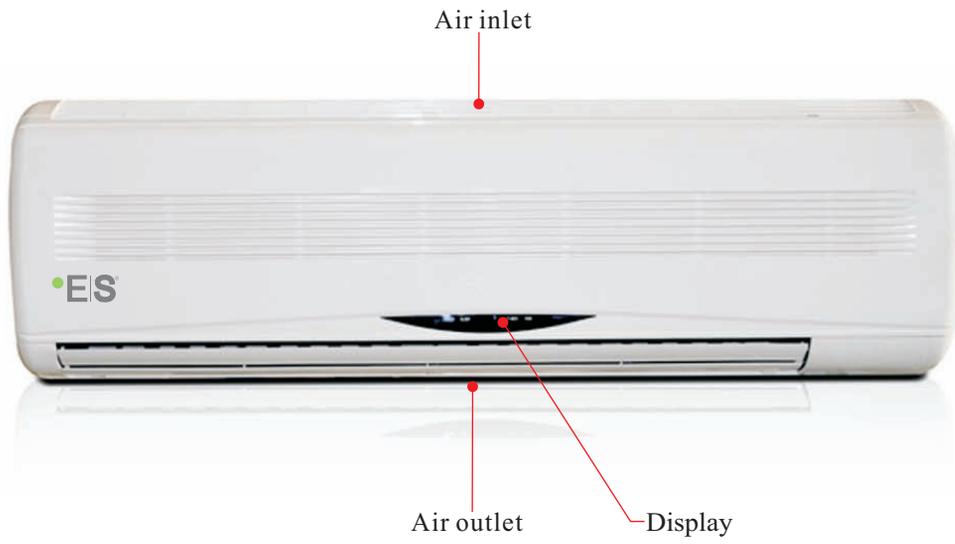
◎ **Before operating this product,please read the instruction carefully and keep this manual for future use.**

CONTENT

■ 1. Names of Components

Air inlet

Air outlet   Display

Mounting
plate   Drain hose   Water Pipe

Power plug

■ 2. Notice

● The unit is widely used together with central HVAC system in hotel, hospital, medicine factory, theater, commercial building, office building, enterprises, chemical industry, exhibition room, research institutes and so on.

● The installation, commissioning and maintenance of these machines should be performed by qualified personnel having a good knowledge of standards and local regulations, as well as experience of this type of equipment.

● Make sure that the rated voltage of the unit corresponds to that of the name plate before commencing wiring work according to the wiring diagram.

● The unit must be GROUNDED to prevent possible hazard due to insulation failure.

● Make sure that the unit has been switched OFF before installing or servicing the unit.

● Keep the unit away from any combustible or corrosive environment.

● Disconnect the power plug when the fan coil is not going to be used for a long time. Otherwise dirt may gather and cause low efficiency.

● Make sure the air inlets and outlets of the unit are not blocked.
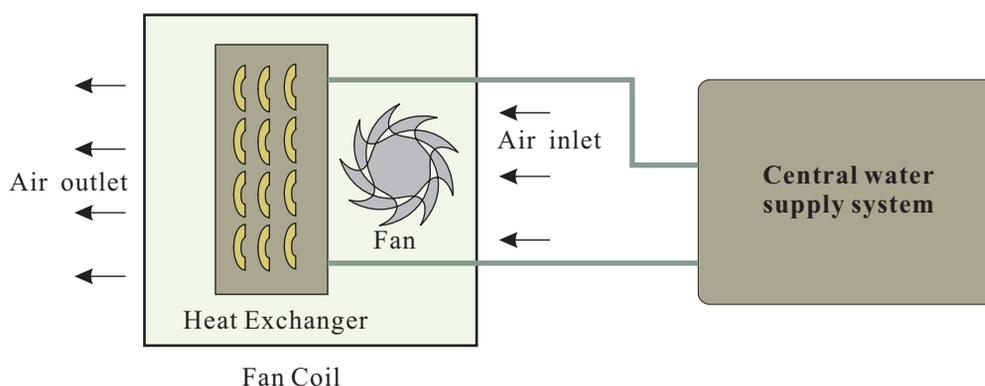
■ 3. Working principle

The fan coil unit has no energy by itself but provides heating or cooling with hot or chilled water from central water supply system(heat pump or chiller etc). The fan of the unit blows through the heat exchanger to cool or heat the air in the room.

If inlet water is cool, set the unit to cooling mode, the air outlet is cool air.

If inlet water is hot, set the unit to heating mode, the air outlet is hot air.

The unit is characterized with energy-saving, high efficiency, low noise, reliable and convenient to select and install.

Air outlet

Air inlet

Central water supply system

Fan

Heat Exchanger

Fan Coil

3. Specification

Model				FCW 12.1	FCW 18.1
Coil data	Tube diameter		mm	7	
	Rows/fins			2R/17fin	
	Fin height/length		mm	31×561	310×796
	Face area		m2	0.092	0.25
Motor data	Power Output		W	15	35
Fan data	Fan Speed	H	RPM	1150	1300
		M		1000	1100
		L		800	1000
Air Flow at High Speed			m3/h	650 (cooling) 750 (heating)	1100 (cooling) 1150 (heating)
Power Supply				220~20/50,60Hz/1PH	
Power Input			W	35	72
Noise Level at high speed			dB(A)	35	37
Pipe Connector Size				G3/8	G1/2
Drain Connection--(O.D)			mm	13	16
Net Dimension (L×D×H)			mm	890×280×210	1020×315×210
Packaging Dimension (L×D×H)			mm	950×345×260	1070×377×262
Net Weight			Kg	12	15

Output Under Different Water Temperature

Fan Speed	Working Mode	Water Inlet Temp (℃)	FCW 12.1 Capacity（W）	FCW 12.1 Capacity（W）	FCW 18.1 Capacity（W）
Water Flow Rate(L/S)/Water Pressure Drop(Kpa)			0.062/30	0.076/40	0.13/40
High Speed	Cooling	5	1670	2025	3660
		7	1390	1785	3375
		9	1130	1510	2685
	Heating	60	4640	5160	7365
		50	3710	4000	5775
		45	3260	3440	4830
Medium Speed	Cooling	5	1545	2010	3455
		7	1375	1730	3225
		9	1120	1470	2530
	Heating	60	4600	5020	7220
		50	3660	3920	5625
		45	3160	3340	4575
Low Speed	Cooling	5	1530	1990	3420
		7	1365	1685	3035
		9	1112	1460	2510
	Heating	60	4490	4890	6710
		50	3540	3870	5225
		45	3100	3100	4390

Note: (1) Capacity Test Condition for cooling: room temperature is DB/WB 27/19℃.

Capacity Test Condition for heating: room temperature is DB/WB 20/-℃.

(2) The specifications are subject to change without prior notice. For actual pecifications of unit, please refer to the stickers on the unit.
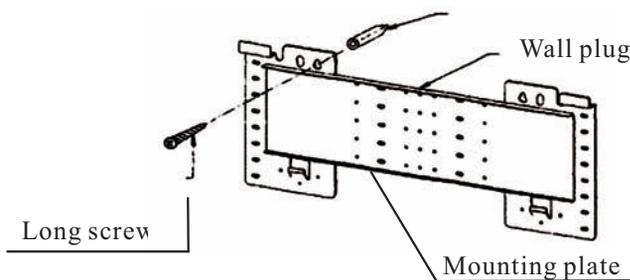
5. Installation

5.1 Location

Select installation location with following considerations;

1. The return and supply air should be free from any obstruction.

2. The wall which the unit is to be mounted on should be stiff enough not to resonate and produce much noise.

3. Ensure the clearance on every side of the unit conforms to figures as shown below.


>200mm

>200mm   >400mm
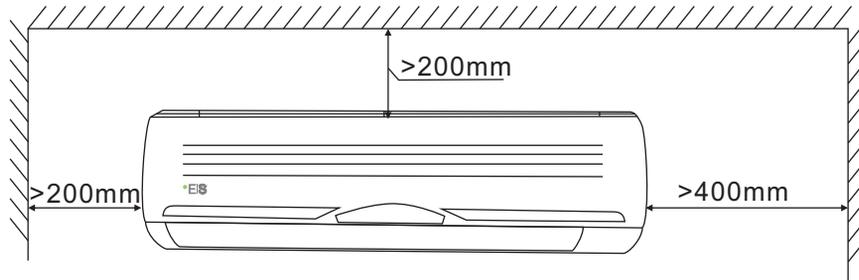
5.2 Mounting plate installation

1. After selecting a proper location, place the mounting plate horizontally onto the wall. Use a plumb line if necessary.

2. Drill the holes for the type of mounting screw to be used. Check local building regulation for correct mounting screw.

3. Secure the mounting plate and check for if it is stable.

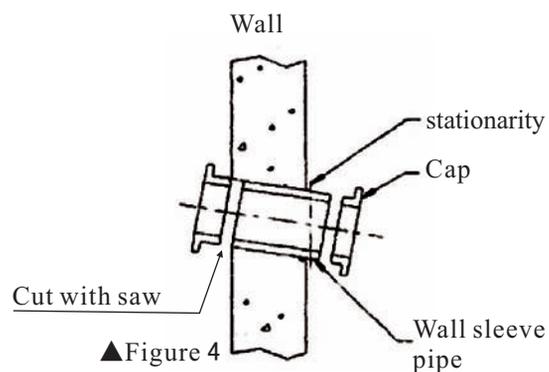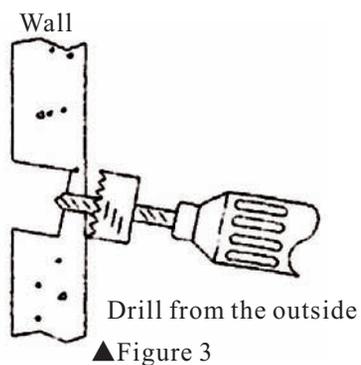Wall plug

Long screw

Mounting plate

▲Figure 1

4. Drill a hole of 70. 0 mm in Diameter for piping either at the right or left side of the unit and make sure that the hole is slightly slant downward.
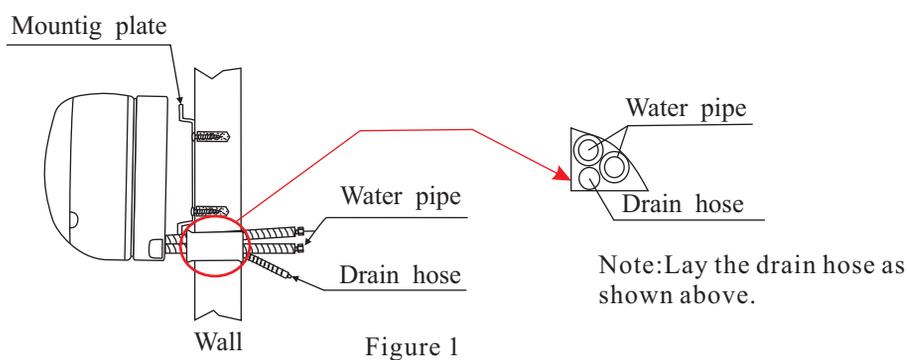

Wall

Indoor   Outdoor

Drilling machine

Slightly slant

Hole saw
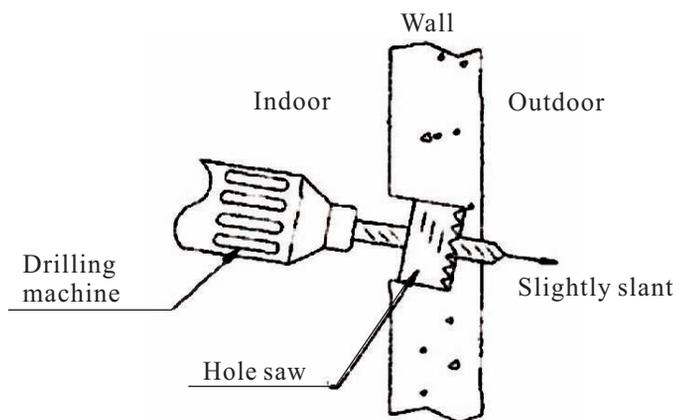
▲Figure 2

5. Installation

5. Check local and national regulation for piping across wall. See figures if wall sleeve is required(Figure 4).

Wall

Drill from the outside

▲Figure 3

Wall

stationarity

Cap

Cut with saw

Wall sleeve pipe

▲Figure 4

If the central water supply system is indoor, and the drain hose can be connected to the existing drainage system, then do not need to drill a hole for piping to outside directly and connect the water inlet and outlet piping to indoor water supply system.
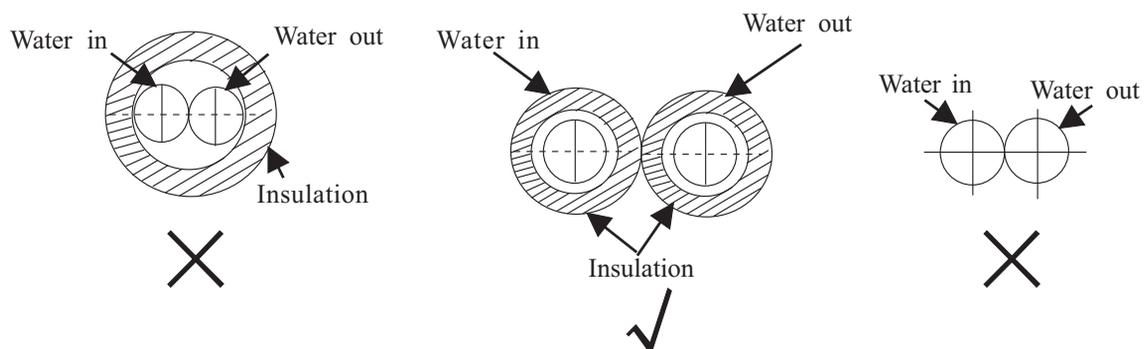
5.3 Install the unit onto the mounting plate

1. Route the fan coil piping and drain hose through the drilled hole(Figure 1).
2. Make sure the pipes are laid along the groove at the back of the unit.

Mountig plate

Water pipe

Water pipe

Drain hose

Drain hose

Note:Lay the drain hose as shown above.

Wall

Figure 1

Note!

1. The pipe insulation should cover both inlet and outlet pipes as shown below.
2. Use the insulation of polyethylene foam more than 8mm in thickness.
3. Ensure that the piping is insulated per local instruction. Improper insulation could result in low efficiency.

Water in

Water out

Insulation

Water in

Water out

Insulation

Water in

Water out

5. Installation

3． Mount the upper of fan coil (part 1 and 2)onto the two notches (A and B)on the mounting plate(Figure 2).

A   B

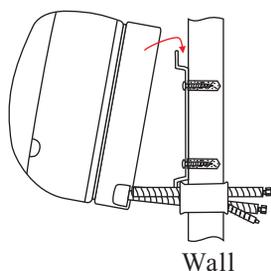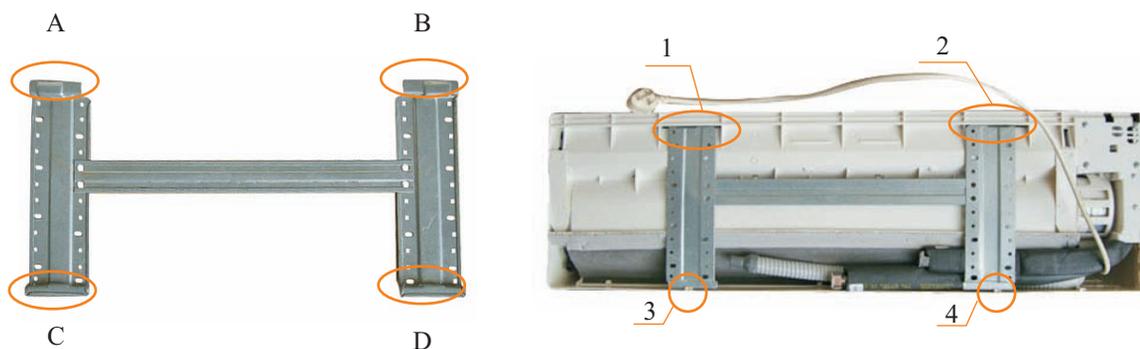1   2

3   4

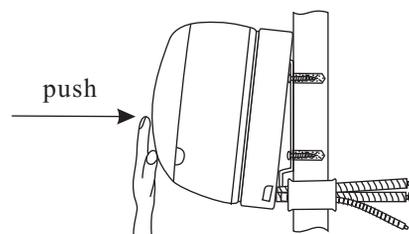C   D

Wall

Figure 2

push

Figure 3

4． Push the bottom of the fan coil (part 3 and 4)towards the wall (Figure 3)in order to engage the locking clips (part C and D)

5.4 Piping and drainage

1．Fix the drain hose on the wall by a piping fixture (Figure 4).
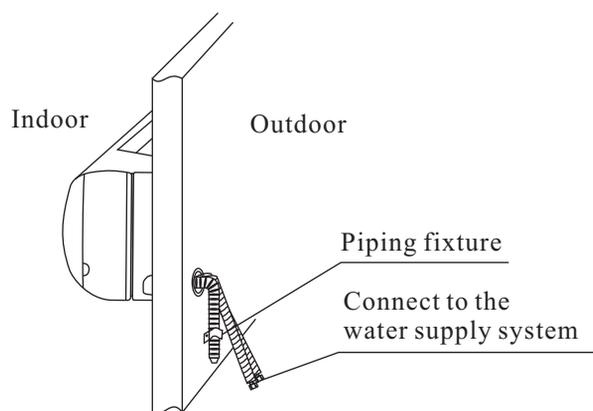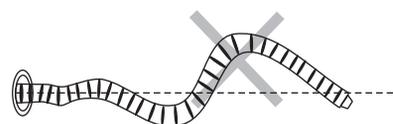2．Connect the water inlet and outlet piping to a water supply system, and make sure the seals are fitted neatly.

Indoor   Outdoor

Piping fixture

Connect to the
water supply system

Note: Any part of drainpipe
should not be higher than the unit.

Figure 4

5. Installation

5.5 Air purging

After connecting the water piping and drainpipe, and fixing the fan coil onto mounting plate,take the following steps for air purging;

1. Lift up the filter cover, there are four latches in the front cover. Don't pull it hard in case the latches will be snapped.
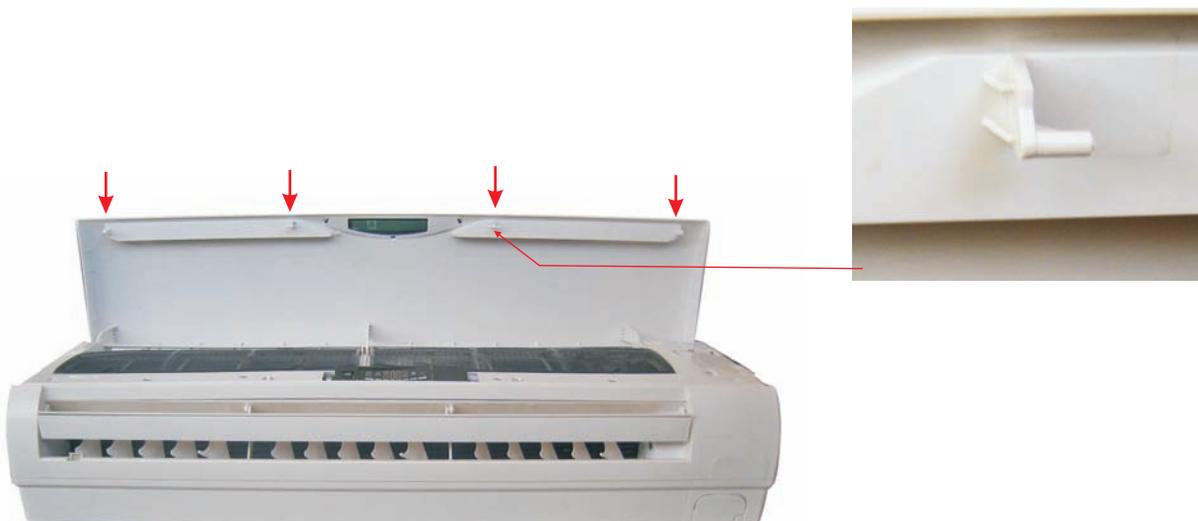
2. There are two grooves in each frame grille. pull up and take off the air filter.

Figure 1

Figure 2

5. Installation

3. Find the purging valve as the picture, unscrew the valve by hand or long nose pliers.
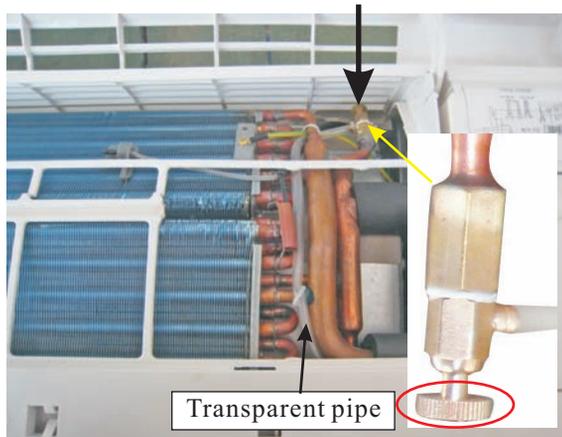

Transparent pipe

Figure 3

Figure 4

4. Open the water inlet valve to run the water flow into the coil, and check the water in a transparent pipe connected with the valve. If the transparent pipe is filled with water without any bubbles, the air is completely purged from the coil. Then close the purging valve.

6. Remote controller operation

**Introduction of function buttons on the remote controller**
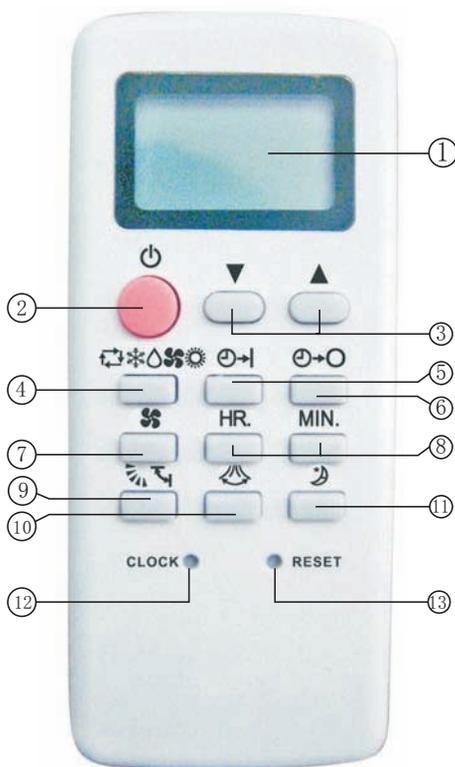
NO.	PART	FUNCTION
1	Display	
2	Power ON/OFF	To switch the unit on and off.
3	Temp	To set the desired ambient temperature.
4	Mode	To select Auto / Cool / Dehumidity / Fan / Heat operation
5	Timer OFF	To set timer OFF
6	Timer ON	To set timer ON
7	Fan	To select fan speed:Auto/Low/Medium//High
8	Hour and minute	To set clock and time setting
9	Vertical louvers stepping	Used to set air flow vertical direction
10	Horizontal louvers	Reserved function
11	Sleep	Key to set/cancel the Sleep mode regardless of the operating mode of the unit.
12	Clock	Key is used to set the current time.
13	Reset	To reset all settings

■ 7. Functions & operation modes

① Mode selection

When unit is turned on,press" 🔁❄️💧🌀☀️ " to choose working mode.It comes in the sequence：

Auto mode   Dehumidity mode   Heating mode

🔁 → ❄️ → 💧 → 🌀 → ☀️ →

Cooling mode   Fan mode
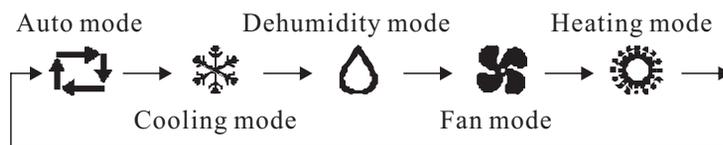
② Auto mode

Once enter the mode, RUN lamp flickers.
The unit will logically choose the heating or cooling mode by sensing the difference between the actual ambient room temperature and the set temperature on the remote controller.
1)Once cooling or heating mode is fixed, the RUN lamp continuously lights.
2)Initial temperature setting is 24℃, increase or decrease 1℃ by pressing ▲ or▼each time to set target temp.
3)Indoor fan speed and blower louvers can be set by remote controller. The fan motor will run in low speed under Sleep function.

NOTE
1)If the AUTO mode is not comfortable for you, the desired mode can be selected manually.
2)Air flow direction can be set to swing or stay at a fixed angle.

③ Cool Operation

1)The temperature setting range is 16℃～31℃. The initial temperature setting is 21℃.
2)Push the button 🌀 to select the FAN mode of AUTO, LOW, MED, or HIGH.
3)Ai flow direction can be set to swing or stay at a fixed angle.

④ Dehumidity mode

1.When the dehumidifying mode is selected, the setting temp. is defaulted at 25℃ and can not be adjusted. The setting fan speed also can't be adjusted and fan will works in low fan speed. Fan direction can be adjusted.
2. The timer function is enabled when the dehumidifying model is operating. The sleep function is disabled. The fan will works in low fan speed and can not be adjusted.

⑤ Fan mode

By pressing the FAN key several times it is possible to adjust the fan speed between the three available speeds, or to activate the AUTO mode. The operating mode appears on the display：

Auto   Medium speed

@ → 🌀 → 🌀 → 🌀 →

Low   High speed
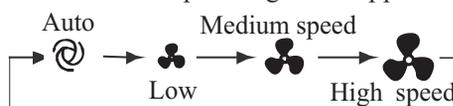
■ 7. Functions & operation modes

6 Heating mode

1)The temperature setting range is 16℃～31℃. The initial temperature setting is 27℃.
2)When the heating mode is selected, the fan may not start up straight away because the
  ANTI-COOLING mode is present.

7 Temp. Setting

After operation mode is selected, press ▼ or ▲ button to set the temperature.
▲ **Button:** Every time the button is pressed, temperature setting increases 1°C.
▼ **Button:** Every time the button is pressed, temperature setting decreases 1°C.

Mode	Auto	Cooling	Dry	Fan	Heating
Set temperature range	16℃～31℃	16℃～31℃	—	—	16℃～31℃
Default	24℃	21℃	25℃	—	27℃

8 Timer mode setting

Use the buttons ⏰➔○ and ⏰➔| to set the timer programming in order to switch on and off the unit at the desired time.
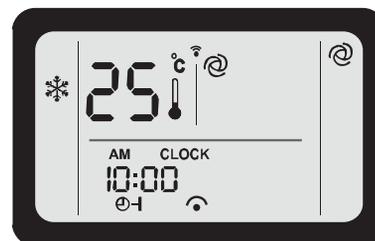
[How to set Timer ON]
The button ⏰➔○ can be used to set the timer programming as
wished in order to switch on the appliance at your desired time.
1) Press ⏰➔○ button, then you can press the "**HR**" and"**MIN**"
buttons to select your desired time for unit on.
- Time setting changes by 1 hour at each time you press the
  "**HR**" button.
- Time setting changes by 1 minute at each time you press the
  "**MIN**" button.
2) Press ⏰➔○ button again to confirm the timer on setting.
3) Once ON Timer is set, timing starts, and the unit turns off. When the set time is up,unit turns on and Timer
is cleared.

[How to set Timer OFF]
The button ⏰➔| can be used to set the timer function as wished in order
to switch off the appliance at your desired time.
1) Press ⏰➔| button, then you can press the "**HR**" and "**MIN**"
buttons to select your desired time for unit off.
- Time setting changes by 1 hour at each time you press the
"**HR**" button.
- Time setting changes by 1 minute at each time you press the
"**MIN**" button.
2) Press ⏰➔|button again to confirm the timer off setting.
3) When OFF Timer is set, before the time is up, the unit keeps on
working normally.When the set time is up, unit stops working immediately regardless of the ambient temp..

9 Sleep mode setting

Sleep mode can be set in cooling, heating or auto operation mode.
In sleep mode,
- Fan speed is automatically set at low speed.
- Press the ″ 🌙 ″ button to set the unit to the sleep mode.
The 🌙 indicator will light up on the display. In this mode,
the temperature increases/decrease in cooling/heating mode
operation by 1° C every two hours of working. After reaching 3° C,
the unit maintains this temperature through to the eighth hour (8 hours)
of operation in the "sleep" mode and then switches off automatically.

Sleep function in cooling mode

Sleep function in heating mode
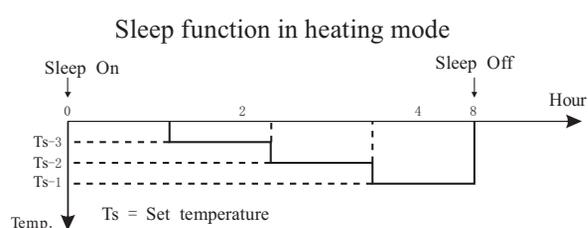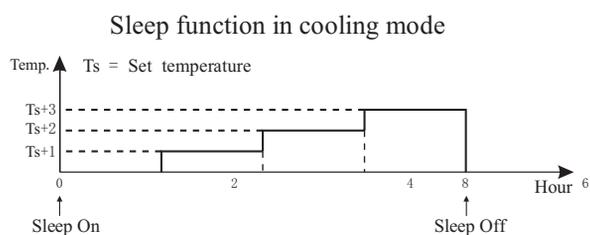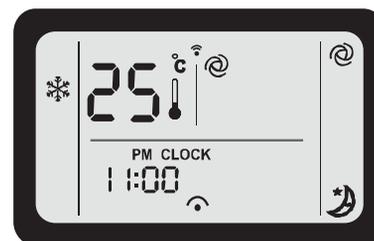
10 Setting the fan

By pressing the ✿ button several times it is possible to adjust the
fan speed between the three available speeds, or to activate the AUTO
speed. The operating speed appears on the display:

@ (Auto) ⟶ ✿(Low) ⟶ ✿(Medium) ⟶ ✿(High)
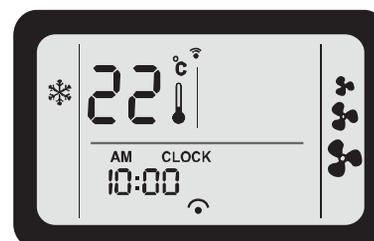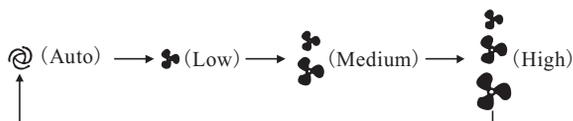
11 Vertical louvers

To change airflow direction vertically, press 🔀 button, the signal
lamp 🔲 is ON in the display.
Each time the button is pressed, airflow direction changes in the
sequence as follows:

@ ⟶ ➤ ⟶ ↘ ⟶ ↙ ⟶ ↗ ⟶ ↑
(Auto) (1) (2) (3) (4) (5)
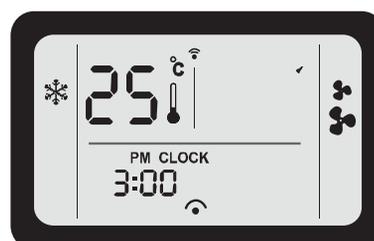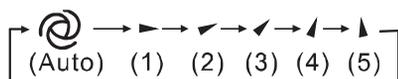
12 Memory function

The unit has memory function as default.

8. Trouble shooting

8.1 Display

Data(temperature\time\failure code)

The POWER light is on after unit is powered on. When the unit is operating the RUN light is on.(The light blinks in auto mode and is on after operation mode is selected).In SLEEP or TIMER mode, the two digit No. displays room temp. and corresponding indication light is on.Current setting temperature is displayed when adjusting setting temperature.

8.2 Failure Code

NO.	Meaning	Code	Indicator	Solution
1	Room temperature sensor failure	E2	Running light blinks twice in every 8 seconds	Change the sensor
2	Coil temperature sensor failure	E3	Running light blinks three times in every 8 seconds	Change the sensor
3	Fan motor failure	E7	Running light blinks seven times in every 8 seconds	Change the sensor

If more than one failures happens at the same time, warning will be shown by the power light alternatively. For instance, if Room Temp. Sensor and Coil Temp. Sensor failures happen at the same time, the power light will flicker twice in first eight seconds and then three times in another eight seconds.

■ 8. Trouble shooting

8.3 Causes&Action

Failure	Causes	Action
The unit doesn't operate	1. Power failure or power plug is disconnected.	1. Clean the power plug and make sure it is connected well.
	2. The circuit breaker or the fuse is broken .	2. Change the circuit breaker or the fuse.
	3. The power supply is not right for the unit.	3. Connect the right power according to the unit label.
Bad cooling or heating	1.The set temp. is not proper.	1.Reset a proper target temp.
	2.air filter has so much dust that it becomes plugged and will reduce airflow.	2.Clean air filter.
	3. The water supply isn't running good. The water flow is too small.	3.Check and make sure water supply is good.
	4.The inlet/outlet water tube is badly insulated.	4.Insulate the inlet/outlet water tube well.
	5. The room door is open.	5.Close all the door and window.
	6. The fan speed is low.	6.Set a higher fan speed.
	7. The voltage is too low.	7.Connect a proper power supply to make sure a stable power supply.
The remote controller fail to control the unit	1.The remote controller doesn't face the display or something blocks between the unit and controller.	1.Make sure the remote controller is face to display without any obstacle in between them.
	2.Batteries in the remote controller run out of power.	2.Change right batteries.
	3. Is there any obstacle or other signal to disturb the signal from remote controller?	3.Remove or turn off the machine which cause signal Interference.
Discharged air flow has bad odour	Odours may be caused by cigarettes, smoke particles, perfume etc. which might have adhered onto the coil.	Often open the window to ventilate the room.
Water flowing out from the unit	1.The water in the drainpipe is too cold and condensing.	1.Pack the drainpipe with a insulation cotton.
	2.the drainpipe is clogged or broken up.	2.Change the drainpipe
	3.The connection of inlet/outlet pipe is not close.	3.connect the piping well.
	4.The drainpipe outlet is so high that the water is out from condensate plate.	4.Set the drainpipe outlet lower than the bottom of unit.
	5.The unit is inclined heavily.	5. Place the unit horizontal.
Shake or too much noise	1. Fan motor bearing is lubricated badly or broken up.	1. Add lubricating oil or change the fan motor.
	2. Blower fan is too dirty or broken up.	2. Clean or change motor blower fans.
	3. Fan has friction with casing	3. Eliminate friction or change the fan motor.
	4. The unit run in high speed.	4. Set the middle or low speed.
	5. The fan motor is not fixed very well.	5. Fix the connector of fan motor.
	6. The shutter of Air supply outlet loose.	6. Fix the shutter.

9.Maintenance

1. Turn off the unit. Disconnect the power plug .
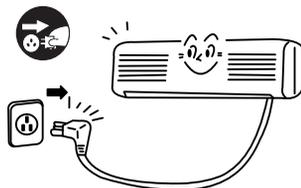
2. Clean the unit with soft dry cloth.
Do not use gasoline, benzene, detergent etc. to clean it .
And do not spray it with insecticide. Otherwise, the unit may be damaged.

3. When you are not going to use the unit for a long time, run its fan for 3~4 hours to dry the internal of the unit. Set the FAN operation to AUTO mode and set the temperature at the highest point.

4. Cleaning the air filter (if necessary ,at least once every 6 months). Operation as follows:

① . Remove the air filter .when you open the front panel, don't open it up to the level position, or the front panel may come off. Open it to the position shown in the picture bellow.
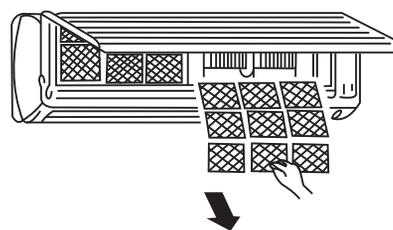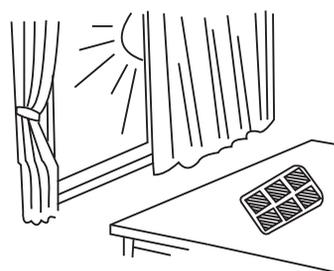
② . Clean the air filter with vacuum cleaner, or wash it with tap water. If the air filter is too dirty, wash it with a little detergent in lukewarm water.
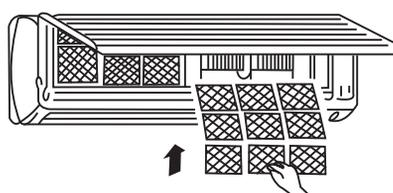
⚠ Don't use hot water over 50℃. It may deform the air filter.

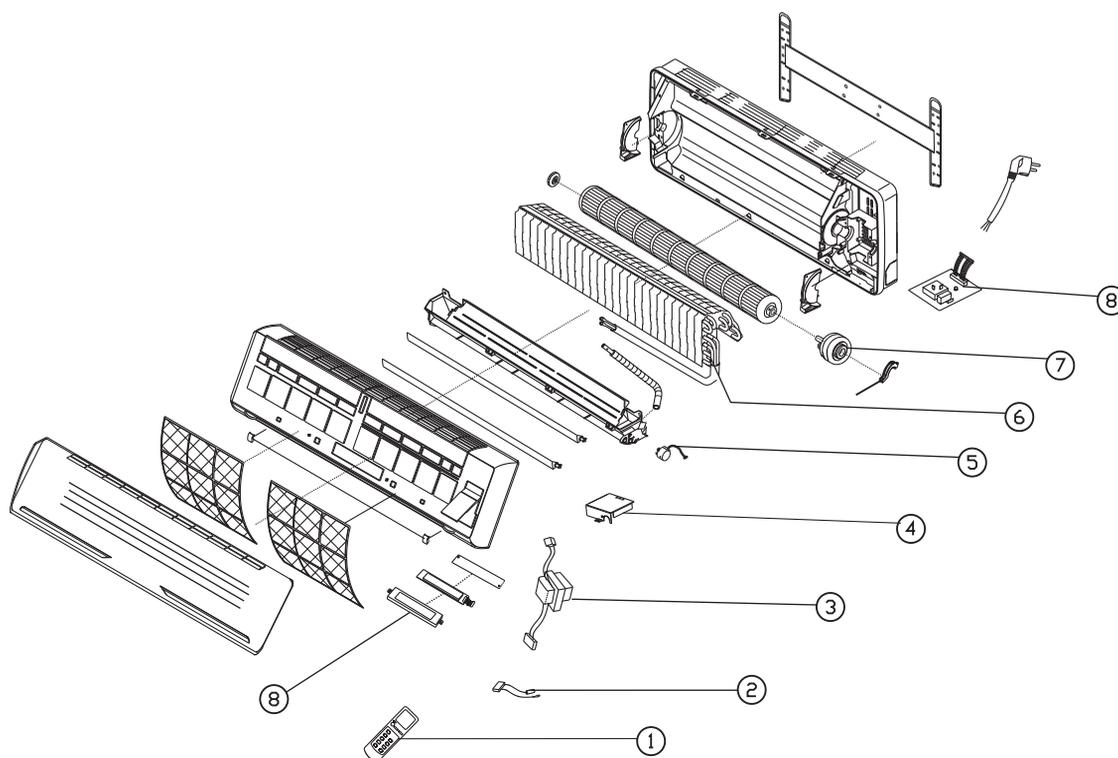③ . After washing with water, dry it well in the shadow.

⚠ Don't expose the air filter to direct sunlight or fire when drying it .

④ . Install the air filter.

Item	Description	Model no.	Article no.
1	Remote controller	FCW 12.1 FCW 18.1	R8060804520
2	Room and pipe sensor	FCW 12.1 FCW 18.1	R8060900210
3	Transformer	FCW 12.1 FCW 18.1	R8061600320
4	Fan motor capacitor	FCW 12.1	R8060200457
		FCW 18.1	R8060200082
5	Step motor	FCW 12.1	R8061900030
		FCW 18.1	R8061900040
6	Evaporator	FCW 12.1	R140204139
		FCW 18.1	R140204140
7	Fan motor	FCW 12.1	R8061802290
		FCW 18.1	R8061802570
8	Controller and display board	FCW 12.1	R8060805530
		FCW 18.1	R8060805540

11.Wiring diagram

WIRING DIAGRAM

FAN MOTOR   STEP MOTOR

FM   SM

VALVE

ROOM TEMP SENSOR

θ

CN-FAN CNFK   CN-SMD

θ

COIL SENSOR

RT PT

VALVE

MAIN PCB

CN-DISP

AC-L

RCV

AC-N TRAN-OUT   TRAN-IN

EVAPORATOR
HARDWARE

11V

POWER PLUG

TRANSFORMER

BROKEN LINE USE FOR
WATER VALVE MODEL