# INSTALLATION & OWNER'S MANUAL

*DX AHU Control Box*

Thank you very much for purchasing our air conditioner,
Before using your air conditioner , please read this manual carefully and keep it for future reference.

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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 safty 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 safty precautions listed here are divided into two categories. In either case, important safty 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 sevice agent or similarly qualifued 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 DX AHU control box wires.**
You are not allow to connect the air conditioner with the power source until w(including
iring 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 DX AHU control box 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 DX AHU control box 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 DX AHU control box 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.**

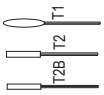
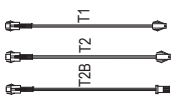
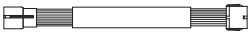
## INSTALLATION ORDER

- 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. Wired controller |  | 1 | Wired controller |
| 3. Wired controller installation&owner's manual |  | 2 | ——— |
| 4. Wired controller connecting wire group |  | 1 | ——— |
| 5. Signal receiver display board |  | 1 | Receive and display signal box |
| 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 | ——— |

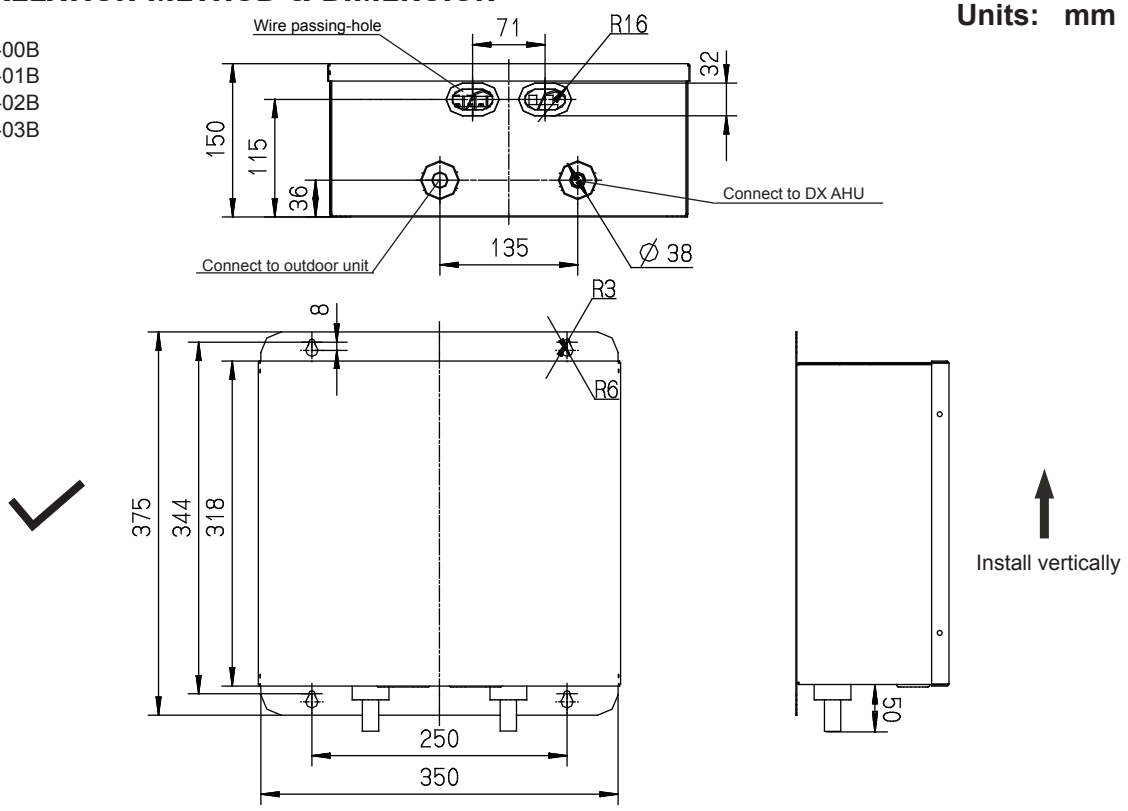
■ Cautions on wired controller installation

- Never throw or beat the controller.
- This DX AHU control box can be controlled by MIDEA controller and the third party controller. If choose to use MIDEA controller, operate the wired controller to determine its location in a reception range.
- Keep the wired 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 controller in a place exposed to direct sunlight or close to a heatingsource, such as a stove. Note that the positive and negative poles are in right positions when loading batteries.

# 4. INSTALLATION METHOD & DIMENSION

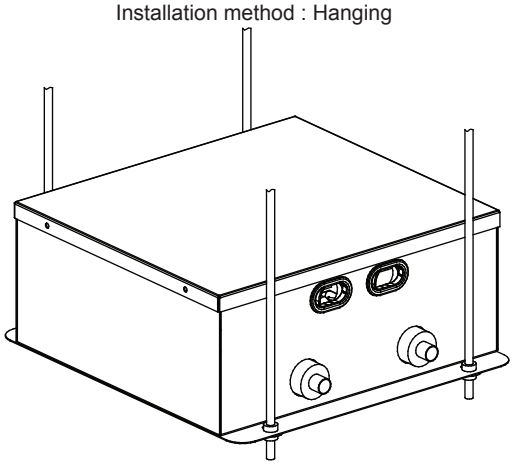
**Units: mm**

AHUKZ-00B
AHUKZ-01B
AHUKZ-02B
AHUKZ-03B




Installation method : Hanging

Fig.4-1



Wrong installation way

Fig.4-2

## NOTE

1 The DX AHU control box can not be installed in outdoor occasions, if inevitable, it must set additional rainproof precautions, specific methods please contact the local dealar or technical support engineer.

2 The DX AHU control box operation range as follow,
Cooling mode:The inlet air temperature on the DX AHU coil is 17~43℃
Heating mode:For top-outflow VRF system,the inlet air temperature on the DX AHU coil is 5~30℃
The air humidity is less than 80%.
If it run out of the range, the system may fail.
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

5 connecting wire.
All the pictures in this manual are for explanation purpose only. They may be slightly different from the control box you

6 purchased(depend on model).The actual shape shall prevail.

# 5. MATERIAL AND SIZE OF THE PIPING

**CAUTION**

1 The connecting distance of each control box and DX AHU 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 DX AHU control box 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 thicken properly).

Table.5-1

| Pipe Material | | Copper Pipe for Air Conditioner | | | |
|---|---|---|---|---|---|
| Model | | AHUKZ-00B | AHUKZ-01B | AHUKZ-02B | AHUKZ-03B |
| Capacity (kW) | | 2.2~9 | 9~20 | 20~36 | 36~56 |
| Size(mm) | (Liquid in) | Φ8 | Φ8 | Φ12.7 | Φ15.9 |
| | (Liquid out) | Φ8 | Φ8 | Φ12.7 | Φ15.9 |

# 6. REFRIGERANT PIPE

## 6-1 Pipe classification

Table.6-1

| Pipe name | Code(refer to Fig.6-1) |
|---|---|
| Controller box main pipe | $L_1$, $L_2$, $L_3$, $L_4$ |
| Controller box aux. pipe | $a_1$,$a_2$,$b_1$,$b_2$,$c_1$,$c_2$ |
| Controller box branch joint assembly | A, B |

**NOTE**

The connecting distance of each control box and DX AHU should not more than 8 m

a2+L4≤8m b2+L2+L4≤8m c2+L2+L4≤8m
a1≤10m L1+b1≤10m L1+c1≤10m

## 6-2 Size of joint pipe for 410A DX AHU

Table.6-2

| Capacity of controller box A(×100W) | Size of main pipe(mm) | |
|---|---|---|
| | Liquid side(mm) | Available branch joint |
| 200<A≤450 | Φ12.7 | FQZHD-01 |
| 450<A<660 | Φ15.9 | FQZHD-02 |
| 660≤A<1350 | Φ19.1 | FQZHD-03 |
| 1350≤A<1800 | Φ22.2 | FQZHD-04 |
| 1800≤A | Φ25.4 | FQZHD-04 |

e.x.1: Refer to *Fig.6-1* , the capacity of downstream controller box to L4 is 560+280+140=980, the pipe is Φ19.1.

## 6-3 Example

Take (56+28+14) kW that composed by three controller box as an example to clarify the pipe selection.

Table.6-3

| Controller box capacity A(×100W) | AHUKZ-00B 22≤A<45 | AHUKZ-00B 45≤A<90 | AHUKZ-01B 90≤A≤200 | AHUKZ-02B 200<A≤360 | AHUKZ-03B 360<A≤560 |
|---|---|---|---|---|---|
| Liquld side(mm) | Φ6.35 | Φ9.5 | Φ9.5 | Φ12.7 | Φ15.9 |

A The branch pipe at the controller box.
There are a~c branch pipe at the controller box, the branch pipe diameter should be select as Table. 6-3.The pipe a1/a2 diameter is Φ15.9,the pipe b1/b2 diameter is Φ12.7,the pipe c1/c2 diameter is Φ9.5.

B Main pipe at the controller box (Refer to Table. 6-2)

1) The main pipe $L_1$/$L_2$ with $N_1$, $N_2$ downstream controller box that total capacity is 280+140=420, the pipe $L_1$ diameter is Φ12.7, thus select FQZHD-01 for the branch joint B.

2) The main pipe L3/L4 with N0 N1 N2 downstream controller box that total capacity is 560+280+140=980,the pipe L3/L4 diameter is Φ19.1,that select FQZHD-03 for the branch joint A.

3) The branch joint A with $N_0$~$N_2$ downstream controller box that total capacity is 560+280+140=980, thus select FQZHN-03 for the branch joint A.

Note:1) The pipe L3 diameter is still related to outdoor unit,take the large one for your selection.

2) The gas pipe should be confirmed according to the outdoor unit installation manul.

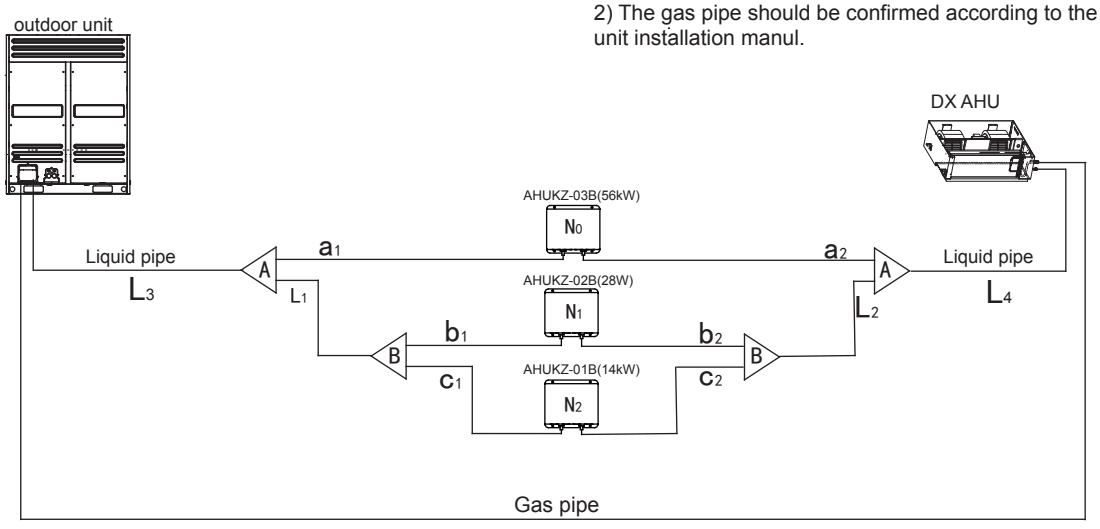



*Fig.6-1*

# 7. ELECTRICAL WIRING

**CAUTION**

1 The outdoor unit and DX AHU control box should use separate power supply with rated voltage. but all the DX AHU control box and other DX AHU in the same system shoud be use the same power.
2 The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the DX AHU control box 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 lease 3mm electric shock spacing.
5 A leakage protector should be installed according to the local electrical standard.
6 Be sure to properly locate the power wiring and the signal wrings to avoid cross-disturbance and their contact with connecting pipe or stop value 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.

## 7-1 The figure of electric control box

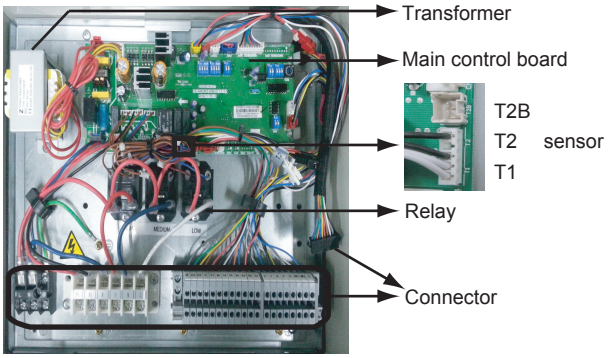
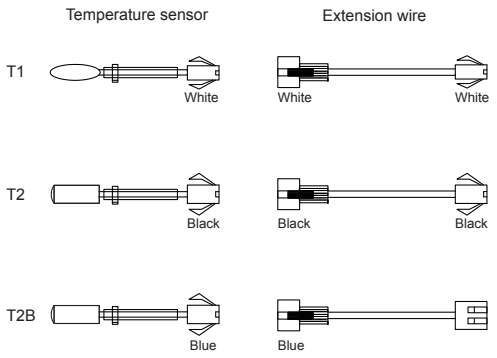


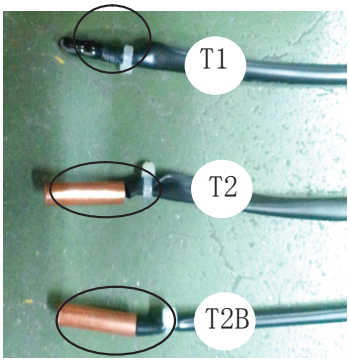

Fig.7-1

## 7-2 Installing and wiring temperature sensor

There are three temperature sensors (T1,T2,T2B) and three extension wires in the attachment, as Fig.7-2. The three sensors must be installed at the right place and connected to the main control board before first powered on ;




(1)




(2)

Fig.7-2

T1 is DX AHU inlet air temperature sensor, it should be installed at the air inlet of the DX AHU.

T2 is DX AHU evaporator intermediate temperature sensor, it should be installed at the intermediate pipe of the evaporator.

T2B is DX AHU evaporator outlet sensor, it should be installed at the outlet pipe of the evaporator.

The installation place of T2 and T2B refer to fig.7-3

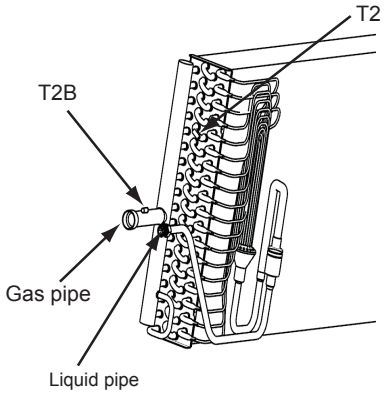



Fig.7-3

**CAUTION**

If two or more DX AHU control box are parallel connected to control one DX AHU, only the master DX AHU control box need to connect T1, T2,T2B.

Securely fix the sensor and it should be protected from water submerged, dust accumulation, mechanical stress and other conditions that may have a influence on temperature acquisition or lifespan of sensor.

## Example of temperature sensor installing and wiring

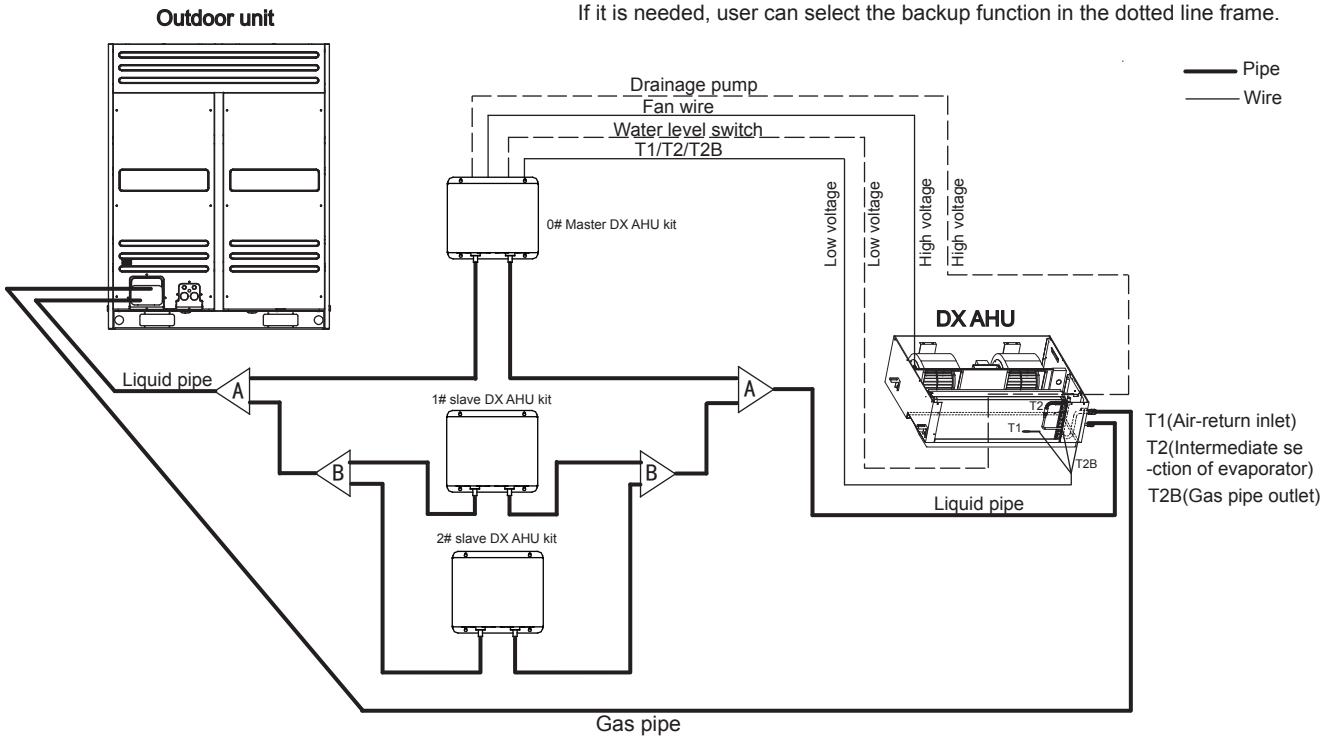



Fig.7-4

## 7-3 wiring drainage pump and fan

Fig.7-5 shows the terminal bolck for drainage pump and fan.

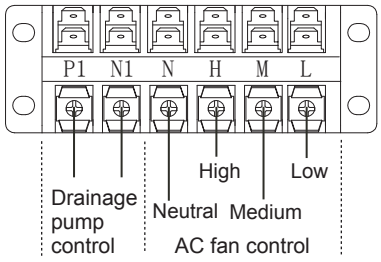



Fig.7-5

The output of P1 and N1 is used to control the drainage pump, the voltage between P1 and N1 will be the same as the input power. If the DX AHU has a drainage pump and its rate voltage is same as input power, please connect the drainage pump to this ports,

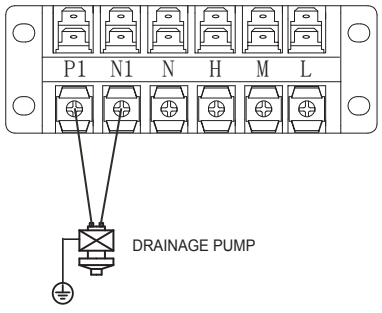



Fig.7-6

The sum current of drainage pump and fan motor should not be greater than 3.5 A in AHUKZ-00B and AHUKZ-01B model.

The current of drainage pump should not be greater than 3.5 A in AHUKZ-02B and AHUKZ-03B model.

The DX AHU control box only has a control port for single-phase AC motor, refer to Fig.7-5. it has three different speed (high speed, medium speed, low speed), the output voltage also will be the same as the input power of the box. Fig.7-7 shows the wiring diagram.

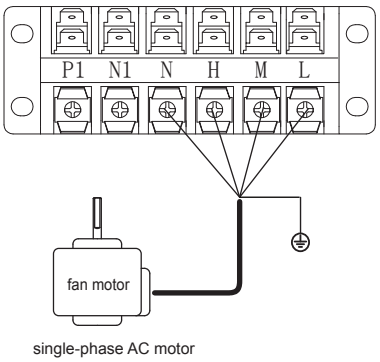



Fig.7-7

The maxium current of fan motor should not exceed value in the table 7-1. Please pay attention.

Table.7-1

| Model | The maxium sum current of AC motor and drainage |
|---|---|
| AHUKZ-00B~01B | 3.5 A |

| Model | The maxium current of AC motor |
|---|---|
| AHUKZ-02B~03B | 15 A |

If the fan motor is 3-Phase AC motor, SW2-1 must be set at 'ON' status,the fan terminal block has only high-speed output. wiring the motor refer to Fig.7-8

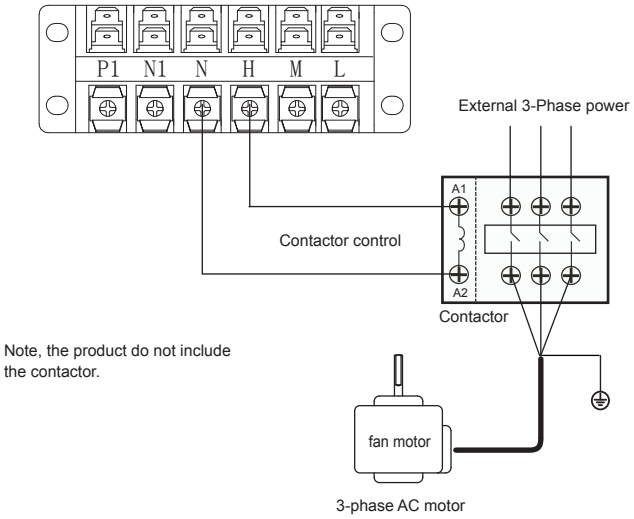


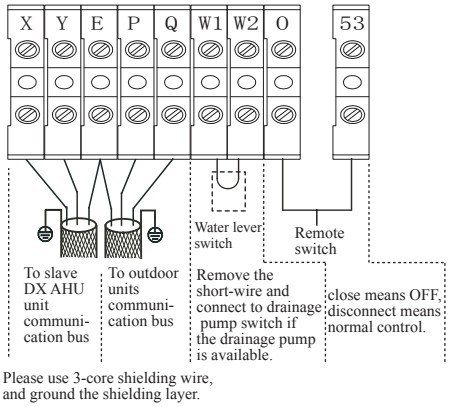

Fig.7-8

Note,

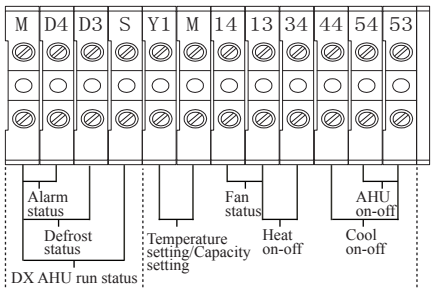
1. The rated current of contactor must greater than the current of motor.
2. The control power of contactor must be the same as the input power of the DX AHU control box.
3. SW2-1 must be set at 'ON' status.

## 7-4 wiring signal wires

Fig.7-9 shows the terminal bolck for signal wires.




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




The communication ports with third party controller

Fig.7-9

## Example of signal wiring

| | |
|---|---|
| Signal wire(P、Q、E) | The signal wire between outdoor and master DX AHU control box |
| Signal wire (X、Y、E) | The signal wire between master DX AHU control and slave DX AHU control box |

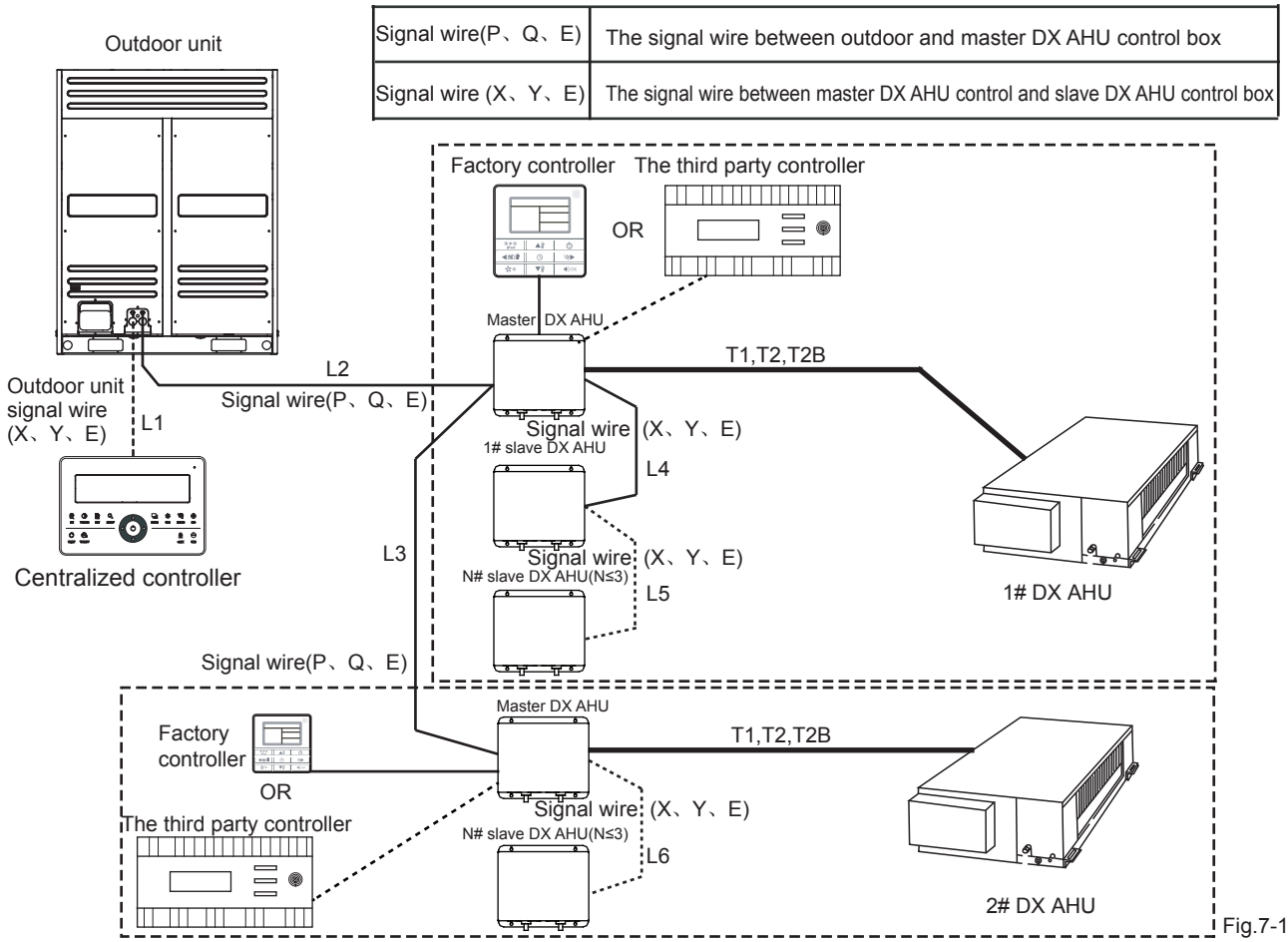



Fig.7-10

Note,

1. The diameter of signal wire should be greater or equal to 0.75mm2, and the XYE and PQE signal wire should be 3-core shielding wire.
2. Maximun wiring length: L1<1200m; L2+L3<1200m; L4+L5<1200m; L6<1200m.
3. If room temperature setting control mode or capacity setting control mode is selected to control DX AHU box, the centralized controller can not be connected to the system. Only factory controller is selected to control DX AHU box, can the system connect to centralized controller.
4. Please connect the centralized controller to the outdoor unit XYE terminal block. Do not connect the centralized controller to the DX AHU control box XYE terminal block.
5. Please refer to Fig.9-4 for example of the third party controller signal wiring.

## 7-5 wiring main power cables

Fig.7-11 shows the terminal bolck for main power cables.

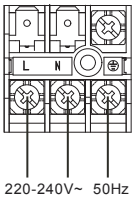



Fig.7-11

### Schematic drawing of main power wiring

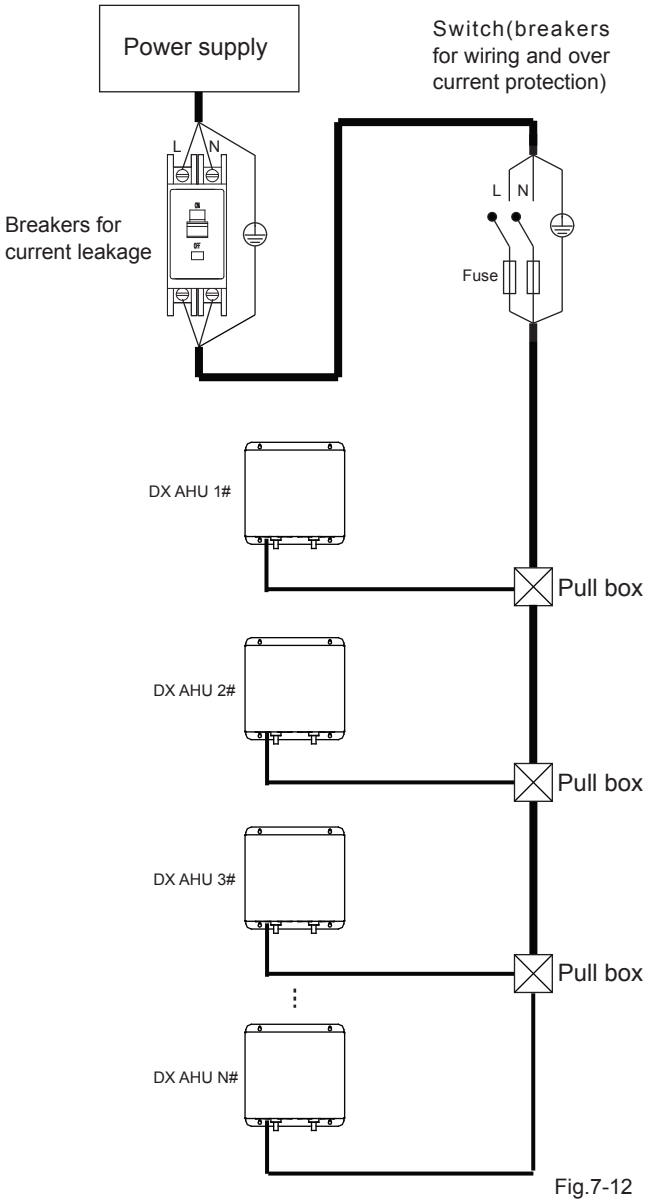



Fig.7-12

### Thickness of main power cable

Please select main power cable refer to table.7-2 and table.7-3.

Table.7-2

| Model | | AHUKZ-00B~01B |
|---|---|---|
| Power | Phase | Single-phase |
| | Voltage and Frequency | 220-240V ~ 50Hz |
| DX AHU Box power wire($mm^2$) | | 2.0(<50 m) |

Table.7-3

| Model | | AHUKZ-02B~03B |
|---|---|---|
| Power | Phase | Single-phase |
| | Voltage and Frequency | 220-240V ~ 50Hz |
| DX AHU Box power wire($mm^2$) | | 4.0(<50 m) |

### CAUTION

1.Specific wiring requirements should adhere to the wiring regulations of the region.

2.Use only copper wires.

3.Be sure to use specified wires for connections and ensure no external force is imparted to terminal connections. If connections are not fixed firmly, heating or fire may result.

4.The wire size is the minimum value for metal conduit wiring. If the voltage drops, use a wire that is one rank thicker in diameter. Make sure the power-supply voltage does not drop more than 10%.

5.Power must unified supply to all DX AHU box in the same system.

6.A breaker for current leakage must be attached to the power supply. If no earth leakage breaker is installed, it may cause an electric shock.

7.Do not use anything other than a breaker and fuse with the correct capacity. Using a fuse or wire of too large capacity may cause malfunction or fire.

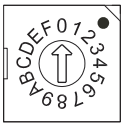
8.Never connect the main power source to terminal block of communication line. If connected, electrical parts will burn out.

# 8. APPLICALTION CONTROL

## 8-1 Capacity setting

Set the dial switch ENC1 on the main board by different usage. After setting, be sure to turn off the total power switch and then switch on. The setting function can be carried out when purer up again.

Fig.8-1




ENC1

- Function specification:

ENC1——Cooling capacity setting, set the cooling capacity of this machine (Table. 8-1).

Table.8-1

| | Code | Setting cooling capacity |
|---|---|---|
| ENC1(The horsepower has been set before leaving the factory; anyone can't modify it except the maintenance person.) | 0 | 0.8HP |
| | 1 | 1.0HP |
| | 2 | 1.2HP |
| | 3 | 1.7HP |
| | 4 | 2.0HP |
| | 5 | 2.5HP |
| | 6 | 3.0HP |
| | 7 | 3.2HP |
| | 8 | 4.0HP |
| | 9 | 5.0HP |
| | A | 6.0HP |
| | B | 8、10、12HP |
| | C | 14、16HP |
| | D | 18、20HP |
| | E | Reserved |
| | F | Reserved |

The corresponding capacity range of the controller box display as the table.8-2 and table.8-3.

Table.8-2

| Model | Setting cooling capacity (HP) | DX coil capacity (kW) | Internal volume of heat exchanger ($dm^3$) | Reference air volume ($m^3/h$) | Max air volume ($m^3/h$) |
|---|---|---|---|---|---|
| AHUKZ-00B | 0.8 | 2.2 | 0.35~0.4 | 500 | 600 |
| | 1 | 2.8 | 0.4~0.45 | 550 | 650 |
| | 1.2 | 3.6 | 0.45~0.55 | 600 | 750 |
| | 1.7 | 4.5 | 0.55~0.65 | 750 | 900 |
| | 2 | 5.6 | 0.65~0.75 | 850 | 1000 |
| | 2.5 | 7.1 | 0.85~0.95 | 1000 | 1300 |
| | 3 | 8~9 | 1.20~1.60 | 1300 | 1800 |
| AHUKZ-01B | 3.2 | 9~11.2 | 1.66~2.06 | 1400 | 2400 |
| | 4 | 11.2~14 | 2.06~2.58 | 1700 | 3000 |
| | 5 | 14~18 | 2.58~3.32 | 2100 | 3800 |
| | 6 | 18~20 | 3.32~3.69 | 2700 | 4300 |
| AHUKZ-02B | 8 | 20~25 | 3.69~4.61 | 3000 | 5400 |
| | 10 | 25~30 | 4.61~5.53 | 3700 | 6400 |
| | 12 | 30~36 | 5.53~6.64 | 4500 | 7700 |
| AHUKZ-03B | 14 | 36~40 | 6.64~7.37 | 5400 | 8600 |
| | 16 | 40~45 | 7.37~8.29 | 6000 | 9700 |
| | 18 | 45~50 | 8.29~9.21 | 6700 | 10800 |
| | 20 | 50~56 | 9.21~10.32 | 7500 | 12000 |

Table.8-3

| DX coil capacity (kW) | Internal volume of heat exchanger ($dm^3$) | reference air volume ($m^3/h$) | Max air volume ($m^3/h$) |
|---|---|---|---|
| 56~65 | 9.63~11.56 | 8200 | 14000 |
| 65~70 | 11.03~12.54 | 9400 | 15100 |
| 70~76 | 11.90~13.30 | 10200 | 16400 |
| 76~80 | 12.62~14.01 | 10800 | 17200 |
| 80~90 | 13.40~15.26 | 11800 | 19400 |
| 90~100 | 15.26~17.80 | 13400 | 21600 |
| 100~112 | 17.51~19.61 | 15000 | 24100 |
| 112~125 | 18.85~21.36 | 16700 | 27000 |
| 125~140 | 21.19~24.07 | 18700 | 30200 |
| 140~155 | 23.74~26.62 | 21000 | 33400 |
| 155~175 | 26.20~29.36 | 23700 | 37800 |
| 175~198 | 29.02~32.84 | 26200 | 42700 |
| 198~225 | 33.17~37.15 | 30000 | 48600 |

1) The "Internal volume of Heat exchanger "calculation formula is as follows:

3.14159×（heat exchanger copper tube OD -2×heat exchanger copper tube wall thickness)²×heat exchanger copper tube length /4 thereinto, "heat exchanger copper pipe " refers to the copper tubes that are covered by fins.The tube is inner grooved copper tube.The fins is lourered fins.

2)The volume of heat exchanger desinged is based on evaporating temperature of 8℃,superheat of 4K, suction air temperature of 27℃ DB/19℃ WB

## 8-2 Master/Slave DX AHU control box setting

In a set of the DX AHU control box system,it is need to set master DX AHU control box and slave DX AHU control box respectively.Please refer to the definition of SW6(table.10-5). If only one DX AHU control box control one DX AHU, the DX AHU control box is the master DX AHU control box. If two or more DX AHU control boxes parallel connection control one DX AHU, the maximum capacity DX AHU control box should be the master box, second largest capacity box should be the slave 1, third largest capacity box should be the slave 2 and so on.

## 8-3 The quantity of slave DX AHU control box setting

In a set of the DX AHU control box system, the quantity of slave DX AHU control boxes need to be setted on the master DX AHU control box, please refer to the definition of SW1(table.10-1). If the quantity of slave DX AHU control boxes detected by Master DX AHU control box is not equal to the setting quantity, the master DX AHU control box will display error code 'H7'.

Note：the quantity of slave DX AHU control boxes setting only be needed on master DX AHU control box.

## 8-4 DX AHU control box address and network Address Setting

After first powered on, please set the system address on the master DX AHU control box by remote controller or wired controller,the address of DX AHU control box in the same system can not be repeated.

## 8-4-1 Single DX AHU control box controlling one DX AHU

1)For single DX AHU control box control one DX AHU condition, each DX AHU control box needs to be set an address, this address is an actual address, when the capacity code ENC1 is selected to be B～D, this DX AHU control box will produce virtual address(es) with corresponding quantity based on the actual address, please refer to table.8-4. if an address has been an actual address or virtual address, then this address can not be the actual address or virtual address of any other DX AHU control box in the same system.

For example, if there are two single DX AHU control boxes in a system,one of the capacity code is D, the setting actual address is 5,then according to the table.8-4 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 single DX AHU control box can not be any one of 5, 6, 7, 8. One address represents a conventional indoor unit whether it is an actual address or a virtual address.

If the virtual address which is produced from actual setting address is bigger than 63 in the system, the DX AHU contrl box will has a malfution and "E8" is displaying on the LED displayer.

Table.8-4

| ENC1 | Corresponding virtual addresses for different ENC1 | | | | | quantity of occupied address |
|---|---|---|---|---|---|---|
| 0～A | No virtual address | | | | | 1 |
| B | Actual address +1 | / | / | / | / | 2 |
| C | Actual address +1 | Actual address +2 | / | / | / | 3 |
| D | Actual address +1 | Actual address +2 | Actual address +3 | / | / | 4 |

2) The address quantity of DX AHU control box detected by outdoor unit will be the sum of the actual address quantity and the virtual address quantity, when the capacity code of DX AHU control box is D, the setting actual address is 5, then it will produce virtual address 6, 7 and 8, and then the conventional indoor unit number detected by outdoor unit will be 4.

3) The outdoor unit can not use auto addressing model to set the address for the DX AHU control box without address, only the DX AHU control box has an address then can the outdoor unit to be setting auto addressing;

4) When the DX AHU control box system connects to the centralized controller, the actual address and the virtual address will be displayed on the centralized controller, 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 conventional indoor units, and the states of the four addresses will be keeping in the same;

5)The network address is the same as the DX AHU control box address, no need to setting separately.

6)Every single DX AHU control box controlling one DX AHU. Every single DX AHU control box is the master DX AHU control box.

## 8-4-2 Several DX AHU control boxes parallel connection controlling one DX AHU

For this product, several DX AHU control boxes are allowed to parallel connect to control one DX AHU. In this case, there are three steps to be done. First, it is need to set master DX AHU control box, slave 1 DX AHU control box, slave 2 DX AHU control box, and slave 3 DX AHU control box by using SW6. Second, it is need to set the quantity of slave DX AHU control boxes by using SW1. Third, it is need to set an address on the master DX AHU control box by remote controller or wired controller, this address is an actual address. Virtual addresses will be generated in the parallel connection system.

Shown as Table 8-4, DX AHU control box with capacity dial code from 0 to A occupy 1 address. DX AHU control box with capacity dial code of B occupies 2 addresses. DX AHU control box with capacity dial code of C occupies 3 addresses. DX AHU control box with capacity dial code of D occupies 4 addresses. The number of virtual addresses in parallel system equals to the total number of occupied addresses by DX AHU control boxes minus one. Virtual addresses are based on actual address in the system. For several DX AHU control boxes parallel connection control one DX AHU condition, there's only one actual address and several virtual addresses.

Take Fig 6-1 for instance, this system is a system that 3 DX AHU control boxes are parallelly connected to control one DX AHU, e.g. 0# DX AHU control box is AHUKZ-03B and it's capacity code is D, 1# DX AHU control box is AHUKZ-02B and it's capacity code is B, 2# DX AHU control box is AHUKZ-01B and it's capacity code is A. So set 0# DX AHU control box as master DX AHU control box, set 1# DX AHU control box as slave 1 DX AHU control box, set 2# DX AHU control box as slave 2 DX AHU control box. The quantity of the addresses occupied by the set of parallel boxes is 4+2+1=7. If set address 5 to 0# DX AHU control box , then the parallel DX AHU control boxes occupy address 5,6,7,8,9,10,11. The address 6,7,8,9,10,11 are virtual adresses. The conventional indoor unit number which is detected by outdoor unit is 7. The states of the seven addresses will be the same.

If there're several parallel DX AHU control boxes systems in one refrigerant system, take fig 7-10 for instance, please calculate the number of occupied virtual addresses for each parallel DX AHU control box system, set the actual address of each parallel DX AHU control box system to avoid repetition of actual addresses and virtual addresses.

If the virtual address which is produced from actual setting address is bigger than 63 in the system, the DX AHU contrl box will has a malfution and "E8" is displaying on the LED displayer.

# 9. CONTROLLER SELECTION

The DX AHU control box has three control modes. The status of SW3 on the main board will decide which mode has been selected.




means factory controller mode




means room temperature setting with third party controller mode




means capacity setting with third party controller mode

Fig.9-1

Note, After changing the status of any dial switch on the main board, 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.

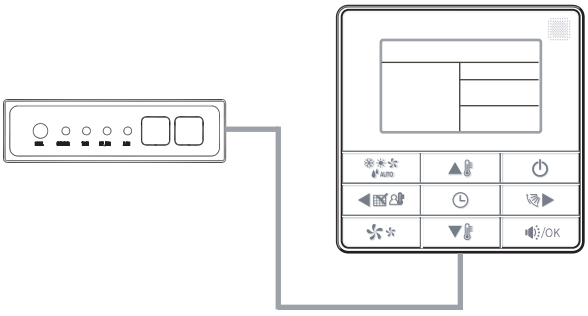
## 9-1 Factory controller mode

When factory controller mode has been selected, the DX AHU control box can be controlled by wired controller or remote controller of MIDEA.



Remote controller

Fig.9-2




Wired controller

Fig.9-3

The detail instructions for wired controller and remote controller please refer to the operation manual separately.

Note, When factory controller mode has been selected, the DX AHU control box main board will not response the signal from the third party controller.

## 9-2 Room temperature setting with third party controller mode

When room temperature setting with third party controller mode has been selected, only the third party controller can be use to control the DX AHU control box. The signal from MIDEA controller will not be responsed except the address setting and inquiring

Even if room temperature setting with third party controller mode has been selected, a MIDEA remote controller or wired controller is need to set address for DX AHU control box,because the third party controller does not have this function.

### 9-2-1 Wiring figure

The wiring figure please refer to figure 9-4, there are three points need to be pay attention to.

1.The distance between the third party controller and DX AHU control box should be less than or equal 15 m.

2.If several DX AHU control boxes parallel connection control one DX AHU, the third party controller only need to be connected with master DX AHU control box.

3.One third party controller can not control two or more DX AHU at the same time.

### 9-2-2 The definition of signal between the third party controller and DX AHU control box.

1. Signals from the third party controller to DX AHU control box.

Table.9-1

| Signal | Signal type | Specification | Port |
|---|---|---|---|
| Temp. set | Analog voltage | 0~10VDC<br>please refer to table. 9-3 | Y1-M |
| ON/OFF | Dry contact | close means ON<br>disconnect means OFF | 54-53 |
| Cool mode | Dry contact | close means cool mode<br>disconnect means no cool signal | 44-53<br>or<br>44-13 |
| Heat mode | Dry contact | close means heat mode<br>disconnect means no heat signal | 34-13<br>or<br>34-53 |
| Fan status | Dry contact | close means fan ON<br>disconnect means fan OFF | 14-13 |

Note:(1)The analog voltage must be between maximun and minimun value.

(2)Don't close heat mode contact and cool mode contact at the same time if it need to run the DX AHU control box.

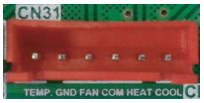
2. Signals from DX AHU control box to the third party controller.

Table.9-2

| Signal | Signal type | Specification | Port |
|---|---|---|---|
| Alarm | Dry contact | close means no alarm<br>disconnect means alarm | D4-M |
| Defrost | Dry contact | close means defrosting<br>disconnect means no defrost | D3-M |
| Run status | Dry contact | close means running<br>disconnect means off | S-M |

3. Communication ports on the main board.






Terminal block of DX AHU control box

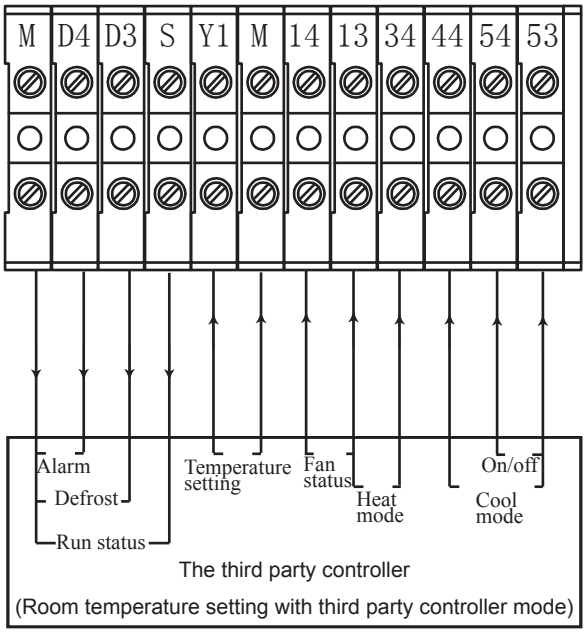



Fig.9-4

Note,
1. The distance between the third party controller and DX AHU control box should less than or equal 15 m.
2. If several DX AHU control boxes parallel connection control one DX AHU, the third party controller only need to be connected with master DX AHU control box.
3. One the third party can not control two or more DX AHU at the same time.
4.All signals between the third party controller and DX AHU control box must be accord with the definition from table.9-1 and table.9-2. It will not work correctly if the definition of signal in the third party controller is not correct.
5.The third party controller should be purchased from market.

Table.9-3

| Analog Input 0-10VDC | | | Room Temp.set (°C) Cooling | Room Temp. set(°C) Heating |
|---|---|---|---|---|
| Normal | Range | | | |
| | Min | Max | | |
| 0.5 | 0 | 1.15 | Not available | Not available |
| 1.5 | 1.35 | 1.65 | 18 | 16 |
| 2 | 1.85 | 2.15 | 18 | 17 |
| 2.5 | 2.35 | 2.65 | 18 | 18 |
| 3 | 2.85 | 3.15 | 19 | 19 |
| 3.5 | 3.35 | 3.65 | 20 | 20 |
| 4 | 3.85 | 4.15 | 21 | 21 |
| 4.5 | 4.35 | 4.65 | 22 | 22 |
| 5 | 4.85 | 5.15 | 23 | 23 |
| 5.5 | 5.35 | 5.65 | 24 | 24 |
| 6 | 5.85 | 6.15 | 25 | 25 |
| 6.5 | 6.35 | 6.65 | 26 | 26 |
| 7 | 6.85 | 7.15 | 27 | 27 |
| 7.5 | 7.35 | 7.65 | 28 | 28 |
| 8 | 7.85 | 8.15 | 29 | 29 |
| 8.5 | 8.35 | 8.65 | 30 | 30 |
| 9.5 | 8.85 | 10 | Not available | Not available |

Note, The analog voltage must be between maximun and minimun value.

## 9-2-3 Operation instruction.

When the third party controller has been selected, DX AHU control box will operate according to the control signal from the third party controller and output alarm, defrost and run status signal.

## 9-3 Capacity setting with third party controller mode

When capacity setting with third party controller mode has been selected, only the third party controller can be use to control the DX AHU control box. The signal from MIDEA controller will not be responsed except the address setting and inquiring signal.

Even if capacity setting with third party controller mode has been selected, a MIDEA remote controller or wired controller is need to set address for DX AHU control box,because the third party controller do not have this function.

## 9-3-1 Wiring figure

The wiring figure please refer to figure 9-5, there are three points need to be pay attention to.

1.The distance between the third party controller and DX AHU control box should be less than or equal 15 m.

2.If several DX AHU control boxes parallel connection control one DX AHU, the third party controller only need to be connected with master DX AHU control box.

3.One third party controller can not control two or more DX AHU at the same time.

## 9-3-2 The definition of signal between the third party controller and DX AHU control box.

1. Signals from the third party controller to DX AHU control box.

Table.9-4

| Signal | Signal type | Specification | Port |
|---|---|---|---|
| Capacity set | Analog voltage | 0~10VDC<br>please refer to table. 9-6 | Y1-M |
| ON/OFF | Dry contact | close means ON<br>disconnect means OFF | 54-53 |
| Cool mode | Dry contact | close means cool mode<br>disconnect means no cool signal | 44-53<br>or<br>44-13 |
| Heat mode | Dry contact | close means heat mode<br>disconnect means no heat signal | 34-13<br>or<br>34-53 |
| Fan status | Dry contact | close means fan ON<br>disconnect means fan OFF | 14-13 |

Note:(1)The analog voltage must be between maximun and minimun value.

(2)Don't close heat mode contact and cool mode contact at the same time if it need to run the DX AHU control box.

2. Signals from DX AHU control box to the third party controller.

Table.9-5

| Signal | Signal type | Specification | Port |
|---|---|---|---|
| Alarm | Dry contact | close means no alarm<br>disconnect means alarm | D4-M |
| Defrost | Dry contact | close means defrosting<br>disconnect means no defrost | D3-M |
| Run status | Dry contact | close means running<br>disconnect means off | S-M |

3. Communication ports on the main board.










Terminal block of DX AHU control box

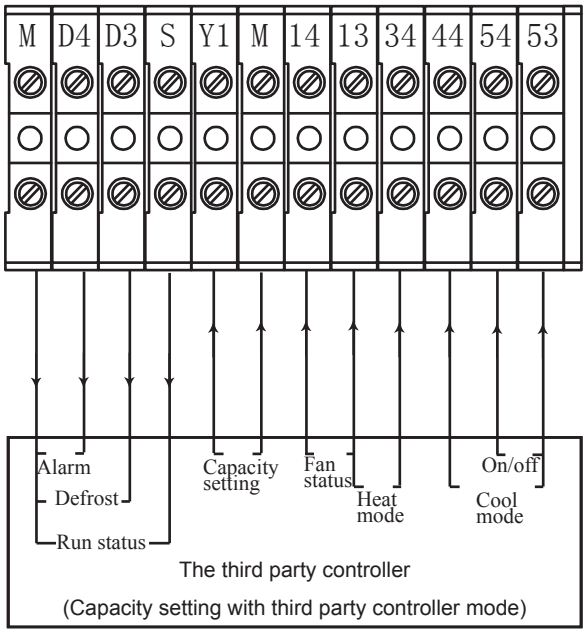



Fig.9-5

Note,

1. The distance between the third party controller and DX AHU control box should less than or equal 15 m.
2. If several DX AHU control boxes parallel connection control one DX AHU, the third party controller only need to be connected with master DX AHU control box.
3. One the third party can not control two or more DX AHU at the same time.
4.All signals between the third party controller and DX AHU control box must be accord with the definition from table.9-4 and table.9-5. It will not work correctly if the definition of signal in the third party controller is not correct.
5.The third party controller should be purchased from market.

Table.9-6

| Capacity setting requiment table (same in heating and cooling) | | |
|---|---|---|
| Analog input 0-10V DC | | Capacity setting requiment |
| Normal (V) | Range (V) | |
| 0 | U<0.5 | 0 |
| 1 | 0.5≤U<1.5 | 10% |
| 2 | 1.5≤U<2.5 | 20% |
| 3 | 2.5≤U<3.5 | 30% |
| 4 | 3.5≤U<4.5 | 40% |
| 5 | 4.5≤U<5.5 | 50% |
| 6 | 5.5≤U<6.5 | 60% |
| 7 | 6.5≤U<7.5 | 70% |
| 8 | 7.5≤U<8.5 | 80% |
| 9 | 8.5≤U<9.5 | 90% |
| 10 | 9.5≤U≤10 | 100% |

## 9-3-3 Operation instruction.

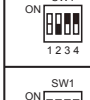
When the third party controller has been selected, DX AHU control box will operate according to the control signal from the third party controller and output alarm, defrost and run status signal.

# 10. DEFINITION OF EACH DIAL SWITCH

SW1 Difinition

Note：the quantity of slave DX AHU control box only need to be setted on master DX AHU control box.

Table.10-1

| | |
|---|---|
|   | 1 means factory test mode<br>0 means auto addressing mode (Default setting) |
|   | 000 means the quantity of slave DX AHU control box is 0 |
|   | 001 means the quantity of slave DX AHU control box is 1 |
|   | 010 means the quantity of slave DX AHU control box is 2 |
|   | 011 means the quantity of slave DX AHU control box is 3 |
|   | 100(reserved) |
|   | 101(reserved) |
|   | 110(reserved) |
|   | 111(reserved) |

SW2 Difinition

Table.10-2

| | |
|---|---|
|   | 1 means the fan terminal block has only high-speed output<br>0 means the fan terminal block have three speed output in factory controller mode and room temperature setting with third party controller mode(Default setting) |
|   | 1 means factory relay test mode<br>0 means regular mode (Default setting) |
|   | 00 means when temperature is 15°C or below fan will stop to prevent cold air (Default setting) |
|   | 01 means when temperature is 20°C or below, fan will stop to prevent cold air |
|   | 10 means when temperature is 24°C or below fan will stop to prevent cold air |
|   | 11 means when temperature is 26°C or below fan will stop to prevent cold air |

SW3 Difinition

Table.10-3

| | |
|---|---|
|   | 00 means factory controller mode |
|   | 01 means room temperature setting with third party controller mode |
|   | 10 means capacity setting with third party controller mode |

SW5 Difinition

Table.10-4

| | |
|---|---|
|   | 00 means temperature compensation value is 6℃ under heat mode (Default setting) |
|   | 01 means temperature compensation value is 2℃ under heat mode |
|   | 10 means temperature compensation value is 4℃ under heat mode |
|   | 11 means temperature compensation value is 8℃ under heat mode |

Note，the fan will keep running when T1 has reached the set temperature under heat mode, but the function to prevent cold air still remain in effect, that means the fan will stop when T2 below the temperature setted by SW2.

SW6 Difinition

Note: Master/Slave DX AHU control box setting

Table.10-5

| | |
|---|---|
|   | 000 means master DX AHU control box |
|   | 001 means slave 1 DX AHU control box |
|   | 010 means slave 2 DX AHU control box |
|   | 011 means slave 3 DX AHU control box |
|   | 100(reserved) |
|   | 101(reserved) |
|   | 110(reserved) |
|   | 111(reserved) |

Note, After changing the status of any dial switch on the main board, 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.

# 11. TROUBLE SHOOTING AND QUERY

## 11-1 Trouble shooting

Table.11-1

| NO. | Type | Contents | Error code | Remarks |
|---|---|---|---|---|
| 1 | Alarm | No address when first time power on | The LED display show “FE” | Recover to normal display until finish setting address |
| 2 | Alarm | M_home non-matching, or connect with “MS” device | The LED display show “H0” | |
| 3 | Alarm | Mode conflict | The LED display show “E0” | |
| 4 | Malfunction | Communication error between DX AHU box and outdoor unit or between master DX AHU box and slaver DX AHU box | The LED display show “E1” | After the malfunctions disappear, it restores automatically. |
| 5 | Malfunction | Temperature sensor (T1) error | The LED display show “E2” | After the malfunctions disappear, it restores automatically. |
| | | Temperature sensor (T2) error | The LED display show “E3” | |
| | | Temperature sensor (T2B) error Temperature sensor (T2C) error | The LED display show “E4” | |
| 6 | Malfunction | EEPROM error | The LED display show “E7” | After the malfunctions disappear, it restores automatically. |
| 7 | Malfunction | Outdoor unit error | The LED display show “Ed” | After the malfunctions disappear, it restores automatically. |
| 8 | Malfunction | Water lever alarm | The LED display show “EE” | After the malfunctions disappear, it restores automatically. |
| 9 | Malfunction | Quantity of parallel connected DX AHU control box not match | The LED display show “H7” | After the malfunctions disappear, it restores automatically. |
| 10 | Malfunction | Address out of range | The LED display show “E8” | After the malfunctions disappear, it restores automatically. |
| 11 | Malfunction | T1 High temperature alarm in cooling mode | The LED display show “H3” | After the malfunctions disappear, it restores automatically. |
| 12 | Malfunction | T1 Low temperature alarm in heating mode | The LED display show “H2” | After the malfunctions disappear, it restores automatically. |

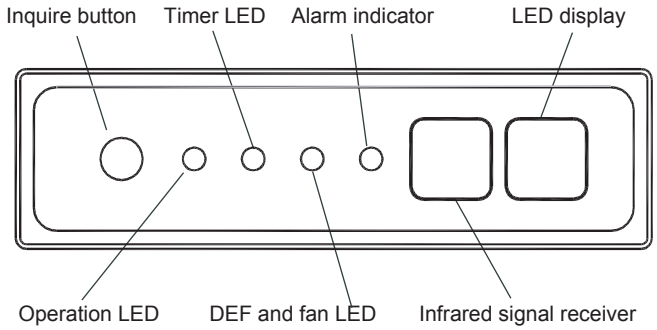



*Fig.11-1*

Note, If the third party controller gets an alarm information from DX AHU control box. Identify and correct problem first.

## 11-2 Query

Table.11-2

| NO. | Display Contents |
|---|---|
| 0 | Normal:setting temperature in factory controller mode and room temperature setting with third party controller mode;<br>The inlet air temperature on the coil T1 in capacity setting with third party controller mode |
| 1 | Indoor unit address(actural address) |
| 2 | Indoor unit capacity |
| 3 | Net address |
| 4 | Setting temperature in factory controller mode and room temperature setting with third party controller mode<br>Analog votage in capacity setting with third party controller mode(actural value=display value÷10) |
| 5 | Reserved |
| 6 | T1 temperature |
| 7 | T2 temperature |
| 8 | T2B temperature |
| 9 | T2C temperature |
| 10 | —— —— |
| 11 | —— —— |

MD14IU-033DW(DZ,Capacity set)

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在16126000000187基础上定制Capacity set功能