



Pure Sine Wave Inverter

User Manual



Models:

TP10K/TP10KB

TP20K/TP20KB

TP30K/TP30KB

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Important Safety Instructions

Please reserve this manual for future review.

This manual contains all the instructions about safety, installation, and operation for TPower series pure sine wave inverter (hereinafter referred to as the inverter).

- **Explanation of symbols**

To enable the user to use the product efficiently, as well as to ensure personal and property safety, this manual provides related information and emphasize the following symbols.

Please read the related words carefully when you encounter the following symbols in the manual.

TIP:

Indicates any practical advice for reference.



IMPORTANT:

Indicates a critical tip during the operation, if ignored, may cause the device to run in error.



CAUTION:

Indicates potential hazards, if not avoided, may cause the device damaged.



WARNING:

Indicates the danger of electric shock, if not avoided, would cause casualties.



WARNING HOT SURFACE:

Indicates the risk of high temperature, if not avoided, would cause scalds.



Read the user manual carefully before any operation.

Symbols of inverter

	This symbol indicates that after disconnecting the inverter from the grid and battery bank, you should wait for five minutes before touching the internal conductive devices.
	Read the instructions before performing any operation on the inverter.
	Danger! Electric Shock Risk! There are live devices here, only professional and qualified personnel can install and operate it.

 **WARNING:** The entire system should be installed by professional and technical personnel.

2. Requirements for professional and technical personnel:

- Professionally trained;
- Familiar with related safety specification for the electrical system;
- Read this manual carefully, and master related safety cautions.

3. Professional and technical personnel is allowed to do:

- Install the inverter to the specified location;
- Conduct trial operations for the inverter;
- Operate and maintain the inverter.

4. Safety cautions before installation:

 **IMPORTANT:** When receiving the inverter, please firstly check if there is any damage occurred in transportation, if find any problem, please contact the transportation company or our company in time.

 **CAUTION:** When place or move the inverter, must follow the instructions in the manual.

 **CAUTION:** When install the inverter, must evaluate whether the operation area exists any arc danger.

 **WARNING:** Do not place the inverter in places where children can touch.

 **WARNING:** The inverter is off-grid type, and it is strictly prohibited to be connected to the grid; otherwise the inverter would be damaged.



WARNING: The inverter is only allowed for stand-alone operation, and it is prohibited to connect multiple units' output in parallel or in series; otherwise the inverter would be damaged.

5. Safety cautions for mechanical installation:



WARNING: Before installation, must make sure the inverter has no electrical connection.



WARNING: Ensure the heat dissipation space for the inverter installation, and do not install the inverter in humid, greasy, flammable, explosive, dust accumulative or other severe environments.

6. Safety cautions for electrical connection:



CAUTION: Check if all the wiring connections are tight, to avoid the danger of heat accumulation due to a loose connection.



WARNING: Both utility input and AC output are of high voltage, do not touch the wiring connection to avoid electric shock.

7. Safety cautions for inverter operation:



WARNING HOT SURFACE: When the inverter is working, its heat sink and casing will generate a lot of heat, the temperature would be very high, please do not touch it.



CAUTION: When the inverter is working, please do not open the inverter cabinet to operate.

8. The dangerous operations which would cause electric arc, fire or explosion:

- Hot plug the high voltage fuse on the inverter DC side.
- Touch the wire end which hasn't been insulation treated and maybe electriferous.
- Touch the wiring copper row, terminals or internal devices which may be electriferous.
- Power cable connection is loose.
- Screw or other spare parts inadvertently falls into the inverter.
- Incorrect operation by untrained non-professional or technical personnel.



WARNING: Once an accident occurs, must be handled by professional and technical personnel. Any incorrect operation would cause a more severe accident.

9. Safety cautions for stopping the inverter:

- Firstly turn off the breakers on the utility input side and AC output side, then turn off the DC switch;
- After the inverter stop working for five minutes, the internal conductive devices could be touched;
- The inverter can be restarted after removing the faults which may affect its safety performance;
- No maintenance parts in the inverter, if any maintenance service is required, please contact our after-sales service personnel.

10. Safety cautions for inverter maintenance:

- Testing equipment is recommended to check the inverter, to make sure there is no voltage or current;
- When conducting electrical connection and maintenance work, must post temporary warning sign or put up barriers, to prevent unrelated personnel from entering the electrical connection or maintenance area;
- Improper maintenance operation to the inverter may cause personal injury or equipment damage;
- To prevent electrostatic damage, recommend to ware antistatic wrist strap or avoid unnecessary contact with the circuit board.



CAUTION: The safety mark, warning label and nameplate on the inverter should be clearly visible, not removed or covered.

1.Product Overview

1.1Information & Features

TPower series is designed as pure sine wave power frequency inverter, which converts 110/220VDC to 220/230VAC. This device consists of a DC-AC inverting module and AC-AC bypass module in parallel, also featured with high reliability, high efficiency, concise appearance, full protection, easy installation and operation functions.

DC-AC inverting module is an intelligent and full digital designed component with advanced SPWM technology. The module is designed with the pure sine wave output to convert 110/220VDC to 220/230VAC for multiple types of AC loads, such as home appliances, electric tools, industrial devices, audio equipment and solar photovoltaic system.

AC-AC bypass module used advanced control algorithm to ensure the stability of output voltage and achieve the fast switching feature. Also the high reliability and high-performance semiconductor inside the module reduce the size and prolong the service life.

The 4.2 inches segment type of LCD displays the system operation data and states in real time.

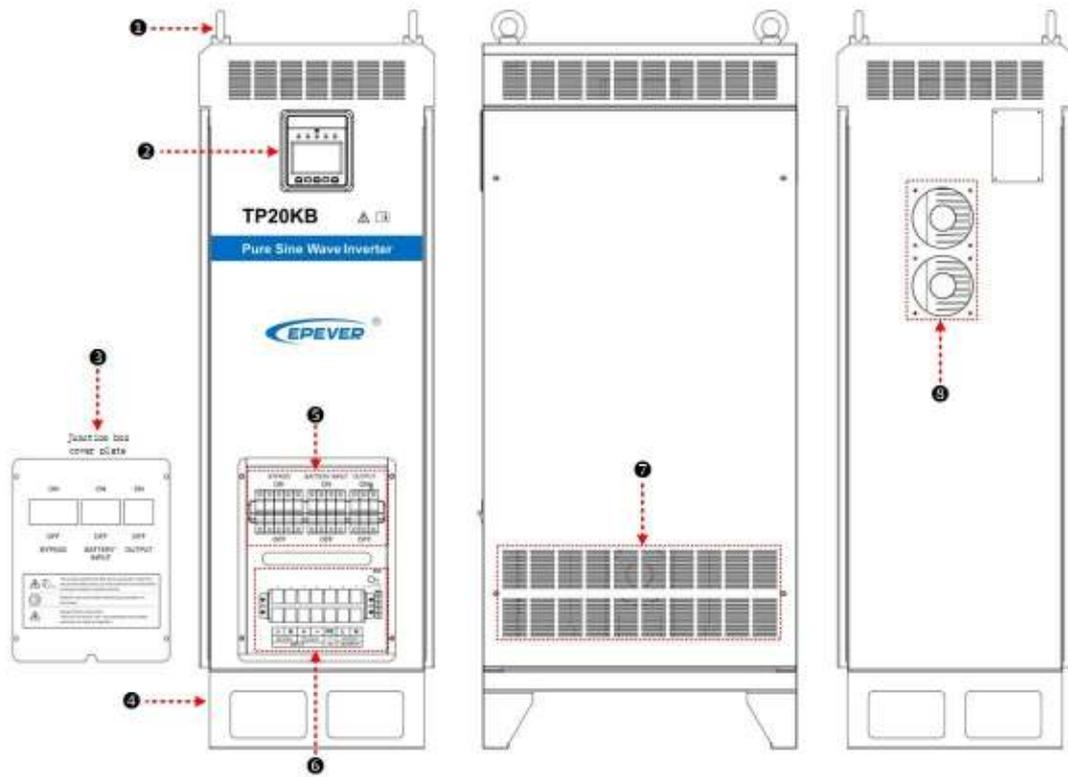
The case in sheet-metal design is featured with high intensity and shielding electromagnetic interference. Also, the universal rotary caster is optional for the system, which contains lifting support feet to fix or move the inverter at anytime and improve product mobility and flexibility.

Features:

- Advanced SPWM technology and pure sine wave output
- Fully digitalized voltage and current double closed-loop control
- Low output harmonic distortion (THD ≤ 3%)
- Mode selection of bypass priority and inverter priority
- Output voltage 220/230VAC and frequency 50/60Hz selectable
- Real-time power query and output power statistics function
- Automatic protection features of the short circuit, overheating and overload.
- 4.2 inches LCD display the system operation data and state dynamically with friendly AI interface
- Multiple LED indicators show the operating status of the system in real-time
- Designed with soft boot control to avoid the battery be damaged by high current impact when turning on the system

- AC OUT button controls the AC output individually
- Smart fan control reduces energy consumption and noise
- Use popular semiconductor modules with high reliability and low power consumption
- Designed with remote switch & RS485 communication interface to achieve the features of remote monitoring and hardware Stop&Start, also the Wi-Fi and Bluetooth communication modules are selectable
- Universal rotary caster is optional for free movement and fixation.
- Modular design, easy maintenance and repair

1.2 Structure



①	Ring 2 pieces	For carrying the inverter.
②	Display unit	Consist of LED indicators, LCD display and buttons, to indicate and display system operation state and parameters. See Chapter 3 .
③	Junction box cover plate	To cover the terminals and circuit breakers.

④	Pedestal ⁽¹⁾	To fixed the inverter
⑤	Input/output circuit breaker group ⁽²⁾	Protective devices for turning off the current safely.
⑥	Input /Output terminal ⁽²⁾	For wiring connection with utility, battery, load and grounding.
⑦	Heat dissipating hole	Used to dissipate the heat inside the inverter.
⑧	Fan ⁽³⁾	Forced cooling for the inverter.

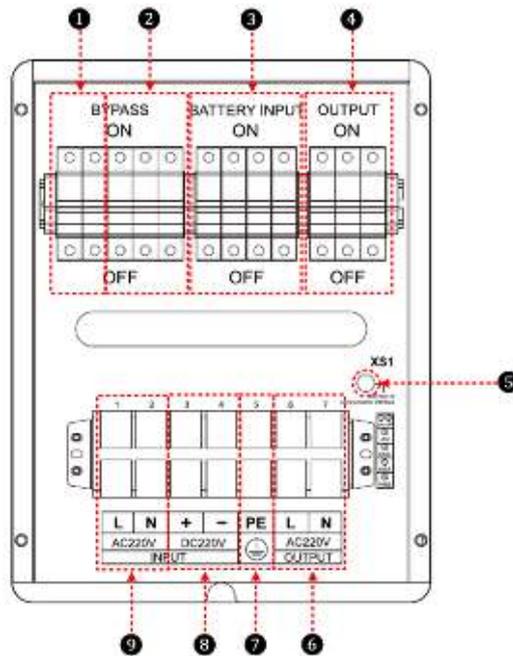
(1) FOOT MASTER caster(Optional accessory)



Rotate clockwise to raise the supporting feet, then to move the inverter.

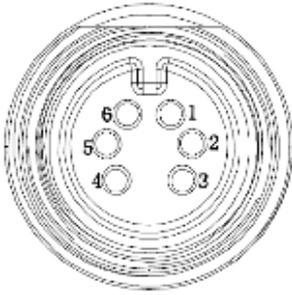
Rotate counterclockwise to lower the supporting feet, then to fix the inverter.

(2)Terminals and breakers



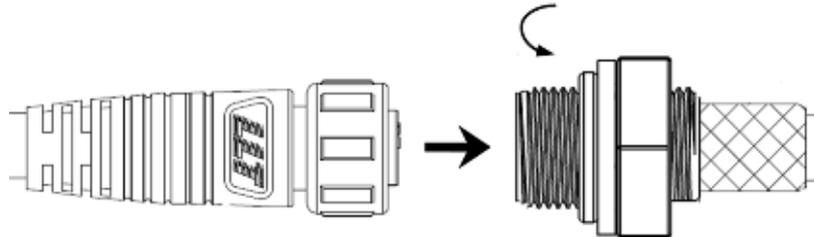
①	Bypass input arrester	⑥	AC output terminals
②	Bypass input breaker	⑦	Grounding terminal
③	Battery input breaker	⑧	Battery input terminals
④	AC output breaker	⑨	Bypass input terminals
⑤	Remote switch & RS485 communication port★		

★Remote switch & RS485 communication port pin definitions:



1-Red	ON/OFF
2-White	
3-Yellow	+5Vdc
4-Black	GND
5-Blue	485A
6-Green	485B

★Interface connection method :



(3)DC fan and AC fan

DC fan 2 pieces:

When the radiator temperature rises to 45°C above, the DC fans will start; when the radiator temperature declines to 35°C below, the DC fans will stop .



IMPORTANT: DC fans have the self-checking function when the inverter is powered on, the DC fans would run for three seconds automatically.

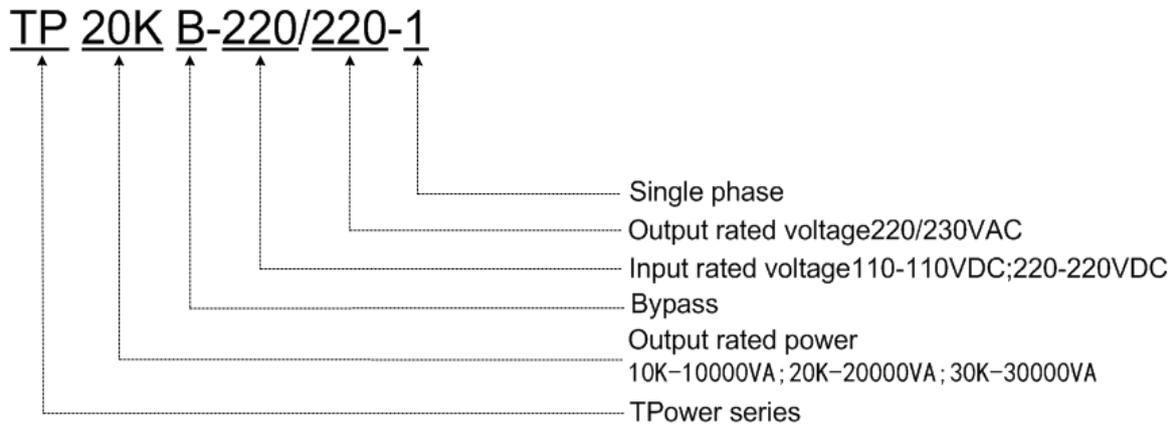
AC fan 3 pieces:

Inverter priority:

When the internal temperature rises to 35°C above, and with inverter output, the AC fans will start.

When internal temperature declines to 30°C below, or with no inverter output, the AC fans will stop.

1.3 Name definition

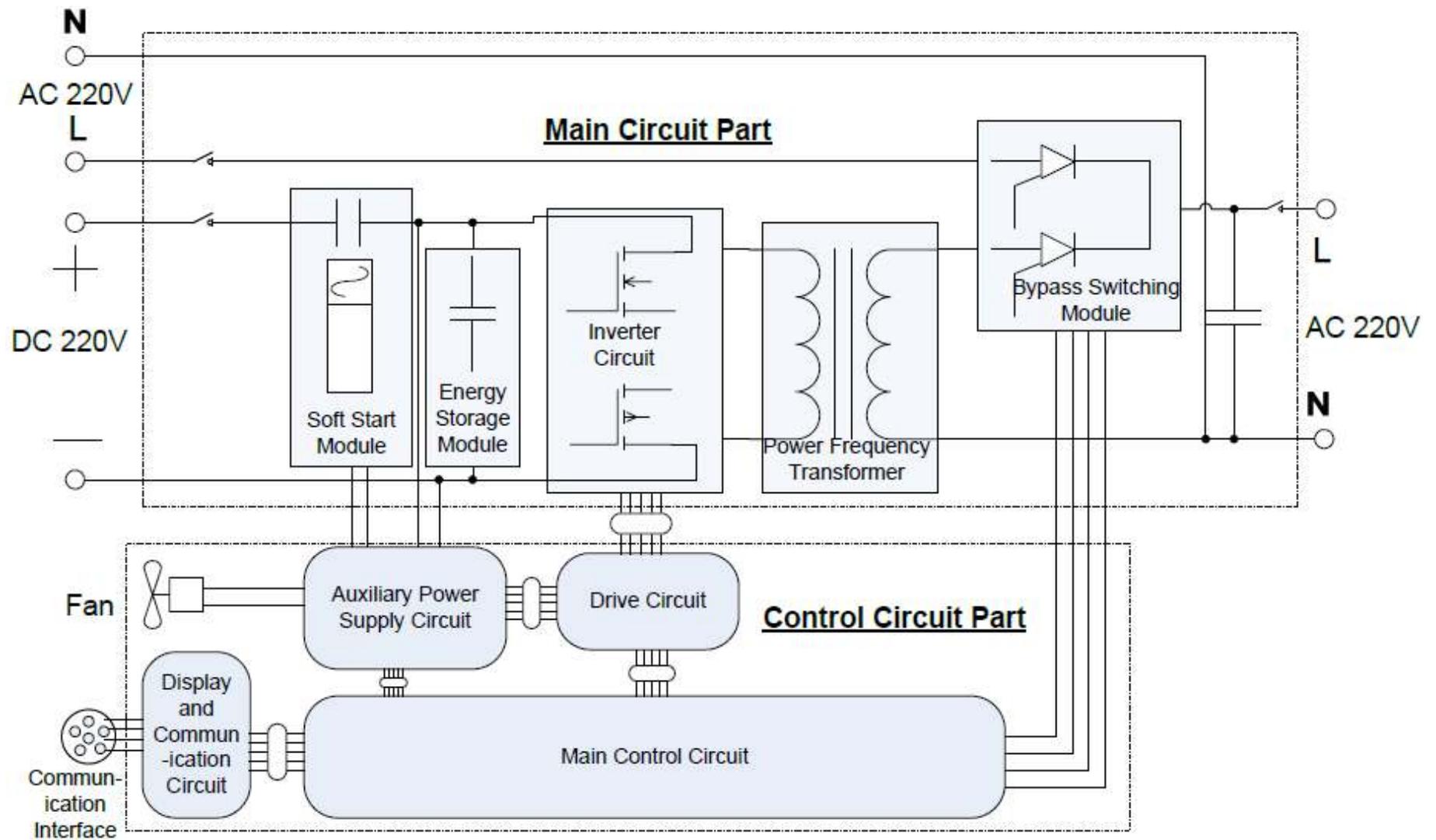


1.4 Connection schematic diagram



 **WARNING:** The AC equipment must be determined according to the output power of the inverter. Do not connect the load in excess of the inverter's maximum input power, otherwise, the inverter may be damaged.

1.5 Electrical schematic diagram



2. Installation

2.1 Warning

- Please read the manual carefully to get familiar with the installation steps before installation.
- Be very careful when installing the batteries, especially flooded lead-acid battery. Please wear eye protection, and have fresh water available to rinse if any contact with battery acid.
- Keep the battery away from any metal objects, which may cause a short circuit of the battery.
- Loose connections and corroded wires may result in high heat that can melt wire insulation, burn surrounding materials, or even cause a fire. Ensure tight connections and use cable clamps to secure cables and prevent them from swaying in motion.
- Select the system connection cables according to the current density no higher than 5A/mm². (In accordance with the National Electrical Code Article 690, NFPA70).
- For outdoor installation, keep out of the direct sunshine and rain infiltration.
- High voltage still exists inside the inverter after turning off the switch, do not open or touch the internal devices, wait five minutes before conducting related operations.
- Please do not install the inverter in humid, greasy, flammable, explosive, dust accumulative or other severe environments.
- Prohibit reverse connection at the battery input end; otherwise it will easily damage the equipment or cause unpredictable danger.
- Both utility input and AC output are of high voltage; please do not touch the wiring connection.
- When the fan is working, please do not touch it to avoid injury.

2.2 Wire & breaker selection

Wiring and installation mode should comply with national and local electrical code requirements.

- **Wire and circuit breaker selection for utility input**

Model	Utility wire size	Breaker
TP10KB	25mm ² /3AWG	AC/2P—63A

TP20KB	35mm ² /1AWG	AC/2P—100A
TP30KB	50mm ² /1/0AWG	AC/2P—150A

- **Wire and circuit breaker selection for battery**

Model	Battery wire size	Breaker
TP10K	35mm ² /1AWG(110VDC)	DC/2P—125A
TP10KB	25mm ² /3AWG(220VDC)	DC/2P—63A
TP20K TP20KB	35mm ² /1AWG	DC/2P—125A
TP30K TP30KB	50mm ² /1/0AWG	DC/2P—200A

- **Wire and circuit breaker selection for AC output**

Model	AC wire size	Breaker
TP10K TP10KB	25mm ² /3AWG	AC/2P—63A
TP20K TP20KB	35mm ² /1AWG	AC/2P—100A
TP30K TP30KB	50mm ² /1/0AWG	AC/2P—150A



IMPORTANT: The wire size is for reference only, use thicker wires to lower the voltage drop and improve the system performance when the distance between utility and inverter or between inverter and batter is far.



IMPORTANT: The above wire size and circuit breaker size are for recommendation only, please choose suitable wire and circuit breaker according to the practical situation.

2.3 Instructions

Installation steps:

Step1: Professional personnel read this manual carefully.

Step2: Determine the installation location and heat dissipation space.

Move the equipment: as the equipment is relatively large, it is recommended to use forklift or crane; if the ground is flat, it can be moved by wheels.

Place to the location: As the equipment is heavy, it is recommended to be placed on flat ground, with 300mm space reserved all around, to ensure heat dissipation.

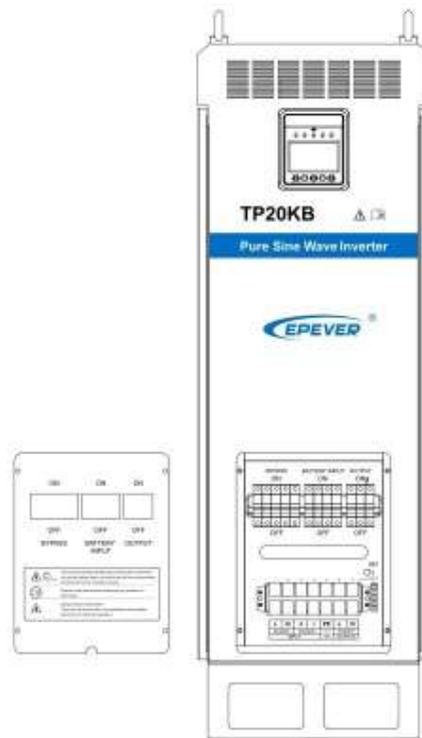
Fix the equipment: If choose the optional caster, rotate counterclockwise to fix and rotate clockwise to move.



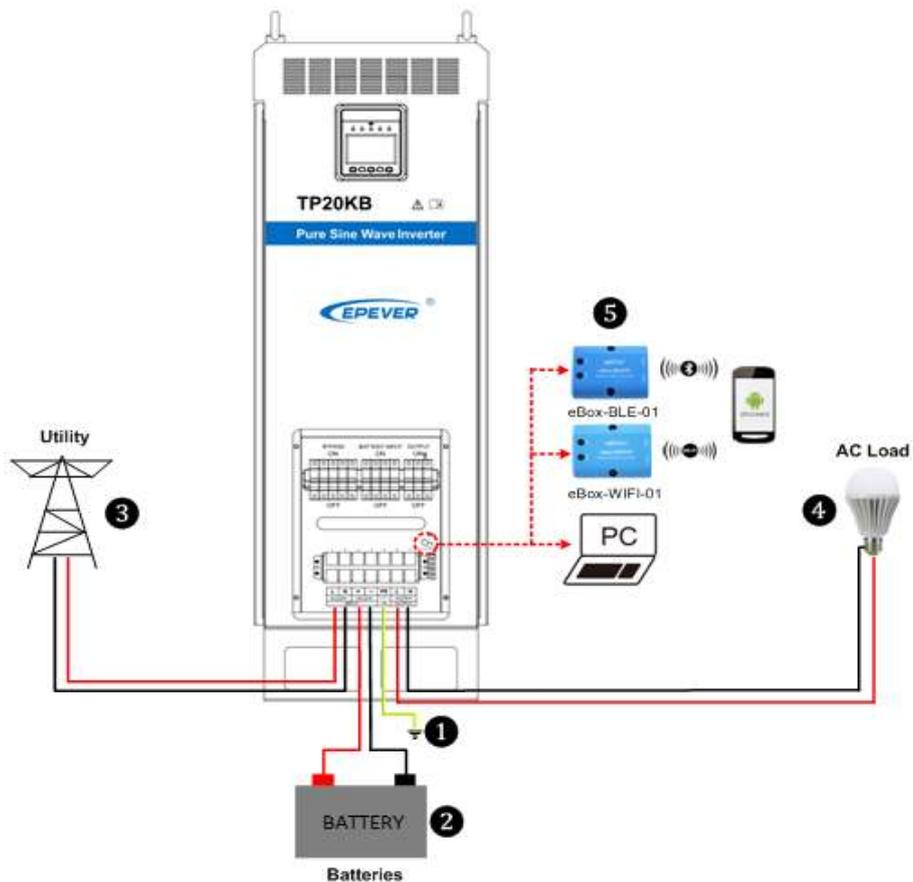
WARNING: Risk of explosion!

Never install the inverter with flooded batteries in a sealed enclosure! Do not install the device in a confined area where battery gas can accumulate.

Step3: Take down the junction box cover plate with special tools.



Step4: Wiring



Wiring order:

① Ground—② Battery—③ Utility—④ AC loads



WARNING: Never connect the utility to the inverter output; otherwise the inverter may be damaged.

- **Grounding**

The voltage of the whole system exceeds the safety voltage level. Thus reliable grounding is needed. The grounding wire shall be the thicker wire (no less than 35mm²), and shall be as short as possible. The grounding point shall be as close as possible to the inverter.



CAUTION: When wiring, follow the order ① ② ③ ④ to connect the cables to the equipment, then follow the order ① ② ③ ④ to connect ground, battery, utility and load.



WARNING: Make sure all the wiring connections are reliable, otherwise massive heat would accumulate at the connection points to damage the terminals, or even cause a fire.



WARNING: Danger, high voltage! Utility input, AC output and DC input will produce high voltage, do not close the breakers during wiring, and make sure the correct polarity of each component.

Step5: Connect accessories

- **Mobile APP(For Android only)**

Download software: www.epever.com—EPEVER(TP)

Communication cable: M12-6-male pin + crystal head-1000mm-v1.0

Modules: eBox-WIFI-01 and eBox-BLE-01

- **PC Software**

Download software: www.epever.com—Inverter Monitor(TP)

Communication cable: 1.M12-6-male pin + crystal head-1000mm-v1.0

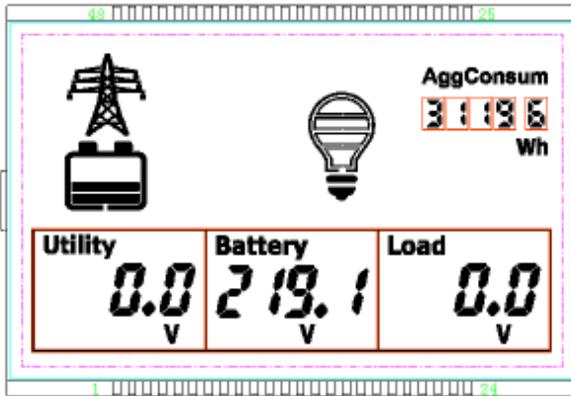
2.RJ45 Coupler

3. CC-USB-RS485-0.3mm2-3m-V1.1

Step6: Double check the reliability of wiring connections.

Step7: Put on the cover plate.

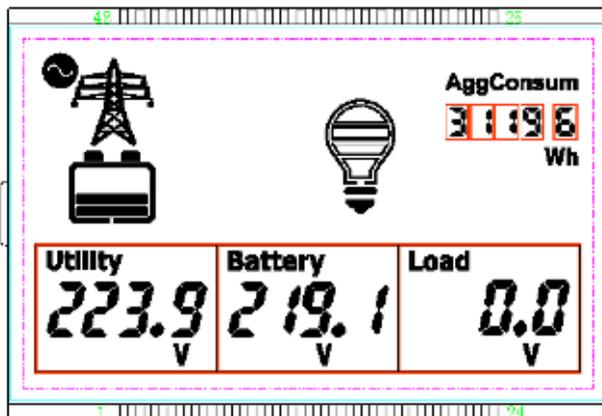
Indicator: Inverter indicator on solid



LCD:

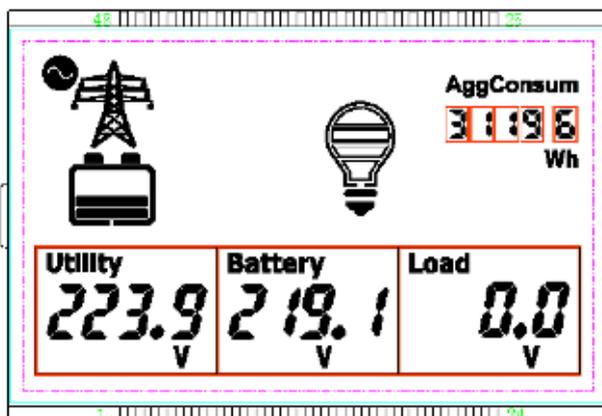
Step8: Close the bypass circuit breaker

The indicator: utility indicator on solid



LCD:

Step9: Close the load circuit breaker



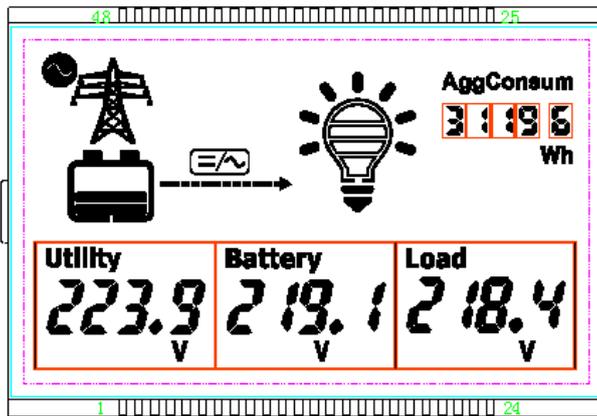
LCD:

Step10: Inverter output

Method 1: Press the “AC output” button for 3 seconds, the inverter would start the output.

Method 2: Connect the remote switch, short-circuit the cable 1(red) and cable 2(white) of the remote switch and RS485 communication interface, the inverter would start the output.

Indicator: Inverter indicator slowly flashing and load indicator on solid.



LCD:

Step11: Turn on the load

LED indicators: Inverter and load indicators are slowly flashing.



CAUTION: In case the power is supplied to the different AC loads, it is suggested to turn on the loads with larger surge current first, till the load working well, then turn on the loads with smaller surge current. Especially for inductive loads, should be turned on one by one. Do not turn on the loads at the same time, so as not to cause excessive impact to the inverter, to shorten its life span.



CAUTION: In case the inverter is not in regular operation, or LCD or indicator displays abnormal, refer to Section 5 to clear the fault or contact the after-sale service personnel of our company.

Step12: Power off the equipment

Open the AC load circuit breaker—long press “AC output” button to turn off the inverter output—open the bypass circuit breaker—open the battery circuit breaker.



WARNING: As electricity exists in the capacitance, the LCD screen would be off after 30 seconds; wait 5 minutes before opening the equipment to repair.



WARNING: After the inverter is disconnected from utility and battery bank, need to wait 5 minutes before touching the internal conductive devices.



WARNING: As the inverter has soft stat design and only takes effect when the first time it starts, do not frequently switch the input circuit breaker when the inverter is incompletely powered off, otherwise the input battery would undergo high current impact. That is, the input circuit breaker can be closed again after the LCD screen is off.

2.4 Output voltage/frequency grade switch



When the dial switch 1 is placed to the ON side, the output frequency is 60Hz, otherwise it is 50Hz,

When the dial switch 2 is placed to the ON side, the output voltage is 230VAC, otherwise it is 220VAC.

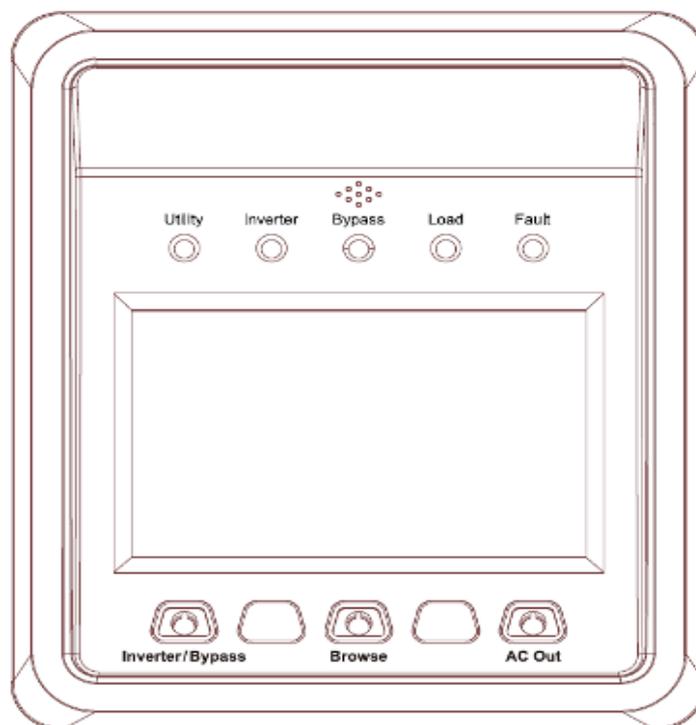
Operating steps:

Open the cover plate on the inverter right side, find the dial switches on the control board which is located on the top left corner, see above picture. Set the output voltage/frequency according to demand, then restart the inverter to take effect.

! **IMPORTANT:** The factory default output voltage is 220VAC, the output frequency is 50Hz.

! **IMPORTANT:** The accessories can refer to the Packing list.

3. Interface



3.1 Indicator

Indicator	Color	Status	Instruction
Utility	Green	OFF	No utility input
		On Solid	Utility input but no load
		Slowly Flashing(0.5Hz)	Utility bypass with load
		Fast Flashing(2.5Hz)	Utility fault
Inverter	Green	OFF	Inverter OFF
		On Solid	Inverter Priority
		Slowly Flashing(0.5Hz)	Inverter working
		Fast Flashing(2.5Hz)	Inverter fault
Bypass	Green	OFF	Bypass OFF
		On Solid	Bypass Priority
		Slowly Flashing(0.5Hz)	Bypass working
		Fast Flashing(2.5Hz)	Bypass fault
Load	Green	OFF	Power off the inverter
		On Solid	AC output but no load
		Slowly Flashing(0.5Hz)	AC output with load
		Fast Flashing(2.5Hz)	Output voltage abnormal
Fault	Red	OFF	Inverter normal
		On Solid	Inverter fault

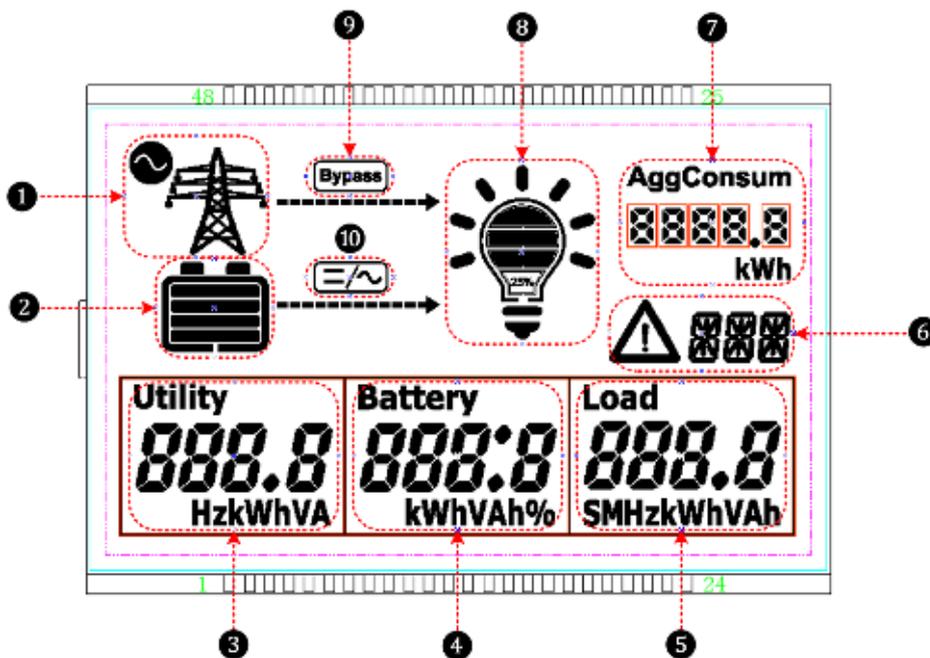
3.2 Buzzer

Buzzer	Instruction
No beep	No operation and fault
One beep	Operation succeed
Buzzer beep every10s	Fault prompt
Buzzer beep every1s	Fault warning

3.3 Buttons

Button	Operation	Instruction
Inverter/Bypass	Press the button	Return the voltage interface quickly
	Press the button and hold on 3s	Switch the inverter and bypass mode
Browse	Press the button	Browse the Utility/Battery/Load column parameters
	Press the button and hold on 3s	Browse the Utility/Battery/Load column parameters quickly
AC output	Press the button and hold on 3s	Switch the inverter output and no output mode
Inverter/Bypass + Browse	Press the button and hold on 3s	Clear the generated energy
Browse + AC output	Press the button and hold on 3s	Clear the faults

3.3LCDDisplay



①	Utility	⑥	Fault code
②	Battery	⑦	AggConsum
③	Utility parameters Voltage/Current/Power/Frequency	⑧	Load status
④	Battery parameters Voltage/Current/Power	⑨	System running in bypass status
⑤	Load parameters Voltage/Current/Power/Frequency	⑩	System running in inverter status

3.4 Icon

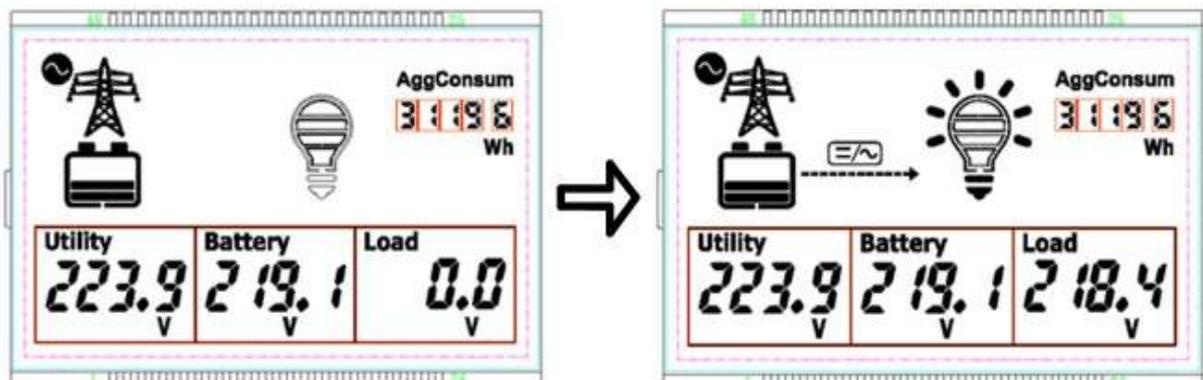
Icon	Instruction	Icon	Instruction
	No Utility connecting		Load≤25%
	Utility connecting		Load(25~50%)
	Inverter output ON		Load(50~75%)
	Inverter output OFF		Load(75~100%)

3.5 Operation

1) Turn on the load:

Operation:

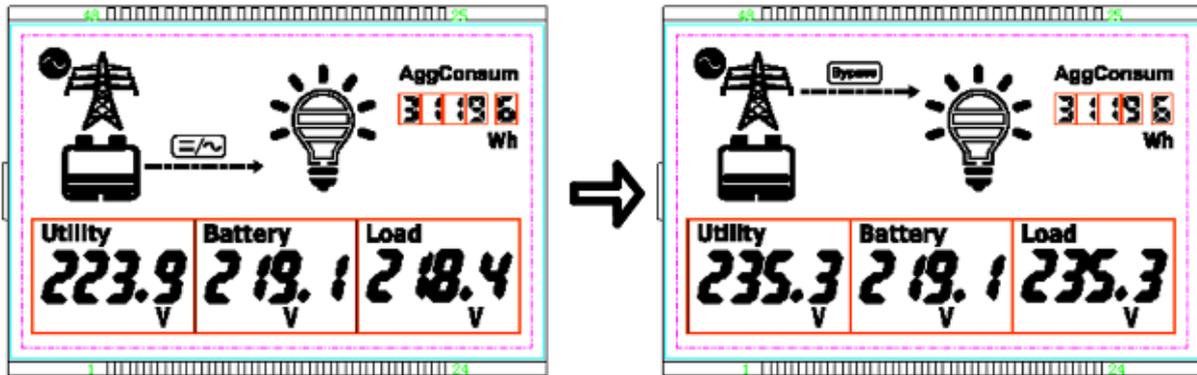
Press the “AC output” button for 3seconds, load indicator changes from off to solid on.



- Switch from inverter mode to bypass mode

Operation:

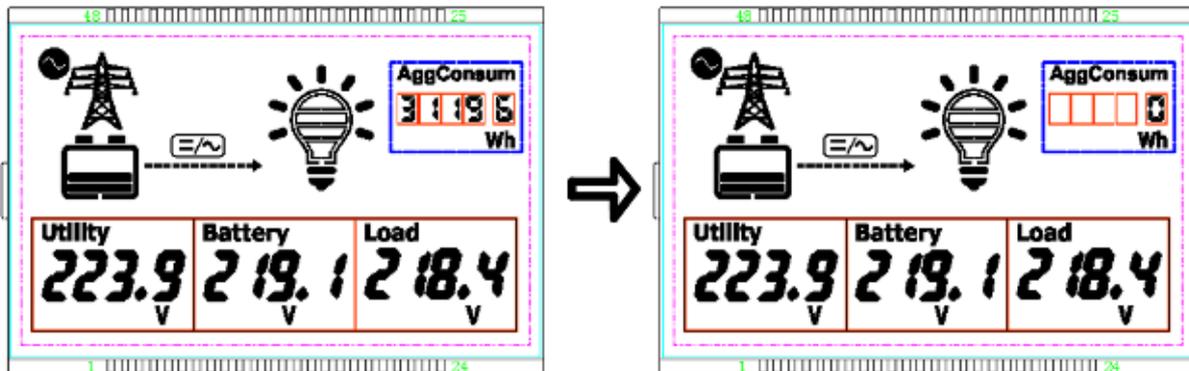
Press “inverter/bypass” button for 3 seconds, bypass indicator changes from off to solid on, inverter indicator changes from on solid to off.



3) Clear electricity mode

Operation:

Press “inverter/bypass” and “browse” button for 3 seconds together to clear the accumulated consumed electricity.



- Clear fault

Operation:

Under failure state, short press any button, the buzzer would stop sounding, but the failure code would still be displayed.



IMPORTANT: In case of a non-recoverable failure state, if confirmed the fault is cleared, long press “browser” and “AC output” buttons together to clear the fault, the inverter would recover the output.

Press the “Browse + AC output” buttons to clear the faults, the inverter recover output.

4. Protection

Protection	Phenomenon	Protection	Recovery
Input reverse polarity protection	When DC input reverses polarity, the LCD would be off.	The equipment would not be damaged.	Back to normal after correction.
Input over voltage protection	Inverter mode: DC input voltage exceeds 146Vdc(110Vdc)/293Vdc(220Vdc) Fault code "IOV" Buzzer sounds in short cycle	Inverter stop working, auto switch to bypass mode, AC output continues (If no bypass input available, or the bypass circuit breaker is open, AC output will stop.)	When the input voltage backs to normal, fault warning stops, auto switch to inverter mode.
	Bypass mode: DC input voltage exceeds 146Vdc(110Vdc)/293Vdc(220Vdc) Fault code "IOV" Buzzer sounds in a long cycle	Bypass works normally, AC output continues.	When the input voltage backs to normal, fault warning stops.
Input low voltage protection	Inverter mode: DC input voltage lower than 93Vdc(110Vdc)/187Vdc(220Vdc) Fault code "ILV" Buzzer sounds in short cycle	Inverter stop working, auto switch to bypass mode, AC output continues (If no bypass input available, or the bypass circuit breaker is open, AC output will stop.)	When the input voltage backs to normal, fault warning stops, auto switch to inverter mode.
	Bypass mode: DC input voltage lower than 93Vdc(110Vdc)/187Vdc(220Vdc) Fault code "ILV" Buzzer sounds in short cycle	Bypass works normally, AC output continues.	When the input voltage backs to normal, fault warning stops.
Output voltage abnormal	AC output voltage exceeds the range of 220±20Vac Fault code "OVA" Buzzer sounds in short cycle	AC output stops.	AC output voltage recovers to the range of 220±20Vac.
Output overload	The output power exceeds the rated	AC output stops	Reduce the load power.

	power by 1.1times Fault code“OOL” Buzzer sounds in short cycle		
Output short circuit	Fault code“OSC” Buzzer sounds in short cycle	Shut off the output immediately, auto recover the output for three times(The first time delay for 5 seconds, second time delay for 10 seconds, third time delay for 15 seconds).	Recover the output after the load short circuit failure is cleared The equipment would auto-recover the output every 24 hours after the fault happened. If the fault is cleared, the load output will recover only after manually restart.
IGBT over current	Fault code“ISC” Buzzer sounds in short cycle	Shut off the output immediately, auto recover the output for three times(The first time delay for 5 seconds, second time delay for 10 seconds, third time delay for 15 seconds).	If the IGBT over current state continues after three times auto recovery, the output will recover only when the fault is cleared and manually restart.
Radiator over temperature protection	The radiator temperature exceeds 85℃ Fault code“ROT”	AC output stops	When the temperature backs to normal, fault warning stop, AC output recovers.
Internal over temperature protection	Internal temperature exceeds 60℃ Fault code“IOT”	AC output stops	When the temperature backs to normal, fault warning stop, AC output recovers.
Bypass overvoltage	Inverter mode: Bypass input voltage exceeds 264Vac Fault code“BOV” Buzzer sounds in a long cycle	Inverter works normally, AC output continues.	When the bypass input voltage backs to normal, fault warning stops.
	Bypass mode: Bypass input voltage exceeds 264Vac Fault code“BOV” Buzzer sounds in short cycle	Auto switch to inverter mode, AC output continues (if the inverter circuit has fault too, AC output will stop).	When the bypass input voltage backs to normal, fault warning stops, auto switch to bypass mode.
Bypass low voltage	Inverter mode: Bypass input voltage lower than 176Vac	Inverter works normally, AC output continues.	When the bypass input voltage backs to normal, fault warning stops.

	Fault code“BLV” Buzzer sounds in long cycle		
	Bypass mode: Bypass input voltage lower than 176Vac. Fault code“BLV” Buzzer sounds in short cycle	Auto switch to inverter mode, AC output continues (if the inverter circuit has fault too, AC output will stop).	When the bypass input voltage backs to normal, fault warning stops, auto switch to bypass mode.
Bypass frequency abnormal	Inverter mode: Bypass input frequency exceeds the range of 50Hz/60Hz±10% Fault code“BFA” Buzzer sounds in long cycle	Inverter works normally, AC output continues.	When the bypass input frequency backs to normal, fault warning stops.
	Bypass mode: Bypass input frequency exceeds the range of 50Hz/60Hz±10% Fault code“BFA” Buzzer sounds in short cycle	Auto switch to inverter mode, AC output continues (if the inverter circuit has fault too, AC output would stop).	When the bypass input frequency backs to normal, fault warning stops, auto switch to bypass mode.
Communication fault	Fault code“CFA”	AC output continues	Turn on/off the inverter through the remote switch at the communication interface.

5. Troubleshooting

Category	Fault	Fault Code	Working mode	LED indicators	Buzzer	Status	Troubleshooting		
DC input	Input reverse polarity	—	—	—	—	LCD screen off	Correct the wire connection of DC input polarity.		
	Input over voltage	IOV	Inverter mode	Inverter indicator fast flashing	1S	Recover	Check if the DC input voltage exceeds 146Vdc(110Vdc)/293Vdc(220Vdc).; Recover when voltage declines to 138Vdc(110Vdc)/275Vdc(220Vdc).		
			Bypass mode	Fault indicator on solid	10S				
	Input low voltage	ILV	Inverter mode	Inverter indicator fast flashing	1S				
			Bypass mode	Fault indicator on solid	10S				
	Inverter output	Output voltage abnormal	OVA	—	Fault indicator on solid			1S	Locked up
Output overload		OOL	—	Fault indicator on solid	Check the load that the output power exceeds the rated power by 1.1times				
Output short circuit		OSC	—	Fault indicator on solid	Check if the inverter output line is short.				
Utility input	Bypass overvoltage	BOV	Inverter mode	Bypass indicator fast flashing Fault indicator on solid	10S	Recoverable	Check if the bypass input voltage exceeds 264Vac. Recover when voltage declines to 220Vac.		
			Bypass mode		1S				
	Bypass low voltage	BLV	Inverter mode		10S				
			Bypass mode		1S				
	Bypass frequency abnormal	BFA	Inverter mode		10S				
			Bypass mode		1S				

Other	IGBT over current	ISC	Inverter mode	Inverter indicator fast flashing Fault indicator on solid	1S	Locked up	(1) After power off, check if the load is short circuit. (2) Five minutes after powered off, open the left side cover plate, check if the IGBT screw or wire connection is loose; check if the IGBT is broken.
	Radiator over temperature	ROT	—	Fault indicator on solid		Recoverable	Check if the backside fan usually works. Reduce the load power.
	Internal over temperature	IOT	—	Fault on solid			Check if the AC fans are working normal Reduce the load power Check if the upside fan works normally; check if the ambient temperature exceeds 50℃ Reduce the load power
	Communication fault alarm	CFA	—	Fault on solid			After power off, open the right side cover plate, check if the wiring connections on the panel is loose.

6.Maintenance

The following inspections and maintenance tasks are recommended at least two times per year for the best performance.

- Make sure no block on air-flow around the inverter. Clear up any dirt and fragments on the radiator.
- Check all the naked wires to make sure insulation is not damaged for serious solarization. Frictional wear, dryness, insects or rats, etc. Repair or replace some wires if necessary.
- Check and confirm that indicator and display is consistent with required. Pay attention to any troubleshooting or error indication .Take corrective action if necessary.
- Confirm that all the terminals have no corrosion, insulation damaged, high temperature or burnt/discolored sign, tighten terminal screws to the suggested torque.
- Check for dirt, nesting insects and corrosion. If so, clear up in time.
- Check and confirm that lightning arrester is in good condition. Replace a new one in time to avoid damaging the inverter/charger and even other equipment.



WARNING: Risk of electric shock!

Risk of electric shock! Before the above operations, make sure that all the power is turned off, and the electricity in the capacitances is completely discharged, then follow the corresponding inspections and operations.

7. Specifications

Technical parameters

Item	TP10K-110/220-1	TP10KB-110/220-1	TP10K-220/220-1	TP10KB-220/220-1
Rated input voltage	110Vdc		220Vdc	
Battery Input voltage range	93-146Vdc		187~293Vdc	
Max. input current	122A		60A	
Rated output power	10000VA			
Output voltage	220/230Vac±3%(Battery power mode)			
Output frequency	50Hz/60Hz±3%(Battery power mode)			
Output power factor	0.2~1			
Output way	Single phase			
Output wave	Pure Sine Wave			
Output THD	≤3%(Resistive load)			
Max. inverter efficiency	>90%(Resistive rated load)			
Bypass Input voltage range	—	170VAC~275VAC	—	170VAC~275VAC
Bypass transfer time	12mS			
No-load consumption	≤2%			
Backlight	30S(Turn on by pressing the button)			
Item	TP20K-220/220-1	TP20KB-220/220-1	TP30K-220/220-1	TP30KB-220/220-1
Rated input voltage	220Vdc			
Battery Input voltage range	185~295Vdc			
Max. input current	150A		234A	
Rated output power	20000VA		30000VA	
Output voltage	220/230Vac±3%(Battery power mode)			
Output frequency	50Hz/60Hz±3%(Battery power mode)			
Output power factor	0.2~1			

Output way	Single phase			
Output wave	Pure Sine Wave			
Output THD	$\leq 3\%$ (Resistive load)			
Max. inverter efficiency	$> 90\%$ (Resistive rated load)			
Bypass Input voltage range	—	170VAC~275VAC	—	170VAC~275VAC
Bypass transfer time	12mS			
No load consumption	$\leq 2\%$			
Backlight	30S(Turn on by pressing the button)			

Environmental parameters

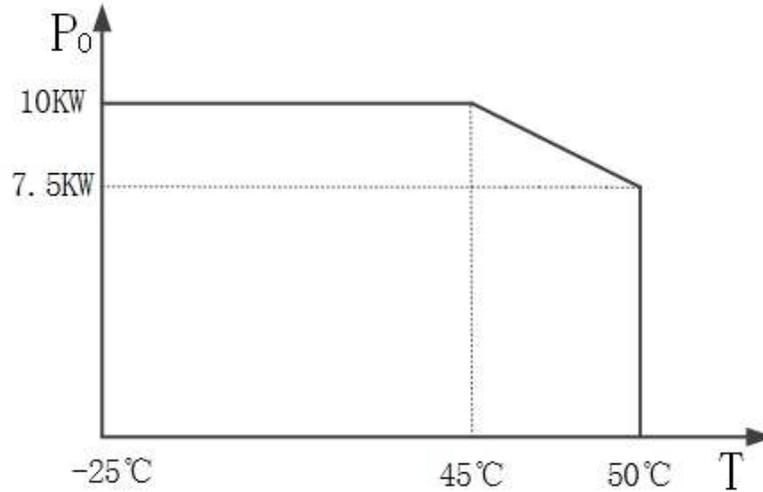
Operating temperature	-25°C~50°C (Derating above 45°C)★
Noise	<65dB(distance 1m)
Enclosure	IP20
Relative humidity range	0~95%(N.C.)
Altitude	5000m(Derating above 1500m)★

★Instruction for inverter derating

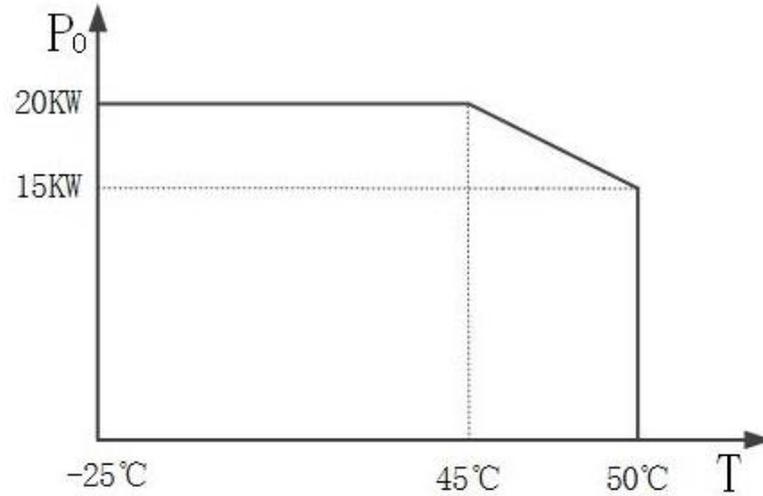
1. Temperature derating:

When the temperature is over 45°C(113°F), the output power should be reduced by 1KW (Kilowatts) for each 1°C (Celsius) increase

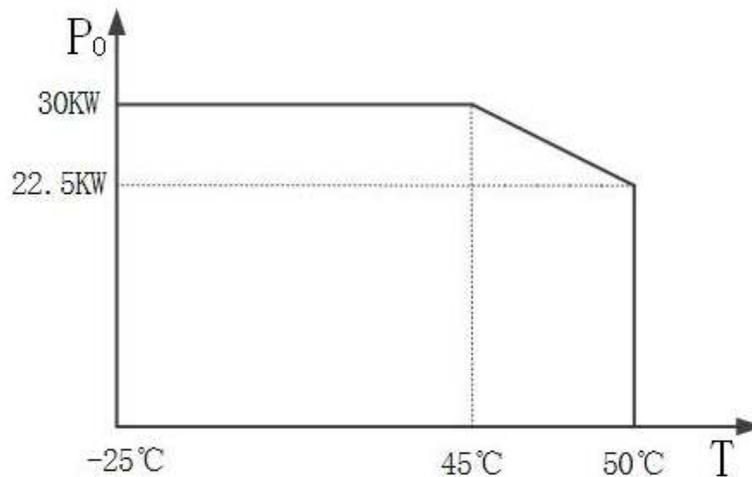
- TP10K,TP10KB



- TP20K,TP20KB



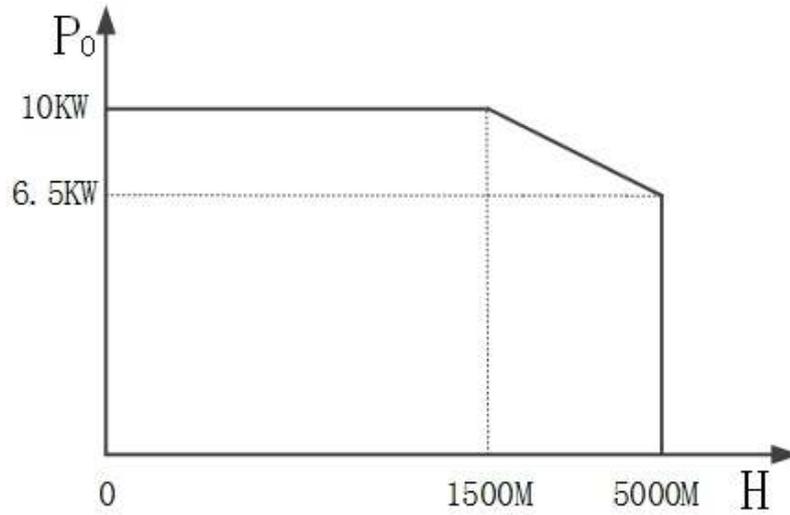
- TP30K,TP30KB



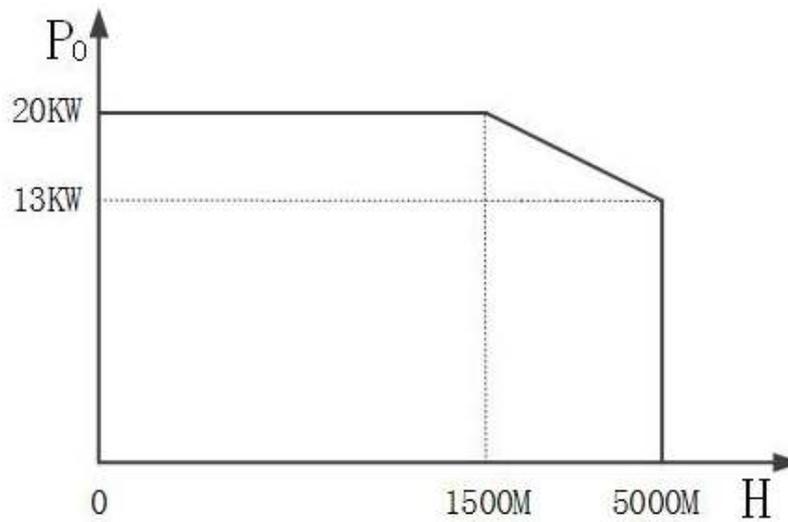
2. Altitude derating:

When the altitude is over 1500m, the output power should be reduced by 1KW (Kilowatts) for each 500m (Meter) increase

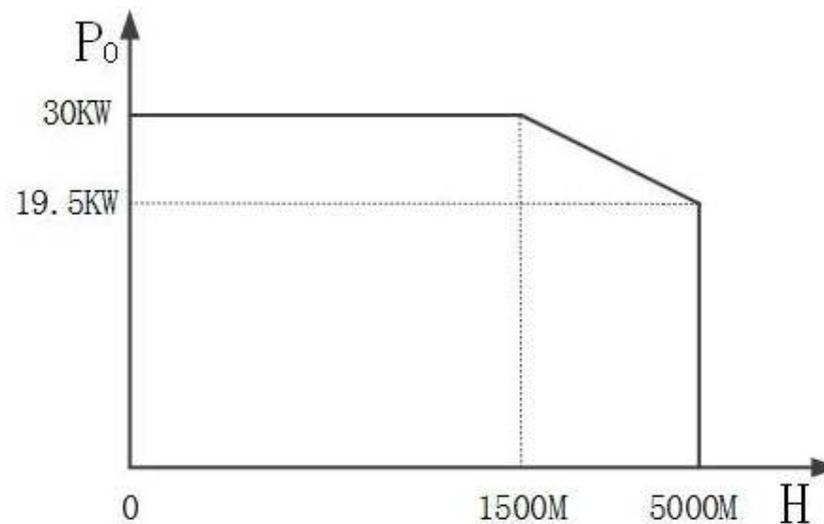
- TP10K,TP10KB



- TP20K,TP20KB



- TP30K,TP30KB



Mechanical Parameters

Item	TP10K-110/220-1 TP10KB-110/220-1	TP10K- 220/220-1 TP10KB- 220/220-1
Dimension(L×W×H)	600×450×1294mm	
Packaging(L×W×H)	680×500×1410mm	
Wiring(L×W)	900×1050mm	
Weight	150Kg	148Kg

Item	TP20K-220/220-1 TP20KB-220/220-1	TP30K-220/220-1 TP30KB-220/220-1
Dimension(L×W×H)	600×450×1414mm	600×480×1444mm
Packaging(L×W×H)	680×500×1530mm	680×530×1560mm
Wiring(L×W)	900×1050mm	900×1080mm
Weight	188Kg	228Kg

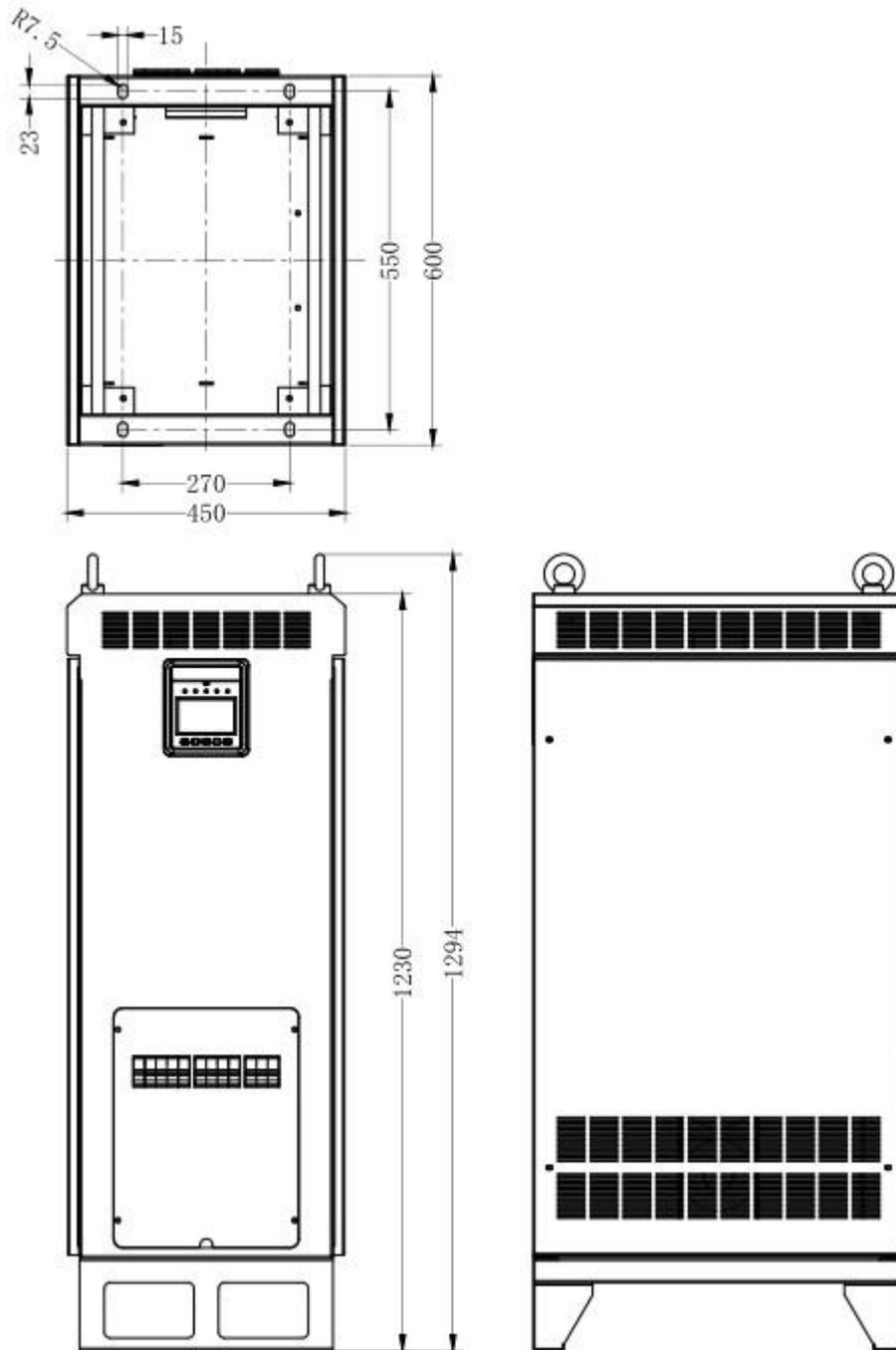
Annex I Disclaimer

This warranty does not apply under the following conditions:

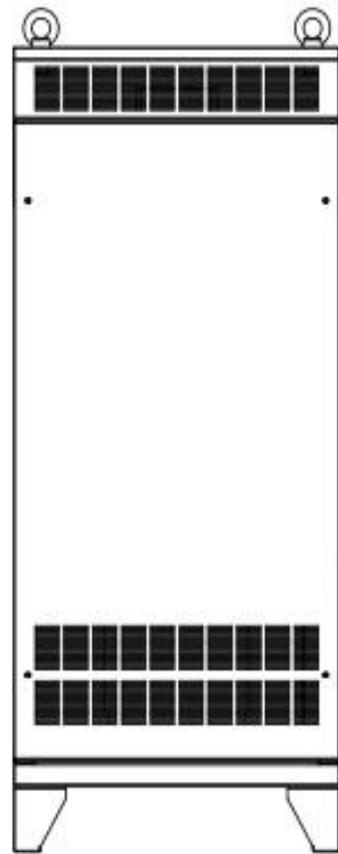
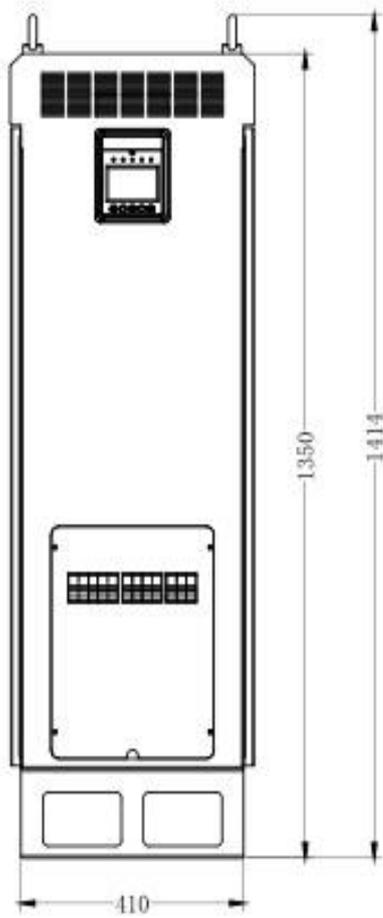
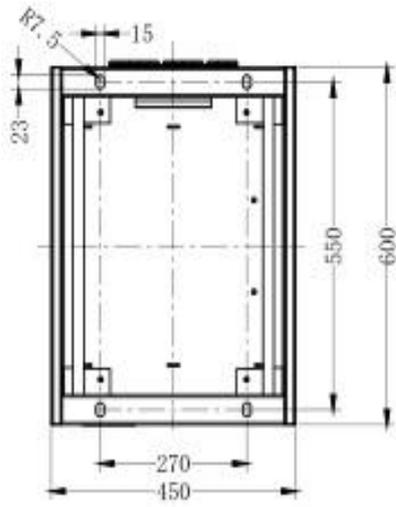
- Damage from improper use or use in an unsuitable environment.
- Load or utility current, voltage or power exceeds the rated value of the inverter.
- Damage caused by the ambient temperature exceeds the limit working environment temperature.
- The accident caused by disobeying the marks or manuals of the inverter, such as electric arc, fire and explosion.
- User disassembly or attempted to repair the inverter without permission.
- Damage caused by force majeure.
- Damage caused during transportation or loading/unloading.

Annex II Mechanical Dimension Diagram

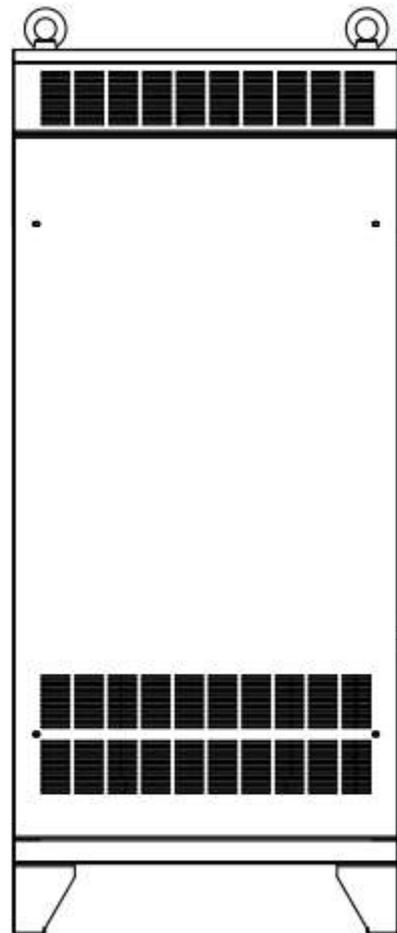
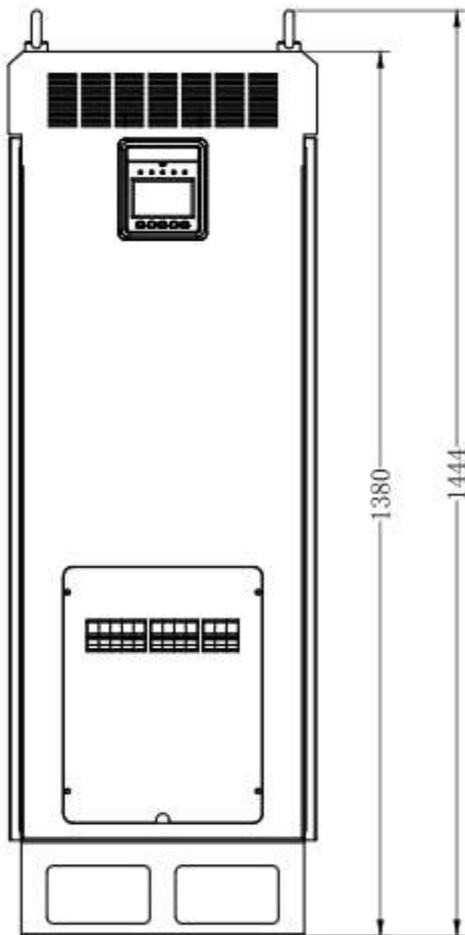
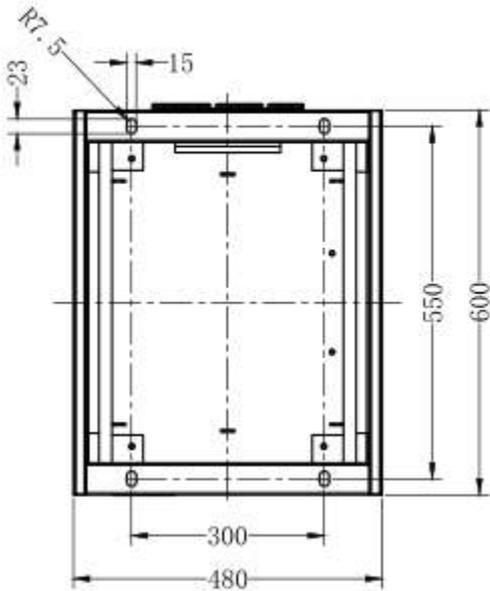
1.TP10K,TP10KB



2.TP20K/TP20KB



3.TP30K/TP30KB



Any changes without prior notice! Version number: V1.1

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