



FULL DC INVERTER SYSTEMS

INSTALLATION AND OWNER'S MANUAL

AIR HANDLING UNIT KIT

AHUKZ-01A, AHUKZ-02A, AHUKZ-03A

COMMERCIAL AIR CONDITIONERS SDV4



Original instructions

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1. PRECAUTIONS

- Be sure to be in conformity with the local, national and international laws and regulations.
- Read "PRECAUTIONS" carefully before installation.
- The following precautions include important safety items. Observe them and never forget.
- Keep this manual with the owner's manual in a handy place for future reference.
- Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.

The safety precautions listed here are divided into two categories. In either case, important safety information is listed which must be read carefully.



WARNING

Failure to observe a warning may result in death.



CAUTION

Failure to observe a caution may result in injury or damage to the equipment.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.



WARNING

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly.

If installation is defective, it will cause water leakage, electric shocks, fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation.

otherwise, it will cause the set to fall, water leakage, electrical shock fire.

Install at a strong and firm location which is able to withstand the set's weight.

If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 2.5m above floor.

The appliance shall not be installed in the laundry.

Before obtaining access to terminals, all supply circuits must be disconnected.

The appliance must be positioned so that the plug is accessible.

The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used.

If electrical circuit capacity is not enough or defect in electrical work, it will cause electrical shock fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal.

If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly.

If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or similarly qualified person in order to avoid a hazard.

An all-pole disconnection switch having a cintract separation of at least 3mm in a poles should be connected in fixed wiring.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle.

Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances.

Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.

Improper installation work may result in the equipment falling and causing accidents.

If the refrigerant leaks during installation, ventilate the area immediately.

Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

After completing the installation work, check that the refrigerant does not leak.

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.



CAUTION

Ground the air conditioner.

Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire. Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.

Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, then connect the indoor unit wires.

You are not allowed to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.

Improper drain piping may result in water leakage and property damage.

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Young children should be supervised to ensure that they do not play with the appliance.

Don't install the air conditioner in the following locations:

- Outdoor occasions.
- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- The appliance shall not be installed in the laundry.
- Other special conditions.

2. INSTALLATION INFORMATION

- **To install properly, please read this "installation manual" at first.**
 - **The air conditioner must be installed by qualified persons.**
 - **When installing the indoor unit or its tubing, please follow this manual as strictly as possible.**
 - **If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.**
 - **When all the installation work is finished, please turn on the power only after a thorough check.**
 - **Regret for no further announcement if there is any change of this manual caused by product improvement.**
-














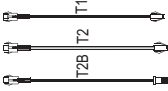



INSTALLATION ORDER

- Select the location;
- Install the control box;
- Install the outdoor unit;
- Install the connecting pipe ;
- Wiring;
- Test operation.

3. ATTACHED FITTINGS

Please check whether the following fittings are of full scope. If there are some spare fittings , please restore them carefully.

Table.3-1

NAME	SHAPE	QUANTITY	FUNCTION
1. Installation&owner's manual		1	
2. Wire controller		1	Wire control the air-conditioner
3. Wire controller installation&owner's manual manual		2	
4. Wire controller connecting wire group		1	
5. Signal receiver display board		1	Receive signal
6. Screw ST3.9x25		8	Secure the installation board
7. Plastic expanded tube		8	
8. Temp.sensor		3	
9. Temp.sensor connecting wire group		3	
10. Display panel connecting wire group		1	

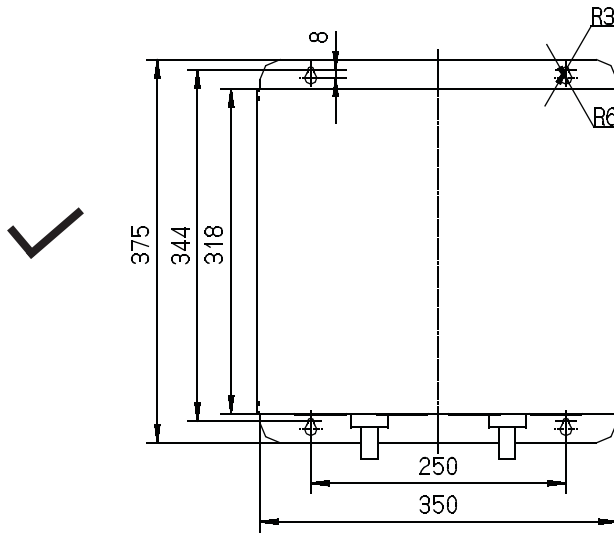
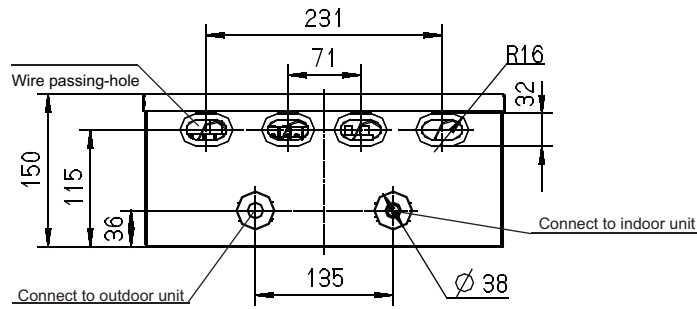
■ Cautions on wire controller installation

- Never throw or beat the controller.
- Before installation, operate the wire controller to determine its location in a reception range.
- Keep the wire controller at least 1m apart from the nearest TV set or stereo equipment. (It is necessary to prevent image disturbances or noise interferences.)
- Do not install the wire controller in a place exposed to direct sunlight or close to a heating source, such as a stove. Note that the positive and negative poles are in right positions when loading batteries.

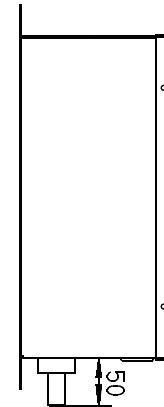
4. INSTALLATION METHOD & DIMENSION

Units: mm

AHUKZ-01A
AHUKZ-02A
AHUKZ-03A

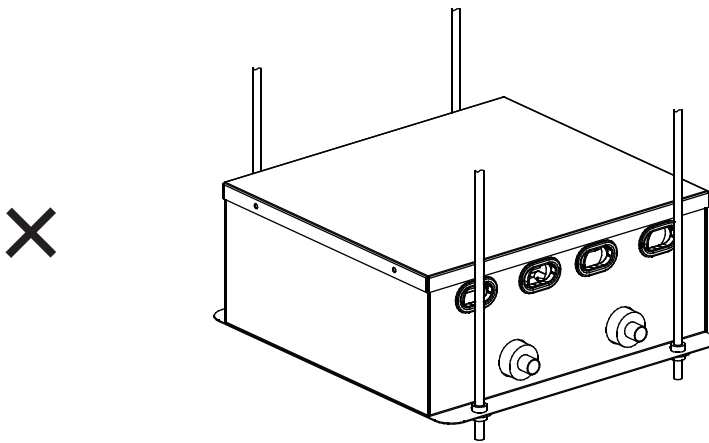


Installation method : Hanging



Install vertically

Fig.4-1



Wrong installation way

Fig.4-2



NOTE

- 1 The controller box can not installation in outdoor occasions,if inevitable,it must increase rainproof precautions, specific methods please contact the local dealer or technical support engineer.
- 2 As hanging installation please use Screw ST3.9x25 for installation.
- 3 As hanging installation, the box should be vertical, and the box can not be installed horizontally.
- 4 Please refer to the foregoing,make sure the laying direction of the refrigerant pipe and the connecting place of the connecting wire.
- 5 All the pictures in this manual are for explanation purpose only. They may be slightly different from the control box you purchased(depend on model).The actual shape shall prevail.

5. MATERIAL AND SIZE OF THE PIPING



CAUTION

- 1 The connecting distance of control box and indoor unit should not more than 8 m.
- 2 This control box can only connect to R410A refrigerant system.
- 3 This control box can only connect to VRF system.
- 4 This control box can not connect heat recovery system.
- 5 During the installation of connecting pipes, do not let air, dust, or other sundries enter to the piping system.
- 6 Install the connecting pipe only after the indoor and outdoor units have been fixed.
- 7 When installing the connecting pipes, it must be kept dry and do not let water enter to the piping system.
- 8 The connecting copper pipes must be wrapped with thermal insulation materials (usually the thickness should be more than 10mm; in some humid area it should be thickened properly).

Table.5-1

Pipe Material		Copper Pipe for Air Conditioner		
Model		AHUKZ-01A	AHUKZ-02A	AHUKZ-03A
Size(mm)	(Liquid in)	Φ8	Φ12.7	Φ16
	(Liquid out)	Φ8	Φ12.7	Φ16

6. ELECTRICAL WIRING



CAUTION

- 1 The air conditioner should use separate power supply with rated voltage.
- 2 The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.
- 3 The wiring work should be done by qualified persons according to circuit drawing.
- 4 The fixed connecting lines must equip with at least 3mm electric shock spacing.
- 5 A leakage protector should be installed according to the local electrical standard.
- 6 Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance and their contact with connecting pipe or stop valve body. Generally, do not twist two wiring together unless the joint is soldered well and covered with insulator tape.
- 7 Do not turn on the power until the electrical wiring have been done correctly.

6-1 The specification of power

The specification of power as the follow display figure, if the capacity is too small will lead to over heat of the wiring, and cause burning of the machine accident.

Table.6-1

Model		AHUKZ-01A~03A
Power	Phase	Single-phase
	Voltage and Frequency	220-240V ~ 50Hz 208-230V ~ 60Hz
Indoor unit power wiring(mm ²)		4.0(<50 m)
Indoor/outdoor connecting wiring(mm ²) weak electric signal		0.75



CAUTION

The air-gap notch in the circuit breaker is used for insulating the flexible conductor, so that must respond to the related national wire requests to connect to the fixed circuit.

6-2 Terminal block setting figure

Please refer to the indoor unit wiring figure for connecting wire.



CAUTION

The air-conditioners can connect with Central Control Monitor (CCM). Before operation, please make sure the wire has been connected correctly and the indoor unit address have been set rightly.

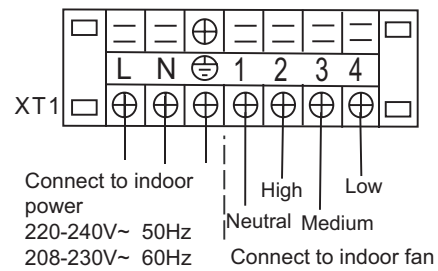


Fig.6-1

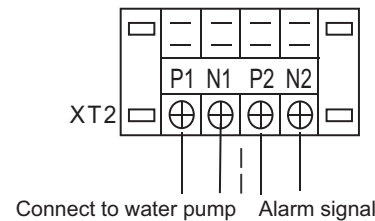


Fig.6-2

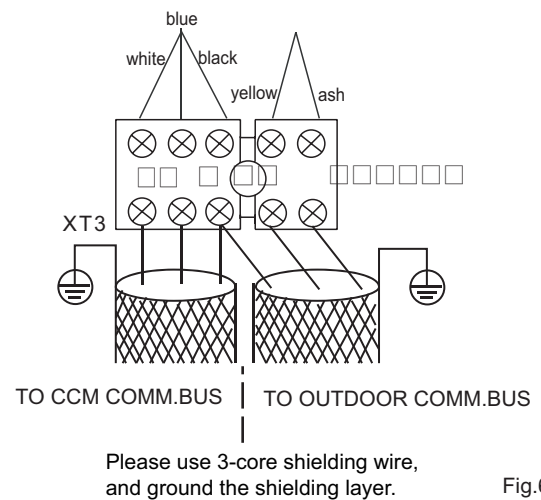


Fig.6-3

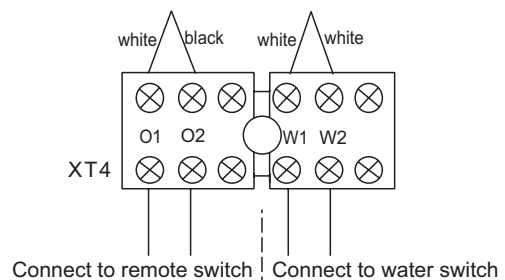


Fig.6-4

Shortcut between O1 and O2 causes the unit is in the standby mode (switched off). Open the contact means unit is running (switched on)

The connecting terminals of the water level switch W1 and W2 are connected by default, when connect the indoor unit with water pump please remove the connecting wire and connect to the water level switch.

6-3 Electric control box wiring figure

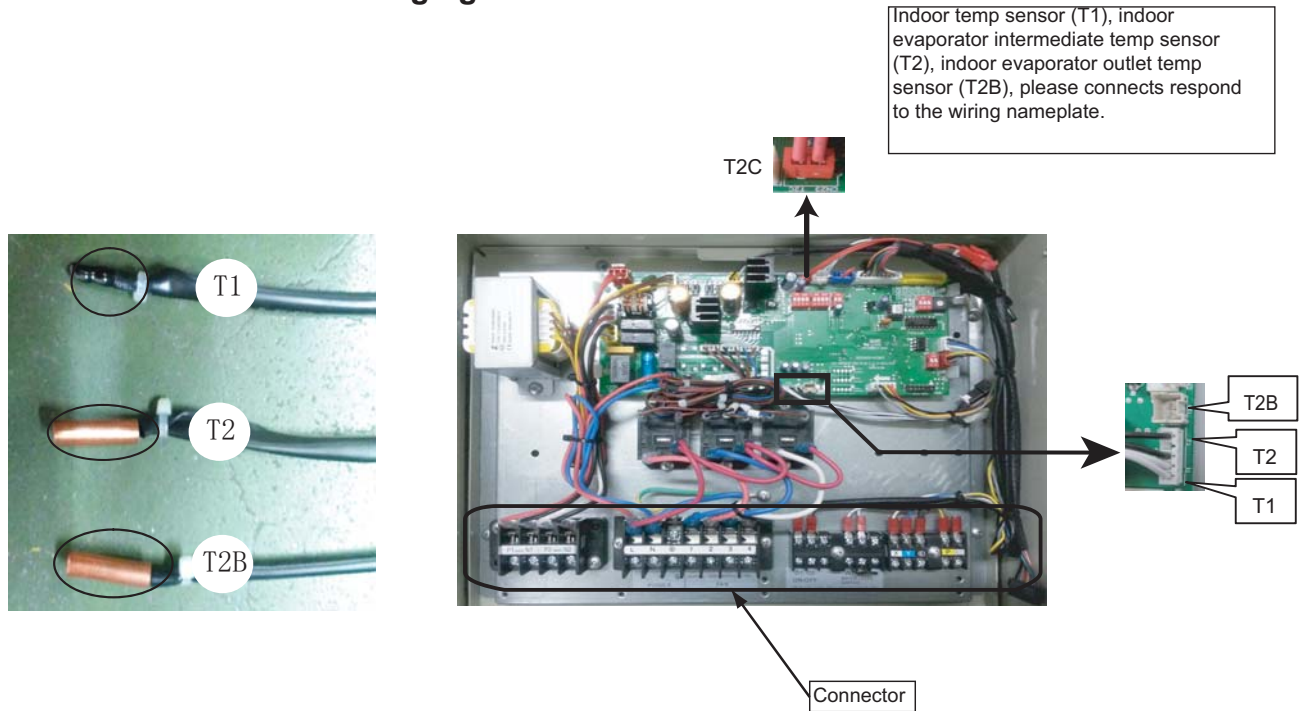


Fig.6-5



CAUTION

- 1 AHUKZ-01A, AHUKZ-02A and AHUKZ-03A are applied one main control panel, the temperature sensor T1, T2 and T2B must connect to the main control panel before first powered on
- 2 T1 is indoor temperature sensor, install to the air inlet of the indoor unit.
- 3 T2 is indoor evaporator intermediate temperature sensor, install to the intermediate of temperature evaporatorz.
- 4 T2B is indoor evaporator outlet sensor, install to the outlet of the evaporator.
- 5 T2C is indoor evaporator inlet sensor, it has been installed before the product leaves the factory.

6-4 Indoor and outdoor unit wiring figure

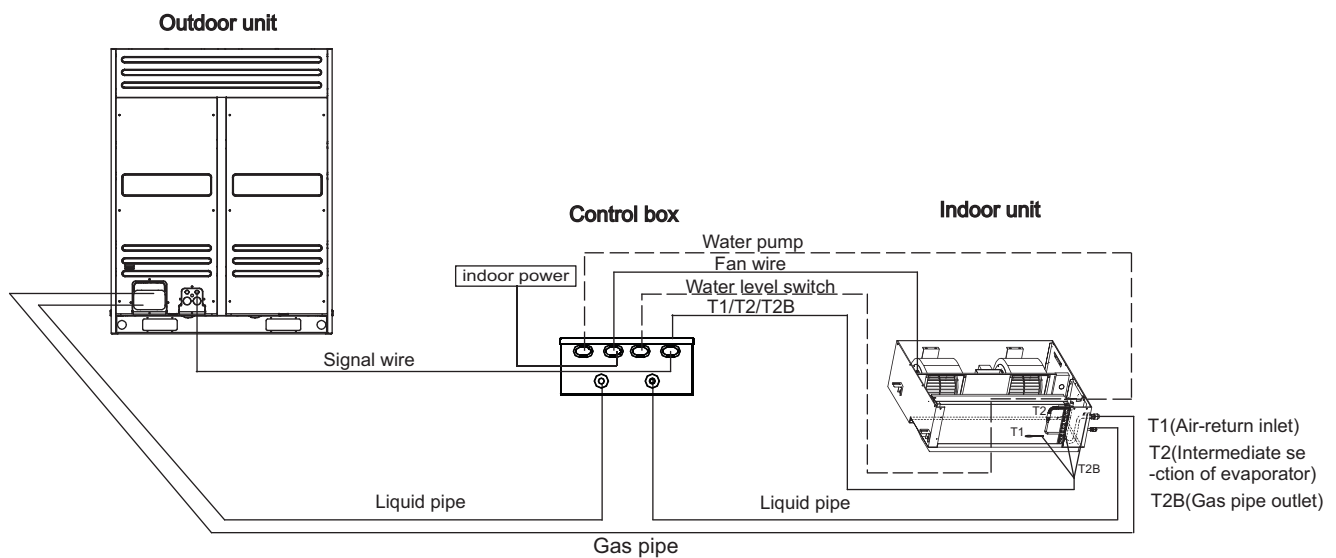


Fig.6-6



CAUTION

If it is needed, user can select the backup function in the dotted line frame.

7. APPLICATION CONTROL

7-1 Application control

Set the PCB code of the indoor unit electric control box by different usage. After setting, be sure to turn off the total power switch and then switch on. The setting function can not be carried out if not to turn off the total power switch and then switch on (Fig.7-1).

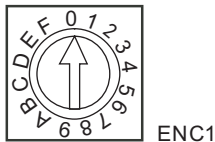


Fig.7-1

• Function specification:

ENC1—Cooling capacity setting, set the cooling capacity of this machine (Table. 7-1).

Table.7-1

ENC1	Toggle switch	For setting cooling capacity
Caution: The horsepower has been set before leaving the factory; anyone can't modify it except the maintenance person.	Code	Setting cooling capacity
	0	2200W(0.8HP)
	1	2800W(1.0HP)
	2	3600W(1.3HP)
	3	4500W(1.6HP)
	4	5600W(2.0HP)
	5	7100W(2.5HP)
	6	8000W(3.0HP)
	7	9000W(3.2HP)
	8	11200W(4.0HP)
	9	14000W(5.0HP)
	A	16000W(6.0HP)
	B	28000W(10HP)
	C	42000W(15HP)
	D	56000W(20HP)
	E	70000W(25HP)
	F	84000W(30HP)

7-2 System Address and Network Address Setting

1) After first powered on, please set the system address by remote controller or wired controller, the address range is 0~58, the indoor unit addresses of the same system can not be repeated.

2) Display as the table.7-2 , when there are different ENC1, the address setting will be different;

Each independent control box needs to be set an address, this address is an actual address; when the capacity code ENC1 is selected to be B~F, this indoor unit independent control box will produce virtual address(es) with corresponding quantity based on the set actual address, and if an address has been an actual address or virtual address, then this address can not be the actual address or virtual address of other indoor unit in the same system;

For example, if there are two independent control boxes in the same system, one of the capacity code is D, the setting actual address is 5, then according to the table.7-2 this control box will produce three virtual addresses as 6, 7 and 8, and then the actual address and the virtual address of the other independent control box can not be any one of 5, 6, 7, 8;

The actual address and the virtual address should less than or equal to 63;

Table.7-2

ENC1	Corresponding virtual addresses for different ENC1				
0~A	No virtual address				
B	Actual address +1	/	/	/	/
C	Actual address +1	Actual address +2	/	/	/
D	Actual address +1	Actual address +2	Actual address +3	/	/
E	Actual address +1	Actual address +2	Actual address +3	Actual address +4	/
F	Actual address +1	Actual address +2	Actual address +3	Actual address +4	Actual address +5

3) The indoor unit quantity detected by outdoor unit will be the sum of the actual address quantity and the virtual address quantity, e.g. when the capacity code of independent control box is D, the setting actual address is 5, then it will produce virtual address 6, 7 and 8, and then the indoor unit quantity detected by outdoor unit will be 4.

4) The outdoor unit can not use auto addressing for to set the address for the indoor unit without address; only the indoor unit has address then can the outdoor unit to be set auto addressing;

5) When the independent control box system connects to the indoor unit centralized controller, the actual address and the virtual address will be displayed on the centralized controller, e.g. when the capacity code of independent control box is D, the setting actual address is 5, then the actual address 5 and virtual address 6,7 and 8 will be displayed on the centralized controller, that is to say, it equals to four indoor units, and the states of four indoor units will be kept in the same;

6)The network address is the same as the indoor unit address, no need to setting separately.





7-3 Mainboard Code Indication Label

Definition of every SW1 position

Table.7-3

	<ul style="list-style-type: none"> • 1 means the factory test mode • 0 automatic search address mode (factory default)
	<ul style="list-style-type: none"> • 1 means select DC fan(reserved) • 0 means select AC fan
	<ul style="list-style-type: none"> • 00 means DC fan static pressure selection 0 set (reserved)

Table.7-4

SW1 ON 	• 00 means DC fan static pressure selection 0 set (reserved)
SW1 ON 	• 01 means DC fan static pressure selection 1 set (reserved)
SW1 ON 	• 10 means DC fan static pressure selection 2 set (reserved)
SW1 ON 	• 11 means DC fan static pressure selection 3 set (reserved)

Definition of every SW2 position

Table.7-5









SW2 ON 	• 00 means temperature of shut down against cool air is 15°C
SW2 ON 	• 01 means temperature of shut down against cool air is 20°C
SW2 ON 	• 10 means temperature of shut down against cool air is 24°C
SW2 ON 	• 11 means temperature of shut down against cool air is 26°C

Table.7-6

SW2 ON 	• 00 means the time of THERMAL stop the fan is 4 minutes
SW2 ON 	• 01 means the time of THERMAL stop the fan is 8 minutes
SW2 ON 	• 10 means the time of THERMAL stop the fan is 12 minutes
SW2 ON 	• 11 means the time of THERMAL stop the fan is 16 minutes

Definition of every SW5 position

Table.7-7








SW5 ON 	• 00 means the temperature compensation under heating mode is 6°C
SW5 ON 	• 01 means the temperature compensation under heating mode is 2°C

Table.7-8

SW5 ON 	• 10 means the temperature compensation under heating mode is 4°C
SW5 ON 	• 11 means the temperature compensation under heating mode is 8°C




Definition of every SW6 position

Table.7-9

SW6 ON 	• 1 means the old display panel • 0 means the new display panel
SW6 ON 	• 1 means automatic mode automatic fan • 0 means non-automatic mode automatic fan
SW6 ON 	Reserved



Definition of J1,J2 positions

Table.7-10

J1 	J1 Jumperless for has power down memory function
J1 	J1 Jumper for has no power down memory function
J2 	Reserved



Definition of every SW7 position

Table.7-11

SW7 ON 	Standard configuration
SW7 ON 	The last set of the network

Definition of every 0/1 code

Table.7-12

ON 	Means 0
ON 	Means 1

8. TROUBLE SHOOTING

Table.8-1

NO.	Type	Contents	LED Display	Remarks
1	Alarm	No address	Error code "FE"	Recover to normal display until finish setting address
2	Alarm	M-home not matched When connects to MS device	Error code "H0 "	
3	Alarm	Mode conflict	Error code "E0"	
4	Malfunction	Indoor/outdoor unit communication is abnormal.	Error code "E1"	After the malfunctions disappear, it restores automatically.
5	Malfunction	The evaporator sensor check point is abnormal or room temp. sensor is abnormal.	Error code "E2,E3 or E4"	After the malfunctions disappear, it restores automatically.
6	Malfunction	The EEPROM is abnormal.	Error code "E7"	After the malfunctions disappear, it restores automatically.
7	Malfunction	The outdoor units is abnormal	Error code "Ed "	After the malfunctions disappear, it restores automatically.
8	Malfunction	Water level switch is abnormal	Error code "EE"	After the malfunctions disappear, it restores automatically.

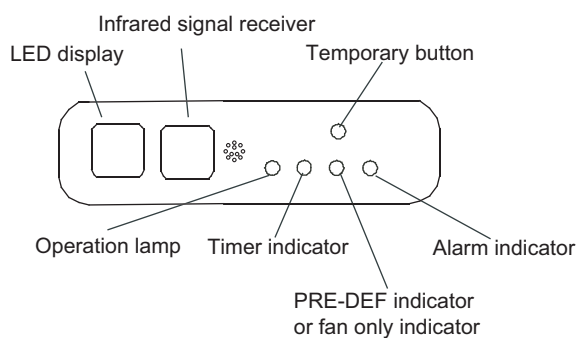


Fig.8-1

Appendix

ENC1 switch settings

Only valid values are as follows:

AHUKZ-01A

ENC1 positions 7,8,9,A only.

AHUKZ-02A

ENC1 position B only.

AHUKZ-03A

ENC1 positions C and D only.

All other settings are useless

The network address has to be set with remote controller.

AHUKZ-01A uses only this one address.

AHUKZ-02A uses 2 addresses.

The first address is set (value x) and one virtual address is added by the system (value x+1)

AHUKZ-03 uses 3 (ENC1 is C) or 4 addresses (ENC1 is D).

The first address is set with the remote controller (value x) and all another addresses are virtual (values x+1, x+2 [and x+3 when ENC1 is D]).

Address has to be set so that they can be automatically configured virtual addresses to a maximum of 63.

NOTE CONCERNING PROTECTION OF ENVIRONMENT



This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

INFORMATION CONCERNING USED REFRIGERANT MEDIUM

This unit is containing fluorinated gases included in the Kyoto protocol. The maintenance and the liquidation must be carried out by qualified personnel.

Type of refrigerant: R410A

The composition of the cooling medium R410A: (50% HFC-32, 50% HFC-125)

The quantity of the refrigerant: please see the unit label.

The value GWP: 2088

GWP = Global Warming Potential

In case of quality problem or other please contact your local supplier or authorized service center.

Emergency number: 112

PRODUCER

Producer: SINCLAIR CORPORATION Ltd., 1-4 Argyll St., London W1F 7LD, UK, www.sinclair-eu.com

This product was manufactured in China (Made in China).

REPRESENTATIVE AND TECHNICAL SUPPORT

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