

# Airwell

*Just feel well*

## SERVICE MANUAL

Slim Duct Type Indoor Unit  
DVLA Range R410a  
English Manual

DVLA-025/022-01M22

DVLA-035N-01M22

DVLA-040N-01M22



### **IMPORTANT NOTE:**

Read this manual carefully before installing or operating your new air conditioning unit. Make sure to save this manual for future reference.

## 1. Slim Duct Type Indoor Unit

### 1.1 Features



DVLA-025/022-01M22  
DVLA-035N-01M22  
DVLA-040N-01M22

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

## 1.2 Specification

| MODEL             |                                  | DVLA-022N-01M22        |                 |
|-------------------|----------------------------------|------------------------|-----------------|
| Power supply      |                                  | Ph-V-Hz                | 1,220~230,50/60 |
| Cooling           | Capacity                         | kBtu/h                 | 7.5             |
|                   | Capacity                         | kW                     | 2.2             |
|                   | Power input                      | W                      | 56              |
|                   | Current                          | A                      | 0.26            |
| Heating           | Capacity                         | kBtu/h                 | 8.5             |
|                   | Capacity                         | kW                     | 2.5             |
|                   | Power input                      | W                      | 56              |
|                   | Current                          | A                      | 0.26            |
|                   | Heating capacity at low temp.    | kW                     | 2.0             |
| Operating current |                                  | A                      | 0.26            |
| Power consumption |                                  | kW                     | 0.056           |
| Indoor motor      | Brand                            | Broad Ocean/Welling    |                 |
|                   | Model                            | Y5S413B5116/YSK20-4I-2 |                 |
|                   | Type                             | AC                     |                 |
|                   | Insulation class                 | B                      |                 |
|                   | IP class                         | IP20                   |                 |
|                   | Power Input                      | W                      | 48              |
|                   | Power output                     | W                      | 25/23           |
|                   | Capacitor                        | μF                     | 1.5/3.0μF       |
|                   | Speed (High/Middle/Low)          | rpm                    | 950/765/600     |
| Indoor fan        | Brand                            | /                      |                 |
|                   | Type                             | centrifugal            |                 |
|                   | Quantity                         | 2                      |                 |
| Indoor coil       | a. Number of rows                | 2                      |                 |
|                   | b. Tube pitch (a)×row pitch (b)  | mm                     | 21*13.3         |
|                   | c. Fin spacing                   | mm                     | 1.4             |
|                   | d. Fin type (code)               |                        |                 |
|                   | e. Tube outside dia. and type    | mm                     |                 |
|                   | f. Coil length×height×width      | mm                     | 640*210*26.6    |
|                   | g. Number of circuits            | 3                      |                 |
| Cabinet           | Cabinet coating type             | Galvanized             |                 |
|                   | Cabinet salt spray test duration | Hour                   | 72              |
|                   | Control box IP class             | IP20                   |                 |

| MODEL   |                            | DVLA-022N-01M22 |                |
|---|----------------------------|-----------------|----------------|
| Construction  | Sheet metal thickness      |                 | 0.8            |
|   | Drain pan material         |                 | PS             |
|   | Drain pan insulation       |                 | 20             |
|   | Drain pump option          |                 | Standard 600mm |
|   | Branch outlet option       |                 | No             |
| Indoor wall   | Material                   |                 | Hot zinc plate |
|   | Thickness                  | mm              | 0.8            |
|   | Double or single skin      |                 | Single         |
| Air filter  | Material                   |                 | PP             |
|   | Mesh                       |                 | 100            |
|   | Pressure drop              | Pa              | 5              |
| Piping dimension  | Liquid pipe                | mm              | 6.35           |
|   | Gas pipe                   | mm              | 9.52           |
|   | Drain hose                 | mm              | 25             |
| Panel (optional)  | Panel model                | /               |                |
|   | External dimensions(W/D/H) | mm              |                |
|   | Shipping dimensions(W/D/H) | mm              |                |
|   | Net / shipping weight      | kg              |                |
| Fresh air dimension   | mm                         |                 | Φ80            |
| Sound pressure level (H/M/L)  | dB (A)                     |                 | 27/24/21       |
| Sound power level (H/M/L)   | dB (A)                     |                 | 41/38/35       |
| Standard static pressure  | Pa                         |                 | 0              |
| Max. static pressure  | Pa                         |                 | 30             |
| Indoor air flow (H/M/L)   | m <sup>3</sup> /h          |                 | 480/420/360    |
| Air outlet dimensions   | mm                         |                 | 640*90         |
| Air return dimensions   | mm                         |                 | 760*152        |
| Dimension (W*H*D)   | mm                         |                 | 850*185*420    |
| Packing (W*H*D)   | mm                         |                 | 1045*270*540   |
| Net weight  | kg                         |                 | 17.5           |
| Gross weight  | kg                         |                 | 22.5           |
| Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C)<br>Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C)<br>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             |                                  | DVLA-025N-01M22 | DVLA-035N-01M22        |
|-------------------|----------------------------------|-----------------|------------------------|
| Power supply      |                                  | Ph-V-Hz         | 1,220~230,50/60        |
| Cooling           | Capacity                         | kBtu/h          | 9.6                    |
|                   | Capacity                         | kW              | 2.8                    |
|                   | Power input                      | W               | 56                     |
|                   | Current                          | A               | 0.26                   |
| Heating           | Capacity                         | kBtu/h          | 10.9                   |
|                   | Capacity                         | kW              | 3.2                    |
|                   | Power input                      | W               | 56                     |
|                   | Current                          | A               | 0.26                   |
|                   | Heating capacity at low temp.    | kW              | 2.5                    |
| Operating current |                                  | A               | 0.26                   |
| Power consumption |                                  | kW              | 0.056                  |
| Indoor motor      | Brand                            |                 | Broad Ocean/Welling    |
|                   | Model                            |                 | Y5S413B5116/YSK20-4I-2 |
|                   | Type                             |                 | AC                     |
|                   | Insulation class                 |                 | B                      |
|                   | IP class                         |                 | IP20                   |
|                   | Power Input                      | W               | 48                     |
|                   | Power output                     | W               | 25/23                  |
|                   | Capacitor                        | μF              | 1.5/3.0μF              |
|                   | Speed (High/Middle/Low)          | rpm             | 950/765/600            |
| Indoor fan        | Brand                            |                 | /                      |
|                   | Type                             |                 | centrifugal            |
|                   | Quantity                         |                 | 2                      |
| Indoor coil       | a. Number of rows                |                 | 2                      |
|                   | b. Tube pitch (a)×row pitch (b)  | mm              | 21*13.3                |
|                   | c. Fin spacing                   | mm              | 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           |
|                   | g. Number of circuits            |                 | 3                      |
| Cabinet           | Cabinet coating type             |                 | Galvanized             |
|                   | Cabinet salt spray test duration | Hour            | 72                     |
|                   | Control box IP class             |                 | IP20                   |

| MODEL   |                            |              | DVLA-025N-01M22              | DVLA-035N-01M22 |
|---|----------------------------|--------------|------------------------------|-----------------|
| 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          |
| Air filter  | 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                         | 12.7            |
|   | Drain hose                 | mm           | 25                           | 25              |
| Panel (optional)  | Panel model                | /            | DVLA PANEL 07-16             |                 |
|   | External dimensions(W/D/H) | mm           | 890/190/100 (outlet panel)   |                 |
|   |                            |              | 890/290.5/32.4 (inlet panel) |                 |
|   | Shipping dimensions(W/D/H) | mm           | 938/335/220                  |                 |
| Net / shipping weight   | kg                         | 4/5          |                              |                 |
| Fresh air dimension   | mm                         | Φ80          | Φ80                          |                 |
| Sound pressure level (H/M/L)  | dB (A)                     | 27/24/21     | 30/28/25                     |                 |
| Sound power level (H/M/L)   | dB (A)                     | 41/38/35     | 44/42/39                     |                 |
| Standard static pressure  | Pa                         | 0            | 0                            |                 |
| Max. static pressure  | Pa                         | 30           | 30                           |                 |
| Indoor air flow (H/M/L)   | m <sup>3</sup> /h          | 480/420/360  | 550/430/370                  |                 |
| 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)<br>Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C)<br>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             |                                  | DVLA-040N-01M22 |                      |
|-------------------|----------------------------------|-----------------|----------------------|
| Power supply      |                                  | Ph-V-Hz         | 1,220~230,50/60      |
| Cooling           | Capacity                         | kBtu/h          | 15.4                 |
|                   | Capacity                         | kW              | 4.5                  |
|                   | Power input                      | W               | 65                   |
|                   | Current                          | A               | 0.3                  |
| Heating           | Capacity                         | kBtu/h          | 17.1                 |
|                   | Capacity                         | kW              | 5.0                  |
|                   | Power input                      | W               | 65                   |
|                   | Current                          | A               | 0.3                  |
|                   | Heating capacity at low temp.    | kW              | 4.0                  |
| Operating current |                                  | A               | 0.3                  |
| Power consumption |                                  | kW              | 0.065                |
| Indoor motor      | Brand                            |                 | Broad ocean          |
|                   | Model                            |                 | Y5S413B8100          |
|                   | Type                             |                 | AC                   |
|                   | Insulation class                 |                 | B                    |
|                   | IP class                         |                 | IP20                 |
|                   | Power input                      | W               | 57                   |
|                   | Power output                     | W               | 51                   |
|                   | Capacitor                        | μF              | 3.5μF                |
|                   | Speed (High/Middle/Low)          | rpm             | 1220/1060/950        |
| Indoor fan        | Brand                            |                 | /                    |
|                   | Type                             |                 | Centrifugal          |
|                   | Quantity                         |                 | 2                    |
| Indoor coil       | a. Number of rows                |                 | 3                    |
|                   | b. Tube pitch (a)×row pitch (b)  | mm              | 21*13.3              |
|                   | c. Fin spacing                   | mm              | 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*39.9         |
|                   | g. Number of circuits            |                 | 4                    |
| Cabinet           | Cabinet coating type             |                 | Galvanized           |
|                   | Cabinet salt spray test duration | Hour            | 72                   |
|                   | Control box IP class             |                 | IP20                 |

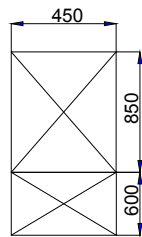
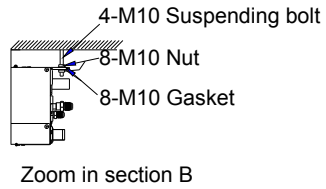
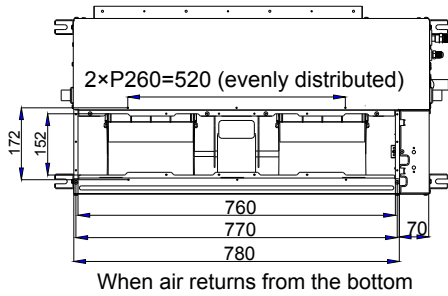
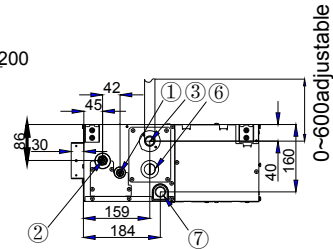
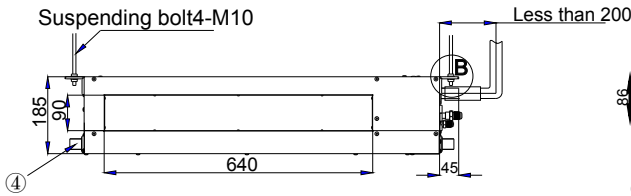
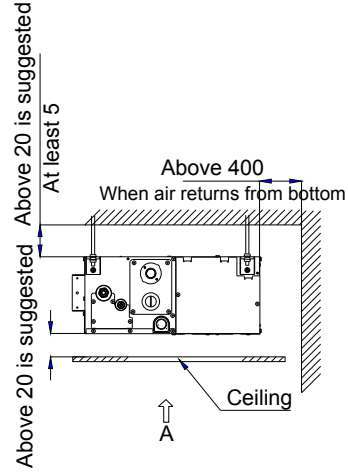
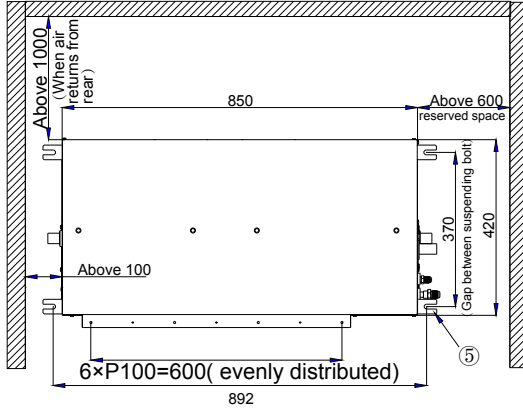
| MODEL   |                            |              | DVLA-040N-01M22              |
|---|----------------------------|--------------|------------------------------|
| Construction  | Sheet metal thickness      |              | 0.8                          |
|   | Drain pan material         |              | PS                           |
|   | Drain pan insulation       |              | 20                           |
|   | Drain pump option          |              | Standard 600mm               |
|   | Branch outlet option       |              | No                           |
| Indoor wall   | Material                   |              | Hot zinc plate               |
|   | Thickness                  | mm           | 0.8                          |
|   | Double or single skin      |              | Single                       |
| Air filter  | Material                   |              | PP                           |
|   | Mesh                       |              | 100                          |
|   | Pressure drop              | Pa           | 5                            |
| Piping dimension  | Liquid pipe                | mm           | 6.35                         |
|   | Gas pipe                   | mm           | 12.7                         |
|   | Drain hose                 | mm           | 25                           |
| Panel (optional)  | Panel model                | /            | DVLA PANEL 07-16             |
|   | External dimensions(W/D/H) | mm           | 890/190/100 (outlet panel)   |
|   |                            |              | 890/290.5/32.4 (inlet panel) |
|   | Shipping dimensions(W/D/H) | mm           | 938/335/220                  |
| Net / shipping weight   | kg                         | 4/5          |                              |
| Fresh air dimension   | mm                         | Φ80          |                              |
| Sound pressure level (H/M/L)  | dB (A)                     | 33/30/27     |                              |
| Sound power level (H/M/L)   | dB (A)                     | 47/44/41     |                              |
| Standard static pressure  | Pa                         | 0            |                              |
| Max. static pressure  | Pa                         | 30           |                              |
| Indoor air flow (H/M/L)   | m <sup>3</sup> /h          | 600/540/460  |                              |
| Air outlet dimensions   | mm                         | 640*90       |                              |
| Air return dimensions   | mm                         | 760*152      |                              |
| Dimension (W*H*D)   | mm                         | 850*185*420  |                              |
| Packing (W*H*D)   | mm                         | 1045*270*540 |                              |
| Net weight  | kg                         | 18.5         |                              |
| Gross weight  | kg                         | 23.5         |                              |
| Nominal condition: indoor temperature (cooling): 27DB (°C)/19WB (°C), indoor temperature (heating): 20DB (°C)<br>Outdoor temperature (cooling): 35DB (°C)/24WB (°C), outdoor temperature (heating): 7DB (°C)/6WB (°C)<br>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. |                            |              |                              |



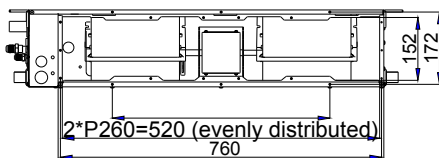
## 1.3 Dimension

DVLA-025/022-01M22

DVLA-035N-01M22 DVLA-040N-01M22

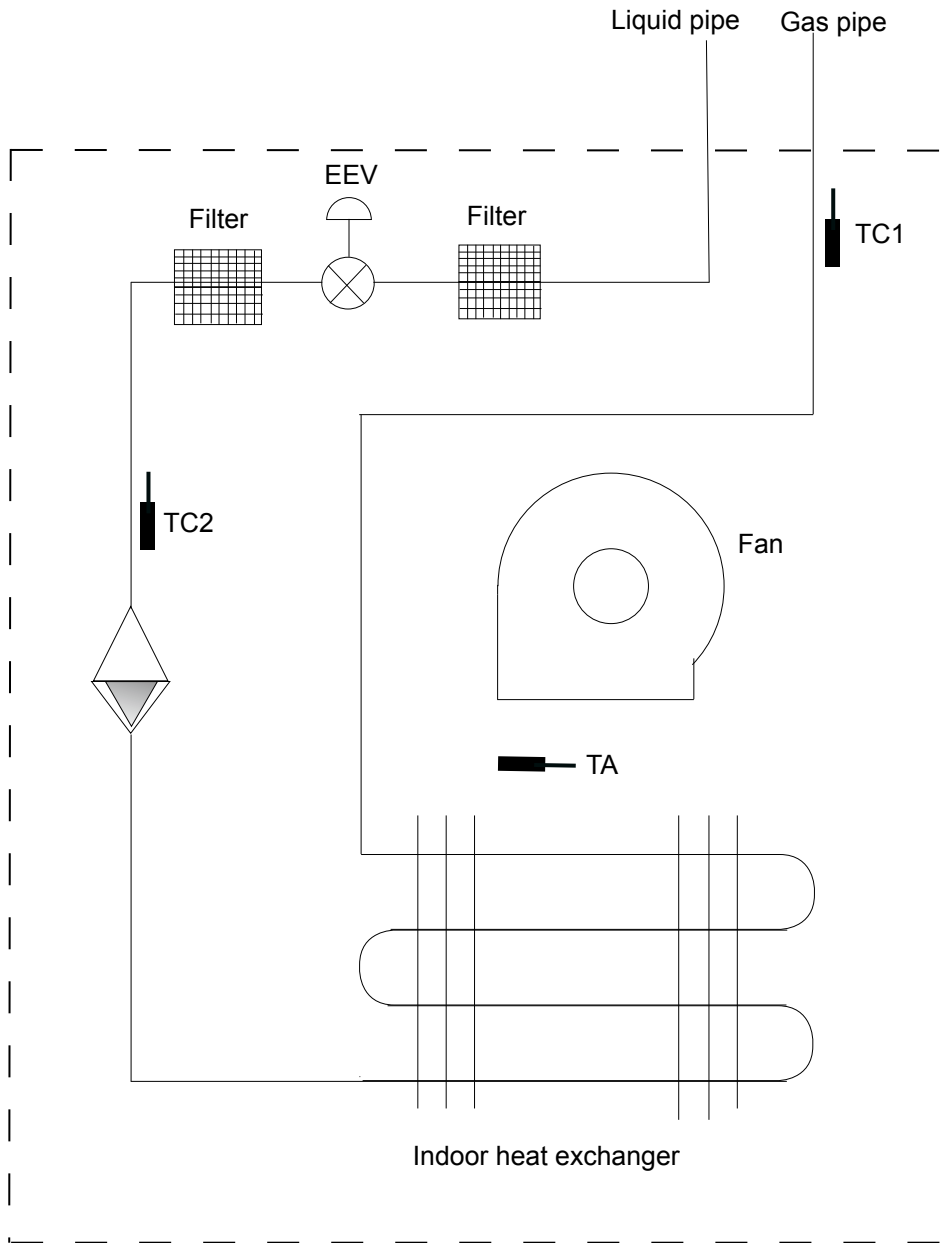


See from A side  
Checking hole(hole in ceiling)



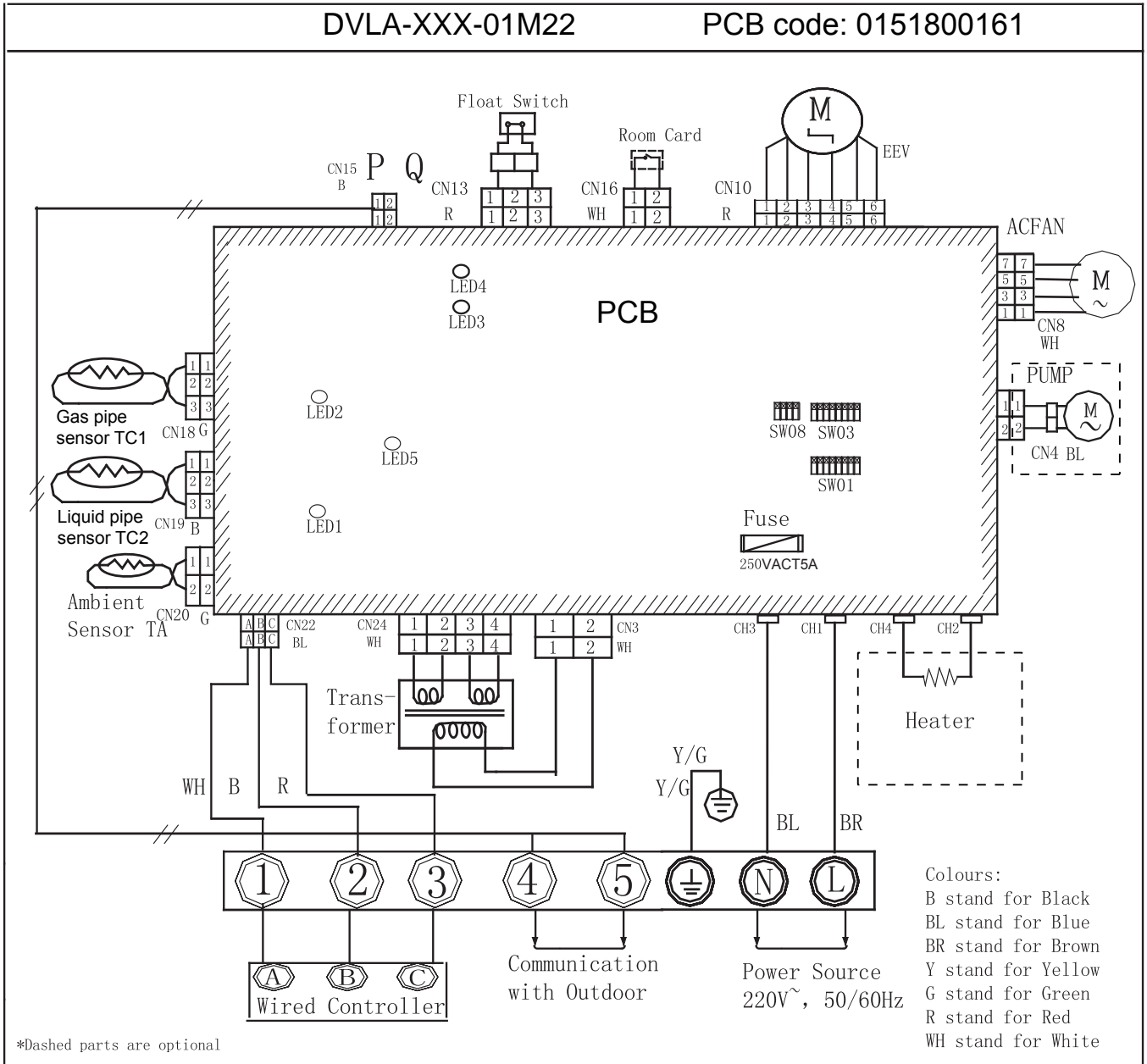
| SN | Part Name              |
|----|------------------------|
| 1  | Liquid pipe connection |
| 2  | Gas pipe connection    |
| 3  | Drain hose with pump   |
| 4  | Drain hose(accessory)  |
| 5  | Suspending point       |
| 6  | Checking hole          |
| 7  | Water drainage outlet  |

### 1.4 Piping diagram

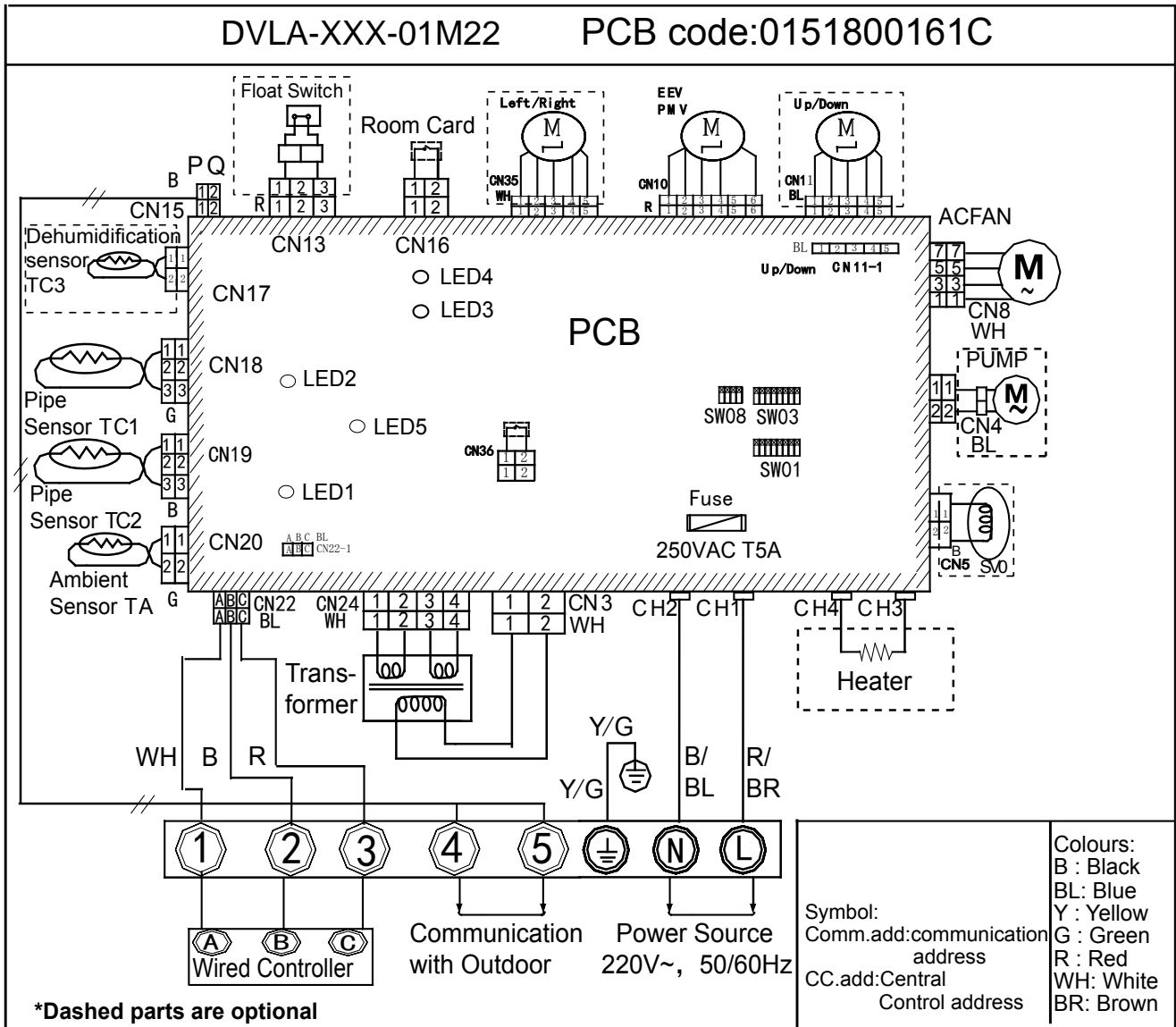


## 1.5 Wiring diagram

Old



New



## 1.6 Electric characteristics

| Units           |       |       |         |            | Power supply |      | Indoor fan motor |      | Power input (w) |         |
|-----------------|-------|-------|---------|------------|--------------|------|------------------|------|-----------------|---------|
| Model           | Phase | FQY   | Voltage | Volt range | MCA          | MFA  | Output (W)       | FLA  | Cooling         | Heating |
| DVLA-022N-01M22 | 1     | 50/60 | 220     | 198-242    | 0.24         | 0.76 | 23               | 0.19 | 56              | 56      |
| DVLA-025N-01M22 | 1     | 50/60 | 220     | 198-242    | 0.24         | 0.76 | 23               | 0.19 | 56              | 56      |
| DVLA-035N-01M22 | 1     | 50/60 | 220     | 198-242    | 0.38         | 1.2  | 23               | 0.3  | 56              | 56      |
| DVLA-040N-01M22 | 1     | 50/60 | 220     | 198-242    | 0.59         | 1.88 | 51               | 0.47 | 65              | 65      |

### 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*

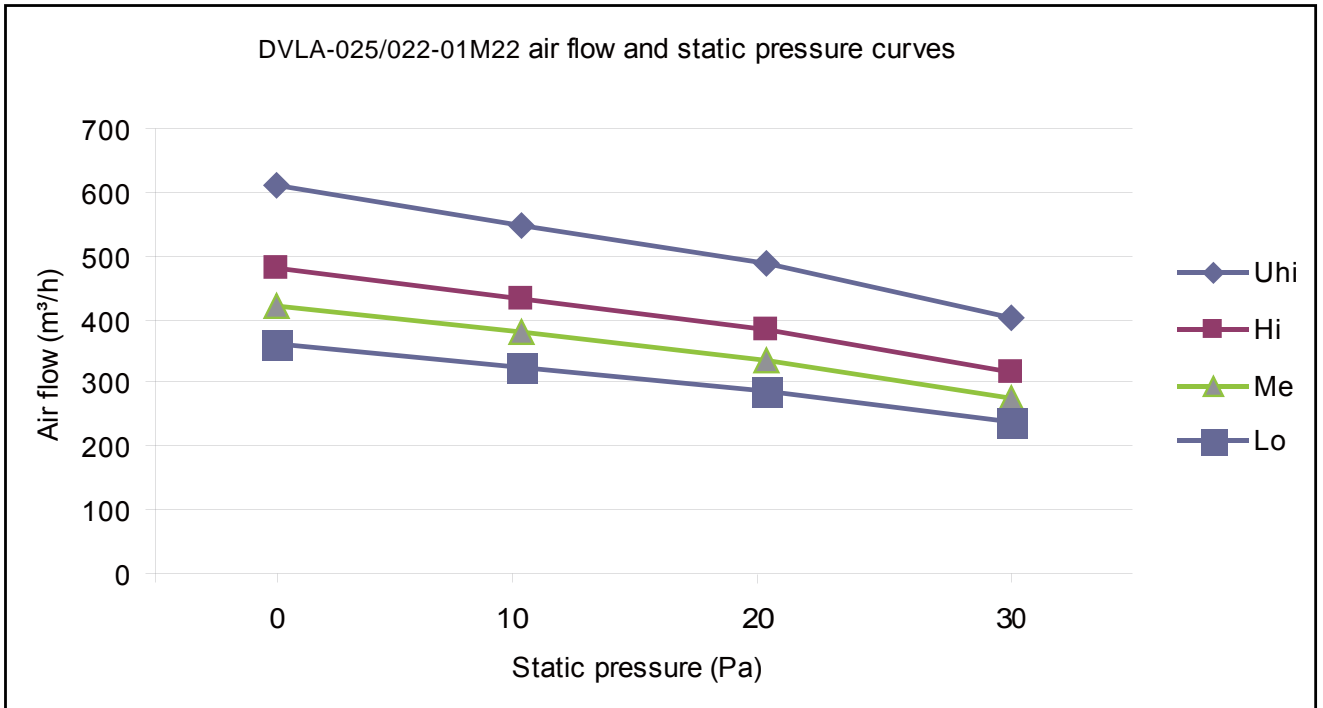
*The units are applicable for the electrical systems where voltage supplied to unit is in the range.*

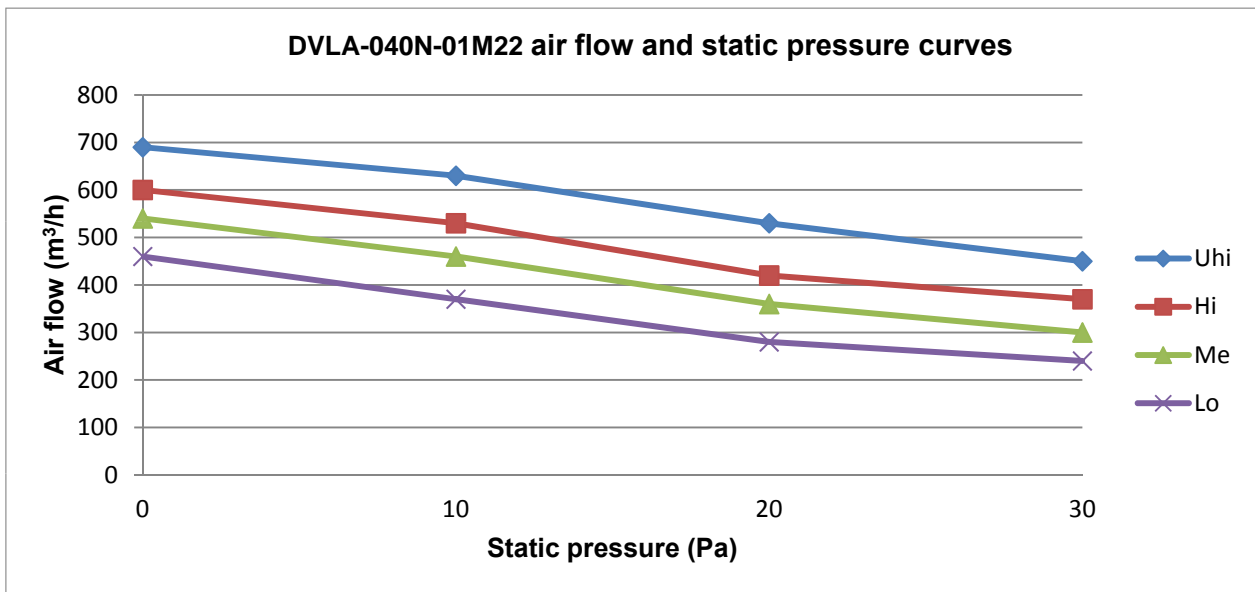
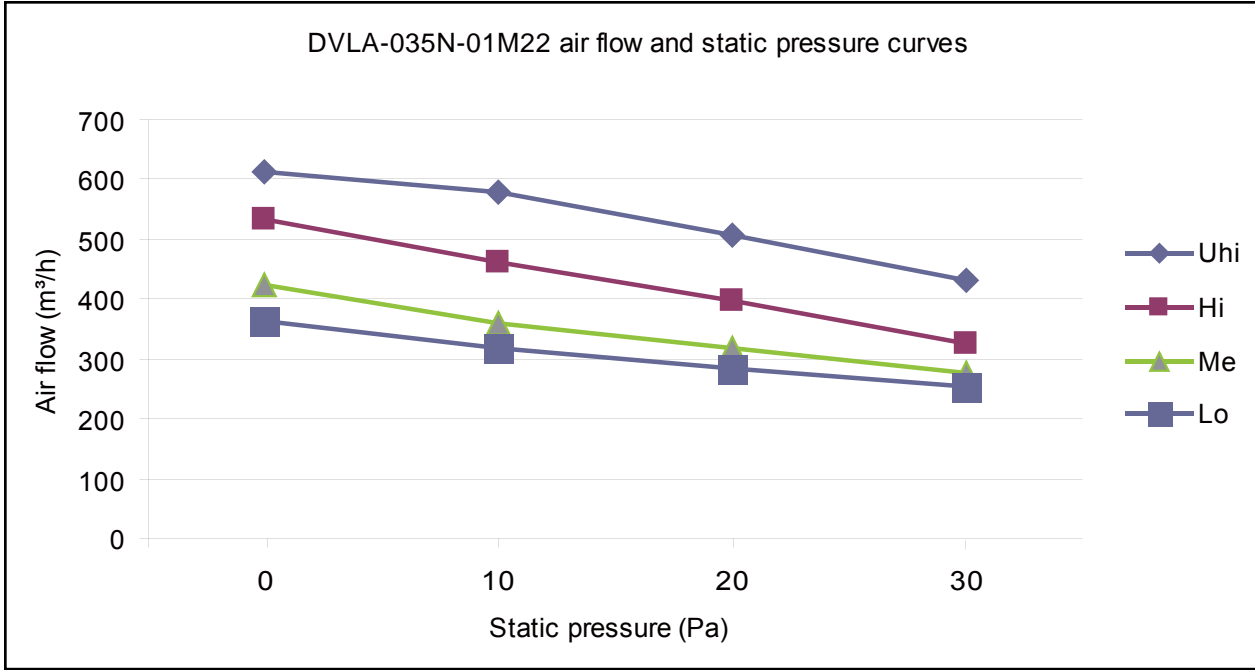
2. *Maximum allowable voltage unbalance between phases is 2%.*

3. *MCA=1.25\*FLA MFA≤4\*FLA*

4. *Power supply uses the circuit breaker.*

### 1.7 Air flow and static pressure curves

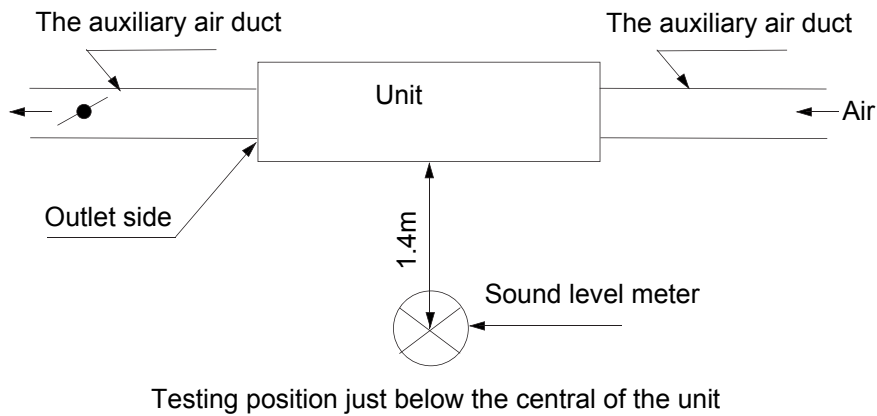




## 1.8 Sound pressure level

Slim duct type running noise

(1) Testing illustrate:

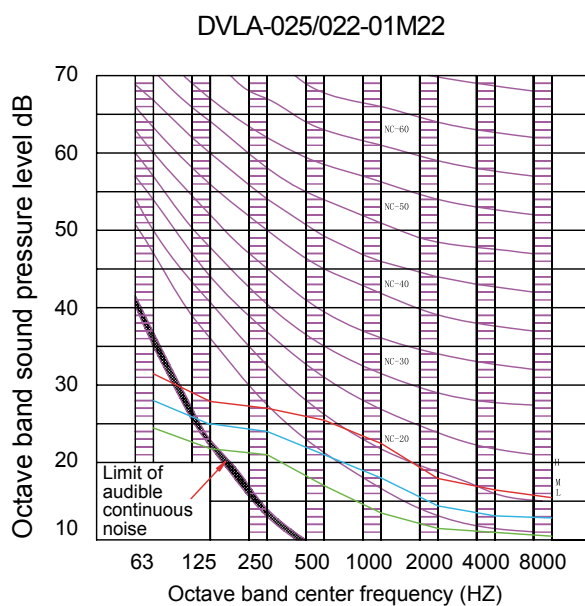


**Note:** The length of the auxiliary air duct is 2m

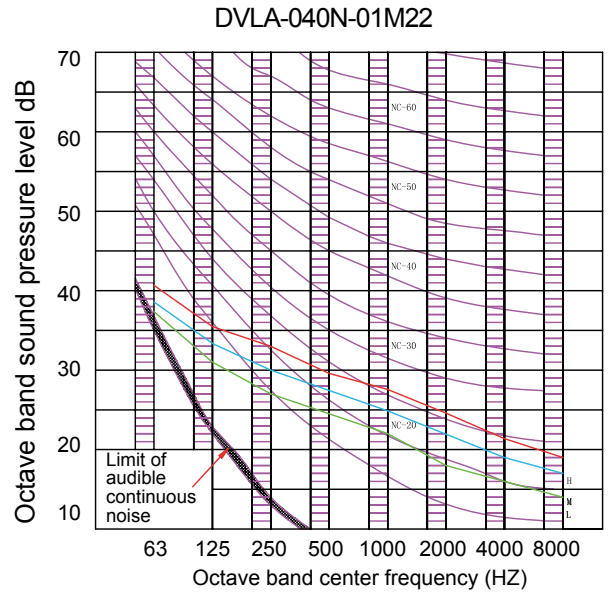
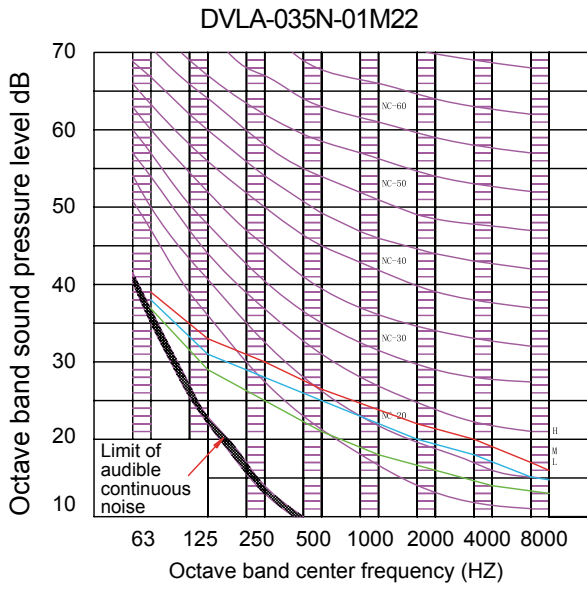
(2) Testing condition:

- a. Unit running in the standard 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:







## 1.9 Installation

### 1.9.1 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.**

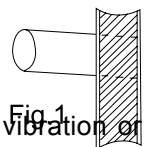
Places with high salinity (beach), high sulfured gas (such as the thermal spring regions where copper tubes and soft soldering are easy to be eroded), much oil (including mechanical oil) and steam; places where organic substance solvent is frequently used; places where machines generate the high frequency 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 filling amount of refrigerant if necessary.
- (7) The connecting flange should be checked by users.
- (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:**

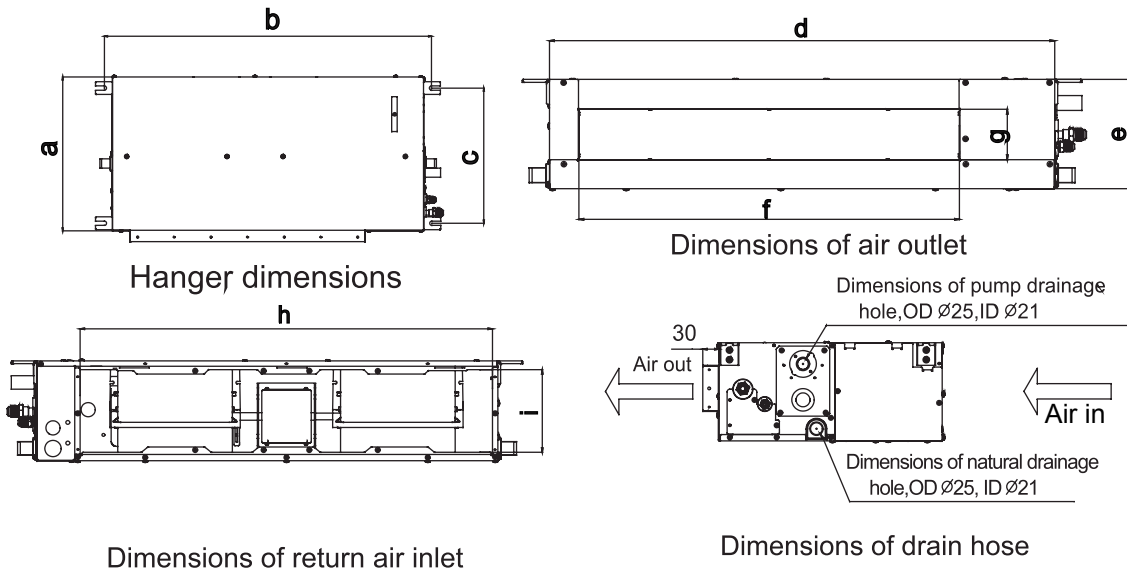
- (1) Cut a hole in the wall and insert connection pipe and connecting wires through a locally purchased PVC pipe. The hole should be inclined slightly downward with an inclination of at least 1/100 (see Figure 1).
- (2) Before cutting the hole, ensure no pipe or rebar is placed behind the cutting position. 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   |
|--------------------|-----|-----|-----|-----|-----|-----|----|-----|-----|
| DVLA-025/022-01M22 |     |     |     |     |     |     |    |     |     |
| DVLA-035N-01M22    | 420 | 892 | 370 | 850 | 185 | 640 | 90 | 760 | 152 |
| DVLA-040N-01M22    |     |     |     |     |     |     |    |     |     |

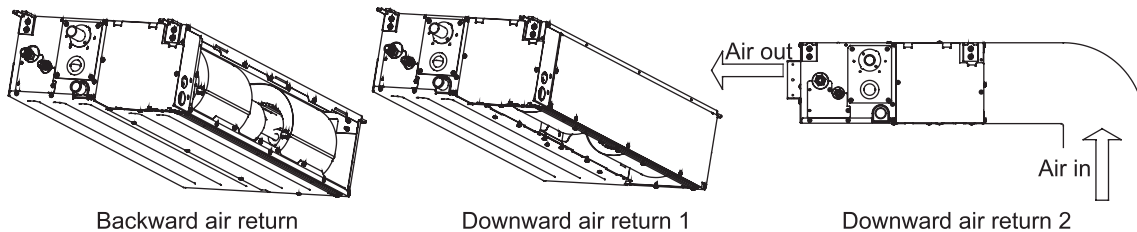
DVLA-025/022-01M22  
 DVLA-035N-01M22  
 DVLA-040N-01M22



### 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. Downward air return (can be adjusted on site. See the following figures.)



### Note:

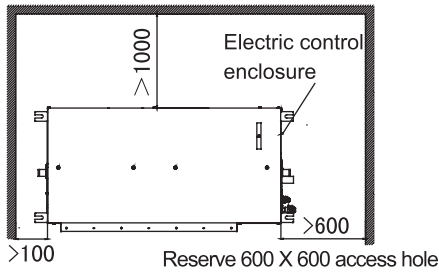
*The downward air return mode would cause much more noise. It is recommended to install the air conditioner in downward return air mode 2 if enough space is available.*

### Installation space and method

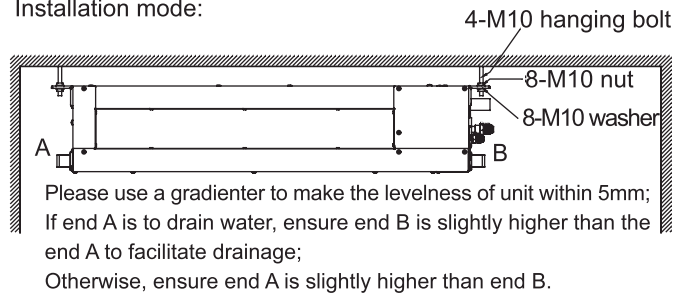
#### Body installation

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 fix 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:

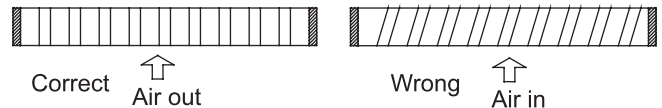


### Installation mode:



### 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 shown in the figure on the right.



### 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, fix it with glue nail cover, and then seal the joint with silver paper.

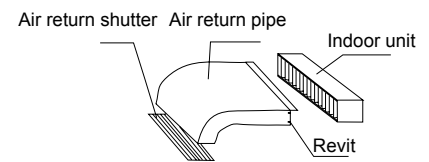


Fig.1  
Connection of oil return pipe

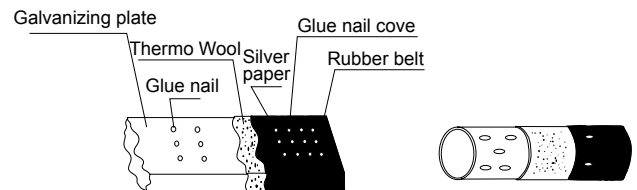


Fig.2

### Selection of fan outlet (when a high-performance filter is used)

The fan has red and white terminals. Its air outlet is set to the standard before delivery. If a high-performance filter 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                | white | red | Yellow |
|                                  | Black  |       |       | Orange                |       |     | Black  |
|                                  | Blue   |       |       | Black                 |       |     | Blue   |
|                                  | Red    |       |       | Blue                  |       |     | Red    |
| Fan Down-lead End                |        |       |       | Fan Down-lead End     |       |     |        |

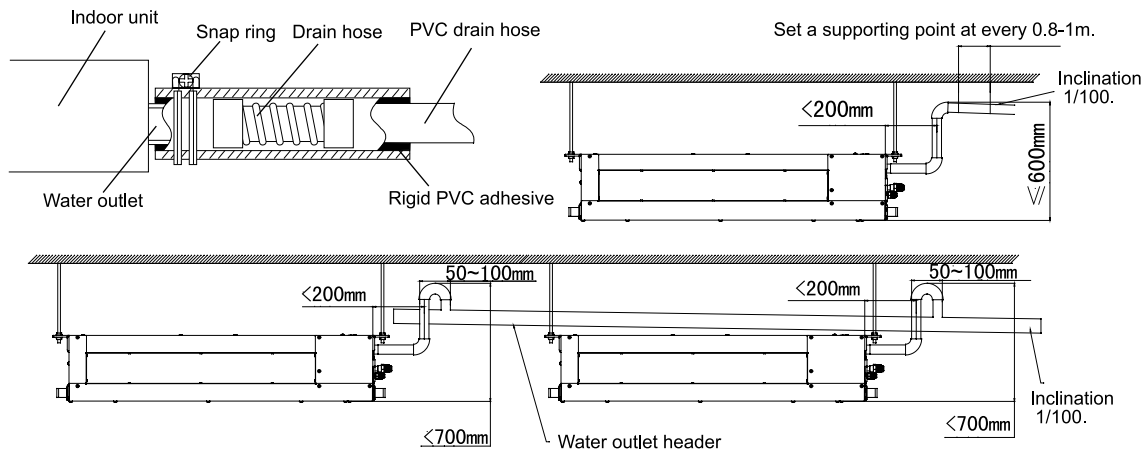
### Static pressure range Unit: Pa

| 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 tighten them, as shown in the following figure:
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 flowing 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.

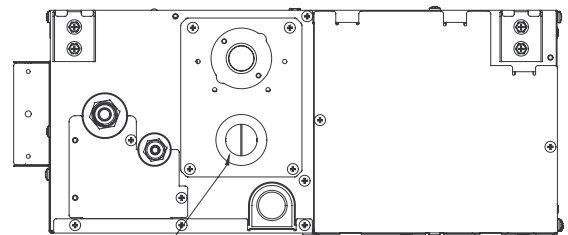


Multiple units use water outlet header to drain water into drainage ditch.

### Drainage test

Before test, firstly 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 the position of water injection hole, see the figure on the right:



Open or close the water injection hole by rotating the hole plug

### Pipe Length & Height Difference

Please refer to the attached manual of outdoor units.

### Tubing Materials & Specifications

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 specified amount while compressor failure can be caused by filling too much or little refrigerant.

| Model            |   | DVLA-025/<br>022-01M22 | DVLA-035~040N-01M22 |
|------------------|---|------------------------|---------------------|
| 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, the nitrogen-filling protection should be used.

#### Cutting and Enlarging

Cutting or enlarging pipes should be proceeded by installation personnel according to the operating criterion if the tube is too long or flare 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.

Vacuum pump with check valve should be used for vacuumizing to prevent pump oil flowing into the machine.

#### 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:

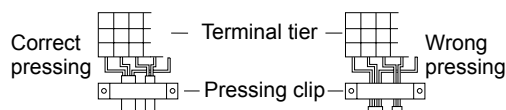
The connecting method of circular terminal is shown in the Fig. Take off the screw, connect it to the terminal tier after heading it through the ring at the end of the lead and then tighten it.

#### 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, tighten the screw and confirm it has been clamped by 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.



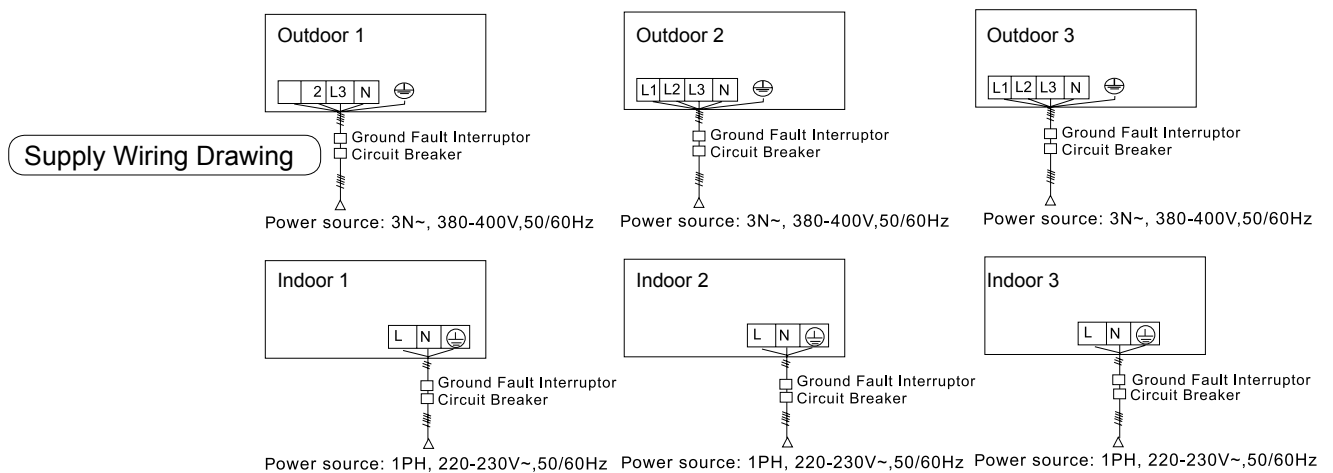
## 1.9.2 Electrical Wiring

### ⚠ WARNING

- Electrical construction should be made with specific mains circuit by the qualified personnel according to the installation instruction. Electric shock and fire may be caused if the capacity of power supply is not sufficient.
- During arranging the wiring layout, specified cables should be used as the mains line, which accords with the local regulations on wiring. Connecting and fastening should be performed reliably to avoid the external force of cables from transmitting to the terminals. Improper connection or fastness may lead to burning or fire accidents.
- 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.

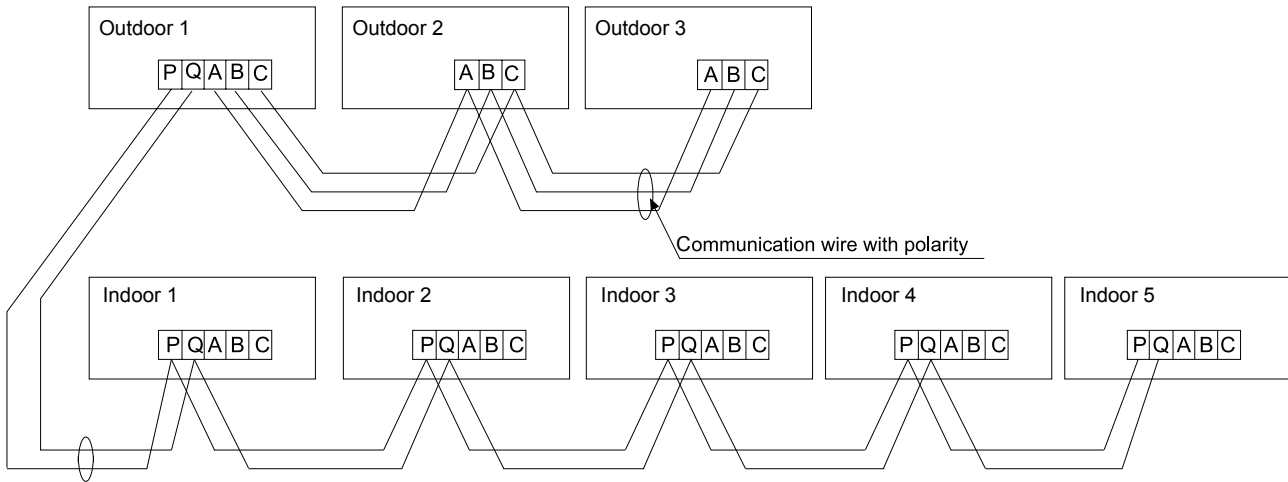
### ⚠ ATTENTION

- 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 body will be electrified. If the power line is damaged, replace it by the professional personnel of the manufacturer 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.
- Controller wiring and refrigerant tubing can be arranged and fixed together.
- 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:  $3 \times 1.0-1.5$  mm<sup>2</sup>; parameters for signal line:  $2 \times 0.75-1.25$  mm<sup>2</sup> ( 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 single electrical source, but its capacity and specifications should be calculated. Indoor & outdoor units should be equipped with the power leakage breaker and the overflow breaker.

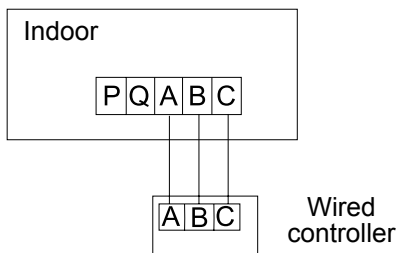
### Signal Wiring Drawing



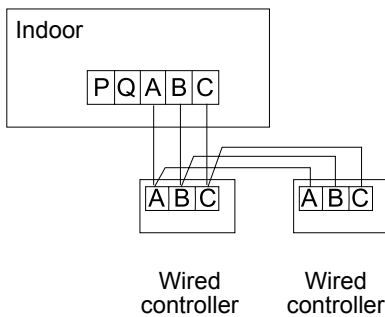
Outdoor units are of parallel connection via three lines with polarity. The master unit, central control and all indoor units are of parallel connection via two lines without polarity. The signal line between wired controller and indoor units are polarity

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

A. One wired controller controls one indoor unit, the wired controller connects with the ABC terminal of indoor unit.



B. Two wired controllers control one indoor unit. Either of the wired controls can be set to be the master wired controller while the other is set to be the slave wired controller.



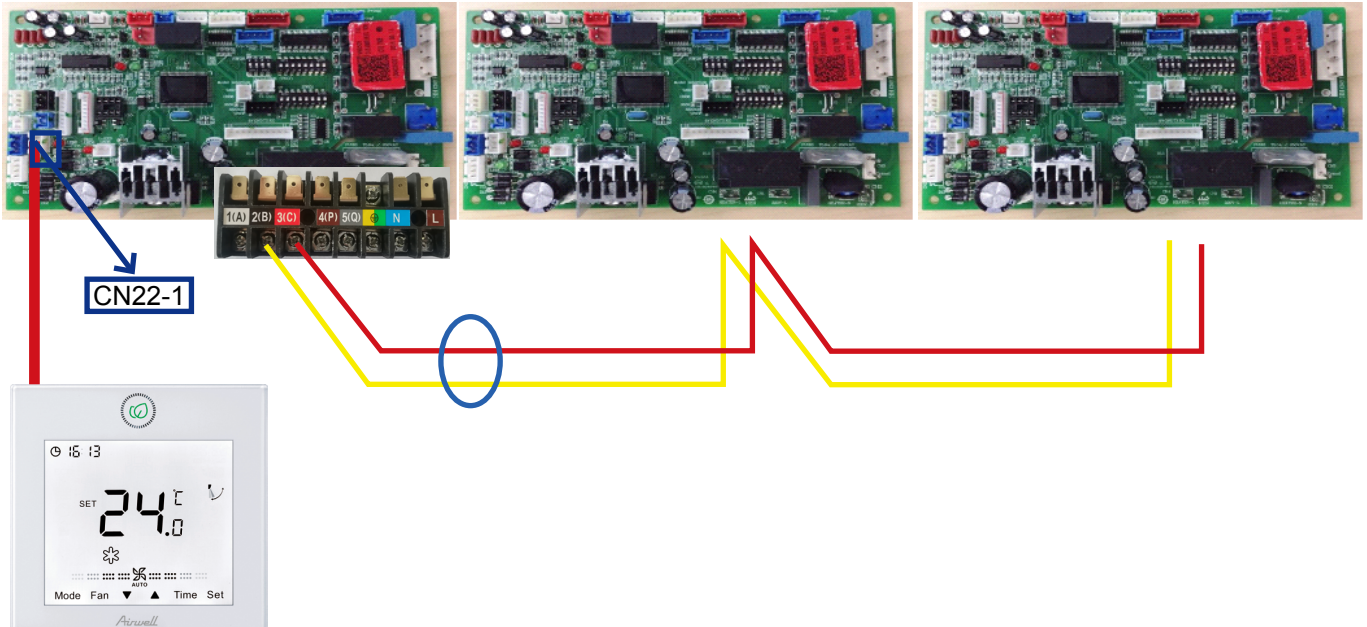
Master and slave controller setting method for RWV05, other controllers' setting method please refer to the controller manual

| No.   | Type                                      | State of switch | Function description |
|-------|---|-----------------|----------------------|
| SW1-1 | Select the master or the slave controller | ON              | Slave controller     |
|       |   | OFF             | Master controller    |



## C. One wired controller controls multiple units

### 0151800161C PCB



#### Note:

1. Plug the wired controller terminal to the CN22-1 terminal of master unit which wired address is 0, the slave unit only connects BC terminal.
2. Wired address setting

| SW01_1<br>SW01_2<br>SW01_3<br>SW01_4 | Wired control address | [1]        | [2]        | [3]        | [4]        | Wired control address          |
|--------------------------------------|-----------------------|------------|------------|------------|------------|--------------------------------|
|                                      |                       | <b>OFF</b> | <b>OFF</b> | <b>OFF</b> | <b>OFF</b> | <b>OFF</b>                     |
|                                      |                       | 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 |

3. One controller can Max. control 16 indoor units.
4. Hand-in-hand connection method
5. The signal line is polarity

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 ※

| Socket/dip switch        | Setting mode | 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       | Cross section (mm <sup>2</sup> ) | Length (m) | Rated current of overflow breaker (A) | Rated current of residual circuit breaker (A)<br>Ground fault Interrupter (mA)<br>Response time (S) | Cross sectional area of signal Line              |                                   |
|-------------|----------------------------------|------------|---------------------------------------|---|--|-----------------------------------|
|             |                                  |            |                                       |   | Outdoor -indoor (mm <sup>2</sup> )               | Indoor -indoor (mm <sup>2</sup> ) |
| <7          | 2.5                              | 20         | 10                                    | 10 A, 30 mA, 0.1S or below  | 2 cores×(0.75-2.0) mm <sup>2</sup> shielded line |                                   |
| ≥7 and <11  | 4                                | 20         | 16                                    | 16 A, 30 mA, 0.1S or below  |  |                                   |
| ≥11 and <16 | 6                                | 25         | 20                                    | 20 A, 30 mA, 0.1S or below  |  |                                   |
| ≥16 and <22 | 8                                | 30         | 32                                    | 32 A, 30 mA, 0.1S or below  |  |                                   |
| ≥22 and <27 | 10                               | 40         | 32                                    | 32 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.

## 1.9.3 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. Reprress "ON/OFF" button to quit the compulsive running and stop the operation of the air conditioner.

# Airwell

*Just feel well*

**WARNING :**

The design and specifications are subject to change without prior notice for product improvement. Consult with the sales agency or manufacturer for details.

**ATTENTION :**

Le design et les données techniques sont donnés à titre indicatif et peuvent être modifiés sans préavis.



**AIRWELL RESIDENTIAL SAS**

10,Rue du Fort de Saint Cyr,  
78180 Montigny le Bretonneux - France  
[www.airwell.com](http://www.airwell.com)