

# **Airwell duct service manual**

**Service Manual**

SYJS-08-2018 REV.B

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## LOW ESP DUCT TYPE(0/30Pa)

### 1. Features



AWSI-DDV007-N11  
AWSI-DDV009-N11  
AWSI-DDV012-N11



AWSI-DDV018-N11

1. 185mm height ultra thin design and 420mm depth
2. Built in drain pump
3. Ultra low noise: realize 21dB (A) operation noise
4. Rear air return
5. Static pressure 0-30Pa
6. 7 models ranging from 1.5kW to 7.1KW



## 2.

MODEL			AWSI-DDV007-N11	AWSI-DDV009-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	7.5	9.6
	Capacity	kW	2.2	2.8
	Power input	W	56	56
	Current	A	0.26	0.26
Heating	Capacity	kBtu/h	8.5	10.9
	Capacity	kW	2.5	3.2
	Power input	W	56	56
	Current	A	0.26	0.26
	Heating capacity at low temp.	kW	2.0	2.5
Operating current		A	0.26	0.26
Power consumption		kW	0.056	0.056
Indoor motor	Brand		Broad Ocean/Welling	Broad Ocean/Welling
	Model		Y5S413B5116/YSK20-4I-2	Y5S413B5116/YSK20-4I-2
	Type		AC	AC
	Insulation class		B	B
	IP class		IP20	IP20
	Power Input	W	48	48
	Power output	W	25/23	25/23
	Capacitor	μF	1.5/3.0μF	1.5/3.0μF
	Speed (High/Middle/Low)	rpm	950/765/600	950/765/600
Indoor fan	Brand		Haier	Haier
	Type		centrifugal	centrifugal
	Quantity		2	2
Indoor coil	a. Number of rows		2	2
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3
	c. Fin spacing	mm	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	
	f. Coil length×height×width	mm	640/210/26.6	640/210/26.6
	g. Number of circuits		3	3

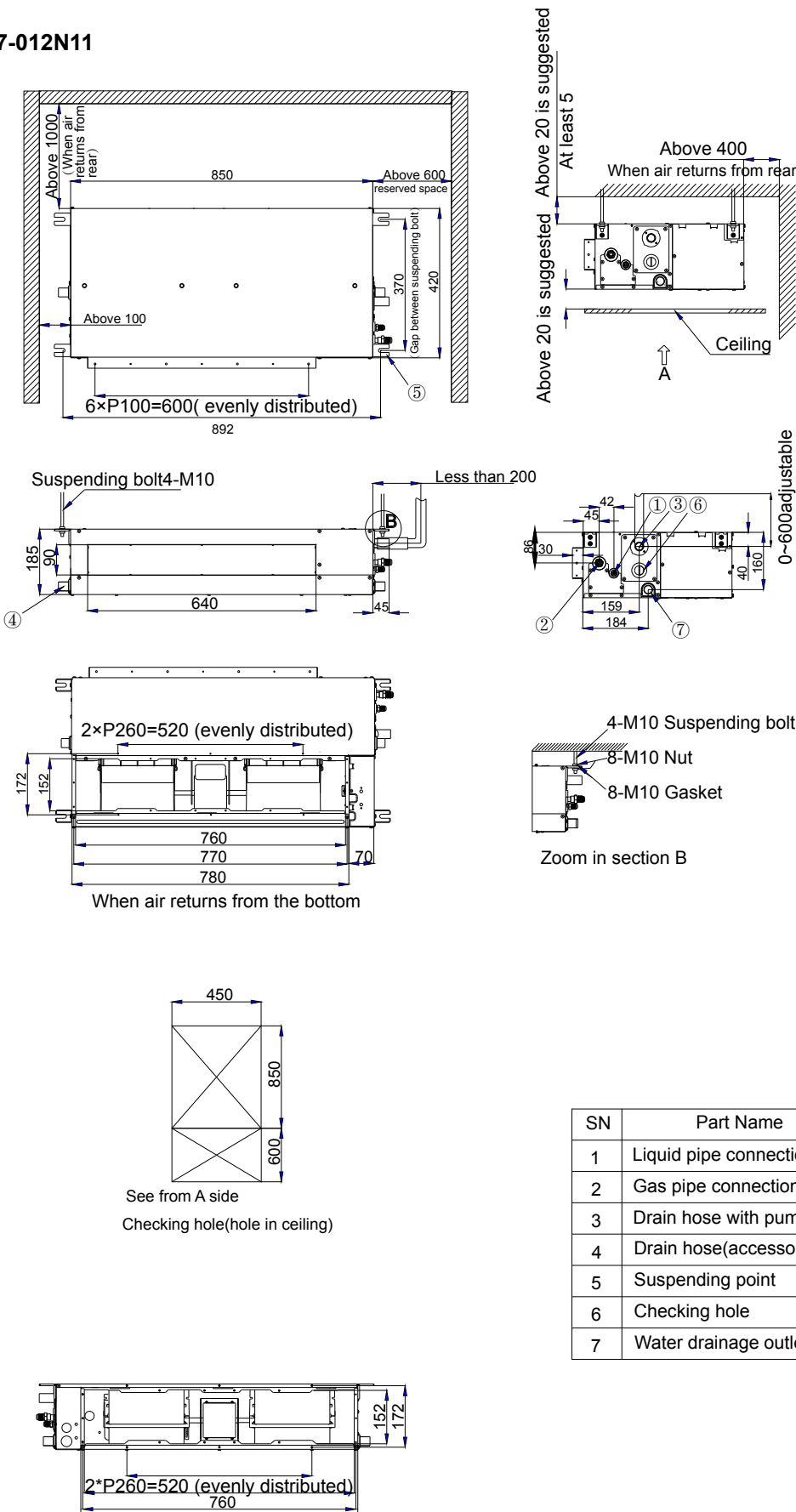
MODEL			AWSI-DDV007-N11	AWSI-DDV009-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		0.8	0.8
	Drain pan material		PS	PS
	Drain pan insulation		20	20
	Drain pump option		Standard 600mm	Standard 600mm
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	0.8	0.8
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	6.35	6.35
	Gas pipe	mm	9.52	9.52
	Drain hose	mm	25	25
Fresh air dimension		mm	Φ80	Φ80
Sound pressure level (H/M/L)		dB (A)	27/24/21	27/24/21
Sound power level (H/M/L)		dB (A)	41/38/35	41/38/35
Standard static pressure		Pa	0	0
Max. static pressure		Pa	30	30
		m <sup>3</sup> /h	480/420/360	480/420/360
Air outlet dimensions		mm	640/90	640/90
Air return dimensions		mm	760/152	760/152
Dimension (W*H*D)		mm	850/185/420	850/185/420
Packing (W*H*D)		mm	1045/270/540	1045/270/540
Net weight		kg	17.5	17.5
Gross weight		kg	22.5	22.5
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

MODEL			AWSI-DDV012-N11	AWSI-DDV018-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	12.3	19.1
	Capacity	kW	3.6	5.6
	Power input	W	56	80
	Current	A	0.26	0.37
Heating	Capacity	kBtu/h	13.6	21.5
	Capacity	kW	4.0	6.3
	Power input	W	56	80
	Current	A	0.26	0.37
	Heating capacity at low temp.	kW	3.2	5.0
Operating current		A	0.26	0.37
Power consumption		kW	0.056	0.08
Indoor motor	Brand		Broad Ocean/Welling	Broad ocean
	Model		Y5S413B5116/YSK20-4I-2	Y5S413B899
	Type		AC	AC
	Insulation class		B	B
	IP class		IP20	IP20
	Power Input	W	48	72
	Power output	W	25/23	44
	Capacitor	μF	1.5/3.0μF	3.5μF
	Speed (High/Middle/Low)	rpm	950/765/600	1030/880/780
Indoor fan	Brand		Haier	Haier
	Type		Centrifugal	Centrifugal
	Quantity		2	3
Indoor coil	a. Number of rows		2	2
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3
	c. Fin spacing	mm	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	
	f. Coil length×height×width	mm	640/210/26.6	960/210/26.6
	g. Number of circuits		3	4

MODEL			AWSI-DDV012-N11	AWSI-DDV018-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		0.8	0.8
	Drain pan material		PS	PS
	Drain pan insulation		20	20
	Drain pump option		Standard 600mm	Standard 600mm
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	0.8	0.8
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	6.35	6.35
	Gas pipe	mm	12.7	12.7
	Drain hose	mm	25	25
Fresh air dimension		mm	Φ80	Φ80
Sound pressure level (H/M/L)		dB (A)	30/28/25	33/30/28
Sound power level (H/M/L)		dB (A)	44/42/39	47/44/42
Standard static pressure		Pa	0	0
Max. static pressure		Pa	30	30
		m <sup>3</sup> /h	550/430/370	800/690/580
Air outlet dimensions		mm	640/90	960/90
Air return dimensions		mm	760/152	1080/152
Dimension (W*H*D)		mm	850/185/420	1170/185/420
Packing (W*H*D)		mm	1045/270/540	1365/270/540
Net weight		kg	17.5	22.2
Gross weight		kg	22.5	28.2
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

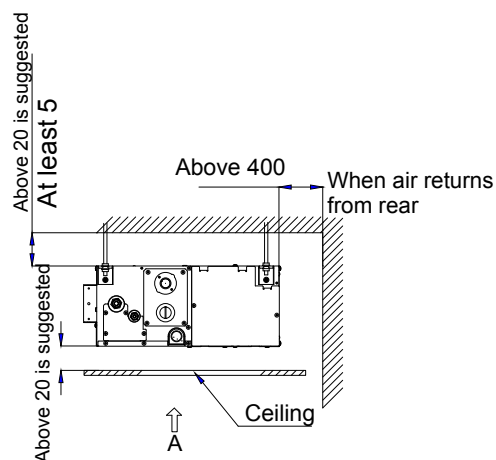
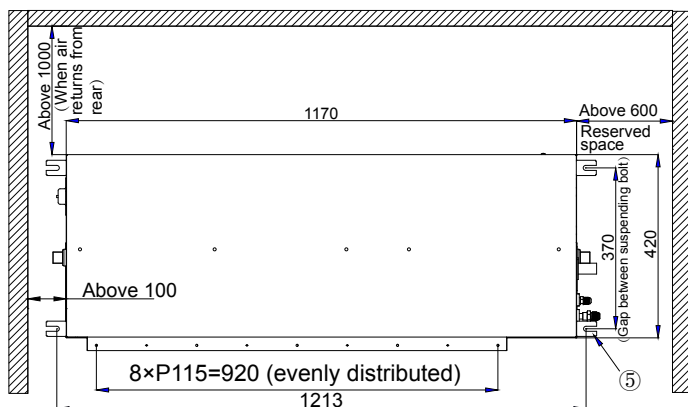
3. Dimension

AWSI-DDV007-012N11

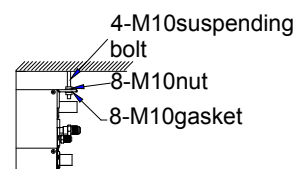
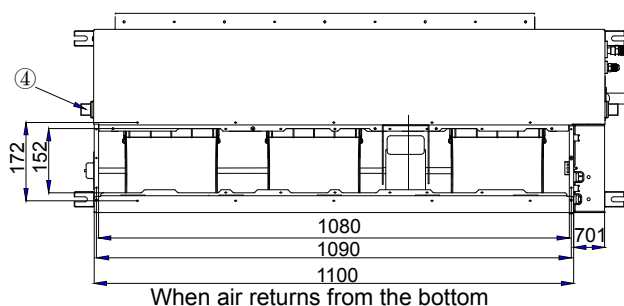
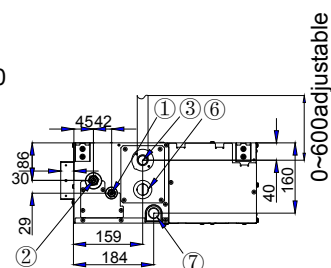
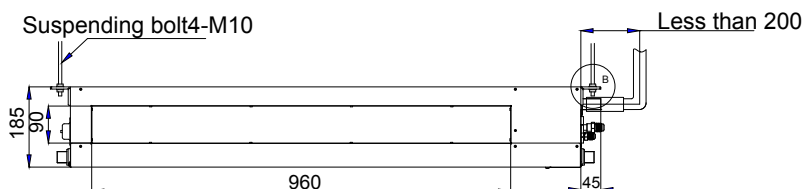


SN	Part Name
1	Liquid pipe connection
2	Gas pipe connection
3	Drain hose with pump
4	Drain hose(accessory)
5	Sustaining point
6	Checking hole
7	Water drainage outlet

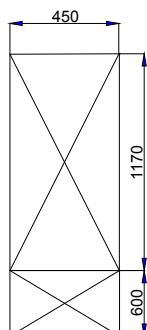
AWSI-DDV018-N11



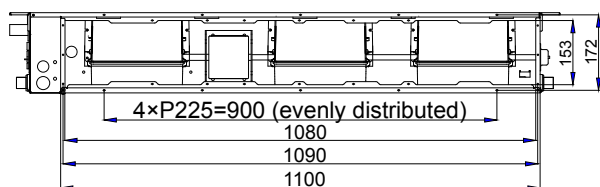
Suspending bolt4-M10



Zoom in section B

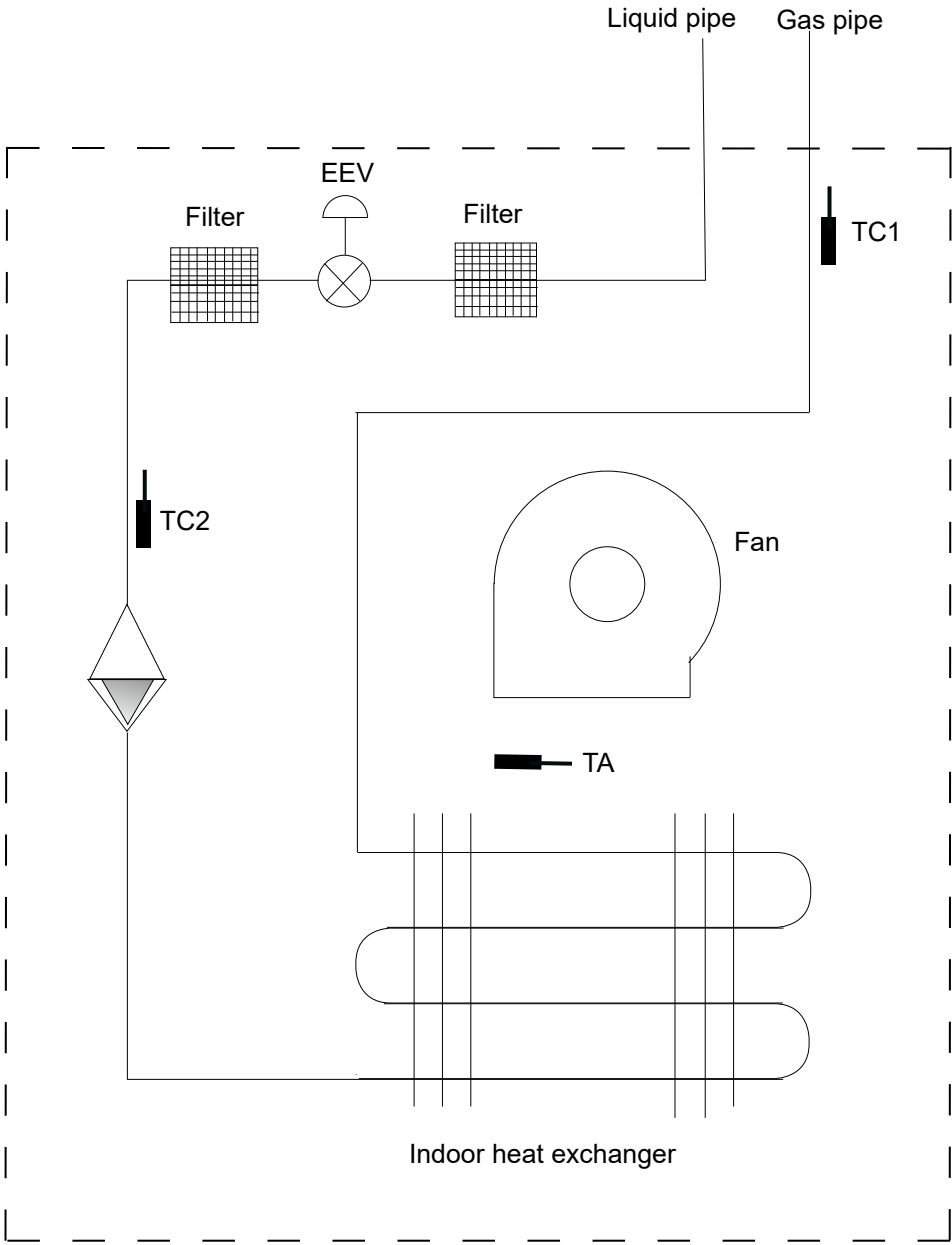


See from A side  
checking hole (hole in  
ceiling)

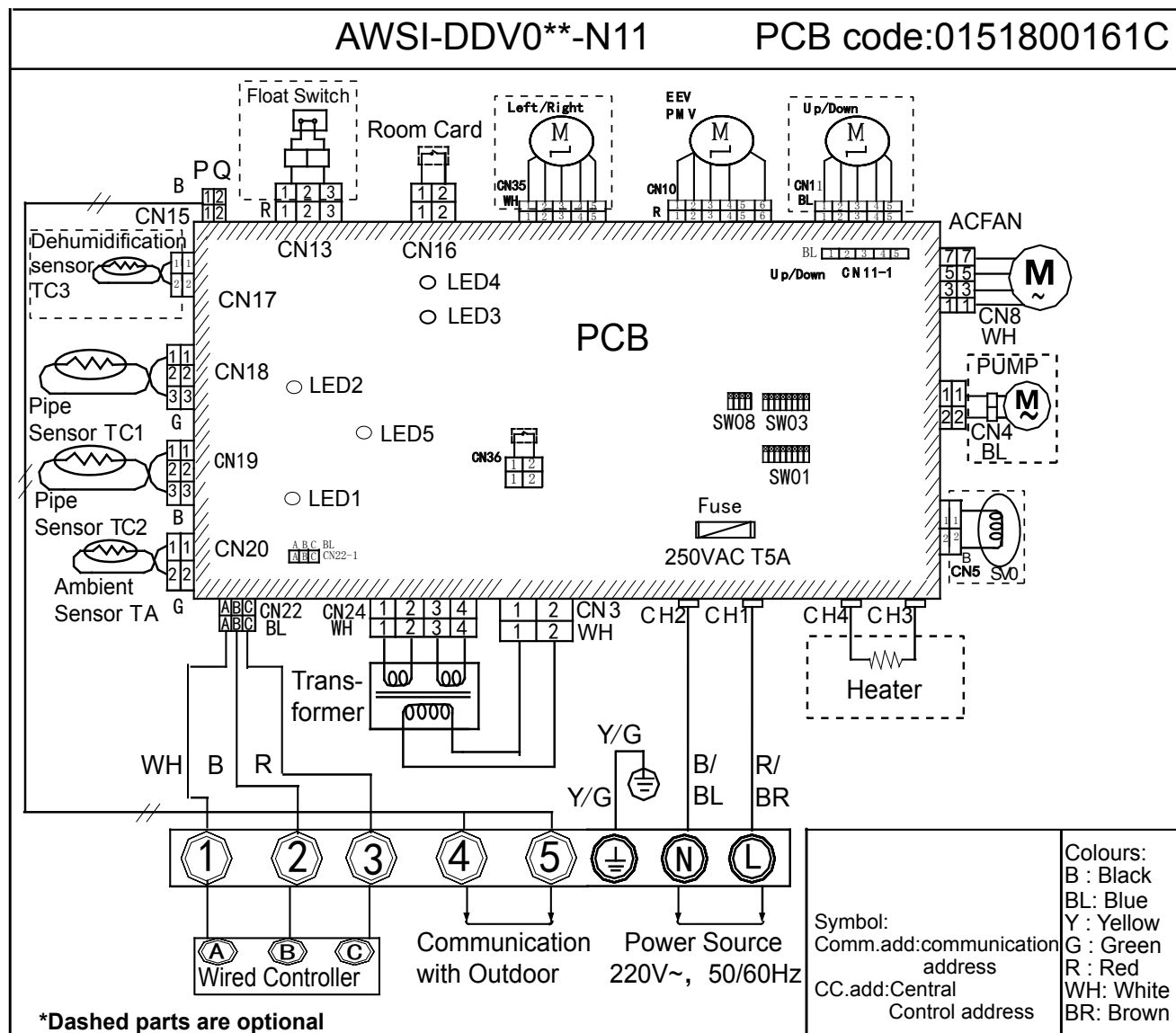


SN	Part Name
1	Liquid pipe connection
2	Gas pipe connection
3	Drain hose with pump
4	Drain hose (accessory)
5	Suspending point
6	Checking hole
7	Water drainage outlet

4. Piping diagram



## 5. Wiring diagram





## 6. Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AWSI-DDV007-N11	1	50/60	220	198-242	0.24	0.76	23	0.19	56	56
AWSI-DDV009-N11	1	50/60	220	198-242	0.24	0.76	23	0.19	56	56
AWSI-DDV012-N11	1	50/60	220	198-242	0.38	1.2	23	0.3	56	56
AWSI-DDV018-N11	1	50/60	220	198-242	0.38	1.2	44	0.3	80	80

### Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

### Note:

#### 1. Voltage range

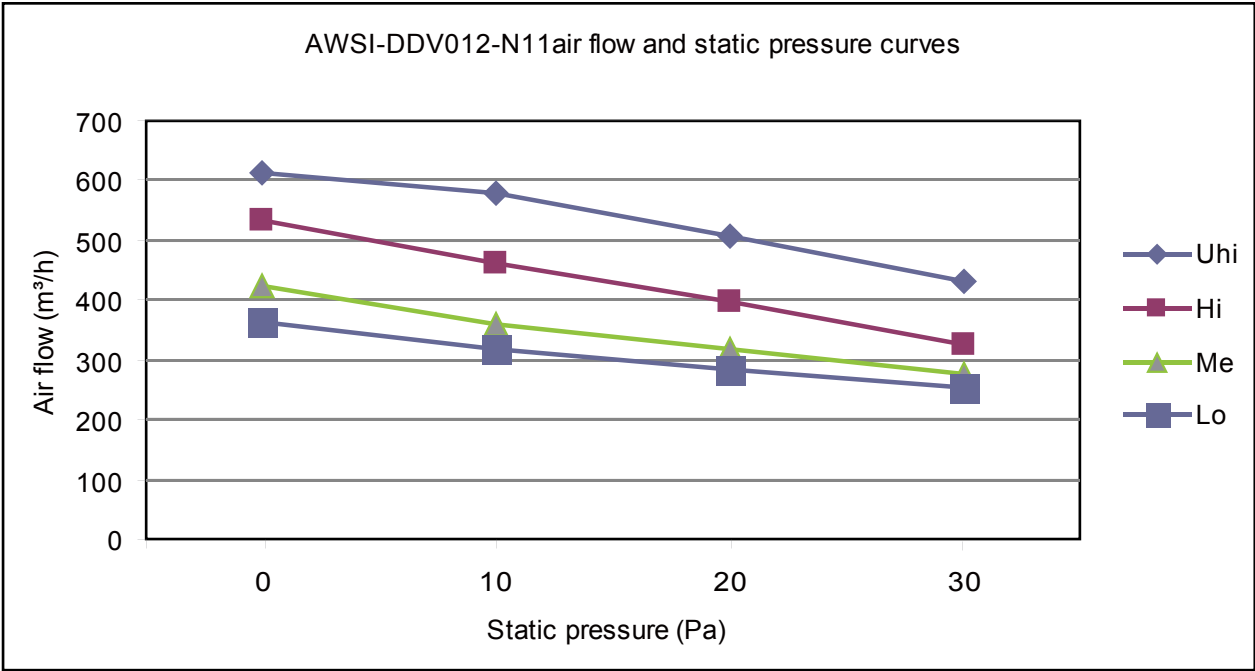
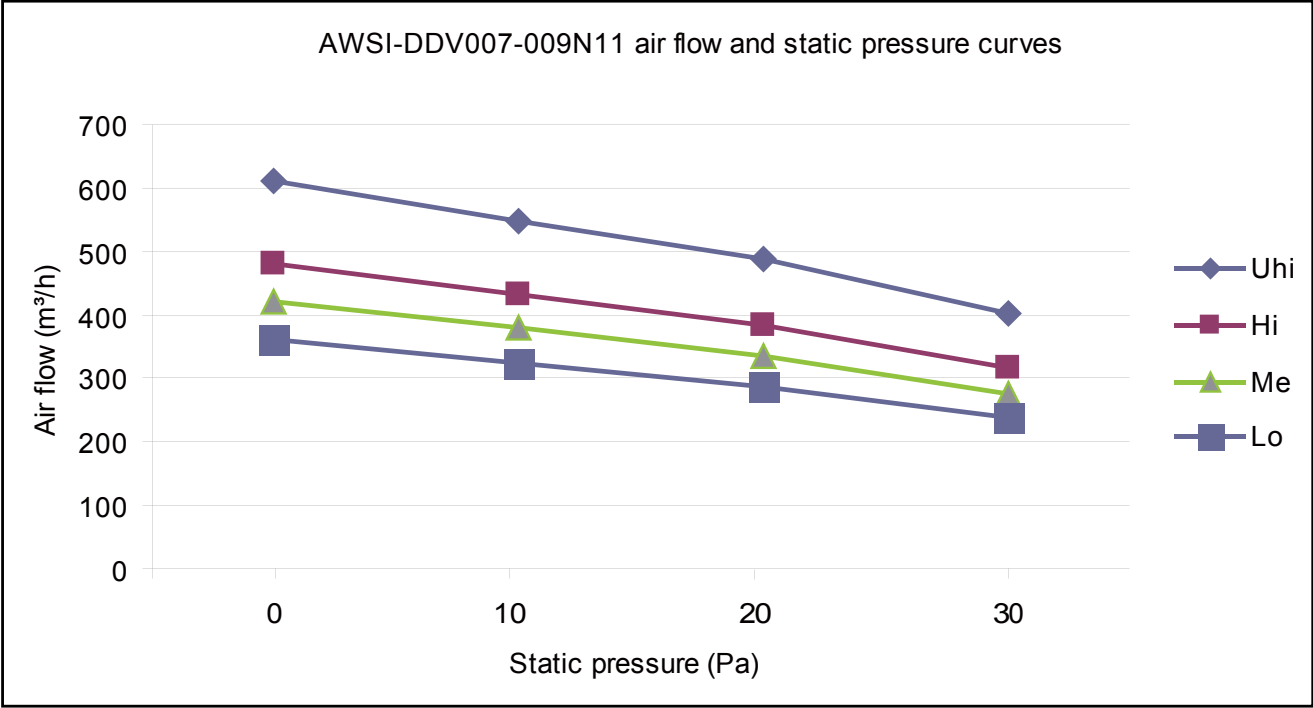
*The units are applicable for the electrical systems where voltage supplied to unit is in the range.*

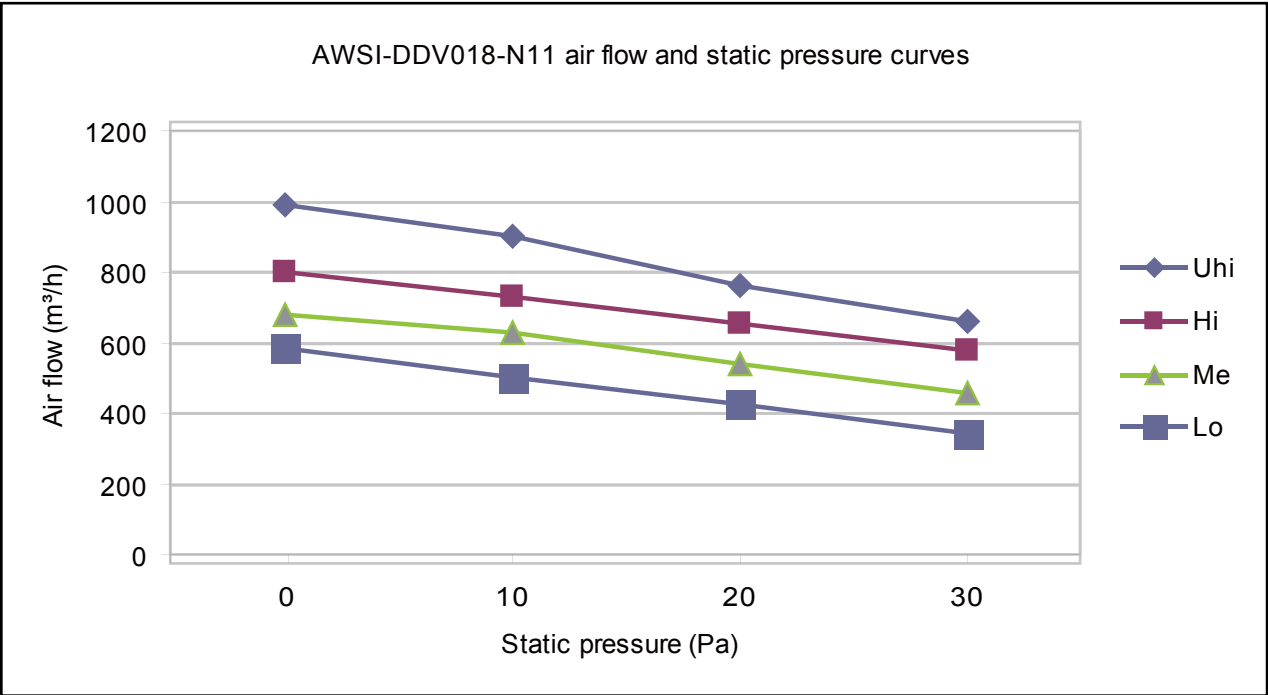
#### 2. Maximum allowable voltage unbalance between phases is 2%.

#### 3. $MCA=1.25*FLA$ $MFA\leq 4*FLA$

#### 4. Power supply uses the circuit breaker.

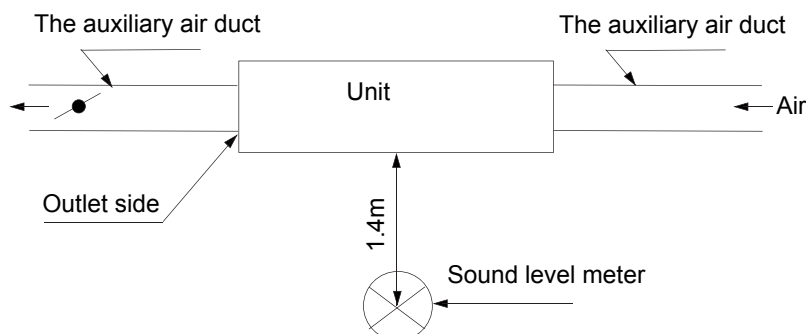
7.





## 8. Sound pressure level

(1) Testing illustrate:



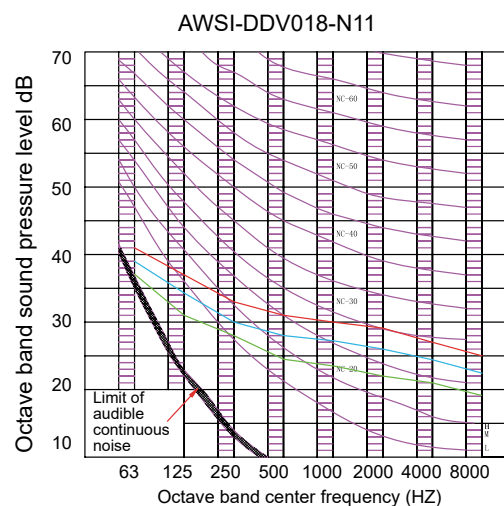
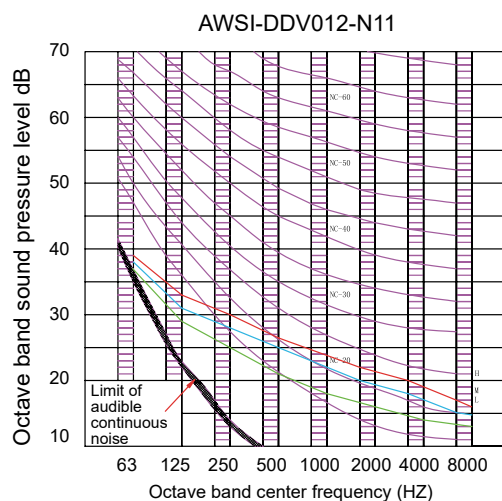
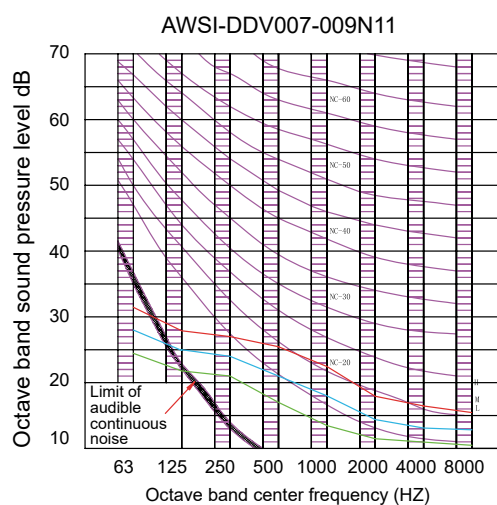
Testing position just below the central of the unit

**Note:** The length of the auxiliary air duct is 2m

(2) Testing condition:

- Unit running in the standard condition
- Test in the semi-anechoic chamber
- Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:



## 9. Installation

### 9.1 Installation Procedures

If you have any problem on product, contact the local Airwell distribution center.

Please use the standard tools according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

**1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.**

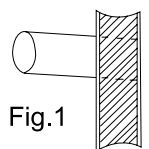
Places with high salinity (beach), high sulfured gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

#### Indoor Units

- (1) The distance between wind outlet port and the ground should not be more than 2.7m.
- (2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.
- (3) Ceiling construction must be hard enough to hold the weight of the unit.
- (4) Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.
- (5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.
- (6) Please read the attached installation instruction of outdoor units for regulation of amount of refrigerant if necessary.
- (7)
- (8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

**2. The following steps can be taken after selecting the installation place:**

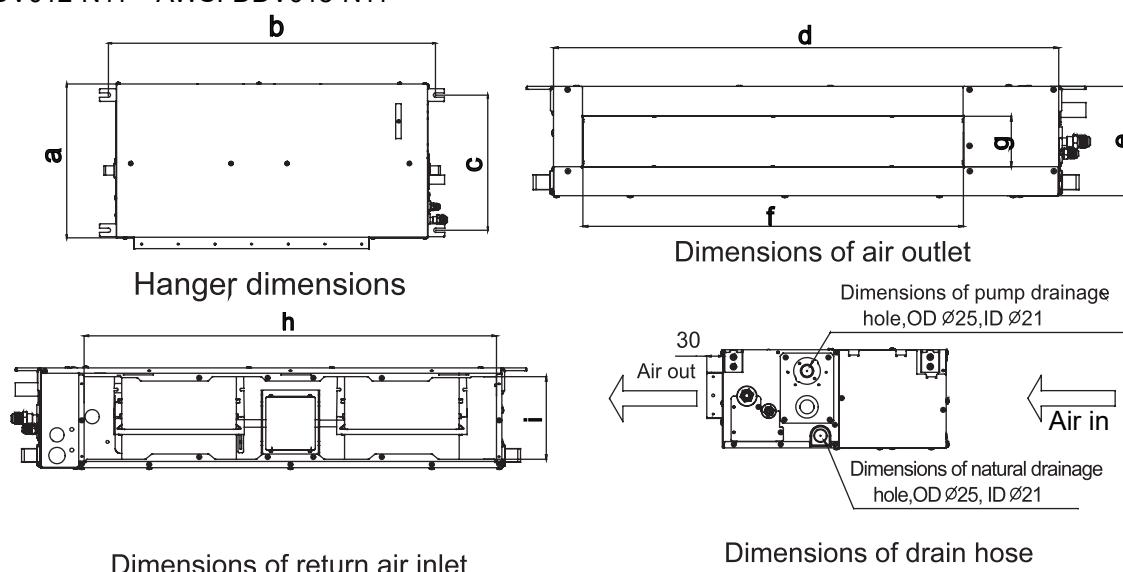
- (1) Cut a hole in the wall and insert connection pipe and connecting wires through a locally purchased PVC pipe. The hole should be inclined slightly downward with an inclination of at least 1/100 (see Figure 1).
- (2) Before cutting the hole, ensure no pipe or rebar is placed behind the cutting position. Avoid cutting a hole at the place of wires or connection pipes.
- (3) Hang the unit on a horizontal and firm roof. If the unit base is not stable, it may cause noise, vibration or leakage.
- (4) Support the unit firmly and change the shapes of connection pipe, connecting wires and drain pipe to make them easily get through the hole.



### 3. Dimension (unit: mm).

Model	a	b	c	d	e	f	g	h	i
AWSI-DDV007-N11 AWSI-DDV009-N11 AWSI-DDV012-N11	420	892	370	850	185	640	90	760	152
AWSI-DDV018-N11	420	1212	370	1170	185	960	90	1080	152

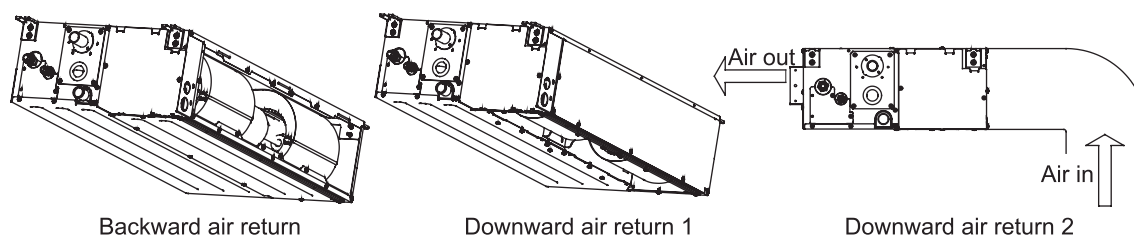
AWSI-DDV007-N11 AWSI-DDV009-N11  
 AWSI-DDV012-N11 AWSI-DDV018-N11



#### Installation modes of Indoor unit

This series of air conditioners can be arranged in two air return modes:

1. Backward air return (factory default);
- 2.



#### Note:

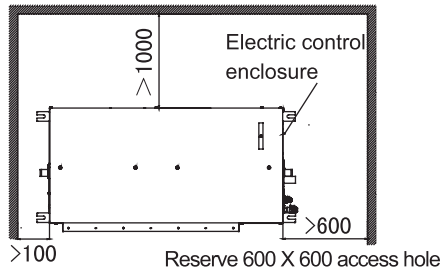
*The downward air return mode would cause much more noise. It is recommended to install the air conditioner in downward return air mode 2 if enough space is available.*

#### Installation space and method

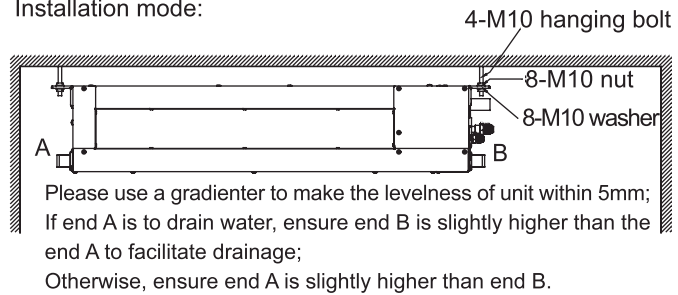
##### Body installation

1. Use M10 lifting bolts.
2. Ceiling removal: For different building structures, please consult with indoor decoration personnel about actual conditions.
  - a. Ceiling reinforcement: To ensure the ceiling is horizontal and will not shake, the ceiling base frame must be reinforced.
  - b. Cut off and remove the ceiling base frame.
  - c. Reinforce the end faces left when the ceiling is removed and further reinforce the base frame that both ends of the ceiling.
  - d. After the body installation is complete, it is time to install pipes and wires. Before installation, choose a suitable installation position and determine the outgoing direction of pipes. Especially in case that a ceiling exists, please pull refrigerant tubing, drain hose, indoor and outdoor connecting wires, control wires to their connection positions prior to hanging the machine.

**Installation space:**

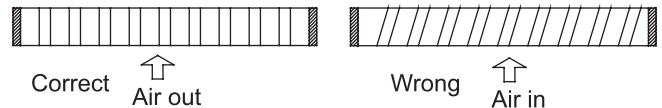


**Installation mode:**



**Installation of air-inlet grille**

The angle of air-inlet grille should be parallel with that of air inlet direction, otherwise it will cause more noise. As



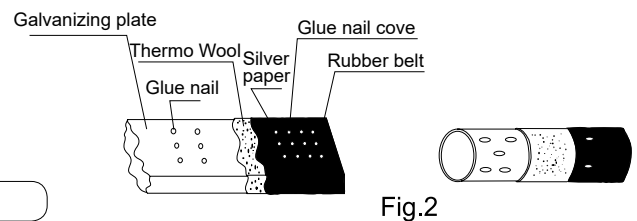
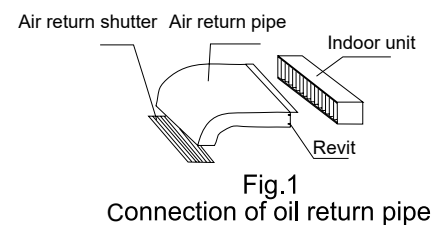
**Installation of Duct Pipe of Indoor Units:**

**1. Installation of the air blowing pipe:**

With a square blast pipe, the bore shouldn't be less than the sizes of air outlet pipe.

**2. Installation of the air return pipe:** Connect one side of the air return pipes to the air return port of the indoor units with rivets, with the other side connected to air return shutter, as shown in Fig.1.

**3. Heat Preservation of Blast Pipes:** Heat preservation lays should be provided for air blowing & return pipes. Paste glue nails on the blast pipes and attach thermo wool, which covered by a layer of silver paper glue nail cover, and then seal the joint with silver paper.



The fan has red and white terminals. Its air outlet is set to the standard before delivery. If a high-performance or other optional devices is used to increase static pressure, it is required to change the connection of connector on the side of control enclosure as shown in the following.

Standard Style(given in Factory)					High Wind Speed Style					
Control Box	Yellow	white	white	Yellow	Control Box	Yellow	white	red	Yellow	Fan Down-lead End
	Black			Orange		Black				
	Blue			Black		Blue				
	Red			Blue		Red				

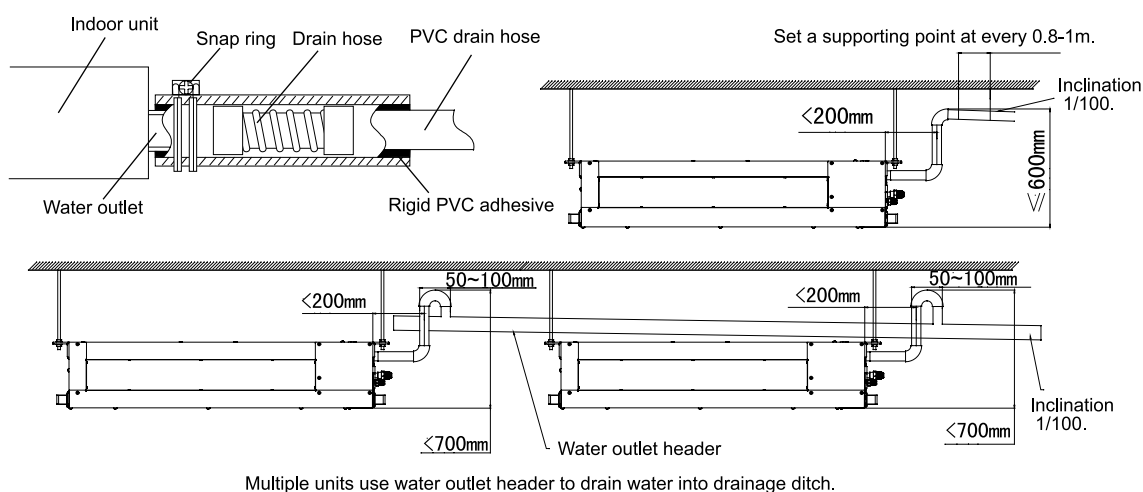
**Static pressure range Unit: Pa**

Standard static pressure	Maximal static pressure
0	30

## Installation of drain hose

### Connection of indoor drain hose

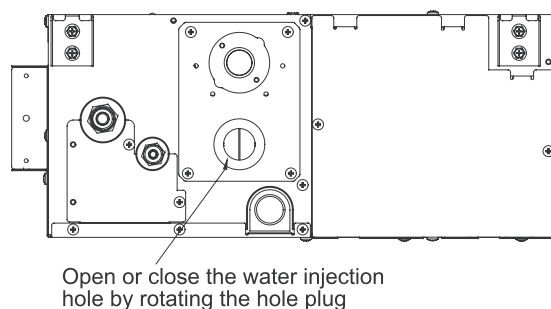
1. Please use accessory drain hose to connect indoor unit's water outlet and PVC pipe and use snap rings to
2. Please use rigid PVC adhesive for connection of other pipes and ensure there is no leakage.
3. Drain hose must be wrapped up with insulation sleeve and tightened with strap to prevent air leaked in producing condensate.
4. To prevent water back into air conditioner when it stops running, drain hose shall decline to the drainage side with a declination of above 1/100. Drain hose expansion or water accumulation shall be prevented, or else it will cause abnormal noise.
5. When connecting the drain hose, do not pull on it so as to avoid the pipe connections getting loose or off. Drain hose should not be pulled out laterally for more than 20cm and should be supported every 0.8-1.0m to avoid bending.
6. The end of drain hose should be more than 50mm away from the ground or the bottom of drainage tank. It should not be put in water. To directly drain condensate into drainage ditch, the drain hose must be U-shaped to avoid stink spreading through the hose into room.



### Drainage test

Before test, ensure the drain hose is unblocked and all connections are tightly sealed and then perform the drainage test as follows:

1. Inject about 500ml water into the water pan through water injection hole;
2. Switch on the power and make air conditioner operate in refrigerating mode. Check whether the water outlet drains water normally and there are no leakages on connections. After the drainage test is complete, replace the water injection hole plug. For





## Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

## T

Special tools for R410A should be used for cutting and enlarging pipes.

## Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the amount while compressor failure can be caused by

Model		AWSI-DDV 007-009N11	AWSI-DDV 012-018N11
Tubing Size (mm)	Gas pipe	Ø9.52	Ø12.7
	Liquid pipe	Ø6.35	Ø6.35
Tubing Material		Phosphor deoxy bronze seamless pipe (TP2) for air conditioner	

## Connecting Procedures of Refrigerant Tubing

With the soft solder

### Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if

### Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

V

### Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when only connected one master unit.]

### Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

### Connecting



#### 1. Connecting circular terminals:

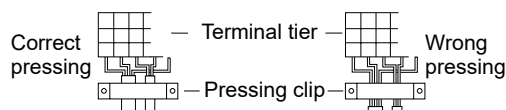
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

#### 2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier

#### 3. Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



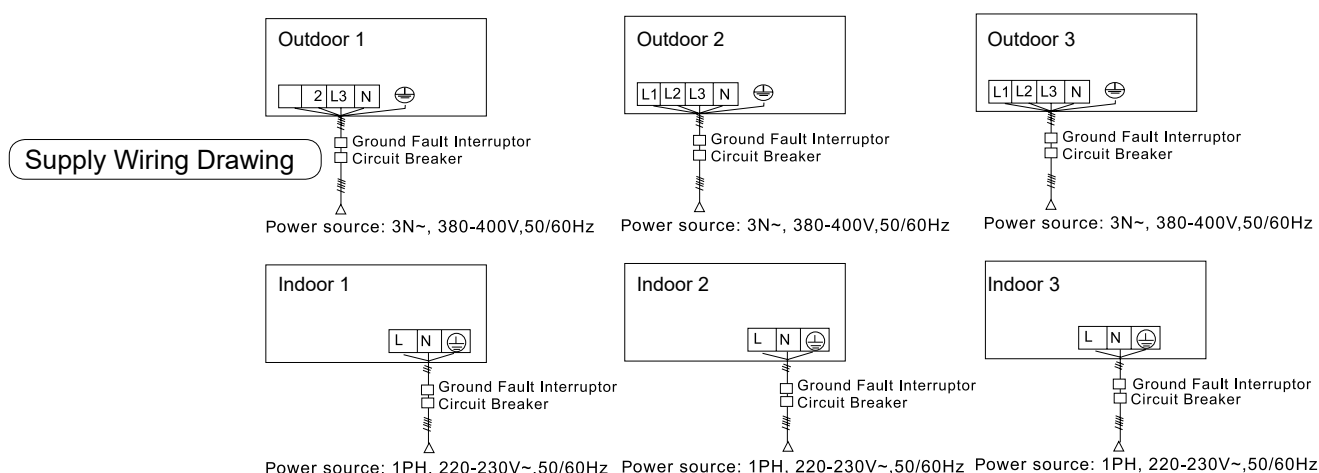
## 9.2 Electrical Wiring

### ⚠ WARNING

- 
- 
- local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightning rod and telephone line.

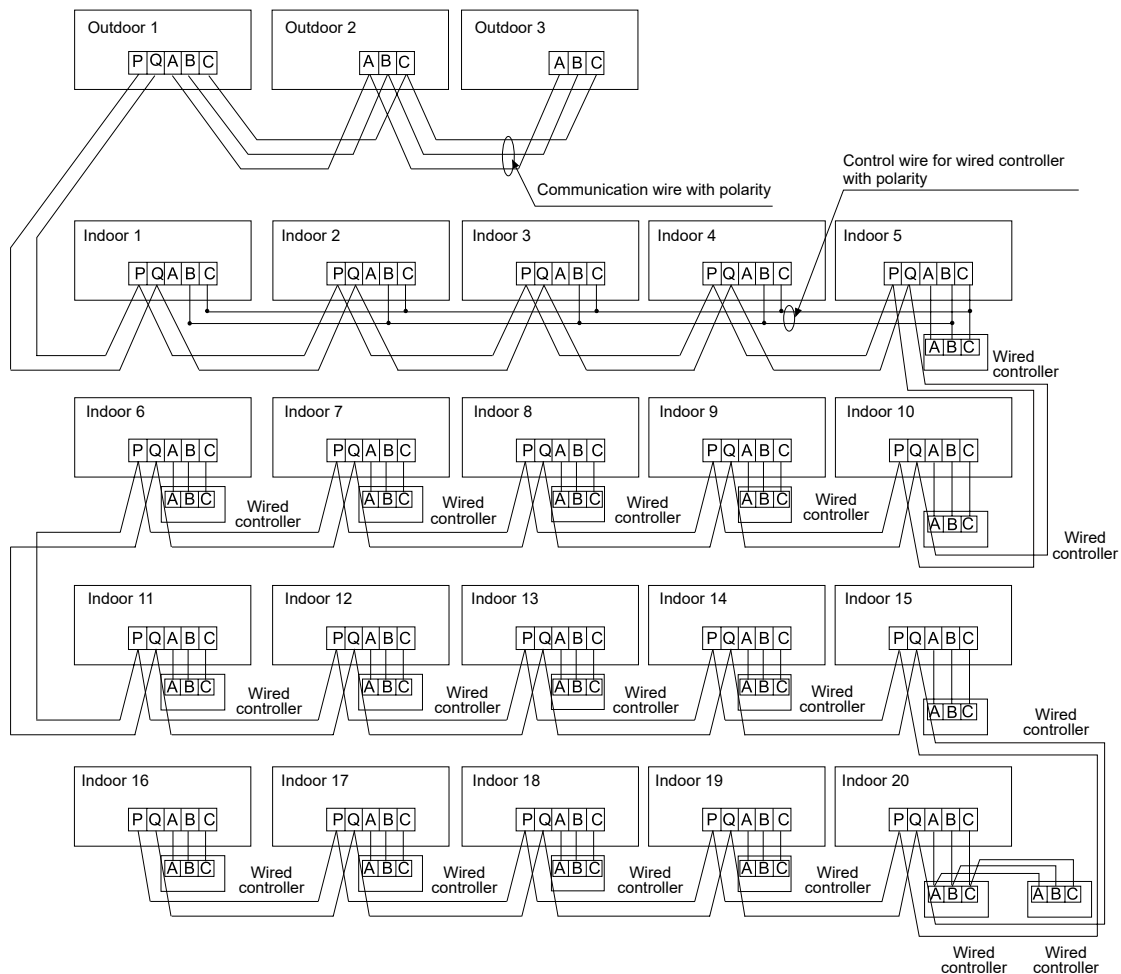
### ⚠ ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- 
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below:  $3 \times 1.0-1.5 \text{ mm}^2$ ; parameters for signal line:  $2 \times 0.75-1.25 \text{ mm}^2$  ( shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one

### Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above (1-5 indoor units).

The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)

The indoor unit

and the wired control are connected via three lines with polarity.

C. T

can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

The combination of multiple indoor units can be controlled by wired controller or remote controller.

※ Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over ※

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[2][3][4]	All OFF	[0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

Indoor power supply wiring & signal wiring between indoor and outdoor & signal wiring between indoors.

Items Total current of indoor units (A)	Cross section (mm <sup>2</sup> )	Length (m)	Rated current of breaker (A)	Rated current of residual circuit breaker (A) Ground fault interrupter (mA) Response time (S)	Cross sectional area of signal line	
					Outdoor-indoor (mm <sup>2</sup> )	Indoor-indoor (mm <sup>2</sup> )
<10	2	20	20	20 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0) mm <sup>2</sup> shielded line	
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below		
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

- The electrical power line and signal lines must be fastened tightly.
- Every indoor unit must have the ground connection.
- The power line should be enlarged if it exceeds the permissible length.
- Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm <sup>2</sup> ×3 core shielded line

※ The shielding lay of the signal line must be grounded at one end.

※ The total length of the signal line shall not be more than 250m.

### 9.3 Test run

#### Before Test Run

Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.

Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

**Check if the arrangements of the drainpipe and connection line are correct.**

The drainpipe shall be placed at the lower part while the connection line placed at the upper part. Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

#### Checkup of Installation

- |   |  |
|---|--|
| <input type="checkbox"/> Check if the mains voltage is matching   | <input type="checkbox"/> Check if the installation place meets the requirement |
| <input type="checkbox"/> Check if there is air leakage at the piping joints                             | <input type="checkbox"/> Check if there is too much noise                      |
| <input type="checkbox"/> Check if the connections of mains power and indoor & outdoor units are correct | <input type="checkbox"/> Check if the connecting line is fastened              |
| <input type="checkbox"/> Check if the serial numbers of terminals are matching                          | <input type="checkbox"/> Check if the connectors for tubing are heat insulated |
|   | <input type="checkbox"/> Check if the water is drained to the outside          |
|   | <input type="checkbox"/> Check if the indoor units are positioned              |

#### Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

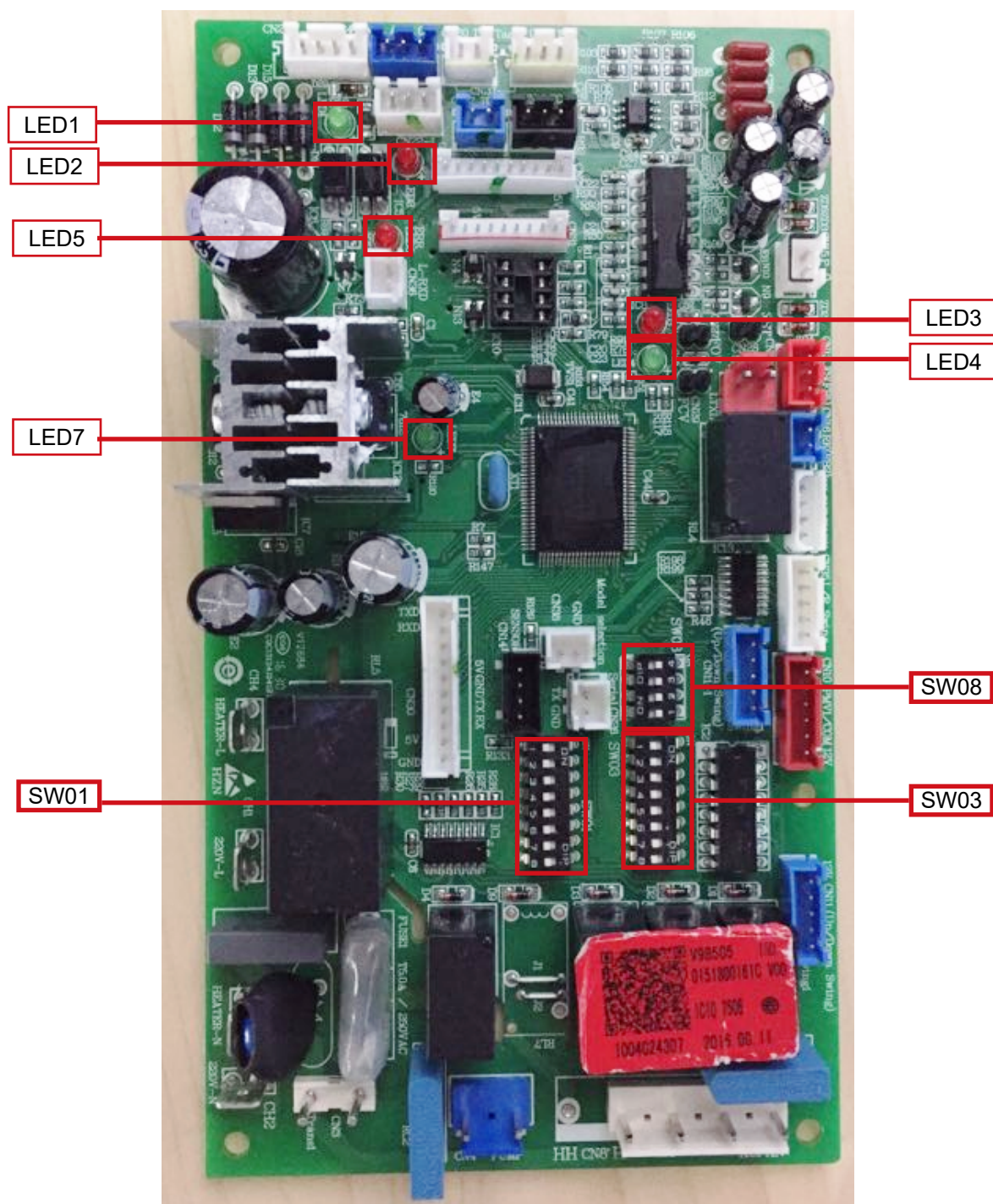
When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

- Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.

## 10. Dip Switch Setting

### 10.1 0151800161C PCB dip switch setting

Used for slim low ESP duct type indoor units: AWSI-DDV007/009/012/018-N11



### LED light introduction:

- LED1, LED2: communication lamp between indoor unit and wired controller.

, these

two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit.

, these

two lamps will light or not light at the same time.

- LED5: malfunction lamp of indoor unit.

times indicate the corresponding failure code.

- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp

### Dip switch introduction:

SW01

SW01_1 SW01_2 SW01_3 SW01_4	Wired control address	[1]	[2]	[3]	[4]	Wired control address
		<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	1# (wired control master unit) (default)
		OFF	OFF	OFF	<u>ON</u>	2# (wired control slave unit)
		OFF	OFF	<u>ON</u>	OFF	3# (wired control slave unit)
		...	...	...	...	...
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	16# (wired control slave unit)
SW01_5 SW01_6 SW01_7 SW01_8	Capacity of indoor unit	[5]	[6]	[7]	[8]	Capacity of indoor unit
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP(AWSI-DDV007-N11)
		OFF	OFF	<u>ON</u>	OFF	1.0HP(AWSI-DDV009-N11)
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP(AWSI-DDV012-N11)
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP(AWSI-DDV018-N11)
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP
		<u>ON</u>	OFF	OFF	OFF	3.0HP



SW03 is used to set indoor unit address

SW03	Set the communication and central control address by dip switch	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	0(default)	0(default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		<b>OFF</b>	...	...	...	...	...	...	...	Set the address automatically (default)	

SW08

SW08_1	WIFI control mode	<u>ON</u>	One by one (default)
		OFF	One by multi
SW08_2	Room card	<u>ON</u>	Room card is unavailable (default)
		OFF	Room card is available
SW08_3	Dual heat source	<u>ON</u>	No dual heat source control (default)
		OFF	Dual heat source control
SW08_4	Operation mode displayed on wired controller	<u>ON</u>	
		OFF	



## 11. Indoor Unit Control

### 11.1 Cooling operation

Set temp. in cooling:  $T_s$ =set temp. wired controller;

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.2 Heating operation

Set temp. in heating:  $T_s$ =set temp. wired controller+TA correcting value.

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.3 Dry operation

Room temp. - set temp.  $> 2^{\circ}\text{C}$  indoor operation is identical with the cooling operation, and send the cooling mode to outdoor;

Room temp. - set temp.  $\leq 2^{\circ}\text{C}$  indoor will send the dry signal to outdoor, and indoor fan motor will run at low speed compulsorily when compressor is running; when room temp.  $< 16^{\circ}\text{C}$  indoor stops and sends stop signal to outdoor. In dry operation, the auto mode of indoor fan motor is identical with the cooling mode; EEV control mode is identical with the cooling operation.

### 11.4 Fan operation

Indoor fan motor will run at the speed set on the wired controller and sends stop signal to outdoor.

### 11.5 Abnormal operation

When the requested mode collides with the outdoor mode, the entering earlier will be in prior. After indoor receives

mode, the indoor will run as the request of wired controller; if it is abnormal mode, the command can not be executed, and indoor keeps stop; wired controller displays standby mode (if in remote control type, the buzzer will sound twice and the remote controller can not receive the signal). Until the outdoor stops or the outdoor mode is accordant with the requested mode of wired controller (remote controller), the outdoor will work. COOL (including AUTO COOL), DRY, RECOVERY are regarded as the same mode; HEAT, RECOVERY are as abnormal mode.

### 11.6 Fan speed control of indoor fan motor

a. Adjustment by hand

Set high/ mid/ low fan speed as the request.

b. Auto fan speed

ference between room temp. TA and the set temp.

c. Anti-cool air control

In heating mode, after compressor startup, the unit will control indoor fan motor state due to the indoor coil temp.

In anti-cool air period, indoor sends pre-heat signal to wired controller; in outdoor defrosting period, indoor fan motor will stop, and sends defrost signal to wired controller;

After being switched off in heating mode, indoor fan motor will run at low speed and 30 seconds later will stop.

### 11.7 Set EEV open angle by hand

When being switched off, short connect CN27 to open the valve fully compulsorily for 2 minutes; When being switched off, short connect CN29 to close the valve fully compulsorily for 2 minutes.

## 11.8 Anti-freezed protection

In cooling mode, execute the anti-freezed protection due to the measured indoor coil temp. to avoid the indoor heat exchanger causing frost or ice.

## 11.9 Swing motor control

Indoor will control swing motor ON/OFF due to the swing signal from wired controller.

## 11.10 Filter cleaning

Check and memorize the running time of indoor fan motor, once arriving the requested time (set by SW07-6), indoor , if

## 11.11 Compulsory defrosting

After indoor receives the compulsory defrosting signal from wired controller, it will send compulsory defrosting signal to outdoor continuously for 10 times. In the sending period, indoor will execute the normal defrost.

## 11.12 Trial operation

Set the mode as cooling (heating), press ON/OFF for 5 seconds to enter compulsory cooling (heating).

In compulsory cooling, display "LL" and COOL

In compulsory heating, display "HH" and HEAT

TEMP +/- are valid.

AUTO. At this time, only ON/OFF,

## 11.13 Autorestart

The autorestart function is apply to all the **Flow Logic** indoor units and the factory setting it is available.

Memory contents: ON/OFF state, running mode, fan speed, setting temperature, swing position and temperature type displayed on panel.

Note:

(1) Temperature type displayed on panel is only used for slim duct, one way cassette and N platform high wall.

(2) If the timer and sleeping function are set, when the units power-on again, the unit is OFF state.

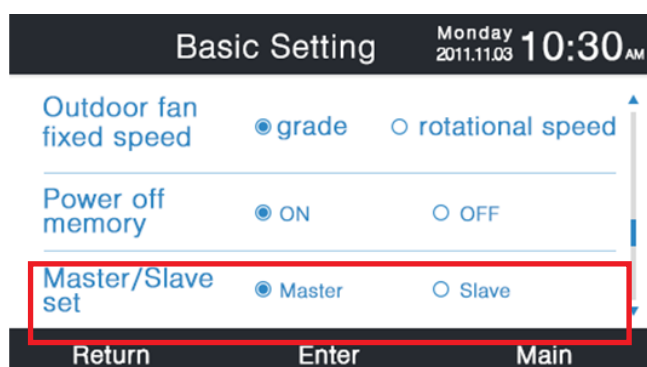
(3) The wired controller setting has the highest priority.

### Setting method by controller:

(1) Wired controller cancel method:

For **RWV05** setting the autorestart function by dip switch SW4

For **RWV07** setting the autorestart function by basic setting interface



(2) Remote controller cancel method:

Press the "HEALTH" button 10 times in 5s, buzzer echoes 4 times, the autorestart function is available; repeat above operations, buzzer echoes 2 times, the autorestart function is unavailable.

### 11.14 26°C lock function

Factory default the 26°C lock function is unavailable.

**Setting method by remote controller:** Power on the unit, in cooling mode, low speed, setting the temperature 26°C. Press the “HEALTH” button of the remote controller 8 times in 5s, buzzer echoes 4 times, the 26°C lock function is available; repeat above operations, buzzer echoes 2 times, the 26°C lock function is unavailable.

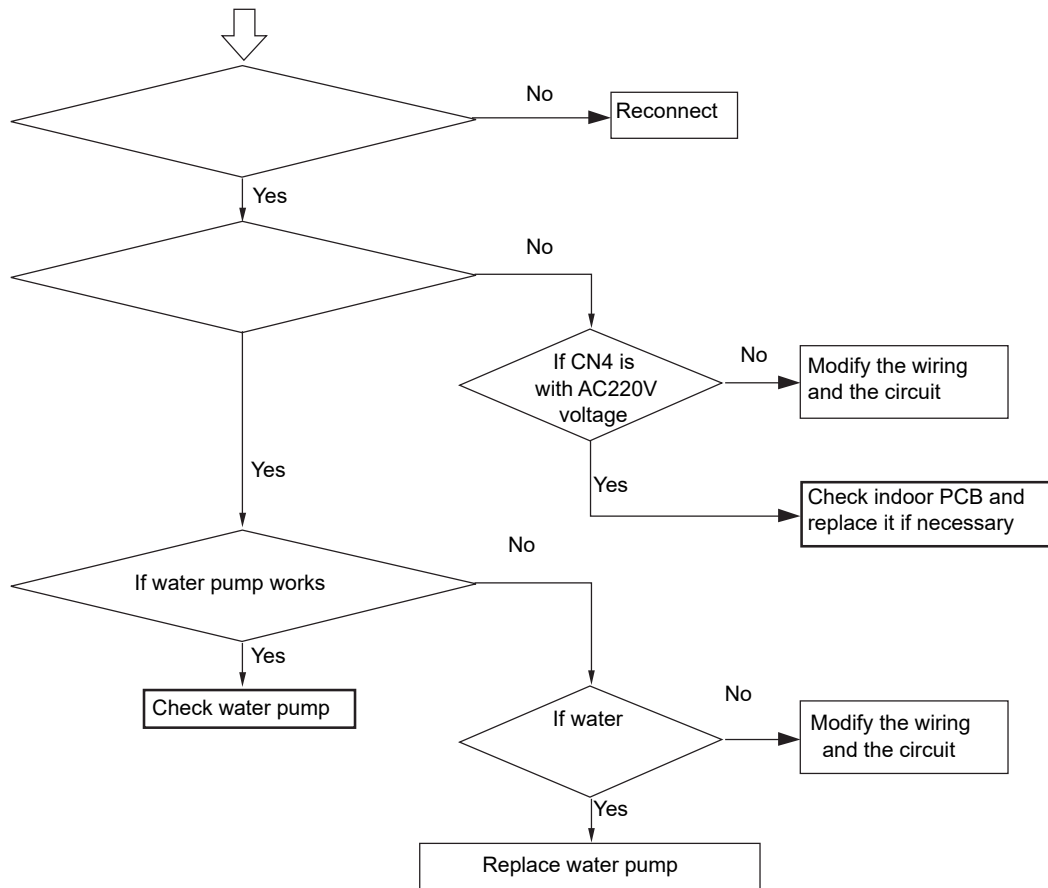
## 12. Failure Code

### Indoor unit failure code

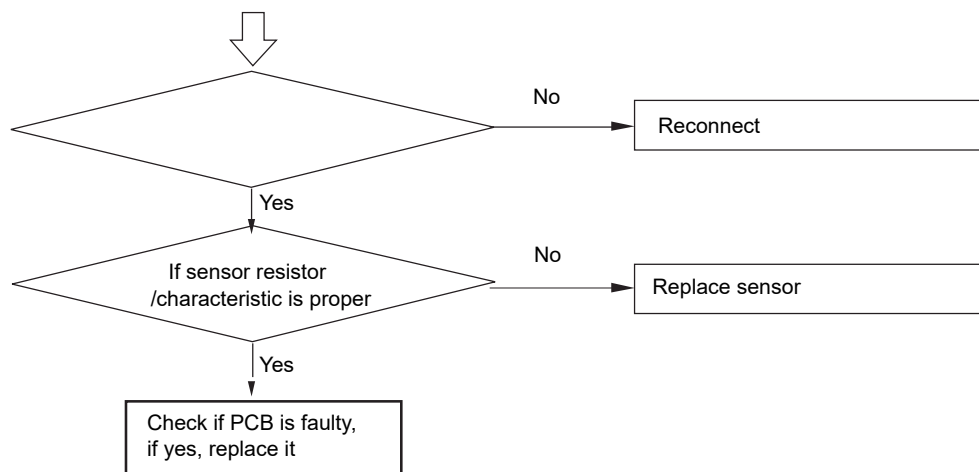
Indication on wired controller	Flash times of LED on indoor PCB/ timer LED on remote receiver		Remark
1	1	Indoor ambient temp. sensor TA failure	Resumable
2	2	Indoor coil pipe temp. sensor TC1 failure	
3	3	Indoor coil pipe temp. sensor TC2 failure	
4	4	Dual heat source sensor TW failure	
5	5	Indoor EEPROM failure	Unresumable
6	6	Communication between indoor and outdoor failure	Resumable
7	7	Communication between indoor and wired controller failure	Resumable
8	8		Resumable
9	9	Indoor address repeated failure	Resumable
0C	12	No 50Hz zero passage signal	Resumable
12	18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
Outdoor failure code	20	Outdoor failure code	Resumable

## 13. Troubleshooting

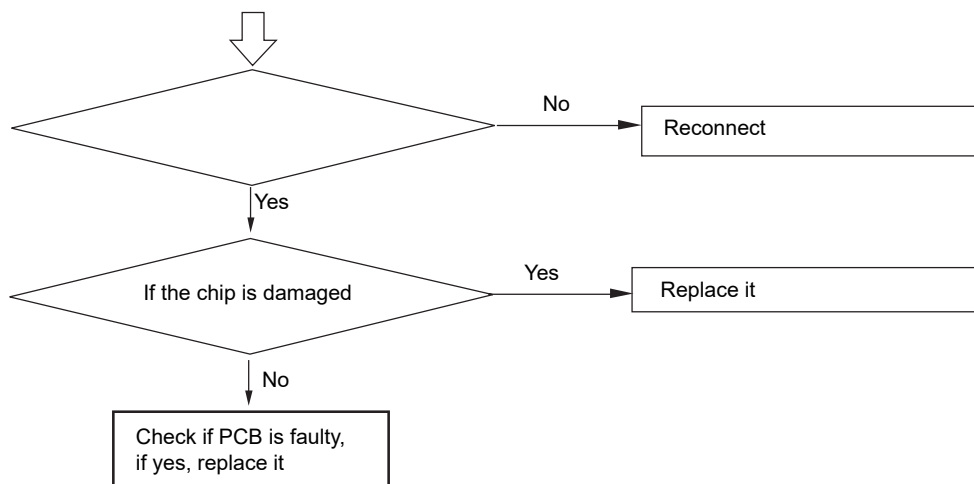
Indoor failure diagnose



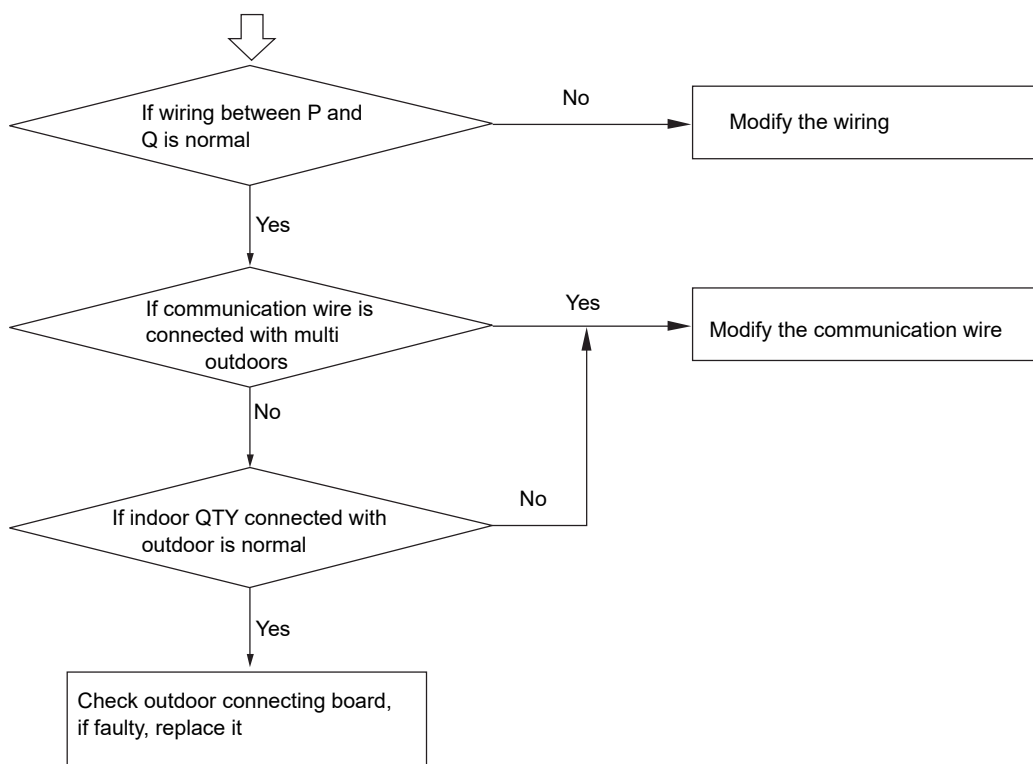
[1/2/3/4/15] Indoor sensor failure



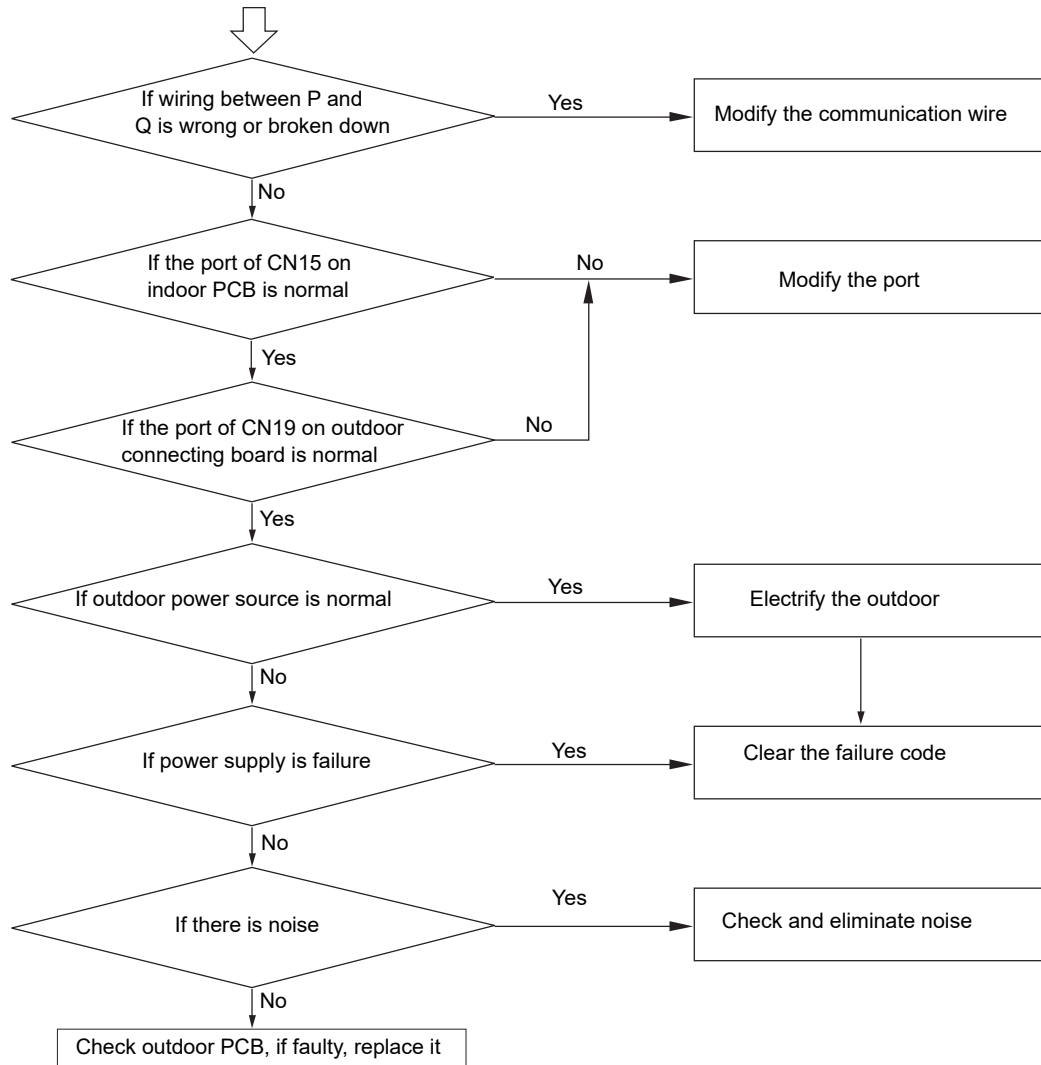
[05] EEPROM failure



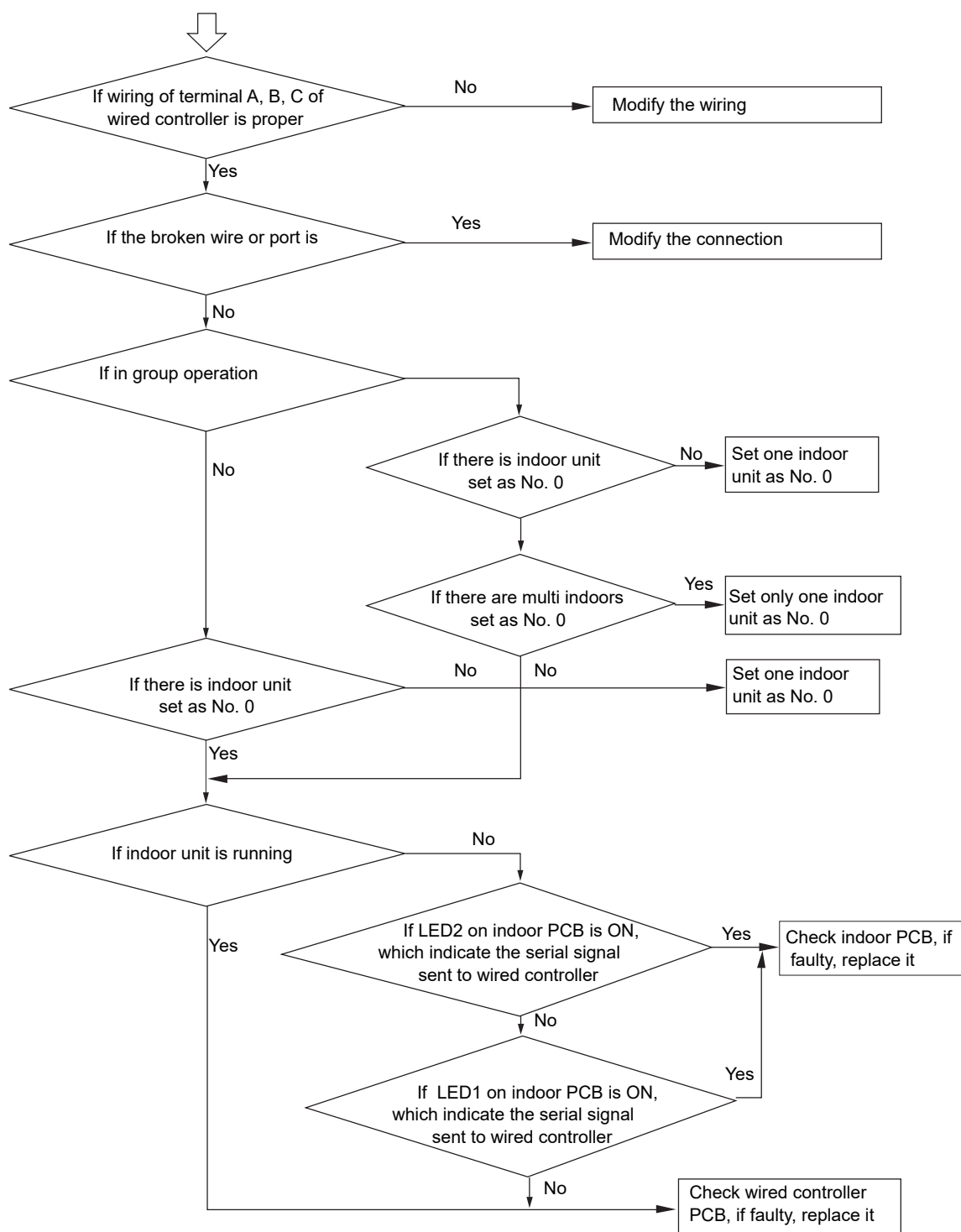
[09] Indoor address repeated



[06] Communication circuit between indoor and outdoor

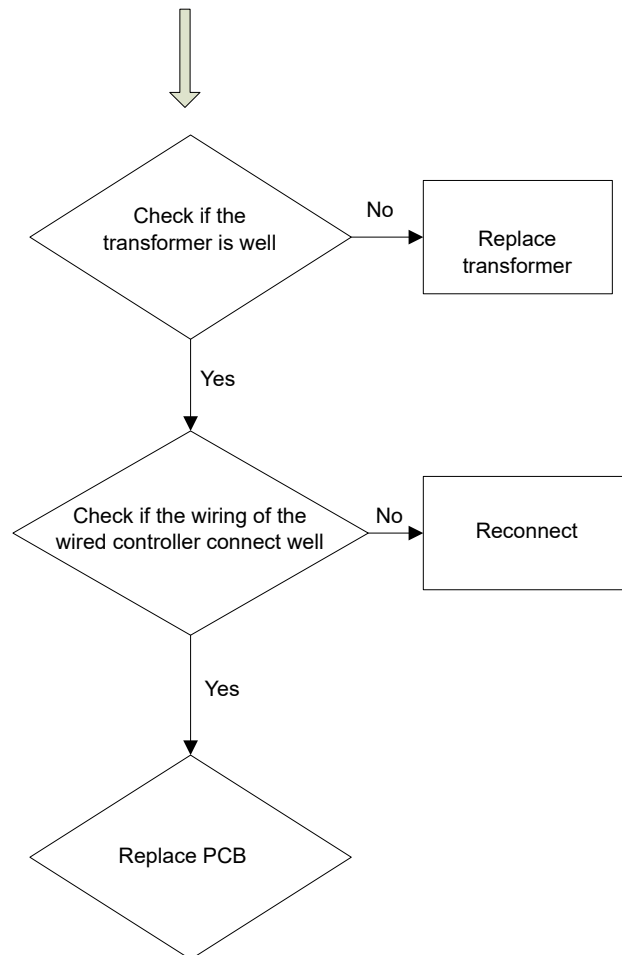


[07] Communication abnormal between indoor and wired controller

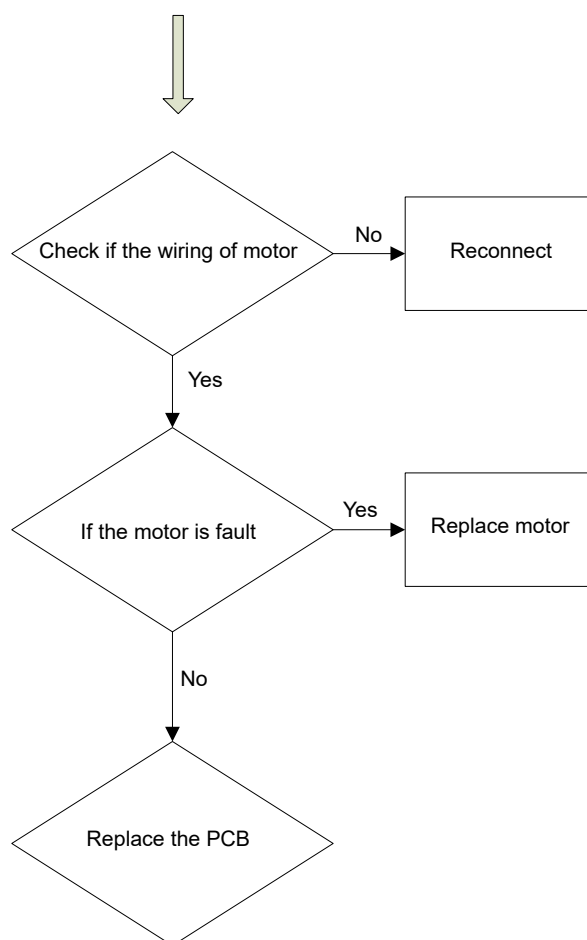




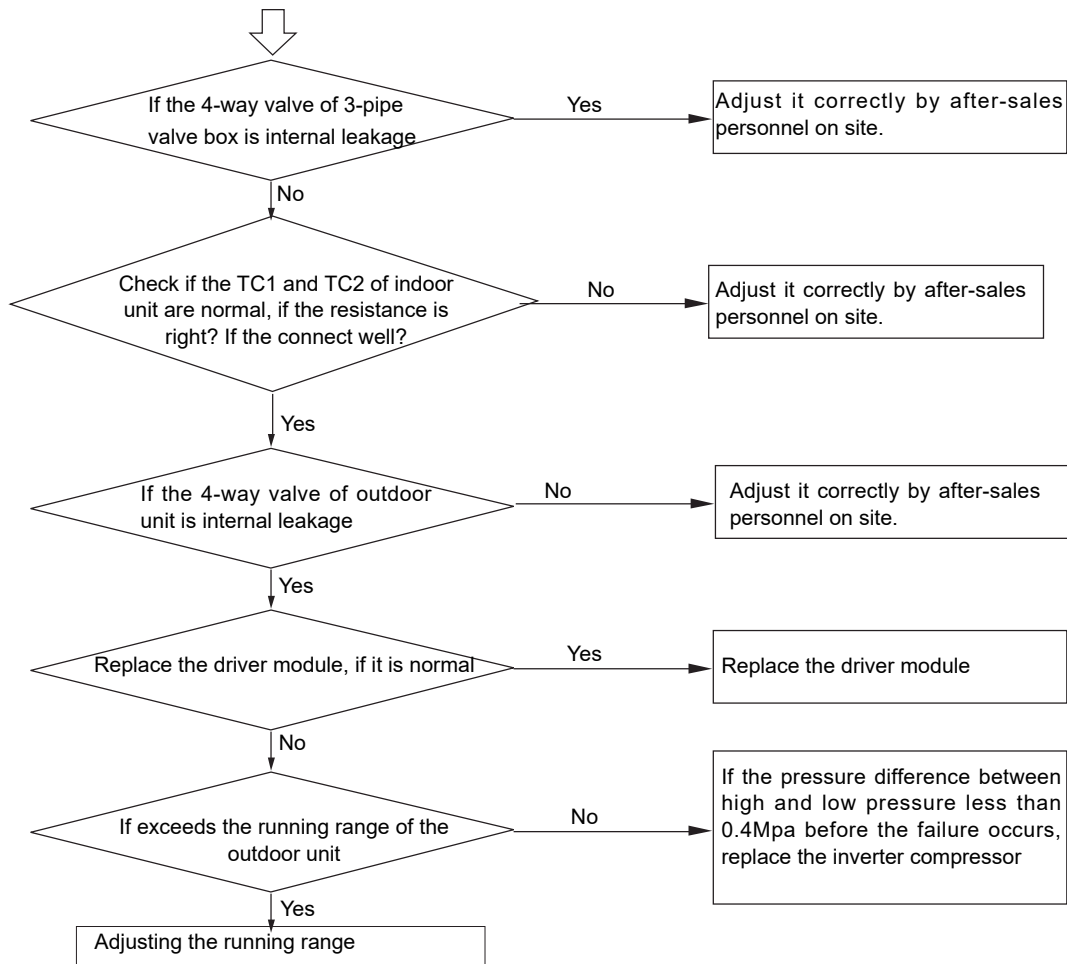
[12] No 50Hz zero passage signal



[14] DC motor failure



[18] The 4-way valve of 3-pipe valve box reversing failure



For MRVIII-RC system, the outdoor unit is running normally, when the 4-way valve of valve box is power on and its connected heating indoor unit's parameter satisfy following conditions

- &
  - When 4-way valve of valve box is ON
  - $TC2 \leq CT - 20^{\circ}C$  lasts for 5min
- or
  - $TC1 \leq 0^{\circ}C$  lasts for 5min
  - $TC1 \leq \text{master unit } Ps\_temp + 10^{\circ}C$  lasts for 5min

## 14. Capacity tables

### Cooling capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100 )	Outdoor Temp.	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
	°C DB	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
15	20	1.5	1.2	1.5	1.3	1.6	1.3	1.6	1.3	1.6	1.4	1.7	1.3	1.8	1.3
	22.5	1.4	1.2	1.5	1.3	1.6	1.2	1.6	1.3	1.6	1.3	1.6	1.3	1.7	1.3
	25	1.4	1.2	1.5	1.3	1.5	1.2	1.6	1.3	1.6	1.3	1.6	1.3	1.7	1.3
	27.5	1.4	1.2	1.4	1.3	1.5	1.2	1.6	1.3	1.6	1.3	1.6	1.3	1.7	1.2
	30	1.4	1.2	1.4	1.3	1.5	1.2	1.5	1.3	1.6	1.3	1.6	1.3	1.7	1.2
	32.5	1.4	1.2	1.4	1.2	1.5	1.2	1.5	1.2	1.6	1.3	1.6	1.3	1.6	1.2
	35	1.4	1.2	1.4	1.2	1.5	1.2	1.5	1.2	1.5	1.3	1.6	1.3	1.6	1.2
	37.5	1.4	1.2	1.4	1.2	1.4	1.2	1.5	1.2	1.5	1.3	1.6	1.3	1.6	1.2
	40	1.4	1.2	1.4	1.2	1.4	1.2	1.5	1.2	1.5	1.3	1.6	1.2	1.6	1.2
22	43	1.4	1.2	1.4	1.2	1.4	1.2	1.4	1.2	1.5	1.3	1.6	1.2	1.6	1.2
	20	2.2	1.8	2.2	1.9	2.3	1.9	2.3	1.9	2.4	2	2.5	1.9	2.6	1.9
	22.5	2.1	1.8	2.2	1.9	2.3	1.8	2.3	1.9	2.4	1.9	2.4	1.9	2.5	1.9
	25	2.1	1.8	2.2	1.9	2.2	1.8	2.3	1.9	2.3	1.9	2.4	1.9	2.5	1.9
	27.5	2.1	1.8	2.1	1.9	2.2	1.8	2.3	1.9	2.3	1.9	2.4	1.9	2.5	1.8
	30	2.1	1.8	2.1	1.9	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.9	2.5	1.8
	32.5	2	1.8	2.1	1.8	2.2	1.8	2.2	1.8	2.3	1.9	2.4	1.9	2.4	1.8
	35	2	1.8	2.1	1.8	2.2	1.8	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.8
	37.5	2	1.8	2	1.8	2.1	1.8	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.8
28	40	2	1.8	2	1.8	2.1	1.8	2.2	1.8	2.2	1.9	2.3	1.8	2.4	1.8
	43	2	1.7	2	1.8	2.1	1.8	2.1	1.8	2.2	1.9	2.3	1.8	2.3	1.8
	20	2.7	2.2	2.8	2.2	2.9	2.2	3	2.2	3	2.3	3.1	2.2	3.2	2.2
	22.5	2.7	2.2	2.8	2.2	2.9	2.2	2.9	2.2	3	2.3	3.1	2.2	3.2	2.2
	25	2.7	2.1	2.7	2.2	2.9	2.2	2.9	2.2	3	2.3	3.1	2.2	3.2	2.1
	27.5	2.7	2.1	2.7	2.2	2.8	2.2	2.9	2.2	2.9	2.2	3.1	2.2	3.2	2.1
	30	2.6	2.1	2.7	2.2	2.8	2.1	2.9	2.2	2.9	2.2	3	2.2	3.1	2.1
	32.5	2.6	2.1	2.7	2.2	2.8	2.1	2.8	2.1	2.9	2.2	3	2.2	3.1	2.1
	35	2.6	2.1	2.6	2.1	2.7	2.1	2.8	2.1	2.9	2.2	3	2.2	3.1	2.1
	37.5	2.5	2.1	2.6	2.1	2.7	2.1	2.8	2.1	2.8	2.2	2.9	2.2	3.1	2.1
	40	2.5	2.1	2.6	2.1	2.7	2.1	2.7	2.1	2.8	2.2	2.9	2.1	3	2.1
	43	2.5	2	2.5	2.1	2.7	2.1	2.7	2.1	2.8	2.2	2.9	2.1	3	2.1

Capacity (W*100 )	Outdoor Temp. °C DB	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
		CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
36	20	3.5	2.7	3.6	2.8	3.7	2.7	3.8	2.7	3.9	2.8	4	2.7	4.2	2.7
	22.5	3.5	2.7	3.6	2.7	3.7	2.7	3.8	2.7	3.9	2.8	4	2.7	4.1	2.7
	25	3.5	2.7	3.5	2.7	3.7	2.7	3.7	2.7	3.8	2.8	4	2.7	4.1	2.6
	27.5	3.4	2.6	3.5	2.7	3.6	2.7	3.7	2.7	3.8	2.8	3.9	2.7	4.1	2.6
	30	3.4	2.6	3.5	2.7	3.6	2.6	3.7	2.7	3.7	2.8	3.9	2.7	4	2.6
	32.5	3.3	2.6	3.4	2.7	3.6	2.6	3.6	2.7	3.7	2.7	3.9	2.7	4	2.6
	35	3.3	2.6	3.4	2.7	3.5	2.6	3.6	2.6	3.7	2.7	3.8	2.7	4	2.6
	37.5	3.3	2.6	3.3	2.6	3.5	2.6	3.6	2.6	3.6	2.7	3.8	2.7	3.9	2.6
	40	3.2	2.6	3.3	2.6	3.5	2.6	3.5	2.6	3.6	2.7	3.7	2.6	3.9	2.6
45	43	3.2	2.5	3.3	2.6	3.4	2.6	3.5	2.6	3.6	2.7	3.7	2.6	3.8	2.6
	20	4.4	3.3	4.5	3.4	4.7	3.3	4.8	3.4	4.9	3.5	5	3.4	5.2	3.3
	22.5	4.4	3.3	4.5	3.4	4.6	3.3	4.7	3.3	4.8	3.4	5	3.4	5.2	3.3
	25	4.3	3.3	4.4	3.4	4.6	3.3	4.7	3.3	4.8	3.4	5	3.3	5.1	3.2
	27.5	4.3	3.3	4.4	3.3	4.5	3.3	4.6	3.3	4.7	3.4	4.9	3.3	5.1	3.2
	30	4.2	3.2	4.3	3.3	4.5	3.2	4.6	3.3	4.7	3.4	4.9	3.3	5	3.2
	32.5	4.2	3.2	4.3	3.3	4.5	3.2	4.5	3.3	4.6	3.4	4.8	3.3	5	3.2
	35	4.1	3.2	4.1	3.3	4.4	3.2	4.5	3.2	4.6	3.3	4.8	3.3	5	3.2
	37.5	4.1	3.2	4.2	3.2	4.4	3.2	4.5	3.2	4.5	3.3	4.7	3.3	4.9	3.2
56	40	4.1	3.1	4.1	3.2	4.3	3.2	4.4	3.2	4.5	3.3	4.7	3.2	4.9	3.2
	43	4	3.1	4.1	3.2	4.3	3.1	4.4	3.2	4.4	3.3	4.6	3.2	4.8	3.1
	20	5.5	3.9	5.6	4	5.8	3.9	5.9	3.9	6	4	6.3	3.9	6.5	3.8
	22.5	5.4	3.9	5.5	3.9	5.8	3.9	5.9	3.9	6	4	6.2	3.9	6.4	3.8
	25	5.4	3.8	5.5	3.9	5.7	3.8	5.8	3.8	5.9	4	6.2	3.8	6.4	3.7
	27.5	5.3	3.8	5.4	3.9	5.7	3.8	5.8	3.8	5.9	3.9	6.1	3.8	6.3	3.7
	30	5.3	3.8	5.4	3.9	5.6	3.8	5.7	3.8	5.8	3.9	6	3.8	6.3	3.7
	32.5	5.2	3.8	5.3	3.8	5.5	3.7	5.7	3.8	5.8	3.9	6	3.8	6.2	3.7
	35	5.2	3.7	5.3	3.8	5.5	3.7	5.6	3.7	5.7	3.9	5.9	3.8	6.2	3.7
71	37.5	5.1	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.7	3.8	5.9	3.7	6.1	3.6
	40	5	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.6	3.8	5.8	3.7	6	3.6
	43	5	3.6	5.1	3.7	5.3	3.6	5.4	3.7	5.5	3.8	5.8	3.7	6	3.6
	20	7	5.1	7.1	5.2	7.4	5.1	7.5	5.1	7.7	5.3	8	5.2	8.2	5
	22.5	6.9	5.1	7	5.2	7.3	5.1	7.5	5.1	7.6	5.3	7.9	5.1	8.2	5
	25	6.8	5	7	5.2	7.2	5	7.4	5.1	7.5	5.2	7.8	5.1	8.1	5
	27.5	6.7	5	6.9	5.1	7.2	5	7.3	5.1	7.5	5.2	7.7	5.1	8	4.9
	30	6.7	5	6.8	5.1	7.1	5	7.2	5	7.4	5.2	7.7	5	8	4.9
	32.5	6.6	4.9	6.7	5.1	7	4.9	7.2	5	7.3	5.2	7.6	5	7.9	4.9
71	35	6.5	4.9	6.7	5	7	4.9	7.1	5	7.2	5.1	7.5	5	7.8	4.9
	37.5	6.5	4.9	6.6	5	6.9	4.9	7	4.9	7.2	5.1	7.5	5	7.7	4.8
	40	6.4	4.8	6.5	5	6.8	4.9	7	4.9	7.1	5.1	7.4	4.9	7.7	4.8
	43	6.3	4.8	6.4	4.9	6.7	4.8	6.9	4.9	7	5	7.3	4.9	7.6	4.8

## Heating capacity

CA: total capacity; SHC: sensible heat capacity

Capacity ( W*100)	Outdoor Temp.	Indoor Temp. (°C DB)			
		15.0	20.0	25.0	27.0
	°C WB	SHC	SHC	SHC	SHC
15	-15	1.2	1.1	1.1	1.1
	-10	1.3	1.3	1.3	1.2
	-5	1.4	1.4	1.3	1.2
	0	1.6	1.6	1.3	1.2
	2.5	1.7	1.7	1.3	1.2
	6	1.7	1.7	1.3	1.2
	6.5	1.8	1.7	1.3	1.2
	10	1.9	1.7	1.3	1.2
	12.5	2.0	1.7	1.3	1.2
22	15.5	2.0	1.7	1.3	1.2
	-15	1.7	1.6	1.6	1.6
	-10	1.9	1.9	1.9	1.7
	-5	2.1	2.1	1.9	1.7
	0	2.4	2.4	1.9	1.7
	2.5	2.5	2.5	1.9	1.7
	6	2.5	2.5	1.9	1.7
	6.5	2.6	2.5	1.9	1.7
	10	2.8	2.5	1.9	1.7
28	12.5	3.0	2.5	1.9	1.7
	15.5	3.0	2.5	1.9	1.7
	-15.0	2.1	2.1	2.1	2.1
	-10.0	2.4	2.4	2.4	2.2
	-5.0	2.7	2.7	2.5	2.2
	0.0	3.1	3.0	2.5	2.2
	2.5	3.2	3.2	2.5	2.2
	6.0	3.2	3.2	2.5	2.2
	6.5	3.4	3.2	2.5	2.2
36	10.0	3.6	3.2	2.5	2.2
	12.5	3.8	3.2	2.5	2.2
	15.5	3.9	3.2	2.5	2.2
	-15.0	2.7	2.6	2.6	2.6
	-10.0	3.1	3.0	3.0	2.8
	-5.0	3.4	3.4	3.1	2.8
	0.0	3.8	3.8	3.1	2.8
	2.5	4.0	4.0	3.1	2.8
	6.0	4.0	4.0	3.1	2.8
	6.5	4.2	4.0	3.1	2.8
	10.0	4.5	4.0	3.1	2.8
	12.5	4.8	4.0	3.1	2.8
	15.5	4.8	4.0	3.1	2.8

Capacity ( W*100)	Outdoor Temp.	Indoor Temp. (°C DB)			
		15.0	20.0	25.0	27.0
	°C WB	SHC	SHC	SHC	SHC
45	-15.0	3.3	3.3	3.3	3.3
	-10.0	3.8	3.8	3.7	3.5
	-5.0	4.3	4.2	3.9	3.5
	0.0	4.8	4.7	3.9	3.5
	2.5	5.0	5.0	3.9	3.5
	6.0	5.1	5.0	3.9	3.5
	6.5	5.3	5.0	3.9	3.5
	10.0	5.6	5.0	3.9	3.5
	12.5	6.0	5.0	3.9	3.5
56	15.5	6.1	5.0	3.9	3.5
	-15.0	4.2	4.2	4.1	4.1
	-10.0	4.8	4.8	4.7	4.3
	-5.0	5.4	5.3	4.9	4.3
	0.0	6.0	5.9	4.9	4.3
	2.5	6.3	6.2	4.9	4.3
	6.0	6.4	6.3	4.9	4.3
	6.5	6.6	6.3	4.9	4.3
	10.0	7.1	6.3	4.9	4.3
71	12.5	7.5	6.3	4.9	4.3
	15.5	7.6	6.3	4.9	4.3
	-15	5.4	5.3	5.2	5.2
	-10	6.1	6.0	6.0	5.5
	-5	6.9	6.8	6.2	5.5
	0	7.6	7.5	6.2	5.5
	2.5	8.0	7.9	6.2	5.5
	6	8.1	8.0	6.2	5.5
	6.5	8.4	8.0	6.2	5.5
	10	9.0	8.0	6.2	5.5
	12.5	9.6	8.0	6.2	5.5
	15.5	9.7	8.0	6.2	5.5

## Low ESP Duct Type Indoor Unit (0/20Pa)

### 1. Features



AWSI-DAV007-N11  
AWSI-DAV009-N11  
AWSI-DAV012-N11



AWSI-DAV016-N11

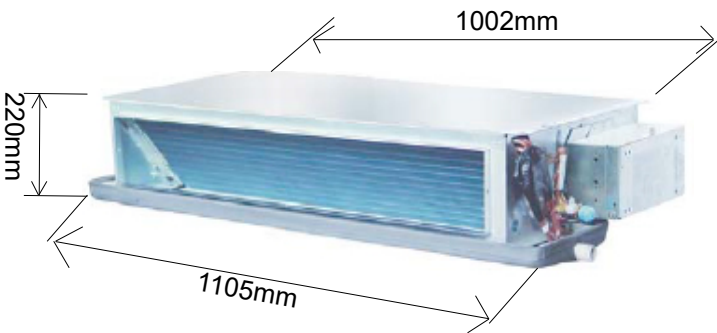
Super slim design, silent and static pressure switchover

The compact appearance is perfect for the commercial space and the large building. Also it can be applicable for the house, which will be harmonious with indoor decor.

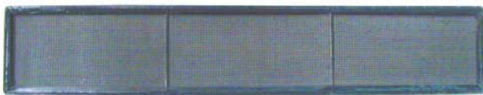


AWSI-DAV007-009-012N11





AWSI-DAV016-N11



External Static Pressure can be switched by the terminal in the electric control box. Select between 0Pa and 20Pa.  
**Low noise level:**

	AWSI-DAV007-N11	AWSI-DAV009-N11	AWSI-DAV012-N11	AWSI-DAV016-N11
Noise level (dB(A)) H/M/L	35/32/30	35/32/30	35/32/30	35/32/30

**Note:**  
*The noise level will be measured in the third octave band limited values in the semi-anechoic chamber, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.*

## 2.

MODEL			AWSI-DAV007-N11	AWSI-DAV009-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	7.5	9.6
	Capacity	kW	2.2	2.8
	Power input	W	30	30
	Current	A	0.15	0.15
Heating	Capacity	kBtu/h	8.5	10.9
	Capacity	kW	2.5	3.2
	Power input	W	30	30
	Current	A	0.15	0.15
	Heating capacity at low temp.	kW	2.0	2.5
Operating current		A	0.15	0.15
Power consumption		kW	0.03	0.03
Indoor motor	Brand		Broad ocean	Broad ocean
	Model		Y5S413A536	Y5S413A536
	Type		AC	AC
	Insulation class		B	B
	IP class		IP20	IP20
	Power input	W	57	57
	Power output	W	12	12
	Capacitor	μF	1.5μF /450v	1.5μF /450v
	Speed (High/Middle/Low)	rpm	1110/970/865/780	1110/970/865/780
Indoor fan	Brand		Haier	Haier
	Type		Centrifugal	Centrifugal
	Quantity		1	1
Indoor coil	a. Number of rows		2	2
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3
	c. Fin spacing	mm	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	
	f. Coil length×height×width	mm	434/252/26.6	434/252/26.6
	g. Number of circuits		2	2

MODEL			AWSI-DAV007-N11	AWSI-DAV009-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		0.6	0.6
	Drain pan material		Hot zinc plate+cushion	Hot zinc plate+cushion
	Drain pan insulation		10	10
	Drain pump option		Optional	Optional
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	0.6	0.6
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	6.35	6.35
	Gas pipe	mm	9.52	9.52
	Drain hose	mm	20	20
Fresh air dimension		mm	/	/
Sound pressure level (H/M/L)		dB (A)	35/32/30	35/32/30
Sound power level (H/M/L)		dB (A)	49/46/44	49/46/44
Standard static pressure		Pa	0	0
Max. static pressure		Pa	20	20
		m <sup>3</sup> /h	400/364/324	400/364/324
Air outlet dimensions		mm	418/131	418/131
Air return dimensions		mm	480/218	480/218
Dimension (W*H*D)		mm	610/220/500	610/220/500
Packing (W*H*D)		mm	708/280/549	708/280/549
Net weight		kg	15	15
Gross weight		kg	17	17
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

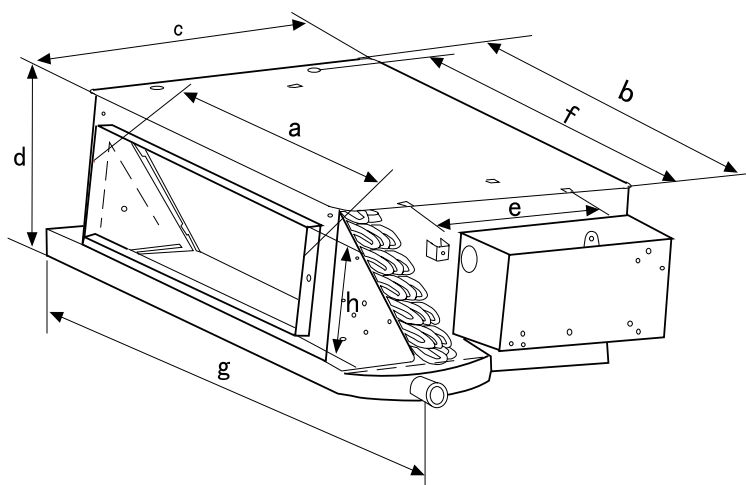
MODEL			AWSI-DAV012-N11	AWSI-DAV016-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	12.3	15.4
	Capacity	kW	3.6	4.5
	Power input	W	45	50
	Current	A	0.25	0.27
Heating	Capacity	kBtu/h	13.6	17.1
	Capacity	kW	4.0	5.0
	Power Input	W	45	50
	Current	A	0.25	0.27
	Heating capacity at low temp.	kW	3.2	4.0
Operating current		A	0.25	0.27
Power consumption		kW	0.045	0.05
Indoor motor	Brand		Broad ocean	Broad ocean
	Model		Y5S413A84	Y5S413B298
	Type		AC	AC
	Insulation class		B	B
	IP class		IP20	IP20
	Power input	W	57	78.5
	Power output	W	12	14
	Capacitor	μF	1.5μF /450v	1.5μF /450v
	Speed (High/Middle/Low)	rpm	1050/950/850/750	860/790/620/520
Indoor fan	Brand		Haier	Haier
	Type		Centrifugal	Centrifugal
	Quantity		1	2
Indoor coil	a. Number of rows		3	2
	b. Tube pitch (a)×row pitch (b)	mm	21x13.3	21x13.3
	c. Fin spacing	mm	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube	
	f. Coil length×height×width	mm	434/252/39.9	895/252/26.6
	g. Number of circuits		3	4

MODEL			AWSI-DAV012-N11	AWSI-DAV016-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		0.6	0.6
	Drain pan material		Hot zinc plate+cushion	Hot zinc plate+cushion
	Drain pan insulation		10	10
	Drain pump option		Optional	Optional
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	0.6	0.6
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	6.35	6.35
	Gas pipe	mm	12.7	12.7
	Drain hose	mm	20	20
Fresh air dimension		mm	/	/
Sound pressure level (H/M/L)		dB (A)	35/32/30	35/32/30
Sound power level (H/M/L)		dB (A)	49/46/44	49/46/44
Standard static pressure		Pa	0	0
Max. static pressure		Pa	20	20
		m <sup>3</sup> /h	500/450/420	850/780/700
Air outlet dimensions		mm	418/131	880/131
Air return dimensions		mm	480/218	1064/218
Dimension (W*H*D)		mm	610/220/500	1105/220/500
Packing (W*H*D)		mm	708/280/549	1174/294/549
Net weight		kg	16	25
Gross weight		kg	18	27
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

### 3. Dimension

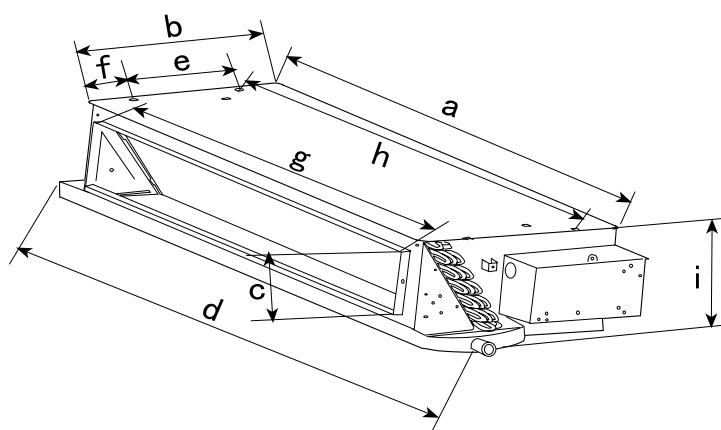
Model	a	b	c	d	e	f	g	h	i
AWSI-DAV007-N11 AWSI-DAV009-N11 AWSI-DAV012-N11	418	538	500	220	255	508	610	136	--
AWSI-DAV016-N11	1002	483	136	1105	255	105	880	970	220

AWSI-DAV007-N11  
AWSI-DAV009-N11  
AWSI-DAV012-N11



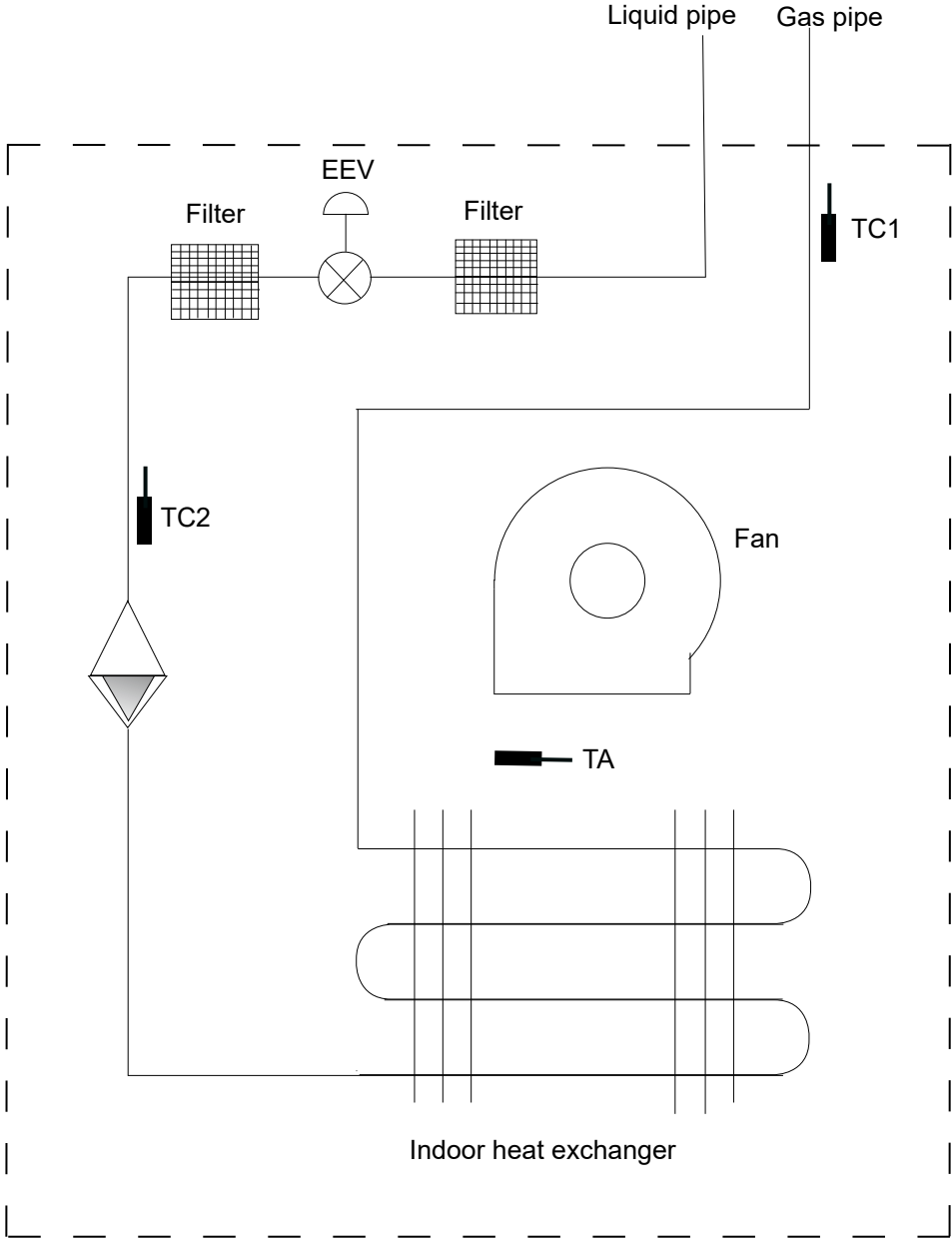
**Note:** 2-row evaporator for AWSI-DAV007-N11 and AWSI-DAV009-N11  
3-row evaporator for AWSI-DAV012-N11

AWSI-DAV016-N11

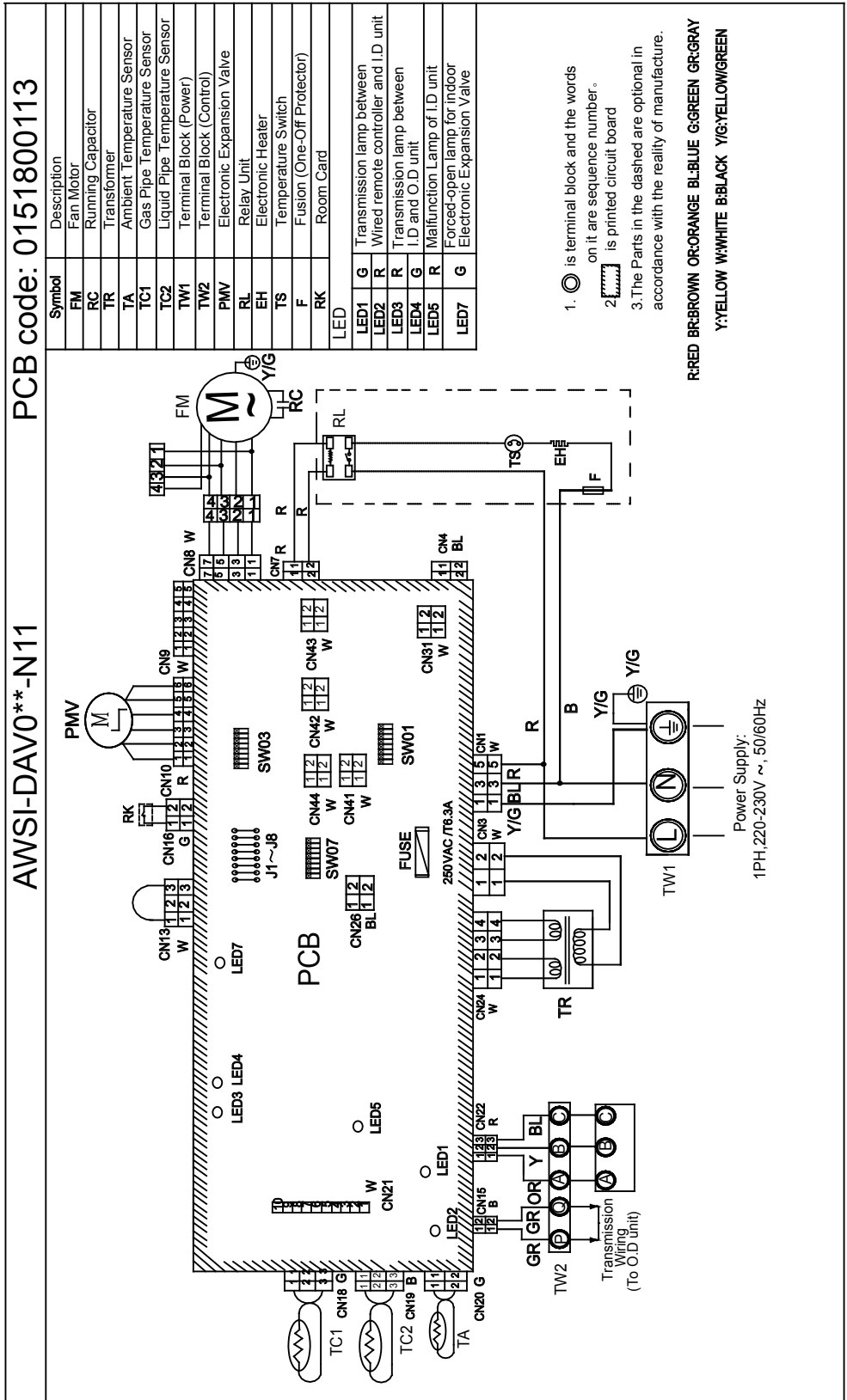


**Note:** 2-row evaporator for AWSI-DAV016-N11

4. Piping diagram



# 5. Wiring diagram





## 6. Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AWSI-DAV007-N11	1	50/60	220	198-242	0.31	1	12	0.25	30	30
AWSI-DAV009-N11	1	50/60	220	198-242	0.31	1	12	0.25	30	30
AWSI-DAV012-N11	1	50/60	220	198-242	0.44	1.2	12	0.35	45	45
AWSI-DAV016-N11	1	50/60	220	198-242	0.4	1.28	14	0.32	50	50

### Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

### Note:

1. Voltage range

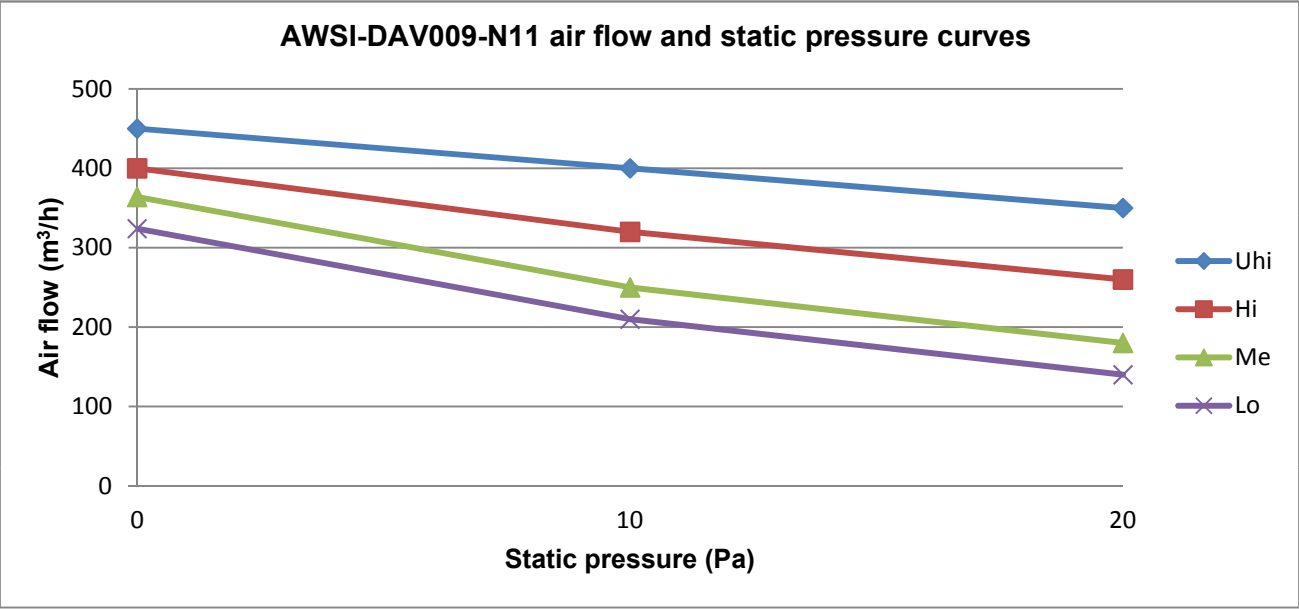
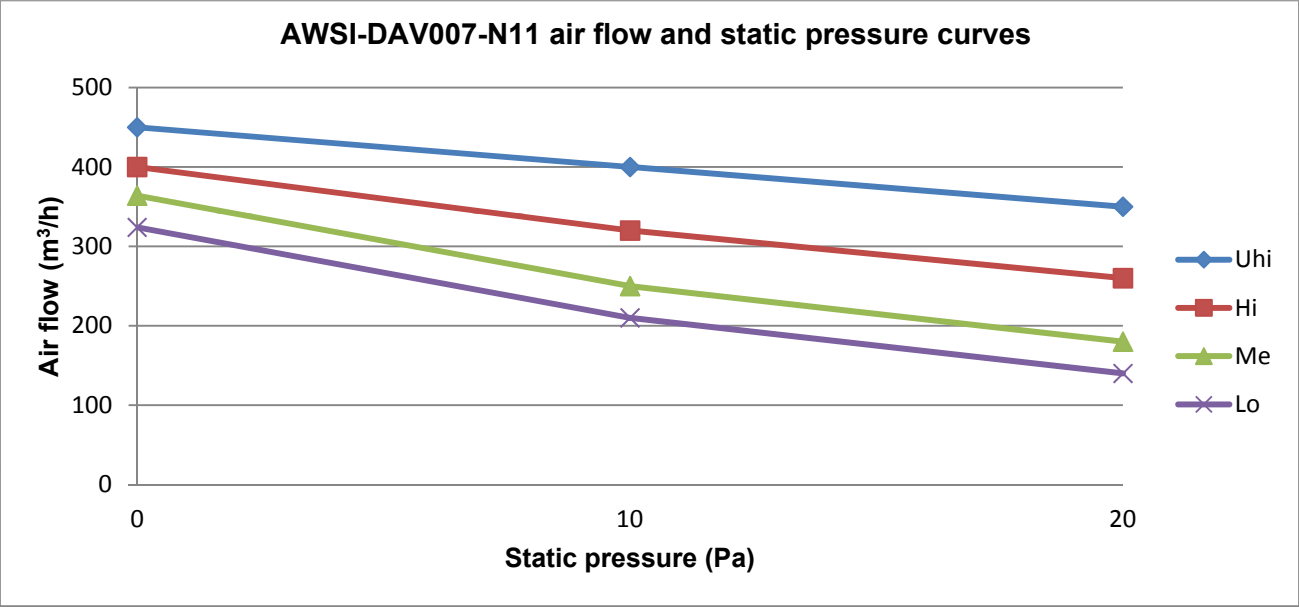
*The units are applicable for the electrical systems where voltage supplied to unit is in the range.*

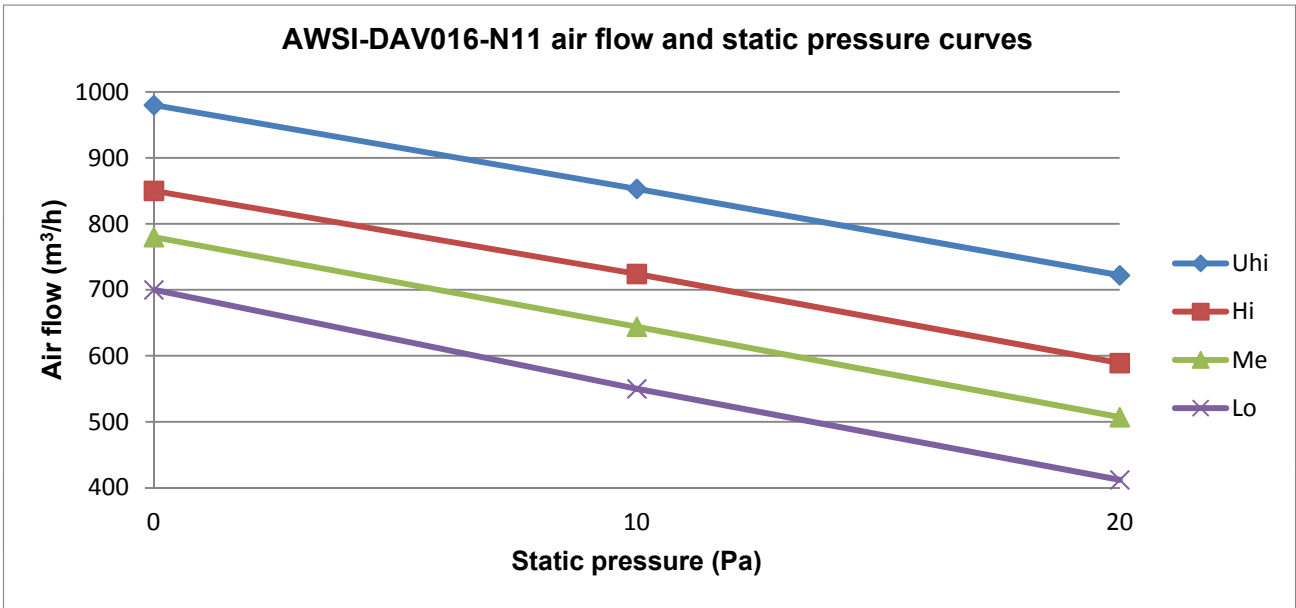
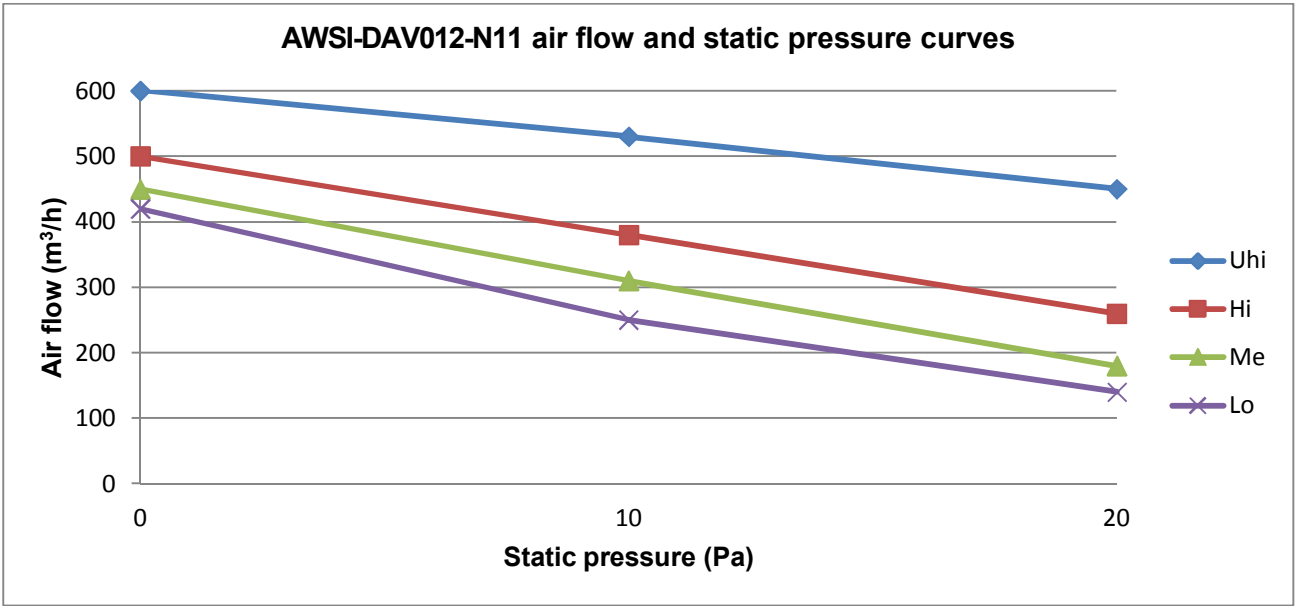
2. Maximum allowable voltage unbalance between phases is 2%.

3.  $MCA=1.25*FLA$   $MFA\leq 4*FLA$

4. Power supply uses the circuit breaker.

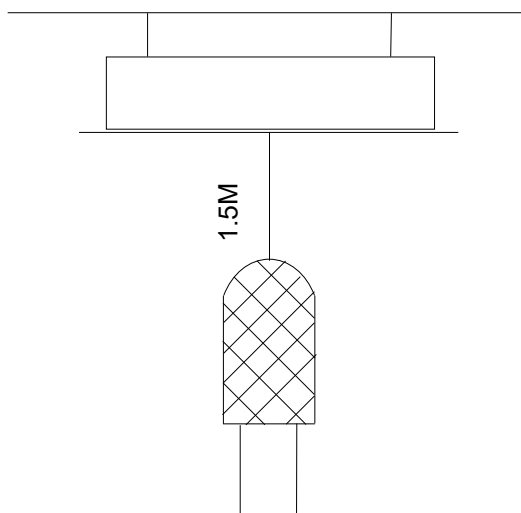
7.





## 8. Sound pressure level

(1) Testing illustrate:



(2) Testing condition:

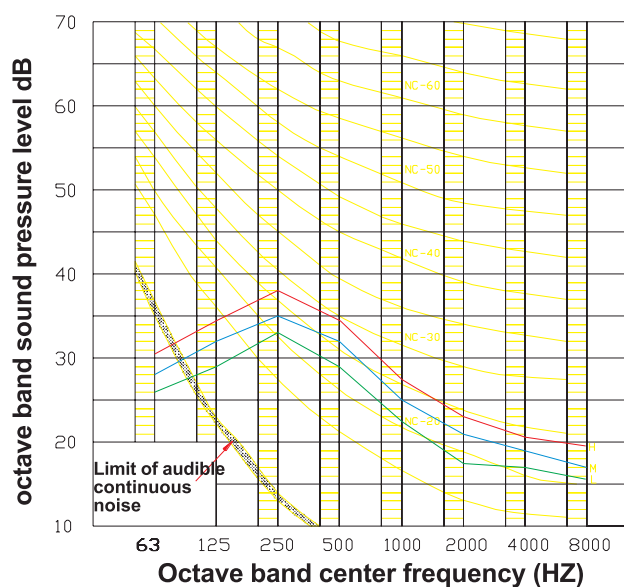
a: Unit running in the normal condition

b: Test in the semi-anechoic chamber

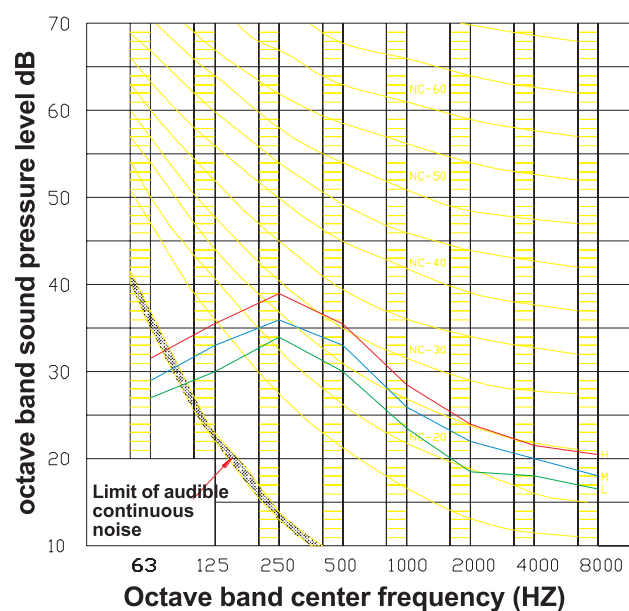
c: Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:

**AWSI-DAV007-012N11**



**AWSI-DAV016-N11**



## 9. Installation

### 9.1 Installation Procedures

If you have any problem on product, contact the local Airwell distribution center.

Please use the standard tools according to the installation requirements.

The standard attached accessories of the units of this series refer to the packing list; prepare other accessories according to the requirements of the local installation point of our company.

**1. Choose the suitable installation location. Indoor units should be installed in places with the environment of even circulation of cool and warm blows. The following places should be avoided.**

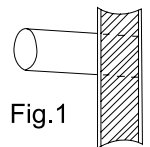
※ Places with high salinity (beach), high sulfured gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency electromagnetic wave (abnormal condition will appear in the control system); places where there is high humidity exists near the door or windows (dew is easily formed); and places where the special sprayer is frequently used.

#### Indoor Units

- (1) The distance between wind outlet port and the ground should not be more than 2.7m.
- (2) Select appropriate places for installation where the outlet air can be spread to places all over the house and arrange proper locations for connecting pipes and lines as well as the drainpipe to the outdoor.
- (3) Ceiling construction must be hard enough to hold the weight of the unit.
- (4) Make sure that the connecting pipe, the drainpipe and connecting guide line can be put into walls to connect the outdoor units.
- (5) It is recommended to make the connecting pipe between the outdoor and indoor units and the drainpipe are as short as possible.
- (6) Please read the attached installation instruction of outdoor units for regulation of amount of refrigerant if necessary.
- (7)
- (8) Those electrical appliances such as television, instruments, devices, artwork, piano, wireless equipment and other valuables should not be placed under the indoor unit as to prevent condensate from dropping into them and causing damage.

**2. The following steps can be taken after selecting the installation place:**

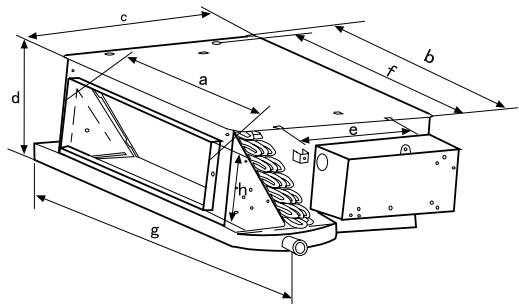
- (1) Cut a hole on the wall and put the connecting pipe and connecting thread into the PVC, which is purchased at the local shop. With a slight downwards tilt towards the exterior, the gradient should be kept at least 1/100, as shown in Fig.1.
- (2) Before cutting the hole, check if there are pipes or reinforcing steel bars at the rear of the hole. Making the hole in the place where wires or pipes should be avoided.
- (3)
- (4) Fix the unit support and change the connection pipes, connecting the shapes of wires and drainpipes so as to let them go through the wall hole.



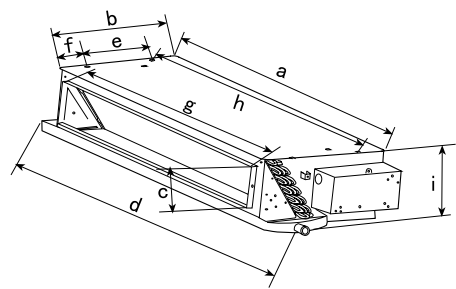
**3. Dimension (unit: mm).**

Model	a	b	c	d	e	f	g	h	i
AWSI-DAV007-N11									
AWSI-DAV009-N11	418	538	500	220	255	508	610	136	--
AWSI-DAV012-N11									
AWSI-DAV016-N11	1002	483	136	1105	255	105	880	970	220

AWSI-DAV007-N11  
AWSI-DAV009-N11  
AWSI-DAV012-N11



AWSI-DAV016-N11



Cautions for Installation

1. The indoor units of this series are low static pressure air conditioners.
2. The indoor units should be installed with an inspection hole for maintenance.

Selection of fan rotated speed

The fan is mounted with red down-lead end and red down-lead end. The standard model was set when the machine was made in the factory. The red down-lead end with high speed can be used when the er with high performance is used to make static pressure ascend. The connected style is shown in Fig.3.

Standard Style (given in Factory)					High Wind Speed Style					
Control Box	White	White	White	White	Control Box	White	White	Red	Black	Fan Down-lead End
	Blue			Blue						
	Yellow			Yellow						
	Red			Red						

Static pressure range Unit: Pa

Standard static pressure	Maximal static pressure
0	20

- Concealed indoor units should be designed with air return plenum, as shown in Fig.2 & Fig.3.

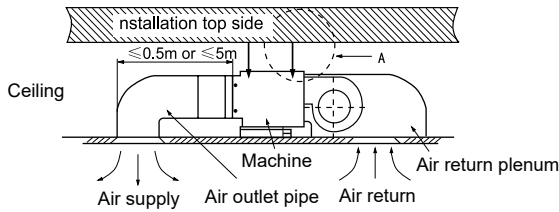


Fig.2

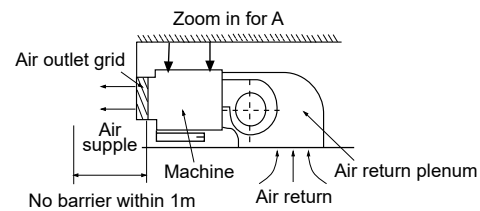


Fig.3

- The joints at air pipes should be sealed with glue. It is recommended to keep the distance from the edge of air return plenum to the wall to be over 150mm.

The schematic diagram of the long and

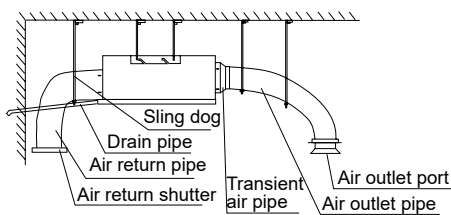


Fig.4

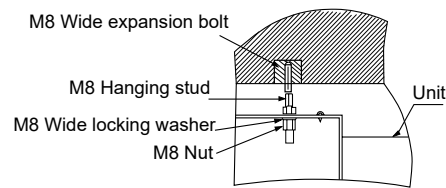


Fig.5

- The drainpipe for condensed water should keep a gradient of 1%. The drain pipe should be insulated.
- Hang the unit as shown in Fig.5.

Install the suspender:

- Based on the normative installation for different building structure, install the machine with 4 M8 or M10 suspenders according to the outline drawing. When the height of the hoisting stud exceeds 0.9m, M10 studs should be used. The level meter can be used for the horizontal installation.
- Use the level meter to set the levelness of the machine to be within 5mm.

Installation of Duct Pipe of Indoor Units:

1. Installation of the air blowing pipe:  
With a square blast pipe, the bore shouldn't be less than the sizes of air outlet pipe.
2. Installation of the air return pipe:  
Connect one side of the air return pipes to the air return port of the indoor units with rivets, with the other side connected to air return shutter, as shown in Fig.1.
3. Heat Preservation of Blast Pipes:  
Heat preservation lays should be provided for air blowing & return pipes. Paste glue nails on the blast pipes and attach thermo wool, which covered by a layer of silver paper cover, and then seal the joint with silver paper.

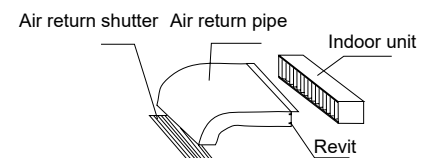


Fig.1  
Connection of oil return pipe

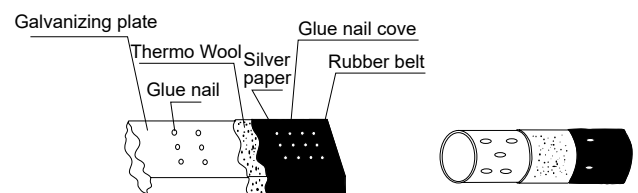


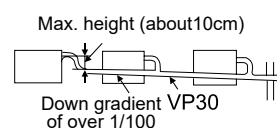
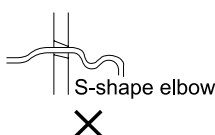
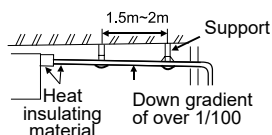
Fig.2

## ⚠ ATTENTION

- For normal drainage, the water drainage piping should be connected according to the installation manual. Heat insulation should be performed to avoid condensation. Improper pipe connection may cause water going into the machine.

### Requirements:

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m. Under the condition of long pipe, a support should be provided every 1.52~2m to avoid unevenness.
- Don't apply external force to the connection of drainpipes.



### Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

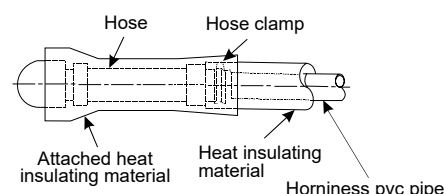
Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm

### Hose

The drainage hose is made of  $\Phi 19.05\text{mm}$  (3/4") PVC tube, which can adjust the eccentricity and the angle of the hard PVC tube.

- Heat insulating treatment should be made for the water drainpipes of the indoor units.
- Heat preservation should be made for the connection with the indoor units. Improper heat preservation may cause condensing.
- The drainpipe should be designed with a down gradient of 1/100. The midway of the elbow shouldn't be made in S shape. Or abnormal noise may be caused.
- The lateral length of the drainpipe should be kept within 20m. Under the condition of long pipe, a support should be provided every 1.52~2m to avoid unevenness.
- Don't apply external force to the connection of drainpipes.

During the test run, check the condition of water drainage and make sure that there is no leakage on the connection of piping, which should also be performed during the winter.





### Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

### T

Special tools for R410A should be used for cutting and enlarging pipes.

Model		AWSI-DAV007-009N11	AWSI-DAV012-N11
Tubing Size (mm)	Gas pipe	Φ9.52	Φ12.7
	Liquid pipe	Φ6.35	Φ6.35
Tubing Material		Phosphor deoxy bronze seamless pipe (TP2) for air conditioner	

### Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must

### Connecting Procedures of Refrigerant Tubing

With the soft solder

#### Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if

#### Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

V

#### Open All Valves

Open all the valves of outdoor units.

[NB: oil balancing stop valve must be shut up completely when only connected one master unit.]

#### Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

#### Connecting

##### 1. Connecting circular terminals:

The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

##### 2. Connecting straight terminals:

The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier

##### 3. Pressing connecting line

After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.

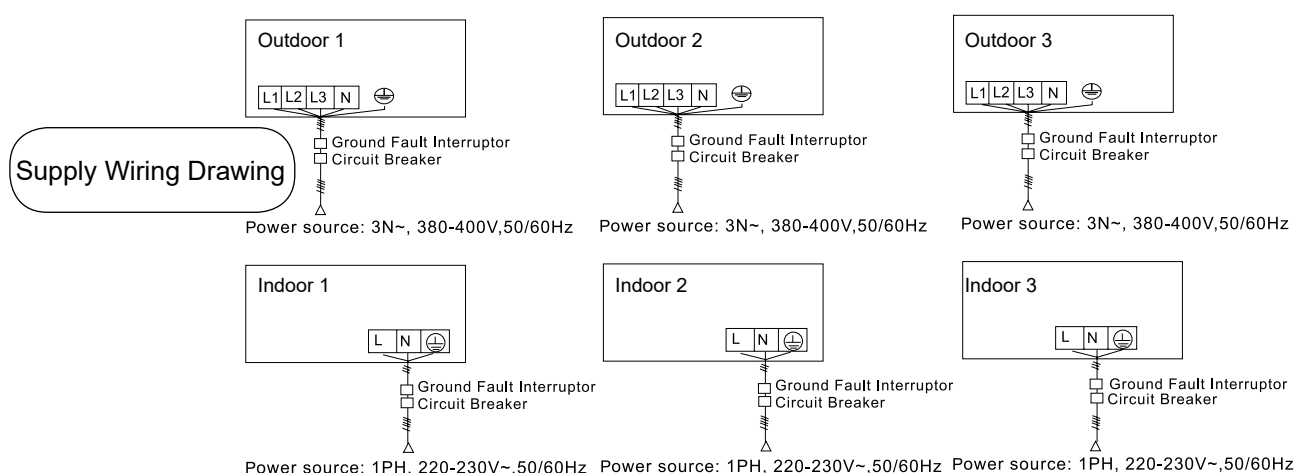
## 9.2 Electrical Wiring

### ⚠ WARNING

- 
- 
- local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

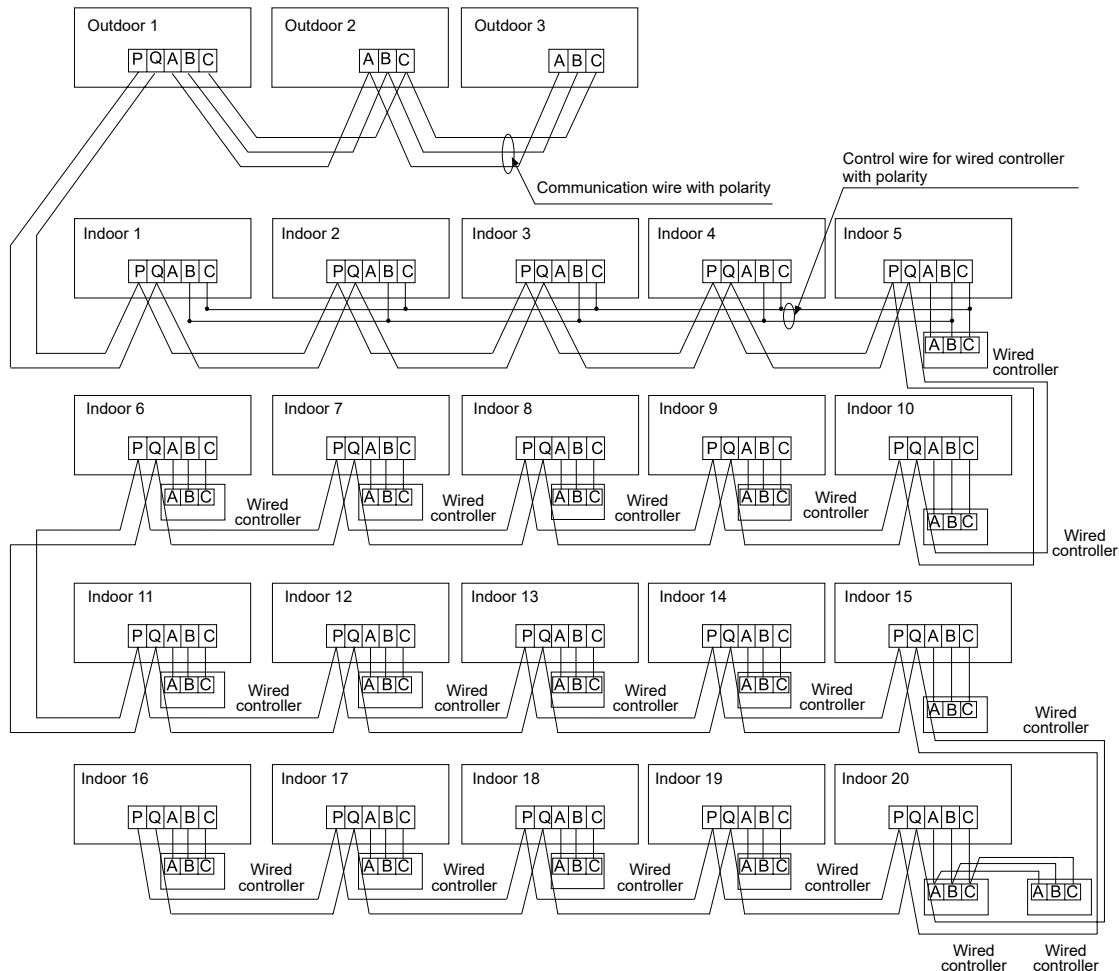
### ⚠ ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- 
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below:  $3 \times 1.0-1.5 \text{ mm}^2$ ; parameters for signal line:  $2 \times 0.75-1.25 \text{ mm}^2$  (shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one

Signal Wiring  
Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above (1-5 indoor units).

The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)

The indoor unit

and the wired control are connected via three lines with polarity.

C. T

can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

The combination of multiple indoor units can be controlled by wired controller or remote controller.

※ Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over ※

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

### Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total current of indoor units (A)	Cross section (mm <sup>2</sup> )	Length (m)	Rated current of breaker (A)	Rated current of residual circuit breaker (A) Ground fault interrupter (mA) Response time (S)	Cross sectional area of signal line	
					Outdoor -indoor (mm <sup>2</sup> )	Indoor -indoor (mm <sup>2</sup> )
<10	2	20	20	20 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0) mm <sup>2</sup> shielded line	
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below		
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

- ※ The electrical power line and signal lines must be fastened tightly.
- ※ Every indoor unit must have the ground connection.
- ※ The power line should be enlarged if it exceeds the permissible length.
- ※ Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- ※ It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm <sup>2</sup> ×3 core shielded line

- ※ The shielding lay of the signal line must be grounded at one end.
- ※ The total length of the signal line shall not be more than 250m.

### 9.3 Test Run

#### Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation
  - ☐ Check if the mains voltage is matching
  - ☐ Check if there is air leakage at the piping joints
  - ☐ Check if the connections of mains power and indoor & outdoor units are correct
  - ☐ Check if the serial numbers of terminals are matching
  - ☐ Check if the installation place meets the requirement
  - ☐ Check if there is too much noise
  - ☐ Check if the connecting line is fastened
  - ☐ Check if the connectors for tubing are heat insulated
  - ☐ Check if the water is drained to the outside
  - ☐ Check if the indoor units are positioned
  - ☐

#### Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

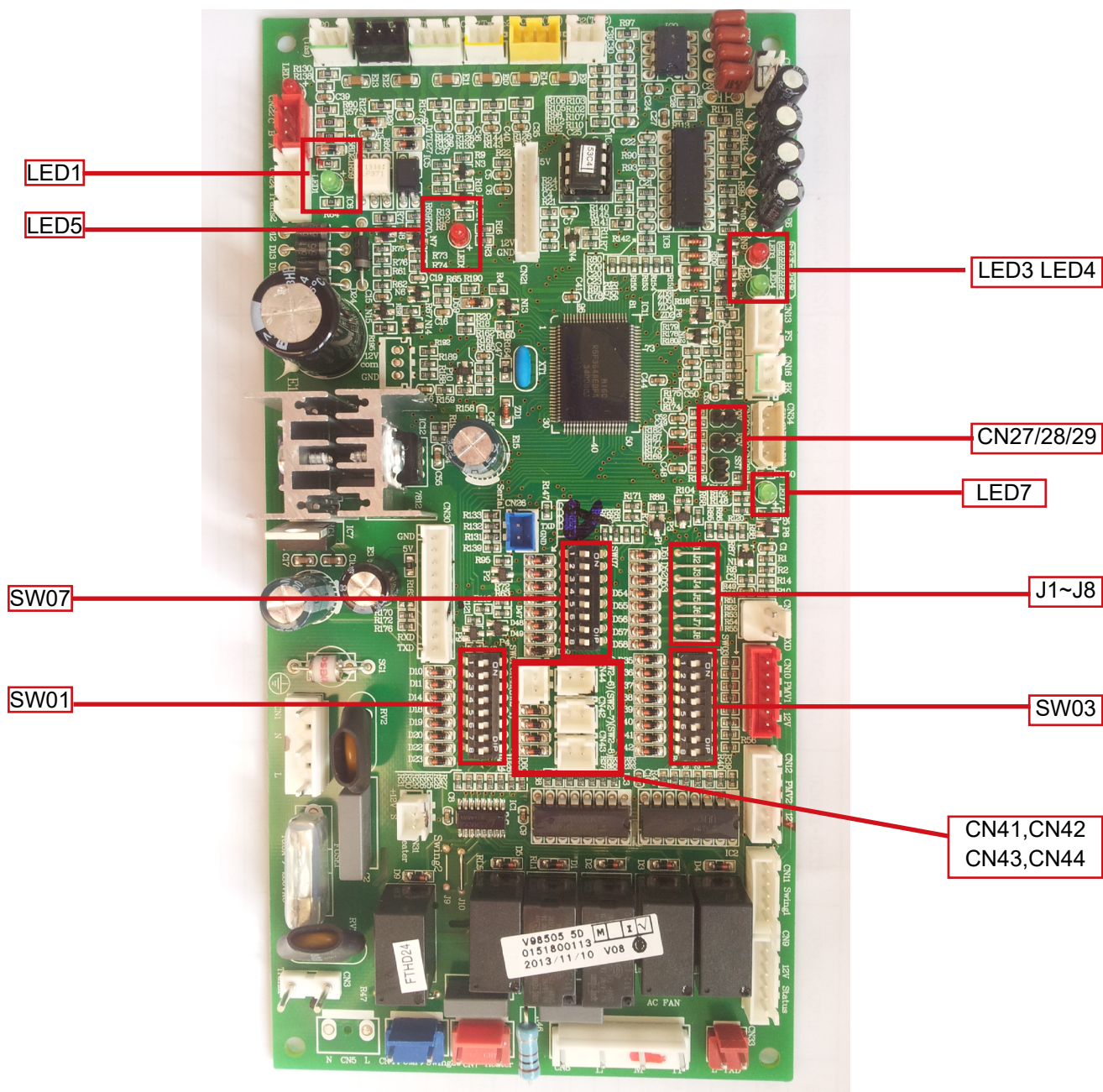
When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

- Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.

## 10. Dip Switch Setting

### 10.1 0151800113 PCB dip switch setting

Used for:AWSI-DAV007/009/012/016-N11



### LED light introduction:

- LED1, LED2: communication lamp between indoor unit and wired controller.

, these

two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit.

, these

two lamps will light or not light at the same time.

- LED5: malfunction lamp of indoor unit.

times indicate the corresponding failure code.

- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp

### Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. CN44, CN42, CN43 are used for indoor unit type selection. CN41 is used for address setting by wired controller. SW03 is used for indoor unit address setting (including physical address and central address). SW07 is used for running mode setting.

#### (1) Description of SW01

SW01_1 SW01_2 SW01_3 SW01_4	Wired control address	[1]	[2]	[3]	[4]	Wired control address
		<u>OFF</u>	<u>OFF</u>	<u>OFF</u>	<u>OFF</u>	Master unit in group control
		OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
		OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
		OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		...	...	...	...	.....
SW01_5 SW01_6 SW01_7 SW01_8	Indoor unit capacity	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
		[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP
		OFF	OFF	<u>ON</u>	OFF	1.0HP
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP
		<u>ON</u>	OFF	OFF	OFF	3.0HP
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP



Type	Model	0.6HP	0.8HP	1.0HP	1.2HP	1.7HP	2.0HP	2.5HP	3.0HP	3.2HP	4HP	5HP	8HP	10HP
Low ESP duct type	AWSI-DAV007/009/012/016-N11		07	09	12	16								

## (2) CN41,CN42,CN43,CN44 plug explanation

CN41	Set address by wired controller or automatically (when SW03_1 is OFF)	OFF	Allow the wired controller to set the indoor address, after restart, the indoor address need to reset			
		ON	Allow the wired controller to set the indoor address, after restart, the indoor address which is set by wired control is same as before and needn't to reset			
CN42 CN43 CN44	Indoor type	CN44	CN42	CN43	Indoor type	
		OFF	OFF	OFF	Normal indoor (default)	
		OFF	OFF	ON	Wall mounted	
		OFF	ON	OFF	Fresh air unit	
		OFF	ON	ON	OEM(HRV)	
		ON	OFF	OFF	Convertible	
		ON	OFF	ON	Reserve (general indoor unit)	
		ON	ON	OFF	Reserve (general indoor unit)	
		ON	ON	ON	Reserve (general indoor unit)	

### Note:

- OFF: the plug is open circuit
- ON: the plug is short circuit
- Using wired controller modifying physical address or central control address, the other corresponding address can change automatically.



### (3) Description of SW03

SW03	Set the communication and central control address by dip switch (*Note 2)	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
	<b>OFF</b>	...	...	...	...	...	...	...	...	Set the address by wired controller or automatically (default)	

#### Note 2

- The address must be set by dip switch if central control is used.
- SW03-2=OFF, central control address = physical address +0
- SW03-2=ON, central control address=physical address +64
- The address must be set by dip switch if 0151800113 and 0010451181A or 0151800086 are used together.

### (4) Description of SW07

SW07_1 SW07_2	Tdiff correction valve in AUTO mode	[1]	[2]	Tdiff correction valve in AUTO mode
		OFF	OFF	Tdiff: 0
		OFF	<u>ON</u>	Tdiff: 1
		<u>ON</u>	OFF	Tdiff: 2
		<b>ON</b>	<b>ON</b>	Tdiff: 3 (default)
SW07_3	WIFI control mode	<b>ON</b>		One by one (defaulted)
		OFF		One by multi
SW07_4 SW07_5	In heating, inlet air temp. Tai correction valve Tcomp2	[4]	[5]	Inlet air temp. Tai correction valve Tcomp2 (EEPROM)
		OFF	OFF	Tai correction valve= 12°C
		OFF	<u>ON</u>	Tai correction valve= 5°C
		<u>ON</u>	OFF	Tai correction valve= 8°C
		<b>ON</b>	<b>ON</b>	Tai correction valve=3°C (default)
SW07_6	Room card. OEM HRV linkage	<b>ON</b>		Room card is unavailable, HRV linkage is unavailable (default)
		OFF		Room card is available, HRV linkage is available
SW07_7 SW07_8	Operation mode changeover of wired controller	[7]	[8]	Function
		OFF	OFF	[FAN] [COOL] [DRY] [HEAT]
		OFF	<u>ON</u>	[FAN] [COOL] [DRY]
		<u>ON</u>	OFF	[FAN] [COOL] [DRY] [HEAT] [ELECTRIC-HEAT]
		<b>ON</b>	<b>ON</b>	[AUTO] [FAN] [COOL] [DRY] [HEAT](default)

Room card using method:

1. If the room card available: (the room card is priority)

Insert the room card, the unit on action, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby,, the unit can't be controlled by remote controller or wired controller.

2. If the room card unavailable:

Insert the room card, the unit open, the running mode is the last mode, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby, the unit can be controlled by remote controller or wired controller.

#### (5) Description of jump wire:SW08 (1:ON, 2:OFF)

J1	Fix air volume	<b>ON</b>	Normal mode (default)
		OFF	Air volume is fixed at high speed(for duct type)
J2	Run at Mid speed when Hi Speed is selected in heating	<b>ON</b>	Normal mode (default)
		OFF	Run at Mid speed when Hi Speed is selected in heating
J3	Quiet running mode	<b>ON</b>	Normal mode (default)
		OFF	Quiet running mode
J4	This indoor has highest priority	<b>ON</b>	Normal mode (default)
		OFF	This Indoor has highest priority
J5	Indoor and outdoor 90 meters drop selection	<b>ON</b>	Normal mode (default)
		OFF	High drop
J6	Reserved	<b>ON</b>	Reserved
J7	Indoor installation height selection	<b>ON</b>	Normal mode (default)
		OFF	Above 2.7m, uses next higher fan speed(indoor fan speed improve 1 grade)
J8	Dual heat source	<b>ON</b>	No dual heat source control (default)
		OFF	Dual heat source control (it doesn't apply to oversea products)

Note:

- *Default position:*
- *SW01: Depend on unit capacity*
- *CN41, CN42, CN43: open circuit.*
- *CN44: Open circuit except of floor ceiling unit*
- *SW07: All ON*
- *J1-J8: All ON ( connection status), cut the jump wire can change it to OFF.*

#### (6) Jumper explanation

##### a) EEV operation manually (CN27, CN29)

**CN27: short circuit CN27 2 seconds continuously, EEV is opened fully.**

**CN29: short circuit CN29 2 seconds continuously, EEV is closed fully.**

##### b) time-short and self-check (CN28)

**Short circuit CN28 2 seconds after power ON, process into time-short (factory use).**

**Short circuit CN28 before power ON, process into self-check (factory use).**

## 11. Indoor Unit Control

### 11.1 Cooling operation

Set temp. in cooling:  $T_s$ =set temp. wired controller;

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.2 Heating operation

Set temp. in heating:  $T_s$ =set temp. wired controller+TA correcting value.

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.3 Dry operation

Room temp. - set temp.  $> 2^{\circ}\text{C}$  indoor operation is identical with the cooling operation, and send the cooling mode to outdoor;

Room temp. - set temp.  $\leq 2^{\circ}\text{C}$  indoor will send the dry signal to outdoor, and indoor fan motor will run at low speed compulsorily when compressor is running; when room temp.  $< 16^{\circ}\text{C}$  indoor stops and sends stop signal to outdoor. In dry operation, the auto mode of indoor fan motor is identical with the cooling mode; EEV control mode is identical with the cooling operation.

### 11.4 Fan operation

Indoor fan motor will run at the speed set on the wired controller and sends stop signal to outdoor.

### 11.5 Abnormal operation

When the requested mode collides with the outdoor mode, the entering earlier will be in prior. After indoor receives

mode, the indoor will run as the request of wired controller; if it is abnormal mode, the command can not be executed, and indoor keeps stop; wired controller displays standby mode (if in remote control type, the buzzer will sound twice and the remote controller can not receive the signal). Until the outdoor stops or the outdoor mode is accordant with the requested mode of wired controller (remote controller), the outdoor will work. COOL (including AUTO COOL), DRY, RECOVERY are regarded as the same mode; HEAT, RECOVERY are as abnormal mode.

### 11.6 Fan speed control of indoor fan motor

a. Adjustment by hand

Set high/ mid/ low fan speed as the request.

b. Auto fan speed

ference between room temp. TA and the set temp.

c. Anti-cool air control

In heating mode, after compressor startup, the unit will control indoor fan motor state due to the indoor coil temp.

In anti-cool air period, indoor sends pre-heat signal to wired controller; in outdoor defrosting period, indoor fan motor will stop, and sends defrost signal to wired controller;

After being switched off in heating mode, indoor fan motor will run at low speed and 30 seconds later will stop.

### 11.7 Set EEV open angle by hand

When being switched off, short connect CN27 to open the valve fully compulsorily for 2 minutes; When being switched off, short connect CN29 to close the valve fully compulsorily for 2 minutes.

## 11.8 Anti-freezed protection

In cooling mode, execute the anti-freezed protection due to the measured indoor coil temp. to avoid the indoor heat exchanger causing frost or ice.

## 11.9 Swing motor control

Indoor will control swing motor ON/OFF due to the swing signal from wired controller.

## 11.10 Filter cleaning

Check and memorize the running time of indoor fan motor, once arriving the requested time (set by SW07-6), indoor , if

## 11.11 Compulsory defrosting

After indoor receives the compulsory defrosting signal from wired controller, it will send compulsory defrosting signal to outdoor continuously for 10 times. In the sending period, indoor will execute the normal defrost.

## 11.12 Trial operation

Set the mode as cooling (heating), press ON/OFF for 5 seconds to enter compulsory cooling (heating).

In compulsory cooling, display "LL" and COOL

In compulsory heating, display "HH" and HEAT

TEMP +/- are valid.

AUTO. At this time, only ON/OFF,

## 11.13 Autorestart

The autorestart function is apply to all the **Flow Logic** indoor units and the factory setting it is available.

Memory contents: ON/OFF state, running mode, fan speed, setting temperature, swing position and temperature type displayed on panel.

Note:

(1) Temperature type displayed on panel is only used for slim duct, one way cassette and N platform high wall.

(2) If the timer and sleeping function are set, when the units power-on again, the unit is OFF state.

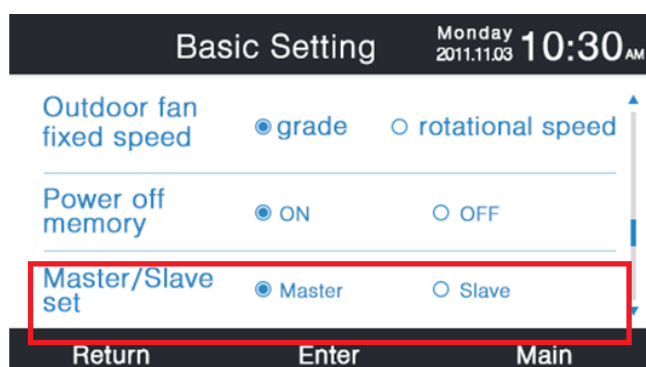
(3) The wired controller setting has the highest priority.

### Setting method by controller:

(1) Wired controller cancel method:

For **RWV05** setting the autorestart function by dip switch SW4

For **RWV07** setting the autorestart function by basic setting interface



(2) Remote controller cancel method:

Press the "HEALTH" button 10 times in 5s, buzzer echoes 4 times, the autorestart function is available; repeat above operations, buzzer echoes 2 times, the autorestart function is unavailable.

### **11.14 26°C lock function**

Factory default the 26°C lock function is unavailable.

#### **Setting method by remote controller:**

Power on the unit, in cooling mode, low speed, setting the temperature 26°C. Press the "HEALTH" button of the remote controller 8 times in 5s, buzzer echoes 4 times, the 26°C lock function is available; repeat above operations, buzzer echoes 2 times, the 26°C lock function is unavailable.

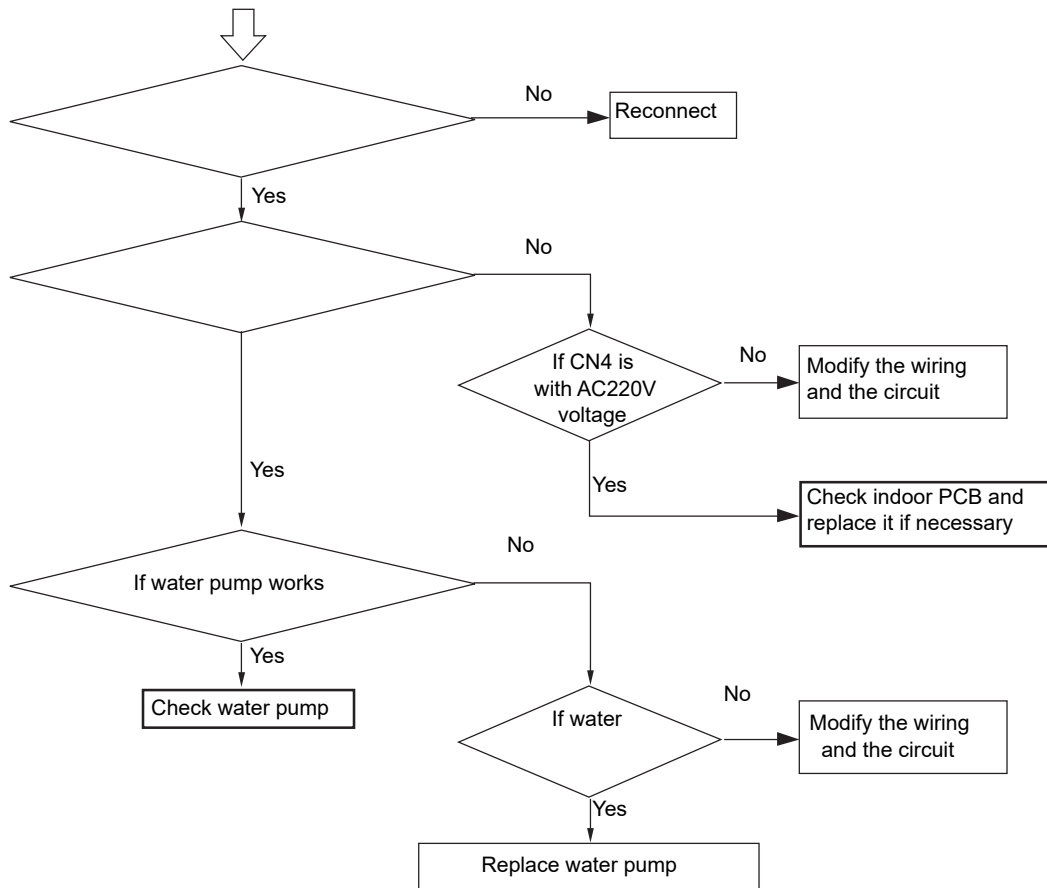
## 12. Failure Code

### Indoor unit failure code

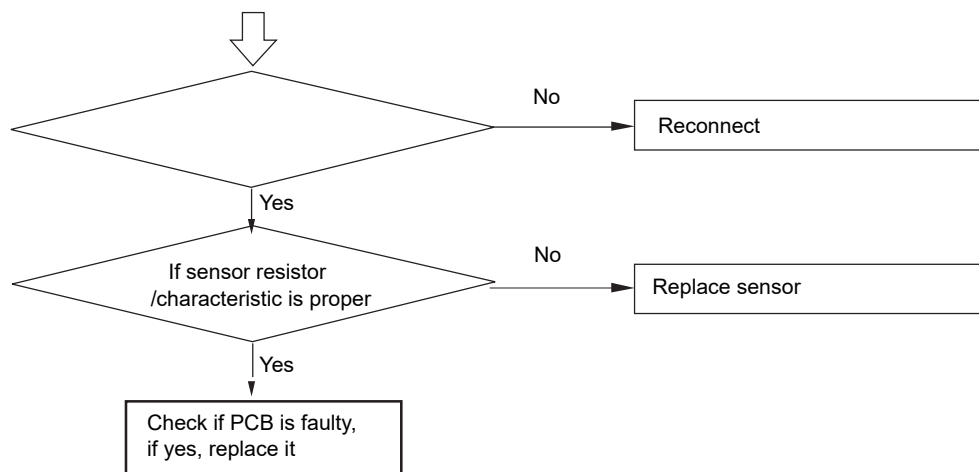
Indication on wired controller	Flash times of LED on indoor PCB/ timer LED on remote receiver		Remark
1	1	Indoor ambient temp. sensor TA failure	Resumable
2	2	Indoor coil pipe temp. sensor TC1 failure	
3	3	Indoor coil pipe temp. sensor TC2 failure	
4	4	Dual heat source sensor TW failure	
5	5	Indoor EEPROM failure	Unresumable
6	6	Communication between indoor and outdoor failure	Resumable
7	7	Communication between indoor and wired controller failure	Resumable
8	8		Resumable
9	9	Indoor address repeated failure	Resumable
0C	12	No 50Hz zero passage signal	Resumable
12	18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
Outdoor failure code	20	Outdoor failure code	Resumable

## 13. Troubleshooting

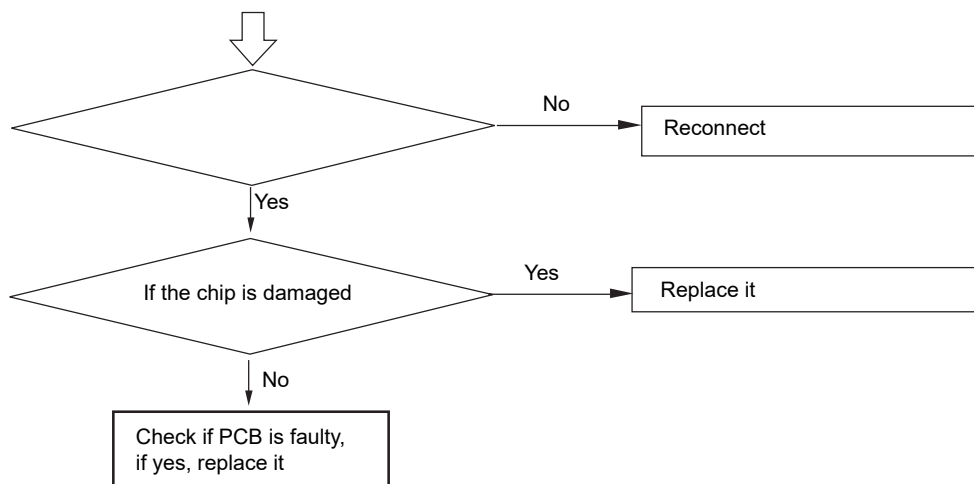
Indoor failure diagnose



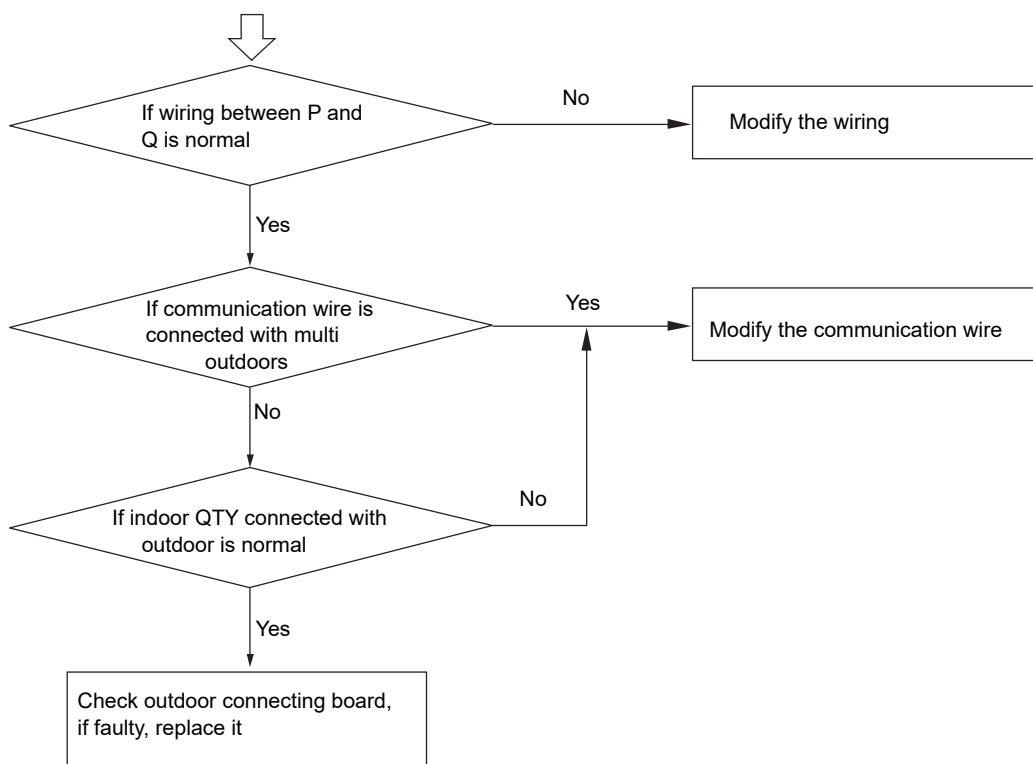
[1/2/3/4/15] Indoor sensor failure



[05] EEPROM failure

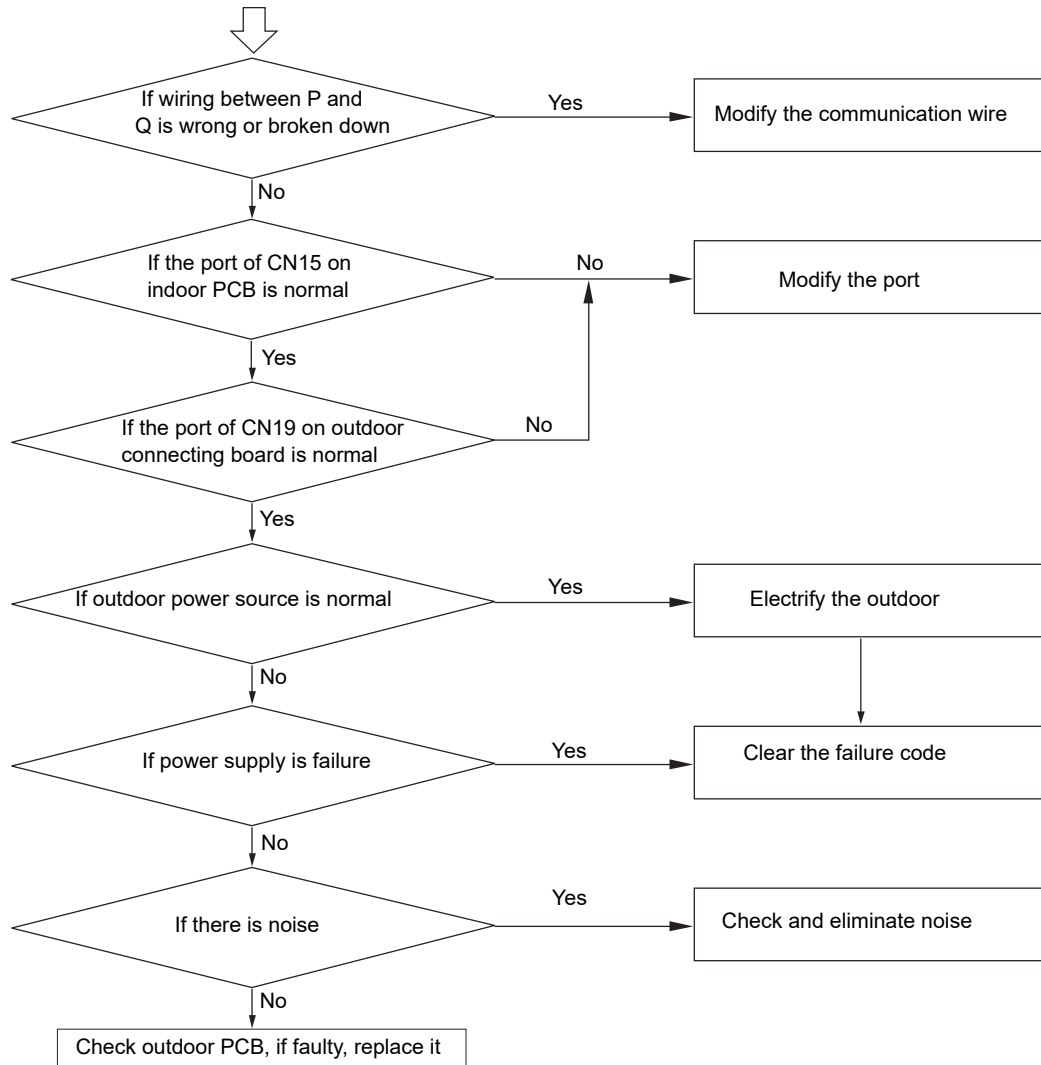


[09] Indoor address repeated

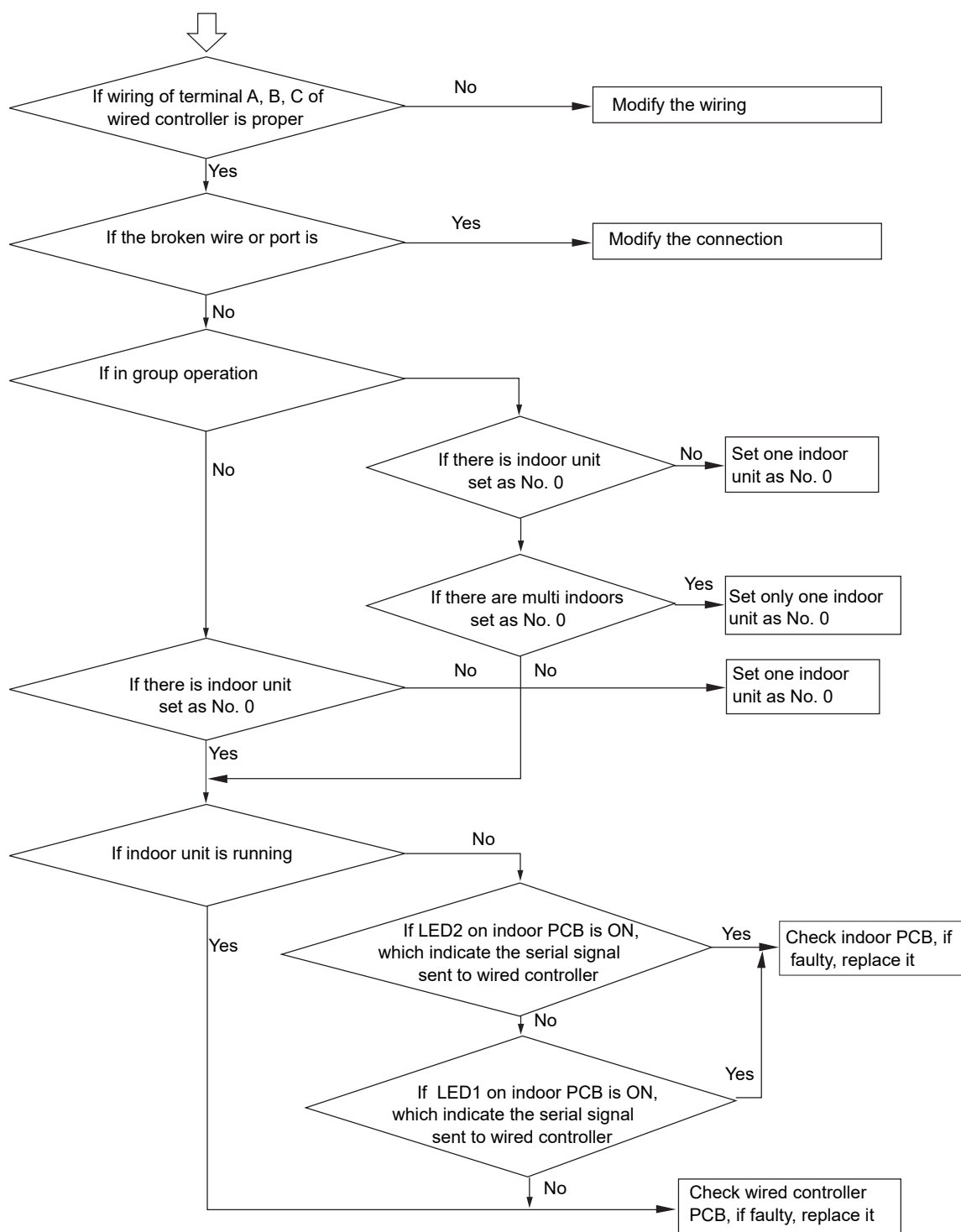




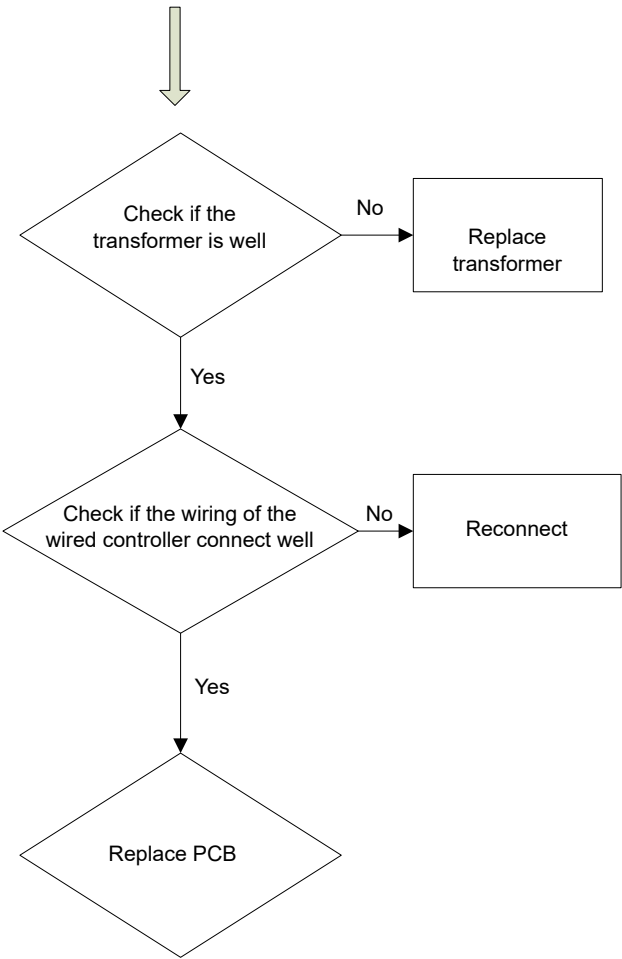
[06] Communication circuit between indoor and outdoor



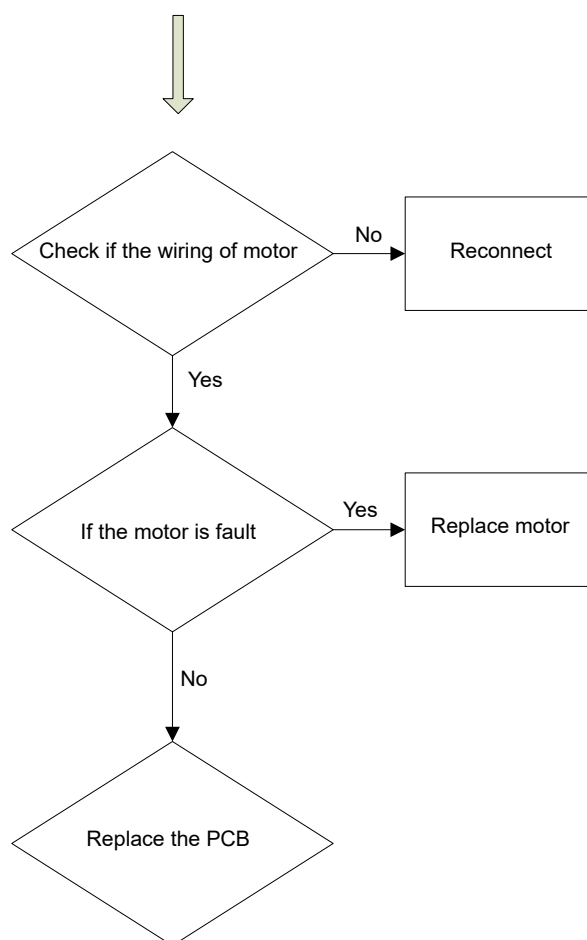
[07] Communication abnormal between indoor and wired controller



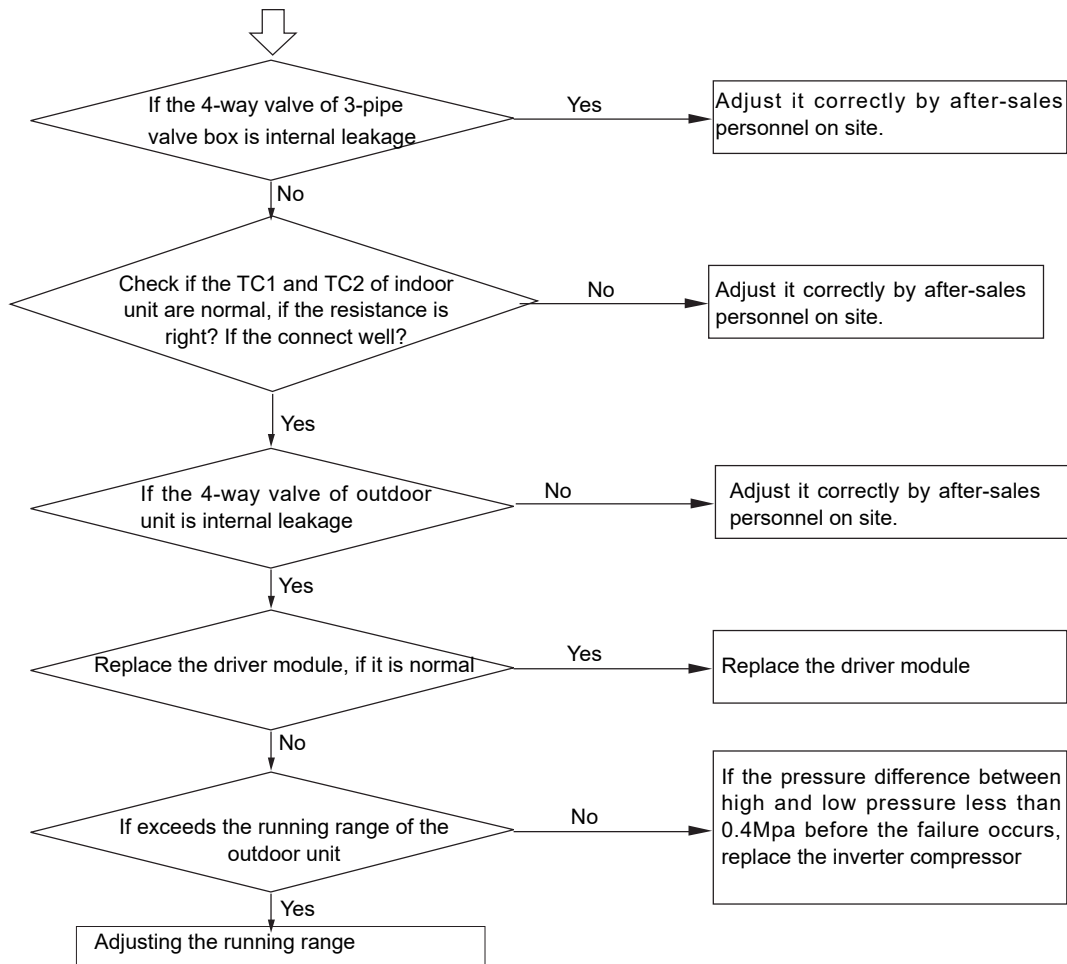
[12] No 50Hz zero passage signal



[14] DC motor failure



[18] The 4-way valve of 3-pipe valve box reversing failure



For MRVIII-RC system, the outdoor unit is running normally, when the 4-way valve of valve box is power on and its connected heating indoor unit's parameter satisfy following conditions

- &
  - When 4-way valve of valve box is ON
  - $TC2 \leq CT - 20^{\circ}C$  lasts for 5min
- or
  - $TC1 \leq 0^{\circ}C$  lasts for 5min
  - $TC1 \leq \text{master unit } Ps\_temp + 10^{\circ}C$  lasts for 5min

## 14. Capacity tables

### Cooling capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100 )	Outdoor Temp.	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
	°C DB	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
22	20.0	2.2	1.8	2.2	1.9	2.3	1.9	2.3	1.9	2.4	2.0	2.5	1.9	2.6	1.9
	22.5	2.1	1.8	2.2	1.9	2.3	1.8	2.3	1.9	2.4	1.9	2.4	1.9	2.5	1.9
	25.0	2.1	1.8	2.2	1.9	2.2	1.8	2.3	1.9	2.3	1.9	2.4	1.9	2.5	1.9
	27.5	2.1	1.8	2.1	1.9	2.2	1.8	2.3	1.9	2.3	1.9	2.4	1.9	2.5	1.8
	30.0	2.1	1.8	2.1	1.9	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.9	2.5	1.8
	32.5	2.0	1.8	2.1	1.8	2.2	1.8	2.2	1.8	2.3	1.9	2.4	1.9	2.4	1.8
	35.0	2.0	1.8	2.1	1.8	2.2	1.8	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.8
	37.5	2.0	1.8	2.0	1.8	2.1	1.8	2.2	1.8	2.2	1.9	2.3	1.9	2.4	1.8
	40.0	2.0	1.8	2.0	1.8	2.1	1.8	2.2	1.8	2.2	1.9	2.3	1.8	2.4	1.8
28	43.0	2.0	1.7	2.0	1.8	2.1	1.8	2.1	1.8	2.2	1.9	2.3	1.8	2.3	1.8
	20.0	2.7	2.2	2.8	2.2	2.9	2.2	3.0	2.2	3.0	2.3	3.1	2.2	3.2	2.2
	22.5	2.7	2.2	2.8	2.2	2.9	2.2	2.9	2.2	3.0	2.3	3.1	2.2	3.2	2.2
	25.0	2.7	2.1	2.7	2.2	2.9	2.2	2.9	2.2	3.0	2.3	3.1	2.2	3.2	2.1
	27.5	2.7	2.1	2.7	2.2	2.8	2.2	2.9	2.2	2.9	2.2	3.1	2.2	3.2	2.1
	30.0	2.6	2.1	2.7	2.2	2.8	2.1	2.9	2.2	2.9	2.2	3.0	2.2	3.1	2.1
	32.5	2.6	2.1	2.7	2.2	2.8	2.1	2.8	2.1	2.9	2.2	3.0	2.2	3.1	2.1
	35.0	2.6	2.1	2.6	2.1	2.7	2.1	2.8	2.1	2.9	2.2	3.0	2.2	3.1	2.1
	37.5	2.5	2.1	2.6	2.1	2.7	2.1	2.8	2.1	2.8	2.2	2.9	2.2	3.1	2.1
36	40.0	2.5	2.1	2.6	2.1	2.7	2.1	2.7	2.1	2.8	2.2	2.9	2.1	3.0	2.1
	20.0	3.5	2.7	3.6	2.8	3.7	2.7	3.8	2.7	3.9	2.8	4.0	2.7	4.2	2.7
	22.5	3.5	2.7	3.6	2.7	3.7	2.7	3.8	2.7	3.9	2.8	4.0	2.7	4.1	2.7
	25.0	3.5	2.7	3.5	2.7	3.7	2.7	3.7	2.7	3.8	2.8	4.0	2.7	4.1	2.6
	27.5	3.4	2.6	3.5	2.7	3.6	2.7	3.7	2.7	3.8	2.8	3.9	2.7	4.1	2.6
	30.0	3.4	2.6	3.5	2.7	3.6	2.6	3.7	2.7	3.7	2.8	3.9	2.7	4.0	2.6
	32.5	3.3	2.6	3.4	2.7	3.6	2.6	3.6	2.7	3.7	2.7	3.9	2.7	4.0	2.6
	35.0	3.3	2.6	3.4	2.7	3.5	2.6	3.6	2.6	3.7	2.7	3.8	2.7	4.0	2.6
	37.5	3.3	2.6	3.3	2.6	3.5	2.6	3.6	2.6	3.6	2.7	3.8	2.7	3.9	2.6
45	40.0	3.2	2.6	3.3	2.6	3.5	2.6	3.5	2.6	3.6	2.7	3.7	2.6	3.9	2.6
	43.0	3.2	2.5	3.3	2.6	3.4	2.6	3.5	2.6	3.6	2.7	3.7	2.6	3.8	2.6
	20.0	4.4	3.3	4.5	3.4	4.7	3.3	4.8	3.4	4.9	3.5	5.0	3.4	5.2	3.3
	22.5	4.4	3.3	4.5	3.4	4.6	3.3	4.7	3.3	4.8	3.4	5.0	3.4	5.2	3.3
	25.0	4.3	3.3	4.4	3.4	4.6	3.3	4.7	3.3	4.8	3.4	5.0	3.3	5.1	3.2
	27.5	4.3	3.3	4.4	3.3	4.5	3.3	4.6	3.3	4.7	3.4	4.9	3.3	5.1	3.2
	30.0	4.2	3.2	4.3	3.3	4.5	3.2	4.6	3.3	4.7	3.4	4.9	3.3	5.0	3.2
	32.5	4.2	3.2	4.3	3.3	4.5	3.2	4.5	3.3	4.6	3.4	4.8	3.3	5.0	3.2
	35.0	4.1	3.2	4.1	3.3	4.4	3.2	4.5	3.2	4.6	3.3	4.8	3.3	5.0	3.2
56	37.5	4.1	3.2	4.2	3.2	4.4	3.2	4.5	3.2	4.5	3.3	4.7	3.3	4.9	3.2
	40.0	4.1	3.1	4.1	3.2	4.3	3.2	4.4	3.2	4.5	3.3	4.7	3.2	4.9	3.2
	43.0	4.0	3.1	4.1	3.2	4.3	3.1	4.4	3.2	4.4	3.3	4.6	3.2	4.8	3.1
	20.0	5.5	3.9	5.6	4.0	5.8	3.9	5.9	3.9	6.0	4.0	6.3	3.9	6.5	3.8
	22.5	5.4	3.9	5.5	3.9	5.8	3.9	5.9	3.9	6.0	4.0	6.2	3.9	6.4	3.8
	25.0	5.4	3.8	5.5	3.9	5.7	3.8	5.8	3.8	5.9	4.0	6.2	3.8	6.4	3.7
	27.5	5.3	3.8	5.4	3.9	5.7	3.8	5.8	3.8	5.9	3.9	6.1	3.8	6.3	3.7
	30.0	5.3	3.8	5.4	3.9	5.6	3.8	5.7	3.8	5.8	3.9	6.0	3.8	6.3	3.7
	32.5	5.2	3.8	5.3	3.8	5.5	3.7	5.7	3.8	5.8	3.9	6.0	3.8	6.2	3.7
71	35.0	5.2	3.7	5.3	3.8	5.5	3.7	5.6	3.7	5.7	3.9	5.9	3.8	6.2	3.7
	37.5	5.1	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.7	3.8	5.9	3.7	6.1	3.6
	40.0	5.0	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.6	3.8	5.8	3.7	6.0	3.6
	43.0	5.0	3.6	5.1	3.7	5.3	3.6	5.4	3.7	5.5	3.8	5.8	3.7	6.0	3.6
	20.0	7.0	5.1	7.1	5.2	7.4	5.1	7.5	5.1	7.7	5.3	8.0	5.2	8.2	5.0
	22.5	6.9	5.1	7.0	5.2	7.3	5.1	7.5	5.1	7.6	5.3	7.9	5.1	8.2	5.0
	25.0	6.8	5.0	7.0	5.2	7.2	5.0	7.4	5.1	7.5	5.2	7.8	5.1	8.1	5.0
	27.5	6.7	5.0	6.9	5.1	7.2	5.0	7.3	5.1	7.5	5.2	7.7	5.1	8.0	4.9
	30.0	6.7	5.0	6.8	5.1	7.1	5.0	7.2	5.0	7.4	5.2	7.7	5.0	8.0	4.9
71	32.5	6.6	4.9	6.7	5.1	7.0	4.9	7.2	5.0	7.3	5.2	7.6	5.0	7.9	4.9
	35.0	6.5	4.9	6.7	5.0	7.0	4.9	7.1	5.0	7.2	5.1	7.5	5.0	7.8	4.9
	37.5	6.5	4.9	6.6	5.0	6.9	4.9	7.0	4.9	7.2	5.1	7.5	5.0	7.7	4.8
	40.0	6.4	4.8	6.5	5.0	6.8	4.9	7.0	4.9	7.1	5.1	7.4	4.9	7.7	4.8
	43.0	6.3	4.8	6.4	4.9	6.7	4.8	6.9	4.9	7.0	5.0	7.3	4.9	7.6	4.8

## Heating capacity

CA: total capacity; SHC: sensible heat capacity

Capacity ( W*100)	Outdoor Temp.	Indoor Temp. (°C DB)				Capacity ( W*100)	Outdoor Temp.	Indoor Temp. (°C DB)			
		15.0	20.0	25.0	27.0			15.0	20.0	25.0	27.0
	°C WB	SHC	SHC	SHC	SHC		°C WB	SHC	SHC	SHC	SHC
22	-15.0	1.7	1.6	1.6	1.6	45	-15.0	3.3	3.3	3.3	3.3
	-10.0	1.9	1.9	1.9	1.7		-10.0	3.8	3.8	3.7	3.5
	-5.0	2.1	2.1	1.9	1.7		-5.0	4.3	4.2	3.9	3.5
	0.0	2.4	2.4	1.9	1.7		0.0	4.8	4.7	3.9	3.5
	2.5	2.5	2.5	1.9	1.7		2.5	5.0	5.0	3.9	3.5
	6.0	2.5	2.5	1.9	1.7		6.0	5.1	5.0	3.9	3.5
	6.5	2.6	2.5	1.9	1.7		6.5	5.3	5.0	3.9	3.5
	10.0	2.8	2.5	1.9	1.7		10.0	5.6	5.0	3.9	3.5
	12.5	3.0	2.5	1.9	1.7		12.5	6.0	5.0	3.9	3.5
	15.5	3.0	2.5	1.9	1.7		15.5	6.1	5.0	3.9	3.5
28	-15.0	2.1	2.1	2.1	2.1	56	-15.0	4.2	4.2	4.1	4.1
	-10.0	2.4	2.4	2.4	2.2		-10.0	4.8	4.8	4.7	4.3
	-5.0	2.7	2.7	2.5	2.2		-5.0	5.4	5.3	4.9	4.3
	0.0	3.1	3.0	2.5	2.2		0.0	6.0	5.9	4.9	4.3
	2.5	3.2	3.2	2.5	2.2		2.5	6.3	6.2	4.9	4.3
	6.0	3.2	3.2	2.5	2.2		6.0	6.4	6.3	4.9	4.3
	6.5	3.4	3.2	2.5	2.2		6.5	6.6	6.3	4.9	4.3
	10.0	3.6	3.2	2.5	2.2		10.0	7.1	6.3	4.9	4.3
	12.5	3.8	3.2	2.5	2.2		12.5	7.5	6.3	4.9	4.3
	15.5	3.9	3.2	2.5	2.2		15.5	7.6	6.3	4.9	4.3
36	-15.0	2.7	2.6	2.6	2.6	71	-15.0	5.4	5.3	5.2	5.2
	-10.0	3.1	3.0	3.0	2.8		-10.0	6.1	6.0	6.0	5.5
	-5.0	3.4	3.4	3.1	2.8		-5.0	6.9	6.8	6.2	5.5
	0.0	3.8	3.8	3.1	2.8		0.0	7.6	7.5	6.2	5.5
	2.5	4.0	4.0	3.1	2.8		2.5	8.0	7.9	6.2	5.5
	6.0	4.0	4.0	3.1	2.8		6.0	8.1	8.0	6.2	5.5
	6.5	4.2	4.0	3.1	2.8		6.5	8.4	8.0	6.2	5.5
	10.0	4.5	4.0	3.1	2.8		10.0	9.0	8.0	6.2	5.5
	12.5	4.8	4.0	3.1	2.8		12.5	9.6	8.0	6.2	5.5
	15.5	4.8	4.0	3.1	2.8		15.5	9.7	8.0	6.2	5.5

## Medium ESP DUCT TYPE

### 1. Features



AWSI-DBV018-N11  
AWSI-DBV024-N11  
AWSI-DBV028-N11



AWSI-DBV030-N11  
AWSI-DBV038-N11  
AWSI-DBV048-N11

#### Optional external static pressure

The duct unit has two kinds of static pressure: Standard static pressure 0~50Pa and optional static pressure 50~96Pa. Flexible air supply mode, much freer installation and meet the personal requests.

#### The unit is built in the ceiling, space saving

The duct unit is installed above the ceiling, just leaving the air outlet in the ceiling, which will not affect the indoor decor and supply less space of indoor.

#### Multi rooms sharing one indoor unit

The duct unit can be applicable for multi rooms, because the duct can be set as multiple air outlets according to the load.

#### Large head of water pump

The duct unit is equipped with water pump to drain the condensate water. The head of water pump can be up to 1.2m, which improves the water drainage quality greatly and can meet many installation conditions.



## 2.

MODEL			AWSI-DBV018-N11	AWSI-DBV024-N11	AWSI-DBV028-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	19.1	24.2	27.3
	Capacity	kW	5.6	7.1	8.0
	Power input	W	100	100	100
	Current	A	0.51	0.51	0.51
Heating	Capacity	kBtu/h	21.5	27.3	30.7
	Capacity	kW	6.3	8.0	9.0
	Power input	W	100	100	100
	Current	A	0.51	0.51	0.51
	Heating capacity at low temp.	kW	5.0	6.3	7.1
Operating current		A	0.51	0.51	0.51
Power consumption		kW	100	100	100
Indoor motor	Brand		ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC
	Model		Y6S443C84	Y6S443C84	Y6S443C84
	Type		AC	AC	AC
	Insulation class		B	B	B
	IP class		IP20	IP20	IP20
	Power input	W	88	88	88
	Power output	W	66	66	66
	Capacitor	μF	8 μF /450v	8 μF /450v	8 μF /450v
	Speed (SH/H/M/L)	rpm	1000/940/880/840	1000/940/880/840	1000/940/880/840
Indoor fan	Brand		Haier	Haier	Haier
	Type		Centrifugal	Centrifugal	Centrifugal
	Quantity		3	3	3
Indoor coil	a. Number of rows		3	3	3
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3	21×13.3
	c. Fin spacing	mm	1.5	1.5	1.5
	d. Fin type (code)		Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		
	f. Coil length×height×width	mm	813/252/39.9	813/252/39.9	813/252/39.9
	g. Number of circuits		3	3	3

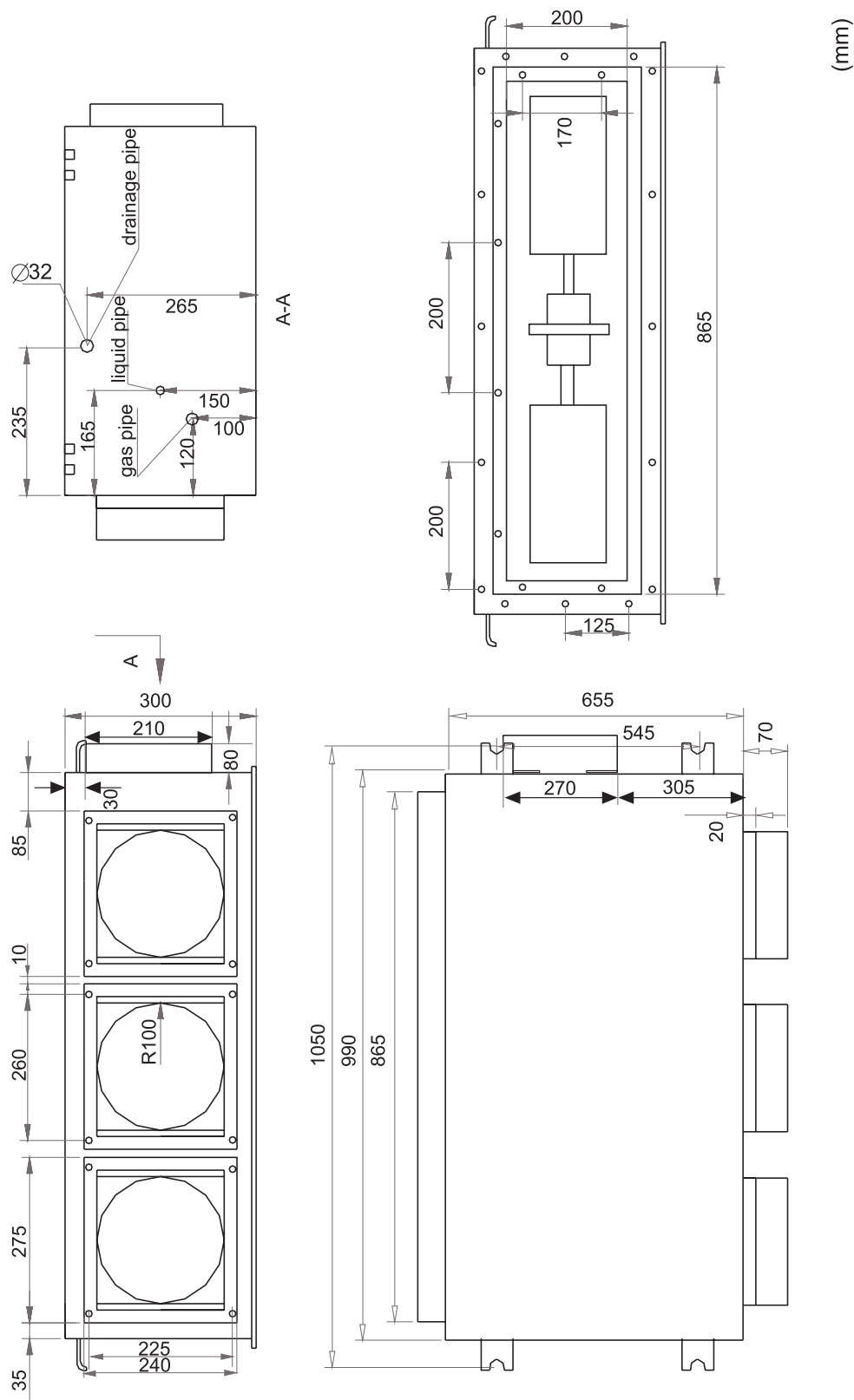
MODEL			AWSI-DBV018-N11	AWSI-DBV024-N11	AWSI-DBV028-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
Construction	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		PS	PS	PS
	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
Piping dimension	Liquid pipe	mm	6.35	9.52	9.52
	Gas pipe	mm	12.7	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimension		mm	Φ150	Φ150	Φ150
Sound pressure level (H/M/L)		dB (A)	36/34/31	36/34/31	39/37/35
Sound power level (H/M/L)		dB (A)	49/47/44	49/47/44	52/50/48
Standard static pressure		Pa	50	50	50
Max. static pressure		Pa	96	96	96
		m <sup>3</sup> /h	1200/1123/1072	1200/1123/1072	1200/1123/1072
Air outlet dimensions		mm	200/3	200/3	200/3
Air return dimensions		mm	865/200	865/200	865/200
Dimension (W*H*D)		mm	990/300/655	990/300/655	990/300/655
Packing (W*H*D)		mm	1165/340/733	1165/340/733	1165/340/733
Net weight		kg	39	39	39
Gross weight		kg	45	45	45
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.					

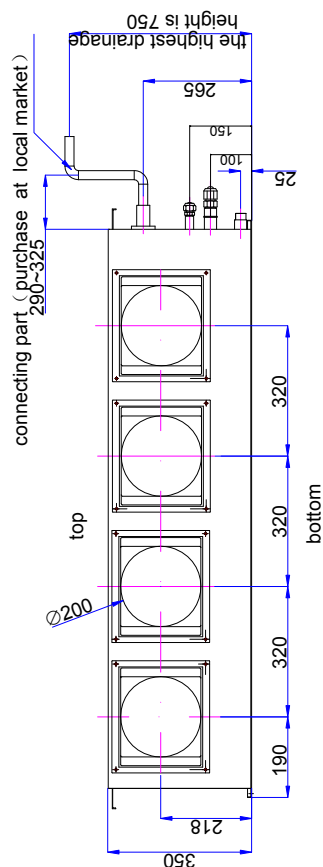
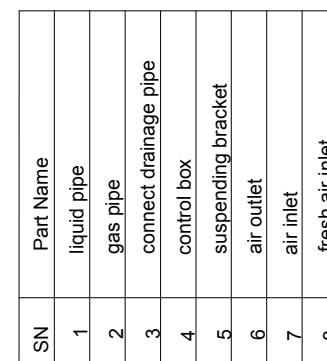
MODEL			AWSI-DBV030-N11	AWSI-DBV038-N11	AWSI-DBV048-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	30.7	38.2	47.8
	Capacity	kW	9.0	11.2	14.0
	Power input	W	200	200	200
	Current	A	1	1	1
Heating	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10.0	12.5	16.0
	Power input	W	200	200	200
	Current	A	1	1	1
	Heating capacity at low temp.	kW	8.0	10.0	12.5
Operating current		A	1	1	1
Power consumption		kW	200	200	200
Indoor motor	Brand		ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC	ZHONGSHAN BROAD-OC
	Model		Y6S443B85 / Y6S443C82	Y6S443B85 / Y6S443C82	Y6S443B85 / Y6S443C82
	Type		AC	AC	AC
	Insulation class		B	B	B
	IP class		IP20	IP20	IP20
	Power input	W	50/90	50/90	50/90
	Power output	W	45/60	45/60	45/60
	Capacitor	μF	3.5μF/450v 8 μF/450v		
	Speed (SH/H/M/L)	rpm	1060/1000/930/880 925/850/780/730		
Indoor fan	Brand		Haier	Haier	Haier
	Type		Centrifugal	Centrifugal	Centrifugal
	Quantity		3	3	3
Indoor coil	a. Number of rows		2	2	3
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3	21×13.3
	c. Fin spacing	mm	1.4	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ7 Inner groove tube		
	f. Coil length×height×width	mm	1236/294/26.6	1236/294/26.6	1236/294/39.9
	g. Number of circuits		7	7	7

MODEL			AWSI-DBV030-N11	AWSI-DBV038-N11	AWSI-DBV048-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
Construction	Sheet metal thickness		0.8	0.8	0.8
	Drain pan material		EPS	EPS	EPS
	Drain pan insulation		20	20	20
	Drain pump option		Standard 700mm	Standard 700mm	Standard 700mm
	Branch outlet option		No	No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
	Thickness	mm	0.8	0.8	0.8
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
Piping dimension	Liquid pipe	mm	9.52	9.52	9.52
	Gas pipe	mm	15.88	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimension		mm	Φ150	Φ150	Φ150
Sound pressure level (H/M/L)		dB(A)	39/37/35	41/40/39	41/40/39
Sound power level (H/M/L)		dB(A)	52/50/48	54/53/52	54/53/52
Standard static pressure		Pa	50	50	50
Max. static pressure		Pa	96	96	96
		m <sup>3</sup> /h	1900/1726/1538	1900/1726/1538	2100/1908/1700
Air outlet dimensions		mm	200/4	200/4	200/4
Air return dimensions		mm	1285/245	1285/245	1285/245
Dimension (W*H*D)		mm	1418/350/655	1418/350/655	1418/350/655
Packing (W*H*D)		mm	1570/383/813	1570/383/813	1570/383/813
Net weight		kg	59	59	59
Gross weight		kg	66.7	66.7	66.7
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.					

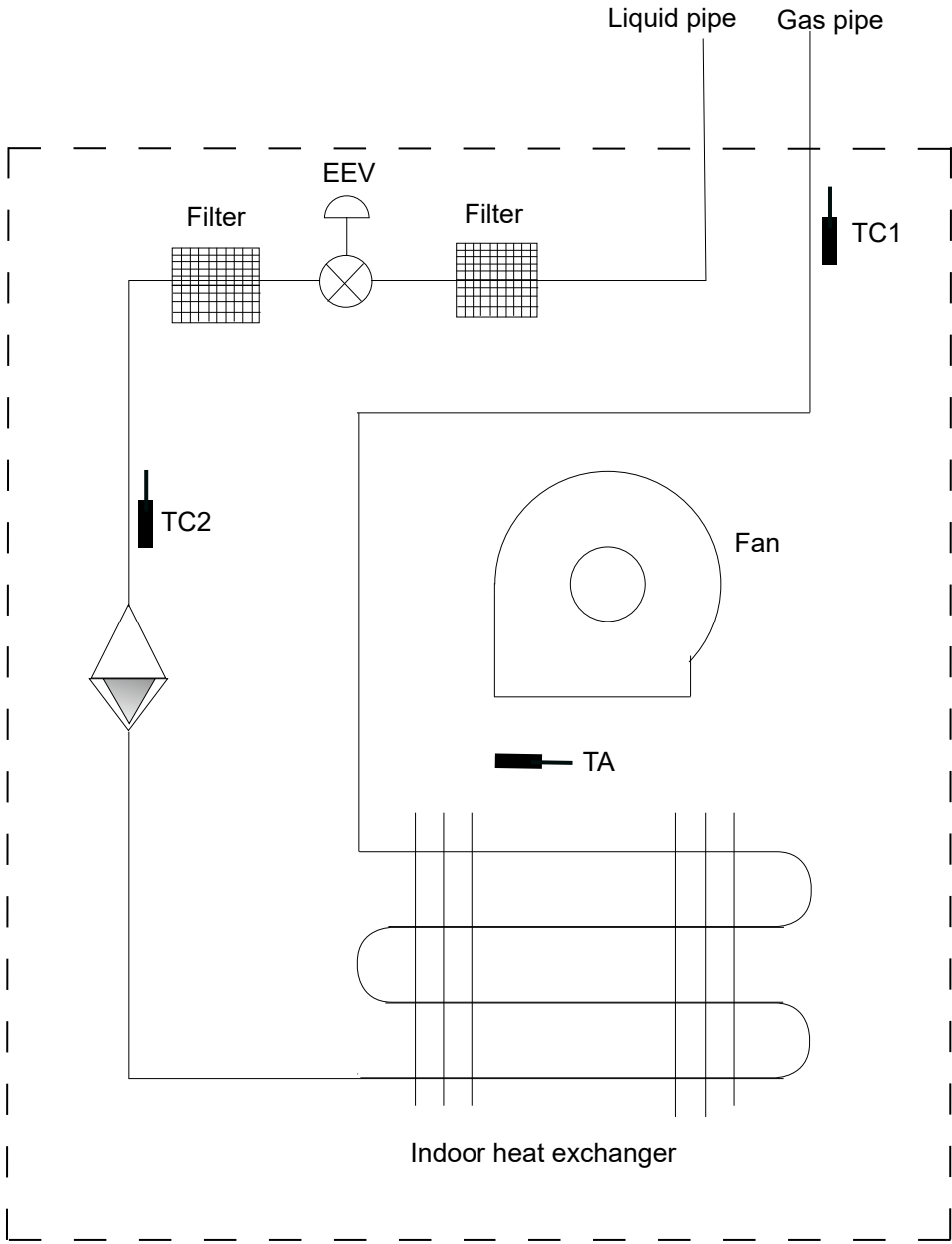
3. Dimension

AWSI-DBV018-N11  
AWSI-DBV024-N11  
AWSI-DBV028-N11

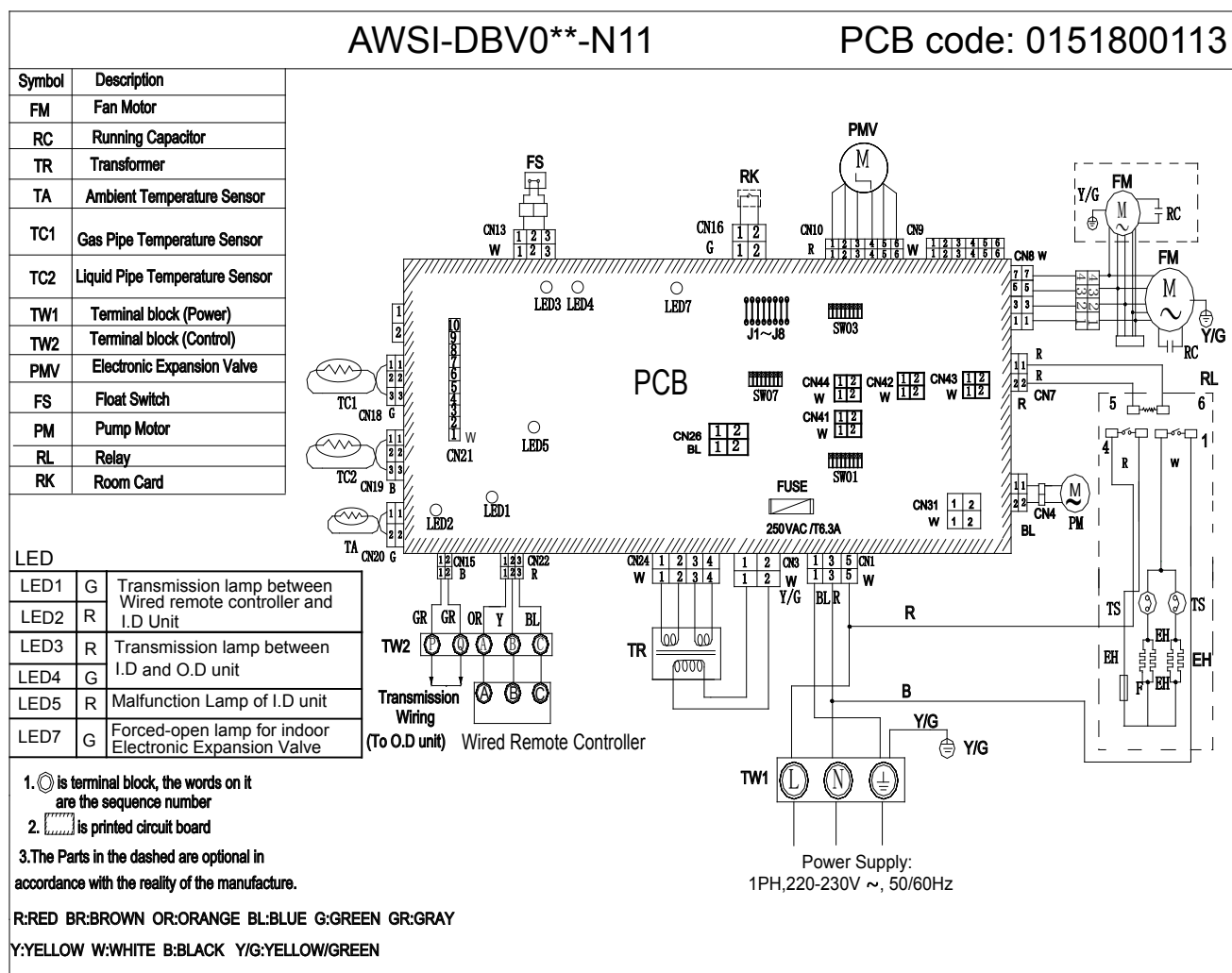




4. Piping diagram



## 5. Wiring diagram





## 6. Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt. range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AWSI-DBV018-N11	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AWSI-DBV024-N11	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AWSI-DBV028-N11	1	50/60	220	198-242	1.19	3.8	150	0.95	100	100
AWSI-DBV030-N11	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200
AWSI-DBV038-N11	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200
AWSI-DBV048-N11	1	50/60	220	198-242	1.81	5.8	60/45	1.45	200	200

### Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker Output: Fan motor rated output (w) FLA: Full load amps (A)

### Note:

#### 1. Voltage range

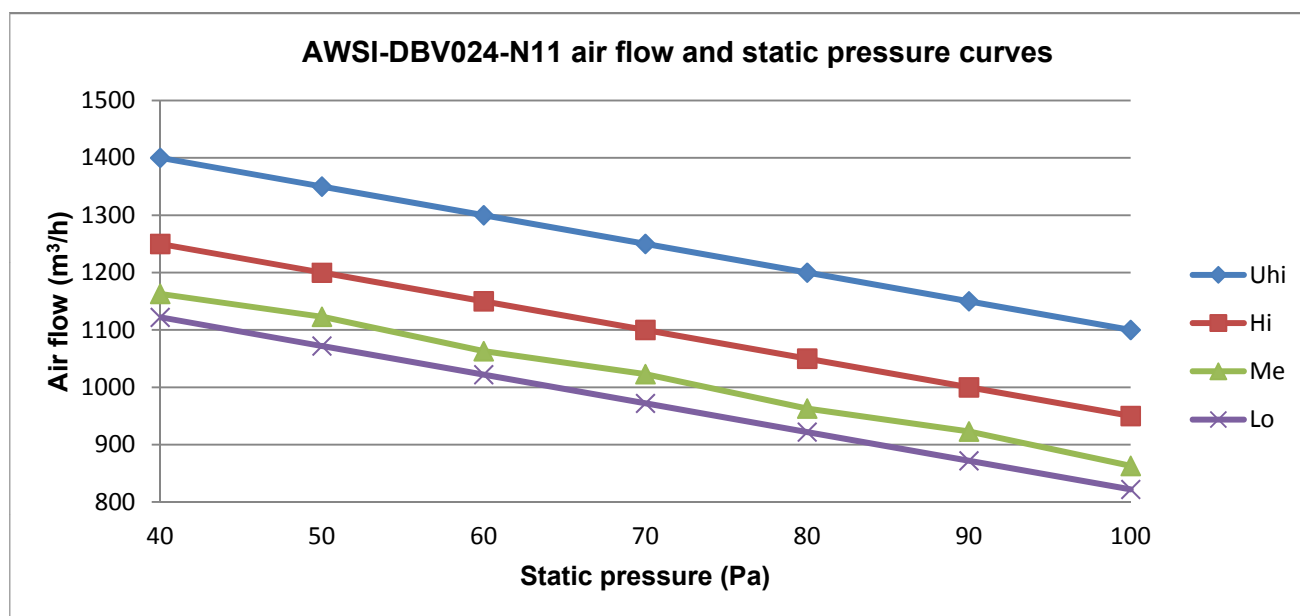
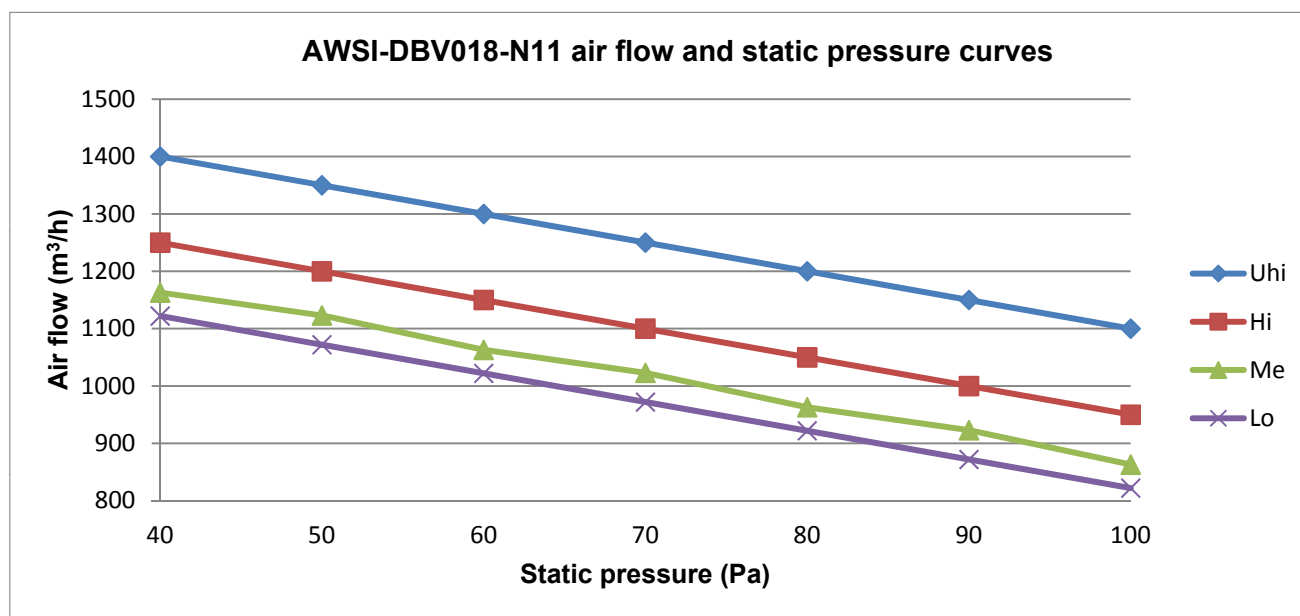
*The units are applicable for the electrical systems where voltage supplied to unit is in the range.*

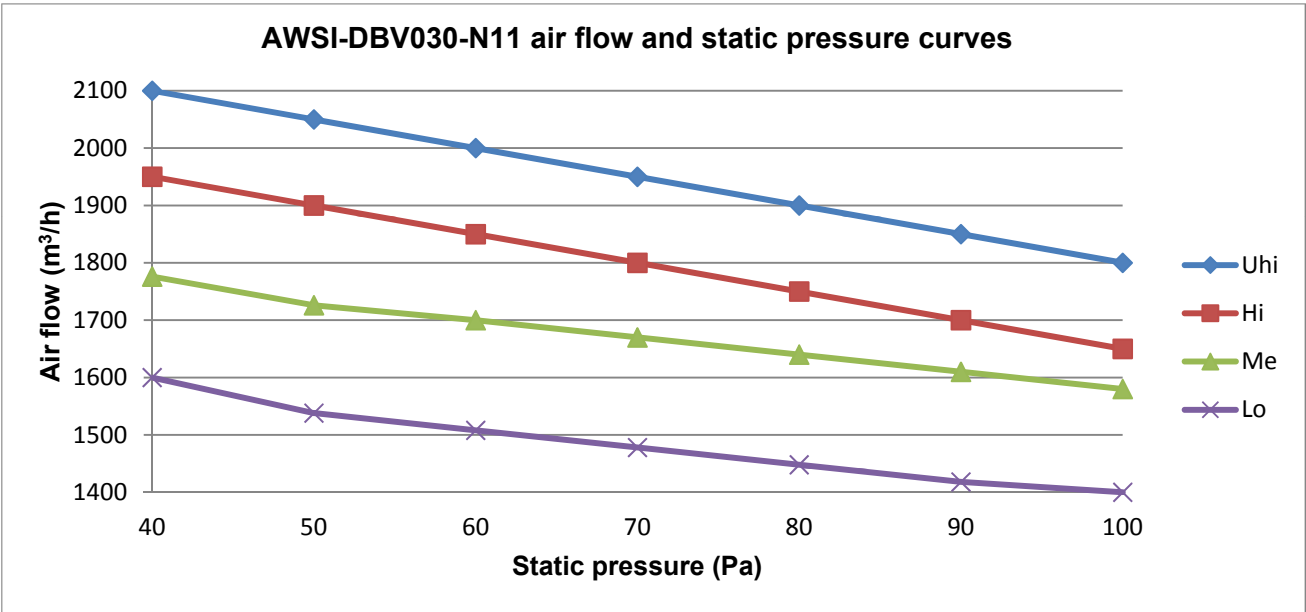
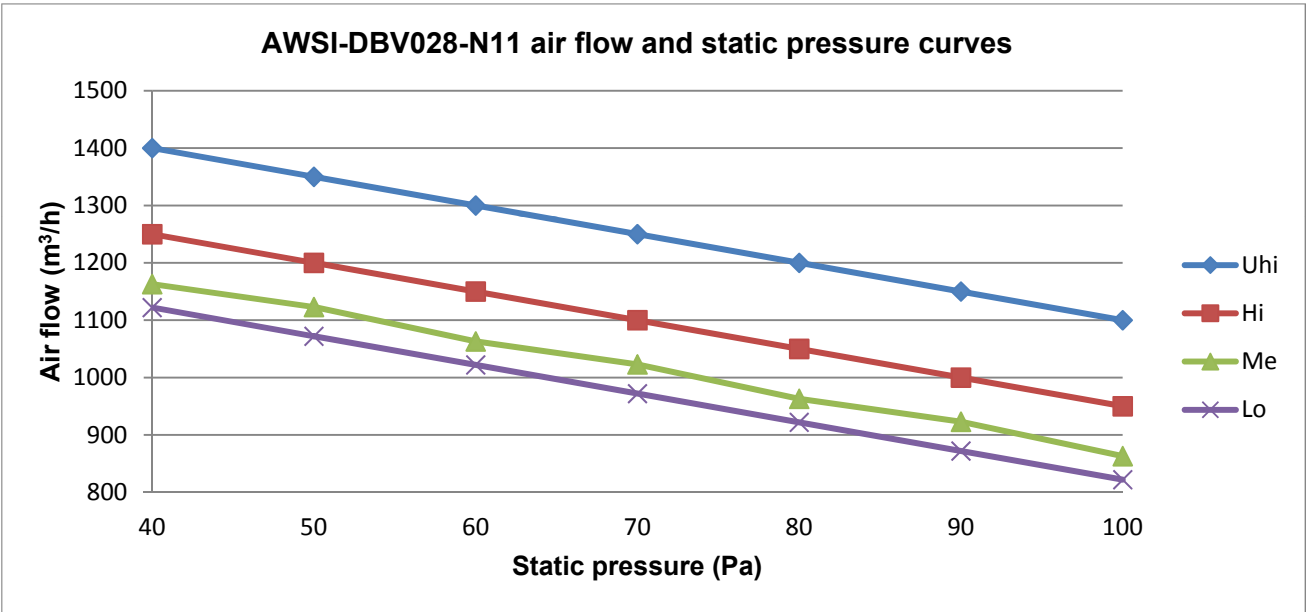
#### 2. Maximum allowable voltage unbalance between phases is 2%.

#### 3. $MCA=1.25*FLA$ $MFA\leq 4*FLA$

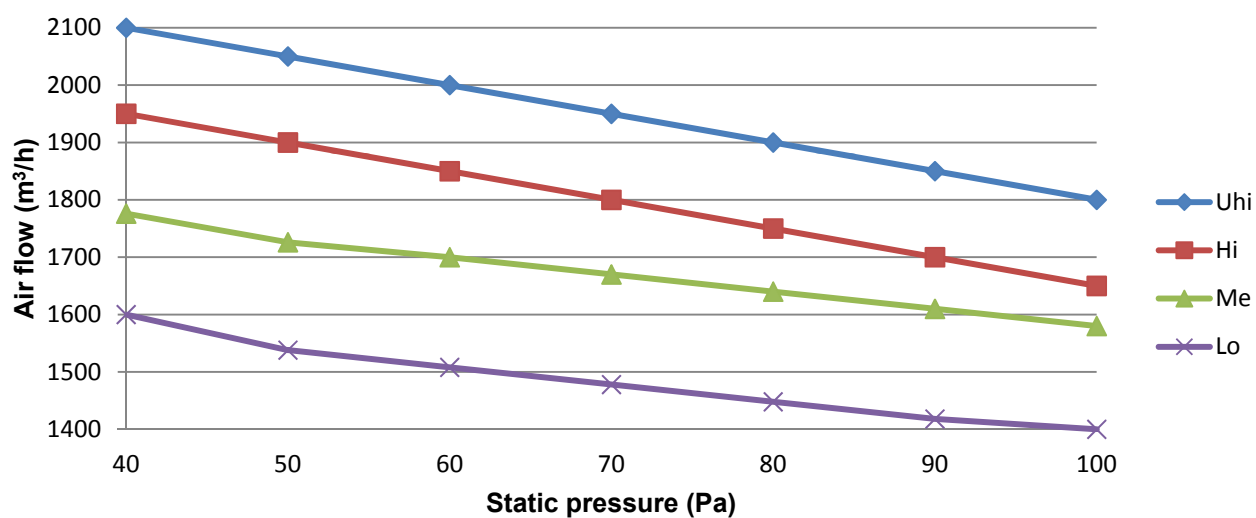
#### 4. Power supply uses the circuit breaker.

7.

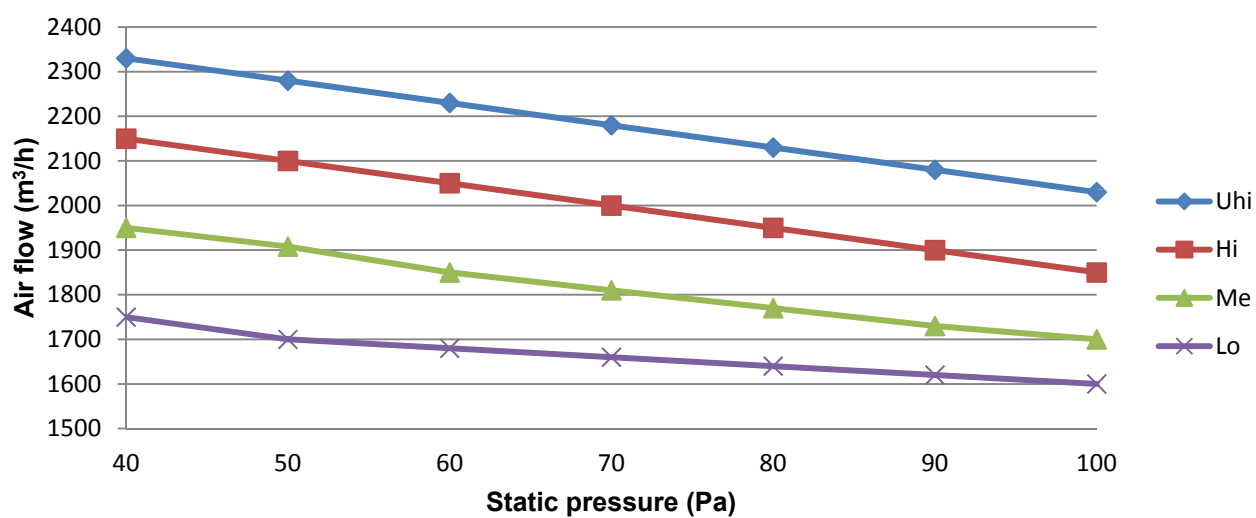




**AWSI-DBV038-N11 air flow and static pressure curves**

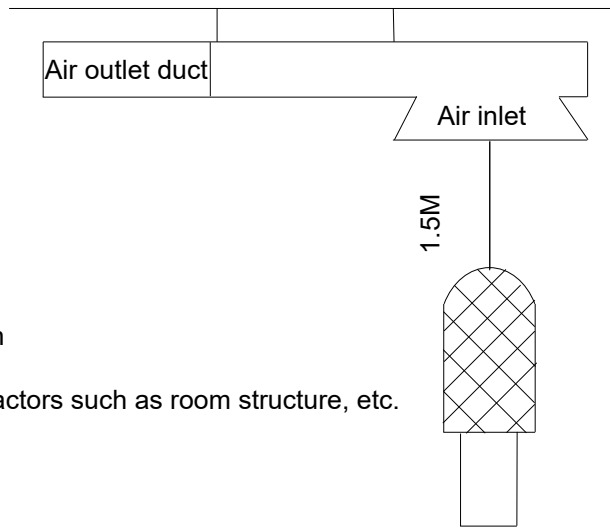


**AWSI-DBV048-N11 air flow and static pressure curves**



## 8. Sound pressure level

(1) Testing illustrate:



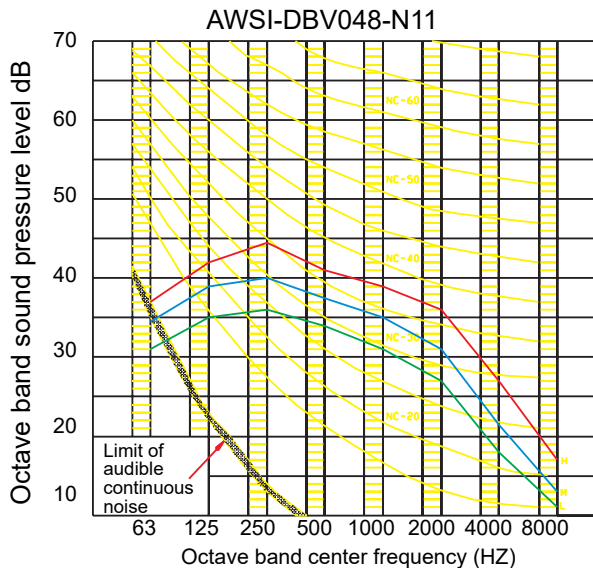
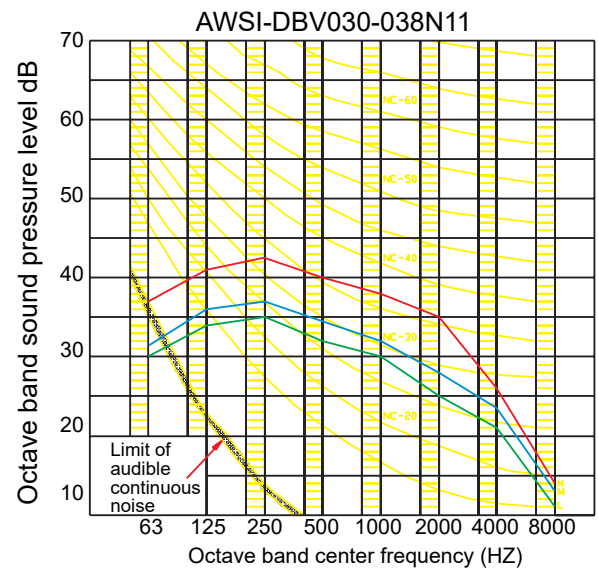
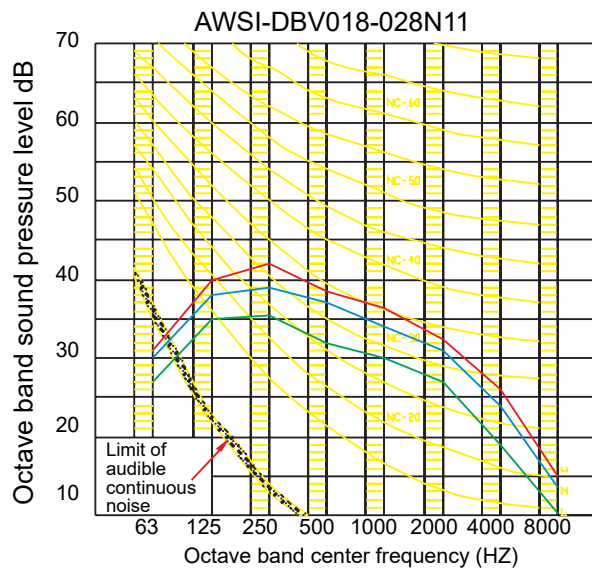
(2) Testing condition:

a: Unit running in the normal condition

b: Test in the semi-anechoic chamber

c: Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:



## 9. Installation

### 9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

#### 1. Before installation [before the installation, don't throw away the attached parts required for the installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

#### 2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

(2) Height of ceiling:

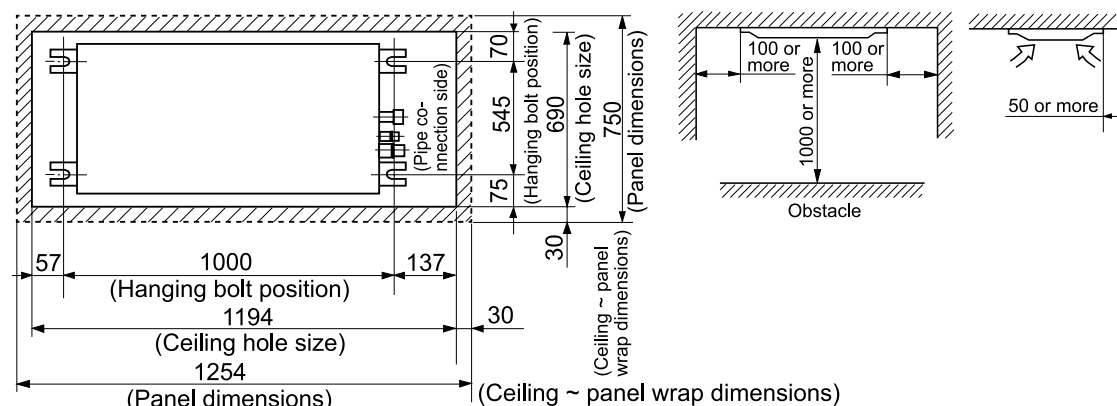
The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

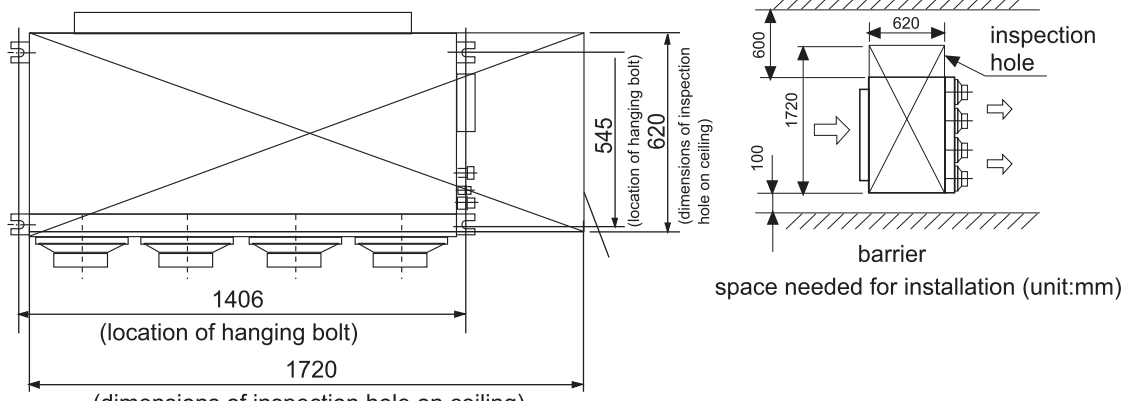
#### 3. Preparation before Installation

(1) Location relation between inspection hole on the ceiling and the unit and the suspender  
(Unit: mm).

AWSI-DBV018-N11 AWSI-DBV024-N11 AWSI-DBV028-N11



AWSI-DBV030-N11 AWSI-DBV038-N11 AWSI-DBV048-N11



(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

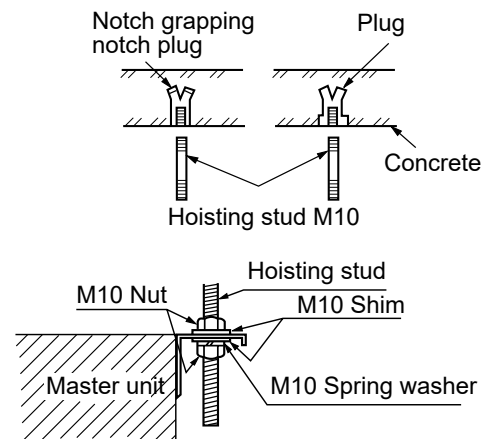
- For the size of the inspection hole on the ceiling, please refer to the above drawing.
- and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.
- For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.

(4) Installation of Indoor Units

- Fix the indoor unit with the hoisting stud. If necessary, the machine can be hung on the beam with bolts instead of the hoisting stud.



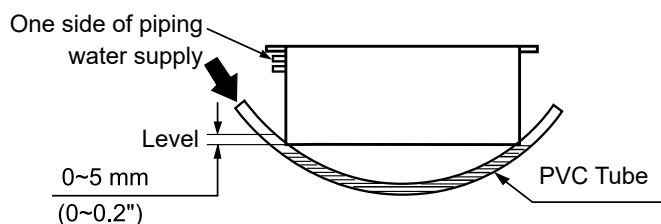
NB:

When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

Adjusting the level

(a) Adjust the level with a level meter or according to the following ways:

■



### Choice of Blowing Wind from Blower

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance , causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.

For AWSI-DBV018-028N11

Standard blowing wind (at delivery)					High-speed blowing wind				
One side of control cabinet	Yellow	connector, white	White	Yellow	Yellow	White	Red	Yellow	One side of blower
	Black			Orange				Black	
	Blue			Black				Blue	
	Red			Blue				Red	

Standard static pressure	Maximal static pressure
50	96

For AWSI-DBV030-048N11

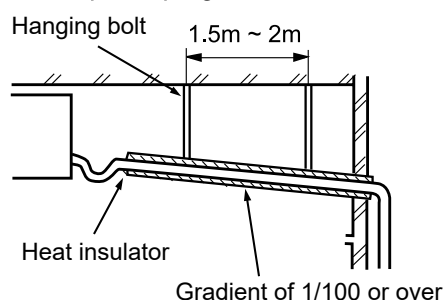
Standard blowing wind (at delivery)					High-speed blowing wind				
One side of control cabinet	Yellow	connector, white	White	Red	Yellow	White	Red	Red	Fan Down-lead End
	Black			Yellow				Blue	
	Blue			Blue				White	
	Red			White				Black	

Standard static pressure	Maximal static pressure
50	96

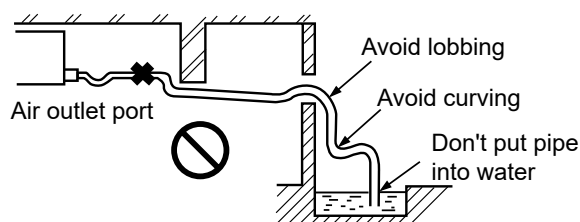
## 4. Drainpipe

(a) Keep a gradient (1/50-1/100) of the drainpipes and avoid lobbing or curving.

### • Proper Piping



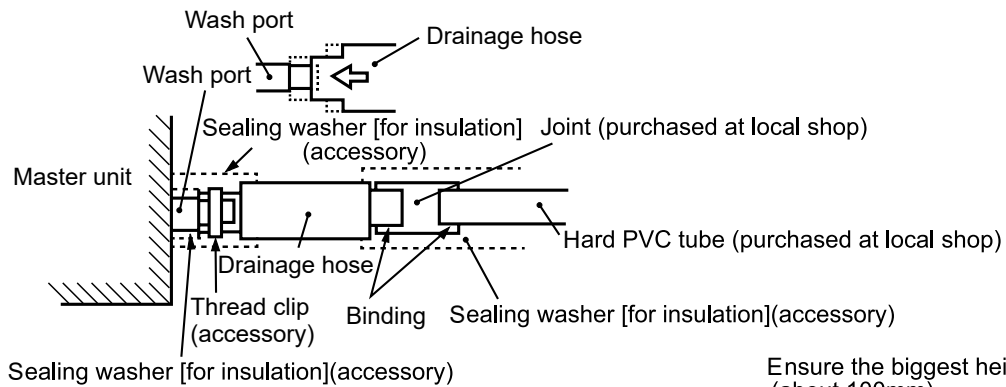
### • Improper Piping



(b) When connecting the drainpipe to the equipment, don't apply too much force on one side of the equipment. Meanwhile, the piping should be positioned as close to the equipment as possible.

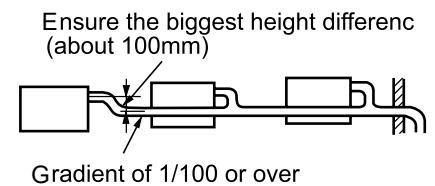
(c) For the drainpipe, the general purpose hard PVC tube can be purchased at local shops. During the connection, insert the end of PVC tube into the wash port and fasten it with drainage hose and thread clip. Binding agents shouldn't be used to connect the wash port and drainage hose.





(d) When the laid drain piping is used for multiple equipments, the public piping should be lower about 100mm than the wash ports of equipments,

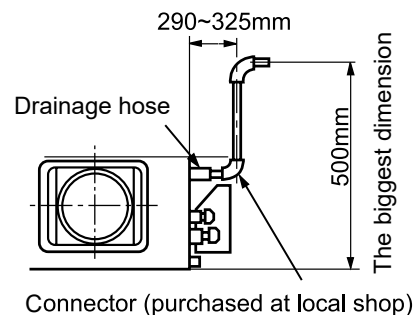
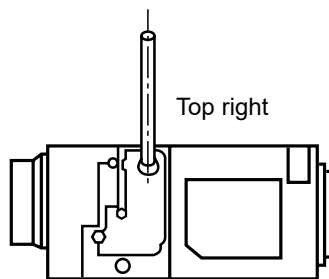
Thicker pipes should be used for this application.



(e) The hard PVC tube in the room must be provided with the heat insulating layer.

(f) The water pipe should be lifted to the height of 500mm above the ceiling. If there is any barrier above the ceiling, a bracket and the like can be used to bypass the barrier. If the extended height exceeds 500mm, there will be too

controlled within the allowance given below.



(g) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

### Testing Drainage System

(a)

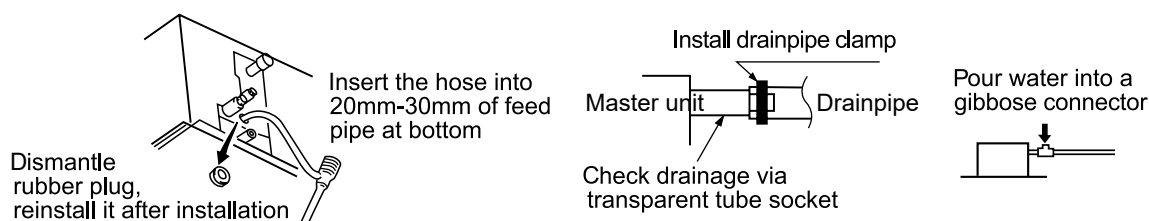
connection.

(d) Even if it is installed in the season needed to heating, the testing should also be performed.

### Procedures

(a) Charge 1000cc of water to the equipment via air outlet port.

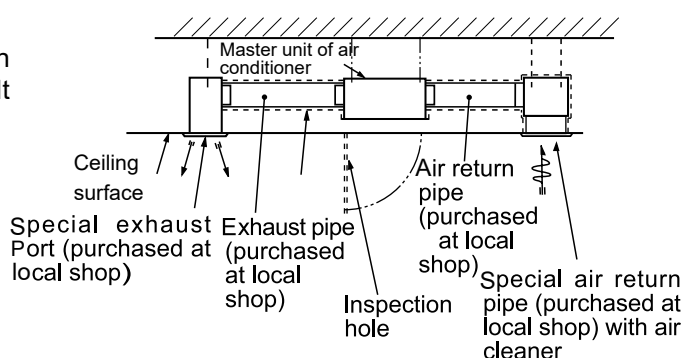
(b) During cooling operation, check the drainage system.



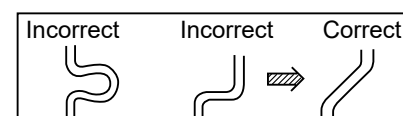
Before completing the electrical connection, a gibbose connector shall be installed on the drainpipe as to provide it with a water inlet port. smooth.

## 5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Airwell company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.

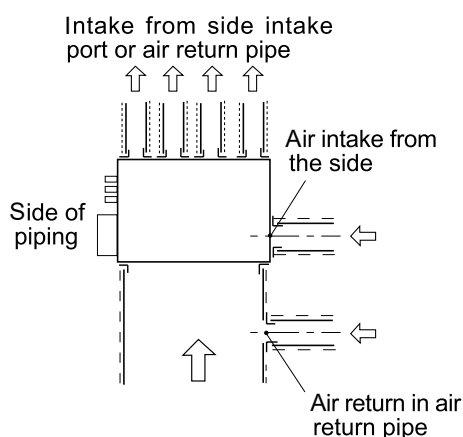


- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- master unit and the exhaust pipe for heat insulation and sealing. Install

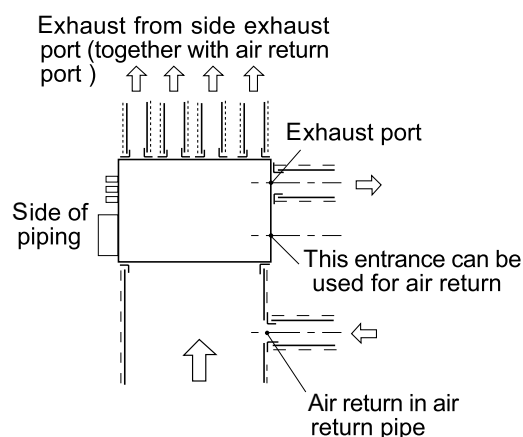


## 6. Connection of Air Return Pipe & Exhaust Duct

(a) Intake of fresh air (at simplex feeding)



(b) Exhaust



(c) The blast pipe should be heat-insulated as to prevent condensation.

## 7. Cautions in Installation of Air Return Pipe & Exhaust Pipe

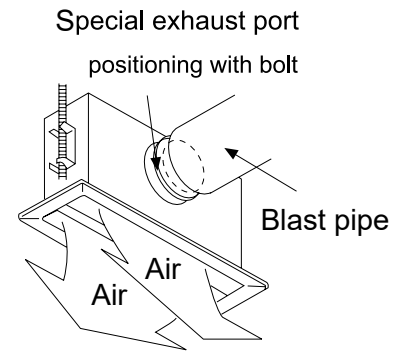
It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)

Complete the installation of the blast pipes before tting up the suspended ceiling.

Heat insulation should be made for the blast pipes.

The special exhaust port should be arranged at the place where the air is distributed evenly.

An inspection hole should be left on the surface of the ceiling for future maintenance.



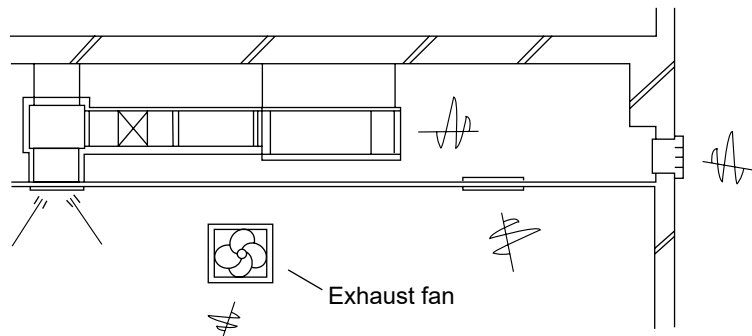
## 8. Examples for Bad Installation

The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.

There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).

It is operated under the conditions beyond the limits, leading to the overload of the compressor.

Affected by the capacity of the exhaust fan, and the strong wind and wind direction in the outer flue, when the blowing quantity of the air conditioner exceeds the limits, the drained water of the heat exchanger will , causing water leakage.



Example of bad installation

## 9. Refrigerant Pipe

### Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

### Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm

T

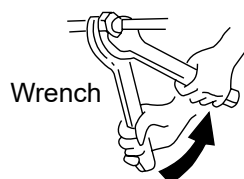
Model		AWSI-DBV018-N11	AWSI-DBV024-048N11
Tubing Size (mm)	Gas pipe	Φ12.7	Φ15.88
	Liquid pipe	Φ6.35	Φ9.52
Tubing Material	Phosphor deoxy bronze seamless pipe (TP2) for air conditioner		

### Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the amount or compressor failure can be caused by too much or little refrigerant.

### Connecting Procedures of Refrigerant Tubing

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table



refrigerant tubes.

Outer diameter of tubing (mm)	Mounting torque
Φ6.35	11.8~13.7N·m
Φ9.52	32.7~39.9N·m
Φ12.7	49.0~53.9N·m
Φ15.88	78.4~98.0N·m
Φ19.05	97.2~118.6N·m

### Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the opening is broken.

### Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

### Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

### Checkup for Air Leakage

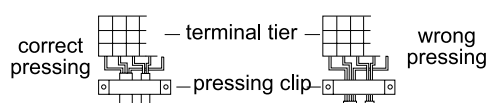
Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

### Connecting

Connecting circular terminals:



1. Connecting circular terminals:  
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.
2. Connecting straight terminals:  
The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten the screw gently.
3. Pressing connecting line:  
After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



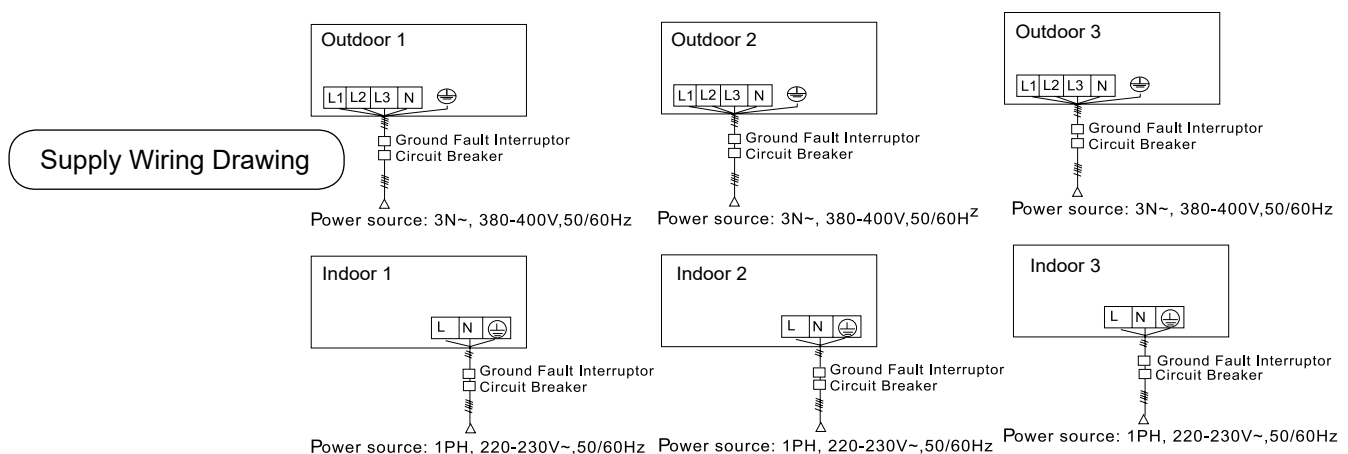
## 9.2 Electrical Wiring

### ⚠ WARNING

- 
- 
- local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

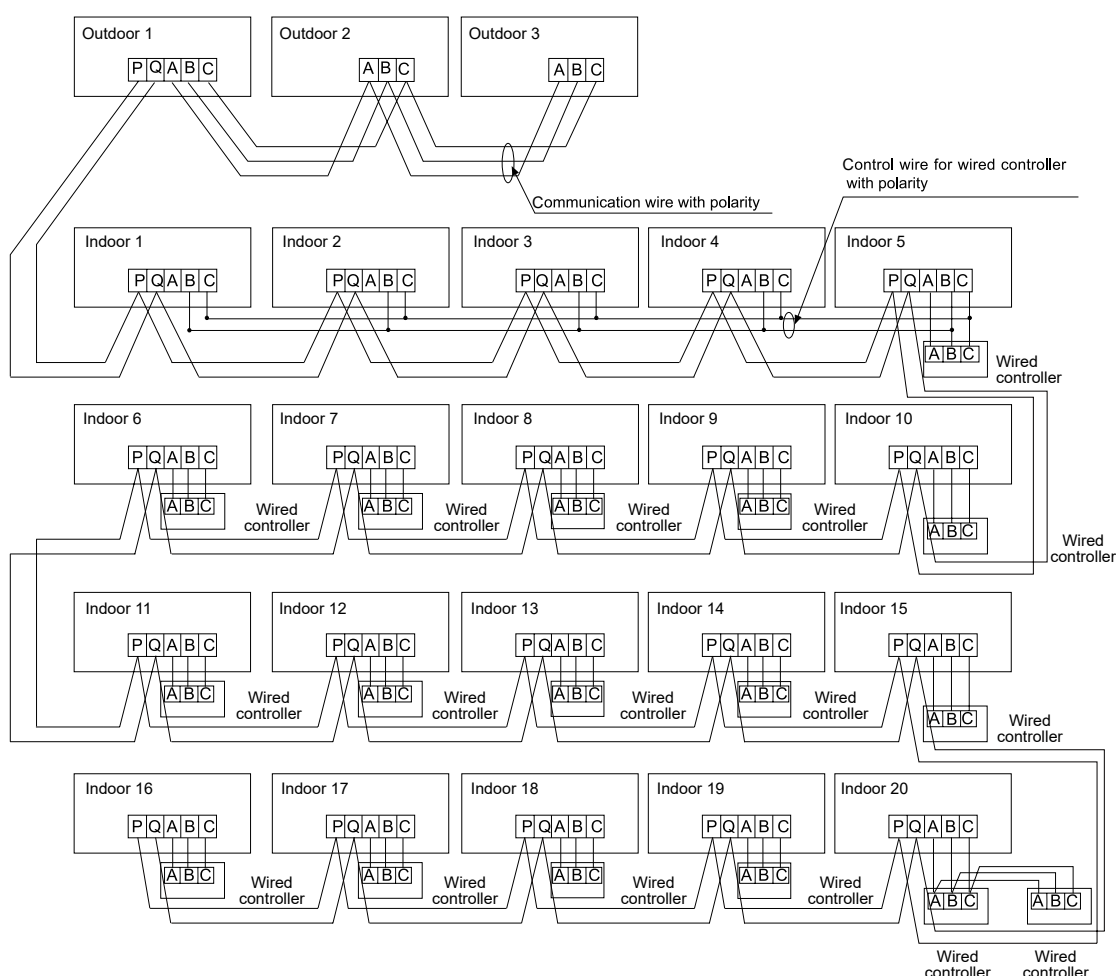
### ⚠ ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while ⊕ should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- 
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below:  $3 \times 1.0\text{--}1.5\text{ mm}^2$ ; parameters for signal line:  $2 \times 0.75\text{--}1.25\text{ mm}^2$  (shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one

## Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above (1-5 indoor units).

The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)

The indoor unit

and the wired control are connected via three lines with polarity.

C. T

can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

The combination of multiple indoor units can be controlled by wired controller or remote controller.

※ Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over ※

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

### Note:

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total current of indoor units (A)	Cross section (mm <sup>2</sup> )	Length (m)	Rated current of breaker (A)	Rated current of residual circuit breaker (A) Ground fault interrupter (mA) Response time (S)	Cross sectional area of signal line	
					Outdoor -indoor (mm <sup>2</sup> )	Indoor -indoor (mm <sup>2</sup> )
<10	2	20	20	20 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0) mm <sup>2</sup> shielded line	
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below		
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

※ The electrical power line and signal lines must be fastened tightly.

※ Every indoor unit must have the ground connection.

※ The power line should be enlarged if it exceeds the permissible length.

※ Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.

※ It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm <sup>2</sup> ×3 core shielded line

※ The shielding lay of the signal line must be grounded at one end.

※ The total length of the signal line shall not be more than 250m.

## 9.3 Test Run

### Before Test Run

Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.

Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.

Check if the arrangements of the drainpipe and connection line are correct.

The drainpipe shall be placed at the lower part while the connection line placed at the upper part.

Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.

The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.

Checkup of Installation

- |   |  |
|---|--|
| <input type="checkbox"/> Check if the mains voltage is matching   | <input type="checkbox"/> Check if the installation place meets the requirement |
| <input type="checkbox"/> Check if there is air leakage at the piping joints                             | <input type="checkbox"/> Check if there is too much noise                      |
| <input type="checkbox"/> Check if the connections of mains power and indoor & outdoor units are correct | <input type="checkbox"/> Check if the connecting line is fastened              |
| <input type="checkbox"/> Check if the serial numbers of terminals are matching                          | <input type="checkbox"/> Check if the connectors for tubing are heat insulated |
|   | <input type="checkbox"/> Check if the water is drained to the outside          |
|   | <input type="checkbox"/> Check if the indoor units are positioned              |

### Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

Set the wired controller to cooling/heating mode, press "ON/OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.





### LED light introduction:

- LED1, LED2: communication lamp between indoor unit and wired controller.

, these

two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit.

, these

two lamps will light or not light at the same time.

- LED5: malfunction lamp of indoor unit.

times indicate the corresponding failure code.

- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp

### Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. CN44, CN42, CN43 are used for indoor unit type selection. CN41 is used for address setting by wired controller. SW03 is used for indoor unit address setting (including physical address and central address). SW07 is used for running mode setting.

#### (1) Description of SW01

SW01_1 SW01_2 SW01_3 SW01_4	Wired control address	[1]	[2]	[3]	[4]	Wired control address
		OFF	OFF	OFF	OFF	Master unit in group control
		OFF	OFF	OFF	ON	Slave unit 1 in group control
		OFF	OFF	ON	OFF	Slave unit 2 in group control
		OFF	OFF	ON	ON	Slave unit 3 in group control
		...	...	...	...	.....
		ON	ON	ON	ON	Slave unit 15 in group control
SW01_5 SW01_6 SW01_7 SW01_8	Indoor unit capacity	[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	ON	0.8HP
		OFF	OFF	ON	OFF	1.0HP
		OFF	OFF	ON	ON	1.2HP
		OFF	ON	OFF	OFF	1.5HP
		OFF	ON	OFF	ON	1.7HP
		OFF	ON	ON	OFF	2.0HP
		OFF	ON	ON	ON	2.5HP
		ON	OFF	OFF	OFF	3.0HP
		ON	OFF	OFF	ON	3.2HP
		ON	OFF	ON	OFF	4.0HP
		ON	OFF	ON	ON	5.0HP
		ON	ON	OFF	OFF	6.0HP
		ON	ON	OFF	ON	8.0HP
		ON	ON	ON	OFF	10.0HP
		ON	ON	ON	ON	15.0HP

Type	Model	0.6HP	0.8HP	1.0HP	1.2HP	1.7HP	2.0HP	2.5HP	3.0HP	3.2HP	4HP	5HP	8HP	10HP
Med ESP duct type(50/96Pa)	AWSI-DBV018-48 N11						18	24	28	30	38	48		

## (2) CN41,CN42,CN43,CN44 plug explanation

CN41	Set address by wired controller or automatically (when SW03_1 is OFF)	OFF	Allow the wired controller to set the indoor address, after restart, the indoor address need to reset			
		ON	Allow the wired controller to set the indoor address, after restart, the indoor address which is set by wired control is same as before and needn't to reset			
CN42 CN43 CN44	Indoor type	CN44	CN42	CN43	Indoor type	
		OFF	OFF	OFF	Normal indoor (default)	
		OFF	OFF	ON	Wall mounted	
		OFF	ON	OFF	Fresh air unit	
		OFF	ON	ON	OEM(HRV)	
		ON	OFF	OFF	Convertible	
		ON	OFF	ON	Reserve (general indoor unit)	
		ON	ON	OFF	Reserve (general indoor unit)	
		ON	ON	ON	Reserve (general indoor unit)	

### Note:

- OFF: the plug is open circuit
- ON: the plug is short circuit
- Using wired controller modifying physical address or central control address, the other corresponding address can change automatically.

### (3) Description of SW03

SW03	Set the communication and central control address by dip switch (*Note 2)	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		OFF	...	...	...	...	...	...	...	Set the address by wired controller or automatically (default)	

#### Note 2

- The address must be set by dip switch if central control is used.
- SW03-2=OFF, central control address = physical address +0
- SW03-2=ON, central control address=physical address +64
- The address must be set by dip switch if 0151800113 and 0010451181A or 0151800086 are used together.

### (4) Description of SW07

SW07_1 SW07_2	Tdiff correction valve in AUTO mode	[1]	[2]	Tdiff correction valve in AUTO mode
		OFF	OFF	Tdiff: 0
		OFF	<u>ON</u>	Tdiff: 1
		<u>ON</u>	OFF	Tdiff: 2
		<u>ON</u>	<u>ON</u>	Tdiff: 3 (default)
SW07_3	WIFI control mode	<u>ON</u>		One by one (defaulted)
		OFF		One by multi
SW07_4 SW07_5	In heating, inlet air temp. Tai correction valve Tcomp2	[4]	[5]	Inlet air temp. Tai correction valve Tcomp2 (EEPROM)
		OFF	OFF	Tai correction valve= 12°C
		OFF	<u>ON</u>	Tai correction valve= 5°C
		<u>ON</u>	OFF	Tai correction valve= 8°C
		<u>ON</u>	<u>ON</u>	Tai correction valve=3°C (default)
SW07_6	Room card. OEM HRV linkage	<u>ON</u>		Room card is unavailable, HRV linkage is unavailable (default)
		OFF		Room card is available, HRV linkage is available
SW07_7 SW07_8	Operation mode changeover of wired controller	[7]	[8]	Function
		OFF	OFF	[FAN] [COOL] [DRY] [HEAT]
		OFF	<u>ON</u>	[FAN] [COOL] [DRY]
		<u>ON</u>	OFF	[FAN] [COOL] [DRY] [HEAT] [ELECTRIC-HEAT]
		<u>ON</u>	<u>ON</u>	[AUTO] [FAN] [COOL] [DRY] [HEAT](default)

Room card using method:

1. If the room card available: (the room card is priority)

Insert the room card, the unit on action, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby,, the unit can't be controlled by remote controller or wired controller.

2. If the room card unavailable:

Insert the room card, the unit open, the running mode is the last mode, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby, the unit can be controlled by remote controller or wired controller.

#### (5) Description of jump wire:SW08 (1:ON, 2:OFF)

J1	Fix air volume	<b>ON</b>	Normal mode (default)
		OFF	Air volume is fixed at high speed(for duct type)
J2	Run at Mid speed when Hi Speed is selected in heating	<b>ON</b>	Normal mode (default)
		OFF	Run at Mid speed when Hi Speed is selected in heating
J3	Quiet running mode	<b>ON</b>	Normal mode (default)
		OFF	Quiet running mode
J4	This indoor has highest priority	<b>ON</b>	Normal mode (default)
		OFF	This Indoor has highest priority
J5	Indoor and outdoor 90 meters drop selection	<b>ON</b>	Normal mode (default)
		OFF	High drop
J6	Reserved	<b>ON</b>	Reserved
J7	Indoor installation height selection	<b>ON</b>	Normal mode (default)
		OFF	Above 2.7m, uses next higher fan speed(indoor fan speed improve 1 grade)
J8	Dual heat source	<b>ON</b>	No dual heat source control (default)
		OFF	Dual heat source control (it doesn't apply to oversea products)

Note:

- *Default position:*
- *SW01: Depend on unit capacity*
- *CN41, CN42, CN43: open circuit.*
- *CN44: Open circuit except of floor ceiling unit*
- *SW07: All ON*
- *J1-J8: All ON ( connection status), cut the jump wire can change it to OFF.*

#### (6) Jumper explanation

##### a) EEV operation manually (CN27, CN29)

**CN27: short circuit CN27 2 seconds continuously, EEV is opened fully.**

**CN29: short circuit CN29 2 seconds continuously, EEV is closed fully.**

##### b) time-short and self-check (CN28)

**Short circuit CN28 2 seconds after power ON, process into time-short (factory use).**

**Short circuit CN28 before power ON, process into self-check (factory use).**

## 11. Indoor Unit Control

### 11.1 Cooling operation

Set temp. in cooling:  $T_s$ =set temp. wired controller;

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.2 Heating operation

Set temp. in heating:  $T_s$ =set temp. wired controller+TA correcting value.

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.3 Dry operation

Room temp. - set temp.  $> 2^{\circ}\text{C}$  indoor operation is identical with the cooling operation, and send the cooling mode to outdoor;

Room temp. - set temp.  $\leq 2^{\circ}\text{C}$  indoor will send the dry signal to outdoor, and indoor fan motor will run at low speed compulsorily when compressor is running; when room temp.  $< 16^{\circ}\text{C}$  indoor stops and sends stop signal to outdoor. In dry operation, the auto mode of indoor fan motor is identical with the cooling mode; EEV control mode is identical with the cooling operation.

### 11.4 Fan operation

Indoor fan motor will run at the speed set on the wired controller and sends stop signal to outdoor.

### 11.5 Abnormal operation

When the requested mode collides with the outdoor mode, the entering earlier will be in prior. After indoor receives

mode, the indoor will run as the request of wired controller; if it is abnormal mode, the command can not be executed, and indoor keeps stop; wired controller displays standby mode (if in remote control type, the buzzer will sound twice and the remote controller can not receive the signal). Until the outdoor stops or the outdoor mode is accordant with the requested mode of wired controller (remote controller), the outdoor will work. COOL (including AUTO COOL), DRY, RECOVERY are regarded as the same mode; HEAT, RECOVERY are as abnormal mode.

### 11.6 Fan speed control of indoor fan motor

a. Adjustment by hand

Set high/ mid/ low fan speed as the request.

b. Auto fan speed

ference between room temp. TA and the set temp.

c. Anti-cool air control

In heating mode, after compressor startup, the unit will control indoor fan motor state due to the indoor coil temp.

In anti-cool air period, indoor sends pre-heat signal to wired controller; in outdoor defrosting period, indoor fan motor will stop, and sends defrost signal to wired controller;

After being switched off in heating mode, indoor fan motor will run at low speed and 30 seconds later will stop.

### 11.7 Set EEV open angle by hand

When being switched off, short connect CN27 to open the valve fully compulsorily for 2 minutes; When being switched off, short connect CN29 to close the valve fully compulsorily for 2 minutes.



### 11.8 Anti-freezed protection

In cooling mode, execute the anti-freezed protection due to the measured indoor coil temp. to avoid the indoor heat exchanger causing frost or ice.

### 11.9 Swing motor control

Indoor will control swing motor ON/OFF due to the swing signal from wired controller.

### 11.10 Filter cleaning

Check and memorize the running time of indoor fan motor, once arriving the requested time (set by SW07-6), indoor , if

### 11.11 Compulsory defrosting

After indoor receives the compulsory defrosting signal from wired controller, it will send compulsory defrosting signal to outdoor continuously for 10 times. In the sending period, indoor will execute the normal defrost.

### 11.12 Trial operation

Set the mode as cooling (heating), press ON/OFF for 5 seconds to enter compulsory cooling (heating).

In compulsory cooling, display "LL" and COOL

In compulsory heating, display "HH" and HEAT

TEMP +/- are valid.

AUTO. At this time, only ON/OFF,

### 11.13 Autorestart

The autorestart function is apply to all the **Flow Logic** indoor units and the factory setting it is available.

Memory contents: ON/OFF state, running mode, fan speed, setting temperature, swing position and temperature type displayed on panel.

Note:

(1) Temperature type displayed on panel is only used for slim duct, one way cassette and N platform high wall.

(2) If the timer and sleeping function are set, when the units power-on again, the unit is OFF state.

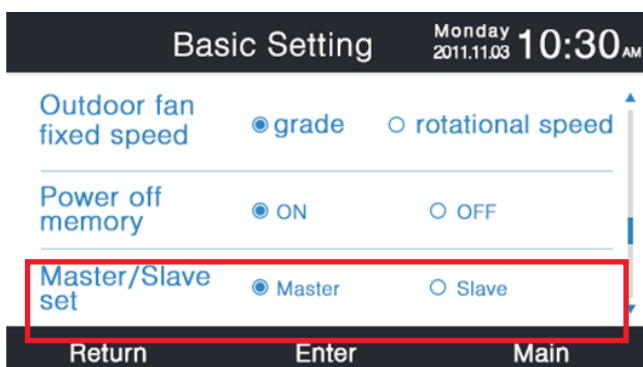
(3) The wired controller setting has the highest priority.

#### Setting method by controller:

(1) Wired controller cancel method:

For **RWV05** setting the autorestart function by dip switch SW4

For **RWV07** setting the autorestart function by basic setting interface



(2) Remote controller cancel method:

Press the "HEALTH" button 10 times in 5s, buzzer echoes 4 times, the autorestart function is available; repeat above operations, buzzer echoes 2 times, the autorestart function is unavailable.

### **11.14 26°C lock function**

Factory default the 26°C lock function is unavailable.

#### **Setting method by remote controller:**

Power on the unit, in cooling mode, low speed, setting the temperature 26°C. Press the "HEALTH" button of the remote controller 8 times in 5s, buzzer echoes 4 times, the 26°C lock function is available; repeat above operations, buzzer echoes 2 times, the 26°C lock function is unavailable.



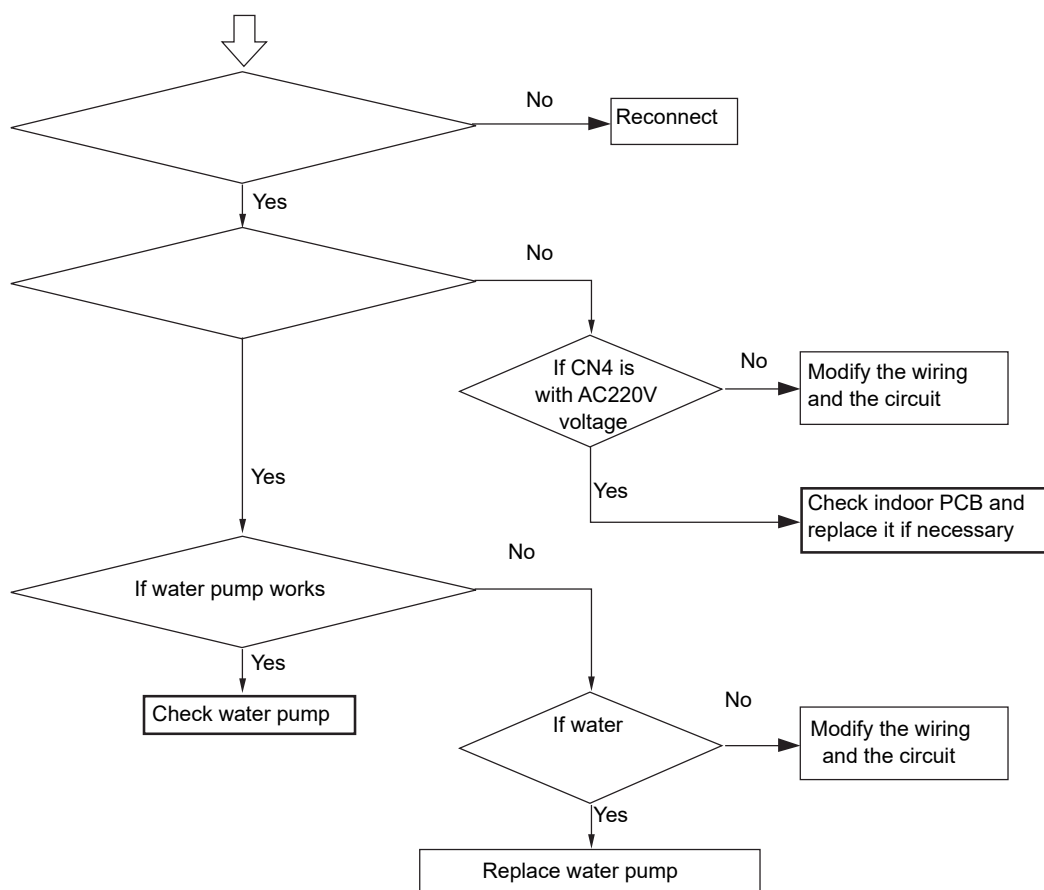
## 12. Failure Code

### Indoor unit failure code

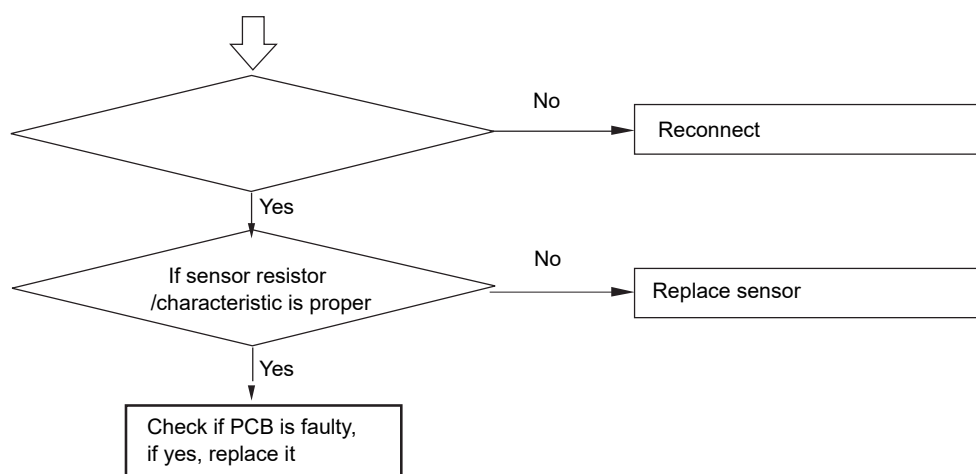
Indication on wired controller	Flash times of LED on indoor PCB/ timer LED on remote receiver		Remark
1	1	Indoor ambient temp. sensor TA failure	Resumable
2	2	Indoor coil pipe temp. sensor TC1 failure	
3	3	Indoor coil pipe temp. sensor TC2 failure	
4	4	Dual heat source sensor TW failure	
5	5	Indoor EEPROM failure	Unresumable
6	6	Communication between indoor and outdoor failure	Resumable
7	7	Communication between indoor and wired controller failure	Resumable
8	8		Resumable
9	9	Indoor address repeated failure	Resumable
0C	12	No 50Hz zero passage signal	Resumable
12	18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
Outdoor failure code	20	Outdoor failure code	Resumable

## 13. Troubleshooting

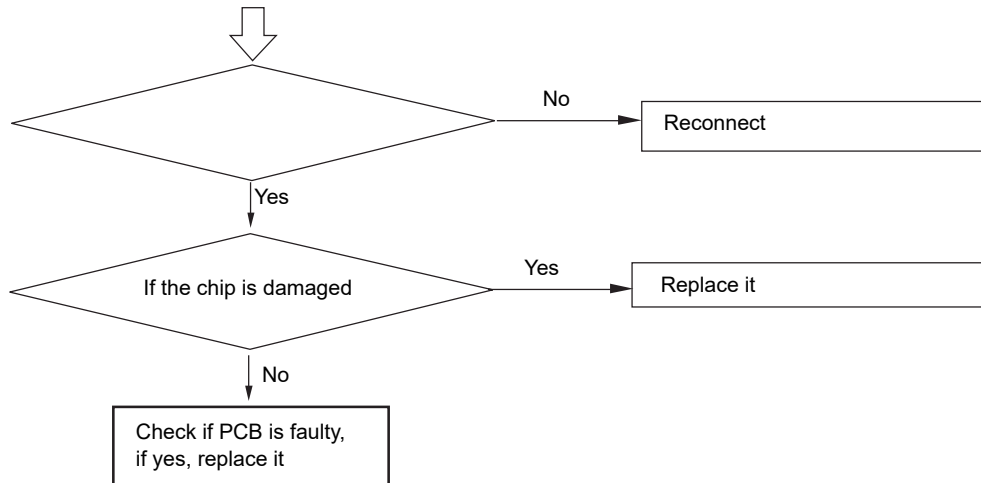
### Indoor failure diagnose



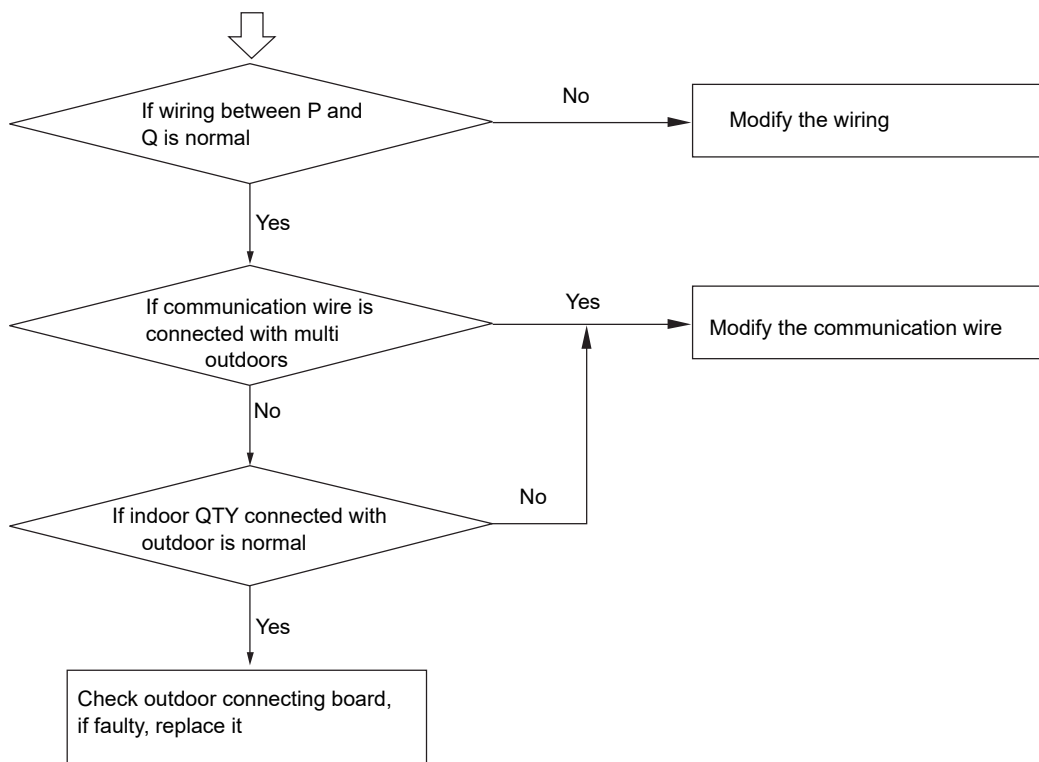
### [1/2/3/4/15] Indoor sensor failure



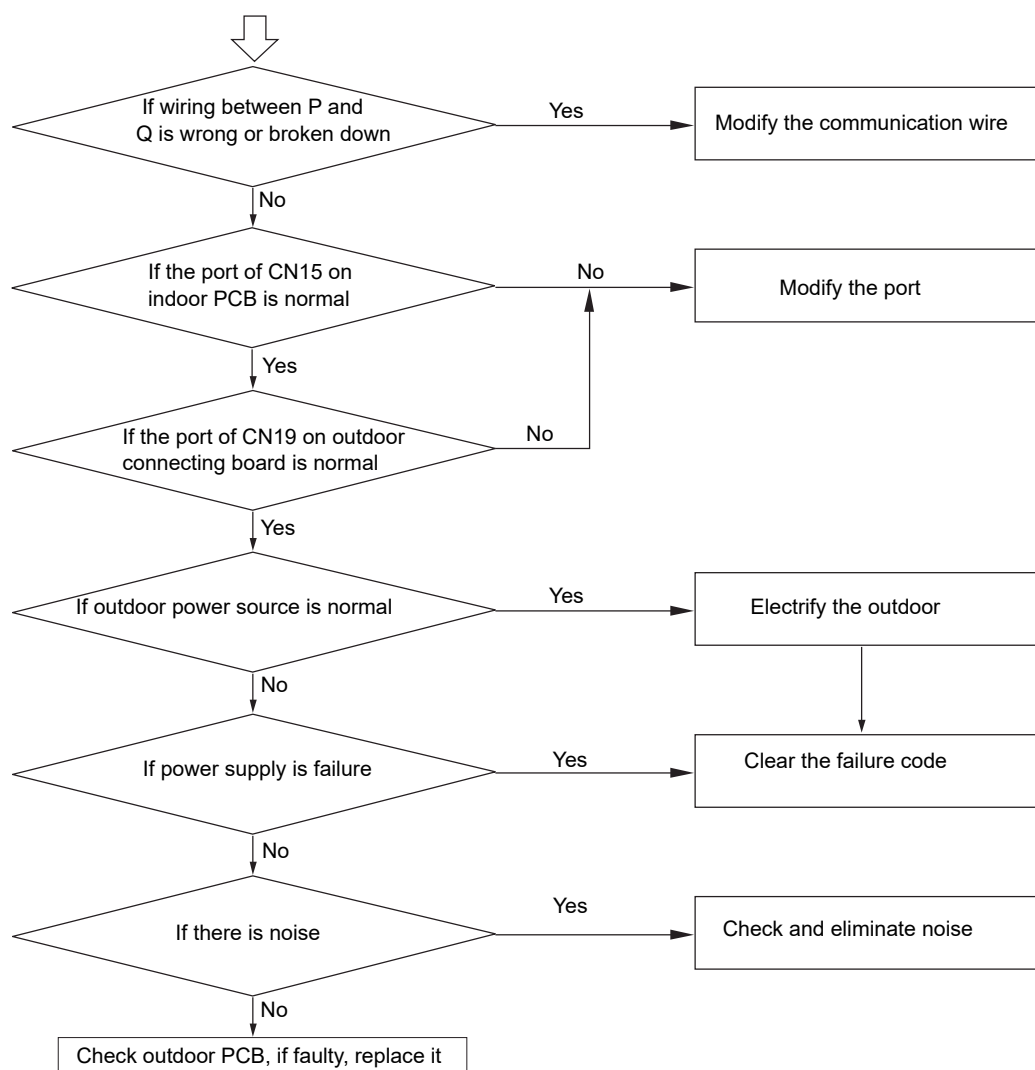
[05] EEPROM failure



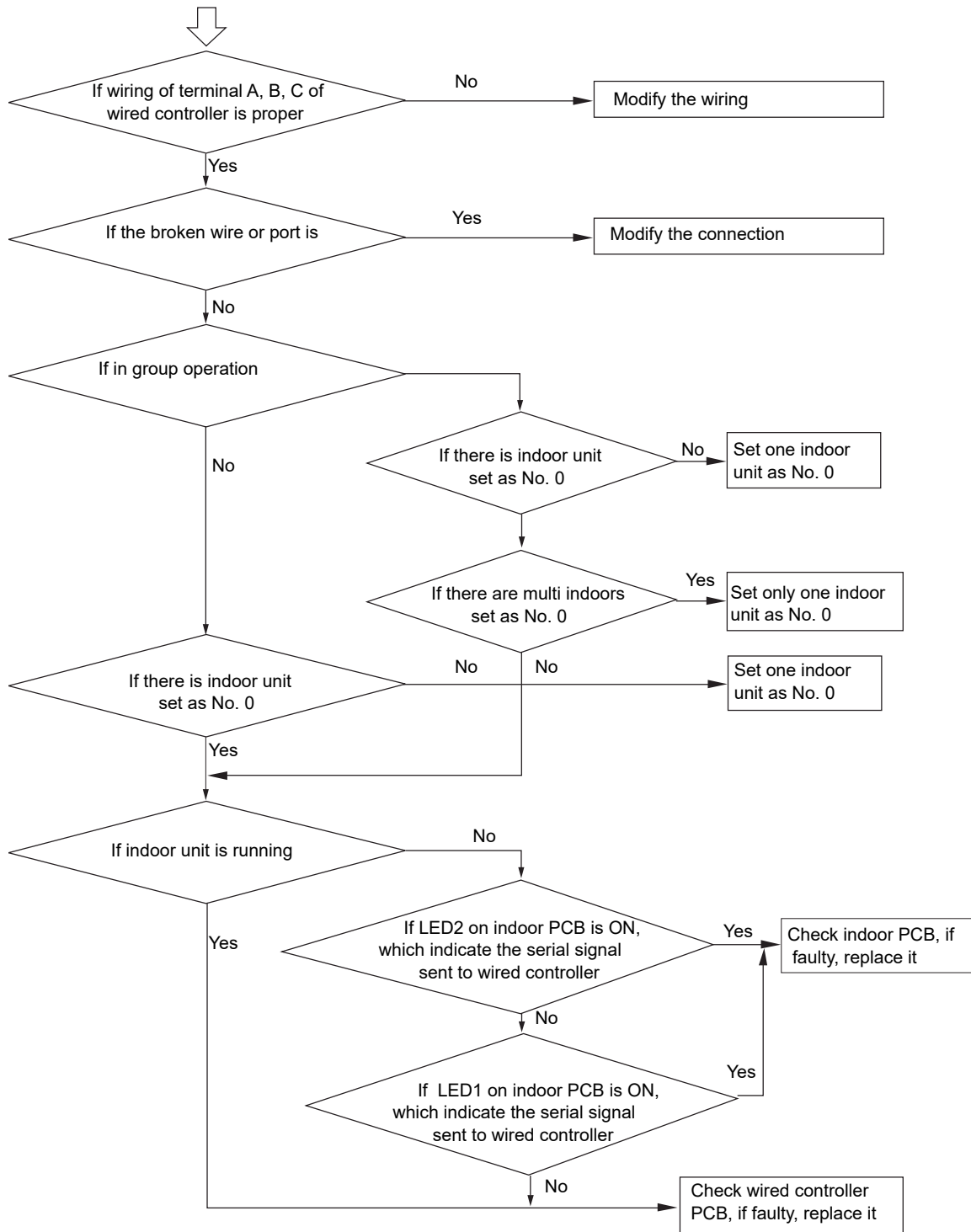
[09] Indoor address repeated



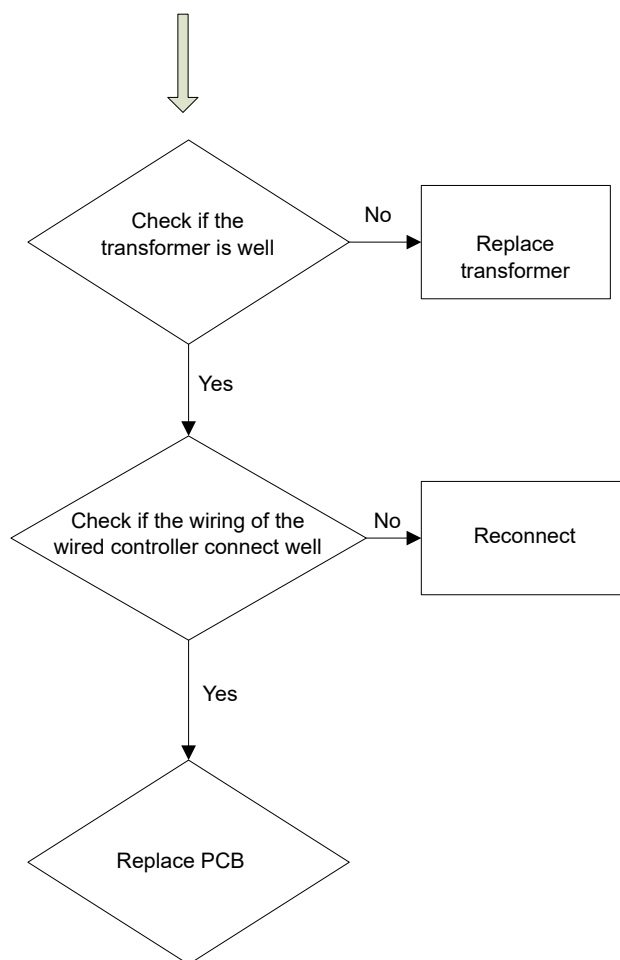
[06] Communication circuit between indoor and outdoor



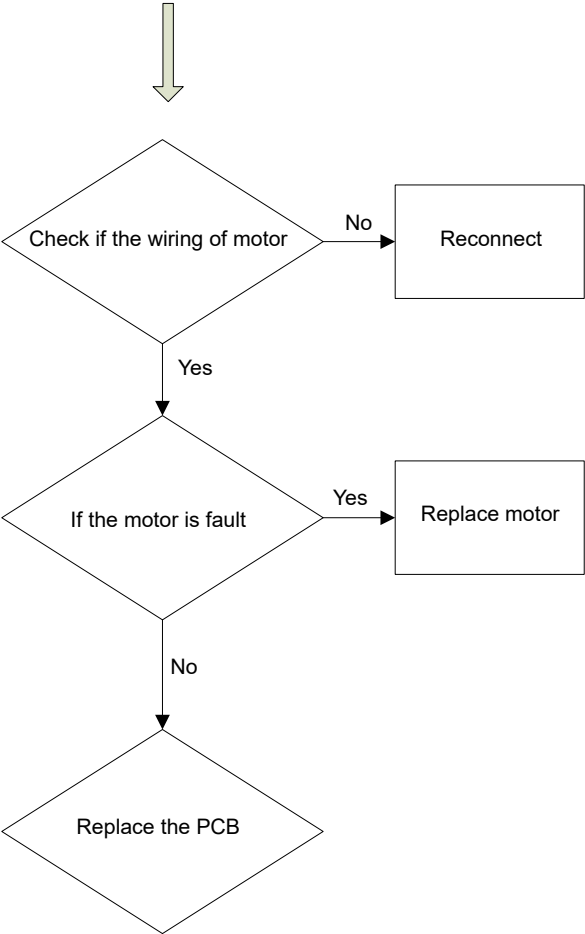
[07] Communication abnormal between indoor and wired controller



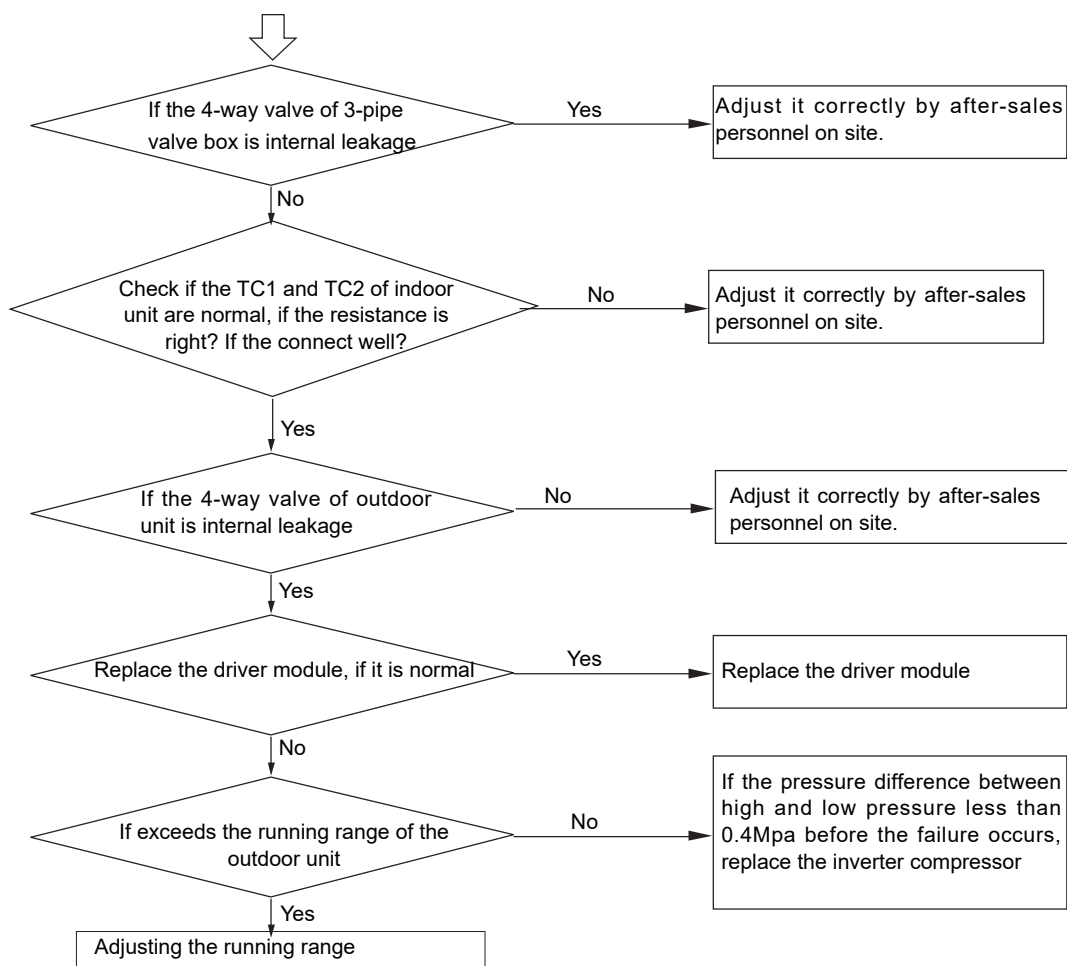
[12] No 50Hz zero passage signal



[14] DC motor failure



[18] The 4-way valve of 3-pipe valve box reversing failure



For MRVIII-RC system, the outdoor unit is running normally, when the 4-way valve of valve box is power on and its connected heating indoor unit's parameter satisfy following conditions

- &
  - When 4-way valve of valve box is ON
  - $TC2 \leq CT - 20^{\circ}C$  lasts for 5min
- or
  - $TC1 \leq 0^{\circ}C$  lasts for 5min
  - $TC1 \leq \text{master unit } Ps\_temp + 10^{\circ}C$  lasts for 5min



## 14. Capacity tables

### Cooling capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100 )	Outdoor Temp.	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
	°C DB	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
56	20.0	5.5	3.8	5.5	3.9	5.8	3.7	5.9	3.8	6.0	3.9	6.3	3.7	6.5	3.6
	22.5	5.4	3.8	5.5	3.8	5.8	3.7	5.9	3.7	6.0	3.8	6.2	3.7	6.4	3.6
	25.0	5.4	3.7	5.4	3.8	5.7	3.7	5.8	3.7	5.9	3.8	6.2	3.7	6.4	3.6
	27.5	5.3	3.7	5.4	3.8	5.7	3.7	5.8	3.7	5.8	3.8	6.1	3.7	6.3	3.6
	30.0	5.3	3.7	5.3	3.7	5.6	3.6	5.7	3.7	5.8	3.8	6.0	3.7	6.3	3.5
	32.5	5.2	3.6	5.3	3.7	5.5	3.6	5.7	3.6	5.7	3.7	6.0	3.6	6.2	3.5
	35.0	5.2	3.6	5.2	3.7	5.5	3.6	5.6	3.6	5.7	3.7	5.9	3.6	6.2	3.5
	37.5	5.1	3.6	5.2	3.7	5.4	3.5	5.5	3.6	5.6	3.7	5.9	3.6	6.1	3.5
71	40.0	5.0	3.6	5.1	3.6	5.4	3.5	5.5	3.6	5.5	3.7	5.8	3.6	6.0	3.5
	43.0	5.0	3.5	2.1	3.6	5.3	2.8	5.4	3.5	5.9	3.6	5.8	3.5	6.0	3.4
	20.0	7.0	4.9	7.1	5.0	7.4	4.9	7.5	4.9	7.7	5.0	8.0	4.9	8.2	4.7
	22.5	6.9	4.9	7.0	4.9	7.3	4.8	7.5	4.8	7.6	5.0	7.9	4.8	8.2	4.7
	25.0	6.8	4.8	7.0	4.9	7.2	4.8	7.4	4.8	7.5	4.9	7.8	4.8	8.1	4.7
	27.5	6.7	4.8	6.9	4.9	7.2	4.8	7.3	4.8	7.5	4.9	7.7	4.8	8.0	4.6
	30.0	6.7	4.7	6.8	4.8	7.1	4.7	7.2	4.7	7.4	4.9	7.7	4.7	8.0	4.6
	32.5	6.6	4.7	6.7	4.8	7.0	4.7	7.2	4.7	7.3	4.8	7.6	4.7	7.9	4.6
80	35.0	6.5	4.7	6.7	4.8	7.0	4.7	7.1	4.7	7.2	4.8	7.5	4.7	7.8	4.6
	37.5	6.5	4.6	6.6	4.7	6.9	4.6	7.0	4.6	7.2	4.8	7.5	4.7	7.7	4.5
	40.0	6.4	4.6	6.5	4.7	6.8	4.6	7.0	4.6	7.1	4.8	7.4	4.6	7.7	4.5
	43.0	6.3	4.6	6.4	4.6	6.7	4.6	6.9	4.6	7.0	4.7	7.3	4.6	7.6	4.5
	20.0	7.8	5.5	8.0	5.6	8.3	5.5	8.5	5.5	8.6	5.7	9.0	5.5	9.3	5.3
	22.5	7.8	5.5	7.9	5.5	8.2	5.4	8.4	5.4	8.6	5.6	8.9	5.4	9.2	5.3
	25.0	7.7	5.4	7.8	5.5	8.2	5.4	8.3	5.4	8.5	5.5	8.8	5.4	9.1	5.3
	27.5	7.6	5.4	7.8	5.5	8.1	5.4	8.2	5.4	8.4	5.5	8.7	5.4	9.0	5.2
90	30.0	7.5	5.3	7.7	5.4	8.0	5.3	8.2	5.3	8.3	5.4	8.6	5.3	9.0	5.2
	32.5	7.4	5.3	7.6	5.4	7.9	5.3	8.1	5.3	8.2	5.4	8.6	5.3	8.9	5.1
	35.0	7.4	5.3	7.5	5.4	7.8	5.3	8.0	5.3	8.2	5.4	8.5	5.3	8.8	5.1
	37.5	7.3	5.2	7.4	5.3	7.8	5.2	7.9	5.2	8.1	5.4	8.4	5.3	8.7	5.1
	40.0	7.2	5.1	7.4	5.3	7.7	5.1	7.8	5.2	8.0	5.4	8.3	5.2	8.6	5.1
	43.0	7.1	5.1	7.3	5.2	7.6	5.1	7.7	5.1	7.9	5.3	8.2	5.2	8.5	5.0
	20.0	8.8	6.2	9.0	6.4	9.4	6.2	9.5	6.2	9.7	6.4	10.1	6.2	10.4	6.0
	22.5	8.7	6.2	8.9	6.3	9.3	6.2	9.5	6.2	9.6	6.4	10.0	6.2	10.4	6.0
112	25.0	8.6	6.1	8.8	6.3	9.2	6.1	9.4	6.1	9.5	6.3	9.9	6.1	10.3	6.0
	27.5	8.6	6.1	8.7	6.2	9.1	6.1	9.3	6.1	9.5	6.3	9.8	6.1	10.2	5.9
	30.0	8.5	6.1	8.6	6.2	9.0	6.0	9.2	6.1	9.4	6.2	9.7	6.1	10.1	5.9
	32.5	8.4	6.0	8.6	6.1	8.9	6.0	9.1	6.0	9.3	6.2	9.6	6.0	10.0	5.9
	35.0	8.3	6.0	8.5	6.1	8.8	5.9	9.0	6.0	9.2	6.2	9.5	6.0	9.9	5.8
	37.5	8.2	5.9	8.4	6.0	8.7	5.9	8.9	5.9	9.1	6.1	9.5	6.0	9.8	5.8
	40.0	8.1	5.9	8.3	6.0	8.6	5.9	8.8	5.9	9.0	6.1	9.4	5.9	9.7	5.8
	43.0	8.0	5.8	8.2	5.9	8.5	5.8	8.7	5.9	8.9	6.0	9.3	5.9	9.6	5.7
140	20.0	11.0	8.5	11.2	8.7	11.6	8.5	11.9	8.6	12.1	8.9	12.5	8.6	13.0	8.4
	22.5	10.9	8.4	11.1	8.6	11.5	8.4	11.8	8.5	12.0	8.8	12.4	8.6	12.9	8.4
	25.0	10.8	8.3	11.0	8.6	11.4	8.4	11.6	8.5	11.9	8.8	12.3	8.5	12.8	8.3
	27.5	10.6	8.3	10.9	8.5	11.3	8.3	11.5	8.4	11.8	8.7	12.2	8.5	12.7	8.3
	30.0	10.5	8.2	10.8	8.5	11.2	8.3	11.4	8.4	11.6	8.7	12.1	8.5	12.5	8.2
	32.5	10.4	8.2	10.6	8.4	11.1	8.2	11.3	8.3	11.5	8.6	12.0	8.4	12.4	8.2
	35.0	10.3	8.1	10.5	8.4	11.0	8.2	11.2	8.3	11.4	8.6	11.9	8.4	12.3	8.2
	37.5	10.2	8.1	10.4	8.3	10.9	8.1	11.1	8.2	11.3	8.5	11.8	8.3	12.2	8.1
	40.0	10.1	8.0	10.3	8.2	10.8	8.1	11.0	8.2	11.2	8.5	11.6	8.3	12.1	8.1
	43.0	9.9	8.0	10.2	8.2	10.6	8.0	10.8	8.2	11.1	8.4	11.5	8.3	12.0	8.1
	20.0	13.7	10.4	14.0	10.6	14.6	10.4	14.8	10.5	15.1	10.8	15.7	10.5	16.2	10.2
	22.5	13.6	10.3	13.9	10.5	14.4	10.3	14.7	10.4	15.0	10.7	15.5	10.5	16.1	10.2
	25.0	13.4	10.2	13.7	10.5	14.3	10.2	14.6	10.3	14.8	10.7	15.4	10.4	16.0	10.1
	27.5	13.3	10.2	13.6	10.4	14.1	10.2	14.4	10.3	14.7	10.6	15.3	10.4	15.8	10.1
	30.0	13.2	10.1	13.4	10.3	14.0	10.1	14.3	10.2	14.6	10.6	15.1	10.3	15.7	10.0
	32.5	13.0	10.0	13.3	10.3	13.9	10.1	14.1	10.2	14.4	10.5	15.0	10.3	15.5	10.0
	35.0	12.9	10.0	13.2	10.2	13.7	10.0	14.0	10.1	14.3	10.5	14.8	10.2	15.4	9.9
	37.5	12.7	9.9	13.0	10.1	13.6	9.9	13.9	10.1	14.1	10.4	14.7	10.2	15.3	9.9
	40.0	12.6	9.8	12.9	10.1	13.4	9.9	13.7	10.0	14.0	10.3	14.6	10.1	15.1	9.9
	43.0	12.4	9.7	12.7	10.0	13.3	9.8	13.6	9.9	13.8	10.3	14.4	10.0	15.0	9.8

## Heating capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100)	Outdoor Temp.	Indoor Temp. (°C DB)				Capacity (W*100)	Outdoor Temp.	Indoor Temp. (°C DB)			
		15.0	20.0	25.0	27.0			15.0	20.0	25.0	27.0
	°C WB	SHC	SHC	SHC	SHC		°C WB	SHC	SHC	SHC	SHC
56	-15.0	4.2	4.2	4.1	4.1	90	-15.0	6.7	6.6	6.5	6.5
	-10.0	4.8	4.8	4.7	4.3		-10.0	7.6	7.5	7.4	6.9
	-5.0	5.4	5.3	4.9	4.3		-5.0	8.6	8.5	7.8	6.9
	0.0	6.0	5.9	4.9	4.3		0.0	9.5	9.4	7.8	6.9
	2.5	6.3	6.2	4.9	4.3		2.5	10.0	9.9	7.8	6.9
	6.0	6.4	6.3	4.9	4.3		6.0	10.1	10.0	7.8	6.9
	6.5	6.6	6.3	4.9	4.3		6.5	10.5	10.0	7.8	6.9
	10.0	7.1	6.3	4.9	4.3		10.0	11.2	10.0	7.8	6.9
	12.5	7.5	6.3	4.9	4.3		12.5	12.0	10.0	7.8	6.9
	15.5	7.6	6.3	4.9	4.3		15.5	12.1	10.0	7.8	6.9
71	-15.0	5.4	5.3	5.2	5.2	112	-15.0	8.4	8.2	8.2	8.1
	-10.0	6.1	6.0	6.0	5.5		-10.0	9.6	9.4	9.3	8.6
	-5.0	6.9	6.8	6.2	5.5		-5.0	10.7	10.6	9.8	8.6
	0.0	7.6	7.5	6.2	5.5		0.0	11.9	11.8	9.8	8.6
	2.5	8.0	7.9	6.2	5.5		2.5	12.5	12.4	9.8	8.6
	6.0	8.1	8.0	6.2	5.5		6.0	12.5	12.5	9.8	8.6
	6.5	8.4	8.0	6.2	5.5		6.5	13.2	12.5	9.8	8.6
	10.0	9.0	8.0	6.2	5.5		10.0	14.1	12.5	9.8	8.6
	12.5	9.6	8.0	6.2	5.5		12.5	15.0	12.5	9.8	8.6
	15.5	9.7	8.0	6.2	5.5		15.5	15.1	12.5	9.8	8.6
80	-15.0	6.0	5.9	5.9	5.9	140	-15.0	10.7	10.6	10.5	10.4
	-10.0	6.9	6.8	6.7	6.2		-10.0	12.2	12.1	11.9	11.0
	-5.0	7.7	7.6	7.0	6.2		-5.0	13.7	13.6	12.5	11.0
	0.0	8.6	8.5	7.0	6.2		0.0	15.3	15.1	12.5	11.0
	2.5	9.0	8.9	7.0	6.2		2.5	16.0	15.8	12.5	11.0
	6.0	9.1	9.0	7.0	6.2		6.0	16.2	16.0	12.5	11.0
	6.5	9.5	9.0	7.0	6.2		6.5	16.8	16.0	12.5	11.0
	10.0	10.1	9.0	7.0	6.2		10.0	18.0	16.0	12.5	11.0
	12.5	10.8	9.0	7.0	6.2		12.5	19.1	16.0	12.5	11.0
	15.5	10.9	9.0	7.0	6.2		15.5	19.4	16.0	12.5	11.0

## High ESP Duct Type Indoor Unit

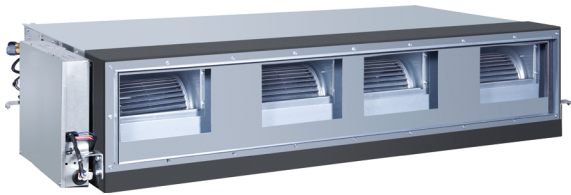
### 1. Features



AWSI-DCV018-N11  
AWSI-DCV024-N11



AWSI-DCV030-N11  
AWSI-DCV038-N11  
AWSI-DCV048-N11



AWSI-DCV072-N11  
AWSI-DCV096-N11

#### 0~198Pa external static pressure

The external static pressure can be adjusted from 0Pa to 196Pa steplessly, which will make the unit supply quick temperature adjustment to the room.

#### Build-in the ceiling, space saving

The duct unit is installed above the ceiling, just leaving the air outlet in the ceiling, which will not affect the indoor decor and supply less space of indoor.

#### Multi rooms sharing one indoor unit

The duct unit can be applicable for multi rooms, because the duct can be set as multiple air outlets according to the load.

## 2.

MODEL			AWSI-DCV018-N11	AWSI-DCV024-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	19.1	24.2
	Capacity	kW	5.6	7.1
	Power input	W	450	450
	Current	A	2.05	2.05
Heating	Capacity	kBtu/h	21.5	27.3
	Capacity	kW	6.3	8
	Power input	W	450	450
	Current	A	2.05	2.05
	Heating capacity at low temp.	kW	5.0	6.3
Operating current		A	2.2	2.2
Power consumption		kW	0.49	0.49
Indoor motor	Brand		SANSO / Broad ocean	
	Model		MLA832-14W-R / Y7S423B529	
	Type		AC	AC
	Insulation class		E / B	E / B
	IP class		IP20	IP20
	Power input	W	480/605	480/605
	Power output	W	260	260
	Capacitor	μF	12.5 μF	12.5 μF
	Speed (High/Middle/Low)	rpm	1400/1350/1290	1400/1350/1290
Indoor fan	Brand		Haier	Haier
	Type		Centrifugal	Centrifugal
	Quantity		2	2
Indoor coil	a. Number of rows		2	3
	b. Tube pitch (a)×row pitch (b)	mm	21×13.3	21×13.3
	c. Fin spacing	mm	1.4	1.4
	d. Fin type (code)		Hydrophilic aluminum	
	e. Tube outside dia. and type	mm	Φ7.0 Inner groove tube	
	f. Coil length×height×width	mm	685/441/26.6	685/441/39.9
	g. Number of circuits		7	5

MODEL			AWSI-DCV018-N11	AWSI-DCV024-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		1	1
	Drain pan material		PS	PS
	Drain pan insulation		20	20
	Drain pump option		Optional	Optional
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	1	1
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	6.35	9.52
	Gas pipe	mm	12.7	15.88
	Drain hose	mm	32	32
Fresh air dimension		mm	750*250	750*250
Sound pressure level (H/L)		dB(A)	42/40/38	42/40/38
Sound power level (H/L)		dB(A)	55/53/51	55/53/51
Standard static pressure		Pa	100	100
Max. static pressure		Pa	196	196
		m <sup>3</sup> /h	1500/1357/1089	1500/1357/1089
Air outlet dimensions		mm	600/250	600/250
Air return dimensions		mm	750/250	750/250
Dimension (W*H*D)		mm	975/360/906	975/360/906
Packing (W*H*D)		mm	1048/413/943	1048/413/943
Net weight		kg	48	48
Gross weight		kg	58	58
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

MODEL			AWSI-DCV030-N11	AWSI-DCV038-N11	AWSI-DCV048-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	30.7	38.2	47.8
	Capacity	kW	9.0	11.2	14.0
	Power input	W	560	560	560
	Current	A	2.55	2.55	2.55
Heating	Capacity	kBtu/h	34.1	42.7	54.6
	Capacity	kW	10.0	12.5	16.0
	Power input	W	560	560	560
	Current	A	2.55	2.55	2.55
	Heating capacity at low temp.	kW	8.0	10.0	12.5
Operating current		A	2.6	2.6	2.6
Power consumption		kW	0.58	0.58	0.58
Indoor motor	Brand		HUATE / Broad ocean		
	Model		YSK-270W-4 / Y7S423B815		
	Type		AC	AC	AC
	Insulation class		B / B	B / B	B / B
	IP class		IP20	IP20	IP20
	Power input	W	550/702	550/702	550/702
	Power output	W	270	270	270
	Capacitor	μF	12.5 μF	12.5 μF	12.5 μF
	Speed (SH/H/M/L)	rpm	1070/950/860/690	1070/950/860/690	1070/950/860/690
Indoor fan	Brand		Haier	Haier	Haier
	Type		Centrifugal	Centrifugal	Centrifugal
	Quantity		2	2	2
Indoor coil	a. Number of rows		2	2	2
	b. Tube pitch (a)×row pitch (b)	mm	25x21.65	25x21.65	25x21.65
	c. Fin spacing	mm	1.8	1.8	1.8
	d. Fin type (code)		Hydrophilic aluminum		
	e. Tube outside dia. and type	mm	Φ9.52 Inner groove tube		
	f. Coil length×height×width	mm	1062/450/43.4	1062/450/43.4	1062/450/43.4
	g. Number of circuits		5	5	5

MODEL			AWSI-DCV030-N11	AWSI-DCV038-N11	AWSI-DCV048-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72	72
	Control box IP class		IP20	IP20	IP20
Construction	Sheet metal thickness		1	1	1
	Drain pan material		PS	PS	PS
	Drain pan insulation		20	20	20
	Drain pump option		Optional	Optional	Optional
	Branch outlet option		No	No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate	Hot zinc plate
	Thickness	mm	1	1	1
	Double or single skin		Single	Single	Single
	Material		PP	PP	PP
	Mesh		100	100	100
	Pressure drop	Pa	5	5	5
Piping dimension	Liquid pipe	mm	9.52	9.52	9.52
	Gas pipe	mm	15.88	15.88	15.88
	Drain hose	mm	32	32	32
Fresh air dimension		mm	1100*255	1100*255	1100*255
Sound pressure level (H/L)		dB(A)	45/43/40	45/43/40	45/43/40
Sound power level (H/L)		dB(A)	58/53/50	58/53/50	58/53/50
Standard static pressure		Pa	100	100	100
Max. static pressure		Pa	196	196	196
		m <sup>3</sup> /h	1560/1412/1133	1600/1448/1162	2100/1901/1525
Air outlet dimensions		mm	853/255	853/255	853/255
Air return dimensions		mm	1100/255	1100/255	1100/255
Dimension (W*H*D)		mm	1355/360/876	1355/360/876	1355/360/876
Packing (W*H*D)		mm	1378/405/938	1378/405/938	1378/405/938
Net weight		kg	62	62	62
Gross weight		kg	77	77	77
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.					

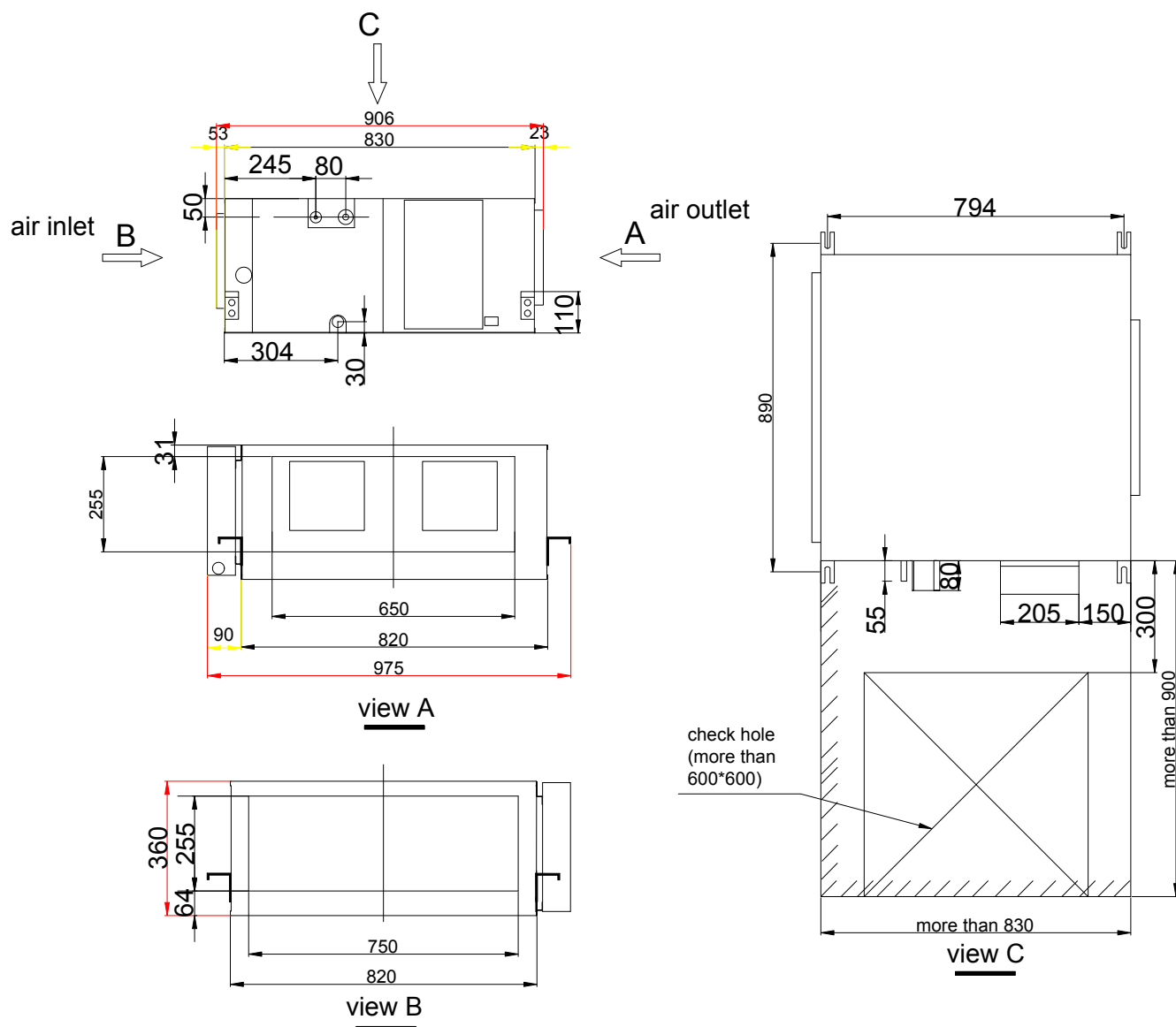
MODEL			AWSI-DCV072-N11	AWSI-DCV096-N11
Power supply		Ph-V-Hz	1,220~230,50/60	1,220~230,50/60
Cooling	Capacity	kBtu/h	77.1	95.5
	Capacity	kW	22.6	28
	Power input	W	1110	1110
	Current	A	5.05	5.05
Heating	Capacity	kBtu/h	85.3	105.8
	Capacity	kW	25	31
	Power input	W	1110	1110
	Current	A	5.05	5.05
	Heating capacity at low temp.	kW	---	---
Operating current		A	4.1	4.1
Power consumption		kW	0.895	0.895
Indoor motor	Brand		HUATE / Broad ocean	HUATE / Broad ocean
	Model		YSK270-4C / Y7S423C238	YSK270-4C / Y7S423C238
	Type		AC	AC
	Insulation class		B	B
	IP class		IP20	IP20
	Power input	W	550*2	550*2
	Power output	W	238*2	238*2
	Capacitor	μF	12.5 μF	12.5 μF
	Speed (High/Middle/Low)	rpm	1250/1020/870	1250/1020/870
Indoor fan	Brand		Haier	Haier
	Type		Centrifugal	Centrifugal
	Quantity		4	4
Indoor coil	a. Number of rows		3	3
	b. Tube pitch (a)×row pitch (b)	mm	25x21.65	25x21.65
	c. Fin spacing	mm	1.6	1.6
	d. Fin type (code)		Hydrophilic aluminum	Hydrophilic aluminum
	e. Tube outside dia. and type	mm	Φ9.52 Inner groove tube	Φ9.52 Inner groove tube
	f. Coil length×height×width	mm	1430/450/64.95	1430/450/64.95
	g. Number of circuits		9	9



MODEL			AWSI-DCV072-N11	AWSI-DCV096-N11
Cabinet	Cabinet coating type		Galvanized	Galvanized
	Cabinet salt spray test duration	Hour	72	72
	Control box IP class		IP20	IP20
Construction	Sheet metal thickness		1	1
	Drain pan material		PS	PS
	Drain pan insulation		20	20
	Drain pump option		Optional	Optional
	Branch outlet option		No	No
Indoor wall	Material		Hot zinc plate	Hot zinc plate
	Thickness	mm	1	1
	Double or single skin		Single	Single
	Material		PP	PP
	Mesh		100	100
	Pressure drop	Pa	5	5
Piping dimension	Liquid pipe	mm	9.52	9.52
	Gas pipe	mm	25.4	25.4
	Drain hose	mm	32	32
Fresh air dimension		mm	1510*255	1510*255
Sound pressure level (H/L)		dB(A)	54/51/49	54/51/49
Sound power level (H/L)		dB(A)	67/62/59	67/62/59
Standard static pressure		Pa	100	100
Max. static pressure		Pa	196	196
		m <sup>3</sup> /h	4050/3255/2612	4050/3255/2612
Air outlet dimensions		mm	1510/255	1510/255
Air return dimensions		mm	1510/255	1510/255
Dimension (W*H*D)		mm	1725/360/876	1725/360/876
Packing (W*H*D)		mm	1830/530/990	1830/530/990
Net weight		kg	92	92
Gross weight		kg	100	100
Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C) Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C) The noise level will be measured in the third octave band limited values, using a Real Time Analyser calibrated sound intensity meter. It is a sound pressure noise level.				

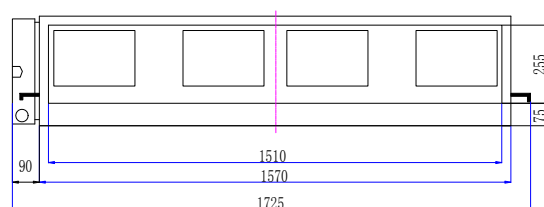
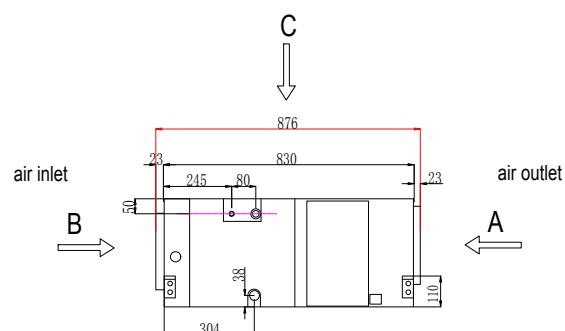
### 3. Dimension

AWSI-DCV018-N11 AWSI-DCV024-N11 AWSI-DCV028-N11

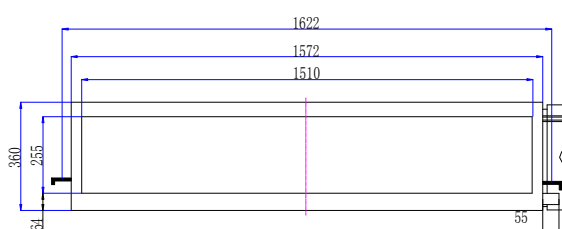




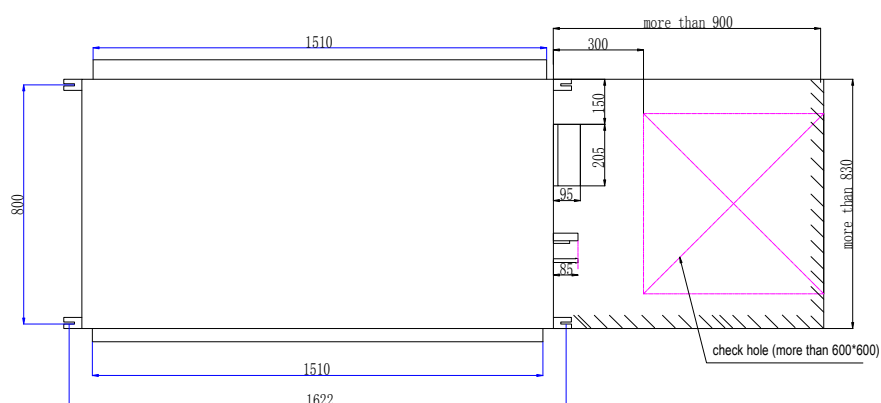
AWSI-DCV072-N11 AWSI-DCV096-N11



view A



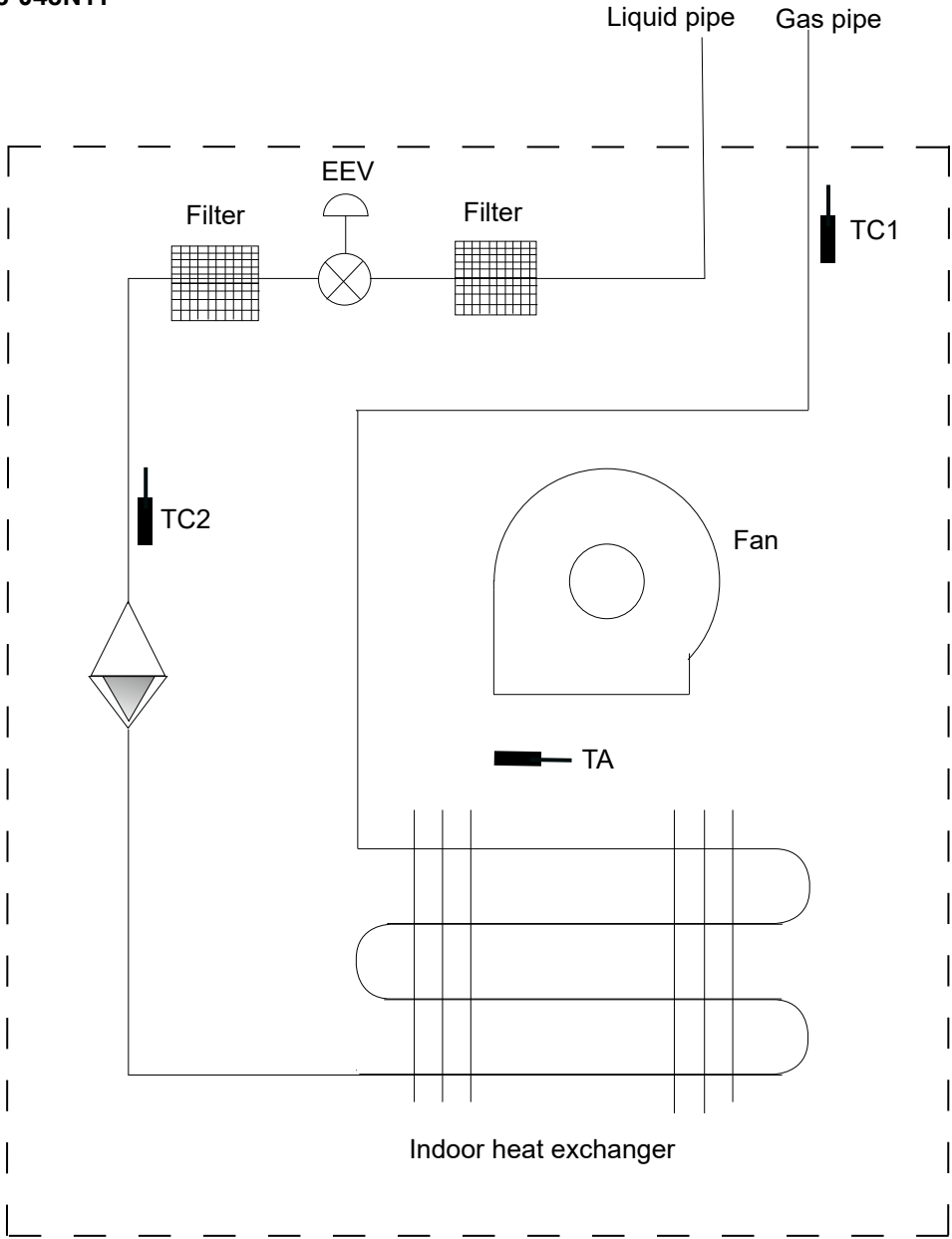
view B



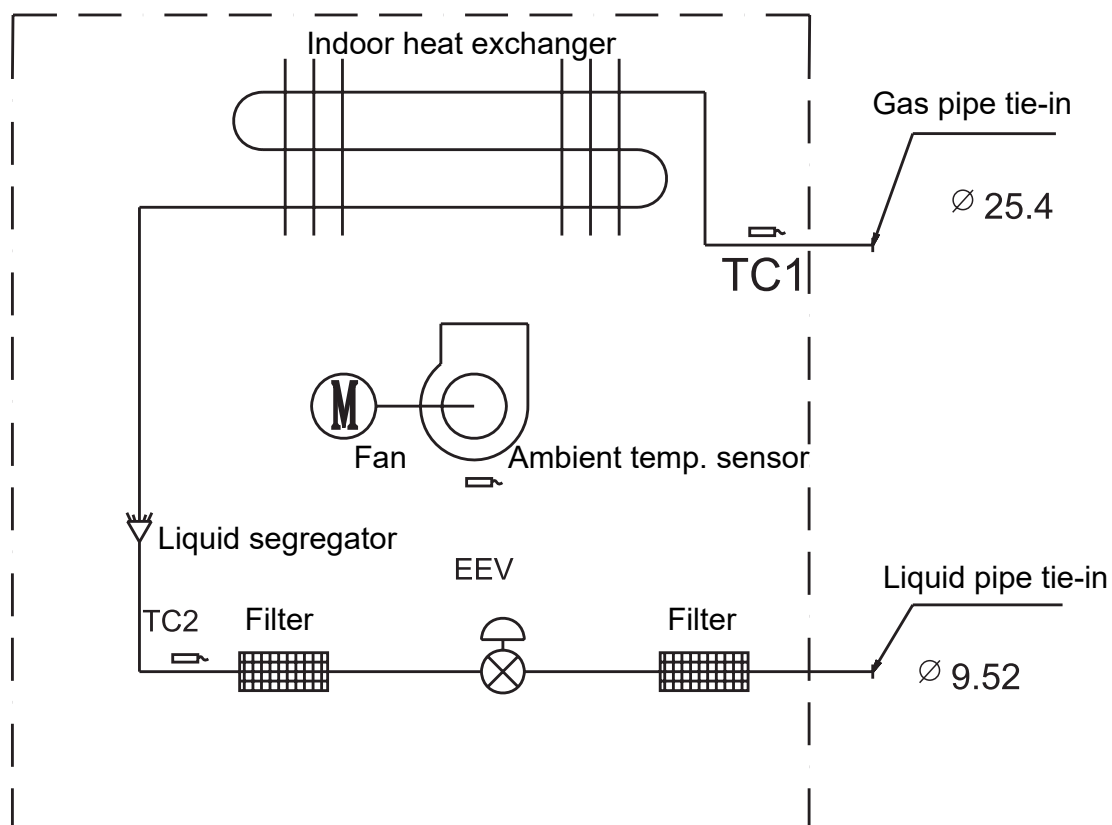
view C

4. Piping diagram

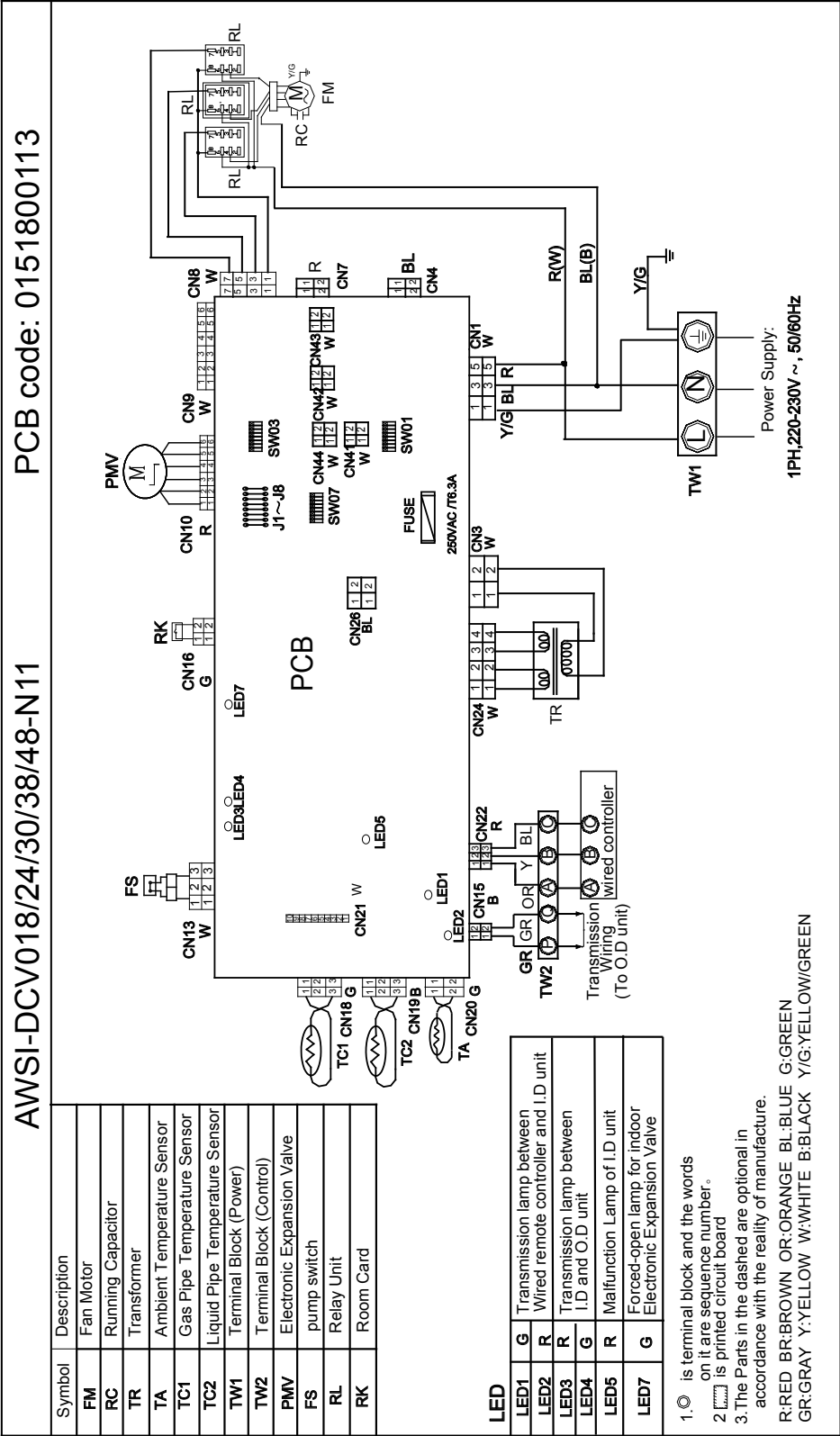
AWSI-DCV018-048N11

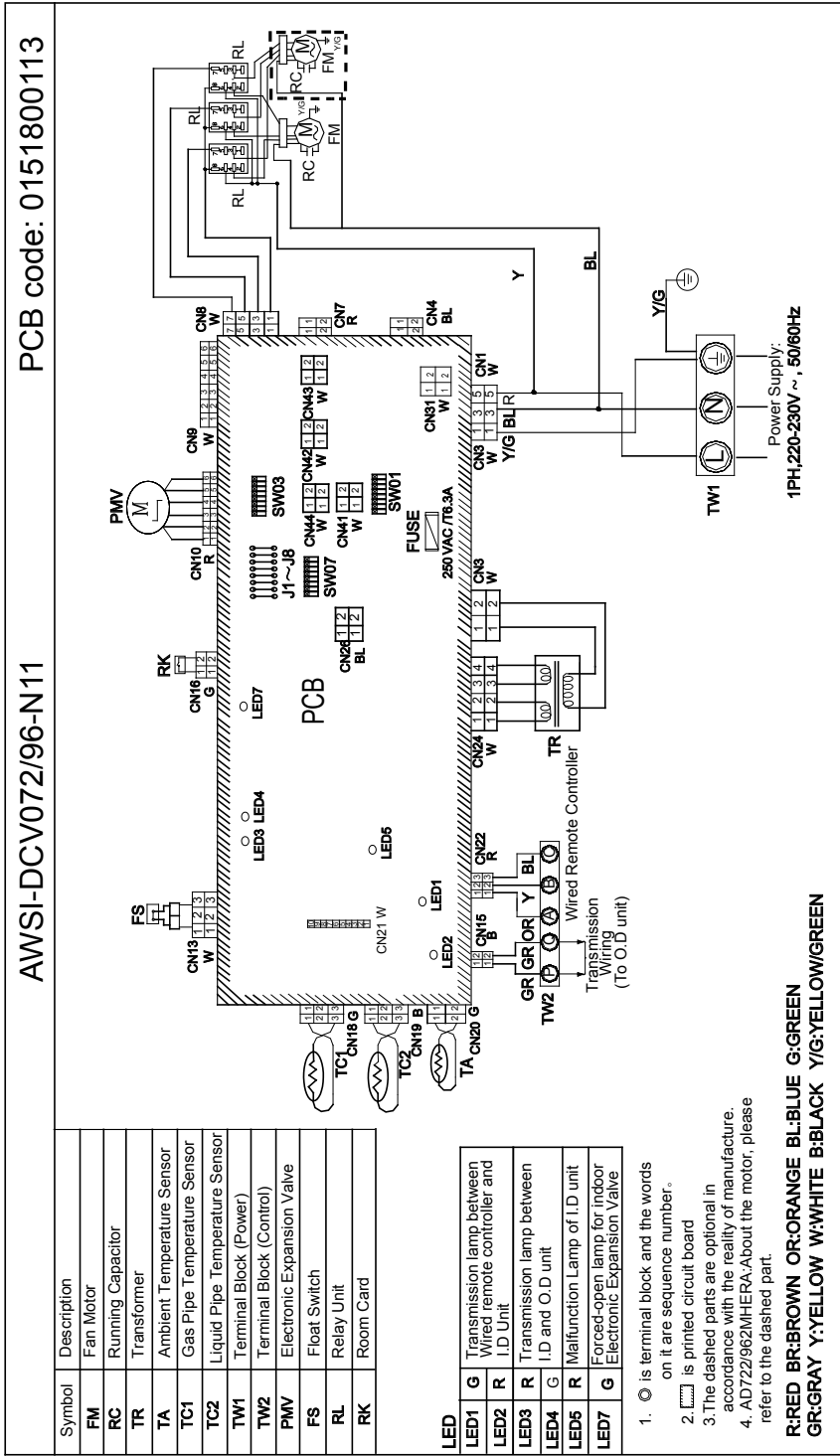


AWSI-DCV072-096N11



5. Wiring diagram







## 6. Electric characteristics

Units					Power supply		Indoor fan motor		Power input (w)	
Model	Phase	FQY	Voltage	Volt range	MCA	MFA	Output (W)	FLA	Cooling	Heating
AWSI-DCV018-N11	1ph	50/60	220	198~242	2.5	8	260	2	450	450
AWSI-DCV024-N11	1ph	50/60	220	198~242	2.5	8	260	2	450	450
AWSI-DCV030-N11	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560
AWSI-DCV038-N11	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560
AWSI-DCV048-N11	1ph	50/60	220	198~242	3	9.6	270	2.4	560	560
AWSI-DCV072-N11	1ph	50/60	220	198~242	4.65	14.88	238*2	1.86*2	1100	1100
AWSI-DCV096-N11	1ph	50/60	220	198~242	4.65	14.88	238*2	1.86*2	1100	1100

### Symbols:

MCA: Min. circuit amps (A)

MFA: Max. fuse amps of circuit breaker

Output: Fan motor rated output (w)

FLA: Full load amps (A)

### Note:

1. Voltage range

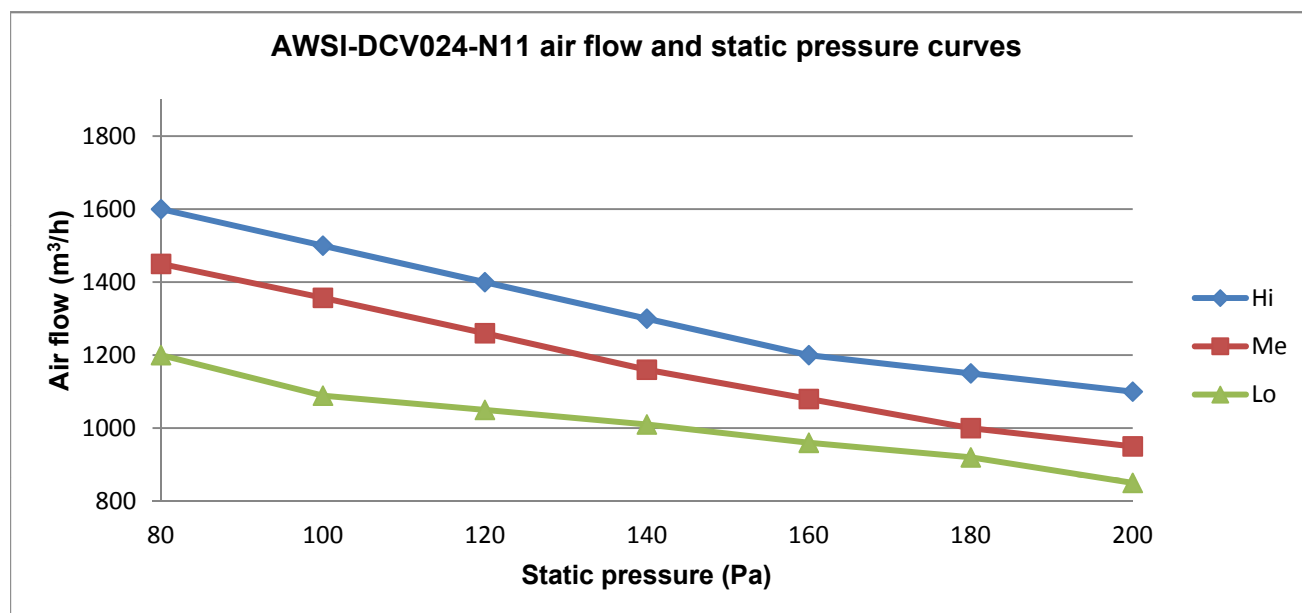
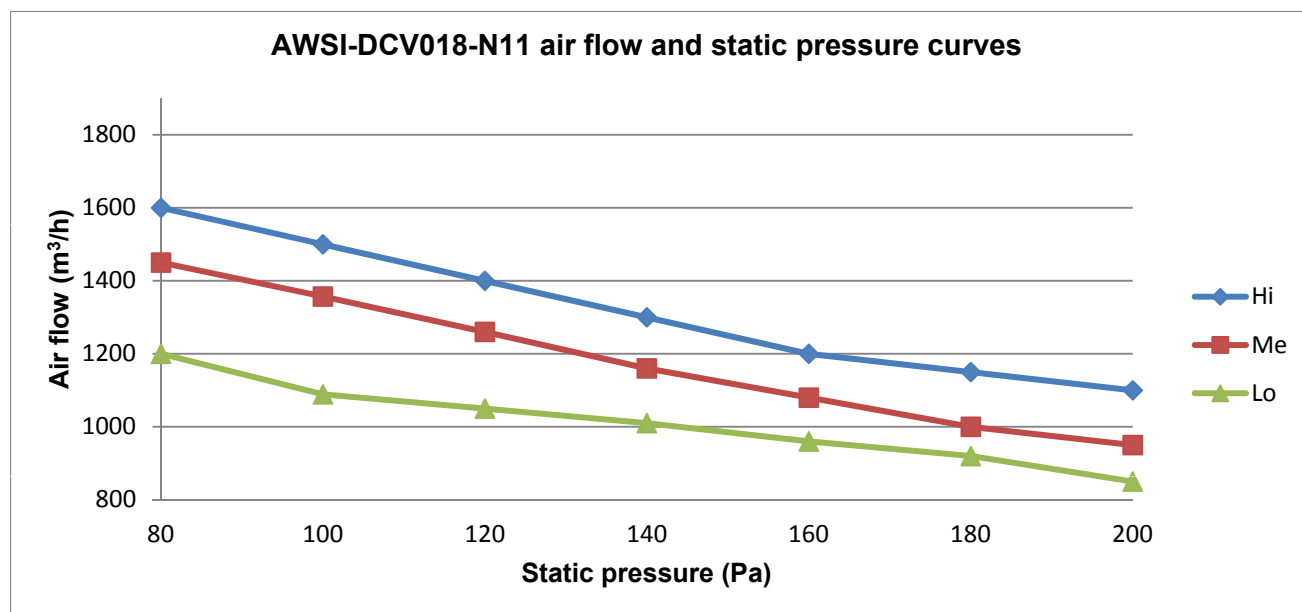
*The units are applicable for the electrical systems where voltage supplied to unit is in the range.*

2. Maximum allowable voltage unbalance between phases is 2%.

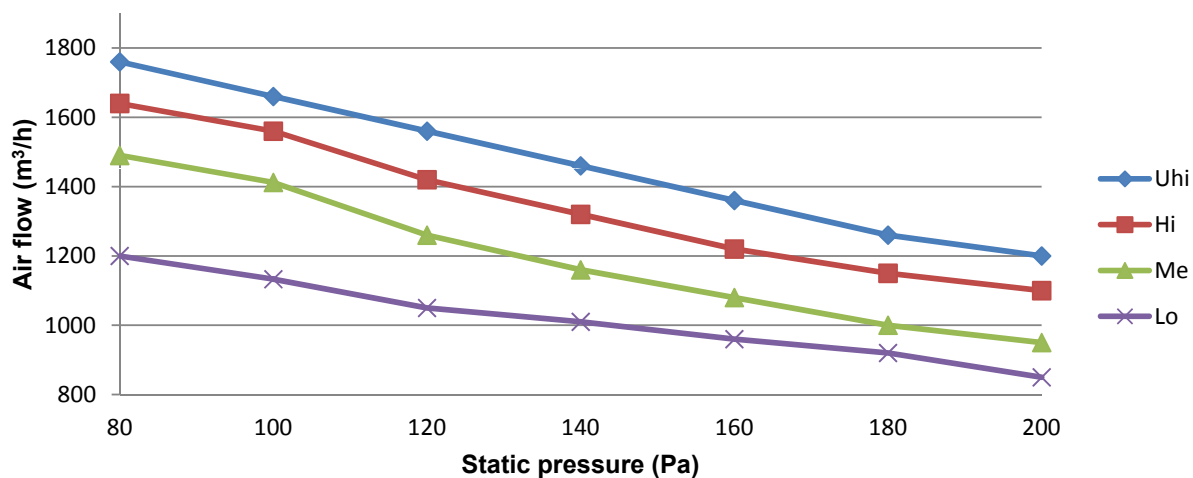
3.  $MCA=1.25*FLA$   $MFA\leq 4*FLA$

4. Power supply uses the circuit breaker.

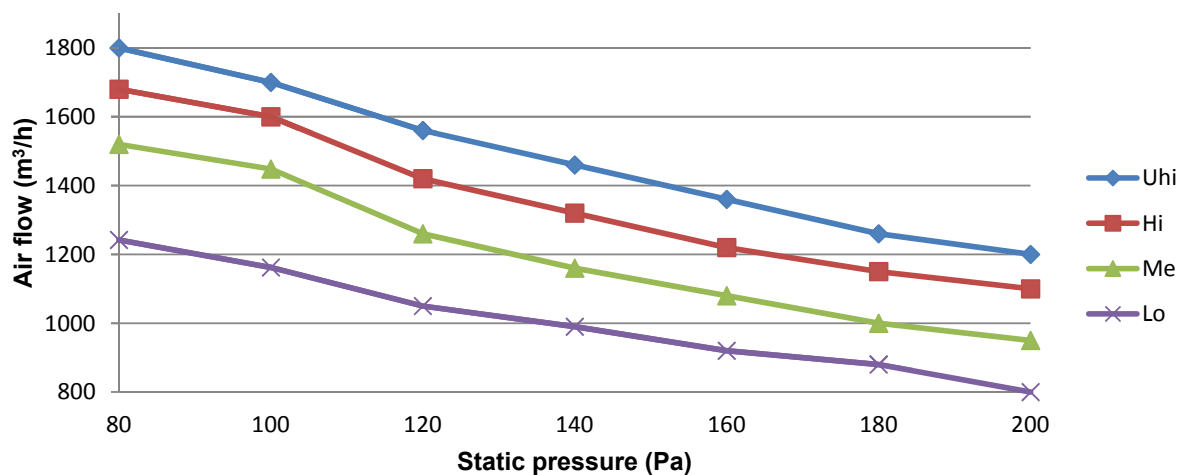
7.



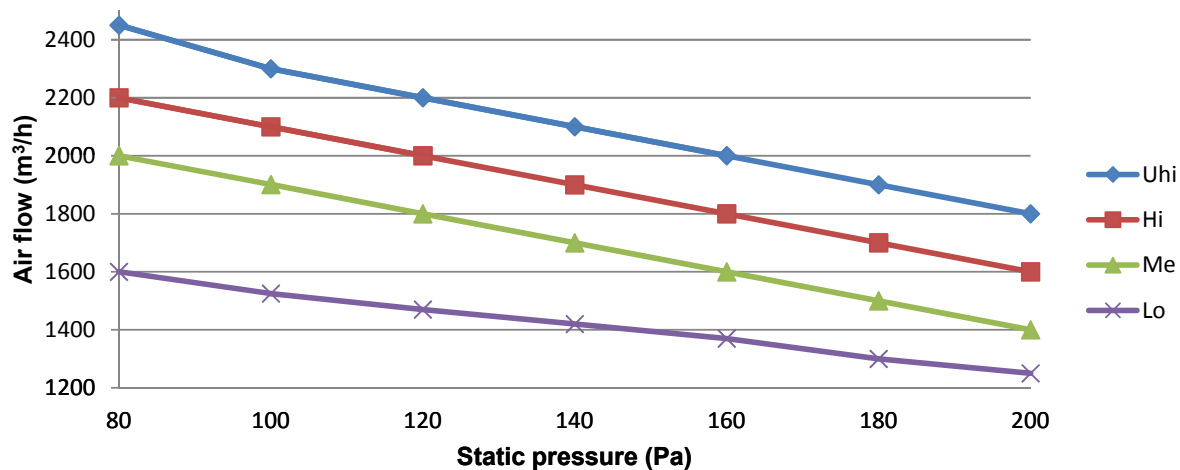
**AWSI-DCV030-N11 air flow and static pressure curves**



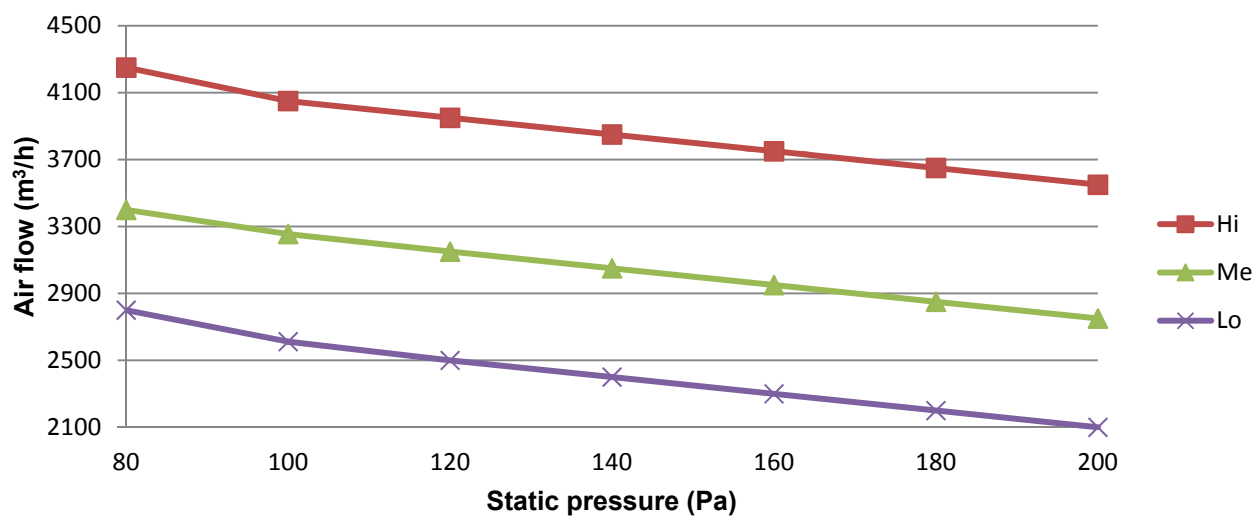
**AWSI-DCV038-N11 air flow and static pressure curves**



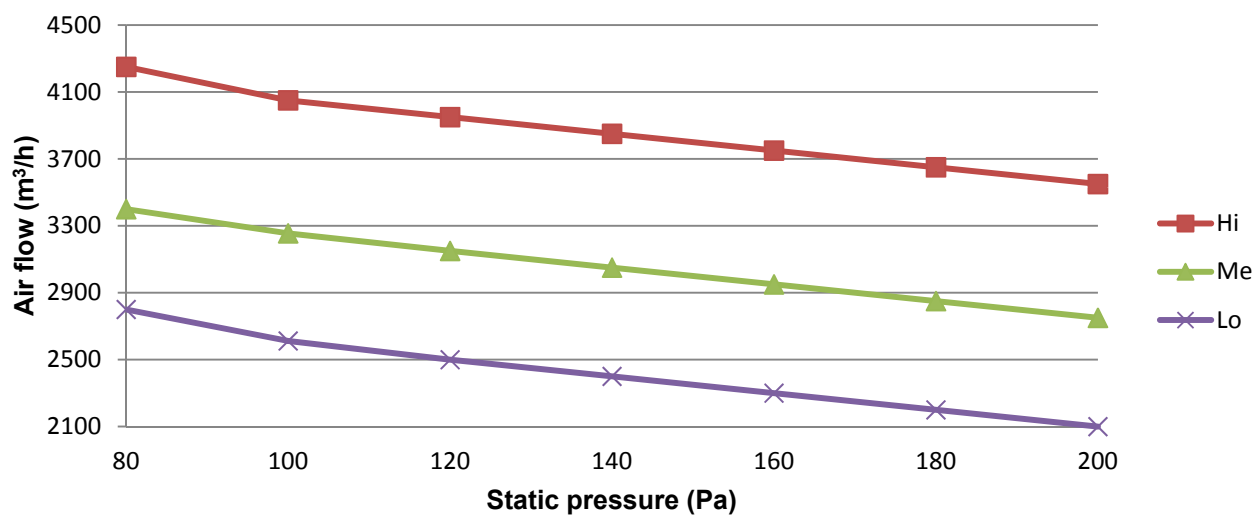
**AWSI-DCV048-N11 air flow and static pressure curves**



**AWSI-DCV072-N11 air flow and static pressure curves**



**AWSI-DCV096-N11 air flow and static pressure curves**



## 8. Sound pressure level

(1) Testing illustrate:

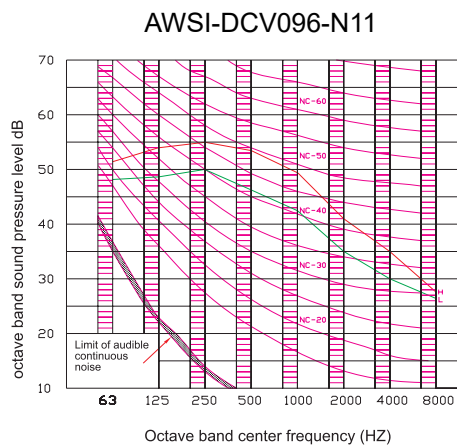
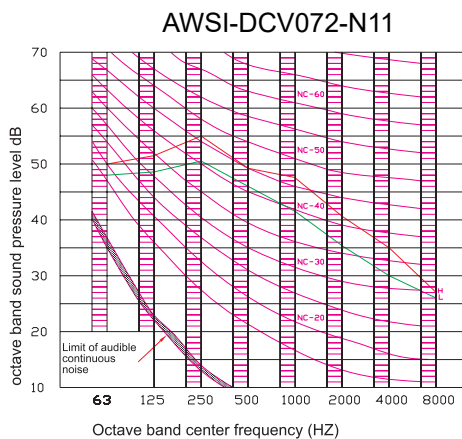
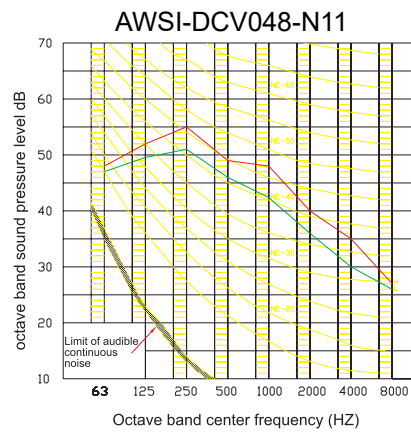
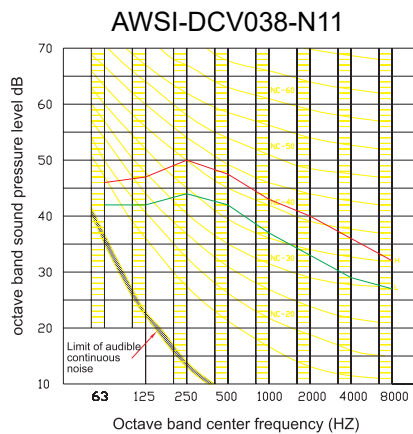
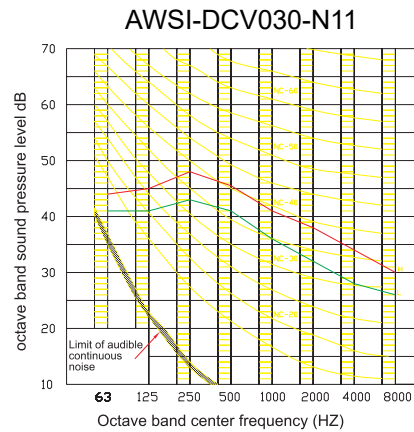
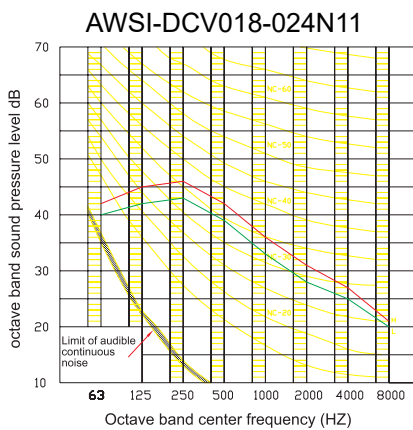
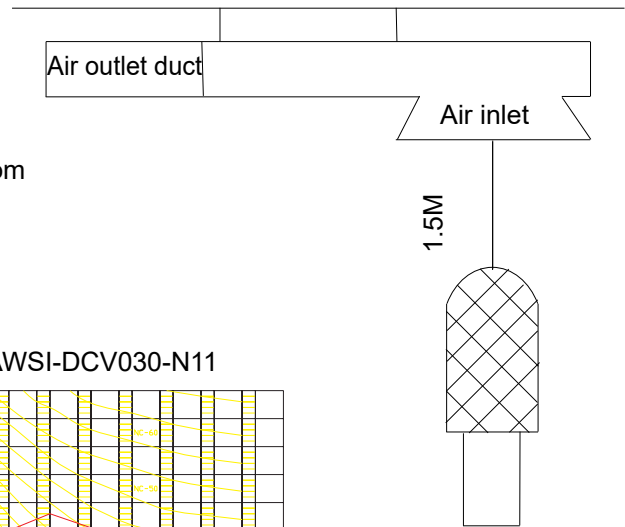
(2) Testing condition:

a: Unit running in the normal condition

b: Test in the semi-anechoic chamber

c: Noise level varies from the actual factors such as room structure, etc.

(3) Octave band level:



## 9. Installation

### 9.1 Installation Procedures

The standard attached accessories of the units of this series refer to the packing; prepare other accessories according to the requirements of the local installation point of our company.

#### installation]

- Determine the route to move the unit to the installation site;
- Don't tear the package open before moving the unit to the installation site. When unpacking is needed, a soft material or protector block with ropes can be used to lift the unit to avoid damaging or scraping of the unit.

### 2. Select the installation site

(1) The installation site should be selected according the following conditions, which should be approved by users.

- Where an ideal air distribution can be ensured;
- Where there is no blockage in the air passage;
- Where the condensed water can be drained out properly;
- Where the strength can bear the weight of the indoor unit;
- Where enough space can be ensured for maintenance. The outside air should be input from the outdoor directly from the blast pipe. If the blast pipe can't be jointed, the air can't be input from the suspended ceiling. range (refer to Installation of Outdoor Units)
- Where the distance of at least 1m between indoor units, outdoor units, mains supply, connecting wires and television or radio should be kept as to avoid the image disturbance and noises of the above electrical appliances. (Even if 1m can be ensured, noise might occur if there is strong electric wave.) Additionally, equipments, television or other valuables can't be put under the unit as to avoid the condensed water of the unit from dropping into the above articles, causing damaging.

(2) Height of Ceiling:

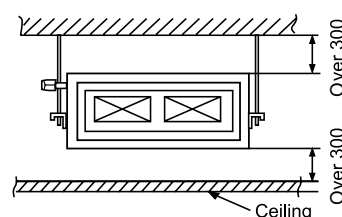
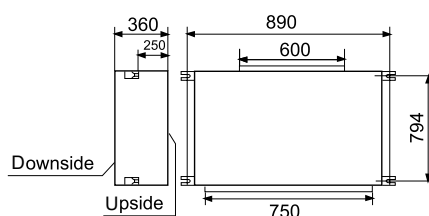
The ceiling should be located at the place, where the central position of air outlet port is less than 3m high above the ground.

(3) Suspender should be used during installation. Check if the location can bear the weight of the unit. Reinforce it before installation if necessary.

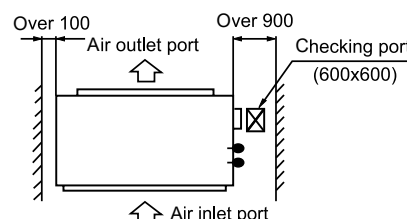
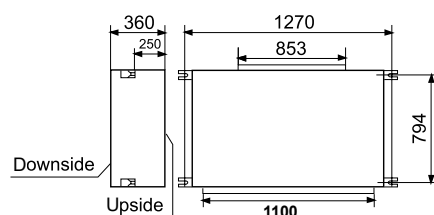
### 3. Preparation before Installation

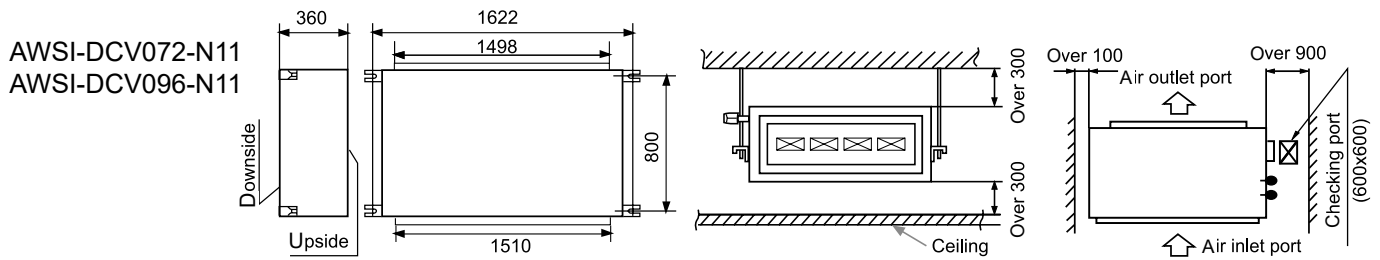
(1) Location relation between inspection hole on the ceiling and the unit and the suspender  
(unit: mm).

AWSI-DCV018-N11  
AWSI-DCV024-N11



AWSI-DCV030-N11  
AWSI-DCV038-N11  
AWSI-DCV048-N11





(2) If necessary, make a hole for installation and inspection on the ceiling. (used for the situation with a ceiling)

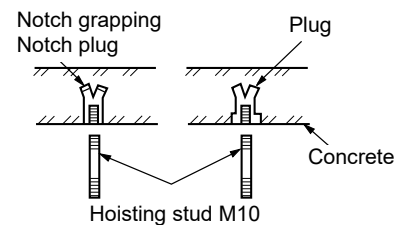
■ For the size of the inspection hole on the ceiling, please refer to the above drawing.

■ and wiring (connection line of the wired control, connection line between indoor units and outdoor unit) so that they can be connected with indoor units after installation.

■ For the inspection hole, the ceiling might be reinforced to keep the evenness of the ceiling and avoid the vibration of the ceiling. For details, please consult the construction contractor.

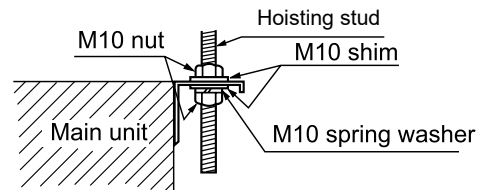
(3) Install the suspender (M10 bolts)

In order to support the weight of the unit, use barb bolts in the situation with a ceiling. In the situation with the new ceiling, use inlaid bolts, embedded bolts or other parts provided on site. Before proceeding the installation, adjust the gap between the bolt and the ceiling.



(4) Installation of indoor units

■ Fix the indoor unit with the hoisting stud. If necessary, the machine can be hanged on the beam with bolts instead of the hoisting stud.

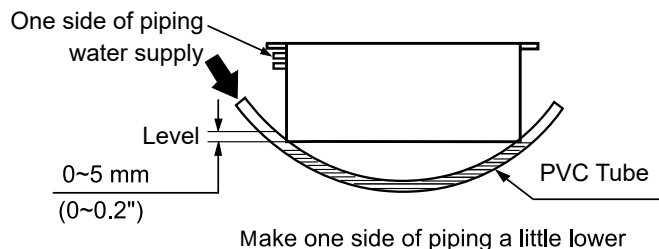


NB:

When the sizes of the master unit don't match the hole on the ceiling, regulate the slot on the hanging bracket.

#### Adjusting the level

(a) Adjust the level with a level meter or according to the following ways:



#### Choice of Blowing Wind from Blower

The blower is provided with a red terminal and a white terminal. The standard wind choice has been set before delivery. When the use of optional components, such as the high performance , causes the static pressure rising, change the connection of the connector mounted on the side of the control cabinet, as shown as follows.





(e) The hard PVC tube in the room must be provided with the heat insulating layer.

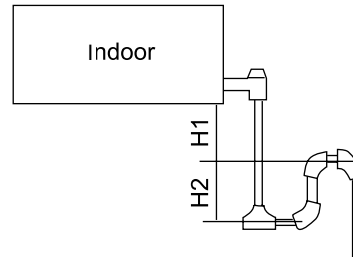
(f) Water trap:

Because it is easy to cause minus pressure at the water drainage hole, once the water level in drainage pan goes up, water will leak. To prevent water leakage, we design a water trap here.

Water trap should be easy to be cleaned. Adopt T

$H1=100\text{mm}$  or fan motor static pressure

$H2=\frac{1}{2} H1$ (or among 50mm~100mm)



(g) Don't place the drainpipes at the places where there is irritant gas. Don't put the drainpipe directly into the sewer, where there might be gases with sulfur.

#### Testing Drainage System

(a)

(b)

connection.

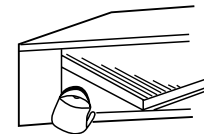
(c)

(d) Even if it is installed in the season needed to heating, the testing should also be performed.

#### Procedures

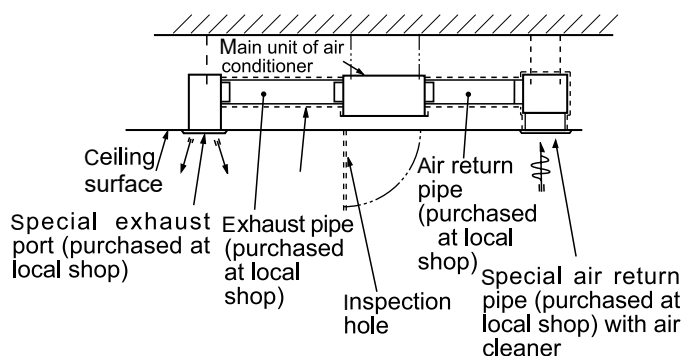
(a) Charge 1000cc of water to the equipment via air outlet port.

(b) During cooling operation, check the drainage system.

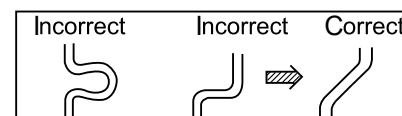


### 5. Installation of Air Return & Air Exhaust Duct

For the choice and installation of air return port, air return pipe, air exhaust port and exhaust pipe, please consult service personnel of Airwell company. Calculate the design chart and exterior static pressure, and select the exhaust pipe with appropriate length and shapes.

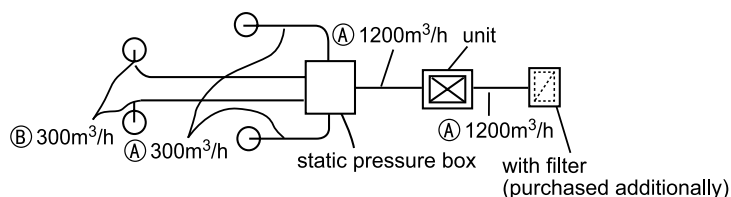


- The length difference between pipes should be limited to be less than 2:1;
- Make the piping as short as possible;
- Keep the min. elbow quantity;
- unit and the exhaust pipe for heat insulation and sealing. Install the piping



## 6. Calculation of simple duct

Assume the friction resistance per unit is 1Pa/m, when the size of one side of air pipe is 250mm,



	Flux	Gas pipe (mm×mm)
A	1200m³/h (20m³/min)	250×310
B	300m³/h (5m³/min)	250×120

### ■ Calculation of resistance in duct:

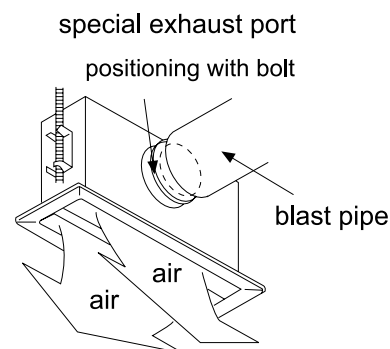
Straight pipe	1Papermeter, 1Pa/m
Bended section	Each bend regarded as 3-4m of straight pipe
Air outlet	25Pa per outlet
Static pressure box	50Pa per static pressure box
	40Pa for each one

### ■ Simple duct selection Note: 1Pa/m

Flux (m³/h)	Shape Item	Square pipe Size (mm×mm)
100		250×60
200		250×90
300		250×120
400		250×140
500		250×170
600 (10)		250×190
800		250×230
1000		250×270
1200 (20)		250×310
1400		250×350
1600		250×390
1800 (30)		250×430
2000		250×470
2400		250×560
3000 (50)		250×650
3500		250×740
4000		250×830
4500		250×920
5000		250×1000
5500		250×1090
6000 (100)		250×1180

## 7. Cautions in Installation of Air Return Pipe & Exhaust Pipe

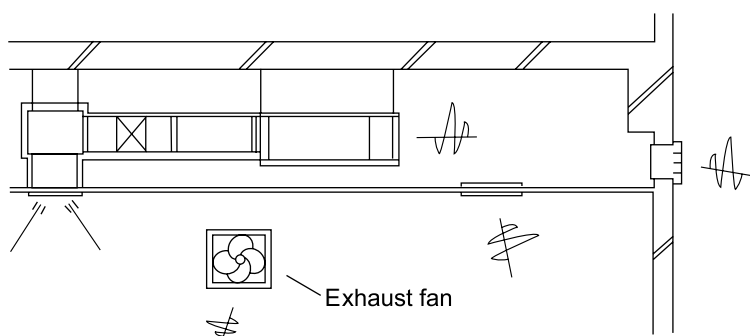
- It is recommended to use the blast pipes, which can be anti-condensation and absorb sound. (purchased at local shops)
- ceiling.
- Heat insulation should be made for the blast pipes.
- The special exhaust port should be arranged at the place where the air is distributed evenly.
- An inspection hole should be left on the surface of the ceiling for future maintenance.



## 8. Examples for Bad Installation

- The unit is not equipped with the air return pipe and the inner side of the suspending ceiling is used as the blast pipe, causing the humidity increasing due to irregular air mass, strong wind or sunlight from the outside world.
- There might be condensate dropping down at the outer side of the blast pipe. The humidity is high, even if the inner side of the suspended ceiling isn't used as a blast pipe in new concrete buildings. At this time, the whole body should use the thermo wool for heat preservation (the thermo wool can be packed with a steel wire).
- It is operated under the conditions beyond the limits, leading to the overload of the compressor.
- Af

causing water leakage.



Example of bad installation

## 9. Refrigerant Pipe

### Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

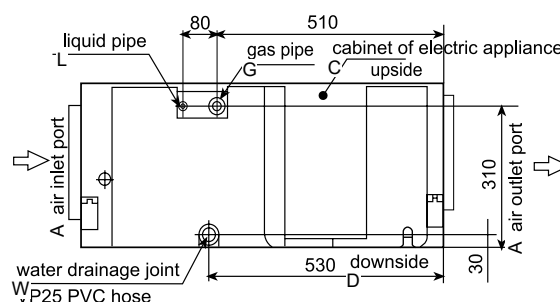
### Piping Materials & Heat Insulating Materials

As to prevent condensation, heat insulating treatment should be performed. The heat insulating treatment for piping should be done respectively.

Piping Material	Hard PVC tube VP31.5mm (inner bore)
Heat Insulating Material	Vesicant polythene thickness: over 7mm



Model		AWSI-DCV018-N11	AWSI-DCV024-048N11
Tubing Size (mm)	Gas pipe	Φ12.7	Φ15.88
	Liquid pipe	Φ6.35	Φ9.52
Tubing Material		Phosphor deoxy bronze seamless pipe (TP2) for air conditioner	



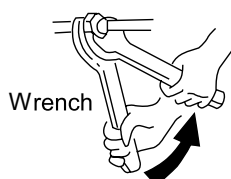
Model		AWSI-DCV072-N11	AWSI-DCV096-N11
Tubing Size (mm)	Gas pipe	Φ25.4	Φ25.4
	Liquid pipe	Φ9.52	Φ9.52
Tubing Material		Phosphor deoxy bronze seamless pipe (TP2) for air conditioner	

### Refrigerant Recharge Amount

Add the refrigerant according to the installation instruction of outdoor unit. The addition of R410A refrigerant must be performed with a measure gage to ensure the amount or compressor failure can be caused by too much or little refrigerant.

### Connecting Procedures of Refrigerant Tubing

- Dual wrenches must be used in the connection of indoor unit tubing.
- Mounting torque refers to the right table.



Outer diameter of tubing (mm)	Mounting torque
Φ6.35	11.8~13.7N·m
Φ9.52	32.7~39.9N·m
Φ12.7	49.0~53.9N·m
Φ15.88	78.4~98.0N·m

### Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the opening is broken.

### Vacuumizing

Vacuumize from the stop valve of outdoor units with vacuum pump. Refrigerant sealed in indoor machine is not allowed to use for vacuumization.

### Open All Valves

Open all the valves of outdoor units. [NB: oil balancing stop valve must be shut up completely when connected one master unit.]

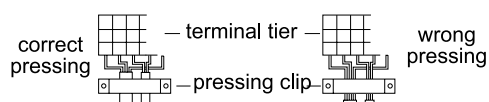
### Checkup for Air Leakage

Check if there is any leakage at the connecting part and bonnet with hydrophone or soapsuds.

### Connecting



1. Connecting circular terminals:  
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.
2. Connecting straight terminals:  
The connection methods for the circular terminals are shown as follows: loosen the screw before putting the line terminal into the terminal tier, tighten pulling the line gently.
3. Pressing connecting line  
After connecting line is completed, press the connecting line with clips which should press on the protective sleeve of the connecting line.



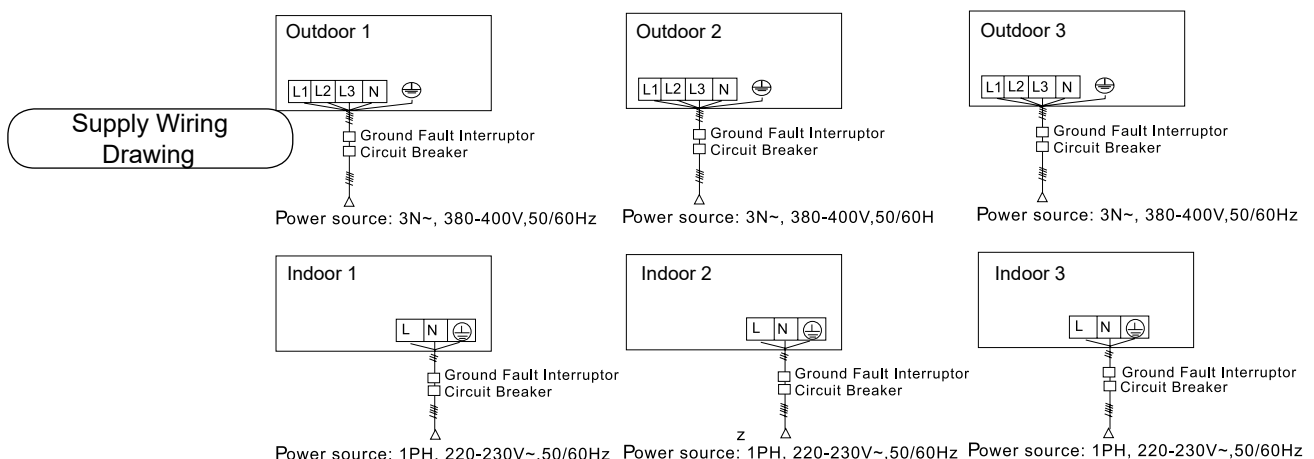
## 9.2 Electrical Wiring

### ⚠ WARNING

- 
- 
- local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of
- There must be the ground connection according to the criterion. Unreliable grounding may cause electrical shocks. Do not connect the grounding line to the gas pipe, water pipe, lightening rod and telephone line.

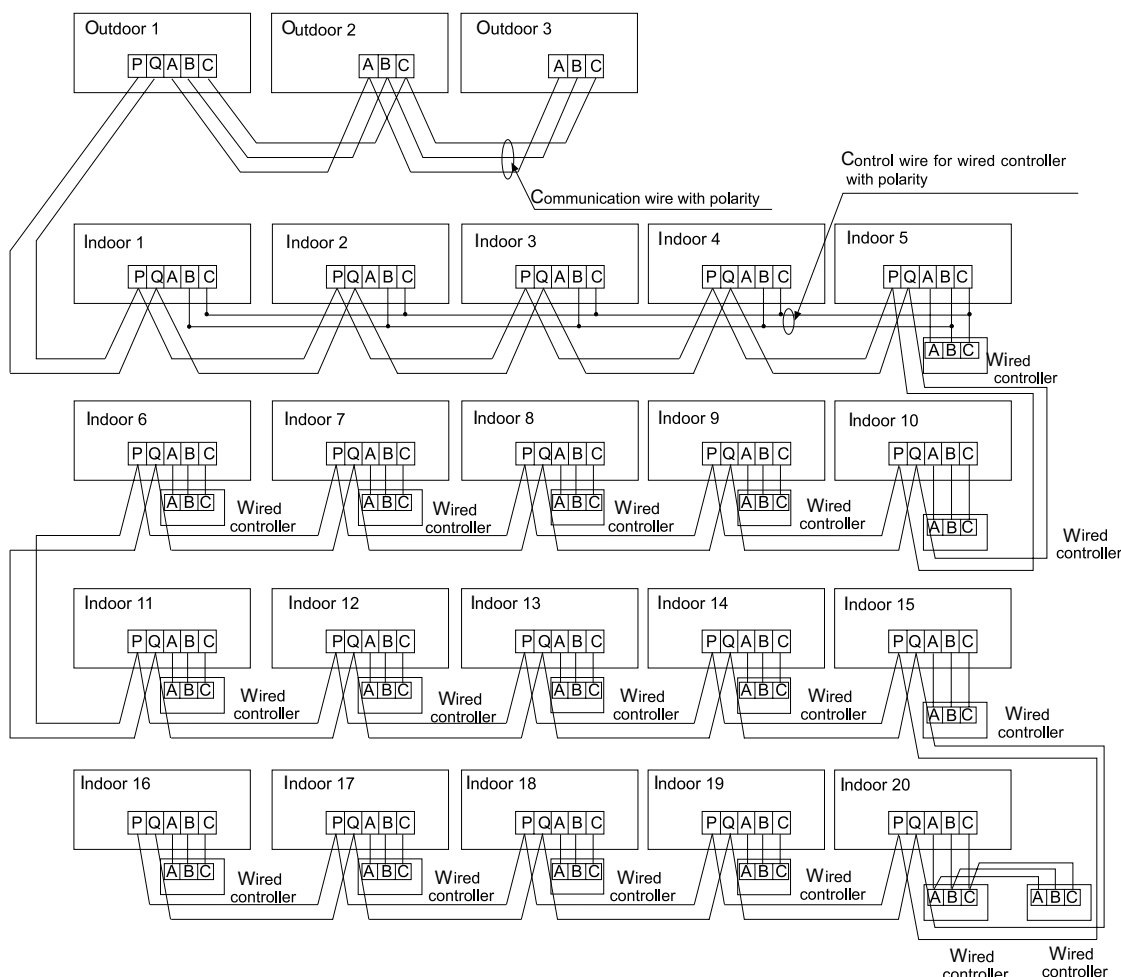
### ⚠ ATTENTION

- Only copper wire can be used. Breaker for electric leakage should be provided, or electric shock may occur.
- The wiring of the mains line is of Y type. The power plug L should be connected to the live wire and plug N connected to null wire while should be connected to the ground wire. For the type with auxiliary electrically heating function, the live wire and the null wire should not be misconnected, or the surface of electrical heating or service center.
- The power line of indoor units should be arranged according to the installation instruction of indoor units.
- The electrical wiring should be out of contact with the high-temperature sections of tubing as to avoid melting the insulating layer of cables, which may cause accidents.
- After connected to the terminal tier, the tubing should be curved into be a U-type elbow and fastened with the pressing clip.
- 
- The machine can't be powered on before electrical operation. Maintenance should be done while the power is shut down.
- Seal the thread hole with heat insulating materials to avoid condensation.
- Signal line and power line are separately independent, which can't share one line. [Note: the power line and signal line are provided by users. Parameters for power lines are shown as below:  $3 \times 1.0-1.5 \text{ mm}^2$ ; parameters for signal line:  $2 \times 0.75-1.25 \text{ mm}^2$  ( shielded line)]
- 5 butt lines (1.5mm) are equipped in the machine before delivery, which are used in connection between the valve box and the electrical system of the machine. The detailed connection is displayed in the circuit diagram.



- Indoor units and outdoor units should be connected to the power source separately. Indoor units must share one

## Signal Wiring Drawing



Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity.

There are three connecting ways between wired controller and indoor units:

- A. One wired controller controls multiple units, i.e. 2-16 indoor units, as shown in the above (1-5 indoor units).

The indoor unit 5 is the wired control master unit and others are the wired control slave units. The wired controller and the master unit (directly connected to the indoor unit of wired control) are connected via three lines with polarity. Other indoor units and the master unit are connected via two lines with polarity. SW01 on the wired control master unit is set to 0 while SW01 on other wired control slave units are set to 1, 2, 3 and so on in turn. (Please refer to the dip switch setting)

The indoor unit

and the wired control are connected via three lines with polarity.

C. T

can be set to be the master wired controller while the other is set to be the slave wired controller. The master wired controller and indoor units and the master and slave wired controller are connected via three lines with polarity.

When the indoor units are controlled by the remote controller, refer to the "wired control master unit/ wired control slave unit/ remote control unit table". A, B, C on signal terminal block needn't wires to connect with the wired controller.

The combination of multiple indoor units can be controlled by wired controller or remote controller.

※ Switching mode of Wired control master unit/ Wired control slave unit/ remote control types can be used for switching over ※

Setting mode Socket/dip switch	Wired control master unit	Wired control slave unit	Remote control
SW01-[1][2][3][4]	All OFF	[0][0][0][1]	All OFF
CN21 socket	Null	Null	Connect to remote receiver
Terminal block (control)	A, B, C connect with wired controller	B, C connect with wired controller	A, B, C Null

**Note:**

The wiring for the power line of indoor unit, the wiring between indoor and outdoor units as well as the wiring between indoor units:

Items Total current of indoor units (A)	Cross section (mm <sup>2</sup> )	Length (m)	Rated current of breaker (A)	Rated current of residual circuit breaker (A) Ground fault interrupter (mA) Response time (S)	Cross sectional area of signal line	
					Outdoor -indoor (mm <sup>2</sup> )	Indoor -indoor (mm <sup>2</sup> )
<10	2	20	20	20 A, 30 mA, 0.1S or below	2 cores×(0.75-2.0) mm <sup>2</sup> shielded line	
≥10 and <15	3.5	25	30	30 A, 30 mA, 0.1S or below		
≥15 and <22	5.5	30	40	40 A, 30 mA, 0.1S or below		
≥22 and <27	10	40	50	50 A, 30 mA, 0.1S or below		

- ※ The electrical power line and signal lines must be fastened tightly.
- ※ Every indoor unit must have the ground connection.
- ※ The power line should be enlarged if it exceeds the permissible length.
- ※ Shielded lays of all the indoor and outdoor units should be connected together, with the shielded lay at the side of signal lines of outdoor units grounded at one point.
- ※ It is not permissible if the whole length of signal line exceeds 1000m.

Signal wiring of wired controller

Length of signal line (m)	Wiring dimensions
≤ 250	0.75mm <sup>2</sup> ×3 core shielded line

- ※ The shielding lay of the signal line must be grounded at one end.
- ※ The total length of the signal line shall not be more than 250m.

## 9.3 Test Run

### Before Test Run

- Before switching it on, test the supply terminal tier (L, N terminals) and grounding points with 500V megaohm meter and check if the resistance is above 1MΩ. It can't be operated if it is below 1MΩ.
- Connect it to the power supply of outdoor units to energize the heating belt of the compressor. To protect the compressor at startup, power it on 12 hours prior to the operation.
- Check if the arrangements of the drainpipe and connection line are correct.
- The drainpipe shall be placed at the lower part while the connection line placed at the upper part.
- Heat preservation measures should be taken such as winding the drainpipe esp. in the indoor units with heating insulating materials.
- The drain pipe should be made a slope type to avoid protruding at the upper part and concaving at the lower part on the way.
- Checkup of Installation
  - ☐ Check if the mains voltage is matching
  - ☐ Check if there is air leakage at the piping joints
  - ☐ Check if the connections of mains power and indoor & outdoor units are correct
  - ☐ Check if the serial numbers of terminals are matching
  - ☐ Check if the installation place meets the requirement
  - ☐ Check if there is too much noise
  - ☐ Check if the connecting line is fastened
  - ☐ Check if the connectors for tubing are heat insulated
  - ☐ Check if the water is drained to the outside
  - ☐ Check if the indoor units are positioned
  - ☐

### Ways of Test Run

Do ask the installation personnel to make a test run. Take the testing procedures according to the manual and check if the temperature regulator works properly.

When the machine fails to start due to the room temperature, the following procedures can be taken to do the compulsive running. The function is not provided for the type with remote control.

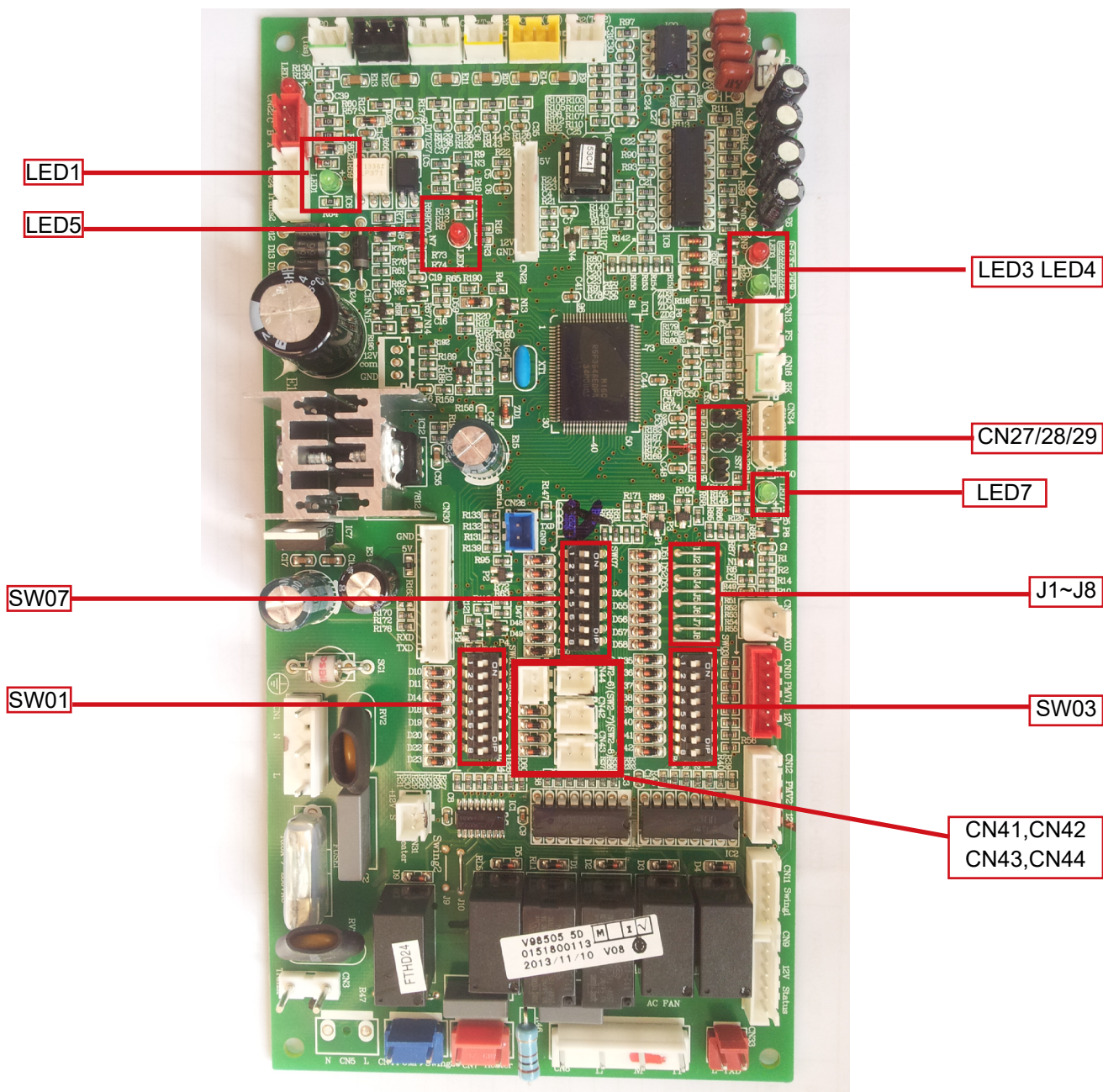
- Set the wired controller to cooling/heating mode, press "ON/ OFF" button for 5 seconds to enter into the compulsive cooling/heating mode. Repress "ON/ OFF" button to quit the compulsive running and stop the operation of the air conditioner.



## 10. Dip Switch Setting

### 10.1 0151800113 PCB dip switch setting

Used for:AWSI-DCV018-96 N11



### LED light introduction:

- LED1, LED2: communication lamp between indoor unit and wired controller.

, these

two lamps will light or not light at the same time.

- LED3, LED4: communication lamp between indoor unit and outdoor unit.

, these

two lamps will light or not light at the same time.

- LED5: malfunction lamp of indoor unit.

times indicate the corresponding failure code.

- LED7: forced-open lamp for indoor electronic expansion valve.

This lamp not light under normal condition; during adjusting the electronic expansion valve by hand this lamp

### Dip switch introduction

SW01 is used for indoor unit group control address setting and capacity selection. CN44, CN42, CN43 are used for indoor unit type selection. CN41 is used for address setting by wired controller. SW03 is used for indoor unit address setting (including physical address and central address). SW07 is used for running mode setting.

#### (1) Description of SW01

SW01_1 SW01_2 SW01_3 SW01_4	Wired control address	[1]	[2]	[3]	[4]	Wired control address
		<u>OFF</u>	<u>OFF</u>	<u>OFF</u>	<u>OFF</u>	Master unit in group control
		OFF	OFF	OFF	<u>ON</u>	Slave unit 1 in group control
		OFF	OFF	<u>ON</u>	OFF	Slave unit 2 in group control
		OFF	OFF	<u>ON</u>	<u>ON</u>	Slave unit 3 in group control
		...	...	...	...	.....
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	Slave unit 15 in group control
SW01_5 SW01_6 SW01_7 SW01_8	Indoor unit capacity	[5]	[6]	[7]	[8]	Indoor unit capacity
		OFF	OFF	OFF	OFF	0.6HP
		OFF	OFF	OFF	<u>ON</u>	0.8HP
		OFF	OFF	<u>ON</u>	OFF	1.0HP
		OFF	OFF	<u>ON</u>	<u>ON</u>	1.2HP
		OFF	<u>ON</u>	OFF	OFF	1.5HP
		OFF	<u>ON</u>	OFF	<u>ON</u>	1.7HP
		OFF	<u>ON</u>	<u>ON</u>	OFF	2.0HP
		OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	2.5HP
		<u>ON</u>	OFF	OFF	OFF	3.0HP
		<u>ON</u>	OFF	OFF	<u>ON</u>	3.2HP
		<u>ON</u>	OFF	<u>ON</u>	OFF	4.0HP
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	5.0HP
		<u>ON</u>	<u>ON</u>	OFF	OFF	6.0HP
		<u>ON</u>	<u>ON</u>	OFF	<u>ON</u>	8.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	OFF	10.0HP
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	15.0HP

Type	Model	0.6HP	0.8HP	1.0HP	1.2HP	1.7HP	2.0HP	2.5HP	3.0HP	3.2HP	4HP	5HP	8HP	10HP
High ESP duct type (100/196Pa)	AWSI- DCV018-96 N11						18	24	28	30	38	48	72	96

## (2) CN41,CN42,CN43,CN44 plug explanation

CN41	Set address by wired controller or automatically (when SW03_1 is OFF)	OFF	Allow the wired controller to set the indoor address, after restart, the indoor address need to reset		
		ON	Allow the wired controller to set the indoor address, after restart, the indoor address which is set by wired control is same as before and needn't to reset		
CN42 CN43 CN44	Indoor type	CN44	CN42	CN43	Indoor type
		OFF	OFF	OFF	Normal indoor (default)
		OFF	OFF	ON	Wall mounted
		OFF	ON	OFF	Fresh air unit
		OFF	ON	ON	OEM(HRV)
		ON	OFF	OFF	Convertible
		ON	OFF	ON	Reserve (general indoor unit)
		ON	ON	OFF	Reserve (general indoor unit)
		ON	ON	ON	Reserve (general indoor unit)

### Note:

- OFF: the plug is open circuit
- ON: the plug is short circuit
- Using wired controller modifying physical address or central control address, the other corresponding address can change automatically.

### (3) Description of SW03

SW03	Set the communication and central control address by dip switch (*Note 2)	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	Communication address	Central control address
		<u>ON</u>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	0 (default)	0 (default)
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	1
		<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	2
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	OFF	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	63
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	OFF	0	64
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	OFF	<u>ON</u>	1	65
		<u>ON</u>	<u>ON</u>	OFF	OFF	OFF	OFF	<u>ON</u>	OFF	2	66
		...	...	...	...	...	...	...	...	...	...
		<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	<u>ON</u>	63	127
		<b>OFF</b>	...	...	...	...	...	...	...	Set the address by wired controller or automatically (default)	

#### Note 2

- The address must be set by dip switch if central control is used.
- SW03-2=OFF, central control address = physical address +0
- SW03-2=ON, central control address=physical address +64
- The address must be set by dip switch if 0151800113 and 0010451181A or 0151800086 are used together.

### (4) Description of SW07

SW07_1 SW07_2	Tdiff correction valve in AUTO mode	[1]	[2]	Tdiff correction valve in AUTO mode
		OFF	OFF	Tdiff: 0
		OFF	<u>ON</u>	Tdiff: 1
		<u>ON</u>	OFF	Tdiff: 2
		<u>ON</u>	<u>ON</u>	Tdiff: 3 (default)
SW07_3	WIFI control mode	<u>ON</u>		One by one (defaulted)
		OFF		One by multi
SW07_4 SW07_5	In heating, inlet air temp. Tai correction valve Tcomp2	[4]	[5]	Inlet air temp. Tai correction valve Tcomp2 (EEPROM)
		OFF	OFF	Tai correction valve= 12°C
		OFF	<u>ON</u>	Tai correction valve= 5°C
		<u>ON</u>	OFF	Tai correction valve= 8°C
		<u>ON</u>	<u>ON</u>	Tai correction valve=3°C (default)
SW07_6	Room card. OEM HRV linkage	<u>ON</u>		Room card is unavailable, HRV linkage is unavailable (default)
		OFF		Room card is available, HRV linkage is available
SW07_7 SW07_8	Operation mode changeover of wired controller	[7]	[8]	Function
		OFF	OFF	[FAN] [COOL] [DRY] [HEAT]
		OFF	<u>ON</u>	[FAN] [COOL] [DRY]
		<u>ON</u>	OFF	[FAN] [COOL] [DRY] [HEAT] [ELECTRIC-HEAT]
		<u>ON</u>	<u>ON</u>	[AUTO] [FAN] [COOL] [DRY] [HEAT](default)

Room card using method:

1. If the room card available: (the room card is priority)

Insert the room card, the unit on action, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby,, the unit can't be controlled by remote controller or wired controller.

2. If the room card unavailable:

Insert the room card, the unit open, the running mode is the last mode, the unit can be controlled by remote controller or wired controller.

Take away the room card, the running unit will standby, the unit can be controlled by remote controller or wired controller.

#### (5) Description of jump wire:SW08 (1:ON, 2:OFF)

J1	Fix air volume	<b>ON</b>	Normal mode (default)
		OFF	Air volume is fixed at high speed(for duct type)
J2	Run at Mid speed when Hi Speed is selected in heating	<b>ON</b>	Normal mode (default)
		OFF	Run at Mid speed when Hi Speed is selected in heating
J3	Quiet running mode	<b>ON</b>	Normal mode (default)
		OFF	Quiet running mode
J4	This indoor has highest priority	<b>ON</b>	Normal mode (default)
		OFF	This Indoor has highest priority
J5	Indoor and outdoor 90 meters drop selection	<b>ON</b>	Normal mode (default)
		OFF	High drop
J6	Reserved	<b>ON</b>	Reserved
J7	Indoor installation height selection	<b>ON</b>	Normal mode (default)
		OFF	Above 2.7m, uses next higher fan speed(indoor fan speed improve 1 grade)
J8	Dual heat source	<b>ON</b>	No dual heat source control (default)
		OFF	Dual heat source control (it doesn't apply to oversea products)

Note:

- *Default position:*
- *SW01: Depend on unit capacity*
- *CN41, CN42, CN43: open circuit.*
- *CN44: Open circuit except of floor ceiling unit*
- *SW07: All ON*
- *J1-J8: All ON ( connection status), cut the jump wire can change it to OFF.*

#### (6) Jumper explanation

##### a) EEV operation manually (CN27, CN29)

**CN27: short circuit CN27 2 seconds continuously, EEV is opened fully.**

**CN29: short circuit CN29 2 seconds continuously, EEV is closed fully.**

##### b) time-short and self-check (CN28)

**Short circuit CN28 2 seconds after power ON, process into time-short (factory use).**

**Short circuit CN28 before power ON, process into self-check (factory use).**

## 11. Indoor Unit Control

### 11.1 Cooling operation

Set temp. in cooling:  $T_s$ =set temp. wired controller;

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.2 Heating operation

Set temp. in heating:  $T_s$ =set temp. wired controller+TA correcting value.

After startup, indoor unit will send the request to outdoor according to the temp. difference between the set temp. and the room temp.

### 11.3 Dry operation

Room temp. - set temp.  $> 2^{\circ}\text{C}$  indoor operation is identical with the cooling operation, and send the cooling mode to outdoor;

Room temp. - set temp.  $\leq 2^{\circ}\text{C}$  indoor will send the dry signal to outdoor, and indoor fan motor will run at low speed compulsorily when compressor is running; when room temp.  $< 16^{\circ}\text{C}$  indoor stops and sends stop signal to outdoor. In dry operation, the auto mode of indoor fan motor is identical with the cooling mode; EEV control mode is identical with the cooling operation.

### 11.4 Fan operation

Indoor fan motor will run at the speed set on the wired controller and sends stop signal to outdoor.

### 11.5 Abnormal operation

When the requested mode collides with the outdoor mode, the entering earlier will be in prior. After indoor receives

mode, the indoor will run as the request of wired controller; if it is abnormal mode, the command can not be executed, and indoor keeps stop; wired controller displays standby mode (if in remote control type, the buzzer will sound twice and the remote controller can not receive the signal). Until the outdoor stops or the outdoor mode is accordant with the requested mode of wired controller (remote controller), the outdoor will work. COOL (including AUTO COOL), DRY, RECOVERY are regarded as the same mode; HEAT, RECOVERY are as abnormal mode.

### 11.6 Fan speed control of indoor fan motor

a. Adjustment by hand

Set high/ mid/ low fan speed as the request.

b. Auto fan speed

ference between room temp. TA and the set temp.

c. Anti-cool air control

In heating mode, after compressor startup, the unit will control indoor fan motor state due to the indoor coil temp.

In anti-cool air period, indoor sends pre-heat signal to wired controller; in outdoor defrosting period, indoor fan motor will stop, and sends defrost signal to wired controller;

After being switched off in heating mode, indoor fan motor will run at low speed and 30 seconds later will stop.

### 11.7 Set EEV open angle by hand

When being switched off, short connect CN27 to open the valve fully compulsorily for 2 minutes; When being switched off, short connect CN29 to close the valve fully compulsorily for 2 minutes.



### 11.8 Anti-freezed protection

In cooling mode, execute the anti-freezed protection due to the measured indoor coil temp. to avoid the indoor heat exchanger causing frost or ice.

### 11.9 Swing motor control

Indoor will control swing motor ON/OFF due to the swing signal from wired controller.

### 11.10 Filter cleaning

Check and memorize the running time of indoor fan motor, once arriving the requested time (set by SW07-6), indoor , if

### 11.11 Compulsory defrosting

After indoor receives the compulsory defrosting signal from wired controller, it will send compulsory defrosting signal to outdoor continuously for 10 times. In the sending period, indoor will execute the normal defrost.

### 11.12 Trial operation

Set the mode as cooling (heating), press ON/OFF for 5 seconds to enter compulsory cooling (heating).

In compulsory cooling, display "LL" and COOL

In compulsory heating, display "HH" and HEAT

TEMP +/- are valid.

AUTO. At this time, only ON/OFF,

### 11.13 Autorestart

The autorestart function is apply to all the **Flow Logic** indoor units and the factory setting it is available.

Memory contents: ON/OFF state, running mode, fan speed, setting temperature, swing position and temperature type displayed on panel.

Note:

(1) Temperature type displayed on panel is only used for slim duct, one way cassette and N platform high wall.

(2) If the timer and sleeping function are set, when the units power-on again, the unit is OFF state.

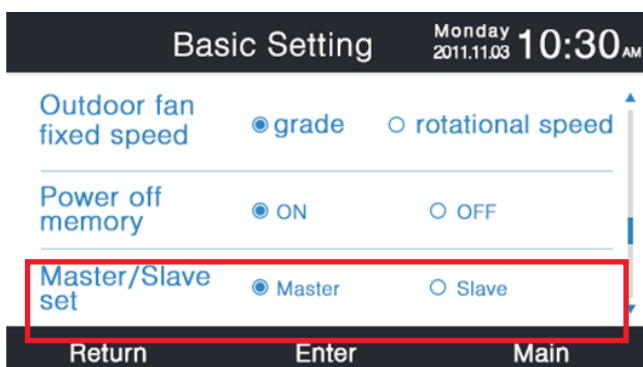
(3) The wired controller setting has the highest priority.

#### Setting method by controller:

(1) Wired controller cancel method:

For **RWV05** setting the autorestart function by dip switch SW4

For **RWV07** setting the autorestart function by basic setting interface



(2) Remote controller cancel method:

Press the "HEALTH" button 10 times in 5s, buzzer echoes 4 times, the autorestart function is available; repeat above operations, buzzer echoes 2 times, the autorestart function is unavailable.

### **11.14 26°C lock function**

Factory default the 26°C lock function is unavailable.

#### **Setting method by remote controller:**

Power on the unit, in cooling mode, low speed, setting the temperature 26°C. Press the "HEALTH" button of the remote controller 8 times in 5s, buzzer echoes 4 times, the 26°C lock function is available; repeat above operations, buzzer echoes 2 times, the 26°C lock function is unavailable.



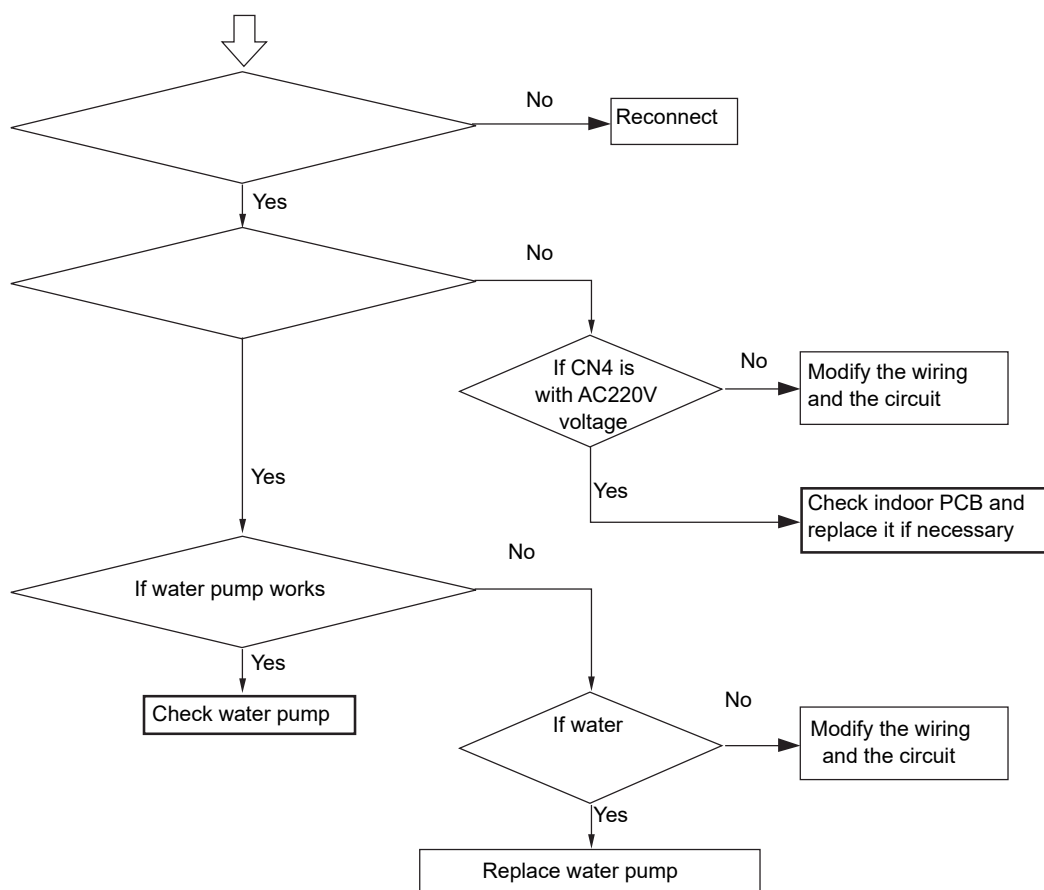
## 12. Failure Code

### Indoor unit failure code

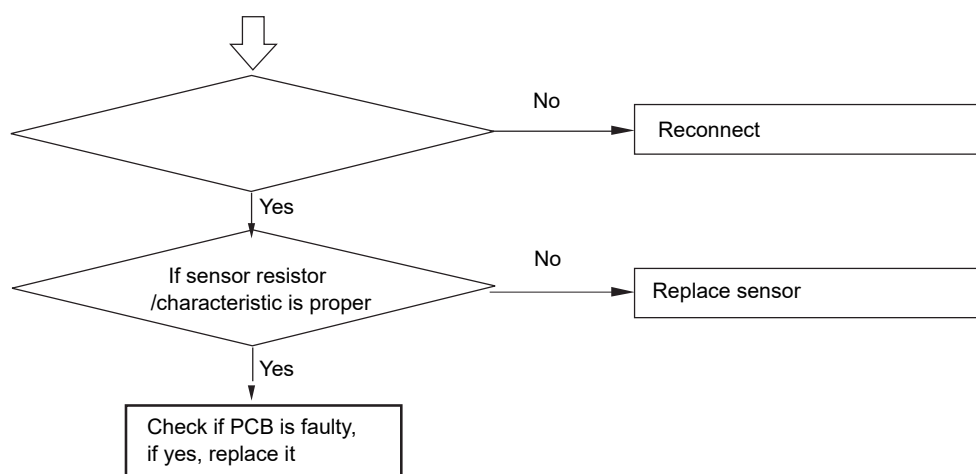
Indication on wired controller	Flash times of LED on indoor PCB/ timer LED on remote receiver		Remark
1	1	Indoor ambient temp. sensor TA failure	Resumable
2	2	Indoor coil pipe temp. sensor TC1 failure	
3	3	Indoor coil pipe temp. sensor TC2 failure	
4	4	Dual heat source sensor TW failure	
5	5	Indoor EEPROM failure	Unresumable
6	6	Communication between indoor and outdoor failure	Resumable
7	7	Communication between indoor and wired controller failure	Resumable
8	8		Resumable
9	9	Indoor address repeated failure	Resumable
0C	12	No 50Hz zero passage signal	Resumable
12	18	The 4-way valve of 3-pipe valve box reversing failure	Unresumable
Outdoor failure code	20	Outdoor failure code	Resumable

## 13. Troubleshooting

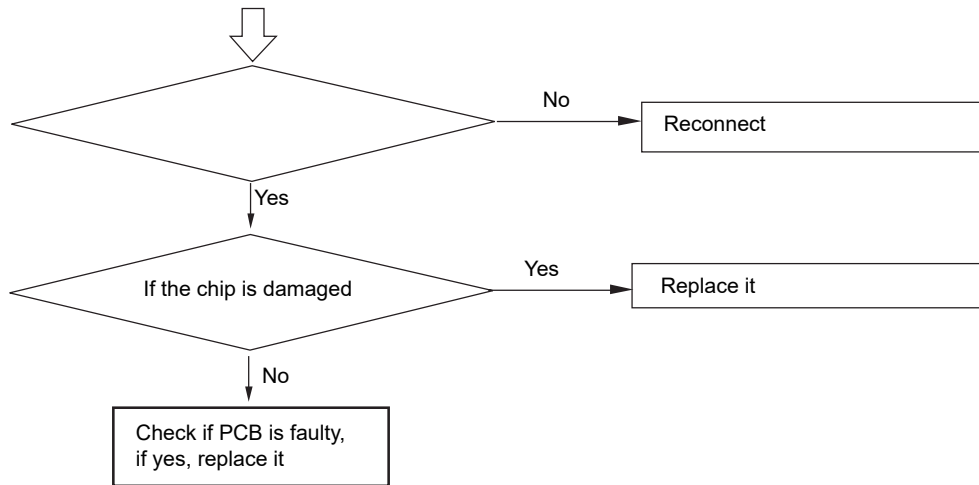
### Indoor failure diagnose



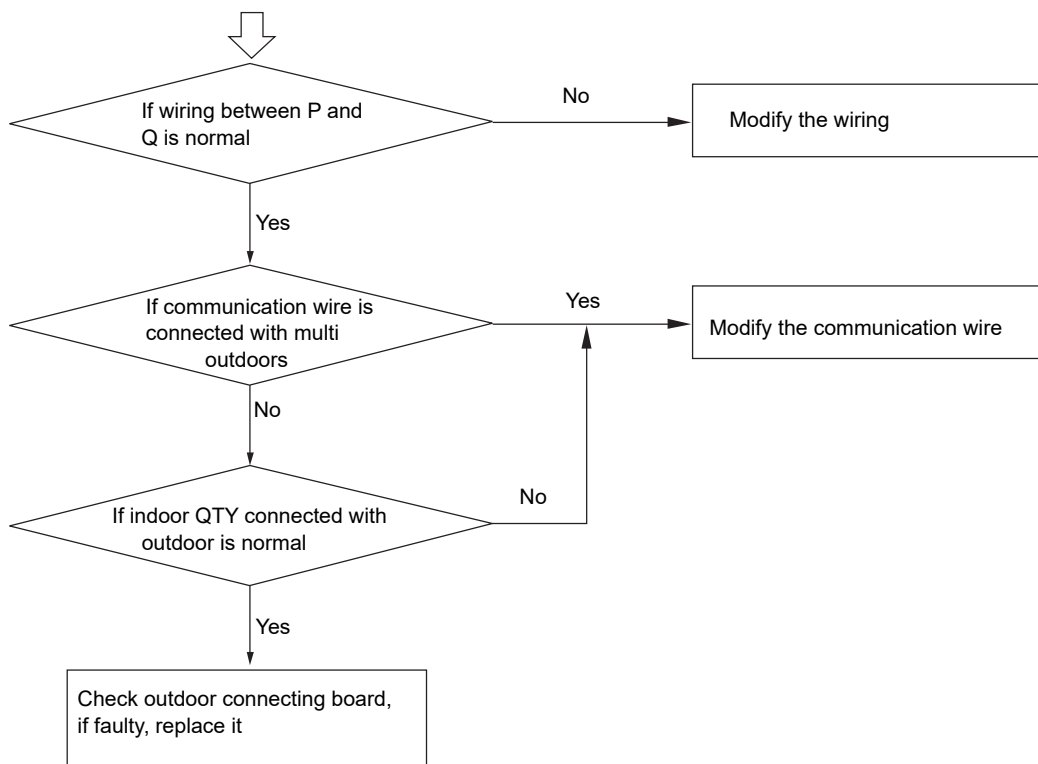
### [1/2/3/4/15] Indoor sensor failure



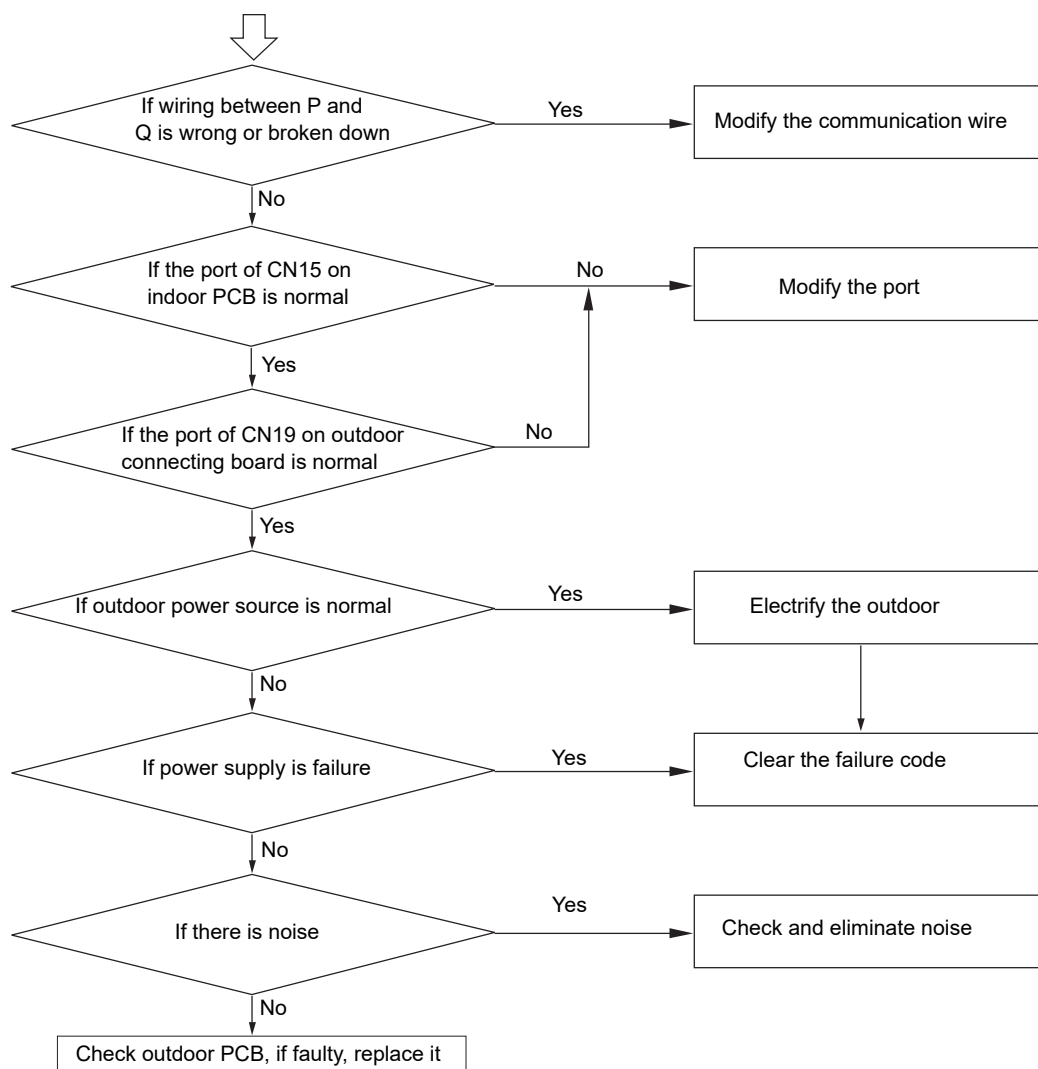
[05] EEPROM failure



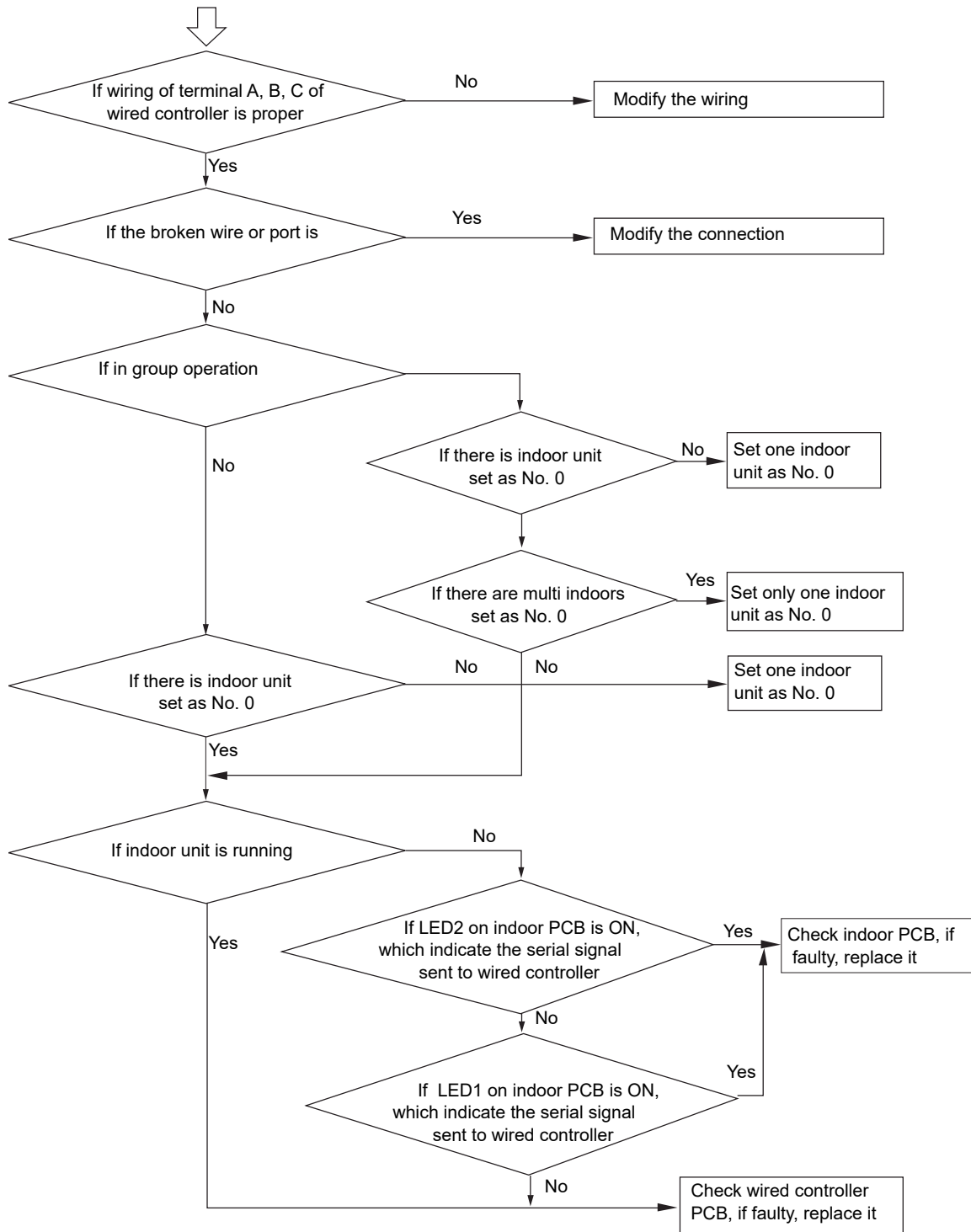
[09] Indoor address repeated



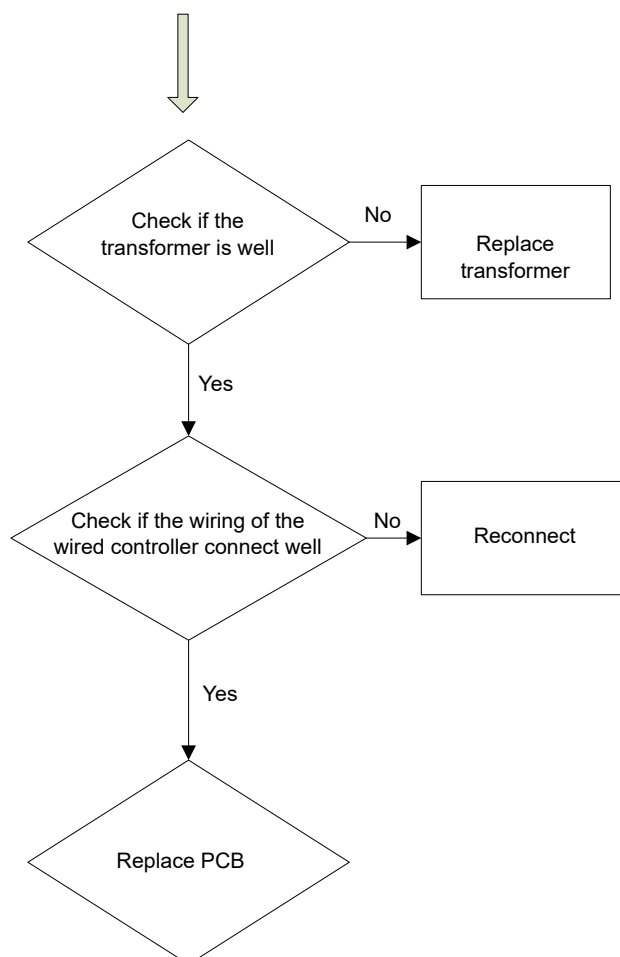
[06] Communication circuit between indoor and outdoor



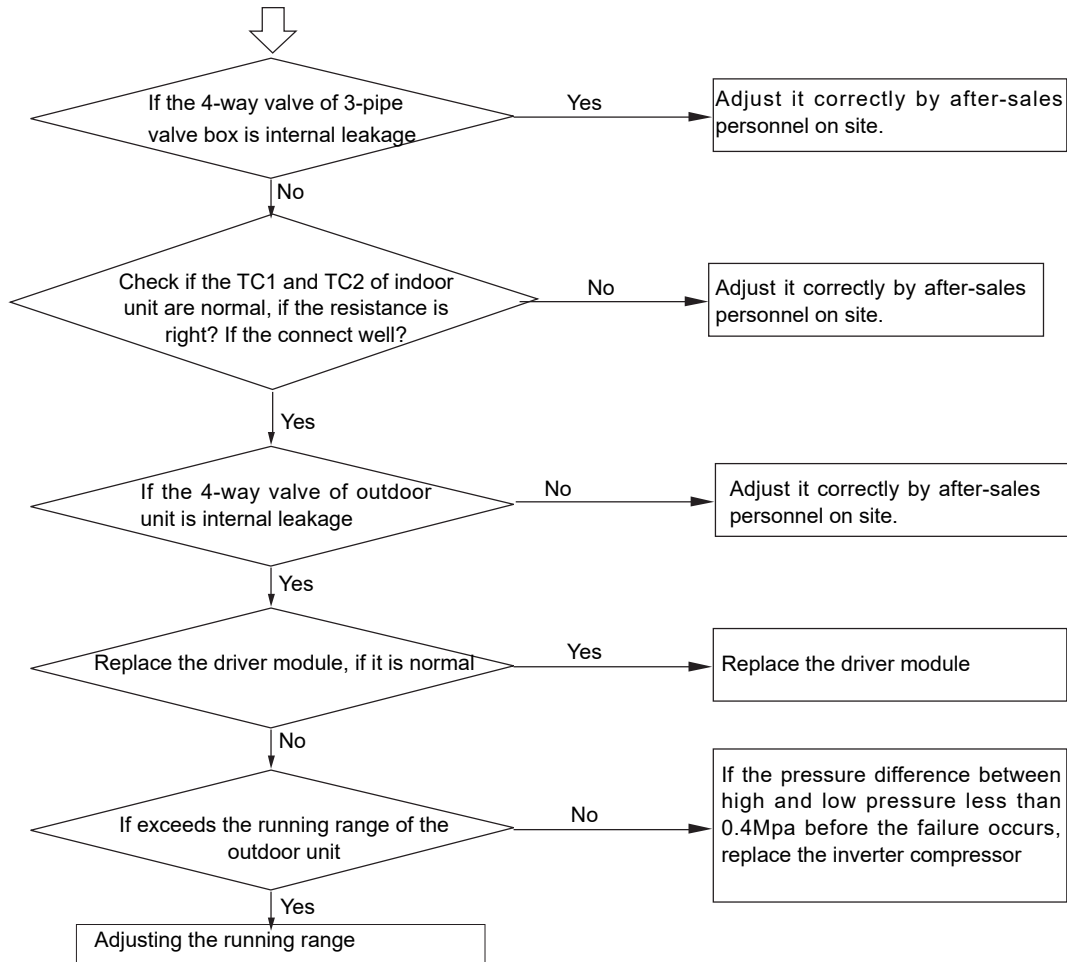
[07] Communication abnormal between indoor and wired controller



[12] No 50Hz zero passage signal



[18] The 4-way valve of 3-pipe valve box reversing failure



For MRVIII-RC system, the outdoor unit is running normally, when the 4-way valve of valve box is power on and its connected heating indoor unit's parameter satisfy following conditions

- &
  - When 4-way valve of valve box is ON
  - $TC2 \leq CT - 20^{\circ}C$  lasts for 5min
- or
  - $TC1 \leq 0^{\circ}C$  lasts for 5min
  - $TC1 \leq \text{master unit } Ps\_temp + 10^{\circ}C$  lasts for 5min

## 14. Capacity tables

### Cooling capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100 )	Outdoor Temp.	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
	°C DB	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
56	20.0	5.5	3.9	5.6	4.0	5.8	3.9	5.9	3.9	6.0	4.0	6.3	3.9	6.5	3.8
	22.5	5.4	3.9	5.5	3.9	5.8	3.9	5.9	3.9	6.0	4.0	6.2	3.9	6.4	3.8
	25.0	5.4	3.8	5.5	3.9	5.7	3.8	5.8	3.8	5.9	4.0	6.2	3.8	6.4	3.7
	27.5	5.3	3.8	5.4	3.9	5.7	3.8	5.8	3.8	5.9	3.9	6.1	3.8	6.3	3.7
	30.0	5.3	3.8	5.4	3.9	5.6	3.8	5.7	3.8	5.8	3.9	6.0	3.8	6.3	3.7
	32.5	5.2	3.8	5.3	3.8	5.5	3.7	5.7	3.8	5.8	3.9	6.0	3.8	6.2	3.7
	35.0	5.2	3.7	5.3	3.8	5.5	3.7	5.6	3.7	5.7	3.9	5.9	3.8	6.2	3.7
	37.5	5.1	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.7	3.8	5.9	3.7	6.1	3.6
	40.0	5.0	3.7	5.2	3.8	5.4	3.7	5.5	3.7	5.6	3.8	5.8	3.7	6.0	3.6
71	43.0	5.0	3.6	5.1	3.7	5.3	3.6	5.4	3.7	5.5	3.8	5.8	3.7	6.0	3.6
	20.0	7.0	5.1	7.1	5.2	7.4	5.1	7.5	5.1	7.7	5.3	8.0	5.2	8.2	5.0
	22.5	6.9	5.1	7.0	5.2	7.3	5.1	7.5	5.1	7.6	5.3	7.9	5.1	8.2	5.0
	25.0	6.8	5.0	7.0	5.2	7.2	5.0	7.4	5.1	7.5	5.2	7.8	5.1	8.1	5.0
	27.5	6.7	5.0	6.9	5.1	7.2	5.0	7.3	5.1	7.5	5.2	7.7	5.1	8.0	4.9
	30.0	6.7	5.0	6.8	5.1	7.1	5.0	7.2	5.0	7.4	5.2	7.7	5.0	8.0	4.9
	32.5	6.6	4.9	6.7	5.1	7.0	4.9	7.2	5.0	7.3	5.2	7.6	5.0	7.9	4.9
	35.0	6.5	4.9	6.7	5.0	7.0	4.9	7.1	5.0	7.2	5.1	7.5	5.0	7.8	4.9
	37.5	6.5	4.9	6.6	5.0	6.9	4.9	7.0	4.9	7.2	5.1	7.5	5.0	7.7	4.8
80	40.0	6.4	4.8	6.5	5.0	6.8	4.9	7.0	4.9	7.1	5.1	7.4	4.9	7.7	4.8
	43.0	6.3	4.8	6.4	4.9	6.7	4.8	6.9	4.9	7.0	5.0	7.3	4.9	7.6	4.8
	20.0	7.8	5.7	8.0	5.8	8.3	5.7	8.5	5.7	8.6	5.9	9.0	5.8	9.3	5.6
	22.5	7.8	5.7	7.9	5.8	8.2	5.7	8.4	5.7	8.6	5.9	8.9	5.7	9.2	5.6
	25.0	7.7	5.6	7.8	5.8	8.2	5.6	8.3	5.7	8.5	5.8	8.8	5.7	9.1	5.5
	27.5	7.6	5.6	7.8	5.7	8.1	5.6	8.2	5.6	8.4	5.8	8.7	5.7	9.0	5.5
	30.0	7.5	5.6	7.7	5.7	8.0	5.6	8.2	5.6	8.3	5.8	8.6	5.6	9.0	5.5
	32.5	7.4	5.5	7.6	5.6	7.9	5.5	8.1	5.6	8.2	5.7	8.6	5.6	8.9	5.4
	35.0	7.4	5.5	7.5	5.6	7.8	5.5	8.0	5.5	8.2	5.7	8.5	5.6	8.8	5.4
90	37.5	7.3	5.4	7.4	5.6	7.8	5.5	7.9	5.5	8.1	5.7	8.4	5.5	8.7	5.4
	40.0	7.2	5.4	7.4	5.5	7.7	5.4	7.8	5.5	8.0	5.6	8.3	5.5	8.6	5.4
	43.0	7.1	5.4	7.3	5.5	7.6	5.4	7.7	5.4	7.9	5.6	8.2	5.5	8.5	5.3
	20.0	8.8	6.5	9.0	6.6	9.4	6.5	9.5	6.5	9.7	6.7	10.1	6.5	10.4	6.3
	22.5	8.7	6.4	8.9	6.6	9.3	6.4	9.5	6.5	9.6	6.7	10.0	6.5	10.4	6.3
	25.0	8.6	6.4	8.8	6.5	9.2	6.4	9.4	6.4	9.5	6.6	9.9	6.4	10.3	6.3
	27.5	8.6	6.3	8.7	6.5	9.1	6.3	9.3	6.4	9.5	6.6	9.8	6.4	10.2	6.2
	30.0	8.5	6.3	8.6	6.4	9.0	6.3	9.2	6.3	9.4	6.5	9.7	6.4	10.1	6.2
	32.5	8.4	6.2	8.6	6.4	8.9	6.2	9.1	6.3	9.3	6.5	9.6	6.3	10.0	6.2
112	35.0	8.3	6.2	8.5	6.3	8.8	6.2	9.0	6.3	9.2	6.5	9.5	6.3	9.9	6.1
	37.5	8.2	6.2	8.4	6.3	8.7	6.2	8.9	6.2	9.1	6.4	9.5	6.3	9.8	6.1
	40.0	8.1	6.1	8.3	6.3	8.6	6.1	8.8	6.2	9.0	6.4	9.4	6.2	9.7	6.1
	43.0	8.0	6.1	8.2	6.2	8.5	6.1	8.7	6.1	8.9	6.3	9.3	6.2	9.6	6.0
	20.0	11.0	8.7	11.2	8.9	11.6	8.7	11.9	8.8	12.1	9.1	12.5	8.9	13.0	8.7
	22.5	10.9	8.6	11.1	8.9	11.5	8.7	11.8	8.8	12.0	9.1	12.4	8.9	12.9	8.6
	25.0	10.8	8.6	11.0	8.8	11.4	8.6	11.6	8.7	11.9	9.0	12.3	8.8	12.8	8.6
	27.5	10.6	8.5	10.9	8.8	11.3	8.6	11.5	8.7	11.8	9.0	12.2	8.8	12.7	8.6
	30.0	10.5	8.5	10.8	8.7	11.2	8.5	11.4	8.6	11.6	9.0	12.1	8.7	12.5	8.5
	32.5	10.4	8.4	10.6	8.6	11.1	8.5	11.3	8.6	11.5	8.9	12.0	8.7	12.4	8.5
	35.0	10.3	8.4	10.5	8.6	11.0	8.4	11.2	8.6	11.4	8.9	11.9	8.7	12.3	8.5
	37.5	10.2	8.3	10.4	8.5	10.9	8.4	11.1	8.5	11.3	8.8	11.8	8.6	12.2	8.4
	40.0	10.1	8.3	10.3	8.5	10.8	8.3	11.0	8.5	11.2	8.8	11.6	8.6	12.1	8.4
	43.0	9.9	8.2	10.2	8.4	10.6	8.3	10.8	8.4	11.1	8.7	11.5	8.5	12.0	8.3



Capacity (W*100 )	Outdoor Temp.	Indoor Temp.													
		21.5°C DB		23°C DB		25°C DB		27°C DB		28°C DB		30°C DB		32°C DB	
		15°C WB		16°C WB		18°C WB		19°C WB		20°C WB		22°C WB		24°C WB	
	°C WB	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC	CA	SHC
140	20.0	13.7	10.0	14.0	10.2	14.6	10.0	14.8	10.1	15.1	10.4	15.7	10.1	16.2	9.8
	22.5	13.6	10.0	13.9	10.2	14.4	9.9	14.7	10.0	15.0	10.3	15.5	10.0	16.1	9.8
	25.0	13.4	9.9	13.7	10.1	14.3	9.9	14.6	10.0	14.8	10.3	15.4	10.0	16.0	9.7
	27.5	13.3	9.8	13.6	10.0	14.1	9.8	14.4	9.9	14.7	10.2	15.3	9.9	15.8	9.7
	30.0	13.2	9.8	13.4	10.0	14.0	9.8	14.3	9.8	14.6	10.1	15.1	9.9	15.7	9.6
	32.5	13.0	9.7	13.3	9.9	13.9	9.7	14.1	9.8	14.4	10.1	15.0	9.8	15.5	9.6
	35.0	12.9	9.6	13.2	9.8	13.7	9.6	14.0	9.7	14.3	10.0	14.8	9.8	15.4	9.5
	37.5	12.7	9.5	13.0	9.8	13.6	9.6	13.9	9.7	14.1	10.0	14.7	9.7	15.3	9.5
	40.0	12.6	9.5	12.9	9.7	13.4	9.5	13.7	9.6	14.0	9.9	14.6	9.7	15.1	9.4
43.0	12.4	9.4	12.7	9.6	13.3	9.4	13.6	9.5	13.8	9.8	14.4	9.6	15.0	9.4	
226	20.0	21.4	16.9	21.9	16.8	22.9	16.7	23.3	16.6	23.8	16.8	24.6	16.6	25.7	16.6
	22.5	21.3	16.8	21.8	16.7	22.7	16.6	23.2	16.4	23.7	16.7	24.5	16.5	25.6	16.6
	25.0	21.2	16.6	21.8	16.6	22.6	16.5	23.1	16.3	23.6	16.6	24.4	16.5	25.3	16.5
	27.5	21.1	16.5	21.7	16.5	22.5	16.4	22.9	16.2	23.5	16.5	24.3	16.4	25.2	16.4
	30.0	21.0	16.4	21.6	16.3	22.4	16.3	22.9	16.0	23.4	16.4	24.2	16.3	25.1	16.3
	32.5	20.8	16.3	21.4	16.2	22.2	16.1	22.8	15.9	23.2	16.3	24.1	16.2	25.0	16.0
	35.0	20.8	16.1	21.3	16.2	22.1	16.0	22.6	15.9	23.1	16.1	23.9	16.0	24.9	15.9
	37.5	20.7	16.0	21.1	16.2	22.1	15.9	22.5	15.8	23.0	16.1	23.7	15.9	24.9	15.7
	40.0	20.6	15.9	21.0	16.1	21.9	15.8	22.4	15.7	22.8	16.0	23.6	15.8	24.7	15.6
43.0	20.5	15.8	21.0	16.0	21.8	15.7	22.4	15.6	22.8	16.0	23.5	15.7	24.6	15.5	
280	20.0	26.4	20.0	27.5	20.5	27.8	20.2	28.6	20.4	29.1	20.6	30.1	20.1	31.4	20.1
	22.5	26.3	19.9	27.4	20.4	27.8	20.1	28.5	20.3	29.0	20.5	30.0	20.0	31.3	20.0
	25.0	26.3	19.9	27.3	20.3	27.7	20.0	28.4	20.1	28.9	20.5	29.9	19.9	31.2	19.9
	27.5	26.2	19.8	27.2	20.2	27.5	19.9	28.3	20.0	28.8	20.4	29.9	19.9	31.2	19.9
	30.0	26.0	19.8	26.9	20.1	27.5	19.9	28.2	19.9	28.7	20.2	29.8	19.7	31.0	19.8
	32.5	25.9	19.7	26.8	20.1	27.4	19.8	28.2	19.8	28.6	20.1	29.6	19.6	30.9	19.6
	35.0	25.8	19.6	26.4	20.0	27.4	19.7	28.0	19.7	28.6	19.9	29.6	19.6	30.8	19.5
	37.5	25.6	19.5	26.3	20.0	27.3	19.6	27.8	19.6	28.6	19.9	29.5	19.5	30.7	19.5
	40.0	25.5	19.4	26.1	19.9	27.2	19.5	27.8	19.5	28.5	19.8	29.4	19.5	30.5	19.4
43.0	25.4	19.3	26.1	19.8	27.0	19.4	27.6	19.4	28.4	19.8	29.3	19.3	30.5	19.3	

## Heating capacity

CA: total capacity; SHC: sensible heat capacity

Capacity (W*100)	Outdoor Temp. °C WB	Indoor Temp. (°C DB)				Capacity (W*100)	Outdoor Temp. °C WB	Indoor Temp. (°C DB)			
		15.0	20.0	25.0	27.0			15.0	20.0	25.0	27.0
		SHC	SHC	SHC	SHC			SHC	SHC	SHC	SHC
56	-15.0	4.2	4.2	4.1	4.1	112	-15.0	8.4	8.2	8.2	8.1
	-10.0	4.8	4.8	4.7	4.3		-10.0	9.6	9.4	9.3	8.6
	-5.0	5.4	5.3	4.9	4.3		-5.0	10.7	10.6	9.8	8.6
	0.0	6.0	5.9	4.9	4.3		0.0	11.9	11.8	9.8	8.6
	2.5	6.3	6.2	4.9	4.3		2.5	12.5	12.4	9.8	8.6
	6.0	6.4	6.3	4.9	4.3		6.0	12.5	12.5	9.8	8.6
	6.5	6.6	6.3	4.9	4.3		6.5	13.2	12.5	9.8	8.6
	10.0	7.1	6.3	4.9	4.3		10.0	14.1	12.5	9.8	8.6
	12.5	7.5	6.3	4.9	4.3		12.5	15.0	12.5	9.8	8.6
71	-15.0	5.4	5.3	5.2	5.2	140	-15.0	10.7	10.6	10.5	10.4
	-10.0	6.1	6.0	6.0	5.5		-10.0	12.2	12.1	11.9	11.0
	-5.0	6.9	6.8	6.2	5.5		-5.0	13.7	13.6	12.5	11.0
	0.0	7.6	7.5	6.2	5.5		0.0	15.3	15.1	12.5	11.0
	2.5	8.0	7.9	6.2	5.5		2.5	16.0	15.8	12.5	11.0
	6.0	8.1	8.0	6.2	5.5		6.0	16.2	16.0	12.5	11.0
	6.5	8.4	8.0	6.2	5.5		6.5	16.8	16.0	12.5	11.0
	10.0	9.0	8.0	6.2	5.5		10.0	18.0	16.0	12.5	11.0
	12.5	9.6	8.0	6.2	5.5		12.5	19.1	16.0	12.5	11.0
80	-15.0	6.0	5.9	5.9	5.9	226	-15.0	16.7	16.6	16.4	16.3
	-10.0	6.9	6.8	6.7	6.2		-10.0	19.1	18.9	18.6	17.2
	-5.0	7.7	7.6	7.0	6.2		-5.0	21.4	21.3	19.5	17.2
	0.0	8.6	8.5	7.0	6.2		0.0	23.9	23.6	19.5	17.2
	2.5	9.0	8.9	7.0	6.2		2.5	25.0	24.7	19.5	17.2
	6.0	9.1	9.0	7.0	6.2		6.0	25.3	25.0	19.5	17.2
	6.5	9.5	9.0	7.0	6.2		6.5	26.3	25.0	19.5	17.2
	10.0	10.1	9.0	7.0	6.2		10.0	28.1	25.0	19.5	17.2
	12.5	10.8	9.0	7.0	6.2		12.5	29.8	25.0	19.5	17.2
90	-15.0	6.7	6.6	6.5	6.5	280	-15.0	20.7	20.5	20.3	20.2
	-10.0	7.6	7.5	7.4	6.9		-10.0	23.6	23.4	23.1	21.3
	-5.0	8.6	8.5	7.8	6.9		-5.0	26.5	26.4	24.2	21.3
	0.0	9.5	9.4	7.8	6.9		0.0	29.6	29.3	24.2	21.3
	2.5	10.0	9.9	7.8	6.9		2.5	31.0	30.6	24.2	21.3
	6.0	10.1	10.0	7.8	6.9		6.0	31.4	31.0	24.2	21.3
	6.5	10.5	10.0	7.8	6.9		6.5	32.6	31.0	24.2	21.3
	10.0	11.2	10.0	7.8	6.9		10.0	34.9	31.0	24.2	21.3
	12.5	12.0	10.0	7.8	6.9		12.5	37.0	31.0	24.2	21.3
	15.5	12.1	10.0	7.8	6.9		15.5	37.6	31.0	24.2	21.3