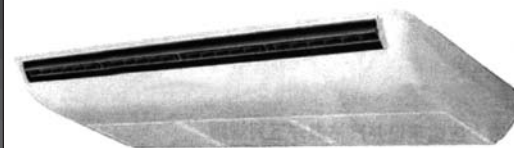


OPERATING AND
INSTALLATING INSTRUCTIONS
(WATER CEILING FLOOR)





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Safety precautions

- Before using the unit, do carefully read these “safety precautions” and use correctly. Since these cautionary items shown here are important for safety, be sure to observe them.
- Meanings of symbols used in this manual are as shown below

-  **Warning** Incorrect handling could cause a serious hazard, such as death, serious injury, etc, with a high probability.
-  **Caution** Incorrect handling could cause a serious hazard depending on the conditions.

Do read the symbols on the machine carefully.

When an abnormality, say, noise, smell, smoke, high temperature, leakage, fire occurs, turn off the breaker immediately, and contact with the customer service department. Do not repair it by yourself. If necessary pls contact the fire fighting department.

 Warning
Please do not install the unit by yourself. Do ask the professional installation man to install it, or may cause accident and affect the efficiency.
Lay people with professional guide can not disconnect the unit or may cause accident.
Using the unsettled water may cause scale, corruption. The company will not respond to the problem due to the bad quality water.
Do not use or store the flammable gas and liquid say fixture, paint, gasoline, or may cause fire.
Never put the electric breaker where it's easy to be touched by children, to avoid the hazard.
Never apply spray or liquid to the unit, or may cause hazard.
Do not touch the machine with wet hand, or may get an electric shock.
Use the standard wire when wiring , connect with the clip successfully. When wiring, pls keep shape correctly, do not make it rise do not make the wire caught by the electric box cover, or install incorrectly, or may cause tip-and-run, fire and so on.
Do not put the draining pipe in the gullet where there may be some harmful gas, containing sulfur, or the harmful gas may be led to the room.
The draining pipe should be installed correctly according to the instruction. It may cause leakage if installed incorrectly. During thunder storm, pls turn off the breaker, or the lightning may cause damage to the unit. When not use in long term, pls turn off the breaker, to avoid accident.

Technical specification

1 Technical specification

Model	ZDF-51	ZDF-68	ZDF-85	ZDF-102	ZDF-136	ZDF-170	ZDF-204	ZDF-238
Power	~220V 50Hz	~220V 50Hz	~220V 50Hz	~220V 50Hz	~220V 50Hz	~220V 50Hz	~220V 50Hz	~220V 50Hz
Cooling Capacity	W	3600	4500	5400	7200	9000	10800	12600
Heating Capacity	W	5400	6750	8100	10800	13500	16200	18900
Air circulation	m3/h	680	850	1020	1360	1700	2040	2380
Water flow	m3/h	0.62	0.86	0.98	1.22	1.58	1.92	2.10
Input power	W	45	80	110	120	150	170	188
Input current	A	0.19	0.36	0.49	0.54	0.68	0.82	0.90
Water pressure drop	Kpa	14	18	22	25	39	44	44
Water connection	In (in)	ZG 3/4 "						
	Out(in)							
Electric shock protection								
Noise Net weight / gross mass	dB(A)	39	41	43	45	46	48	52
	kg	25/30	25/30	25/30	40/45	40/45	45/50	45/50
Dimension Net	mm	905*673*243	905*673*243	905*673*243	1288*673*243	1288*673*243	1672*673*243	1672*673*243
Dimension Packing	mm	995*765*311	995*765*311	995*765*311	1375*765*311	1375*765*311	1760*765*311	1760*765*311
Note	The fan motor output and sound level are tested when the fan speed is the highest. Cooling capacity: indoor temp, 27℃ DB, 19℃ WB, water-in temp 7℃ return water temp 12℃. Heating capacity: indoor temp, 21℃ DB, water in temp, 60℃.							

Name of each part and function of the panel.



Note

Do not insert your hand or foreign object into the inlet or outlet of the indoor and outdoor unit, or the high speed fan may cause hazard.

Never make the air conditioner wet inside, or may cause short circuit or damage to the unit.

After cleaning the filter, do install the air inlet griller properly. Never leave it open for long time, or cause hazard.

In order to use this machine better, please use it based on the using conditions, or it may cause drippage and affect the efficiency.

Pls adjust the indoor temperature properly, especially with the old, child, patient.

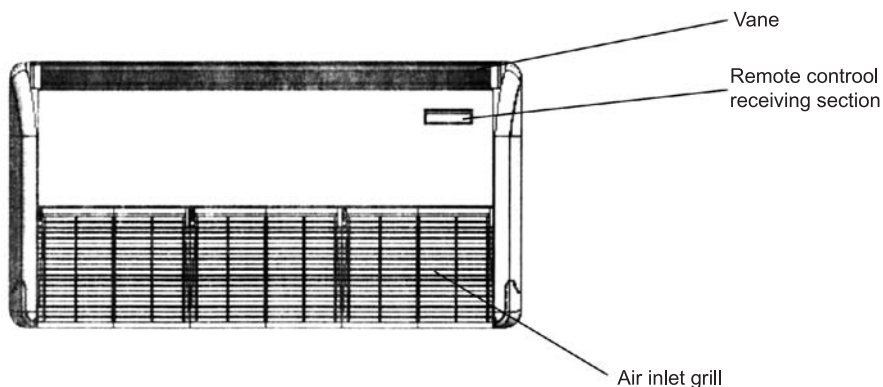
Lightning or other electromagnetic radiation may have effect on the unit. If so, pls draw out the plug, and then insert again, the restart the unit.

Never block or cover the air inlet or air-outlet of air conditioners.

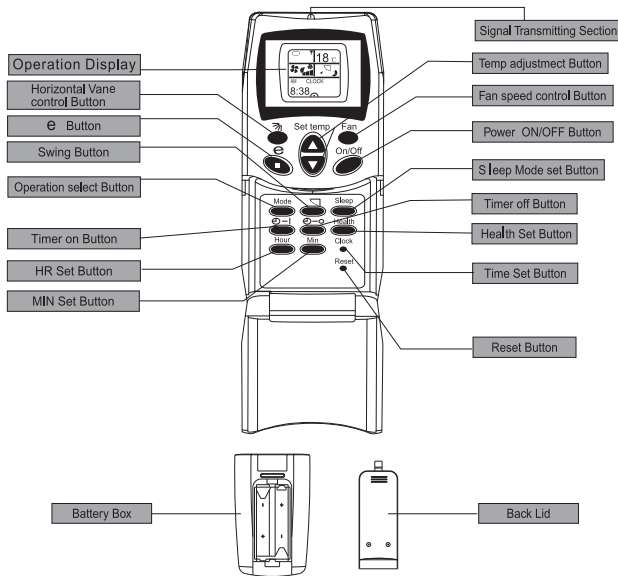
2. Name of each part and function of the panel



Name of each part

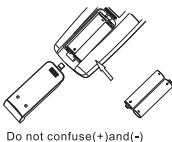


Remote control function

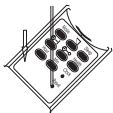


Set Remote Controller Clock

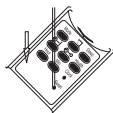
1. Remove the back lid and insert two batteries



2. Reset button



3. Clock set button

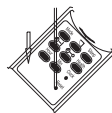


- Warning**
- The batteries must be removed from the appliance before it is scrapped and that they are disposed.
 - The range that the signal can reach is about 6 metres of safety. One or two beeps will be heard after the unit receiving the signal.
 - When the signal does not operate the indoor unit, or the display becomes dim, replace the 2 batteries with new ones of the same type.
 - Use the remote controller carefully. If it is dropped, thrown or gets wet, it may not operate.
 - Do not use rechargeable batteries.

4. Press the buttons HR and MIN to set the current time. Press HR button each time, the time adds 1 hour. Press MIN button each time, time will add 1 minute



5. Press clock set button again



Operate automatically

According to the room temperature when the operation starts, the operation mode is automatically selected between COOL, DRY and HEAT. However, when operation is started again within 2 hours after the operation is stopped, the same operation mode before it is stopped is selected.

Room temperature when started	operation mode
About 25°C or higher	COOL
About 20°C-25°C	DRY
About 20°C or lower	HEAT FAN

To start operation

1. The signal transmitting section of the controller should be pointed at the receiving section.
2. Press the ON/OFF to start air-conditioner
3. To select the Auto mode, each time the button is pressed, the operation mode is changed in sequence from: AUTO---COOL---DRY---HEAT

To stop operation

Press the ON/OFF button




While too warm or too cool

When about 3-15 min passes, press after operation start, if you feel slightly warm or cool.

1. Press the TOO COOL button to raise the temperature. One press raises the temperature by about 1°C
2. Press the TOO WARM button to lower the temperature. One press lowers the temperature by about 1°C

Remote control function

To Select The "Cool", "DRY", "HEAT", "FAN", "ON/OFF" Mode


1. Press the ON/OFF button to start machine
2. Select the operation mode by pressing the MODE. Each time this button is pressed, the operation mode is changed in sequence, from "AUTO → COOL → DRY → HEAT" (Example) To select the cool operation mode, press MODE button continuously until "cool" is displayed on the display screen.
3. Press the  button to select the fan speed
4. Press the  button to select air blowing direction
5. Press the  button to stop machine.

Note

1. Once the operation mode has been selected, the same operation mode will start after the ON/OFF button pressed on
2. For KFR unit no FAN mode.
3. For KF unit no HEAT mode.

When the set temperature is to be changed

To lower the temperature, Press the  button, One press lowers the temperature by about 1°C

To raise the temperature, Press the  button, One press raise the temperature by about 1°C

IN "HEAT" Operation

1. The air-conditioner's efficiency is relative to the outdoor temperature. If the unit is used in cold area, a heater can be used together since the air-conditioner's heat is not enough.
2. Defrosting operation:—When outdoor temperature is very low, the fans in the outdoor and indoor unit are stopped. Meanwhile defrosting operates for 2-10min to protect the outdoor heat-exchanger from being frosted.



IN "DRY" Operation

1. In "DRY" operation, the fan speed cannot be changed
2. Controlled by the microprocessor, the fans in the outdoor and indoor unit operate occasionally for "DRY" operation.
3. The room temperature is slightly lowered in this operation mode. The "DRY" function cannot be done when room temperature is 13°C or lower

CAUTION

1. When the temperature is slightly lowered in the outdoor and indoor unit, operate occasionally for "DRY" operation
2. 3 Min delay start
3. In order to reduce the compressor high load, the unit cannot be operated for 3 minutes when restarted while the electric fan works. This will be effective in following conditions.
4. — Power cut — Power source cut off
— Main power breaker turn off

Air Flow Velocity Adjustment

1. Press the button  to adjust the air flow velocity. Each time the button is pressed, Fan speed is changed as follows: AUTO → LOW → MEDIUM → HIGH
2. To adjust the up/down fan, please press the button . Each time press the button on position of " — → ↗ ↘ " → ↗ ↘ | → ↻ "

1. In daily time, please select swing.
2. When "Cool" or "Dry", please select the position of " — ↗ " and "HEAT" select to " / | " Position

Note: To change the horizontal direction of the air flow. Adjust the vertical vanes manually before operation starts. Since the horizontal vane moves automatically your fingers may be caught.










OVERRIDE OPERATION

KFR Type: Each time the switch is pressed, the unit alternates between the override COOL mode, HEAT mode and STOP mode.

KF Type: Each time the switch is pressed, the unit alternates between the override COOL mode and STOP mode.

Remote control function

To set timer on/off function

Press the timer on button , the  appears in the display and begins to glitter. It will last 1 min, to inform you that you can start to set the timer on  function. Press the timer on button again, the function will be cancelled. When the unit is on, press the timer off button, or press the timer on  button first to set the timer on, then press the timer off button, the  appears in the display and begins to glitter, and it will last 1 min, to inform you that you can start to set the timer off function. Press the timer off button again, the function will be cancelled. Press the  and  button to set timer on and timer off function which you need. Each press of the , the set time will raise by 1 hour. Each press of the , the set time will raise by 10 mins.

To use the timer on/off function together.


Press the timer on button to set the timer on function first, and then press the timer off button to set the timer off function. At the time, the timer on/off functions are used together.

→ Stands the operation order of the timer on/off function.

NOTE:

- 1、 Before setting the timer on/off function, please confirm whether the electronic clock is set right or not.
- 2、 If the current time is the time of the timer on/off, and the state of the machine is the same as the requirement of the time set, the operating mode will not change.
- 3、 The remote controller has the function of setting daily recycle of timer on/off function (everyday set the timer on/off function rotatively.), and setting weekly recycle of timer on/off function (operate the timer on/off function rotatively from Monday to Friday, and stop the unit on Saturday and Sunday). Some other air-conditioners may not have this function, and will not be informed.
- 4、 In the stop state, Press the "Temperature +" and "temperature -" at the same time, to set and cancel the weekly display state easily.

Set the comfortable sleep mode function




- 1、 the machine is on.
- 2、 press the sleep button  to enter the operation of sleep mode function.

Sleep function

- 1、 the fan motor indoor changes to the low speed.
- 2、 In cool operation, each hour the temperature will raise by 1°C, but the changing range is only 2°C.
- 3、 In heat operation, each hour the temperature will lower by 1°C, but the changing range is only 2°C.
- 4、 In dry operation, the room temperature often does not change.

To cancel the Sleep mode function

You can cancel the sleep mode function by selecting one way below.

- 1、 Press the sleep mode  set button again
- 2、 Press the on/off button  or stop the machine automatically.
- 3、 Press the mode button  to change the mode.
- 4、 Press the fan speed button  to change the fan speed.




"e" button Function:

Press "e" button one time, the unit goes on "AUTO" function MODE SWING, FAN SPEED. Press it again, the same function works. Press "ON/OFF" or "MODE" button to cancel "e" Function

The Night Light Function

The button ON/OFF has night light indication

NOTE:

- 1、 This remote controller is new type produced by Shanghai Shuanglu Company. If the instruction of this remote controller has difference from the object, please confirm by the instruction.
- 2、 If this remote controller is used together with the cabinet type, please press "  " button two times, then the mode is the current mode.
- 3、 The button "  " and "  " of portable air-conditioner does not work.
- 4、 This remote controller does not set anion function.

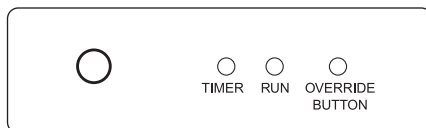
Emergency operating mode

4. Emergency operating mode

When the remote controller lost or does not work, you can carry out the emergency operating mode as follows to start the air conditioners.

● Turn on the machine

Start the machine when power on, press the on/off button, when hearing “BEEP”, the running light turns on, which means the “Emergency” function.



The air conditioners works automatically as follows.

RT	ST	Timer	Set Fan speed	work mode
>25℃	25℃	No	auto	cooling
<21℃	23℃	No	auto	heating

● Turn down the machine(cancel the emergenly operating function)

Press “on/off” button again, and hears a sound of “BEEP”, all the indicate lights turn off, air conditioner stops working.

● Cancel the emergency function by remote controller.

Press the on/off button on the remote controller, and hears a sound of “BEEP”, the air conditioner works according to the set condition.



Note

Because the cassette air conditioners installed high from the floor, pls take care when do it manually.

Maintenance

5. Maintenance

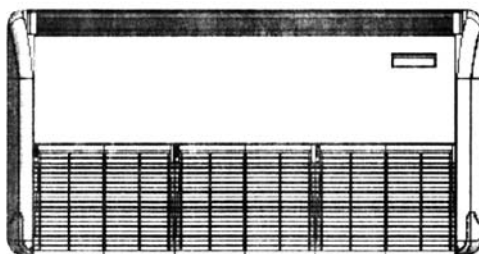
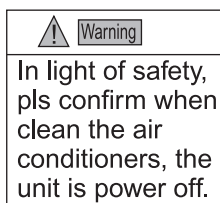
● Check before using:

- 1: Check the ground wire whether it connects well or break off.
- 2: Check whether the air filter installed well or not.
- 3: Pls confirm that the air outlet and air inlet of indoor and outdoor are not blocked.
- 4: If the air conditioner is not used for a long time, pls do clean the air filter, then start the unit.

● Optimal operation

- 1: Pls note the following items to make sure the optimal operation.
- 2: When in cooling mode, try to avoid the sunshine directly to the room.
- 3: Pls close the door and windows, or it may affect the efficiency of cooling and heating.
- 4: Please ensure the air outlet and inlet without obstruction.
- 5: Pls clean the air filter frequently.
- 6: Pls keep the room clean, or it way make the filter dirty, blow the air smell.

● Maintenance



◆ Clean the air filter

Dirty or blocked filter will influence the efficiency, so pls clean the filter frequently:

1. Take the screw cap and un wrest the screw.
2. Push the clip of air inlet grill with hand.
3. Take the filter out of the air inlet grill

Maintenance

When the conditions below happen, do stop the unit immediately, turn off the power, and contact with the service clepartment in the local market.

Phenomenon	If the indicator lights on the panel abnormal, turn off the power, then turn on, the phenomenon still exist.
	The fuse melts frequently or circuit breaker works often.
	A loud noise from the unit.
	Some unstable phenomenon, say shake of air cons.
	Serious leakage of water.
	Other abnormal phenomenon.

For the following problems, check it as request. If the problem can not be settled, contact with the service department.

Malfunction	Cause	Remedy
Unit does not operate at all	Power outage	Press on/off button after power restored
	Main power not on	Turn main power on
	The fuse melts	Replace fuse
	The battery finish	Replace the new battery
	The time is not ready	Wait or cancel time
The air blows out, but the efficiently is not good	The set temperature is not correct	Set the femperature reasonably, turn up/down the temperature
	Filter is blocked by the dities	Clean the filter
	The inlet and outlet of air-con blocked	Remove the obstructs
	Door/loindows open	Close the door/windows
	Heating /cooling over load	Close the source of heat/cool
The air blows out, but not complete cooling/heating.	Temperature set incorreet	Reset the temperature
	Mode set incorrect	Reset the mode
Dew appears on the panel	The humidity indoor is to high	Turn the air blow to the high speed, and turn the angle of vane to the biggest



Warning

Do not replace the power cord, or may cause the hazard

Do not repair the air conditioners by yourself

INSTALLATION

6. Installation

Before installing, pls read all the safety precautions.

Pls install the unit as requested in the manual.

Pls read the marks carefully before installing.



Warning

Pls do not install the unit by yourself, Do ask the professional installation man to install.

Any alteration of architectural construction in order to install the unit must comply with the architechural construction standard.

The unit should be installed in a roof or frame where is strong enough.

Pls use the appointed or standard wire.

According to the regulation and the installation, the installation of electric equipmert must be finshed by the technican who gets certificate.

Bearefull of the safety when installing

Never start the unit before finishing the installation.



Note

After finishing the installation, the installer should explain to the user hlow to operate and maintain the unit, according to the installation, and ask the user to read carefully and keep the instruction.

The installation place can not be at the area with high vdatile oil or contains sulfuric acid mist, or it may debase the performance of the unit or damage the spare parts.

Do use the standard fuse.

Confirm to use a ground electric leakage breaker.

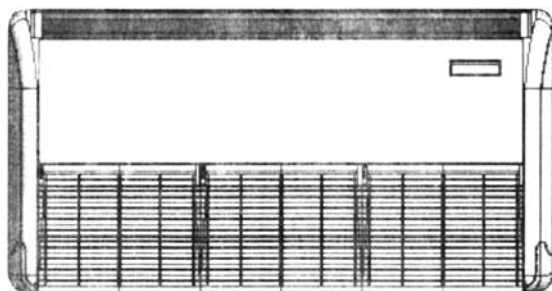
Confirm to install a ground wire.

If the unit installed to the metal part, pls make sure the electric insulation, and it must comply with the relevant date standard.

Installing the machine

7. Seven: Installing the machine

- The left space for the indoor unit



● Installing the indoor unit

1. Decide the open size of the ceiling according to the picture above.
2. The choice of hanging base

Hanging base should be the wooden frame and armoured concrete frame that are firm, dependable and can bear 200kg or more object.

The hanging base should bear a certain libration, and can keep it's firmness and bear a certain weight for a long term.

Before construction, pls consult the constructor and the decorator to confirm whether can install or not.

3. The fixup of the bolt.

Use the following method to fix the bolts or use hob and wooden frame to hang the bolt:

a: ceiling b: girder c: beam d: attic

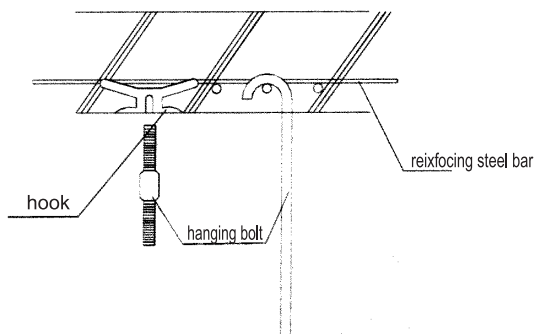
e: hanging bolt M10 (3/8")

f: reinforcing steel bar

g: hook that can bear 120kg or more.

When install to the ceiling, pls notice:

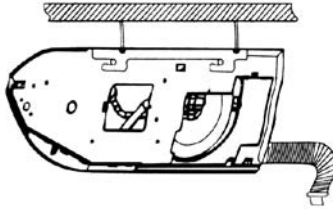
The ceiling must keep horizontal in order to avoid shakement, the ceiling must be reinforced.



Connecting the pipe

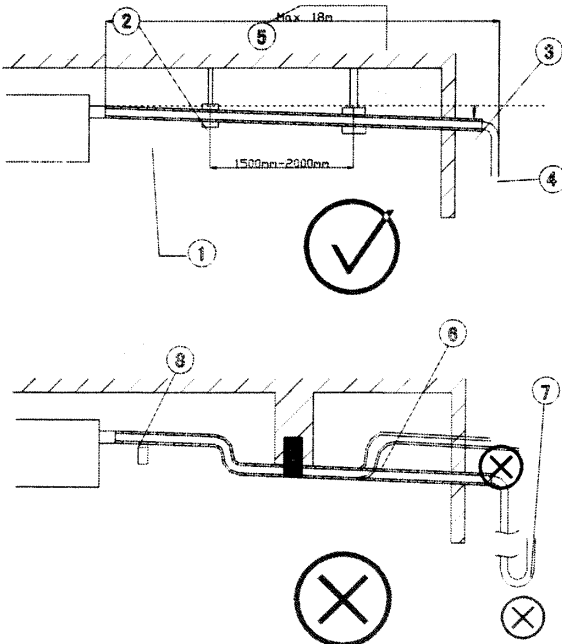
9. Connect the pipe

Connect frozen water pipe with the water inlet and water outlet pipe of the Coil with 3/4 inch outer worm nut, the connector for water in and water-out of the coil is as following drawing.



10. Connection of draining pipe

1. PVC pipe with 15mm inner diameter is needed and confirm downward slanting angle should be above 2%.
2. Connect draining pipe with adhesive glue, and tie the pipe with PVC blet.
3. Check every step of the connection.
4. Change the direction of air discharge in the pipe line by using conjoint tube.



- 1.heat insulation material
- 2.draining pipe support
- 3.mini slanting angle
- 4.drainage pipe
- 5.max distance of water
- 6.up and fold(not allowed)
- 7.sullage stimulator(not allowed)
- 8.air discharge port

Trial operation

11. Trial operation

● Preparation for trial operation

Before the trial operation, please check the above steps carefully including electric connection pipe connection and so on to make sure everything is ok.

● Air discharge of coil

At the first time the pipe line charged with water there is some air left at the top of the coil. So there is a manual air discharge the unwanted air, you need to rotate the valve tightly after there is a steady water flow.

● Trial

1. Connect to the power supply and turn on the AC.
2. Press wire controller buttons to set the fan motor speed to check the noise.
3. To check whether there is hot air or cold air coming out from the air outlet if there is hot water and cold water recycle in the system. If it is in the mode of cooling check whether there is condensing water drain out.
4. Press wire controller buttons to set cooling or heating mode based on the heat water and cold water recycle system to check whether the valve can normally work and there is heat or cold air coming out from the air outlet, if there is a electric water inflow valve at the water inlet pipe connector.
5. Press "SWING" button of the wire controller to check whether the guide louvers swing in order.
6. Turn off the unit once confirm that the unit works normally.

⚠ If the unit can not work in order, please solve the problem as below.

● Breakdown debar

Malfunction the flashes of indicator lights and function displaying board based on the following diagram.

	LCD display	Flash of LED lights
RT malfunction	E1r	1 per 8 s