daitsu

Domestic Air Conditioner

SERVICE MANUAL

Models

ASD12UI

- **Features**

- **Comfortable:wide-angle airflow**
- **health air purifying**
- **quiet operation**
- **energy efficient**

Serial Number: **Version:00.00** **Edition: 2005-9-20**

Content

DESCRIPTION OF PRODUCT MODEL CODING & SERIES INTRODUCTION

Standard Situation/Conditions

No.	Operating condition	indoor air status		outdoor air status	
		DB°C	WB°C	DB°C	WB°C
1	Norminal cooling	27°C	19°C	35°C	24°C
2	Norminal heating	20°C	Not control	7°C	6°C
3	Norminal electrical heating	---	---	---	---

Series brief introduction

1.comfortable:wide-angle airflow
The vertical dual-flap and horizontal wide-angle louvers ensure the cool(warm) air reaches every corner of the room.

2.Health air purifying
An air purifying filter with deodorizing and disinfecting functions keeps the air clean and users healthy.

3.Quiet operation
Fan With Random-pitched Blades.
Random-pitched blades help reduce operating noise while maintaining a high airflow rate.

4.Engergy efficient
The design of inner-grooved copper tube greatly increases the refrigerant contact area and the efficiency of cooling/heating functions.

5.Convenience
Auto restart and washable panel:
The grille can be removed easily and washed when necessary.Any series have the function then even if the power falls when the unit is operating unit will automatically return to the operating settings in use before the power failure when power is restored.

6.Wide variety of functions
24-Hour Timer:
24-hour timer allows users to select the exact time they would like the air conditioner to turn on and to turn off.Timers on previous models operation based on the number of hours of desired operation.

7.Night-set models
When the air conditioner is operationg on the timer-off circuit.The preset room temperature gradually rises(going down in heating)before the unit stops as shown delow.Users can sleep comfortably without sudden change in temperature.

8.Program”dry”
This function automatically reduces the level of humidity while maintaining the preset indoor temperature.

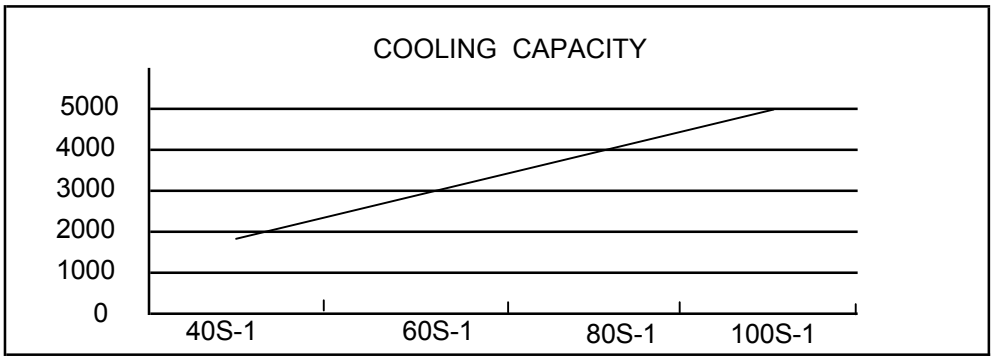
SPECIFICATIONS

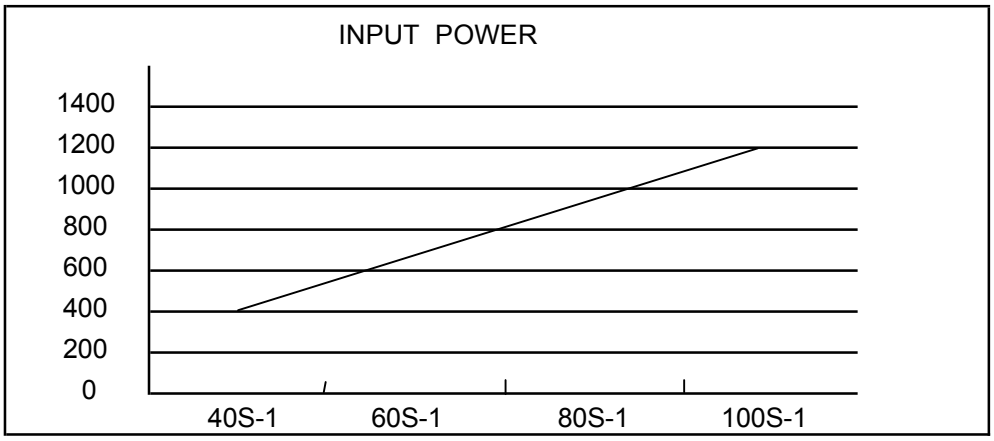
Model:	ASD12UI	Appearance color (indoor/outdoor):	White/White
Cooling capacity:	3500(460-3920)W	Heating capacity:	4000(700-5000)W
Cooling coefficient:	3.21	Heating coefficient:	3.61
Cooling power input:	1070(185-1420)W	Heating power input:	1100(660-1250)W
Moisture removal	1.5X10^{-3}m^3/h	Frequency range	20~90 Hz
Operating voltage range	1PH, 220-230V~,50Hz	Refrigerant type	R410A
Operating temp. range	-7°C-43°C	Air sending angle/distance	60°
Variation of temp. adjust	±1°C	Fan type/quantity	Cross flow fan(indoor unit) Axial fan(outdoor unit)
Climate type:	T1	Class of electric shock protection:	I
Indoor unit noise (cooling)	40/37/30dB(A)	outdoor unit noise (cooling)	55/48dB(A)
Indoor unit noise (heating)	42/38/32dB(A)	outdoor unit noise (heating)	56/49dB(A)
net dimensions	795x265x182mm	net dimensions	780 x245x540mm
Packaging dimensions (indoor unit)	865 x272x330 mm	Packaging dimensions (outdoor unit)	903x343x614mm
weight(indoor unit)	7.6/10.6(net/gross)kg	Piling layers for indoor/outdoor unit	8/4
Max. mounting height difference:	10m	Outdoor unit net/gross weights:	32.3/35.3(net/gross) kg
Refrigerant charge	R410A 1000g	Current entering side (indoor/outdoor)	indoor
Frequency of filter cleaning	Once/2 weeks	Max. refrigerant charge	----------
Compressor model	C-1RVN68H0E	Compressor manufacturer	SANYO
Compressor oil charge	320ml	Compressor protector type	INTERNAL
Maxi. length of connecting pipe:	15m	model of 4-way valve:	----------
Cap. tube type muffle model:	TP_2Y copper tube	Length/diameter of drain hose	2000mm/Φ16mm
Fan speed: (r/min)	1300/1125/950 (indoor) 800/650 (outdoor)	Type/size of evaporator and condenser	Internal treaded pipe Φ7/Φ7mm
Max. operating pressure at warm side:	4.15MPa	Max. operating pressure at cool side:	4.15MPa
cut-off valve:	1/4",3/8"	Appearance features	Indoor unit:Plastic Outdoor unit: Metal

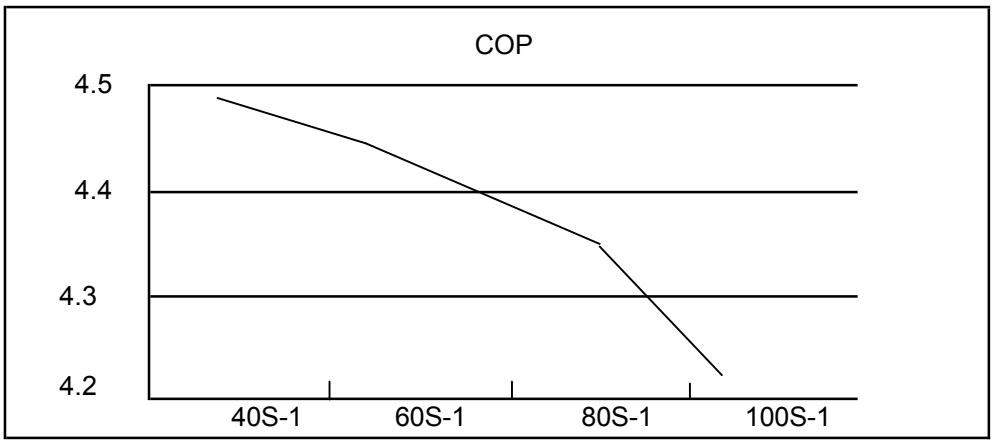
Curves of performance of compressor

Curves of compressor performence Edition:2005/09/15

COMPRESSOR:C-1RVN68H0E

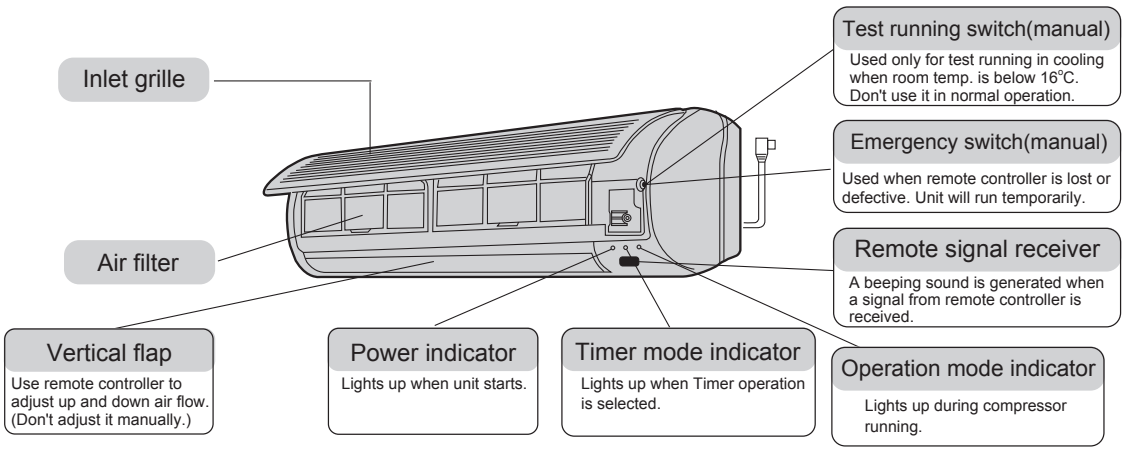




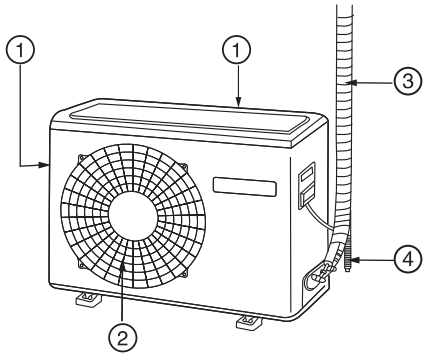


Description,dimension and function of main components and accessories

Indoor unit



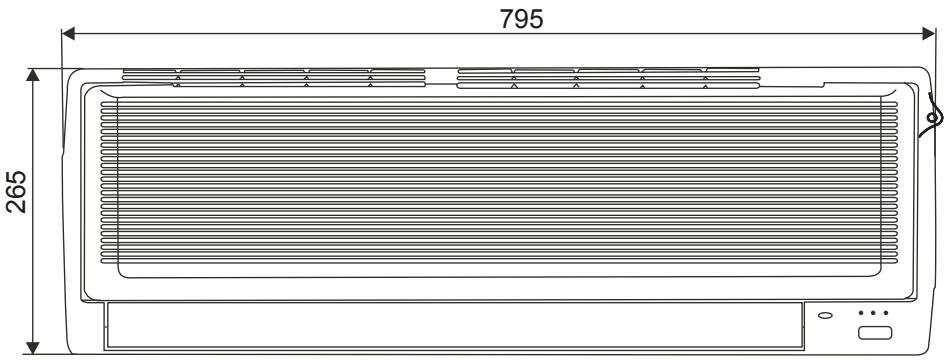
Outdoor unit

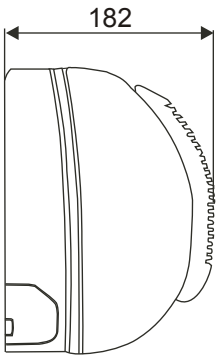


① INLET ③ CONNECTING PIPING AND ELECTRICAL WIRING

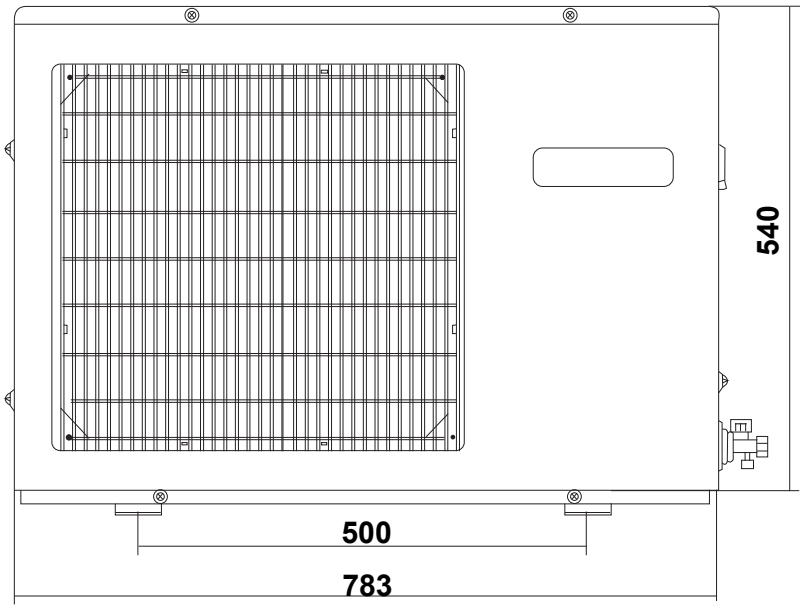
② OUTLET ④ DRAIN HOSE

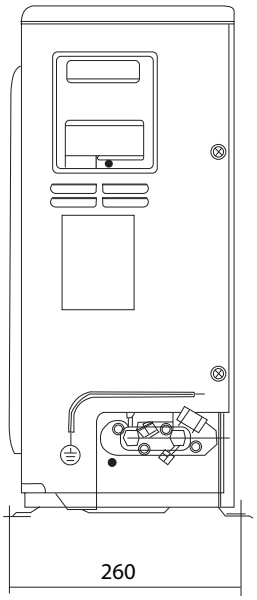
NET DIMENSIONS(INDOOR UNIT):





NET DIMENSIONS(OUTDOOR UNIT):





Brief introduction to electrical control functions

1. Temperature Ajusting function

. This function will decide the outdoor-set's running speed according to the domestic temperature and the set temperature.
. Control the domestic blower fan according to the need for temperature adjusting when the wind rate is automatic
. Control the domestic blower fan according to the disc-tube temperature when it's running for heating.
1.1.1 Indoor environment temperature sensor specification
Under the conditions of short circuit or open circuit, the indicative light will flash an alarm and the indoor blower fan stops. When it returns to normal condtions, the operation will come back to normal.
Short circuit
Temperature: over 126℃. Sixteen scales: over F8H. Resistance value: below 0.65 K. Voltage: over 4.85 V
Normal temperature
Temperature: 25 ℃. Sixteen scale: 40H Resistance value: 23K . Voltage: 2.33 V
Disconnection
Temperature : below minus 31 ℃. Sixteen scale: below 08H . Resistance value: below 620K. Voltage: below 0.15 V
. R(25)=23K
1.1.2 During the time when the heat running starts and indoor blower fan stops or when the warm boot starts and within 30 seconds after the indoor blower fan starts, the resistance value for indoor environment temperature sensor will be neglected.
1.2 The frequency kept when the frequency rises.
. When the operation enters into the work mode, in order to insure the full

Indication time			Indication frequency
Cooling & moisture removing	Heating	Heating & Frost removing	Frequency kept
60 seconds	60 seconds	30 seconds	58 Hz

When the unit is switched on and the forcible running is over, the temperature level control starts.
1.3 Modify the set temperature
The set temperature can be modified according to the unit's operation mode, wind volume or whether it is under forceful running condition.
The modification of wind volume is only limited within the switch between weak and medium of wind volume when it is under heating mode.
Modification index table for set temperature

1.4. Frost removing

Under the intensive-running protection mode, the protection control will be in priority

The compressor does not stop

Under heating operation mode, the outdoor unit sends a frost-removing signal and the indoor unit will start the frost-removing control until the outdoor unit transmits the signal to end the frost-removing. Then the indoor unit starts the heating operation, indication levels and wind volume control will operate following the heating temperature levels.

1.5. Wind volume limit

. When the compressor is working and the max setting for indoor blower fan is medium , the upper limit of indicated frequency is as follows:

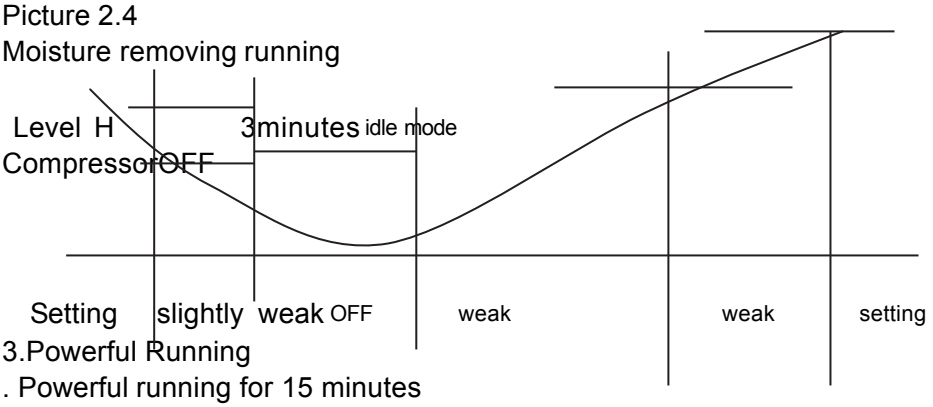
2.1.heat running

2.1.1. Warm boot

When the heat running starts or the frost removing ends and the compressor starts again, in order to avoid cold wind, warm boot wind volume control should be done.

Refer to the temperature level control function

2.1.4. Frost-removing operation
. The blower stops after 20 seconds
. When receiving the signal from the outdoor unit in the heat frost-removing mode, warm boot will be done according to the hear exchange sensor. The wind volume control is the same with warm boot.
When the frost-removing process if over, if the compressor is on,the wind volume control will be warm-booted; if the compressor if switched off, the wind volume will be weak.
2.2 cooling running
. The wind volume can be set to strong, medium and weak.
Automatica wind volume function will decide the wind volume according to the temperature
Picture3.3
2.3. Moisture removing running
2.3.1. Compressor off, idle mode for 3 minutes
. The blower fan stops as the compressor stops
. The operation is wead after 3 minutes' idle mode
. After 3 minutes' ilde mode, the compressor is on.
2.3.2. Compressors on
The compressor operates as the set wind volume when the wind volume is set to be strong, medium or weak
. The wind volume is decided according to the temperature adjusting when the wind volume is set to be automatic.
Picture 2.4
Moisture removing running



3.Powerful Running
. Powerful running for 15 minutes

. Enter into the silent mode, normal running mode or timed switching on mode to end the powerful running
. When in automatic mode, there are powerful and silent functions for your choice. When the main unit is in cooling mode, it operates with powerful cooling or silent cooling. When the main unit is in heating mode, it operates with powerful heating or silent heathing. When the main unit is in wind-sending mode, there are no powerful or silent modes.
3.1.1. Powerful heating

. Change the set temperature. With temperature adjusting function
. The wind volume is the automatic medium
. When in frost removing mode, the outdoor unit does not accept the communication signal for powerful running

3.1.2. Powerful cooling
Change the set temperature. With temperature adjusting function
. The wind volume is the automatic strong

3.1.3. There is no powerful mode for wind-sending and moisture removing
5.Silent running
. Send the silent running signal to the outdoor unit
5-0-1. Silent hearing
The wind volume is SSLO after the compressor is on
The wind volume will be kept SSLO within 20 seconds after the compressor stops and then changes to weak
5-0-2. Silent cooling
The wind volume is SSLO
5-0-3. There is no silent mode for moisture removing and wind-sending.

6. Timed running

. Set the time duration according to the time difference between the clock for timing and the current clock
. In timing mode, the display panel will flash the light at fixed times
6-0-1. Timed OFF
When this function is set, operation modes on the panel display will not change. The timing icon will show and the operation stops when the set time comes.
6-0-2. Timed ON
When this function is on, the panel display will only show a timing icon. The unit will operate as the set mode when the time comes.
6-0-3. Timed ON/OFF
The unit will start operating or stop according to the order of your setting.

7. Automatic running
7-1. Automatic running mode
Under this mode, the MCU will choose the work mode according to the room temperature so as to keep the set termperature (set 23℃ for heating mode and 26℃ for cooling mode)
When the unit is powered on for the first time and the the room termperature is equal to or below 23℃, it will start the heating mode or the cooling mode when the room temperature is higher than 23℃
Enter into the heating mode and follow the heating process(supposed temperature 23℃). When the temperature is high enough to stop the compressor, thecompressor stops and there

will 3 minutes of idle mode. If the compressor senses the incoming wind temperature is higher than 23℃ after it stops for 15 minutes, the unit will switch to cooling mode. Otherwise it will keep the heating mode.

Enter into the cooling mode and follow the cooling process(supposed temperature 26℃). Compensation temperature difference will be cancelled automatically. When the temperature is high enough to stop the compressor, the compressor stops and there will be 3 minutes for idle mode. If the compressor senses the incoming wind temperature is equal to or below 23℃ after it stops for 15 minutes, the unit will switch to heating mode. The compensation temperature will be added automatically. Otherwise it will keep the cooling mode.

When the unit switches from other modes to automatic mode, if the work state changes (judge first and then work), there will be 3 minutes for idle mode. Ant then the temperature will change to the judged level according to the incoming wind temperature.

8. Trial running

The indicated frequency for trial running is 58Hz, wind volume is strong.

The trial running will last for 30 minutes and then the unit will be powered off. The unit will exit the trial running if it receives any remote-control signal during the trial running period.

There is no low work-intense running protection.

9. Low Work-intense protection control

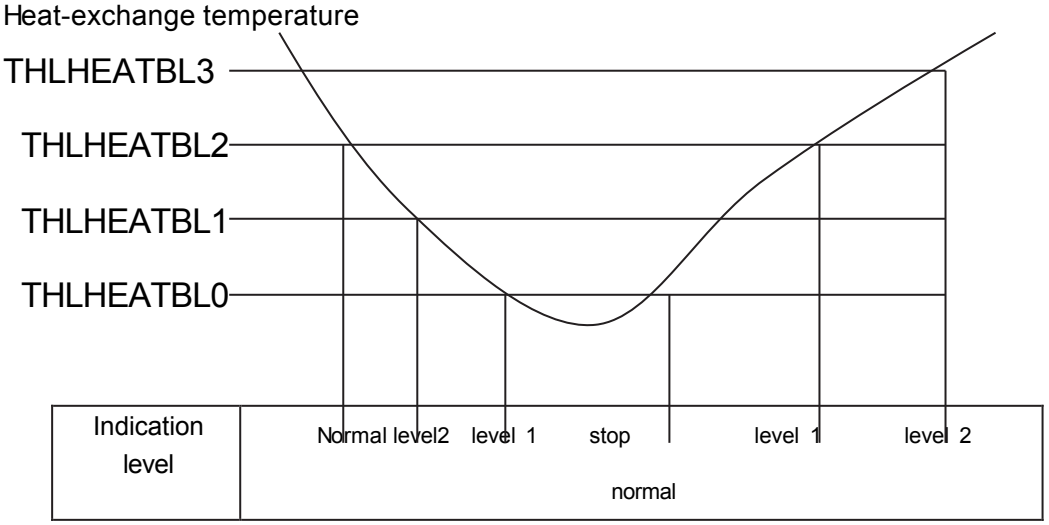
Specification for heat-exchange termperature sensor

B fixed number=3700 R(25℃)= 10KO

Under the cooling /moisture removing modes,the low work-intense protection will be carried out according to the heat-exchange temperatures as shown in the table below.

Low Work-intense protection control

Picture 11.1



Low Work-intense protection control will be neglected in the trial running.

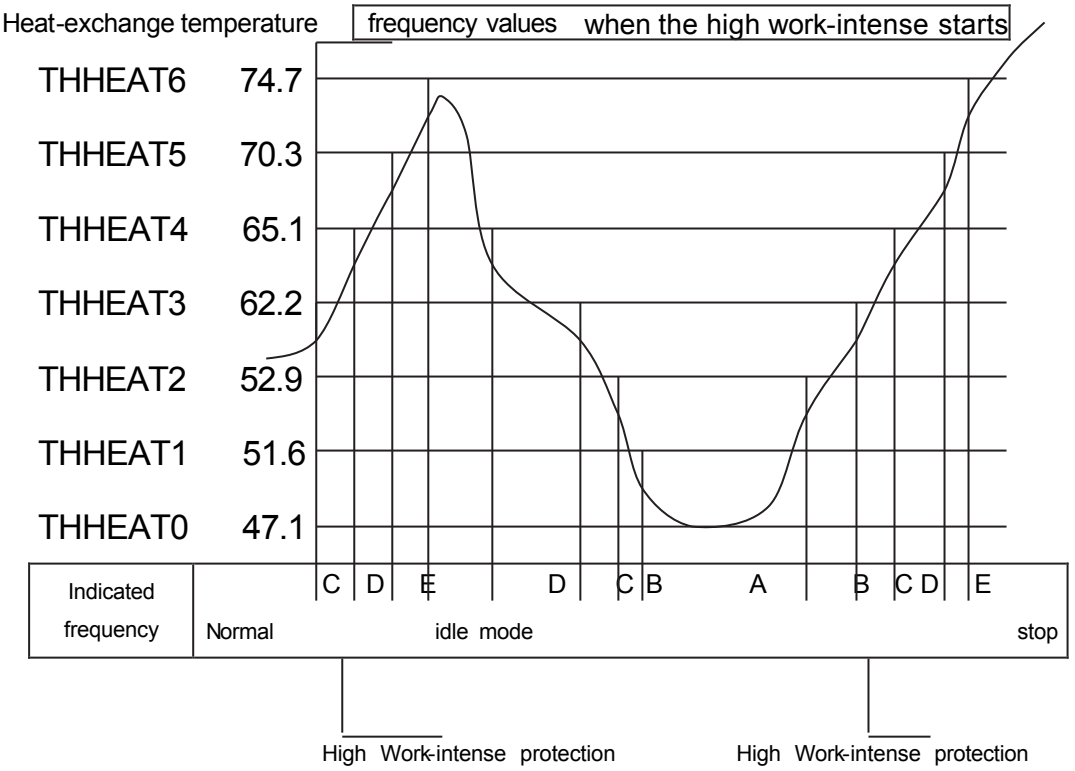
Low Work-intense protection control will be cancelled for 3 minutes temporarily after the powerful cooling starts for 1 minute

(THLH[3，2，1，0]= 7℃ ，4.6℃，2.2℃，-0.5℃)

10. High Work-intense protection control

Under the heating mode, the high work-intense protection will be carried out

according to the heat-exchange temperatures as shown in the table below.
High Work-intense protection control:
Picture 12.1



alarm

. High Work-intense protection alarm will start if there are two times of high work-intense protection within 30 minutes.

. If the heat-exchange temperature does not reach THHEAT [2], it will resume to the normal temperature level control

. The smaller one of the high work-intense frequency and level frequency will be the operation data.

11. Remote control

. Start or stop running with the remote-control signals.

. Only OFF signal is accepted when there are emergencies or malfunctions.

1 second delay: Starting, stopping and signals except the wind direction signal all begins 1 second after the receiption of the signal.

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Chapter I: Indoor Unit and Main board for Outdoor Unit

Notice:

During operations under any mode, if short circuit, open circuit and other malfunctions of the temperature sensors are detected, the main engine should come to a halt immediately.

1. Outdoor-board:

1.1.Forced cooling operation switch:

Short circuit this switch before electrifying, data communication to indoor unit will be ignored:

Forced cooling will function, the 3-minute delay will be cancelled, and the following output will be ON simultaneously:

High wind volume (H) for outdoor fan motor;

Compressor operates at the frequency of 80Hz.

1.2.Forced heating operation switch:

Short circuit this switch before electrifying, data communication to indoor unit will be ignored:

Forced heating will function, the 3-minute delay will be cancelled, and the following output will be ON simultaneously:

High wind volume (H) for outdoor fan motor;

Compressor operates at the frequency of 80Hz.

CPU checks all A/D ports

B. When safeguarding action happens outdoors, the actions in A should be OFF, and other inputs are independent of the actions in A.

C. LED output: Goes along even if safeguarding action happens outdoors; Cut this switch and go back to the original state. (The out-door safeguarding action will continue)

Chapter II: Basic Functions

3. Cooling mode

3.1.The four-way valve does not work (not electrified)

3.2.The discharge temperature sensor will not be tested within five minutes after the compressor is started

3.3.Outdoor fan motor control: The fan motor starts five seconds after the compressor starts, switching conditions for the two gears of wind volume are as follows: T ambient temp. <21℃, Low wind volume

T ambient temp. >21℃, High wind volume When the fan motor starts up, and the ambient temperature is at the return difference (±2℃), it runs at the low wind volume.

3.4.Compressor control: Frequency range: 30HZ---------120HZ

T ambient temp. <16℃, the maximum frequency is 65HZ 16℃≤T ambient temp.≤30℃, the maximum frequency is 90HZ

30℃≤T ambient temp.≤41℃, the maximum frequency is 110HZ

T ambient temp.≥41℃, the maximum frequency is 85HZ

Actual temperature and frequency maybe adjusted through EEPROM

4.Heating mode

4.1.The four-way valve is electrified 2 seconds after the compressor is electrified

4.2.Malfunctions of the discharge temperature sensor will not be tested within five minutes after the compressor is started

4.3.Outdoor fan motor control: The fan motor starts five seconds after the compressor starts, switching conditions for the two gears of wind volume are as follows: T ambient temp. <16℃, High wind volume T ambient temp. ≥16℃, Low wind volume When the fan motor starts up, and the ambient temperature is at the return difference (±2℃), it runs at the low wind volume.

4.4.Compressor control: Frequency range: 30HZ---------120HZ

T ambient temp. >22℃, the maximum frequency is 70HZ

9℃≤T ambient temp.≤22℃, the maximum frequency is 90HZ

2℃≤T ambient temp.≤9℃, the maximum frequency is 100HZ

T ambient temp. <2℃, the maximum frequency is 110HZ

Actual temperature and frequency can be adjusted through EEPROM

4.5.Conditions to enter into the defrosting stage:

A. Conditions to enter into the defrosting stage

After the heating operation has begun, and the operation time of the compressor adds up to 45 minutes (The total operation time of the compressor will be reset to zero after defrosting or the operating mode switched into cooling), through examining the defrosting sensor TE (Examining the frosting status of the outdoor heat exchanger) and the ambient temperature sensor TA, if the following conditions are met continuously up to 5 minutes, then defrosting operation is entered:

$$TE \leq C \times TA - \alpha$$

Of which: C: TA<0℃, C=0.8

TA≥0℃, C=0.3

α maybe adjusted through EEPROM

For places easy to frost, set α as H; For places not easy to frost, set α as L; It is set as M when leaving factory.

Temperature limit to enter into the defrosting stage $-15℃E \leq C \times TA - \alpha \leq 2℃E$

B. Time interval of defrosting

- While the calculated data of $C \times TA - \alpha$ fall within the range of $-15℃E \leq C \times TA - \alpha$, the time interval between two defrosting operation is 45 minutes
- While the calculated data of $C \times TA - \alpha$ fall within the range of $C \times TA - \alpha \leq -15℃E$, the time interval between two defrosting operation is 55 minutes

C. Defrosting operation

- When defrosting begins, the compressor and the outdoor fan motor stops, and the four-way valve turns OFF 50 seconds later.
- The compressor starts and stays at the frequency of 60HZ for 30 seconds, then operates towards the target frequency (Can be adjusted through EEPROM)
- The current safeguard and the compressor discharge safeguard and other means of safeguard remain valid while defrosting. If the compressor

halts during the defrosting stage, remain still for 30 seconds, then conducts defrosting operation if it is still within the defrosting stage, the compressor starts according to the demand of the startup of the defrosting compressor.

- Entering into the defrosting stage, it must be guaranteed that the minimum operation time of the compressor should amount at least to 2 minutes before exit defrosting.

D. Conditions to exit the defrosting stage

The defrosting operation will return to heating operation if any of the following conditions is met.

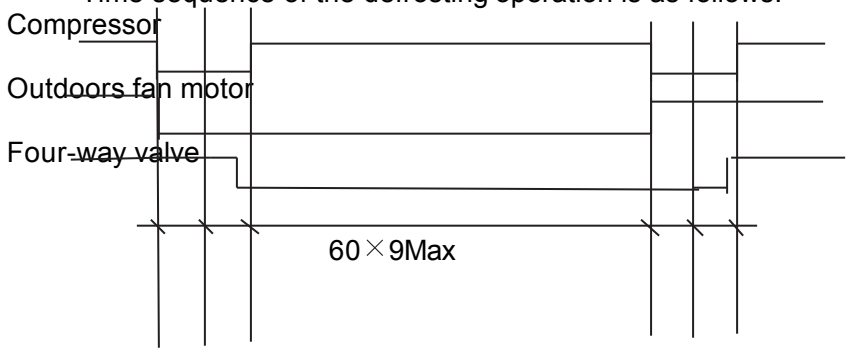
（1）: The temperature of the outdoor heat exchanger remains above 7℃ (Can be adjusted through EEPROM) for over 80 seconds continuously.

（2）: Keep defrosting operation for 9 minutes (Can be adjusted through EEPROM) continuously.

E. After the condition to exit defrosting operation is met, work as follows.

The compressor stops, the outdoor fan motor stops 50 seconds later, the four-way valve turns on, the compressor starts according to the starting process.

Time sequence of the defrosting operation is as follows:



5.Outdoor condensation temperature control while cooling:

5.1.When the operation frequency F＜40HZ, if the temperature of the outdoor coiled pipe $T_{outdoor\ coil}$≥52℃, decrease the operation frequency of the compressor by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if $T_{outdoor\ coil}$≥52℃, decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if 47℃≤$T_{outdoor\ coil}$＜52℃, the compressor and the fan motor keep their original states;

the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state,

5.2.When the operation frequency F≥40HZ, if the temperature of the outdoor coiled pipe $T_{outdoor\ coil}$≥57℃, decrease the operation frequency of the compressor by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if $T_{outdoor\ coil}$≥57℃, decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if 52℃≤$T_{outdoor\ coil}$＜57℃, the compressor and the fan motor keep their original states;

When $T_{outdoor\ coil}$≤51℃, the compressor runs at the normal operating frequency,

and the outdoor fan motor returns to its original state;

The above temperature points, frequency-decreasing step and time interval can all be adjusted through EEPROM

Ⅲ. Anti over-loading operation while heating:

5.3.When the operation frequency F＜40HZ, if the temperature of the outdoor coiled pipe $T_{outdoor\ coil}$≥52℃, the outdoor fan motor performs forced high-speed operation and the operation frequency of the compressor should be decreased by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if $T_{outdoor\ coil}$≥52℃, decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if 47℃≤$T_{outdoor\ coil}$＜52℃, the compressor and the fan motor keep their original states;

When $T_{outdoor\ coil}$≤46℃, the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state;

5.4.When the operation frequency F≥40HZ, if the temperature of the outdoor coiled pipe $T_{outdoor\ coil}$≥57℃, the outdoor fan motor performs forced high-speed operation and the operation frequency of the compressor should be decreased by 2Hz, then examine the temperature of the outdoor coiled pipe at 10-second intervals, if $T_{outdoor\ coil}$≥57℃, decrease the operation frequency further by 2Hz, until the frequency is the lowest;

During the frequency-decreasing operation, if 52℃≤$T_{outdoor\ coil}$＜52℃, the compressor and the fan motor keep their original states

When $T_{outdoor\ coil}$≤51℃, the compressor runs at the normal operating frequency, and the outdoor fan motor returns to its original state;

The above temperature points, frequency-decreasing step and time interval can all be adjusted through EEPROM

6.. Compressor discharge safeguard:

5 minutes after the compressor starts, when the compressor temperature rises above 105℃, decrease the compressor frequency by 2HZ/stop for 10 seconds, until the compressor temperature falls below 90℃, the compressor returns to normal operation;

When the compressor temperature rises above 115℃, the compressor should stop at once, wait until the compressor temperature falls below 90℃ and the waiting time period exceeds 3 minutes, the compressor returns to normal operation;

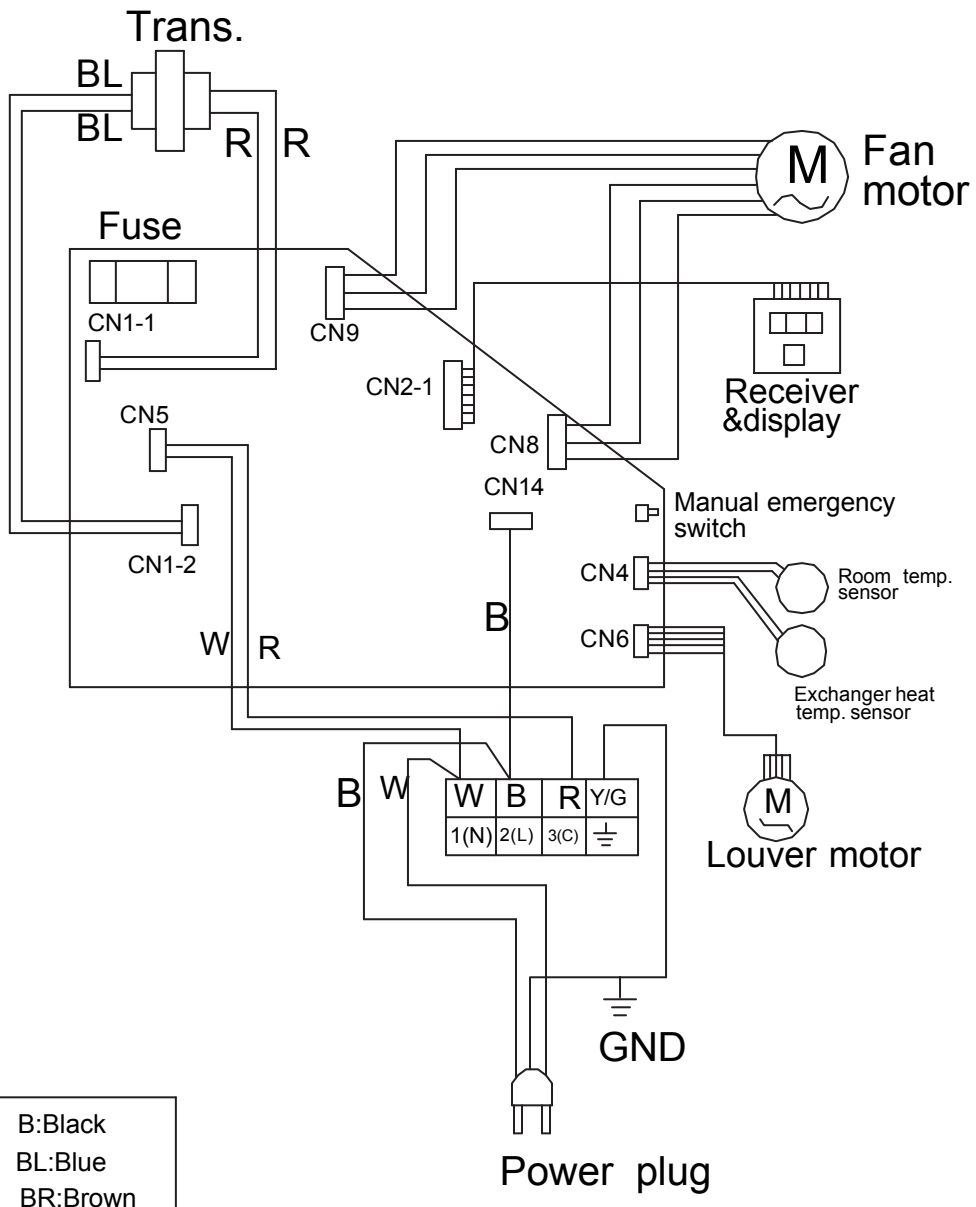
After the compressor restarts, if the compressor temperature rises above 115℃ once more within 15 minutes, the compressor should stop at once and give an alarm.

The temperature points are stored in EEPROM

Wiring diagram

0010552093

WIRING DIAGRAM OF INDOOR UNIT

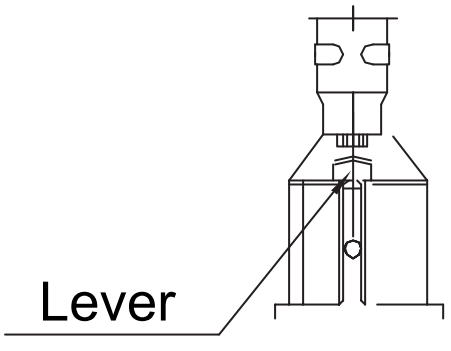


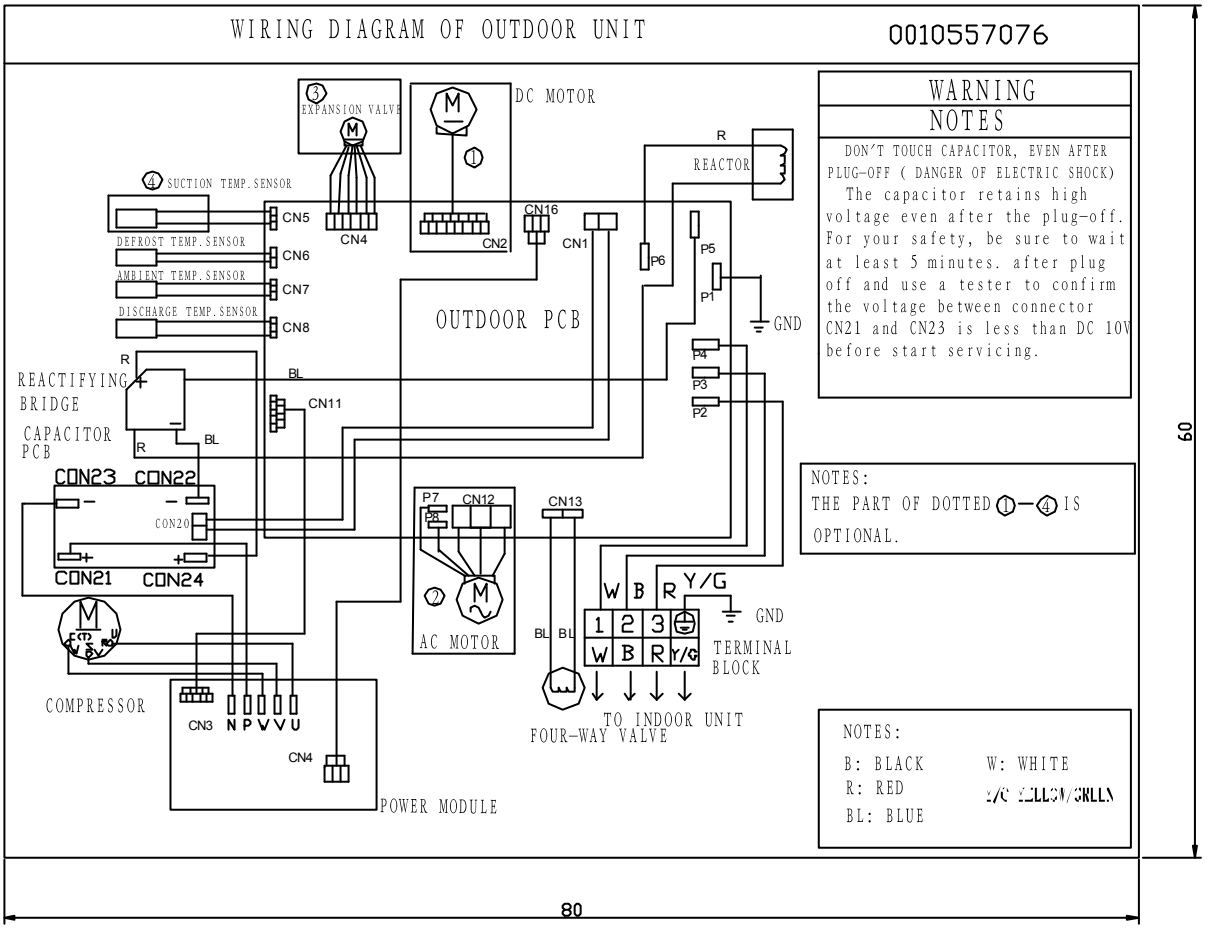
R:Red B:Black
W:White BL:Blue
Y:Yellow BR:Brown
Y/G:Yellow/Green

Removal of locking terminal contact

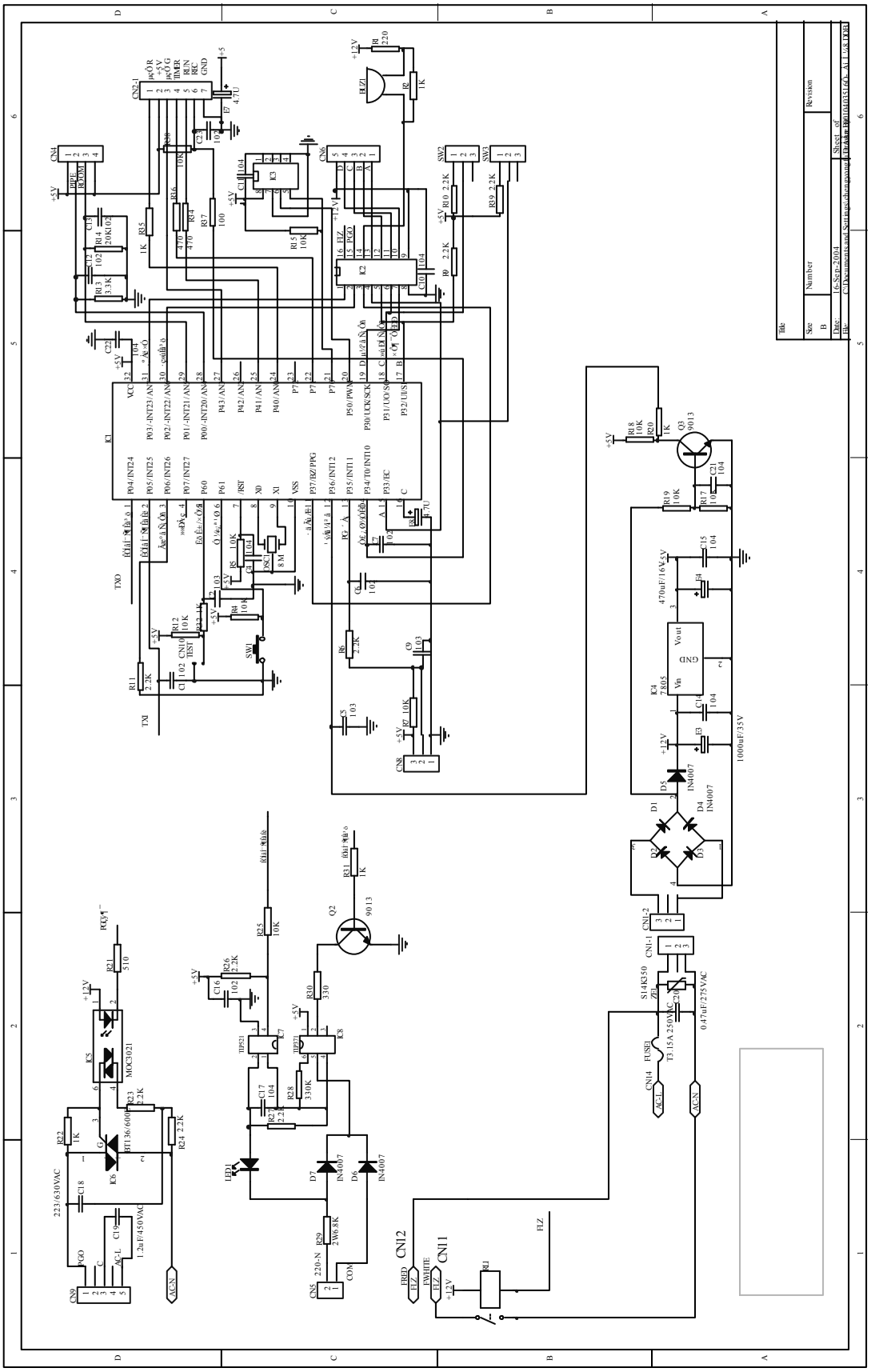
Terminal contact(mark) ※ comes with locking structure.

Please press the front lever to release the locking and pull the cable out.

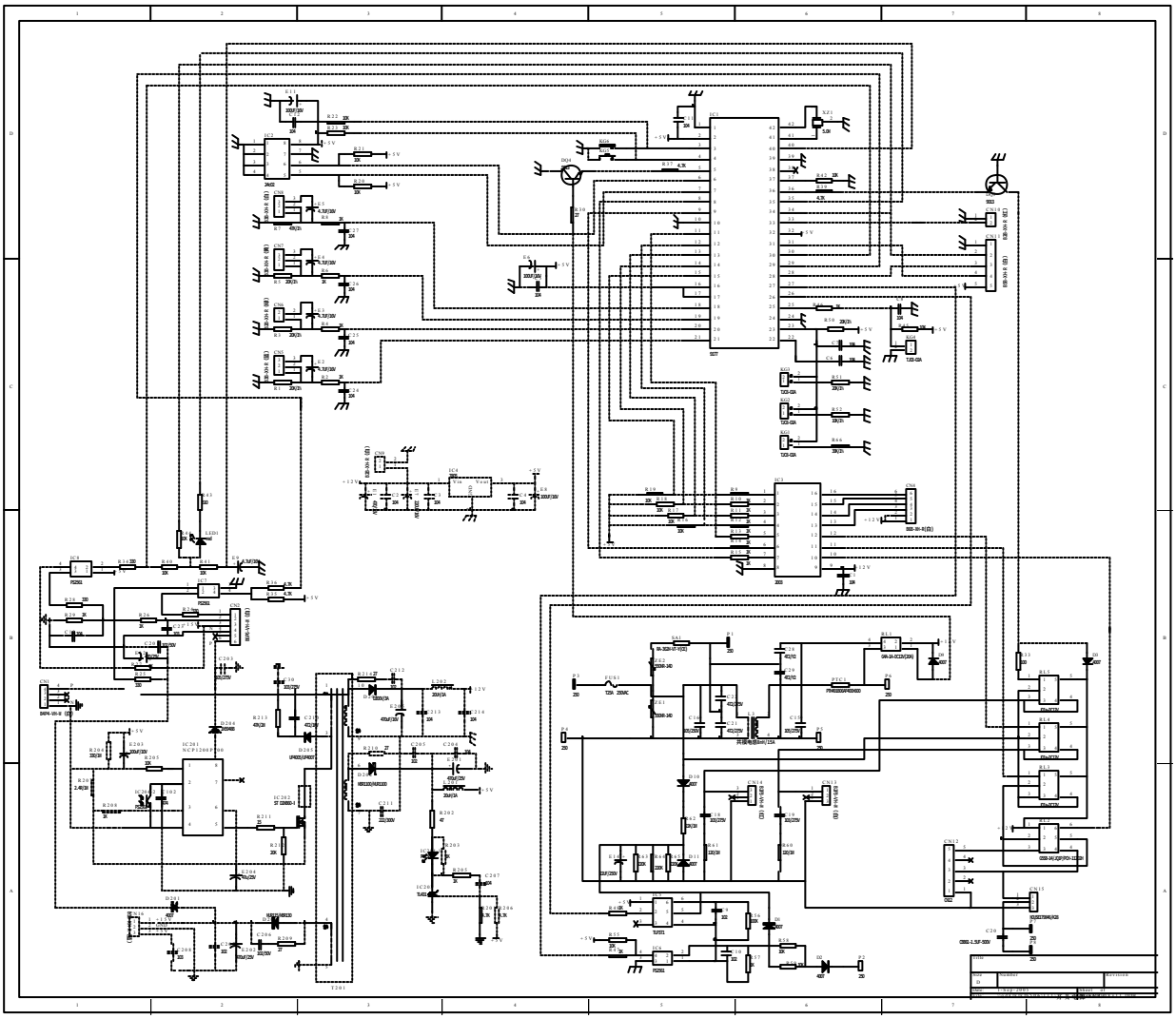



WIRING DIAGRAM OF OUTDOOR UNIT
0010557076
WARNING
NOTES
DON'T TOUCH CAPACITOR, EVEN AFTER PLUG-OFF (DANGER OF ELECTRIC SHOCK)
The capacitor retains high voltage even after the plug-off. For your safety, be sure to wait at least 5 minutes. after plug off and use a tester to confirm the voltage between connector CN21 and CN23 is less than DC 10V before start servicing.
NOTES:
THE PART OF DOTTED ①—④ IS OPTIONAL.
NOTES:
B: BLACK
R: RED
BL: BLUE
W: WHITE
③ EXPANSION VALVE
DC MOTOR
④ SUCTION TEMP.SENSOR
DEFROST TEMP.SENSOR
AMBIENT TEMP.SENSOR
DISCHARGE TEMP.SENSOR
CN5
CN6
CN7
CN8
CN4
CN2
CN16
CN1
REACTOR
P6
P5
P1
GND
OUTDOOR PCB
P4
P3
P2
REACTIFYING BRIDGE
CAPACITOR PCB
BL
CN11
CON23
CON22
CON20
CON21
CON24
P7
P8
CN12
CN13
② AC MOTOR
W B R Y/G
1 2 3
TERMINAL BLOCK
COMPRESSOR
CN3
CN4
POWER MODULE
TO INDOOR UNIT
FOUR-WAY VALVE
60
80

CIRCUIT DIAGRAM



OUTDOOR UNIT:



ABNORMITY DIAGNOSE

Malfunction explanation

Anomaly	Error symbals Power Timing Running	Indoor	Outdoor	Automatic restore	Causes
Indoor thermister anomaly	★ ¦ ¦	*		*	1. Poor connection of the connectors or bad control base plate
Heat-exchange thermister anomaly	★ ? ?	*		*	1. Poor connection of the connectors or bad control base plate
Frost-removing thermister anomaly	? ? ★		*	*	1. Poor connection of the connectors or bad control base plate
Output thermister anomaly	★ ? ¦		*	*	1. Poor connection of the connectors or bad control base plate
Base plate thermister anomaly	? ¦ ★		*	*	1. Poor connection of the connectors or bad control base plate
Module thermister anomaly	? ★ ?		*	*	1. Poor connection of the connectors or bad control base plate
Outdoor thermister anomaly	? ★ ¦		*	*	1. Poor connection of the connectors or bad control base plate
Transmition error	¦ ¦ ★	*			1. Poor connection of the connectors or bad control base plate
			*		2. Wrong wiring or bad base plate
Anomaly of compressor running	★ ¦ ?		*		1. If there is any seize of the compressor 2. If there are any damages of power module

Overheat protection for exhaust temperature	¦ ★ ¦		*		1. The system is lack of air or overloaded with air 2. The voltage is too high (over 242V)or too low (below 187V) 3. The capillary tubes may be blocked. 4. Check if the sensor or the controlling base plate parts are wrong 5. The indoor&outdoor temperature could be too high
AC electricity protection	★ ★ ¦		*		1. Check if the system is overloaded with air 2. Check if the voltage is too low(below 187V) 3. Check if the CT or the base plate parts are all right
DC electricity protection	★ ★ ?		*		1. Check if there are seizes in the compressor 2. Check if there are damages of the power modules 3. The voltage is too high (over 242V)or too low (187V)
Low power protection	¦ ★ ?		*		1. Check if the voltage is too low 2. Check if the base plate is damaged.
Outdoor base plate temperature temperature	¦ ★ ★		*		1. Check if the base plate is all right 2. The outdoor environment temperature could be too high
Module temperature increase protection	? ★ ★		*		1. Check if there are seizes in the compressor 2. ◦ 3. If there are any damages of power module 4. Check if the heat dispersion glue is even 5. The voltage is too high (over 242V)or too low (below 187V) 6.

High work-intense protection	★ ★ ★	*			1. Check if the filter net is blocked 2. The indoor&outdoor temperature could be too high 3. Check if the system is overloaded with air 4. Check if the base plate is damaged. 5. The voltage is too high (over 242V)or too low (below 187V)
CT wire breakage protection	★ ¦ ★		*		1. Check if the base plate is damaged or not 2. The system is lack of air 3. The direction changing of the 4-way valve is not proper
EEPROM anomaly	★ ? ★	*			1. Check if the base plate is damaged or not
			*		1. Check if the base plate is damaged.
Inner blower fan anomaly	¦ ? ★	*			
Explanation	?bright★flashing¦ turn-off	* Represents there is this function			

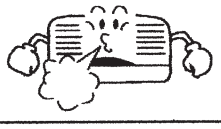
.LED output:

Twinkling times of LED	Possible cause of the malfunction
1	Outdoor temperature sensor abnormity
2	Outdoor defrosting sensor abnormity
3	Compressor discharge temperature abnormity
4	High compressor discharge temperature
5	Indoor-outdoor communication abnormity
6	Abnormal communication to IPDU module
7	E2PROM data abnormity
8	IPDU abnormity: Maximum revolving rate exceeded
9	IPDU abnormity: Vibration
10	IPDU abnormity: Displaced
11	IPDU abnormity: Speeding up abnormity
12	IPDU abnormity: G-TR short circuit
13	IPDU abnormity: Position-testing loop abnormity
14	IPDU abnormity: Current sensor abnormity
15	IPDU abnormity: Compressor locked
16	IPDU abnormity: Compressor damaged
17	IPDU abnormity: Case thermo action

TROUBLE SHOOTING

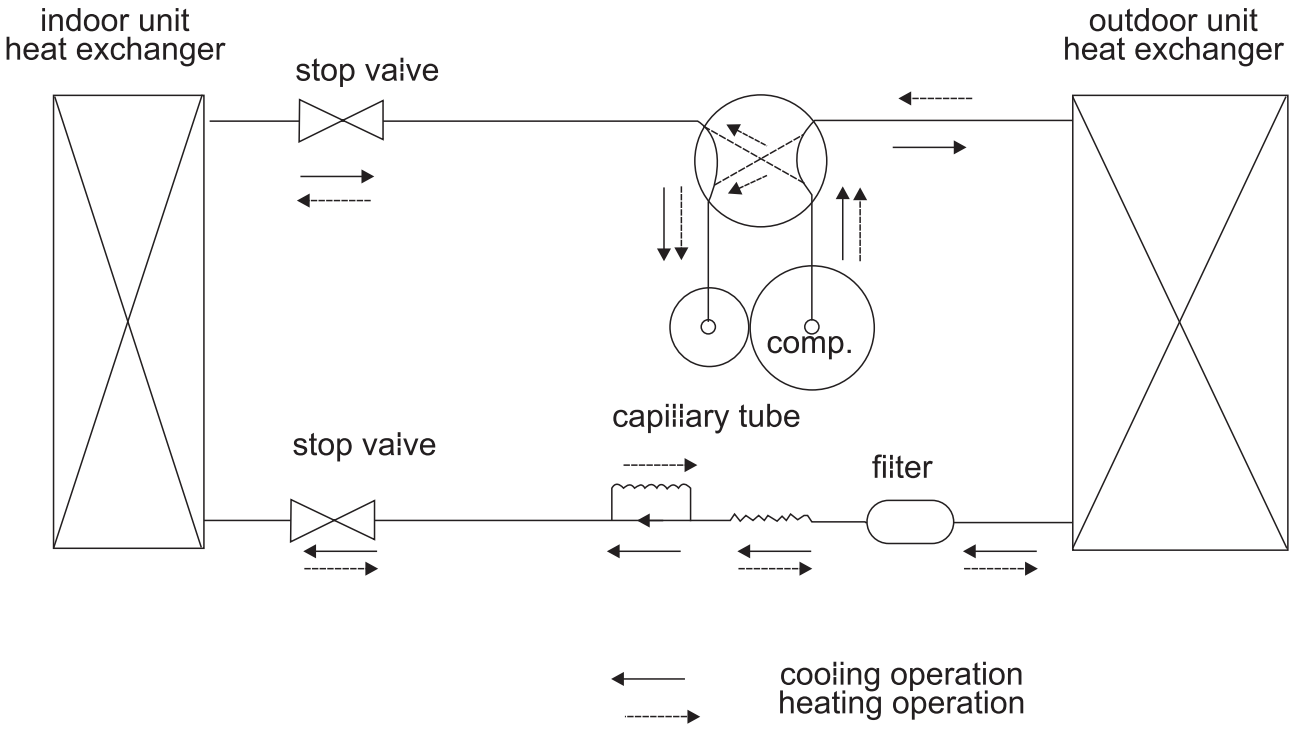
Trouble Shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elasped to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard. 	• During unit operation or at stop, a swishing or gurgling noise may be heard. At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) • During unit operation, a cracking noise may be heard. This noise is generated by the casing expanding or shrinking because of temperature changes. • Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	• This is because the system circulates smells from the interior air such as the smell of furniture, cigarettes.
	Mist or steam are blown out. 	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
Multiple check	Does not work at all. 	• Is power plug inserted? • Is there a power failure? • Is fuse blown out?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before intel and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

Application temp. range of air conditioner -7℃~43℃.

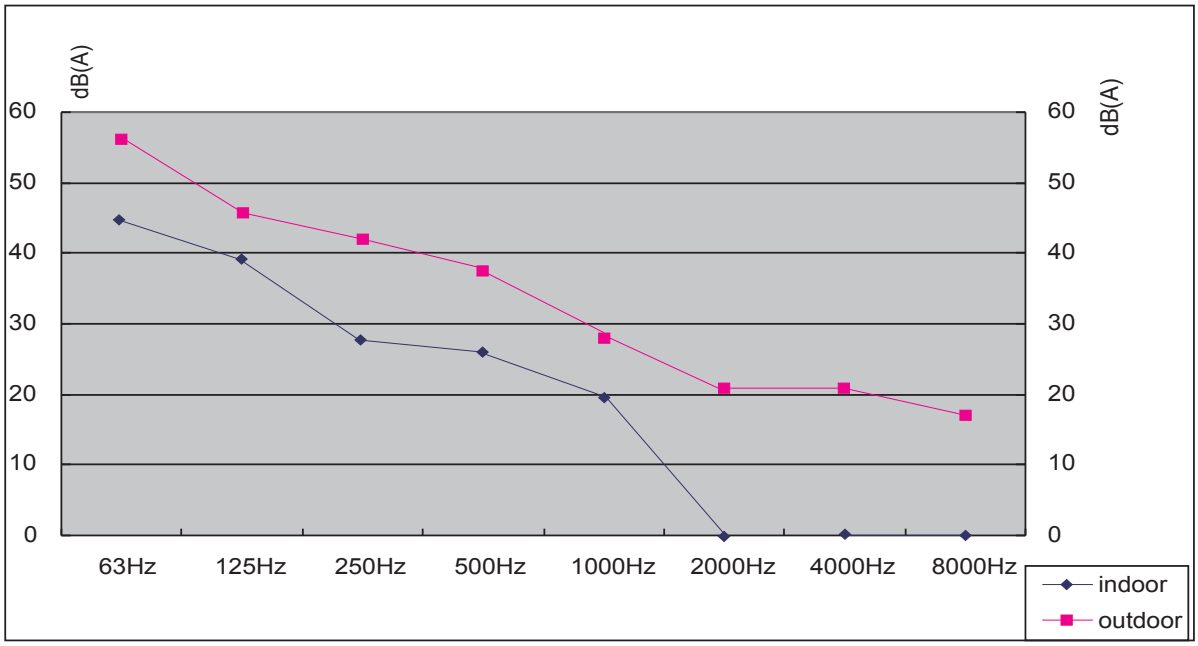
REFRIGERATING CYCLE DIAGRAM


indoor unit
heat exchanger
stop valve
outdoor unit
heat exchanger
comp.
capillary tube
stop valve
filter
cooling operation
heating operation

Noise level test chart and air velocity distribution

Noise level test chart

MODEL: ASD12UI



Air velocity distribution

MODEL: ASD12UI

Air velocity distribution

Fig 1
top view
flow control panel horizal
lourer:center

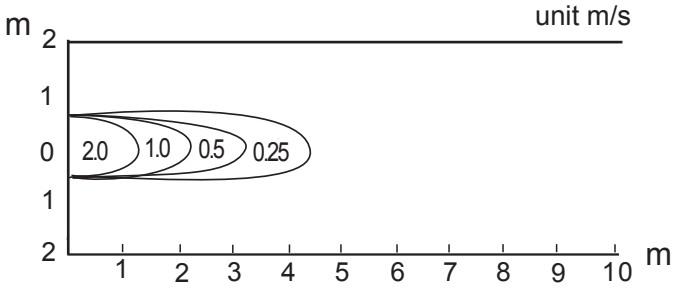


Fig 2
top view
flow control panel horizal
lourer:right and left

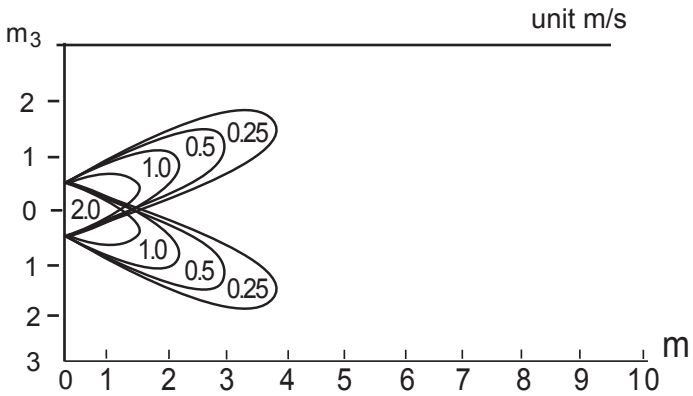


Fig 3
top view
flow control panel horizal
lourer:center

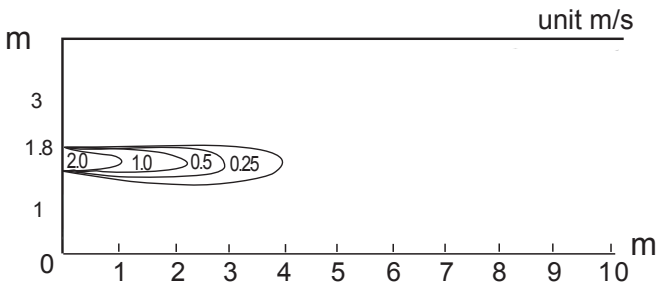
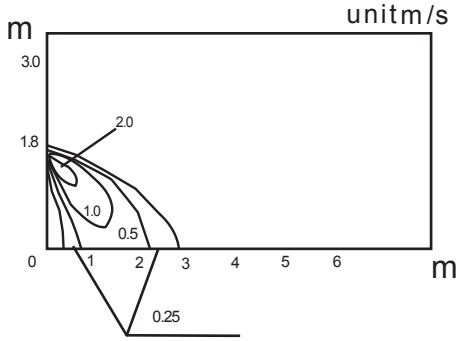


Fig 4
top view
flow control panel vertical
lourer:center



Condition
Fan speed:high
Operation mode:fan
Voltage:230V,50Hz