



Outdoor Cabinet Air Conditioner AirSafe CB

User Manual

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1 Brief Introduction

1.1 Foreword

Note: All the operations of this product shall be performed by professional engineers and technicians.

This manual shall only be used as the guide for the installation and operation of the AirSafe CB Series outdoor cabinet air conditioner. It introduces the functions and daily maintenances of the unit.

1.2 Air conditioner description

The AirSafe CB Series outdoor cabinet air conditioner is a cooling product developed for cabinet. It is applicable for the scenarios where internal equipment of the cabinet emits a large quantity of heat and the internal equipment is sensitive for temperature and needs to be isolated from the outdoor environment completely. The unit has perfect functions, such as with external fan controlled functions and features high reliability and easy installation, so that it can work once the power supply is available and no complex adjustment is needed.

The internal cycle air path absorbs the hot air from the upside, and discharges the cold air from the downside of the air conditioner. The external cycle air path absorbs the external cold air from the downside, and discharges the hot air from the upside after heat exchange, as shown in Fig.1.1.

Note: It is prohibited to put the air conditioner upside down during transportation, storage and use.

1.3 Model Description

For example: model – EACCB03X

0	1	2	3	4	5	6	7
E	A	C	C	B	0	3	X

0	E	ENERSAFE
1-2	AC	AIRE ACONDICIONADO
3-4	CB	CABINET
5-6	XX	CAPACIDAD KW
7	X	VERSION

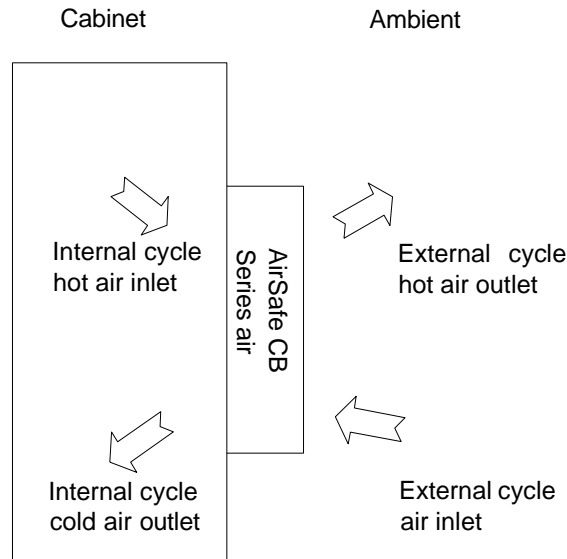


Fig.1.1 Functional diagram

Application scope:

Grid application scope:

AC: 220VAC±15% 50/60Hz(Dual live line support 110 VAC;60Hz)

External cycle temperature: -40 °C ~ 55 °C

1.4 Standards

Table 1.1 Applicable standards of products

Standard	Description
GB/T 17626.7-1998	EMC
GB4706.1	Safety of household appliances or similar electric appliance
GB4798.1	Environmental conditions existing in the application of electric and electronic product – Storage
GB4798.2	Environmental conditions existing in the application of electric and electronic product – Transportation
GB4798.3	Environmental conditions existing in the application of electric and electronic product – Use
CE	Third-party certification

2 Installation and Operation

2.1 Removing package and checking

The standard package of this product is carton. To remove the package, remove the external straps first, and then open the top cover and pull out the carton. Please check the attachment list and accessory bags in the carton.

Note:

1. **When the package is removed, make sure that the air conditioner is placed vertically. It can't be placed horizontally or upside down.**
2. **When the external package is removed, please check carefully whether the appearance of the air conditioner is damaged or whether there is any oil stain. If any damage is found, please report this with the barcode number on the package to the retailer.**
3. **If there is no need to install the product immediately or it needs to be transported to other place, please repack the air conditioner after the checking.**
4. **To protect the environment, it is recommended to recycle the packing cartons.**

2.2 Preparation before the installation

Please pay attention to the following points before the installation:

- The placement of the equipment inside the cabinet should be proper. For example, any obstruction to the internal cycle air inlet and outlet of the air conditioner should be avoided.
- The layout of drainage channels should be fully considered.

2.3 Mechanical installation of the air conditioner

The mechanical installation of the air conditioner includes:

- Sticking the sealing tapes on the cabinet and the air conditioner
- Fixing the air conditioner on the cabinet

Installation tool: Phillips screwdriver.

Please install the unit strictly in accordance with the following steps:

1. Check the accessories (electrical part: air conditioner power cables (with 5PIN power connector), the communication & alarm output cables; other materials: screws), and prepare the installation tools.
2. Seal the installation surface of the cooling units and the cabinet with sealing tapes.
3. Fix the air conditioner on the installation surface of the cabinet firmly with screws.
4. Refer to Fig.2.1 for relevant installation dimension.

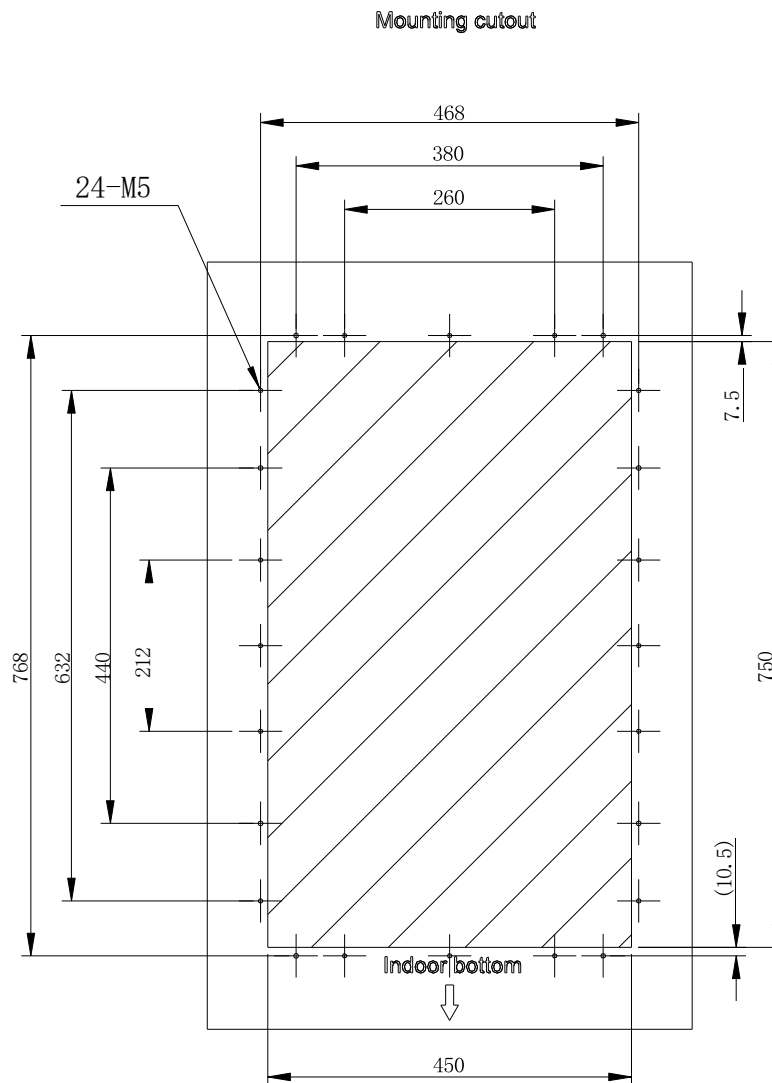


Fig.2.1 Schematic diagram for installation dimension

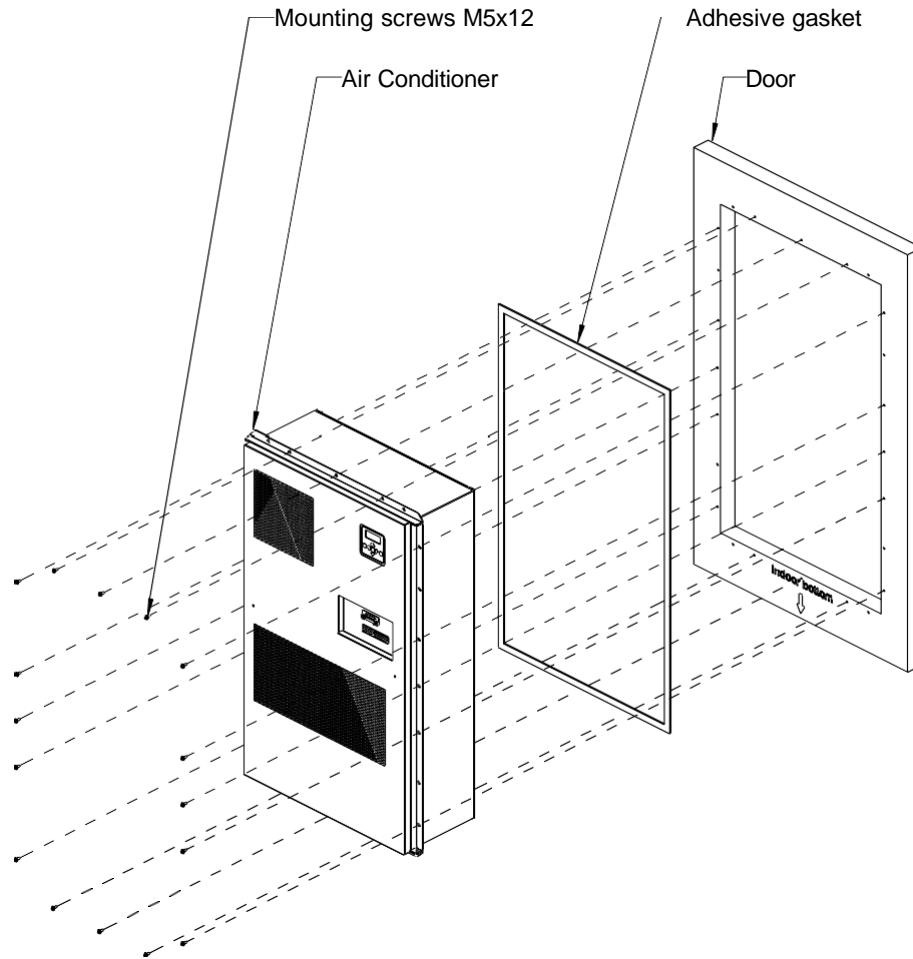


Fig.2.2 Schematic diagram for installation of air conditioner

2.4 Electrical installation

The electrical installation of the air conditioner includes:

- Connecting the power cables
- Connecting the communication & alarm output cables

Note: All the electrical connections should comply with the standards of the national and local electrical codes. Please disconnect all the power supplies for the air conditioner before the installation.

Please select proper wire diameter and circuit protection device according to the air conditioner nameplate and technical parameters.

Please perform the electrical connection in accordance with the following steps:

1. Make sure that the air conditioner power is disconnected.
2. Connect the power cable to the input terminal according to the schematic diagram for power terminal.
3. Connect the power input terminal to the attaching plug of the unit reliably and tighten the fixing screws.
4. Connect the other end of the power cable to the power supply according to the definition.
5. Connect the communication & alarm output cable to the input terminal according to the definition.
6. Check whether any short circuit or open circuit exists on the AC power supply cables with multimeter.
7. Check whether any short circuit or open circuit exists on the communication & alarm output cable multimeter.

➤ **5PIN AC power input terminal:**

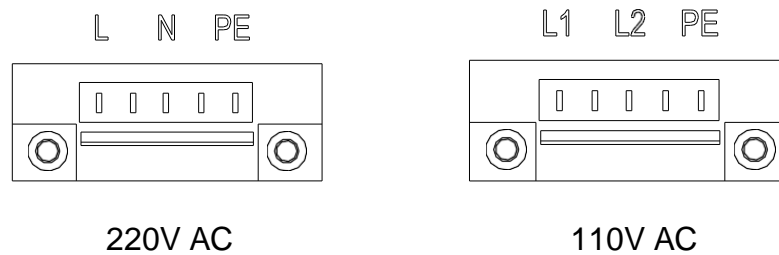


Fig.2.3 AC power input terminal

Power input	Connector	Definition
220 VAC;50/60Hz	L	AC power input: L
	N	AC power input: N
	PE	AC power input: PE

Power input	Connector	Definition
110 VAC Dual Live Line; 60Hz	L1	AC power input: L1
	L2	AC power input: L2
	PE	AC power input: PE

➤ **Communication & alarm output terminal:**

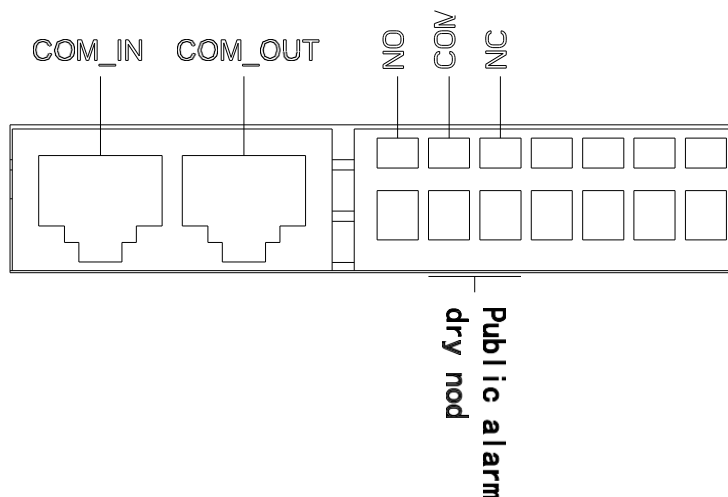


Fig.2.4 Communication & alarm output terminal

NO	Normally open
COM	Public nod
NC	Normally close

The alarm dry contact COM、NC normally close output. When faults occur, the dry contact will open.

2.5 Installation check list

Please check the following check list when the electrical installation and the air conditioner installation are completed.

1. There is no obvious obstacle near the internal cycle air inlet and outlet of the air conditioner.
2. The air conditioner is installed vertically and all the installation screws are tightened.
3. The AC input cables have been connected reliably.
4. The AC input voltage should comply with the standard in section 1.2.
5. The fan can turn freely without abnormal noises.

2.6 Power-on steps

Close the AC input power switch, The internal cycle fan of the air conditioner will be started. If the internal cycle temperature meets the running condition, the cooling system will be started.

3 System function introduction

3.1 Function

The air conditioner's running is controlled automatically according to the cabinet internal temperature. The controller controls the compressor or the fan's operation by comparing and judging the cabinet return air's temperature detected by the internal cycle temperature sensor with the setting point.

3.2 Cooling and Heating

Cooling startup point = cooling stop point + cooling sensitivity. When the cabinet internal temperature exceeds the cooling startup point, the cooling will be started; when the cabinet internal temperature is lower than the cooling stop point, the cooling stops.

The heating function works when the enclosure is below the heating start point, when the enclosure temperature is beyond the heater on point, the air conditioner's heater stops. The heater off point = heater on point + heater sensitivity. The set-point is listed in following forms

Table 3.1 User parameter setting point

Parameter	Default value	Setting range	Unit	Setting point description
CoolSP	25	[15~55]	°C	Point when cooling stops
CoolΔT	10	[1~10]	°C	Temperature control sensitivity
INHT	55	[30~ 70]	°C	Internal high Temp. alarm point
HeatSP	15	[5~ 25]	°C	The temperature point of the heating stop
HeatΔT	10	[1 ~ 10]	°C	The sensitivity of the temperature control

Note: To ensure the reliable operation and maximum energy efficiency of the unit, please do not change the temperature setting point unless necessary.

3.3 Self testing

The unit provides the self testing function for the onsite test. The self testing procedures are as below:

1. Select the "Diagnosis" function in the "Set Up" menu, the unit will start the self testing procedure automatically.

2. The indoor fans run for 30 seconds.
3. The compressor and the outdoor fans run for 3 minutes.
4. The compressor and external fan stops and heater works for 2 minutes.

5. The compressor and the outdoor fans stop, and then the unit works according to the normal logic.

3.4 Alarm

The cabinet air conditioner provides the following alarm information. Please refer to table 3.2 for the setting point.

Table 3.2 Alarm parameter and the setting point

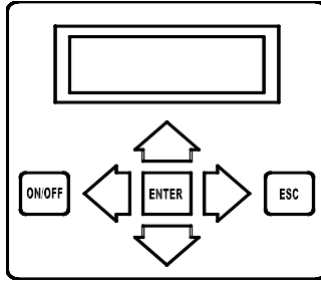
Parameter	Alarm conditions	Uploading or NO
Cabinet internal high Temp. alarm	The cabinet internal temperature exceeds 55°C	YES
Coil freeze protection	Coil Temp. is lower than 0°C	YES
Frequent high system pressure alarm	High pressure switch act times.	YES
Controller power failure	No power input for controller.	YES
Temperature sensor inside the cabinet failures	There is short or open circuit on the sensor cable.	NO
Coil temperature sensor failures	There is short or open circuit on the sensor cable.	NO
Ambient temperature sensor failures	There is short or open circuit on the sensor cable.	NO
Condenser surface temperature sensor failures	There is short or open circuit on the sensor cable.	NO

3.5 Monitoring

The air conditioner communicates with the computer through the RJ45 communication interface. Or users can check the air conditioner's running state by viewing the display screen directly and change its running parameters.

3.6 Unit menu structure

The unit controller adopts the 96x32 LCD, which contains 7 buttons for the setting. The operation interface is as shown in the following figure.



Controller operation interface

ON/OFF: ON/OFF button, (long press this button, about 4s) this can be used to turn on/off the unit.

. ↑ Up button, which is used to select the previous record/menu or increase the setting value (password only).

↓: Down button, which is used to select the next record/menu or decrease the setting value (password only).

←: Left button, which is used to increase the setting value during the parameter setting or select the previous bit of the data during the password setting.

→: Right button, which is used to decrease the setting value during the parameter setting or select the next bit of the data during the password setting.

ENTER: ENTER button, which is used to confirm the entry.

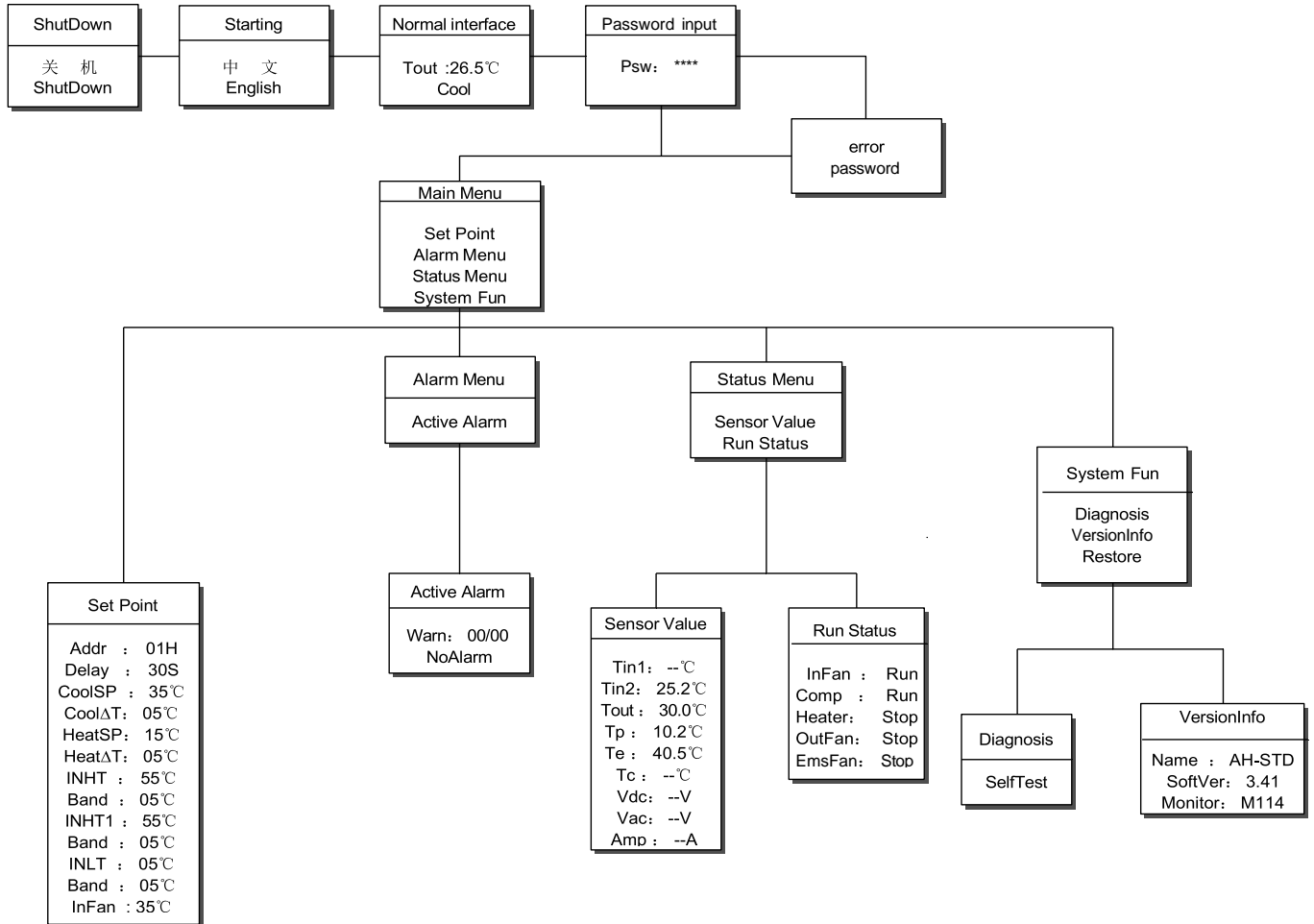
ESC: Quit button, which is used to return to the previous page menu.

If there is no keyboard operation for consecutively 60s under any interface after startup, it will automatically return to the normal display interface.

When any button is pressed after the system is powered up, the backlight will turn on. If there is no keyboard operation for consecutively 60s, the backlight will be off.

The factory default operation password of the unit is "0001". You can change it according to your needs. To change it, you need to press ENTER on the normal display interface to enter the password input interface, press the LEFT button or RIGHT button to select the bits for change, and press the UP/DOWN button to change the relevant digits, and finally press ENTER button to confirm the change.

If the password is incorrect, the interface will display the error message, and the unit setting cannot be changed. If the password is correct, you can enter the main menu and edit the unit setting.



Note: The above diagram is unit menu structure, not the factory setting.

4 Technical Parameters

4.1 Physical dimensions

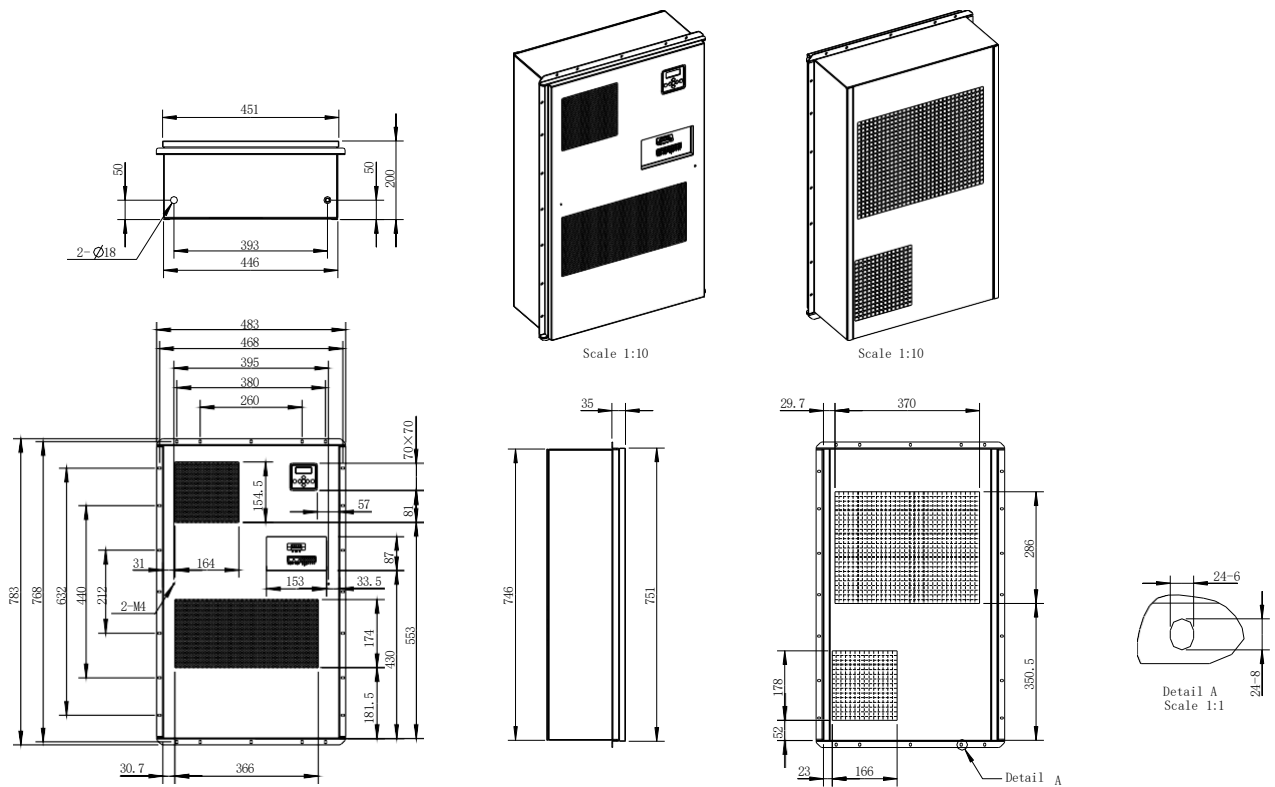


Fig.4.1 EC10HDNC1J、EC15HDNC1J air conditioner dimensions

5 Daily maintenance

To ensure the normal operation of the air conditioner, please perform regular maintenances for it by referring to Table 5.1.

Warning: All the maintenances should be performed by qualified professionals. Please disconnect the power and communication & alarm output cables of the air conditioner before any maintenance and do not reconnect them until the maintenance is completed.

Table 5.1 Daily maintenance table

Check item	Step description	Maintenance cycle
Wiring	Visually check if the wiring is loose	12 months
Fan abnormalities	Turn the fan to check if it is smooth and if there is any abnormal noise	12 months
Drainage pipe	Visually check if the drainage mouth is blocked	6 months
Condenser	Check the cleanness of the condenser and clean it with compressed air	6 months