

Rooftop Packaged Unit



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PRODUCT LINEUPS

Series	Power supply	Appearance	10ton	15ton	20ton	30ton
All DC Inverter Rooftop Packaged Unit (Heat Pump)	220V 60Hz R410A		◆	◆	◆	
Inverter Rooftop Packaged Unit (Cooling Only)	460V 60Hz R410A			◆	◆	◆

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General Features

High energy efficiency and performance

The compressor and outdoor fan can adjust the operating frequency according to different room loads, and automatically adjust the capacity output to ensure the comfort in the room. At the same time, the power consumption of the unit changes along with the capacity output and the power consumption of unit is low in low-load operation. Compared with the fixed-speed unit, its annual power consumption is lower, which is high-efficiency and power-saving.

◆ Energy-efficient compressor

The whole series adopts DC inverter compressor, and the compressor will adjust the frequency intelligently. Temperature control is accurate, energy efficiency and reliability is high.



◆ DC inverter motor

The outdoor side applies DC inverter motor with high back electromotive force. The efficiency is greatly improved compared with the AC motor.

◆ 180 ° sine wave DC speed change technology

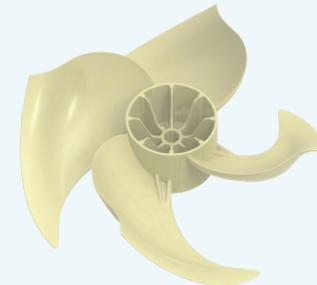
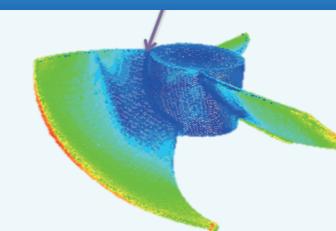
The output wave of 180 ° current is the smooth sine wave. It contains little harmonic wave, and has small torque fluctuation and large adjustment range. The motor can operate stably to meet the requirements of different occasions, saving power and ensuring the utmost comfort of users.



◆ High-efficient fan blade

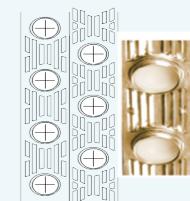
The new high-efficiency fan blade adopts CFD simulation technology to optimize the matching of blade type and blade angle. In addition to the special trail edge design, the working area of blade is effectively increased and the air volume is also greatly increased.

Optimized fan to limit air flow division and increase air volume



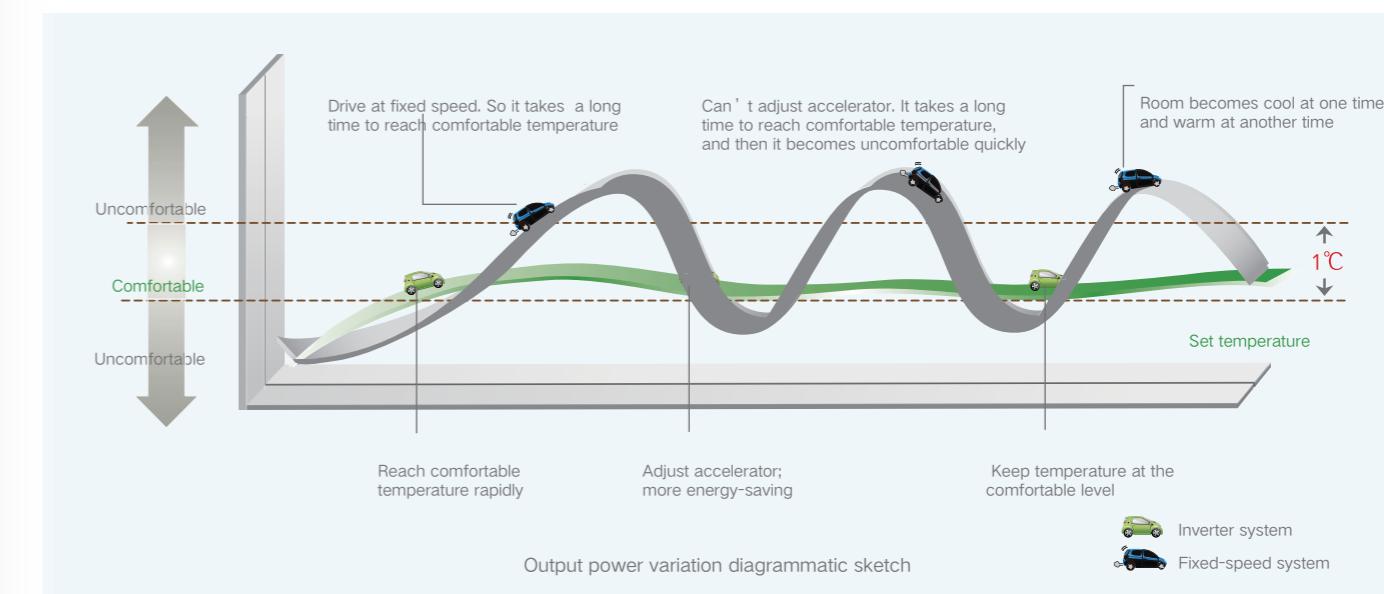
◆ High-efficiency heat exchanger

The heat exchanger adopts window opening and inner groove copper pipe structure, with high heat exchange efficiency.



◆ Precise temperature control technology

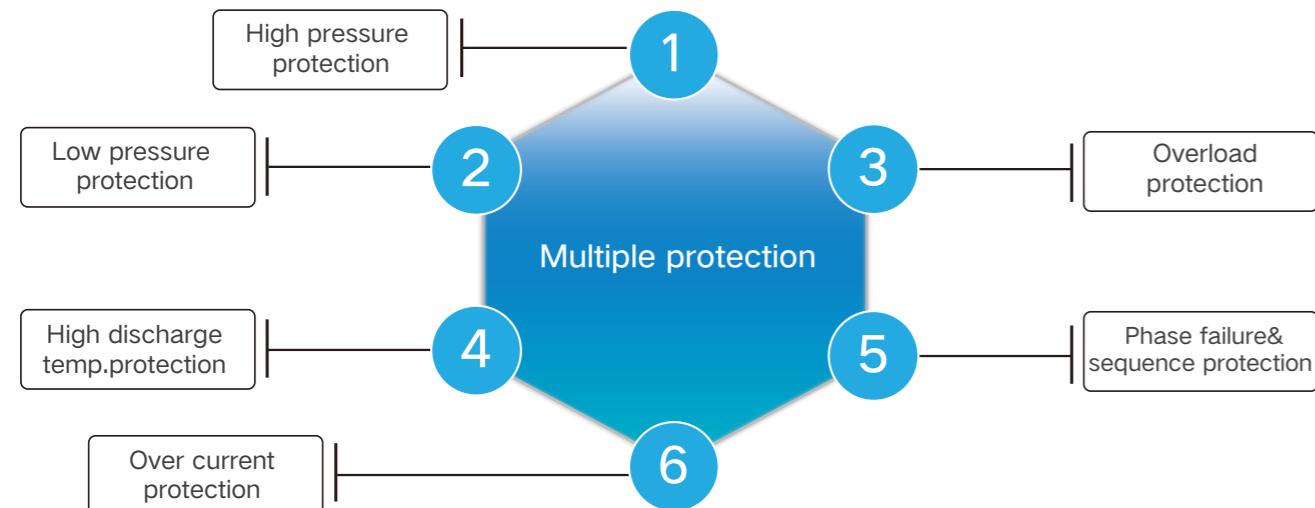
CIAC intelligent inverter control delivers the required capacity according to the load variation from 10% to 120% and maintains the room temperature fluctuation 1°C of set temperature.



High reliability

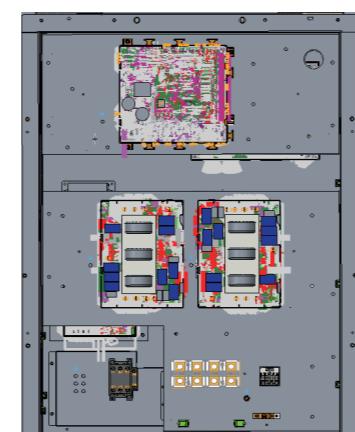
◆ High-efficiency heat exchanger

CIAC rooftop units are with high voltage protection, low voltage protection, overcurrent protection, discharge protection, phase sequence protection and other protections. It can effectively protect key components such as compressors and motors.



◆ Strong and weak current separated for protection

The ports of all weak current load wire and strong single-phase load wire are integrated at the main board, while the strong current and weak current are separated. All terminals are distinguished by color and series number, and the wiring port on the main board can only connect with the corresponding wiring terminal of load, convenient for after-sales maintenance and wiring.



◆ Automatic adjustment of throttling

Electronic expansion valve adjusts the opening deCIAC automatically. It ensures that the system parameters are within a reasonable range when the unit operates under all working conditions, to improve the operation reliability and service life of the unit.



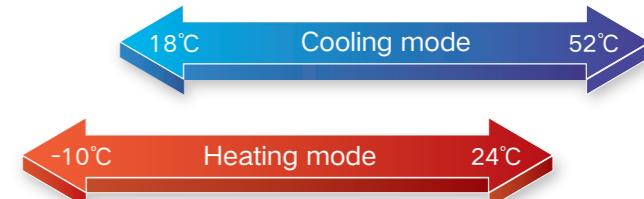
◆ Excellent grid adaptability

CIAC rooftop units are with strong anti-grid fluctuations design. Performance is stable in ultra wide voltage range from 90% to 110%, which is perfectly adapted to the power grid fluctuation during peak hours or other conditions.



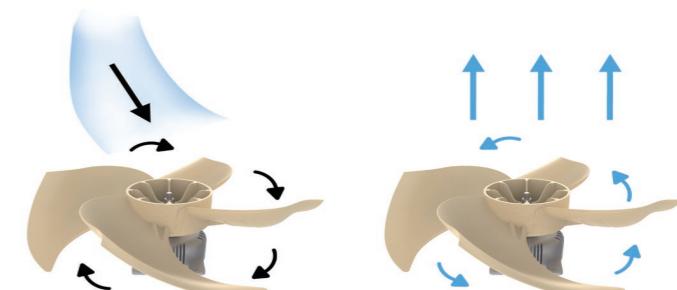
◆ Wide temperature range for operation

DC inverter motor is adopted. With precise control on system pressure, the temperature range of unit operating is much wider.



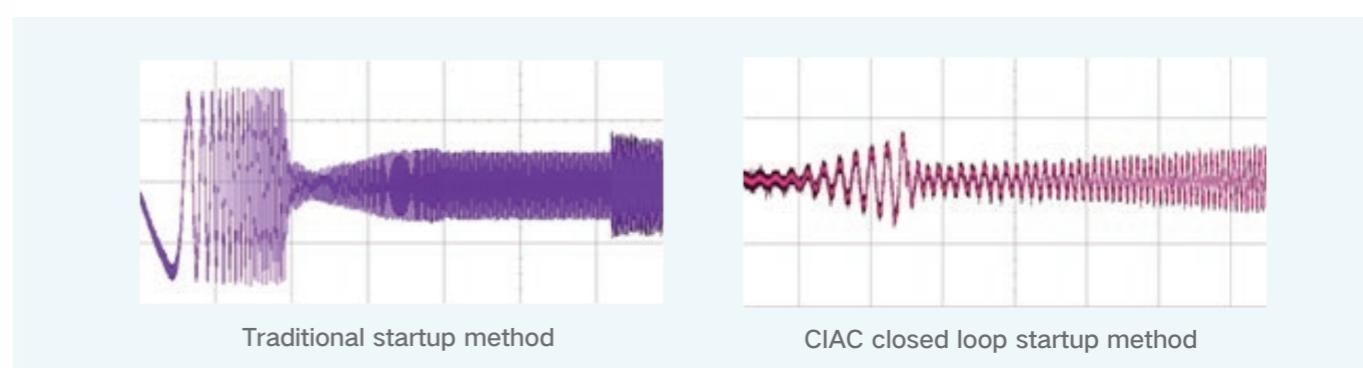
◆ Anti-wind design of outdoor fan

Adopt anti-wind startup design to solve the problem that the unit cannot start smoothly in the reverse operation under the high wind environment. The anti-wind startup design allows the unit to adapt to the harsh windy environment and start reliably. The outdoor fan runs smoothly, which is safer and more reliable.



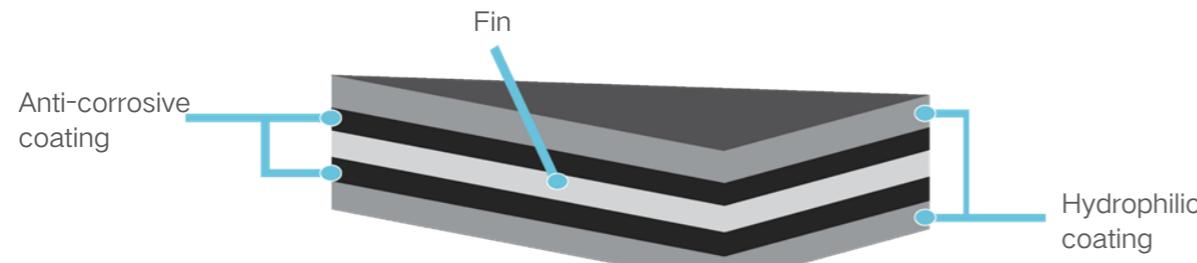
◆ Compressor closed loop startup technology

Adopt the self-innovated closed loop startup control mode to make the output torque rapidly follow the load torque, which needs small startup electricity current, reliable for startup.



◆ Anti-corrosive heat exchanger

The outdoor heat exchanger fins are treated with anti-corrosive golden coating to pass the 1000h neutral spray test, which is with good corrosion resistance.



◆ High anticorrosion outer case

All external sheet metals adopt spraying treatment, which can bear 500h of neutral salt spray test, while the general sheet metal can only withstand 200h of salt spray test; the durability has been improved by 250%. All bolts use stainless steel materials, with high corrosion resistance.



◆ Mothproof electric box

Unsealed electric box (two kinds of structures): The electric box is added with a heat dissipation window with a 30-mesh metal filter or $\Phi 3\text{mm}$ circular heat radiation hole, which can effectively prevent insects.



More convenient and comfortable

◆ Control of dual wired controllers

In order to provide convenient operation to users, we have developed the control function of dual wired controllers. In this case, the user can install the wired controller in different places for convenient operation.



◆ Power-off memory function

The user can set power-off memory function. If this function is activated, the unit will automatically operate in previous setting mode when power recovers after power failure.

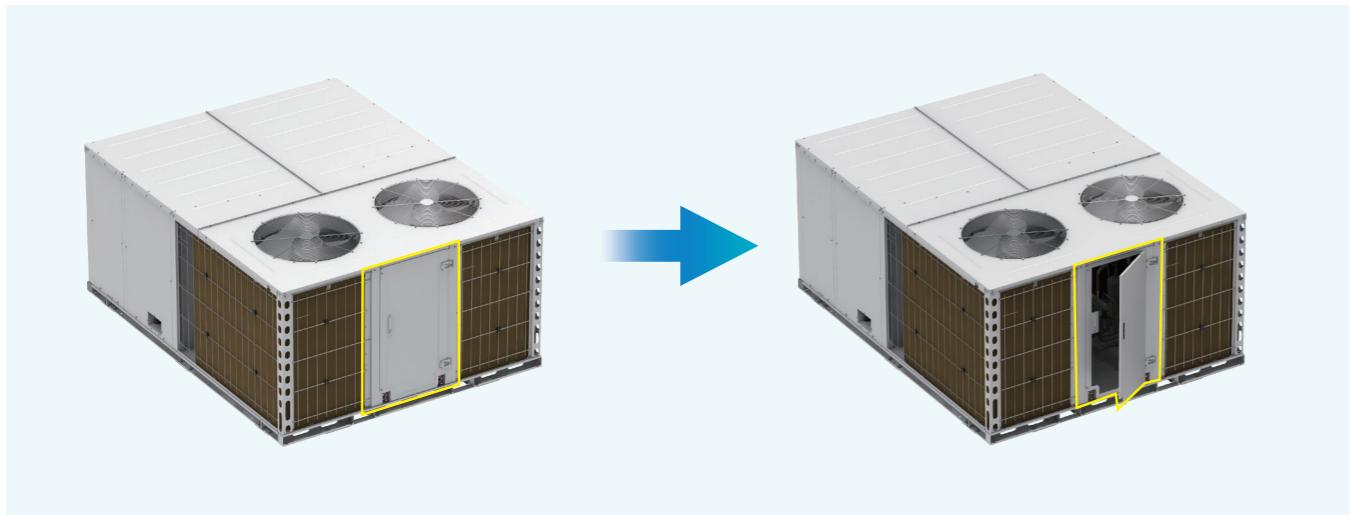
◆ Cold air prevention function

When the unit just starts heating or the outdoor unit just finishes defrosting, the temperature of indoor evaporator is quite low. If the indoor fan operates in this case, cold air will blow out. Our products are optimized in design to prevent cold air so as to improve user's comfort.

Maintenance and installation

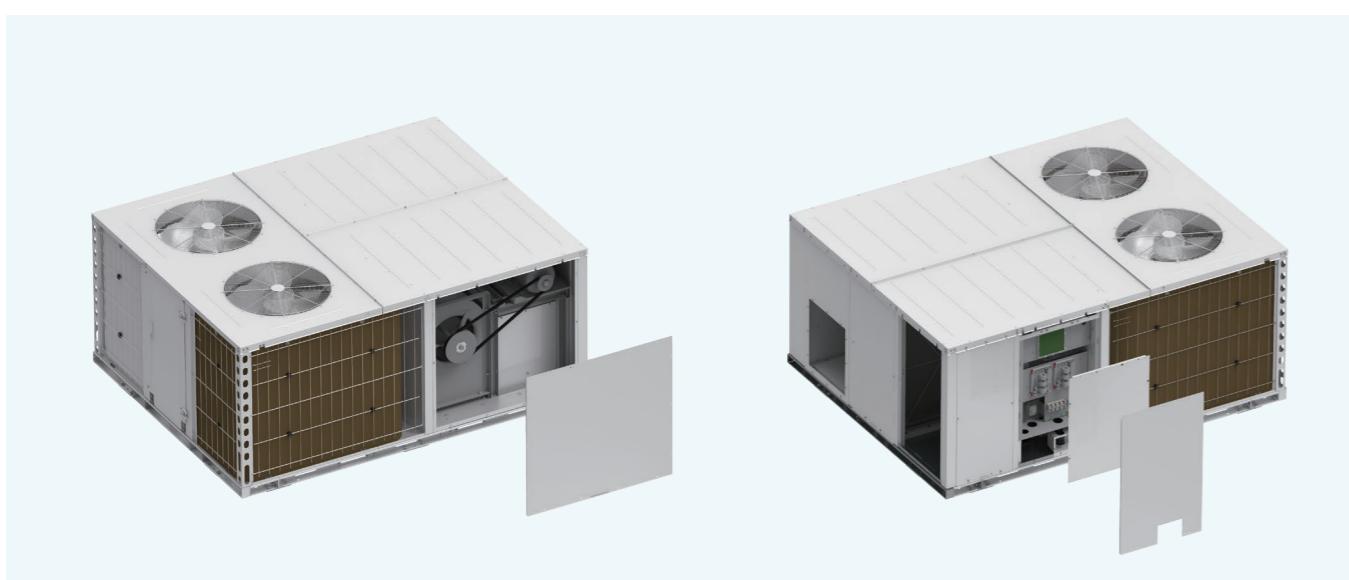
◆ Convenient for disassembly and assembly (outdoor case)

- > The outdoor cavity has a hinge type access door. The access door can be opened and closed no need to remove screws (bolts).
- > The width of the access door is 540mm (only applicable for 30 tons of heat pump unit). The after-sales person can get into the outdoor cavity for maintenance.
- > It's convenient to check and replace the compressor, outdoor motor, four-way valve, etc.



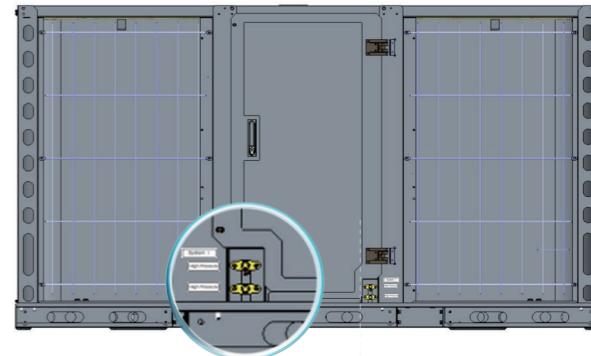
◆ Convenient for disassembly and assembly (indoor case)

The case panels at the fan side of indoor cavity and electric box side are easy for disassembly, convenient for electric wiring and belt maintenance.



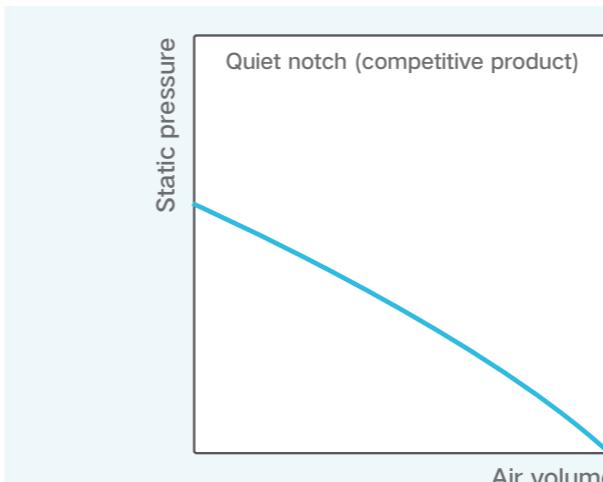
◆ Detection port for high/low pressure

All units are designed with outdoor detection port for high/low pressure, which can measure the high/low pressure even if the unit is still working, convenient for the after-sales person to check the system pressure, vacuum pump and add refrigerant.



◆ Adjustable static pressure of indoor fan

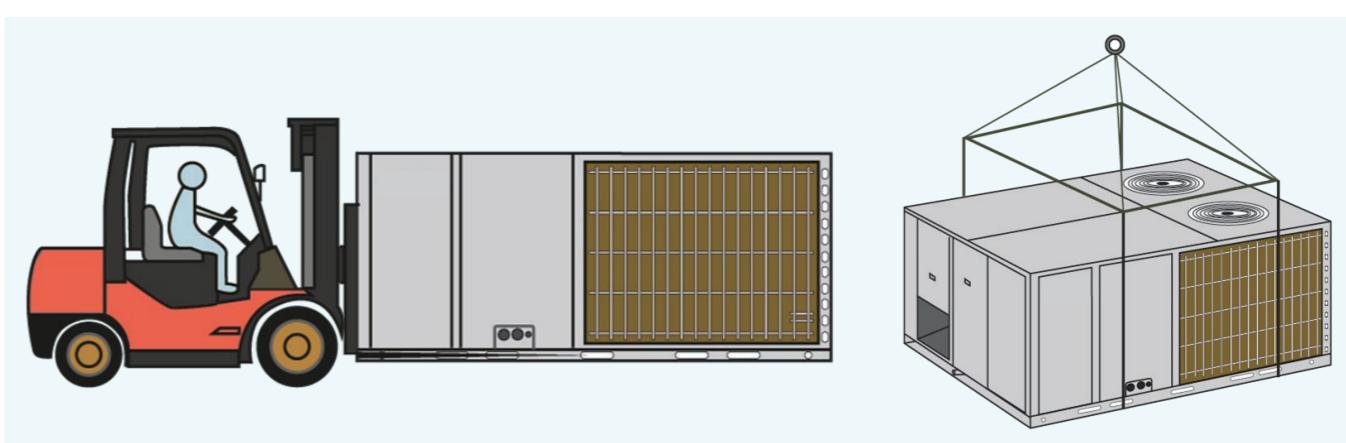
The indoor fan is with five static pressure modes for flexible selection basing on different installation requirements, with high engineering adaptability. Static pressure can be set by the wired controller, convenient for operation.



Note: Only for 10ton or below units.

◆ Flexible transformation

The sheet metal of base is made by thick galvanized stainless steel and it's with the holes for forklift and hoisting. Therefore, forklift or hoisting can be selected for transportation, flexible and convenient.



Inverter Rooftop Packaged Unit (220V)

Inverter Rooftop Packaged Unit (220V)

It adopts DC inverter design with capacity range from 10~20 tons. Side supply and side return air discharge way is applied. It can be installed in rooftop and outdoor flat floor, which is applicable for shopping malls, hotels, halls, apartments, villas and other buildings.



- ◆ The whole series adopts DC inverter compressor, and the compressor will adjust the frequency intelligently. Temperature control is accurate, and energy efficiency and reliability are high.
- ◆ The outdoor side applies DC inverter motor with high back electromotive force. The efficiency is greatly improved compared with the AC motor.
- ◆ Adopt the self-innovated closed loop startup control mode to make the output torque rapidly follow the load torque, which needs small startup electricity current, reliable for startup.
- ◆ The high-efficiency fan blade adopts CFD simulation technology to optimize the matching of blade type and blade angle. In addition to the special trail edge design, the working area of blade is effectively increased and the air volume is also greatly increased.
- ◆ The working area of blade is effectively increased and the air volume is also greatly increased.
- ◆ CIAC rooftop units are with high voltage protection, low voltage protection, overcurrent protection, discharge protection, phase sequence protection and other protections.
- ◆ CIAC rooftop units are with strong anti-grid fluctuations design. The performance is stable in ultra wide voltage range from 198V to 264V.
- ◆ Anti-wind startup design is used to solve the problem that the unit cannot start smoothly in the reverse operation under the high wind environment.
- ◆ The outdoor heat exchanger fins are treated with anti-corrosive golden coating to pass the 1000h neutral spray test, which has good corrosion resistance.
- ◆ The sheet metal of base is made of thick galvanized steel sheet. It is designed with forklift holes and hanging holes, so that you can choose forklifting or hanging during installation, which is flexible and convenient.
- ◆ Centralized control is available without connecting the wired controller. Maximum 36 sets of unit can be controlled at the same time.

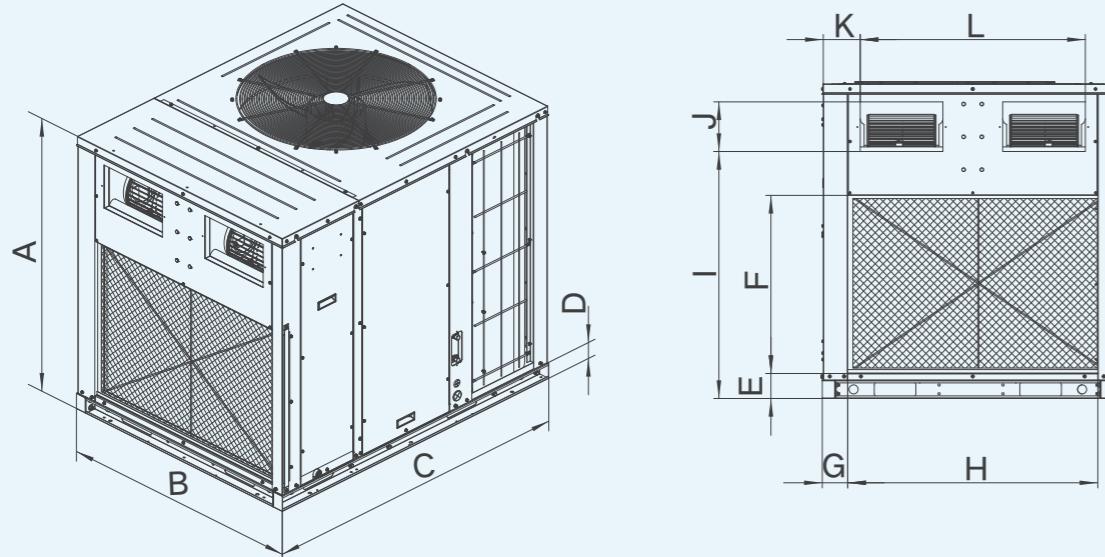
Item	Nominal operating condition(temperature)				Operating range(temperature) Outdoor condition	
	Outdoor condition		Indoor condition			
	DB(°C)	WB(°C)	DB(°C)	WB(°C)		
Cooling	35	24	27	19	18~48	
Heating	7	6	20	15	-10~24	

Specifications

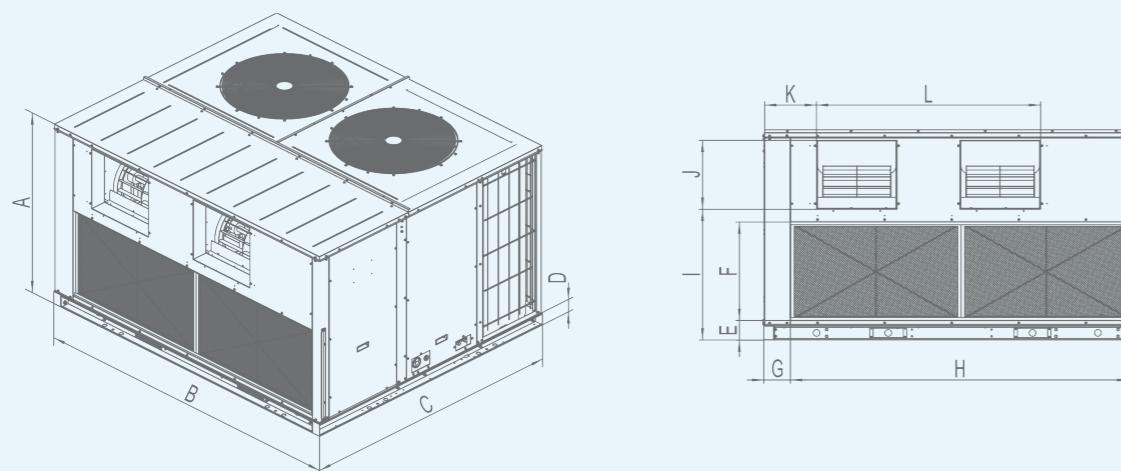
Model	CP400A-X120DH5H1H	CP400A-X180AH5H1H	CP400A-X240AH5H1H	
Capacity	Cooling/Heating	kW	34.0/35.0	51.0/53.5
	Cooling/Heating	RT	10.00/10.00	15.00/15.21
Power supply		V/PH/Hz	220~240V 3~60HZ	220~240V 3~60HZ
Power input	Cooling	kW	13.7	22.0
	Heating	kW	11.5	16.0
Current input	Cooling	A	36	63
	Heating	A	30	46
Refrigerant charge volume		kg	10	12
Airflow volume	CMF		3413	5591
	m ³ /h		5800	9500
Sound pressure level		Db(A)	72	74
ESP	Rated	Pa	90	120
	Range	Pa	0-210	0-320
Drainage Connection Size (Outer diameter x wall thickness)		inch	3/4"(NPT)	3/4"(NPT)
Dimension (W×D×H)	Outline	mm	1450x1120x1215	2260x1140x1245
	Package	mm	1463x1133x1260	2283x1163x1290
Net weight/Gross weight		kg	339/360	572/600
Loading quantity	40'GP	unit	16	10
	40'HQ	unit	32	20
				6
				12

Dimension

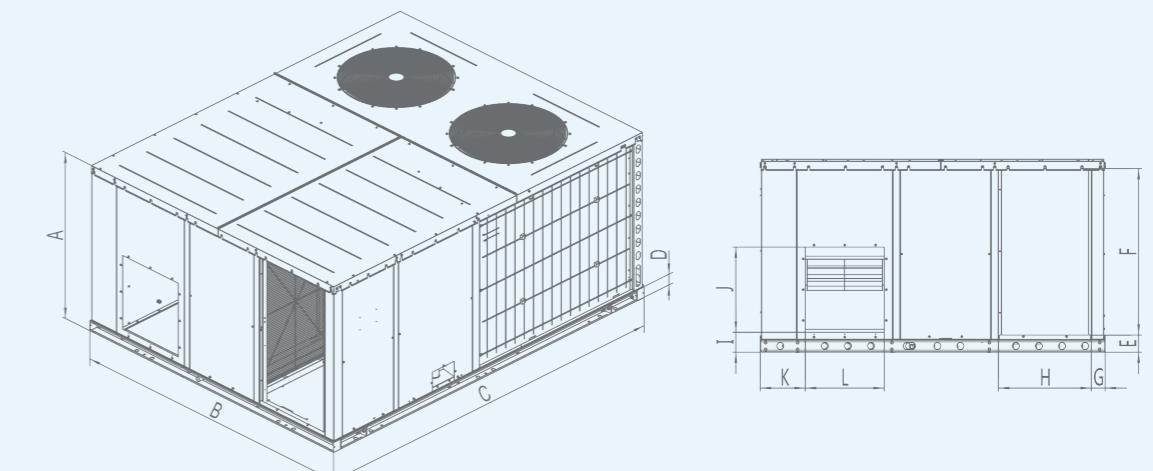
CP400A-X120DH5H1H



CP400A-X180AM6H1C



CP400A-X240AH5H1H



Unit: mm

Dimension	A	B	C	D	E	Size of air return		G	I	Size of air supply		K
						F	H			J	L	
CP400A-X120DH5H1H	1215	1120	1450	70	96	686	962	98	951	191	866	142
CP400A-X180AM6H1C	1250	2240	1880	85	116	587	2017	158	779	411	1336	390
CP400A-X240AH5H1H	1240	2240	2850	80	111	1081	603	90	129	553	513	293

Note: Above diagrams may be different from actual mode.

Inverter Rooftop Packaged Unit (460V)

Inverter Rooftop Packaged Unit (460V)

It is a kind of packaged air conditioner that can be installed either on the ground or on the roof and widely used in villas, hotels, schools, supermarkets and factories.

◆ Automatic adjustment of throttling

Electronic expansion valve adjusts the opening degree automatically. It ensures that the system parameters are within a reasonable range when the unit operates under all working conditions, to improve the operation reliability and service life of the unit.

◆ Anti-wind design of outdoor fan

Anti-wind startup design is used to solve the problem that the unit cannot start smoothly in the reverse operation under the high wind environment. The anti-wind startup design allows the unit to adapt to the harsh windy environment and start reliably. The outdoor fan runs smoothly, which is safer and more reliable.

◆ Anti-corrosive heat exchanger

The outdoor heat exchanger fins are treated with anti-corrosive black coating to pass the 2000h neutral spray test, which are with good corrosion resistance.

◆ Motor with high protection grade

The outdoor motor protection grade reaches IP56 and the indoor motor protection grade is IP55, so the dustproof and waterproof capabilities are excellent, effectively coping with the dusty environment.

◆ Weather fastness fan blade

The fan blades of the condenser fan are directly injection molded with ABS+glass fiber material, which has excellent weather fastness and anti-corrosive performance.

◆ Non-polarity communication design

Unit adopts two-core non-polarity communication. The anti-electromagnetic interference capability is strong, and the communication distance between the wired controller and the unit can reach 100m.

◆ Emergency operation design

The units are designed with two refrigerant systems, whose operation control is flexible and convenient. When one system is faulty, it can enter the emergency operation control, and the other system will start up to operating.

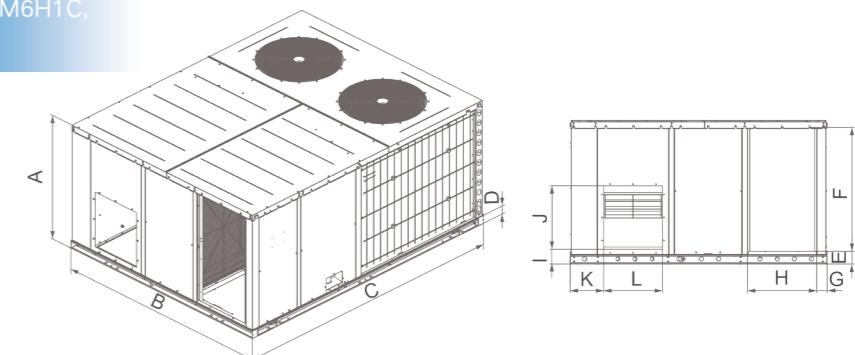


Specifications

Model	Cooling/Heating	kW	CP400A-X180AM6H1C	CP400A-X240AM6H1C	CP400A-X360AM6H1H
Capacity	Cooling/Heating	kW	53/-	70/-	95/100
	RT		15/-	20/-	27/28.5
IEER		Btu/h.W	16	16	12
Power supply		V/Ph/Hz	460V 3~ 60Hz	460V 3~ 60Hz	460V 3~ 60Hz
Power input	Cooling	kW	17	27	38
	Heating	kW	-	-	33
Current input	Cooling	A	25.1	39.9	56.1
	Heating	A	-	-	48.7
Refrigerant charge volume		kg	10+10	10+10	14+14
Air flow volume(SH/H/M/L)		CFM	5885	7062	8829
		m ³ /h	10000	12000	15000
Sound pressure level		dB(A)	72	74	76
ESP	Rated	Pa	90	100	125
	Range	Pa	50-250	50-250	50-300
Drainage Connection Size (Outer diameter × wall thickness)		inch	3/4"(NPT)	3/4"(NPT)	3/4"(NPT)
Dimension (W × D × H)	Outline	mm	2850 × 2240 × 1240	2850 × 2240 × 1240	2850 × 2240 × 1240
	Package	mm	2863 × 2253 × 1285	2863 × 2253 × 1285	2863 × 2253 × 1285
Net weight/Gross weight		kg	970/1010	980/1020	1100/1150
Loading quantity	40'GP	set	4	4	4
	40'HQ	set	8	8	8

Dimension

CP400A-X180AM6H1C, CP400A-X240AM6H1C,
CP400A-X360AM6H1H



Item	Nominal operating condition(temperature)				Operating range(temperature)	
	Outdoor condition		Indoor condition		Outdoor condition	
	DB(°C)	WB(°C)	DB(°C)	WB(°C)	DB(°C)	
Cooling	35	24	27	19	18~52	
Heating	7	6	20	15	-10~24	

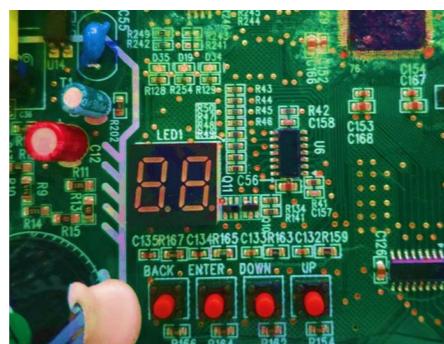
Dimension	A	B	C	D	E	Size of air return		G	I	Size of air supply		K
						F	H			J	L	
CP400A-X180AM6H1C	1240	2240	2850	80	111	1081	603	90	114	422	572	263
CP400A-X240AM6H1C												
CP400A-X360AM6H1H	1240	2240	2850	80	111	1081	603	90	129	553	513	293

Note: Above diagrams may be different from actual mode.

Controllers

Nixie tube display

The "88" nixie tubes on the indoor wired controller (display board) and the main board inside the outdoor electric box will also display the operation status, error codes, etc. It's convenient for checking by users and after-sales maintenance.



Intelligent control

Wired controller (standard)

- ◆ Standard wired controller;
- ◆ Fashionable and compact appearance, with 8 touch buttons and moisture-proof structure;
- ◆ Support infrared remote control signal;
- ◆ 7 fan speeds;
- ◆ Switchover among auto, cooling, dry, fan and heating modes is available;
- ◆ With sleep, air, quiet, SE, E-heater, x-fan, memory, low-temperature dry, leave (heating) and filter cleaning reminder functions;
- ◆ Adopt two-core communication, low cost, easy to extend and wrong connection prevention.



Wired controller XK117

WIFI control (optional)

- ◆ The unit can select CIAC optional WIFI wired controller for WIFI control;
- ◆ Add WiFi function for matching with APP for remote control; some functions can be set by APP, such as ON/OFF, mode, temperature, timer, etc.



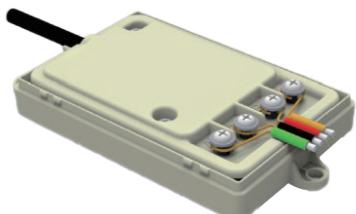
Wired controller XE70-13/G2

Centralized control (optional)

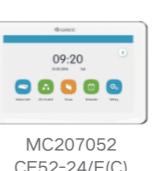
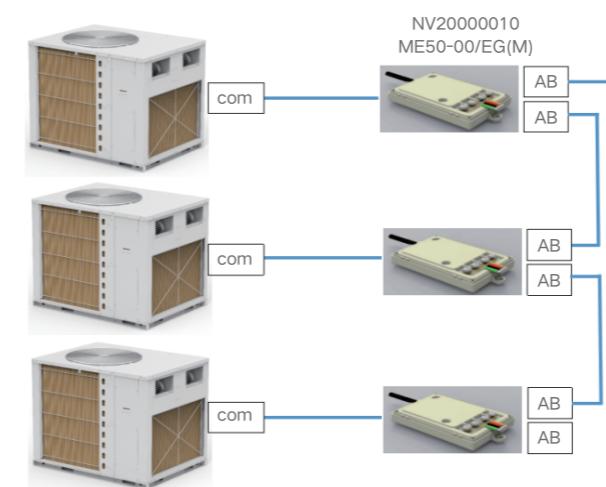
The unit can select CIAC centralized controller for the centralized control, convenient for the management. It can control maximum 36 units simultaneously. Moreover, it can control the functions such as ON/OFF, mode, fan, temperature, etc. for a single unit or a group of units and the operation is easy.



Centralized controller CE52-24/F(C)



Modbus gateway ME50-00/EG(M)



ME50-00/EG(M)

Remote monitoring (optional)

The unit can connect with remote control or building control based on requirements. One controller can connect 255 units at the most, which is very efficient and convenient for monitoring all air conditioners in a project.



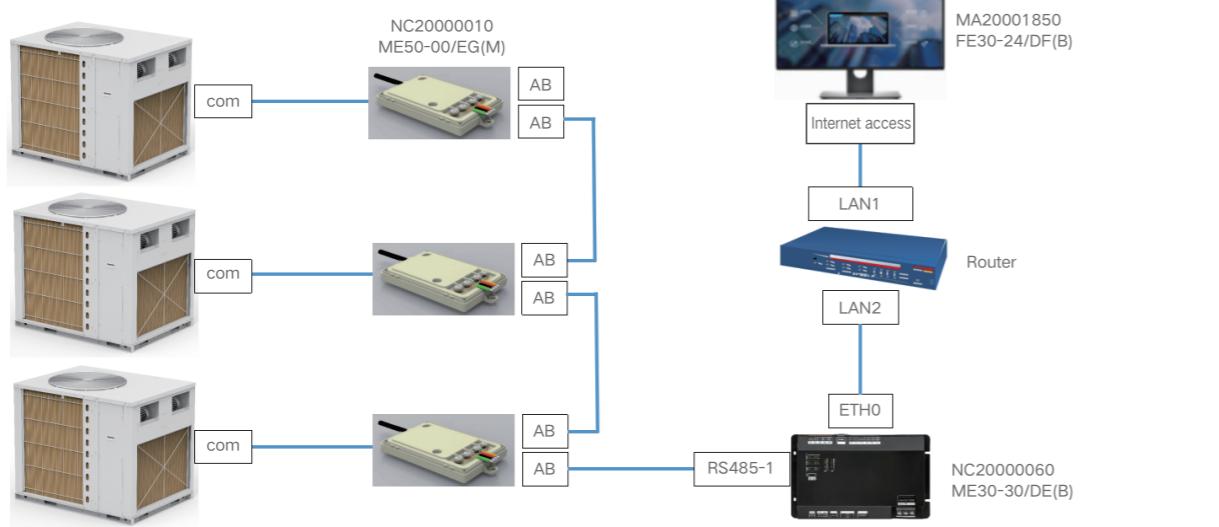
Remote monitoring software
FE30-24/DF(B)



Remote monitoring controller
ME30-30/DE(B) Modbus



Modbus gateway
ME50-00/EG(M)



BMS building control Bacnet protocol (optional)

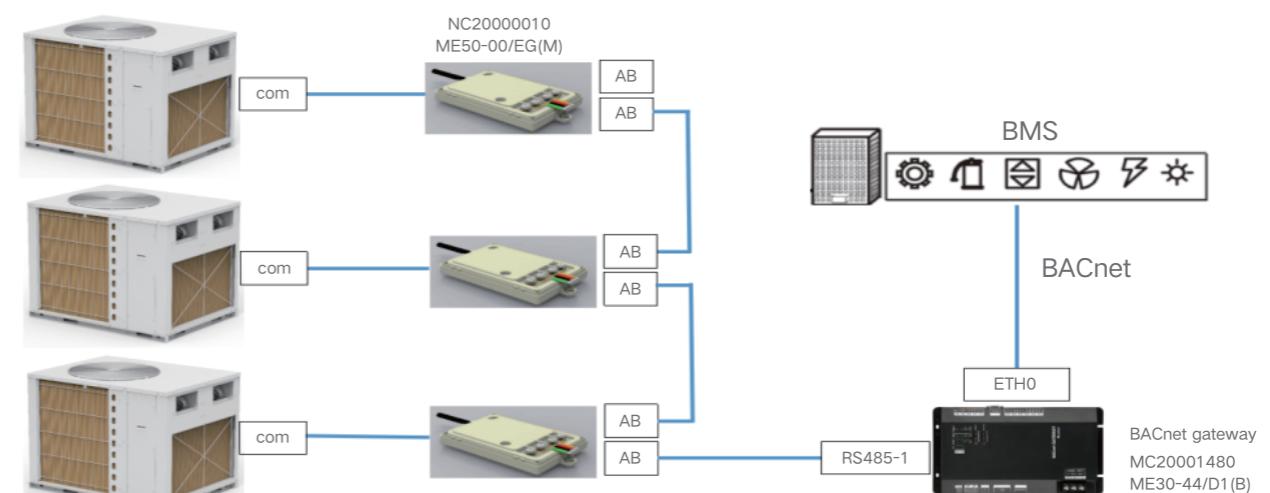
The unit can select the optional BACnet gateway, which can connect with the third party BMS system. It can connect 255 units at the most.



BACnet gateway ME30-44/D1(B)

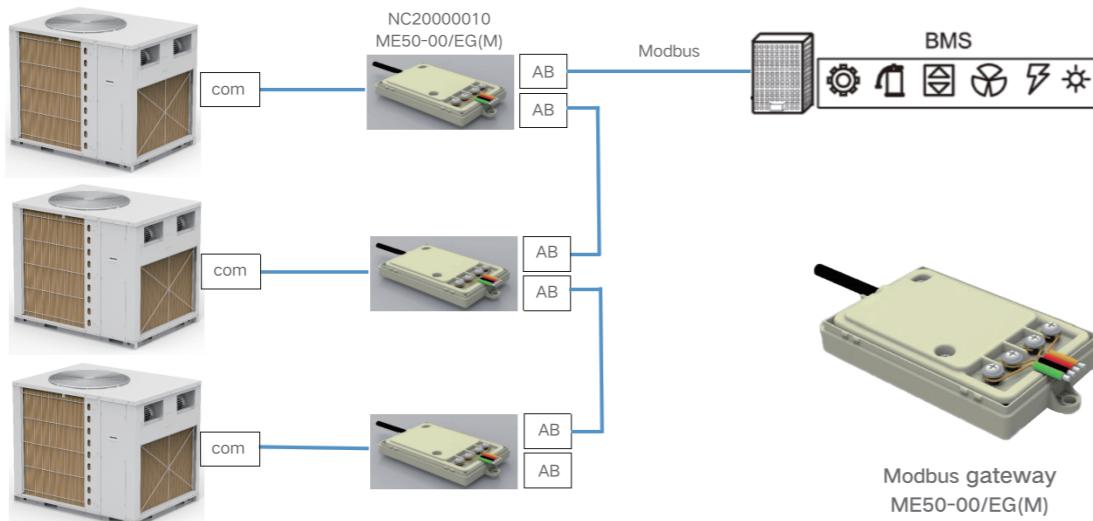


Modbus gateway ME50-00/EG(M)



BMS building control Modbus protocol (optional)

The unit can select the optional modbus gateway, which can connect with the third party BMS system. It can connect 255 units at the most.



Note

Note