STURDX

Indoor & Outdoor
Server Rack Cabinets

19” Outdoor Outdoor Field Type Rack Cabinet General Features

•**STURDX 19”** Outdoor outdoor field type rack cabinets can be produced and positioned **as floor-mounted, wall-mounted and pole-mounted.**
•It is extremely strong against impacts with a welded **monoblock** structure.
•Outdoor outdoor rack cabinets are **7U, 9U, 12U, 16U, 18U, 20U, 22U, 24U, 26U, 32U, 42U** high. Standard widths and depths are **600x600mm(24”X24”)-600x450mm(24”X18”)**
•The dimensions comply with the **IEC 60297** standard.
•Optionally, **depth, width and height** can be changed in special projects.
•The protection class of outdoor rack cabinets is **IP55** as standard and optionally **IP65, IP66** protection classes are produced.
•General features and dimensions **ISO 9001-2015, TS EN 61587-2018, TS EN 61587-2017, IEC 60917, IEC 60297, CE** produced in accordance with the standard.
•Outdoors, designed for industrial applications. Application areas data transfer and automation systems, train control, port control, roadway transportation systems control systems, fiber internet termination, mobese systems, base stations, fixed and mobile telephone networks, parking lot and parking lighting, defense industry fleet flight and baggage control systems It is preferred according to need versus preference.

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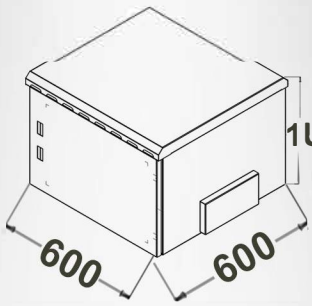
Indoor & Outdoor
Server Rack Cabinets

Outdoor Outdoor (Outdoor) Type Rack Cabinets

19” 600X600mm Outdoor Type Rack Cabinet



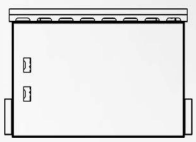
PERSPECTIVE VIEW

1U=4.445cm

(Produced Height Measurements)

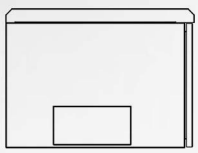
7U, 9U, 12U, 16U, 18U, 20U, 22U, 24U, 26U

In special targets, measures are aimed according to the needs.



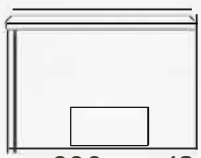
600mm (24")

FRONT VIEW



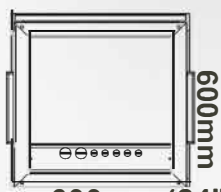
600mm (24")

SIDE VIEW



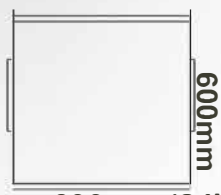
600mm (24")

REAR VIEW



600mm (24")

BOTTOM VIEW



600mm (24")

TOP VIEW

EASY GOING MOUNTING SYSTEM ✓

FLOOR MOUNT

Base Floor Mounting
10cm Alt Baza

WALL MOUNT

Wall Mounted
Without Base
M8 Çelik Dübel Çeşitleri

POLE MOUNT

19” Rack Type
Pole Mounting Apparatus

EASY GOING ACCESSORY SYSTEM ✓

SHELF SYSTEM

300-400mm
Movable / Fixed Shelf
Console Rack

FAN SYSTEM

Thermostat Fan Unit
2 Fan / 4 Fan

SOCKET GROUP

Socket Group
6 socket / 8 socket

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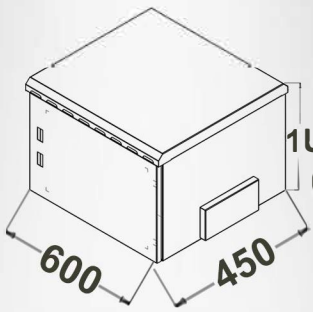
Indoor & Outdoor
Server Rack Cabinets

Outdoor Outdoor (Outdoor) Type Rack Cabinets

19” 600X450mm Outdoor Type Rack Cabinet



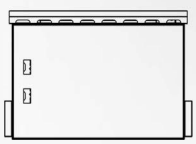
PERSPECTIVE VIEW

1U=4.445cm (1.75")

(Produced Height Measurements)

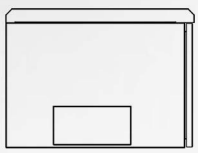
7U, 9U, 12U, 16U, 18U, 20U, 22U, 24U, 26U, 32U, 42U

In special targets, measures are aimed according to the needs.



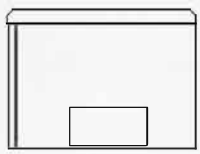
600mm (24")

FRONT VIEW



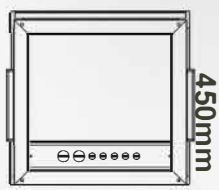
600mm (18")

SIDE VIEW



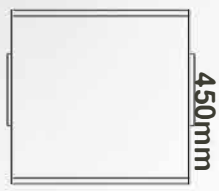
600mm (18")

REAR VIEW



600mm (24")

BOTTOM VIEW



600mm (24")

TOP VIEW

EASY GOING MOUNTING SYSTEM

✓

FLOOR MOUNT

Base Floor Mounting
10cm Alt Baza

WALL MOUNT

Wall Mounted
Without Base
M8 Steel Anchor Types

POLE MOUNT

19” Rack Type
Pole Mounting Apparatus

EASY GOING ACCESSORY SYSTEM

✓

SHELF SYSTEM

300-400mm
Movable / Fixed Shelf
Console Rack

FAN SYSTEM

Thermostat Fan Unit
2 Fan / 4 Fan

SOCKET GROUP

Socket Group
6 socket / 8 socket

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Outdoor Type Rack Cabinets

19" Outdoor Series Rack Cabinet IP Specifications

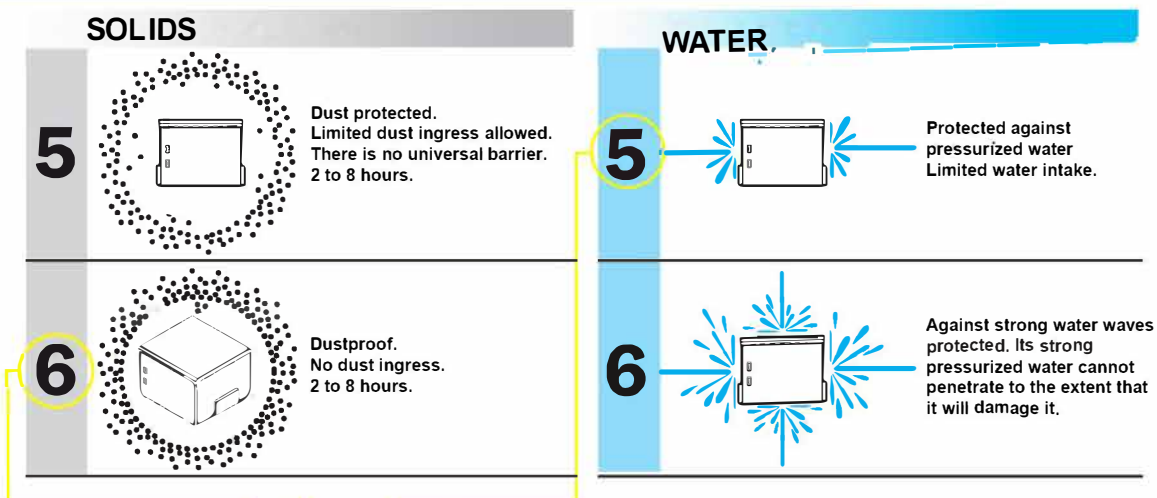
Concealed Hinge

Dust inlet
Blocker Filter Cover

New generation
Lever Lock System

On All Covers
Polyurethane Gasket

IP (Ingress Protection) Protection Class



Classification Example:

Produced Rope Protection Classes

IP 5 5 STANDARD

IP 6 5 OPTIONAL

IP 6 6 OPTIONAL

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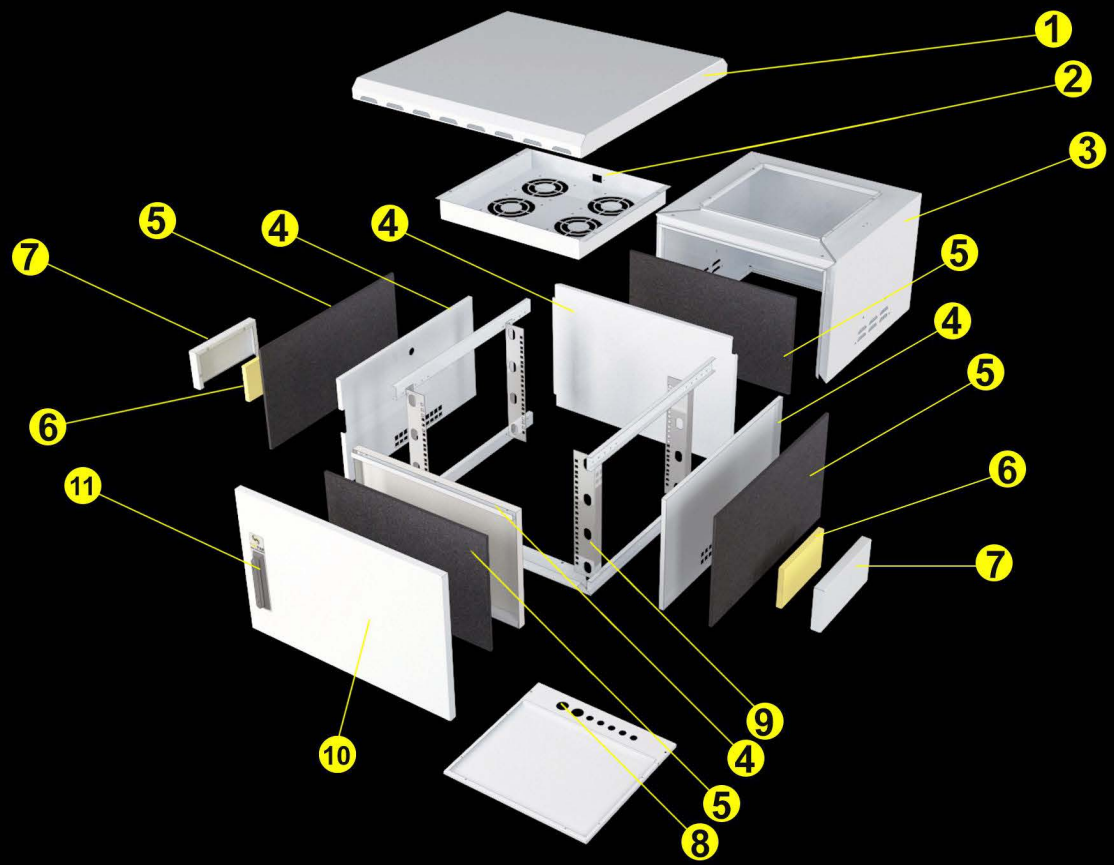
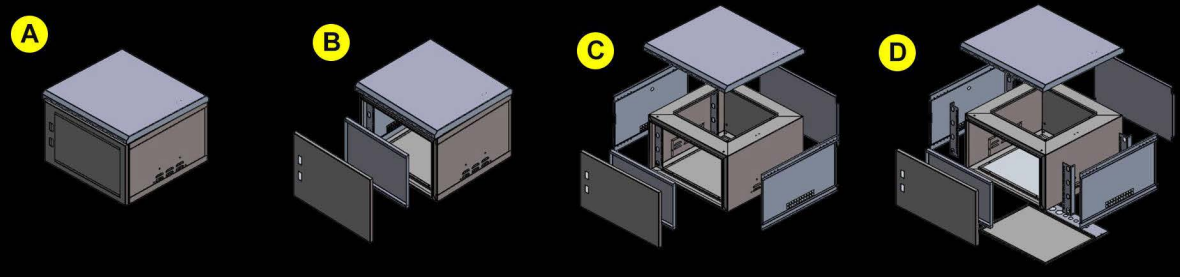
Server Rack Cabinets

Outdoor Type Rack Cabinets

19” Outdoor Field Rack Cabinet Exploded View(Double Walled)IP66



1. Top cover | 2. Fan pan | 3. Outer body | 4. Inner wall | 5. fireproof polyurethane heat insulating insulation sponge | 6. Dust filter sponge | 7. Filter protection caps | 8. Gland holes for cable entry | 9. Galvanized rack Strut | 10. Front door | 11. New generation handle lock.



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Server Rack Cabinets

Outdoor Type Rack Cabinets

19” Outdoor Field Rack Cabinet Other Sizes

STURDX

Indoor & Outdoor
Server Rack Cabinets

Outdoor Type Rack Cabinets

19” Outdoor Rack Cabinet Images

MCA series AC Air Conditioner

MCA series AC air conditioners are des-igned and bulit to dissipate heat from enclo-sure by cooling the air inside the enclosure, and to protect temperature sensitive comp-onents.

Features:

1.Installation: flexible and convenient installation
2.Performance: low noise, efficient, corrosion resistant and IP55 level
3.Reliable: the famous industrial components
4.Environmental protection: refrigerant is R134a
5.Operatation temperature range: -40～+55℃
6.Professional dehumidification technology (optional)
7.Provide the 4～20mA signal output for temperature and humidity(optional)
8.Provide multifunction alarm output, and status report through RS485 interface for remote control

MODEL NO	OPERATING VOLTAGE	DIMENSIONS H x W x D	DIMENSIONS WITH FLANGE	COOLING CAPACITY	HEATER (OPTIONAL)	POWER	NOISE	WEIGHT
MCA0300	220V,50Hz	550×320×170	582×352×170	300	300	235	53	12.5
MCA0600	220V,50Hz	550×320×170	582×352×170	600	500	330	53	13
MCA1000	220V,50Hz	746×446×200	784×484×200	1000	1000	380	64	24
MCA1500	220V,50Hz	746×446×200	784×484×200	1500	1000	580	64	24
MCA2000	220V,50Hz	746×446×200	784×484×200	2000	1000	880	64	36
MCA2500	220V,50Hz	1270×483×230	1320×533×230	2500	1000	1180	65	58
MCA3000	220V,50Hz	1270×483×230	1320×533×230	3000	1000	1240	65	58
MCA4000	220V,50Hz	1270×483×230	1320×533×230	4000	1000	1670	65	60.5

***110V, 60Hz for the US market**

MN50A series AC Air Conditioner

MN50A series AC air conditioner is mainly for the special requirements of containerized energy storage system and secondary equipment prefa-brication cabin. It adopts integrated structure, top air outlet and large air volume design.

Features:

1.Installation: flexible and convenient installation
2.Performance: low noise, efficient, corrosion resistant and IP55 level
3.Reliable: the famous industrial components
4.Environmental protection: refrigerant is R134a
5.Operatation temperature range: -40～+55℃
6.Professional dehumidification technology (optional)
7.Provide the 4～20mA signal output for temperature and humidity(optional)
8.Provide multifunction alarm output, and status report through RS485 interface for remote control

MODEL NO	OPERATING VOLTAGE	DIMENSIONS H x W x D	DIMENSIONS WITH FLANGE	COOLING CAPACITY	HEATER (OPTIONAL)	POWER	NOISE	WEIGHT
MN50A/3	220V,50Hz	1304×504×310	1350×550×310	3000	1000	1240	65	60
MN50A/4	220V,50Hz	1304×504×310	1350×550×310	4000	1000	1670	65	64
MN50A/5	220V,50Hz	1354×624×310	1401×671×310	5000	3000	1700	65	75
MN50A/6	220V,50Hz	1925×650×650	/	6000	4500	2700	68	190
MN50A/8	220V,50Hz	1925×650×650	/	7500	4500	3400	68	200
MN50A/13	220V,50Hz	1925×800×650	/	12500	7000	5000	70	250
MN50A/15	220V,50Hz	1925×800×650	/	15000	7000	6800	70	320
MN50A/20	220V,50Hz	1925×800×650	/	20000	7000	8000	70	350

110V, 60Hz for the US market

1. Introduction

1.1. Preface

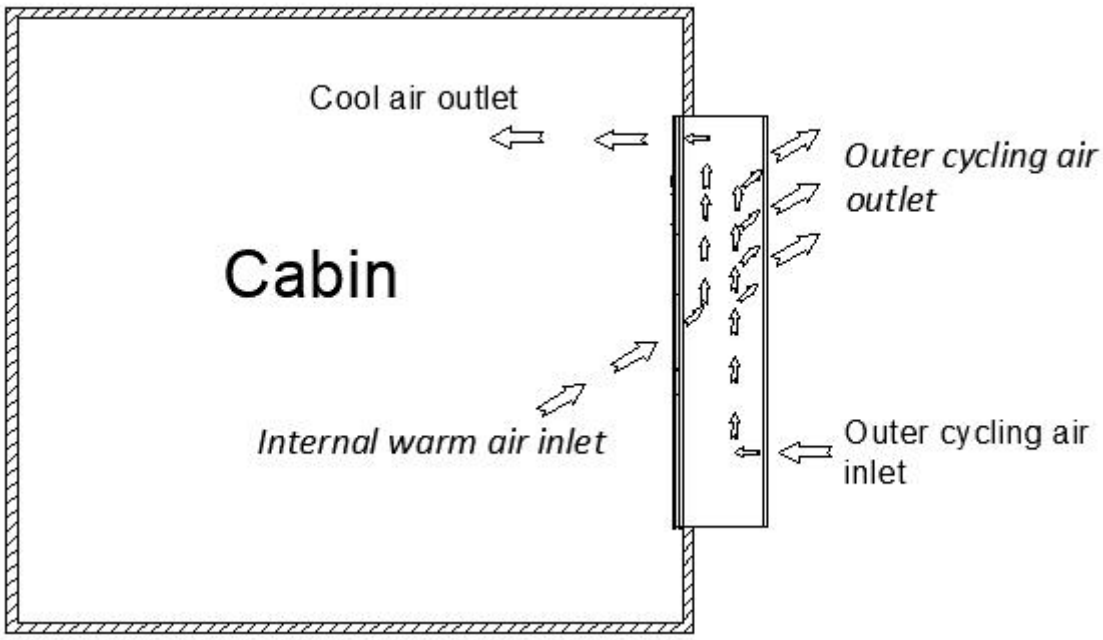
This manual introduces the guide for the installation, operation, function and routine maintenance of the integrated air conditioner. Please read carefully the manual before using and follow the usage and note.

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

1.2. Product introduction

The air conditioner is one kind of refrigeration product self-developed for cabin. It is applicable in the place where the cabin internal heat is very large, the internal electronic equipment is sensitive to the environment temperature and which should be isolated internally and externally completely. This product has multiple functions, high reliability, and has the feature that it can start to work without complex debugging after powering.

The fan in the internal cycle air path absorbs the hot air from the downside to make air heat exchange by evaporator fins, and sends the cooled air from the upside of the air conditioner. By so, the air in cabin can cycle to achieve the purpose of lowering the temperature. Meanwhile, The fan in the external cycle air path absorbs the external cold air from the downside, and discharges the hot air from the upside after heat exchange.



1.3. Standards

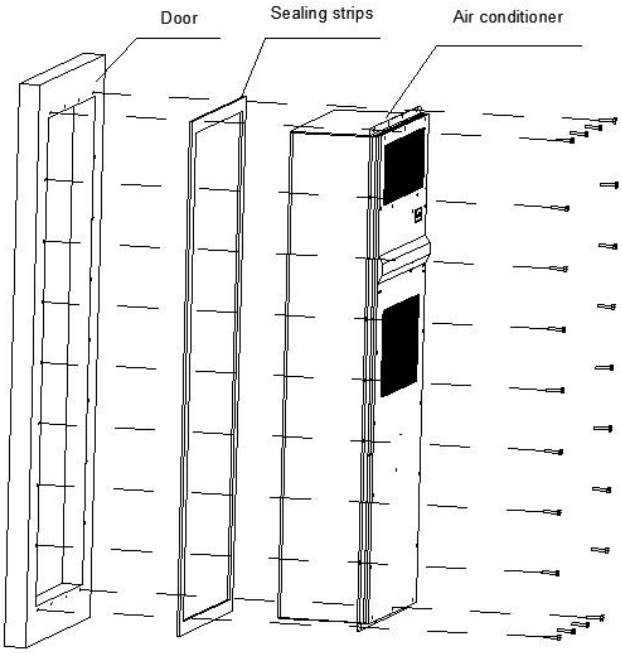
NO.	Standard No.	Standard Name
01	GB 4208	Enclosure Protection Class
02	GB/T 4857.5、9、10、11、16	Packaging-Basic tests for transport packages
03	GB/T 2423.1、2、3、8、10、17、38	Electrical and electronic products environmental test
04	GB9254-1998	Information technology equipment-Radio disturbance characteristics-Limits and methods of measurement
05	GJB150-86	Environmental test methods for military equipments
06	GB/T17626.8	Electromagnetic compatibility-Testing and measurement techniques--Power frequency magnetic field immunity test
07	YD/T 2768-2014	The temperature controlling devices for Communication outdoor room 1st parts: Embedded temperature controlling devices
08	EN 55022:2006+A1:2007	Conducted Emission and radiation test
09	EN 61000-3-2:2006+A2:2009	Harmonic Current
10	EN 61000-3-3:2008	Voltage Fluctuation and Flicker
11	EN 61000-4-2:2009	ESD
12	EN 61000-4-3:2006	Radiation disturbance Immunity Test
13	EN 61000-4-4:2004	Electrical Fast Transient Burst
14	EN 61000-4-5:2006	Surge
15	EN 61000-4-6:2009	Conduction disturbance Immunity Test
16	EN 61000-4-11:2004	Voltage dips and short interruptions

2. Product parameter

2.1. Product technology parameters

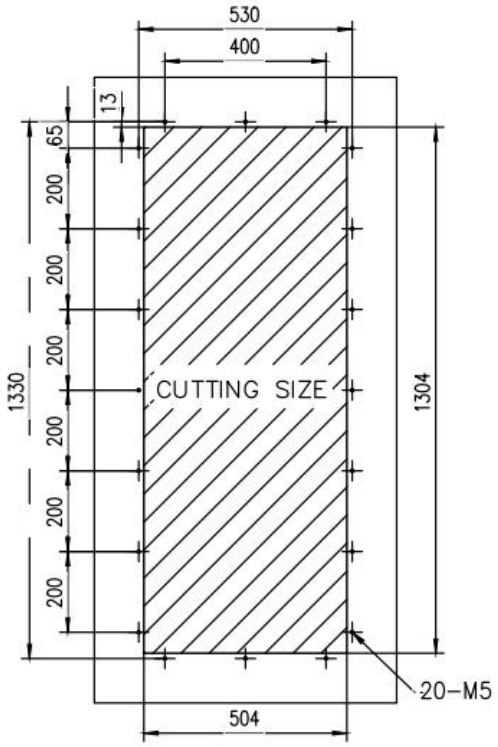
Item	Name	Unit	Parameter
Dimension and installation	Body outline dimension (height*width* depth)	mm	1300*500*290
	Outline dimension including flange(height*width* depth)	mm	1350*550*290
	Weight	Kg	63
	Installation method	Embedding slightly	
	Installation method	Outdoor	
Environment and protection	Working environment temperature	℃	-40 to +55
	Noise	dB(A)	70
	Life expectancy	Years	>10
	IP grade	IP55	
	Refrigerant	R134a	
	ROHS certification	yes	
Performance	Input voltage range	220±15%VAC~50Hz	
	Refrigerating capacity(L35/L35)	W	4000
	Rated Refrigerating input power(L35/L35)	W	1800
	Rated Refrigerating current (L35/L35)	A	8.2
	Maximum Refrigerating current	A	12.3
	Heat capacity（Optional）	W	2000
	Air Volume of Inner Circulation	m^3/h	850

2.2. Installation diagram



Note: the installation diagram is just for reference, the specific installation scheme should be determined according to the environment of the actual usage.

2.3. Cutting size



3. Preparation and installation

3.1. Removing package and checking

1. Please prepare installation tools: knife and scissors, and wear protective gloves.
2. Please remove wrapping film and packing belt, then remove the carton, take out the air conditioner.
3. Please check the attachment list and accessory bags in the carton, check whether the air conditioner model is right .

Notes:

1. After removing the outer package, please make sure that the air conditioner is placed upright , and not placed horizontally or upside down.
2. After removing the outer package, please check carefully whether the appearance of the air conditioner is damaged or oil polluted, if the appearance of the air conditioner has obvious deformation or oil stain, please contact the manufacturer in time.
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. It is recommended to recycle the unpacking materials.

3.2. Mechanical installation

Installation tool: Phillips screwdriver

Installation Steps：

1) Choose cut location on the cabin according to the holing diagram, remove the shadow area and make the installation hole.
2) Make air conditioner flange close to cabin door, Fix the air conditioner on the installation surface of the cabin firmly with M5 screws.
3) Check whether air conditioner is installed levelly and firmly.

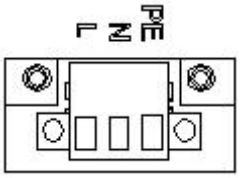
Notes:

1) Check whether air conditioner drainage loop is smooth, in case that drainage is blocked.
2) When determine the location of the installation hole in the cabin, you should avoid the inlet and outlet air ports inside the cabin are not blocked by any components inside the cabin, and the two should be kept a horizontal distance of more than 150mm; otherwise, it is prone to lead to r short circuit of the return air, and poor cooling effect, etc.;
3) carrying or moving the air conditioner should be careful to avoid colliding it and scratching

its surface coating;

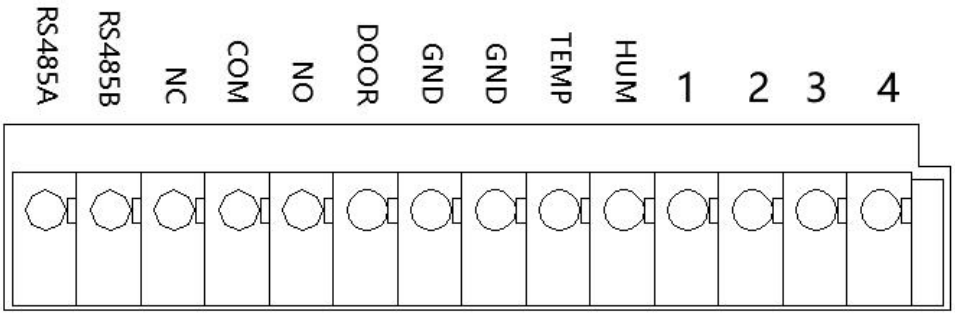
3.3. Electrical installation

（1） Power input port



Item	Port	Definition
Live	L	Power input cable L
Null	N	Power input cable N
Earth	PE	Earth line

（2） Alarm output and signal input port



Item	Port	Definition
Communication ports	RS485A	RS485 communication ports (+)
	RS485B	RS485 communication ports (-)
Alarm output	NO	It is normally open if no alarm
	COM	common port
	NC	It is normally close if no alarm
Access Contro	DOOR	Access Control input ports (NC)
	GND	Access Control input ports (COM)
4~20mA signal output interface	GND	Temperature 4~20mA signal output -(common port)
	TEMP	Temperature 4~20mA signal output +
	HUM	Humidity 4~20mA signal output +

None	1	None
None	2	None
None	3	None
None	4	None

4. Product function

4.1. Cooling

When the temperature inside cabin is higher than refrigeration starting temperature, it starts refrigerating; when the temperature inside cabin is lower than refrigeration stopping temperature, it stops refrigerating.

User parameter setting point

Parameter	Default value	Setting range	Unit	Note
Refrigeration starting temperature	32	[20～50]	℃	Refrigeration stopping temperature =Refrigeration starting temperature- Refrigeration return difference
Refrigeration return difference	5	[3～15]	℃	

4.2. Heating（**Optional**）

When the temperature inside cabin is lower than heating starting temperature, it starts heating; when the temperature inside cabin is higher than heating stopping temperature, it stops heating.

User parameter setting point

Parameter	Default value	Setting range	Unit	Note
Heating starting temperature	5	[-30～50]	℃	Heating stopping temperature= Heating starting temperature+ Heating return difference
Heating return difference	10	[3～15]	℃	

4.3. Dehumidification（Optional）

When the humidity inside the cabin exceeds the dehumidification opening humidity, dehumidification begins; When the humidity inside the cabin drops to the point where dehumidification stops, stop dehumidification.

Parameter	default	range	**unit**
dehumidification open humidity	80	30～99	%RH
Dehumidification return difference	5	3～30	%RH

4.4. Micro positive pressure（Optional）

The air conditioner is equipped with a micro positive pressure device. When the air pressure inside the cabin is lower than the set value, the micro positive pressure device will be activated to ensure that the air pressure inside the cabin is higher than the air pressure outside the cabin.

4.5. Temperature and humidity signal output

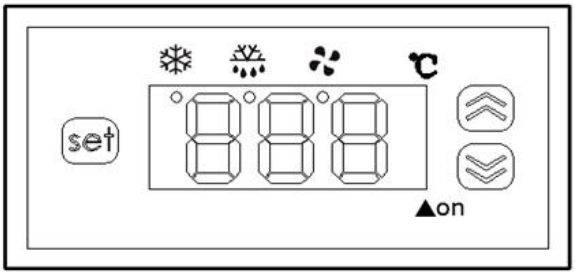
It has the function of temperature and humidity 4-20mA signal output.
Temperature 4-20mA signal definition range: - 40 ℃ ~ 70 ℃
Humidity 4-20mA signal definition range: 0% ~ 100%

4.6. Remote monitor

Air conditioner has an RS485 communication interface, supporting MODBUS- RTU communication protocol。The air conditioner communicates with the upper monitor through the RS485 communication interface. Or users can check the air conditioner's running state by viewing the display screen directly and change its running parameters.

5. Display screen

5.1. Display interface



NO.	Icon	Function	Function explanation
1		Refrigerating running	Indicate whether refrigerating runs or not
2		Heater running	Indicate whether heater runs or not
3		Fan running	Indicate whether fan runs or not
4	SET	Set key	Select function and enter parameter set
5	▲	Up key	Increase value, page up
6	▼	Down key	Decrease value, page down

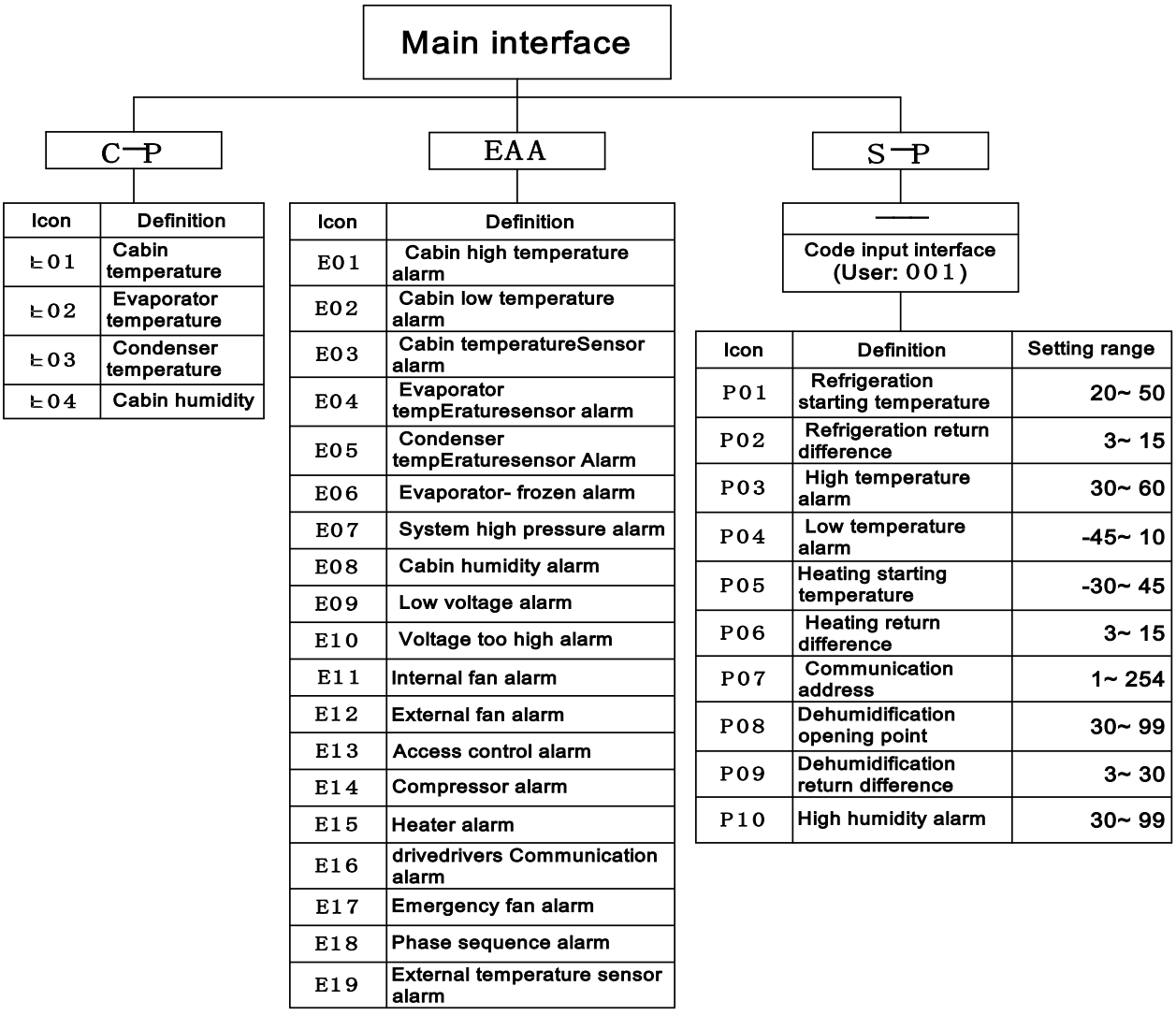
5.2. Menu structures

Pressing ▲ or ▼, it will show C-E, EAA and S-P in turn, Enter to the main interface if pressing SET again ; Wait 5 seconds and the main screen will be displayed.

S -P: parameter setting. In the interface, press SET to enter the password input interface, and after that the password is entered correctly, it will display the parameter code, the default is P01. Press ▲ and ▼ to adjust the addition and subtraction of the parameter code. After the selection of the parameters of the code, press SET to confirm, and then enter the parameters interface, and Press ▲ and ▼ to adjust the addition and subtraction of the parameters value. And then press SET, to confirm the parameter values changes.

C-P：Check the parameters. Pressing ▲ or ▼, it will show T01、T02、T03、T04 in turn , and the parameters can be shown several seconds later.

EAA：Show the alarms. Fault alarm code will be shown in the display screen. They will be shown successively, if there are several alarms one time.



Icon	Definition
t01	Cabin temperature
t02	Evaporator temperature
t03	Condenser temperature
t04	Cabin humidity

Icon	Definition
E01	Cabin high temperature alarm
E02	Cabin low temperature alarm
E03	Cabin temperatureSensor alarm
E04	Evaporator tempEraturesensor alarm
E05	Condenser tempEraturesensor Alarm
E06	Evaporator- frozen alarm
E07	System high pressure alarm
E08	Cabin humidity alarm
E09	Low voltage alarm
E10	Voltage too high alarm
E11	Internal fan alarm
E12	External fan alarm
E13	Access control alarm
E14	Compressor alarm
E15	Heater alarm
E16	drivedrivers Communication alarm
E17	Emergency fan alarm
E18	Phase sequence alarm
E19	External temperature sensor alarm

Icon	Definition	Setting range
P01	Refrigeration starting temperature	20~ 50
P02	Refrigeration return difference	3~ 15
P03	High temperature alarm	30~ 60
P04	Low temperature alarm	-45~ 10
P05	Heating starting temperature	-30~ 45
P06	Heating return difference	3~ 15
P07	Communication address	1~ 254
P08	Dehumidification opening point	30~ 99
P09	Dehumidification return difference	3~ 30
P10	High humidity alarm	30~ 99

5.3. Display

Under running, the main interface *8.8.8* displays real temperature value in cabin

After boot, in any interface, if there has no keyboard operation in the continuous 20s, automatically return to the main interface

5.4. Start self-test

In the running states, the self-checking function can be activated by continuous pressing SET for 3 seconds.

When Self-check, the screen will be full display for 1S, and then will normally display cabin temperature, while the boot icon will blink.

6. **Running**

6.1. Check before start running

1) There are not obvious blockages near the internal cycle air inlet and outlet of the

air conditioner.

2) The input power cables and other signal cables have been connected reliably and correctly.

3) The input voltage and frequency should meet the requirement of air conditioner.

4) The fans can turn freely without abnormal noise

6.2. Start running

1) Close the input power switch, it enters the compressor protection function，and the internal cycle fan of the air conditioner will be started. After 3 minutes, If the internal cycle temperature meets the running condition, the cooling system will be started.

2) Operating parameters have the default settings, and it is Ok to confirm normal after running; if you need to change the parameters, please refer to the 5th section.

7. Faults and treatment

7.1. Alarm information

Item	Alarm conditions	Reset	output from dry contact
High temperature alarm	Temperature inside the cabin is higher than the setting	Automatic	Yes
Low temperature alarm	Temperature inside the cabin is lower than the setting	Automatic	No
T1 temperature sensor alarm	There is short or open circuit on the cabin internal temperature sensor cable	Automatic	Yes
T2 temperature sensor alarm	There is short or open circuit on the Evaporator temperature sensor cable	Automatic	No
T3 temperature sensor alarm	There is short or open circuit on the Condenser temperature sensor cable	Automatic	No
Evaporator-frozen alarm	Evaporator temperature is lower than 0℃	Automatic	No
Frequent high system pressure alarm	System pressure is higher frequently than the setting	Automatic	No
Controller power failure	No power is be input for controller	Automatic	Yes

alarm			

7.2. Faults and treatment

Item	**Possible reasons**	**Fault handling**
Temp. sensor failures	The sensor has not been connected correctly	Check the circuit connectors，and connect it again
	The sensor is damaged	Change the sensor
high Temperature alarm	The condenser or evaporator is dirty and blocked	Clean the condenser or evaporator
	Refrigerating capacity isn’t enough	Please consult usability professional
	The temperature setting is fault	Set the temperature again
Frequent high system pressure alarm	The condenser or evaporator is dirty and blocked	Clean the condenser or evaporator
	External fan is fault	Change the fan
	Condenser temperature sensor wrongly sends alarm	Change the condenser temperature sensor
Evaporator-frozen alarm	Internal cycling path is blocked	Check if there are block to stick the internal cycling path
	Internal fan is fault	Maintain or change it
	Refrigerating system can’t stop	Check if the air-conditioner reaches the refrigeration stop conditions but the actual status doesn't stop, if yes, inform the AC maker to deal with it.
	Evaporator temperature sensor wrongly sends alarm	Change the evaporator temperature sensor
Compressor can’t run	There is no cooling demand	Check if refrigeration is not needed
	Within shutdown delay	Check if compressor is protected
	Compressor line has not been connected correctly	Check the compressor line，and connect it again
	Compressor protect switch or motor is fault	Check if compressor protect switch is ok, and change compressor protect switch if fault; if motor is fault, change the compressor
Internal fan can’t run	Internal fan is fault	Change the fan
	Internal fan line has not been connected correctly	Check the Internal fan line，and connect it again

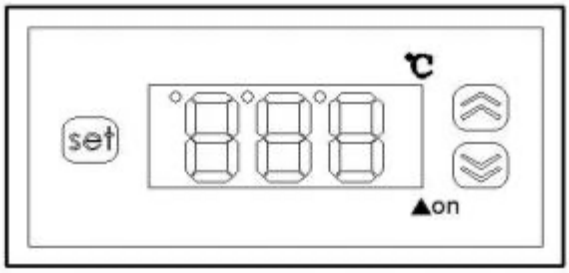
	External fan is stuck	Check if there are block to stick the fan or not, and clear the block
External fan can't run	External fan is fault	Change the external fan
	The operating condition has not been satisfied	Check if the operating condition is satisfied
	External fan line has not been connected correctly	Check the external fan line，and connect it again
	External fan is stuck	Check if there are block to stick the fan, and clear the block
Fan makes abnormal noise	Fan blades are damaged or the bearing of fan wears	Change the damaged fan
	The blades of fan scratch other objects	Check and fix it again
Heater can't run	The heater is fault	Change the heater
	The heater lines has not been connected correctly	Check the external fan line，and connect it again
	The operating condition has not been satisfied	Check if the operating condition is satisfied

8. Maintenance

Maintaining air conditioner very closely can keep it having a good performance and normal life, the following works should be done:

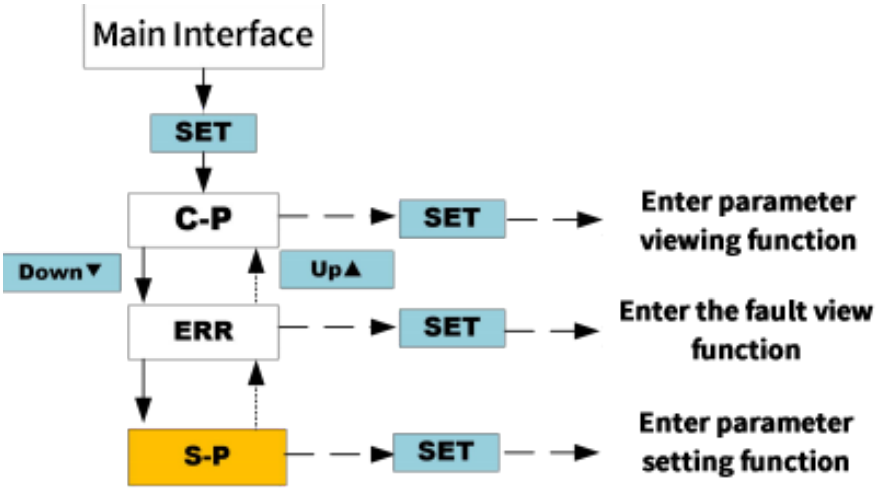
No.	Check/Maintain	Cycle
1	Check whether there are alarm information or not	6 months
2	Check whether fans can rotate normally or not	6 months
3	Check whether compressor can rotate normally or not	6 months
4	Check whether there is obvious noise or shake or not	6 months
5	Clean the inner and outer circulation air inlet and outlet of the air conditioner	6 months
6	Clean heat exchangers	1year
7	Check whether air conditioner power supply wire and communication wire is OK or not	1year

Schematic diagram of human-machine interface



is Up, is Down

Step 1: Select S-P and press the SET key to enter the parameter setting function. (If there is no operation for 6 seconds, it will automatically return to the main interface.)



Step 2: Enter the password 001 to enter the parameter setting item. After adjusting the parameters, press the SET key to confirm and save. Otherwise, the value will not be saved. (If there is no operation for 6 seconds, it will automatically return to the main interface.)