OPT-R

0.5KVA-10KVAPure Sine Wave Inverter

User Manual

19” Rack mount

Tel: +0086-023-67628702
Email:tech@cqbluejay.com
www.cqbluejay.com
Add: Block 3A-13-25, No.153 Jingyu Avenue, Jiangbei Qu, Chongqing City 401147

PART 1. Introduction

The pure sine wave inverter is specially designed for electricity and communication systems. It is a conversion device that converts electricity from the mains city ac voltage or batteries dc voltage to an continuous and purified AC power apply for computers and other electrical equipment. To prepare for the instability of the city electricity and power cuts. It also prevents various distortions of utility power, such as power supply voltage drop, surge voltage, spike voltage, and broadcast frequency interference.

PART 2. Customized Range

Input & Output voltage	Capacity
● 19Inch 1U/2U/4U Rack Mount ● With LCD+LED Display + With RS232 Communication port ● Power Factor 0.8 ● With LCD+LED Display	
220vac output design	
24vdc-220vac	1-5KVA
48vdc -220vac	1-6KVA & 8KVA&10KVA
110vdc -220vac	1-6KVA & 8KVA&10KVA
220vdc-220vac	1-6KVA & 8KVA&10KVA
120vac output design	
24vdc-220vac	1-5KVA
48vdc -220vac	1-6KVA
110vdc -220vac	1-6KVA

Tel: +0086-023-67628702 Email:tech@cqbluejay.com
www.cqbluejay.com
Add: Block 3A-13-25, No.153 Jingyu Avenue, Jiangbei Qu, Chongqing City 401147

PART 3. Specification

Table 1

		0.5K	1K	2K	3K	4K	5K	6K	8K	10K
DC Input	Rate input Voltage/Vdc	Table 2								
	Rate input Current/A	Table 2								
	Input dc range Voltage	Table 2								
	Reverse noise Current	≤10%								
AC Bypass input	Allow bypass voltage (Vac)	220Vac±20%								
	Rate input current/A	1.8A	3.6A	7.2A	10.8A	14.5A	18.2A	21.8A	29A	36A
	Bypass conversion time/ms	≤5ms								
AC Output	Rated output Capacity/KVA	0.5K	1K	2K	3K	4K	5K	6K	8K	10K
	Rated output power/W	400	800	1600	2400	3200	4000	4800	6400	8000
	Rated output voltage and frequency	220Vac，50Hz								
	Rate output current/A	1.8	3.6	7.2	10.8	14.5	18.2	21.8	29	36.3
	Output voltage accuracy/V	220±3%								
	Output frequency accuracy/Hz	50±0.1%								
	Waveform distortion rate (THD)	≤3%（Linear load）								
	Dynamic Response	5%（Load 25%←→100%）								
	Power Factor/PF	0.8								
	Over load ability	≥100%~125%， 10mins; 125%~150%， 15seconds; 150%， shut down Immediately								
	Efficiency	≥85%（80% Resistive load）								
	Bypass conversion time/ms	≤5ms								
Operating Environment	Insulation strength (input and output)	1500Vac，1min								
	Noise/1m	≤40dB								
	Operating temperature	-25℃~+50℃								
	Humidity	0~90%， no cooling								
	Altitude /m	≤1000								
Dimension	Rack Mount	AB	AB	AB	C	C	C	C	D	D
	Weight/Kg	4.8/6	5/6	6/7	12	13	14	15	20	22
Protect function		Input lower voltage, input overvoltage protection; output overload protection, output short circuit protection								

Note: The rated output power with error 500VA ± 50W; 1-10KVA is ± 100W

Table 2

Inverter input DC voltage (Vdc) (Error: +/-0.5~1V)

	12V Series		24V Series		48V Series		110V Series		220V Series		240V Series	
Rate input voltage	12Vdc		24Vdc		48Vdc		110Vdc		220Vdc		240Vdc	
working voltage range	9.8V—14.5V		20V—30.5V		40V—58.8V		90V—145V		180V—270V		200V—300V	
Start up /Boot voltage range	10.2V--14.2V		21.5V—29.5V		42V--57V		94V--142V		190V--265V		210V--295V	
Rate input current	500VA	40A	500VA	20A	500VA	9.8A	500VA	4.3A	500VA	2.2A	500VA	1.9A
	1KVA	76A	1KVA	38A	1KVA	19A	1KVA	8.3A	1KVA	4.2A	1KVA	3.9A
			2 KVA	76	2 KVA	38	2 KVA	16.6	2 KVA	8.3	2 KVA	7.8
			3 KVA	117	3 KVA	57	3 KVA	24.9	3 KVA	12.4	3 KVA	11.7
					4 KVA	77	4 KVA	33.4	4 KVA	16.7	4 KVA	15.6
					5 KVA	98	5 KVA	36.6	5 KVA	18.3	5 KVA	19.6
					6 KVA	117	6 KVA	51.3	6 KVA	22	6 KVA	23.5
					8 KVA	156	8 KVA	68	8 KVA	34.2	8 KVA	34.2
					10 KVA	196	10 KVA	85	10 KVA	42.7	10 KVA	39

Remarks:

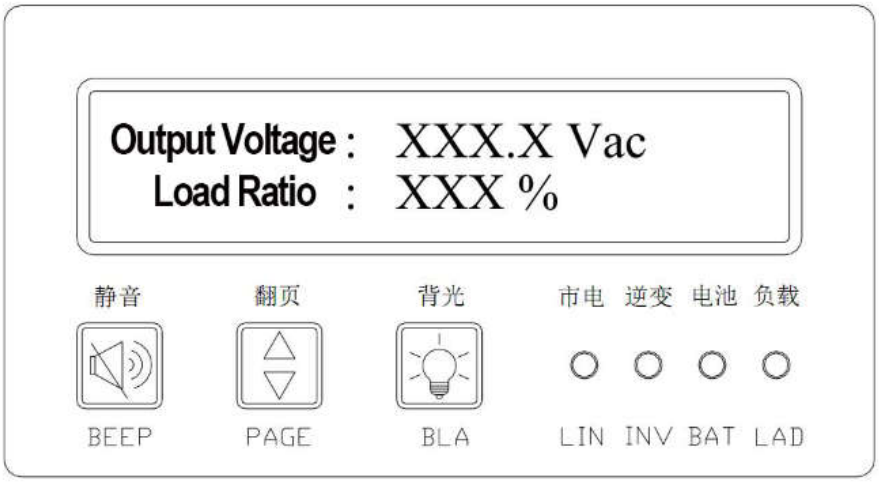
1. Due to the difference in the instrument used during the test, the range points may be slightly deviated.
2. The input current size determines the input switch size configuration

Explanation:

1. In order to protect the battery, the inverter can start normally only when the battery voltage is within the START UP/Boot voltage range.
2. After the inverter switched on and inverter can work normally within the working voltage range work under the battery or DC power supply mode. When the battery or DC voltage drops to the lower working voltage limit, the inverter will be power off.

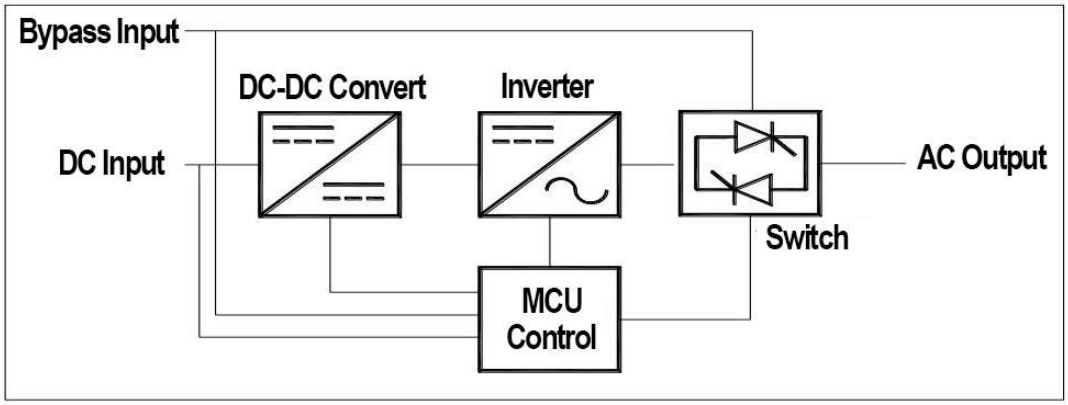
PART 4. Front panel introduce

LED indicator



Item	Panel	Full name	Definition
1	BEEP	BEEP button	1. When the buzzer sounds, press and hold for 1~2 seconds to turn off the buzzer 2. When the alarm is on and the buzzer is off, press BEEP Button for 1-2 seconds to turn on the buzzer
2	PAGE	Page button	1. For LCD screen up and down 2. There are three pages on the LCD screen and each page shows two lines of content **First page:** Output voltage: XXX.X Vac Load ratio: XXX % **Second page:** DC input: XXX.X Vdc AC input: XXX.X Vac **Third page:** Load power: XX.XX kW Output frequency: XX.X Hz
3	BLA	Backlight button	Press the backlight key(BLA), the backlight is on
4	LIN	AC City Power indicator	The LIN Indicator ON Mean the inverter work in AC input and ac output in bypass mode
5	INV	Invert indicator	The INV Indicator ON Means the inverter work in DC input
6	BAT	Battery indicator	The BAT Indicator ON When the battery or DC input voltage is out the working range of the inverter
7	LAD	Load indicator	The LAD Indicator ON when the inverter fail to work

PART 5. Diagram of inverter



PART 6. Working Principle of Inverter

- **AC Mains bypass mode**

  In the AC mains bypass mode, the mains power is switched to the output via a relay, and the mains bypass directly supplies power. When the main fails, it automatically switches to the inverter and is powered by the battery or DC to ensure uninterrupted power supply to the equipment.

- **inverter mode**

  In the inverter mode, after the DC boost inverter is reversed, it is switched to the output via a relay and directly powered by the battery or DC. When the inverter fails, it automatically switches to the bypass and is powered by the mains to ensure the uninterrupted power supply of the equipment.

PART 7. Installation and operation

- **Check if the package is damaged**

  Due to possible damage to the machine during transportation, please check the packing of the goods when receiving the goods that the goods company is carrying. In case of any damage, please indicate on the receipt.

- **Storage**

  Keep it in a cool, dry, ventilated place away from highly corrosive, dusty, hot, and humid environments. If you do not use the inverter for a long period of time, you should be able to use it every 6months

- **Check the machine nameplate:**

  Check if the specification, type, output capacity, input AC voltage, input DC voltage, output AC voltage, etc., meet the contents specified at the time of ordering. Check the machine for damage during transportation.

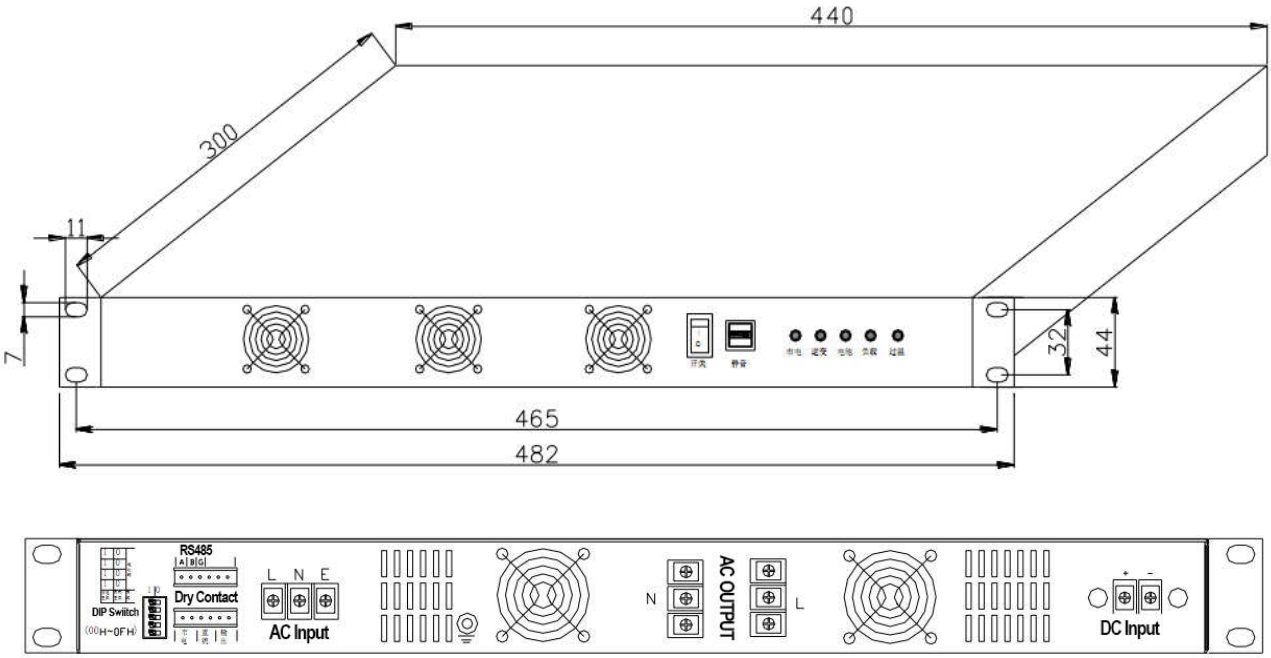
- **Confirming Installation Conditions**

  1. No dust, choose a ventilated, clean installation environment;
  2. The proper ambient temperature
  3. Relative humidity meets requirements
  4. No corrosive gas such as steam
  5. No flammable and explosive products nearby
  6. There is a power supply that complies with safety regulations

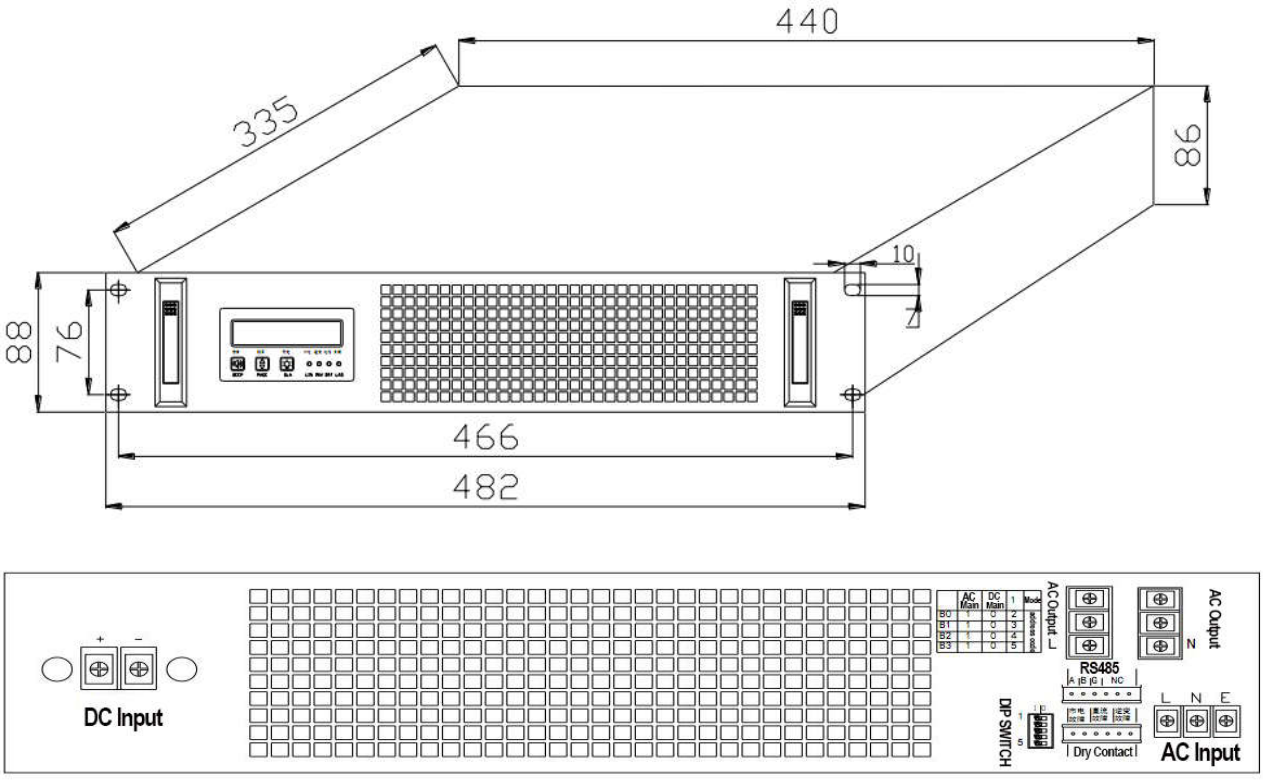
- **Connection leads**

  1. Make sure all switches are off.
  2. Connect the host's DC input cable correctly. Note the positive and negative polarity.
  3. Connect the host AC input cable correctly.
  4. Connect the host AC output cable correctly.
  5. Connect the host to a good ground wire.

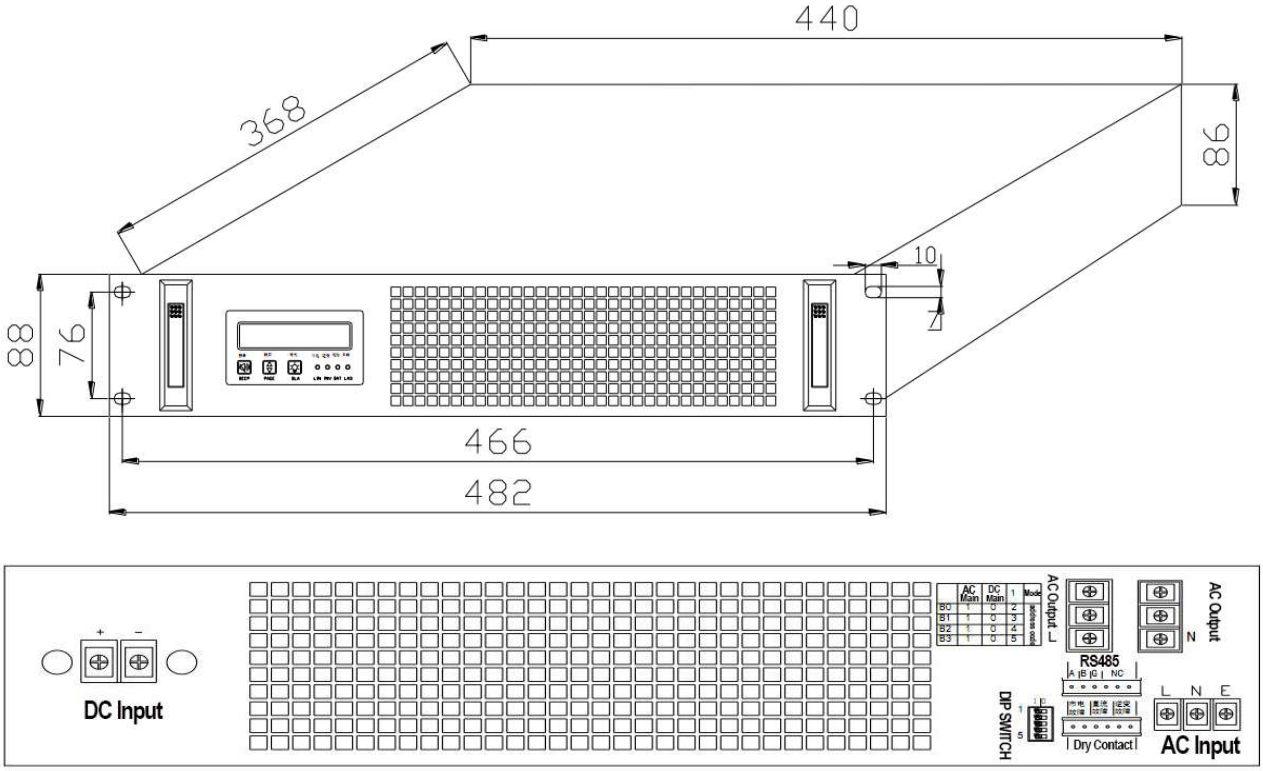
PART 8.Appearance & Dimension



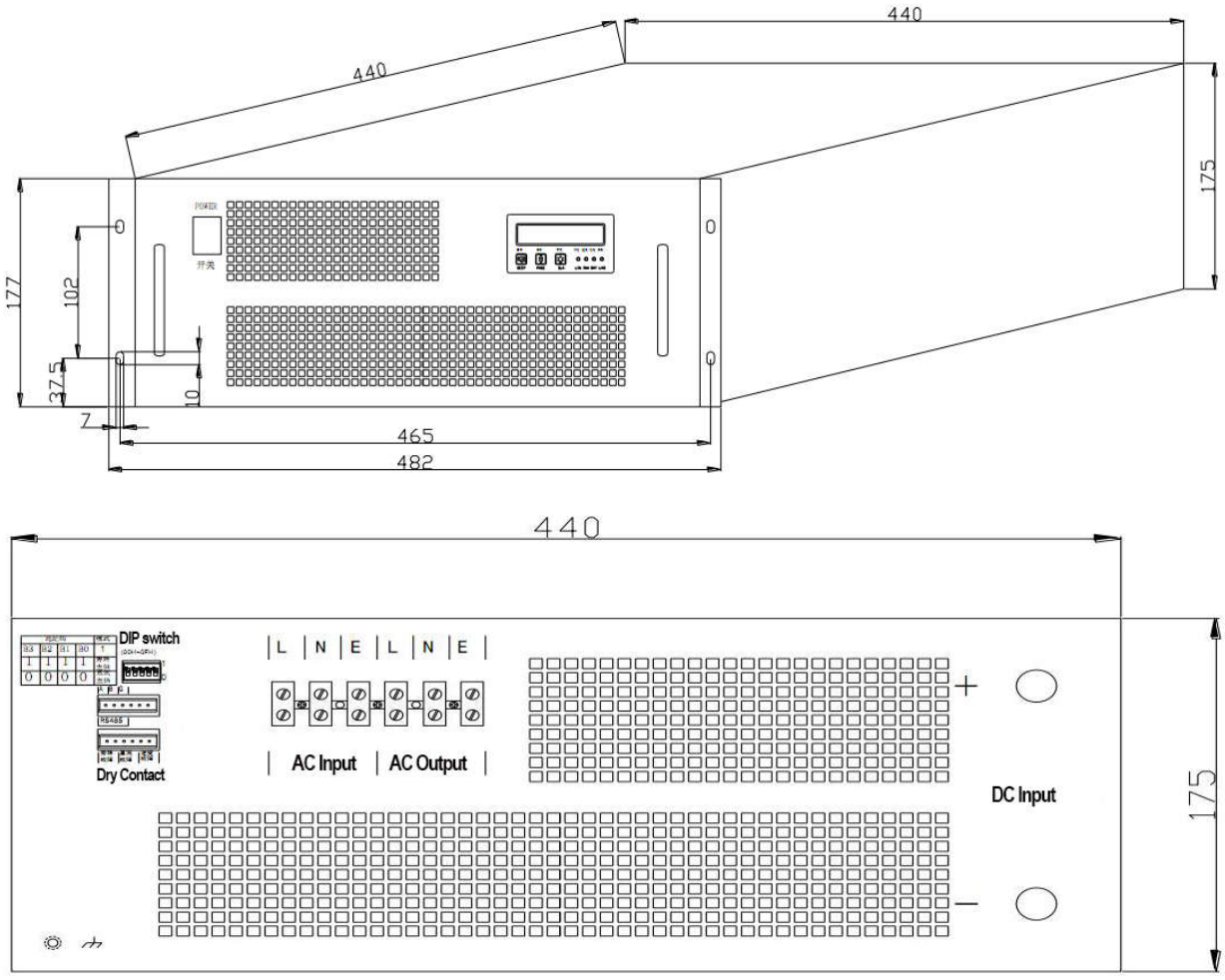
19inch 1U Rack Mount Front & Rear View



500VA -2000VA Front & Rear View



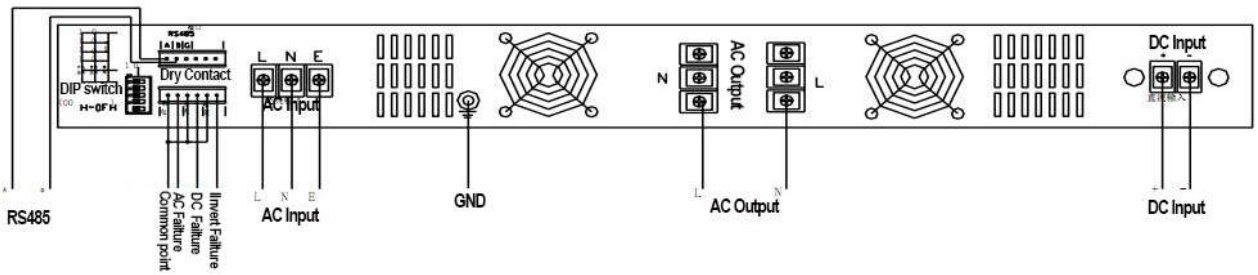
3KVA-6KVA Front & Rear View



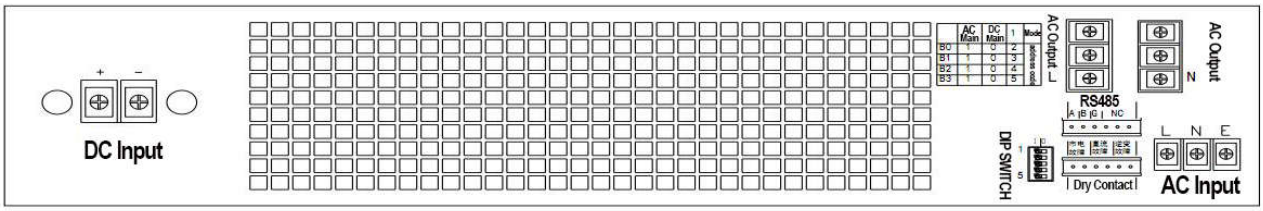
8KVA-10KVA Front & Rear View

Tel: +0086-023-67628702
Email:tech@cqbluejay.com
www.cqbluejay.com
Add: Block 3A-13-25, No.153 Jingyu Avenue, Jiangbei Qu, Chongqing City 401147

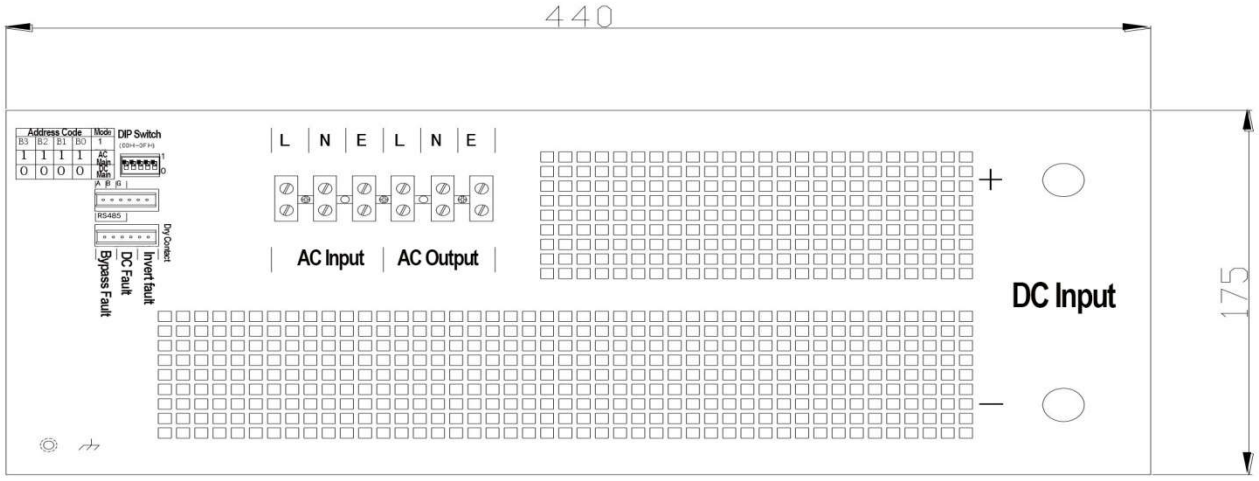
PART 9.Wiring diagram description



1U Rack Mount type



2U Rack Mount type



4U Rack Mount type

PART 10.Wiring diagram

Port name		Functional description	Remark
DC Input +		Battery Input +	DC Module Input "+" Terminal
DC Input -		Battery Input -	DC Module Input "-" Terminal
AC Output L		AC Output L	Output Line Wire
AC Output N		AC Output N	Output Neutral Wire
AC Input	L	AC Input L	Input Line Wire
	N	AC Input N	Input Neutral Wire
	E	Earth	Earth Wire
Dry contact		City electricity fault	Two points are connected when it is failure
		DC Fault	Two points are connected when it is failure
		Invert Fault	Two points are connected when it is failure
Communication port		A	RS485A
		B	RS485B
		G	GND
DIP Switch		Mode selection "1" mean AC for main input "0" mean DC for main input BO-B3（2-5）address code range from 00~15， The lowest address code is 0 and highest address code is 15 It can set 15pcs address code	After the operation of the dialing switch It should be reboot the inverter after switch "DIP switch" , if not , it did not work Switch the DIP switch to the digital side is 1 Switch the DIP switch to the NO side is 0 (0000-1111)

Noted

- Connect the inverter with the Earth is necessary to make sure it can safety and normal operation of the inverter and reduce electromagnetic interference.
- The grounding wire must be grounded (GND) and the earth grounding terminal should be as close to the instrument as possible.

PART 11.Operating

1. Switch on of the inverter (Recommend turn on the inverter switch first then switch the load)
2. Press the "**switch**" button, the inverter will have 1-5seconds of "**BEEP**" mean the inverter under **Self Test** and it has been started-up.
3. All Inverter start up with Self Test function , as before the inverter with stabilized output, it should be check whether the external environment and the inverter are normal. If the inverter and all status parameters of the utility power are normal, the inverter power supply will work stably in the utility power or inverter state. This process needs approximately 10 seconds
4. Switch off (Recommend turn on the Load switch first then switch the Inverter)
5. Press the "**switch**" button and turn off the inverter.

PART 12.Common Fault Analysis Table

- **LED and buzzer combination status table**

	LIN	INV	BAT	Load	TEMP	Beep
AC Mains output	ON	OFF				
Inverter output	OFF	ON				
DC overvoltage			1s 1flash			1s 1 buzzer
DC lower voltage			3s 1flash			3s 1 buzzer
Overload 150%				**ON**		Without stopping buzzer
Overload 125~150%				1s 1flash		1s 1 buzzer
Overload 100~125%				3s 1flash		3s 1 buzzer
Over temperature			1s 1flash	1s 1flash	1s 1flash	1s 1 buzzer
Inverter failure			**ON**	**ON**	**ON**	Without stopping buzzer

Remark

1. Blank form indicates mean that it should be refer to related items
2. For example: "LINE" is ON, "INV" is OFF, "BAT" flashes for 1 second, "Load" goes off, and buzzer sounds for 1 second. IT means In the ac output state, DC input over voltage, normal load, no over temperature

- **Fault Analysis Table**
  1. When the inverter fails, the red signal indicator on the front panel will be “ON”
  2. According to different fault conditions appear as long and alarm or flashing.
  3. You can determine the cause of the fault by looking at the indicators on the front panel and refer to the following figure for proper handling.

Item	Fault	Possible Reason	Solutions
1	Battery, load, over temperature LED, 1s 1 flash	Turn off the output due to internal overheating	1. Check the fan is running or not 2. Check the air vents are blocked or not 3. The environment temperature is too high or not 4. Reduce the load 5. Wait 10 minutes for inverter cooling and drop of the temperature then restart
2	The load LED Indicator ON and the buzzer sounds	1. Overload more than 150% 2. Internal failure to shut down the inverter	1. Check whether running in overload 2. If yes, Reduce the load and restart
3	Battery LED Indicator ON. 3s1 flash, buzzer 3s 1 sound	Input DC voltage is too lower	Check the DC input voltage is too lower and out of the range for the inverter requirements
4	Battery LED Indicator ON. 1s1 flash, buzzer 1s 1 sound	Input DC voltage is too higher	Check the DC input voltage is too higher and out of the range for the inverter requirements
5	Load LED Indicator, 3 seconds 1 flash, buzzer 3 seconds 1 sound	Overload 100~125%	1. Check whether running in overload 2. If yes, Reduce the load and restart
6	The LINE Indicator OFF after connect with AC City main Power	AC Mains voltage and frequency exceed the input limited range	1. Check if the AC mains voltage and frequency exceed the inverter input range. 2. Check whether the power switch on the panel is switch on or not .

7	Connect DC Power source for input, turn on the power switch and the machine does not respond	1. The input DC voltage does not meet the requirements or is too lower 2. The input polarity is reversed.	1. Check if the DC input voltage is too lower can not meets the requirements 2. Check if input polarity is reversed.
8	Customer's DC input circuit breaker can not be switch and close	1. Select the bigger capacity circuit breaker 2. Inverter internal circuit failure causes the machine to short circuit	1. Select the bigger capacity circuit breaker 2. Switch on the DC circuit breaker then Switch on the AC circuit breaker 3. If it still did not work mean the inverter internal circuit are broken or short circuit
9	Can not switch the dc and bypass in automatic	1. AC Mains voltage and frequency exceed the Inverter input limited range: 2. The dial switch (DIP Switch)on the rear panel is set to the wrong position.	1. Check whether the ac mains voltage and frequency exceed the input range of the inverter 2. Check whether the dial switch (DIP Switch) in the corresponding position or not
10	For other fault be happen , please contact with factory after sale service support team.		

PART 13.Maintenance

1. In order to ensure continuous normal operation of the inverter, regular maintenance and maintenance are required.
2. The installation and storage of inverter should avoid high corrosive, high dust, high temperature and high humidity environments as much as possible.
3. Avoid metal material falling into the box.
4. Periodically check whether the connection line is aging and the cable connection point is tight and safe or not .
5. Clean the cooling fan regularly and check if the fan is normal.