EX SERIES

EX6K(L) EX10K(L) EX3110K(L)
EX3115K(L) EX3120K(L)

USER MANUAL

Thank you for using our product.
Observe the warnings on the machine and manual strictly and properly keep the manual. Do not operate the UPS before read safety notes and operation instruction.

Operation safety

1. Read safety notes carefully and thoroughly before operation to ensure on using correctly, and save the manual properly.
2. Pay attention to alarm table on the UPS and operate according to it.
3. Do not install the UPS under the circumstances of direct sunlight, running water, or excessive humidity.
4. Do not install the device in the environment where is close to heating facilities such as space heaters or furnaces.
5. Put the UPS in a room with good ventilation and safe distance. Refer to manual to perform installation.
6. Clean with dry stuff, do not use liquid or spray detergent.
7. In the event of fire alarm occurring in the vicinity, please use dry power fire extinguishers. The use of liquid fire extinguishing agents may cause electric shock.

Electric safety

1. Verify that cabling and battery cable polarity are correct and earth connection correct before switch on the UPS.
2. Before moving or re-wiring the UPS, please disconnect the mains source and make sure UPS shut down completely. Or else, the output terminal may carry with live voltage, thus present with electric shock risk.
3. Please use fittings and accessories appointed by us.
4. To meet the requirement of EMC, the length of the output cable should be within 20m.

Battery safety

1. Battery's lifetime will be shorten with the increase of ambient temperature, so the battery should be replaced periodically to ensure normal UPS operation and enough backup time.
2. Battery maintenance should be performed or supervised by people with professional knowledge of battery.
3. Please use the same number and type of battery when replace battery.
4. Battery can present a risk of electrical shock and high short circuit current. The following precaution should be observed when replace battery in order to avoid hurt people with electrical shock risk.

   A. Remove watches, rings, or other metal objects from the hands;

   B. Use tools with insulated handles;

C. Wear rubber gloves and boots;

D. Do not lay tools or metal parts on the battery;

E. Disconnect the load before remove the terminal of battery.

5. Do not dispose battery in the fire as they may explode.
6. Prohibit unprofessional people from opening or damaging the battery, It may cause an electrolyte leakage that is toxic and harmful to the skin and eyes. If electrolyte comes into contact with the skin, wash the affected area with plenty of clean water immediately and go to the hospital for a check.
7. Do not make the positive and negative terminals of the battery short circuit; otherwise it may cause electric shock or fire.

Maintenance

1. The operating environment and storage method are two main factors affecting the lifetime and reliability of the UPS. Hence, it is advisable not to use the device in the following environments.
   A. Where the temperature and relative humidity are outside the specifications (temperature: 0℃～40℃, relative humidity: 20%～90%.)
   B. Where vibrations or shocks are existing.
   C. Where with metal dust, corrosive substances, salt or inflammable gas.
2. If the UPS will remain idle for a long period, it must be stored in a dry environment. The storage temperature range should be between －25℃～＋55℃(without battery). Make the ambient temperature over 0℃ and keep more than 2hours before switch on the UPS.

Catalog

1. Brief Introduction

The Online EX Series is an uninterruptible power supply incorporating double-conversion technology, optional EPO and maintenance switch, parallel redundancy. It provides perfect protection specifically for computer equipment, communication systems and computerized instruments.

Its true online double-conversion design eliminates all mains power disturbances. A rectifier converts the alternating current from the utility power to direct current. This direct current charges the batteries and powers the inverter. On the basis of this DC voltage, the inverter generates a pure sinusoidal AC voltage, which is constantly powering the loads.

In the event of power failure, the maintenance-free batteries power the inverter. If overload or inverter failure, UPS will work on bypass mode to power with mains power. After load become normal, it will still work on battery mode.

This manual is applicable to the following models:

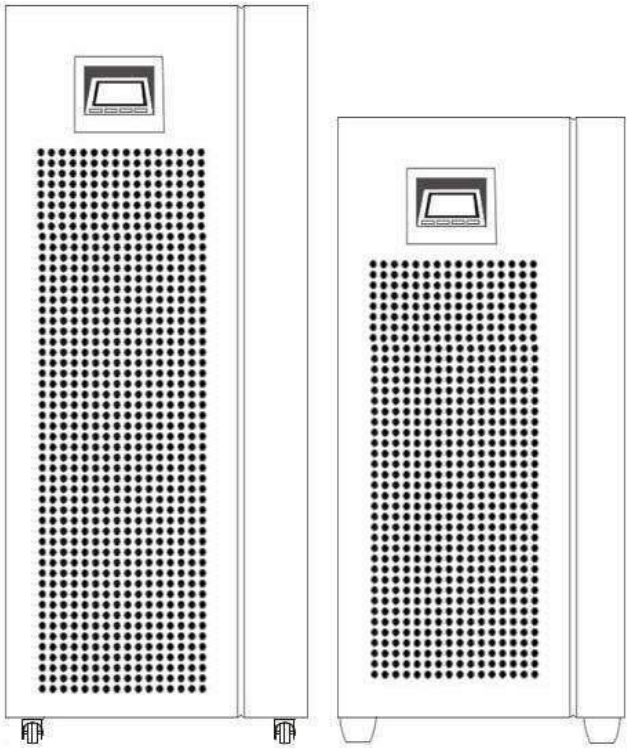
- EX6K: Standard model with built-in batteries.
- EX6KL: Long backup time model, it is able to connect with the external battery bank.
- EX10K: Standard model with built-in batteries.
- EX10KL: Long backup time model, it is able to connect with the external battery bank.
- EX3110KL: three-phase input and single-phase output, long backup time models, it is able to connect with the external battery bank.
- EX3115KL: three-phase input and single-phase output, long backup time models, it is able to connect with the external battery bank.
- EX3120KL: three-phase input and single-phase output, long backup time models, it is able to connect with the external battery bank.

Above all models contain standard rev and professional rev, User can select corresponding model by its requirement, compared with standard rev, professional rev (Model number with “P”) has EPO switch and bypass maintenance switch built-in, about the function of EPO and bypass maintenance switch please refer to 2.8 and 2.9.

1.1 Description of symbols

Meaning	
Symbols	**Meaning**
	Notice or Fault
	High voltage risk
	AC
	DC
	Earth protection
	Circle
	Do not place with sundries
	Overload
	Battery inspection
	Power on/off UPS

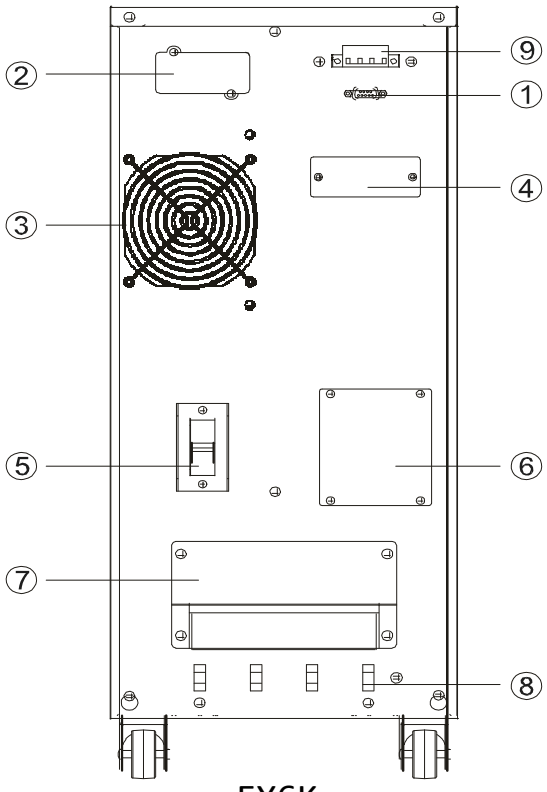
1.2 Front View



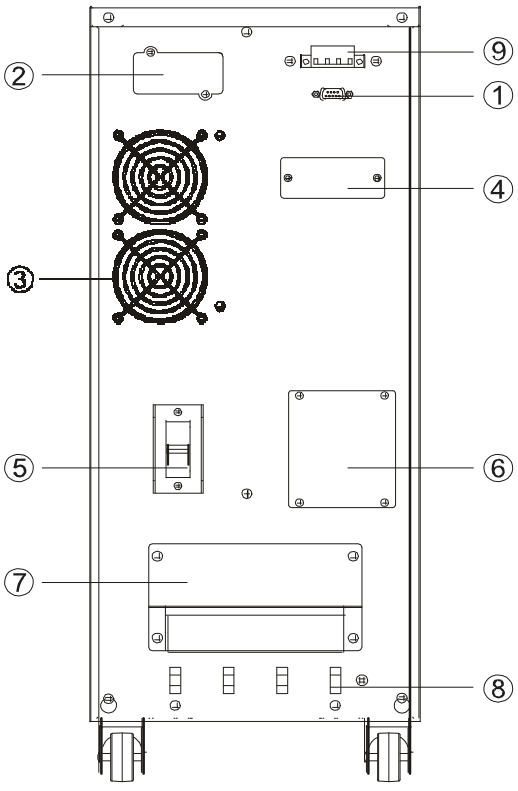
EX6K/EX10K/EX3110KL
EX3115KL/EX3120KL

EX6KL/EX10KL

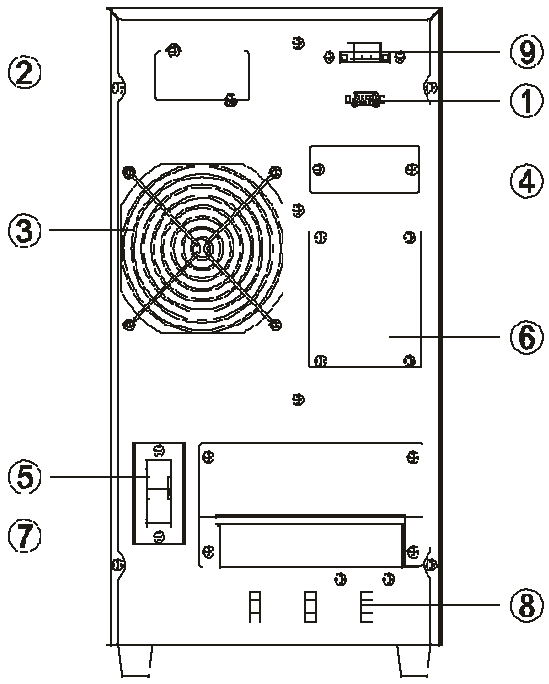
1.3 Rear View



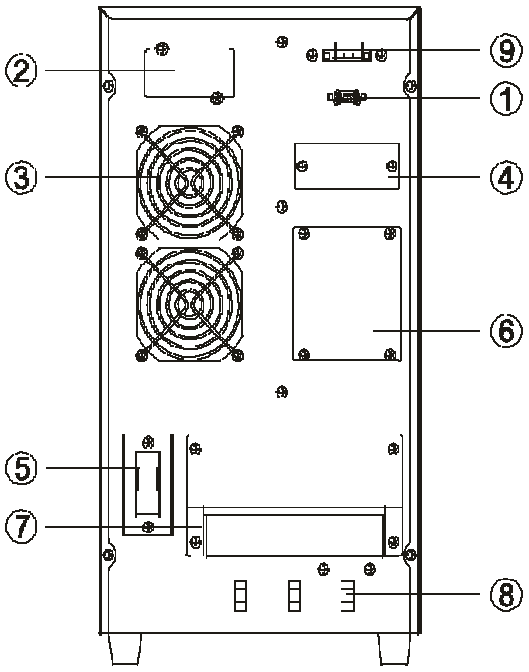
EX6K



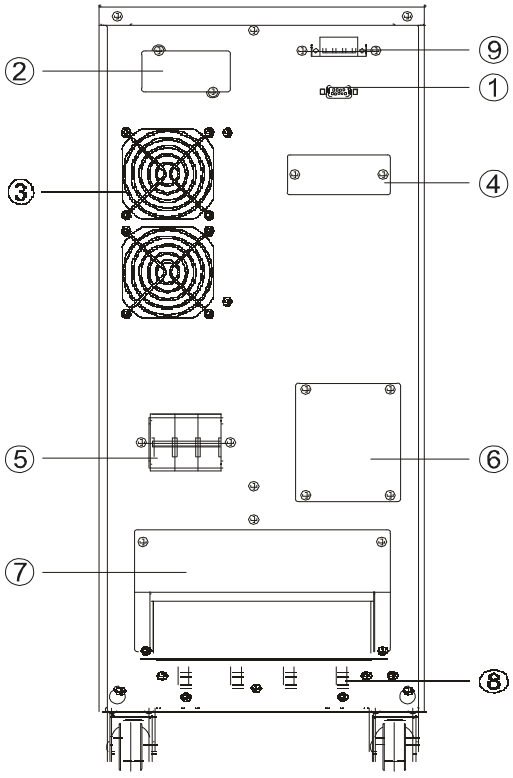
EX10K



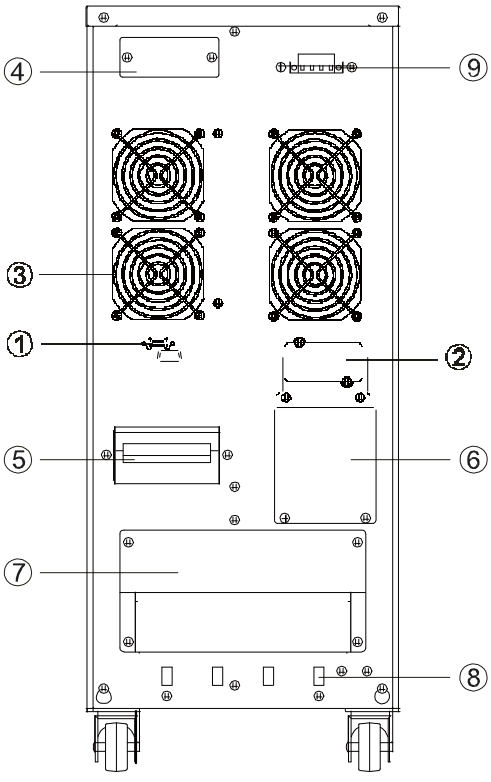
EX6KL



EX10KL



EX3110KL



EX3115KL/EX3120KL

① Computer Interface
② Intelligent Slot
③ Fan
④ Parallel Card Plate (selectable accessory)
⑤ Input Protective Breaker
⑥ Maintenance Switch cover plate (Maintenance bypass switch is just available for professional rev)
⑦ Terminal Blocks Cover
⑧ Self-locking frame
⑨ EPO (Just available for professional rev)

Remarks:
1. About the model with parallel card and maintenance switch please remove the cover of ④ and ⑥, and then you can see parallel card and maintenance switch.
2. The appearances above are available for standard rev and professional rev.

1.4 Product Specification

Model	EX6K	EX6KL	EX10K	EX10KL	EX3110KL	EX3115KL	EX3120KL
Dimension(W×D×H)	248×500×616	240×500×460	248×500×616	240×500×460	248×500×616		
Net Wight(kg)	57	18	67.5	20	27	35	35
Power							
Apparent Power /Active Power	6KVA/4.8KW		10KVA/8KW			15KVA/12KW	20KVA/16KW
Mains							
Voltage Range	120VAC～275VAC						
Current	33A MAX	37A MAX	55A MAX	59A MAX		86A MAX	112A MAX

Frequency Range	46Hz～54Hz						
Power Factor	0.99				0.95		
Output							
Voltage	220VAC×（1±1%）						
Current	27A		45A		68A	91A	
Frequency	46Hz~54Hz (Line Mode. Same as input frequency), 50Hz×(1±0.1%)(Battery Mode)						
Power Factor	0.8						
Overload Capability	105%～125%,1 minutes minimum, then transfer to bypass and alarm, Bypass over load > 30 minutes then turn off output； 125%～135%，30 seconds minimum, then transfer to bypass and alarm. Bypass over load > 1 minutes then turn off output;; >135%，0.5 seconds minimum, then transfer to bypass and alarm.						
Crest Factor	3：1						
THD	THD<2% (Linear Load)						
Battery(High ambient temperature shortens the battery's lifetimes）							
Backup Time	4minutes (Full Load)	Depend on the capacity of external battery	3minutes (Full Load)	Depend on the capacity of external battery			
Recover Time	<7 Hours Comeback to 90%	Depend on the capacity of external battery	<7 Hours Comeback to 90%	Depend on the capacity of external battery			

*. The maximum input current is got at input 187V, full load and full charge current.

Model	EX6K	EX6KL	EX10K	EX10KL	EX3110KL	EX3115KL	EX3120KL
EMC							
ESD	IEC61000-4-2 Level 4						
RS	IEC61000-4-3 Level 3						
EFT	IEC61000-4-4 Level 4						
Surge	IEC61000-4-5 Level 4						
Operating Temperature	0℃～40℃						

Storage Temperature	-25℃～55℃
Humidity	20%～90% (Non condensing)
Altitude	<1000m

High altitude area load=rated power × derating coefficient (corresponding to altitude)

Altitude(m)	1000	1500	2000	2500	3000	3500	4000	4500	5000
Derating coefficient	100%	95%	91%	86%	82%	78%	74%	70%	67%

⚠ Note: if the UPS is installed or used in the place where the altitude is above than 1000m, the output power must be derated in using, please refer to the above table.

2. Installation

⚠Dangerous: For safety, please cut off the mains power switch before installation, the battery breaker also need to be cut off if it is a long backup time model (“L” model)

⚠Note: 1. Installation and wiring must be performed in accordance with the local electric code and the following instructions by professional people.

2. Suggest installing on ground directly.

2.1 Unpacking Inspection

1. Inspect the appearance of the UPS to see if there is any damage during transportation. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or lacking of some parts.
2. Unpack the packaging and check the package contents. The shipping package contains:
   A UPS
   A user manual
   Ten connection terminals

Recycle: The packing material is recycled, please reserve packing material for using in the future.

2.2 Wiring Table

Note： The diameter of connection wire depend on rated power of UPS

In the below table, for single phase model, “L” represents line wire, for three phase model, “L” represents the wire of L1,L2,L3 and the diameter of three phase is the same.

Model		EX6K	EX6KL	EX10K	EX10KL	EX3110KL	EX3115KL	EX3120KL
Input	G	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	N	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	L	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
Battery	+	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	-	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	G	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
Output	L	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	N	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²
	G	10AWG 6㎜²	10AWG 6㎜²	8AWG 10㎜²	8AWG 10㎜²	8AWG 10㎜²	6AWG 25㎜²	6AWG 25㎜²

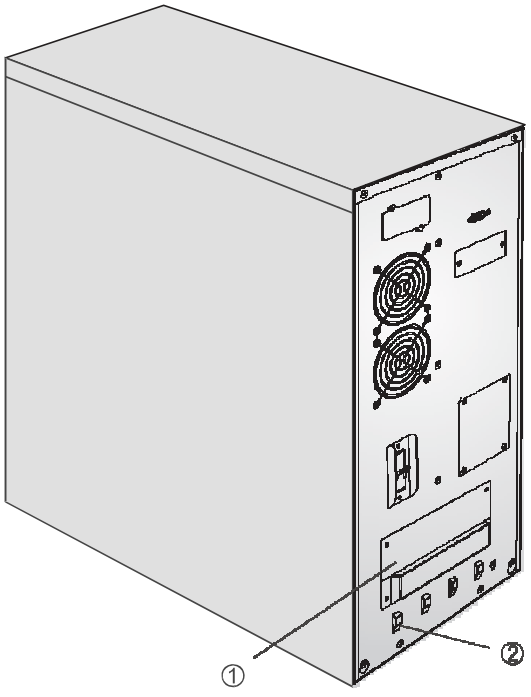
2.3 UPS Connection

Dangerous: The rated current of mains breaker installed by user must bigger than input current of UPS, or the mains breaker may be damaged.(About maximum input

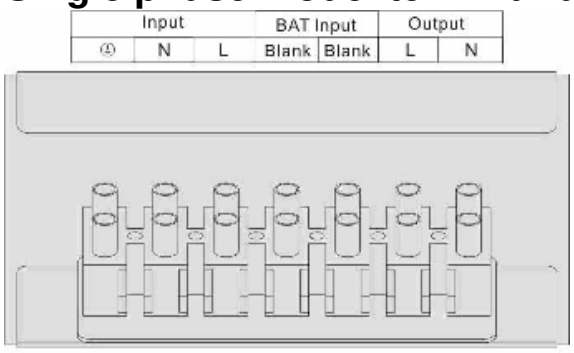
current please refer to 1.4)

1. Select proper wire according to wiring table
2. Open the terminal block cover① on the back panel of UPS
3. Connect the input and output wires to the corresponding input and output terminal, if need connect batteries then connect the battery cables to the battery input terminal.
4. Lock input, output and battery wire on self-locking frame② by self-locking cable, regulate the position of self-locking cable and fix it.

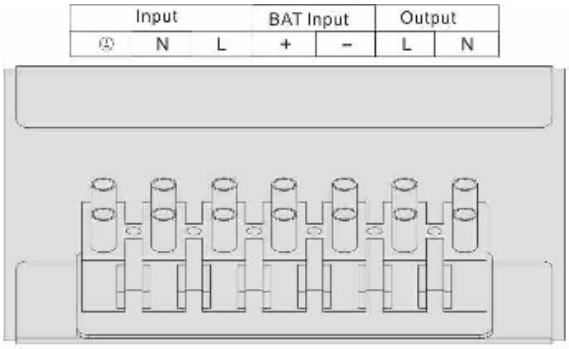
⚠ Note: you must make sure that the input and output wires and the input and output terminals are connected tightly.



Single phase model terminal block:

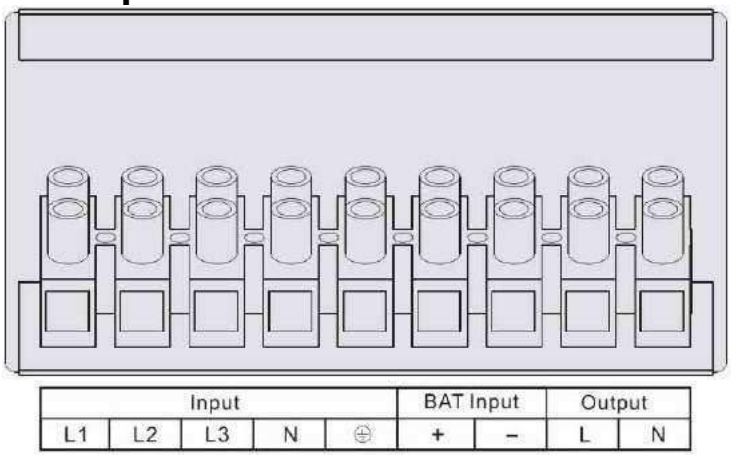


EX6K/EX10K (BAT Input terminal is useless)



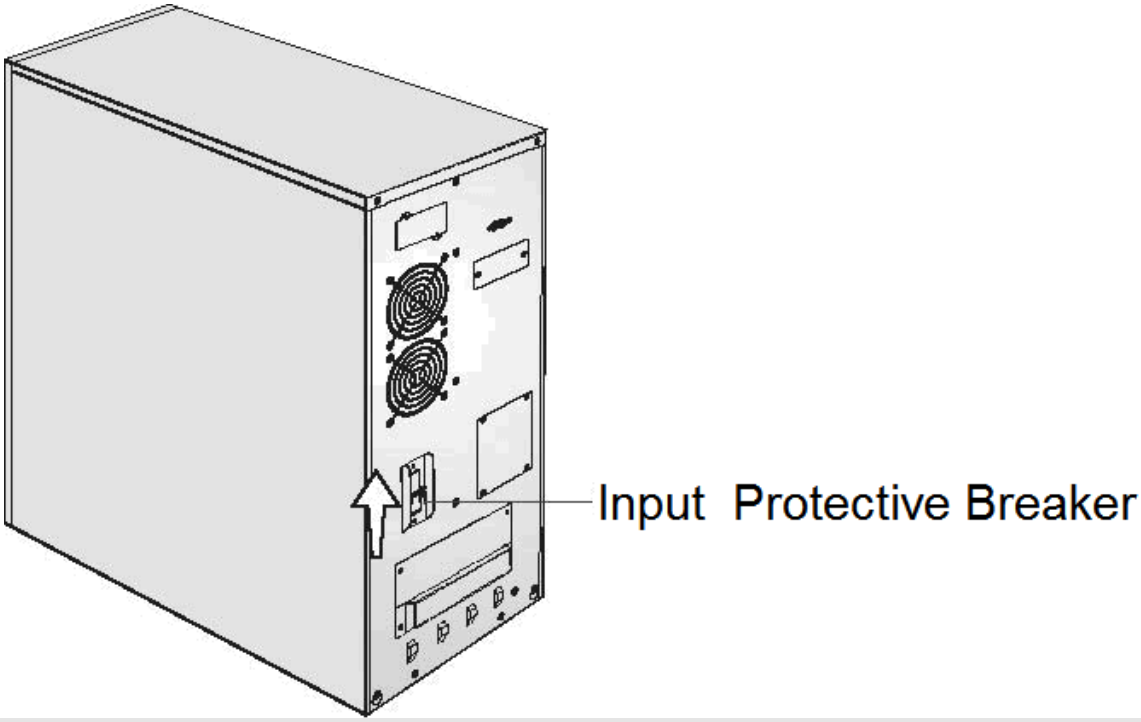
EX6KL/EX10KL

Three phase model terminal block:



EX3110KL/EX3115KL/EX3120KL

5. Install the terminal block on back panel and screw tighten it.
6. After connecting wires, turn on main power, and then turn on UPS input protective breaker and UPS.



2.4 Operation Procedure of External Battery for Long Backup Time UPS

The nominal DC voltage of external battery pack is 192VDC. Each battery pack consists of 16 pieces of 12V maintenance free batteries in series. To achieve longer backup time, it is possible to connect multi-battery packs, but the principle of “same voltage, same type” should be strictly followed. The procedure of battery connection and installation is very important; the procedure of installing battery bank should be complied with strictly. Otherwise you may encounter the hazardous of electric shock. Please comply with below procedure.

1. A DC breaker must be connected between the battery pack and the UPS. The capacity of breaker must be not less than the data specified in the general specification.

16 pieces batteries 192VDC

Model	EX6K(L)	EX10K(L)	EX3110KL	EX3115KL	EX3120KL
BAT Voltage	192VDC	192VDC	192VDC	192VDC	192VDC
BAT Current	34A. max	56A. max	56A. max	83A.max	112A. max

2. Set the battery pack breaker in “OFF” position and connect the 16 pieces of batteries in series, select proper battery wire to connect batteries and UPS (refer to 2.2 wiring table).

⚠Dangerous: You must connect the external battery cable to the battery first, if you connect the cable to the UPS first, you may encounter the

hazardous of electric shock.

3. To complete the connection by connecting the external battery cable with corresponding terminal on terminal block of the UPS. Do not attempt to connect any load to the UPS now. You should connect the input power wire to the right position first. And then set the breaker of the battery pack in the “ON” position. After that, set the mains input protective breaker in the “ON” position. The UPS begins to charge the battery packs at the time.

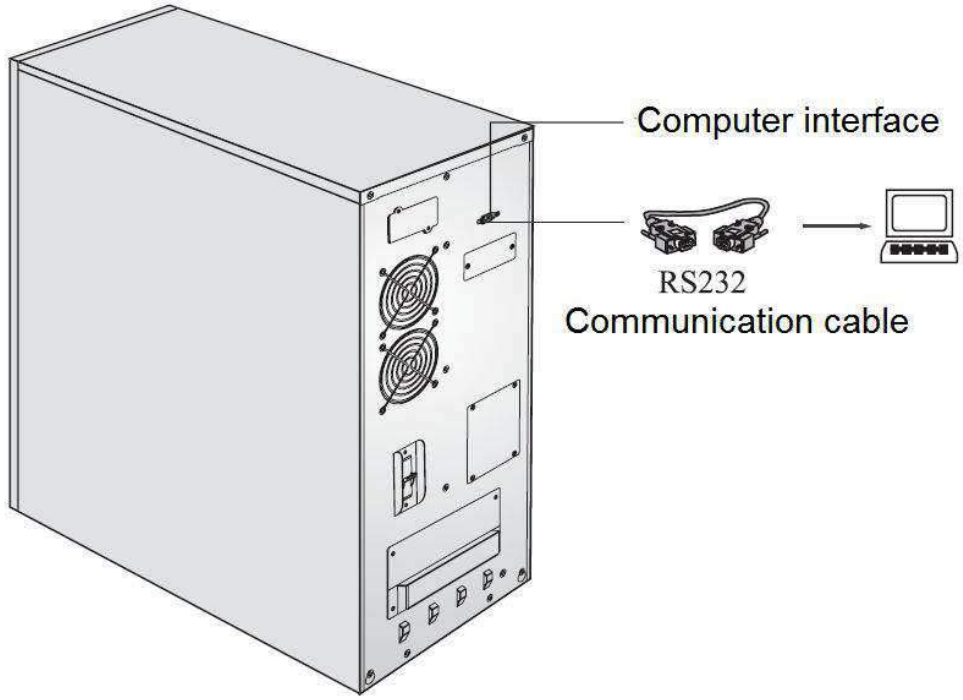
⚠Note: The battery protective earth ground of UPS is case ground on the right of terminal block of UPS, The symbol is⏚.

2.5 Connect to Computer interface

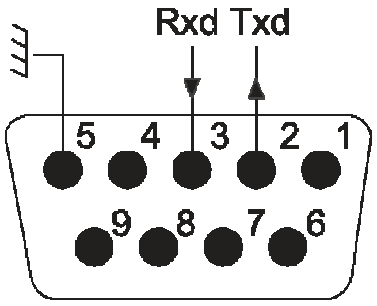
Computer interface: The type of signals, serial command (RS232), is provided by the UPS to communicate with a host computer, User can use WinPower software to monitor the UPS through the port.

1. Connect the RS232 communication cable to serial command port of computer.

2. Connect the RS232 communication cable to serial command port of UPS.



The pin position of computer interface of UPS show as below：



2.6 Parallel Card (Optional Accessory)

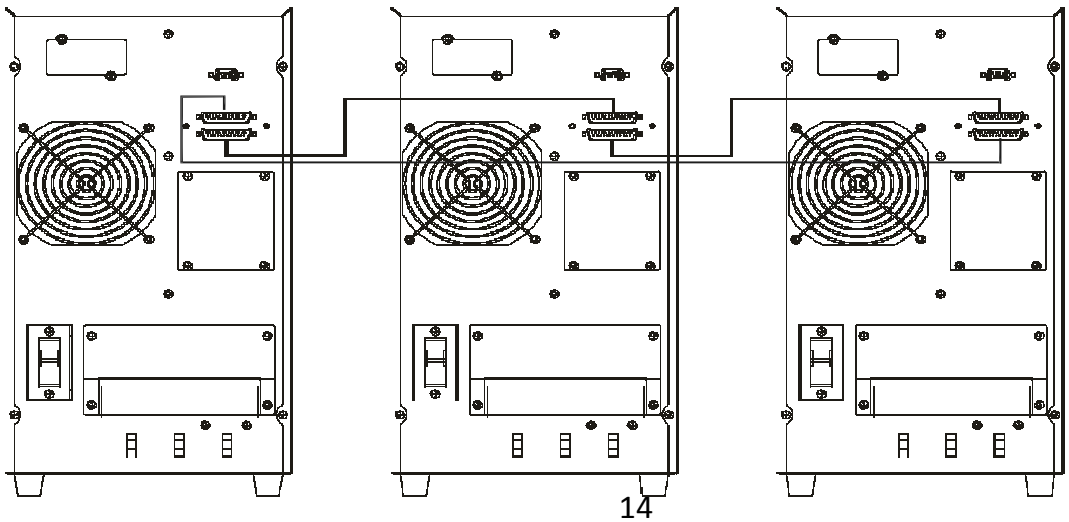
1. Brief introduction of the redundancy

N+X is currently the most reliable power supply structure. N represents the minimum UPS number that the total load needs; X represents the redundant UPS number. The bigger the X is, the higher reliability of the power system is. For occasions where reliability is highly depended on, N+X is the optimal mode.

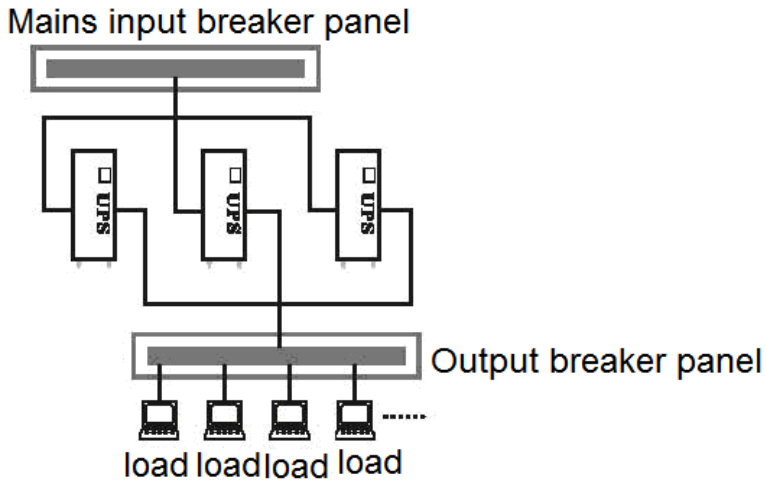
2. Parallel installation

Parallel function is a selectable function, user can buy parallel function component (consist of parallel card and parallel cable) then install by professional service person, the maximum parallel quantity is 3 pieces, N UPS should be supplied by N battery packs respectively,

1) Take down the parallel cover, connect the parallel cable: Parallel card is the communication interface between UPSs in parallel, connect parallel cable between UPSs in parallel through parallel card



2) Connect the output wires of each UPS to an output breaker panel, and then connect from output breaker panel to load.



⚠Note:

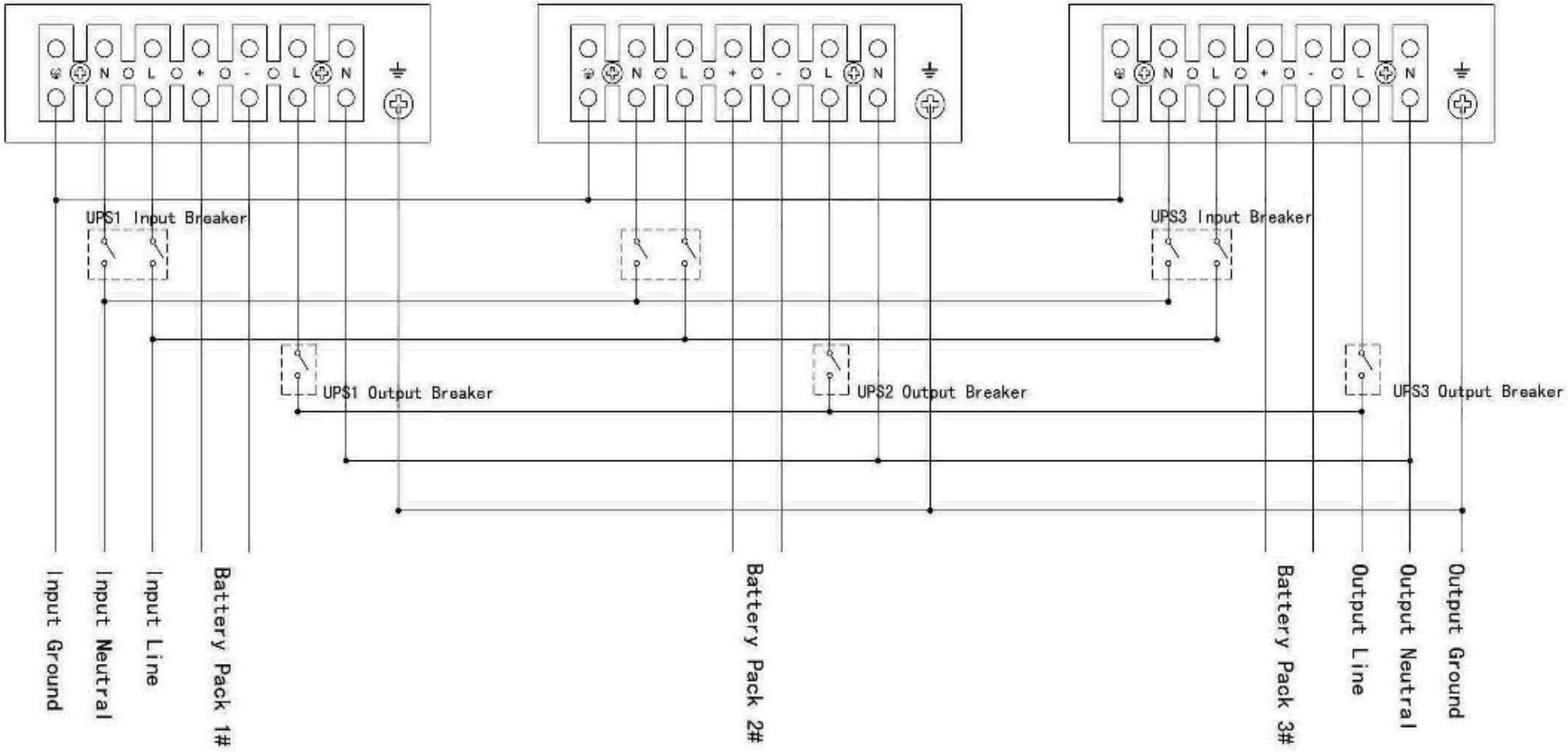
The requirement of the output wiring is as following:

When the distance between the UPSs in parallel and the breaker panel is less than 20 meters, the difference between the wires of input & output of the UPSs is required to be less than 20%;

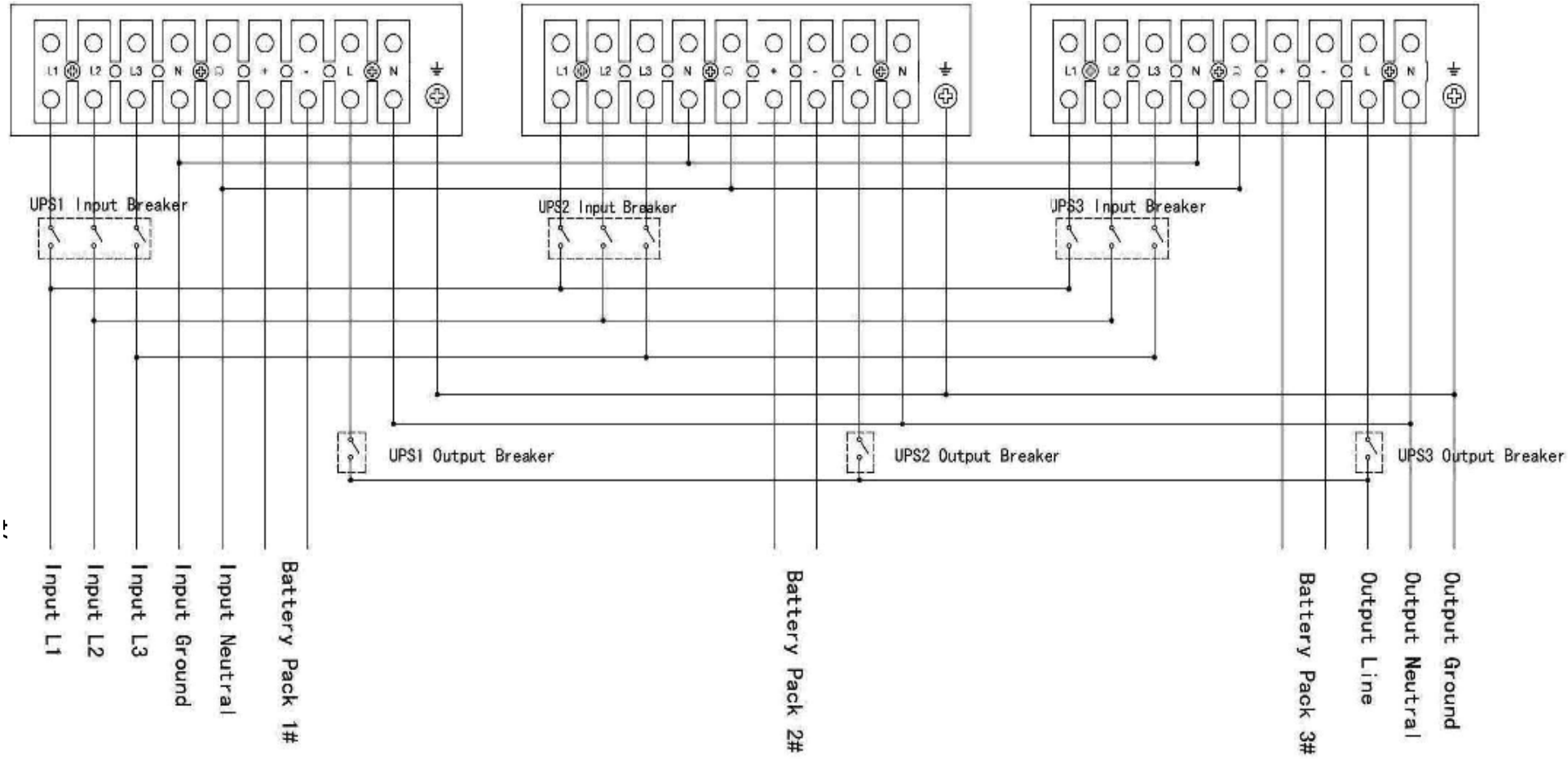
When the distance between the UPSs in parallel and the breaker panel is greater than 20 meters, the difference between the wires of input & output of the UPSs is required to be less than 10%.

---

3) UPS in parallel wiring diagram shows as below, the wiring of every UPS should comply with wiring requirement of UPS in standalone,
4) Every UPS should be supplied by alone battery pack respectively



EX6K(L) EX10K(L) Parallel Connection Figure



EX3110KL EX3115KL EX3120KL Parallel Connection Figure

3. Merit representation of UPS in parallel

It can improve the reliability of power system through redundant structure. Two UPS in same capacity afford same load, when one UPS is fault another UPS can afford the load alone. It is so called 1/2 redundant, fault UPS can be repaired respectively, every UPS of professional rev has maintenance bypass switch built-in.

4. Operation introduction

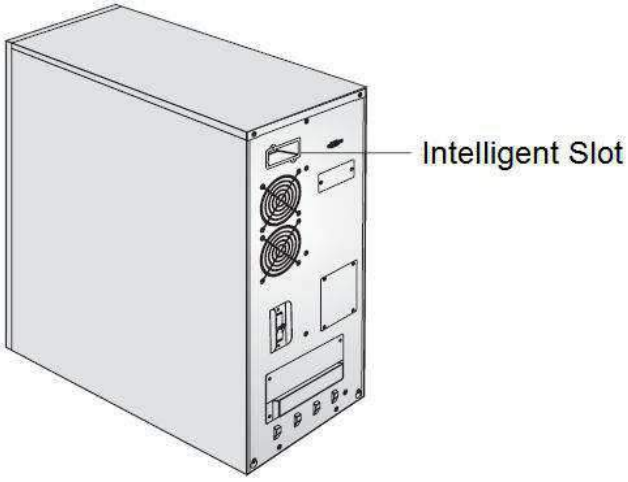
1) To perform the general operation, follow the stand-alone operating requirement;
2) Startup: Startup in line mode: Just press ON/OFF button of one UPS long after turn on mains input protective breaker of all UPS, The units transfer to INV mode simultaneously as they start up sequentially in utility power mode; Startup in battery mode: press ON/OFF key of every UPS shortly, the power supply of UPS will be available, then press ON/OFF button of one UPS long, all other UPS will startup simultaneously, all UPSs operate in battery mode.
3) Shutdown: Press ON/OFF button of one UPS longer than 4S (2 beep), the units shut down sequentially in INV mode. When the last one completes the shutdown action, each unit will shut down the inverter simultaneously and transfer to bypass mode; Press ON/OFF button of one UPS longer than 1S and less than 4S, then the UPS will shut down alone.

⚠Note: Pressing ON/OFF button long represent longer than 1S, pressing ON/OFF key shortly represent less than 0.5S

2.7 Installation of Intelligent Card

Intelligent card is located at intelligent slot of back panel, It doesn't need shutdown UPS when install intelligent card.

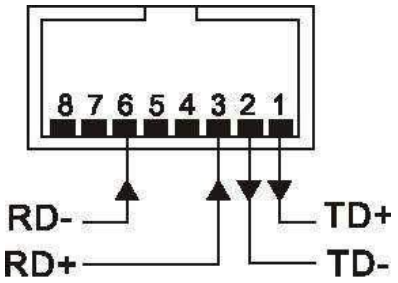
1. Remove the cover board of intelligent slot.



2. Insert intelligent card into intelligent slot.
3. Install intelligent card with screw.

- **SNMP Card (Optional Accessory)**

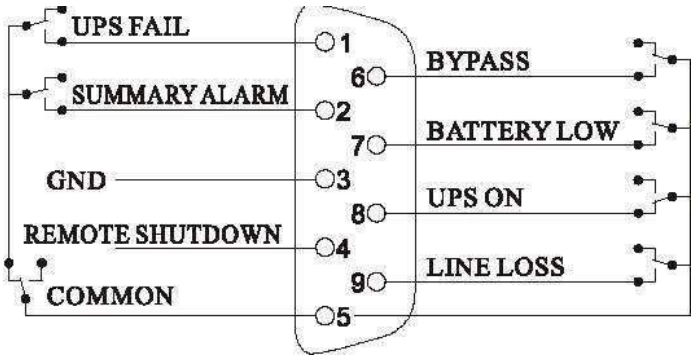
Intelligent card is located at intelligent slot of back panel of UPS provide data allowed by SNMP.



- **AS400 Card (Optional Accessory)**

Installing AS400 card in intelligent slot can achieve monitor function through AS400 system, pin introduction of AS400 card used as power supply monitor management show as below:

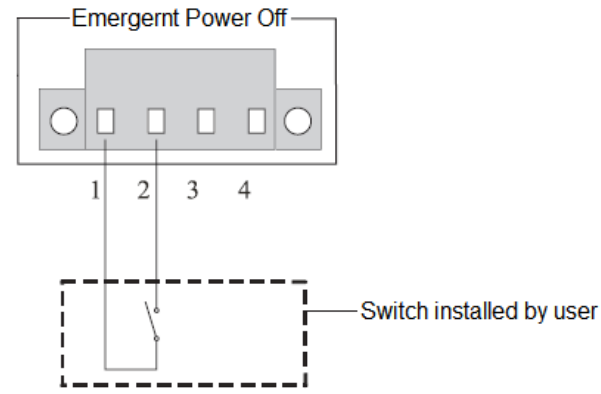
PIN	meaning
PIN1	ON: UPS fail
PIN2	ON: Summary alarm
PIN3	Ground
PIN4	Remote Shutdown
PIN5	Common
PIN6	On: Bypass
PIN7	On: Battery Low
PIN8	On: UPS On; Off: Bypass
PIN9	On: Line Loss



2.8 EPO (Optional Accessory)

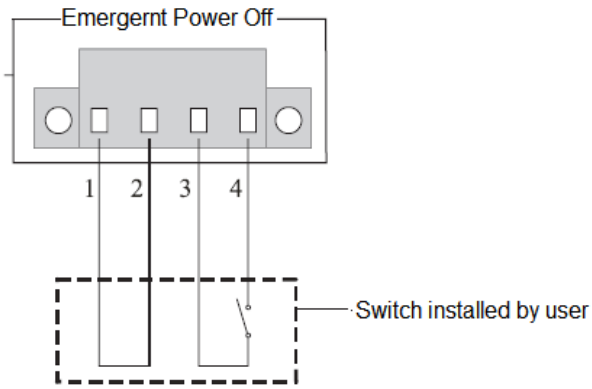
EPO (Emergent Power Off), EPO appears in green terminal located at back panel of UPS, user can shut down UPS through EPO in emergency. There are two connection methods showing as below:

①、



UPS power off urgently when pin1 and pin2 are on

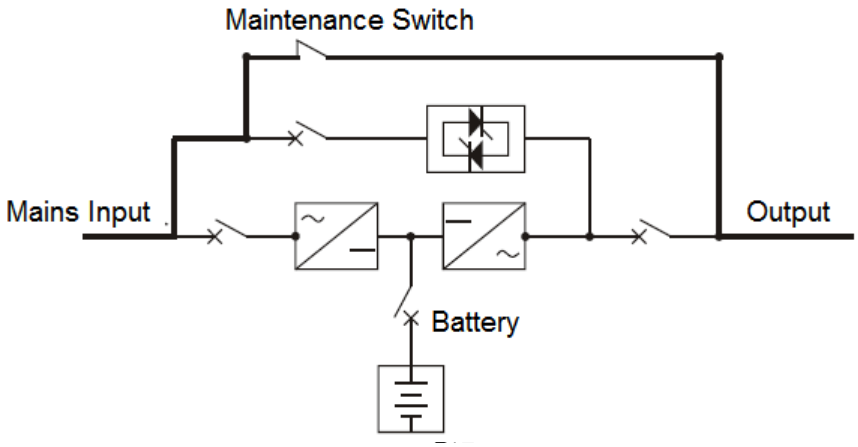
②、

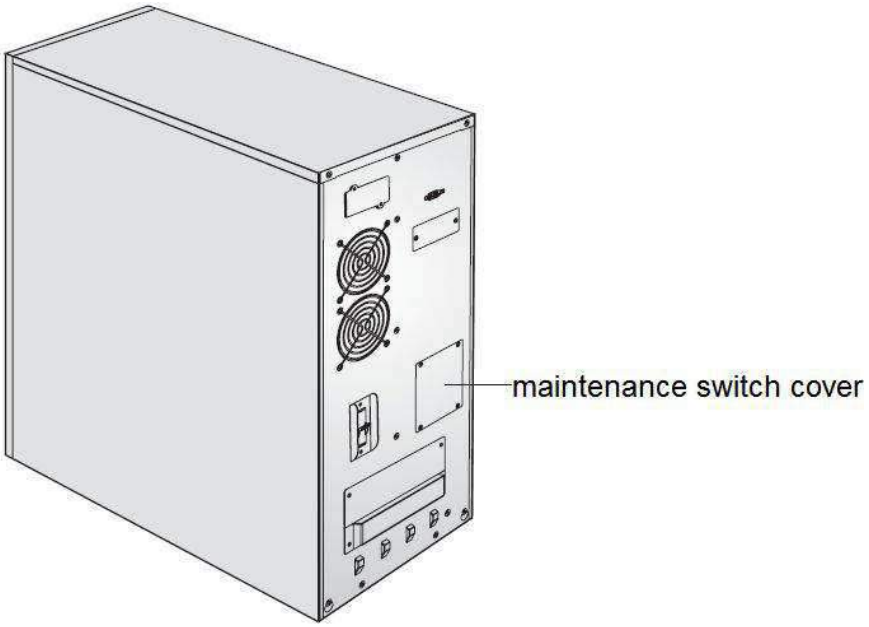


Short pin1 and pin2, UPS power off urgently when pin3 and pin4 are off

2.9 Maintenance Switch (Optional Accessory)

User can maintain UPS through maintaining switch, the diagram shows as below, most components of UPS is electrophorus in line mode, battery mode and bypass mode, user can separate mains from UPS through maintenance switch.


Maintenance Switch
Mains Input
Output
Battery


maintenance switch cover

2.10 Dust-proof (Optional Accessory)

Dust-proof can prevent dust from entering into UPS, it is necessary to use dust-proof in the area with high dust and smog. Dust-proof is installed inside of front panel. About installation procedure, please refer to installation manual of dust-proof.

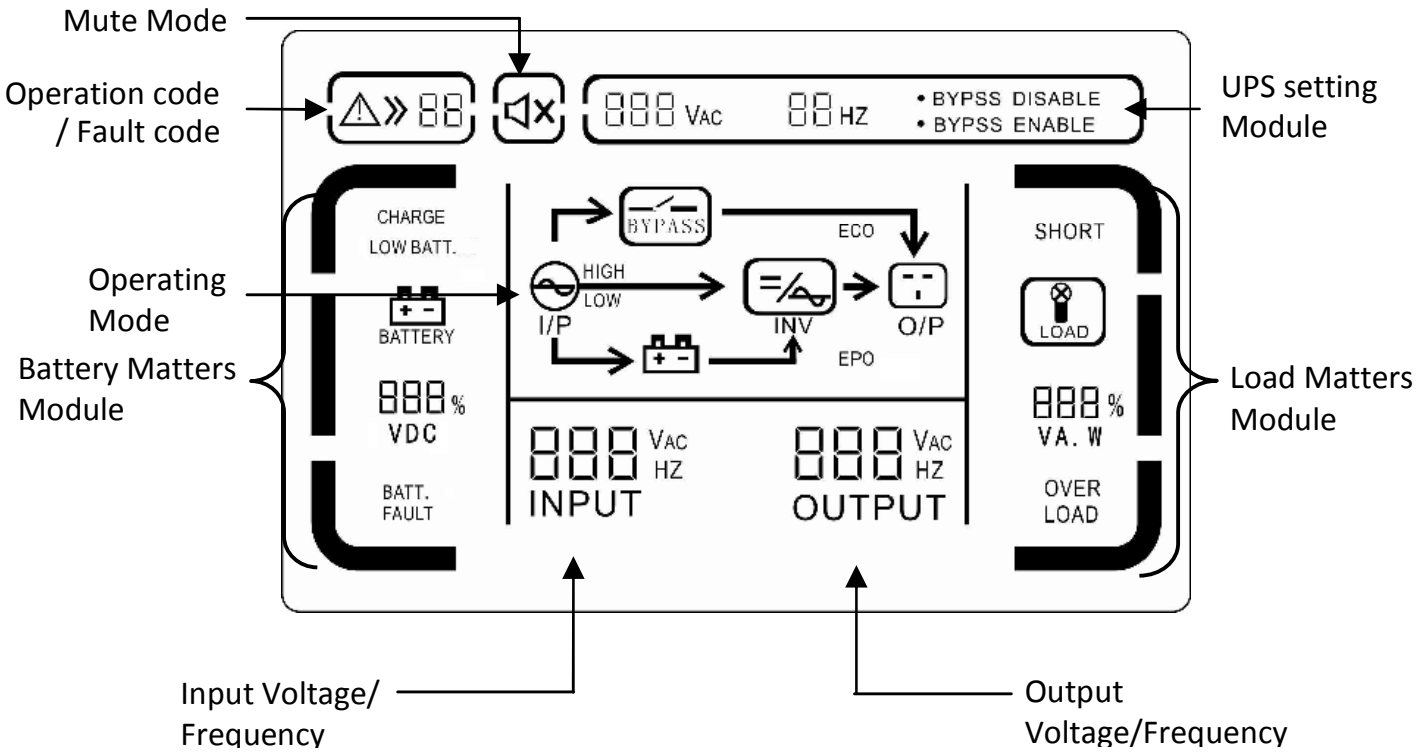
1. Dismantle front panel.
2. Install dust proof
3. Install front panel on UPS.

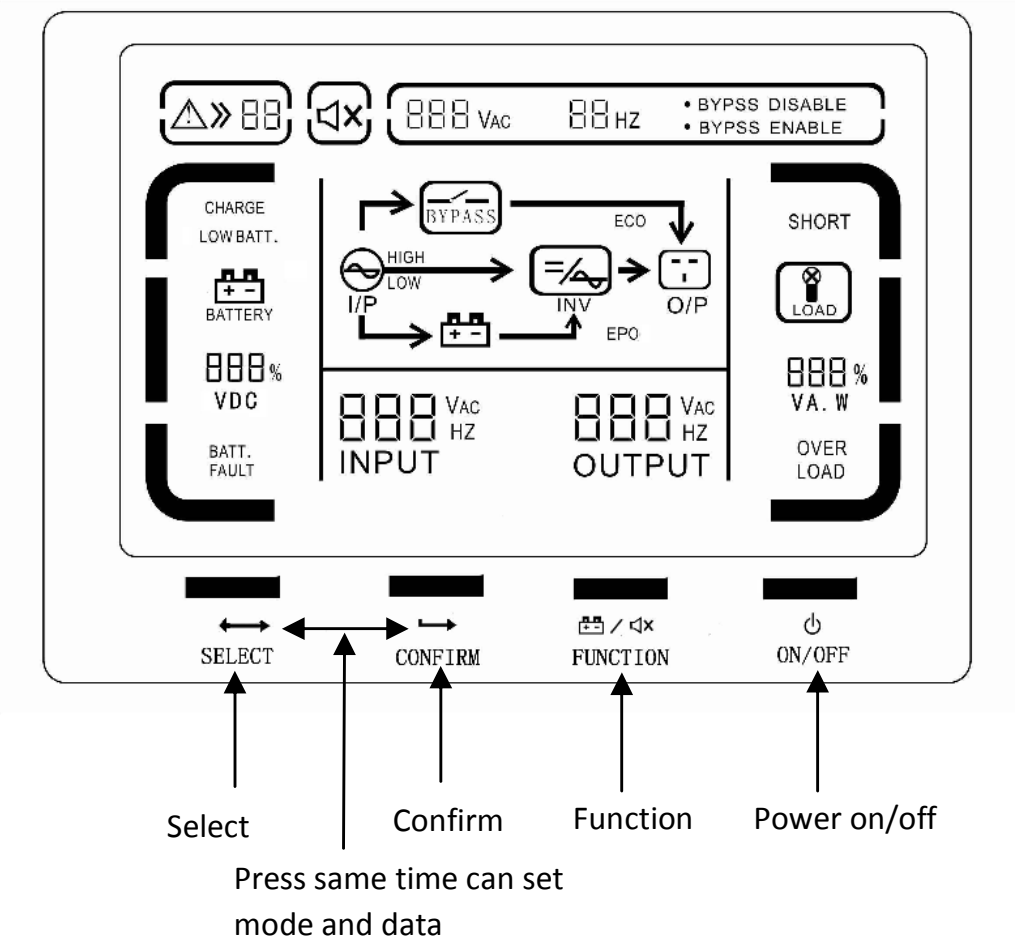
2.11 Box of Insulating Transformer (Optional Accessory)

Insulating transformer can filter interference and make current more steady, it can prevent other equipment in the power system from interfering UPS, User can install insulating transformer box by their requirement.

3. Control Panel

3.1 Panel Description





3.2 Button Description

Button Name	Function
Power on/off	Press it and hold over 2s, UPS will start. And press it and hold over 3s again, UPS will shut down.
Function	Press it 1s, UPS will work in mute mode. And press it and hold over 2s, UPS will test batteries automatically.
Confirm	Only in valid when UPS parameter adjust mode, press down and hold over 1S, to confirm and save parameters.
Select	When press down both Select button and Confirm button at same time, it will be UPS setting mode, hold them over 2S, user can enter UPS parameter adjust mode (Voltage, Frequency)

3.3 Panel Display & Meaning

Display Sign	Meaning
	When UPS failure this signal will display, and together with the corresponding code.
	00 Standby mode; 01 AC mode; 02 Battery Inverter mode; 03 Battery test mode; 04 Power saving mode; 05 Bypass mode.
	Battery mode mute display, when mute mode, will show “X”.
	Display output voltage when set parameter, can set 200V, 208V, 220V, 230V, 240V.
	Display output frequency when set parameter, can set 50Hz, 60Hz, AF (Autosense 50/60).
	Display remaining battery capacity, battery voltage, battery capacity and voltage parameter; automatically switch the display every ten seconds.
	Display AC input voltage and frequency; automatically switch between frequency and voltage every ten seconds.
	Display output voltage and frequency; automatically switch between frequency and voltage every ten seconds.
	Means Bypass mode.
	Display “HIGH” means AC input voltage high; display “LOW” means AC input voltage low. When AC is normal, will show nothing. When neutral line and fire wire reverse, it will flash every second.
	Display UPS inverter mode.
SHORT	Means output short circuit.

888 % VA. W	Display load capacity, When VA value>W value, show VA value, and when W value>VA value, show W value.
OVER LOAD	Means Overload. When overload, it will alarm and flash every second.
	Display Load.
CHARGE	Means battery is being charged.
LOW BATTERY	Means battery voltage is low, when alarm it will flash every second.

3.4 Fault Code & Meaning

Fault code	Fault	Reason & Solve
01	BUS soft start overtime (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
02	BUS high voltage fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
03	BUS low voltage fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
04	BUS Unbalance Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
05	BUS Short circuit fault (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
06	Inverter soft start overtime (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
07	Inverter high voltage Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
08	Inverter low voltage Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
10	R phase inverter voltage short circuit (Fault sign T6 light, Alarm beeps continually, “SHORT” sign light)	Please contact with manufacturer or dealer.
17	R phase negative work Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
21	Unbalance current Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.

22	Overload Fault, (Fault sign T6 light, Alarm beeps continually, “OVER LOAD” light, right negative frame flash every 1s).	UPS load is bigger than UPS rated power, after decrease load equipments quantity, UPS will work normally. If still can not solve, please contact with manufacturer or dealer.
23	Over temperature Fault, (Fault sign T6 light, Alarm beeps continually)	UPS work environment is very bad, poor ventilation, room temperature is very high. Turn off UPS and wait for 10minutes let UPS cool down then turn on UPS. If still can not solve, please contact with manufacturer or dealer.
24	INV RLY can not close, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
25	INV RLY die, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
26	AC input SCR Fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
29	Rectifier fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
32	Communication cable not connected, (Fault sign T6 light, Alarm beeps continually)	Connect communication cable correctly. If still can not solve, please contact with manufacturer or dealer.
34	CAN communication cable fault, (Fault sign T6 light, Alarm beeps continually)	Replace with quality CAN communication cable, confirm connecting well. If still can not solve, please contact with manufacturer or dealer.
35	synchronizing signal fault, (Fault sign T6 light, Alarm beeps continually)	Replace with quality synchronizing signal communication cable, confirm connecting well. If still can not solve, please contact with manufacturer or dealer.
36	Operate power fault (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
37	Fan fault, (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Check if fan is full with dust, clear it and then turn on UPS. If still can not solve, please contact with manufacturer or dealer.

42	AC input fuse open circuit fault, (Fault sign T6 light, Alarm beeps continually)	Confirm if AC cable connect well, If still can not solve, please contact with manufacturer or dealer.
45	EEPROM data loss, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
55	NTC fault, (Fault sign T6 light, Alarm beeps continually)	Please contact with manufacturer or dealer.
57	Battery fault (Fault sign T6 light, Alarm beeps continually and "BATT FAULT" sign light)	Please contact with manufacturer or dealer.
59	Battery over charge fault (Fault sign T6 light, Alarm beeps continually and "BATT FAULT" sign light)	Please contact with manufacturer or dealer.
60	UPS model illegal warning (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Please contact with manufacturer or dealer.
61	Board abnormal warning (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Please contact with manufacturer or dealer.
62	ID repeat alarm (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Please contact with manufacturer or dealer.
63	Start abnormal warning (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Please contact with manufacturer or dealer.
64	Charger abnormal warning (Fault sign T6 flash every 1s, Alarm beeps every 1s).	Please contact with manufacturer or dealer.
65	Three phase lack of neutral wire, (Fault sign T6 flash every 1s, Alarm beeps every 1s, AC sign I/P LOW flash every 1s.)	Please contact with manufacturer or dealer.

4、Operate

4.1 Turn on/off UPS

Note: Although UPS inside batteries are already full charged when export, but after transport and storage, it will lose some capacity. Thus suggest user charge the batteries above 12hours before first use UPS, to ensure enough backup time.

1. Start UPS connecting with AC main power:

    1) UPS Connected to AC Main Power. UPS will work on

bypass mode.

2) UPS start to self-test after pressing UPS “Power ON” Button over 2s, the screen appear self-test sign, and then disappear. After self-test, UPS start.

2. Start UPS connecting with DC power without AC main power:

1) Without AC Main Power connected, turn on UPS by pressing “Power ON” button over 1s. UPS start to self-test, the screen appear self-test sign, and then disappear. The alarm beeps if any system or connection problems. Please don’t turn on UPS at this time, check for trouble-shooting firstly.
2) The UPS start procedures are same as connecting with AC main power, except the sign on UPS Screen is Battery Mode.

3. Shut down UPS when connecting with AC main power:

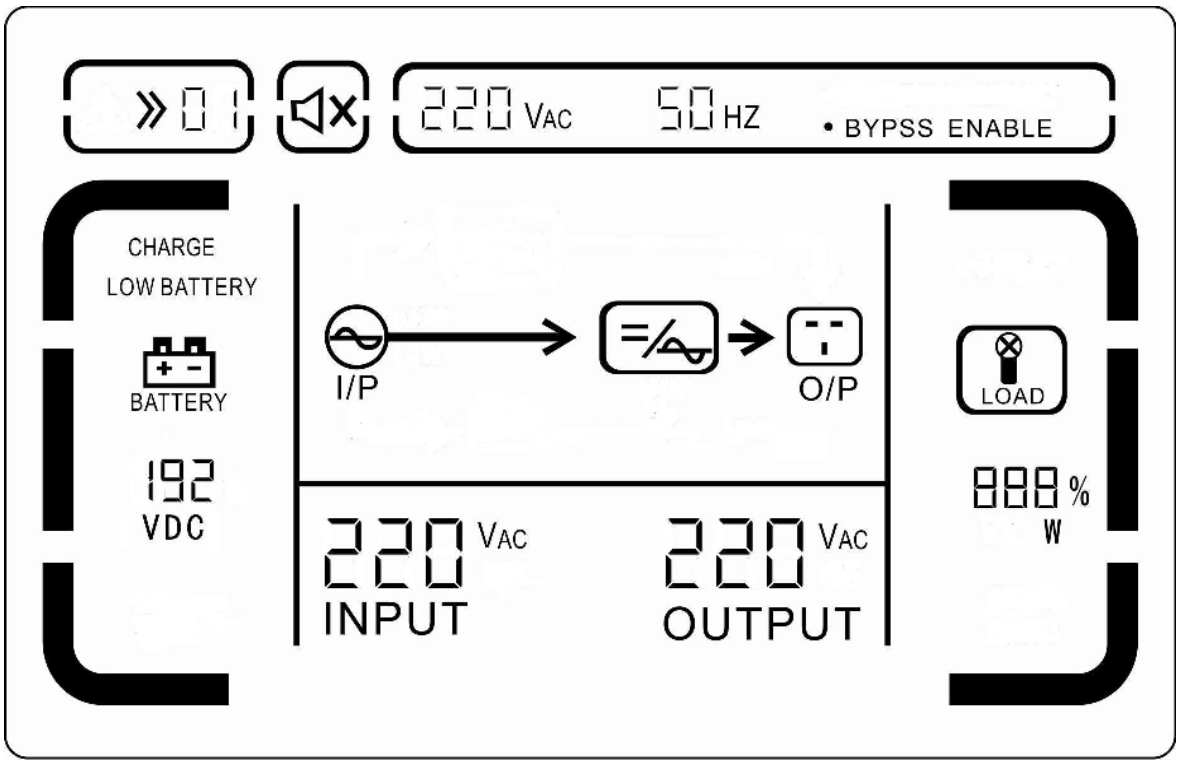
1) Press “Power Off” button continuously more than three seconds to shutdown UPS.
2) If set UPS work under bypass mode, bypass sign will light up, at this time UPS is working under bypass mode, so UPS still have output after power off. Please cut off AC Main Power if need UPS without output. At this time UPS will start to self-test firstly, finally there is no display on screen, and UPS is without output voltage.

4. Shut down UPS when connecting with DC power without AC main power:

1) Press “Power OFF” button continuously more than 3 seconds to turn off UPS.
2) UPS is with no display and no output voltage after shut down.

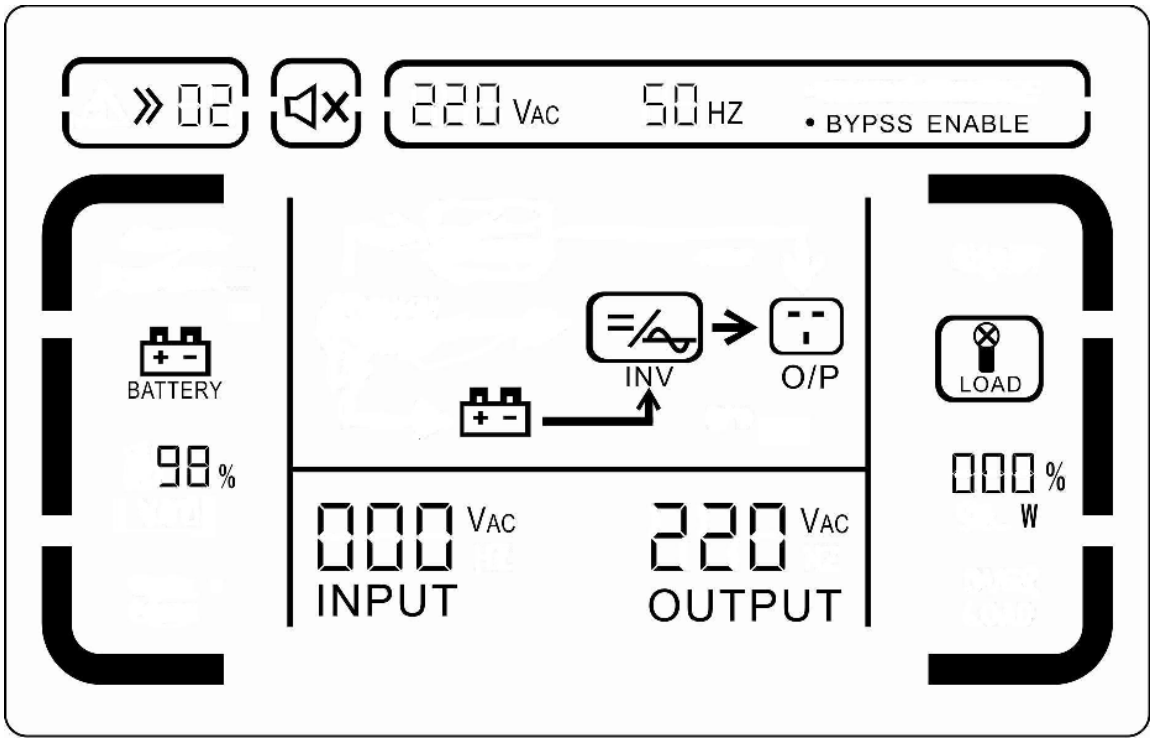
4.2 Operate mode

1. AC mode



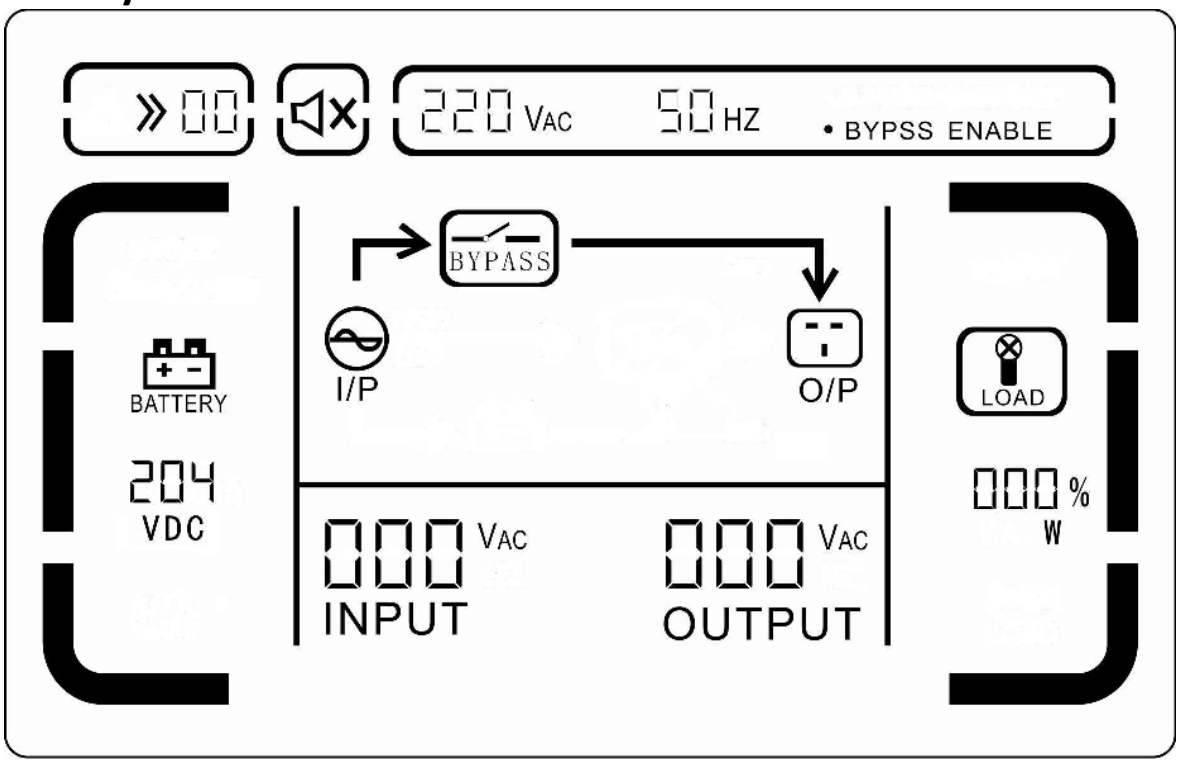
AC Mode

2. Battery Mode



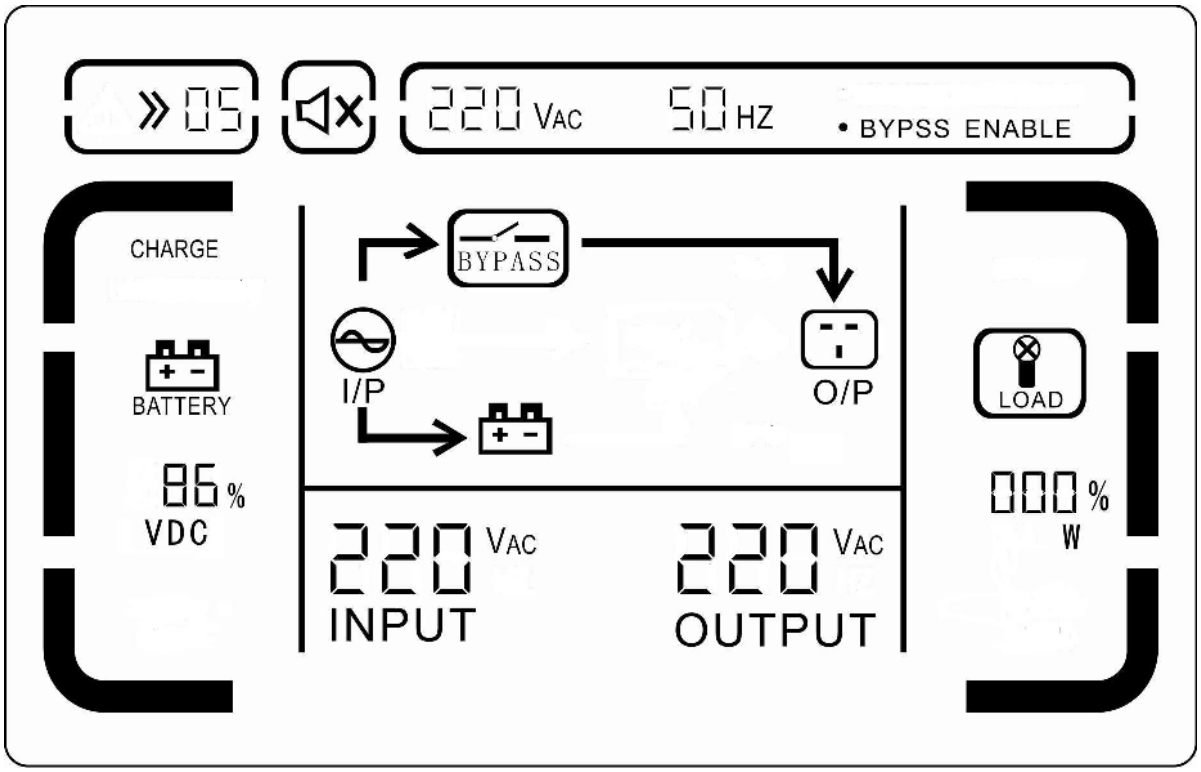
Battery Mode

3. Standby Mode



Standby Mode

4. Bypass Mode



Bypass Mode

5. Battery Maintenance

The battery is key component of the UPS. The battery lifetime depends on the circumstance temperature, charge and discharge times. High circumstance temperature and deep discharge will shorten the battery lifetime.

1) Sealed maintenance-free lead –acid battery be used in the standard. When being connected to the utility power whether the UPS has been turned on or not, the UPS keeps charging the battery and also offers the protective function of over charging and over discharging.

2) If the UPS has not been used for a long period, charging is recommended at the interval of 3 months.

Normally, the battery should be charged and discharged every 4 to 6 months. Charging should be begun after the UPS shout down automatically in the course of discharging. In the regions of hot climates, the battery should be charged and discharged every 2 months. Moreover, the standard charging time should be not less than 12 hours.

3) Batteries should not be replaced individually. All batteries should be replaced at the same time following the instruction of the battery supplier.

4) Under normal conditions, the battery lifetime lasts 3 to 5 years. In case if the battery is found not in good condition, earlier replacement should be made. The battery should only be replaced by qualified service person.

6. Warranty

We offer its product free warranty service for three years from the date of purchasing (Batteries below 12v24ah enjoy 1year warranty):

- To obtain service under warranty via an valid guarantee offered by dealers;
- To obtain service under warranty via serial number.

In case of UPS fault, please contact the nearest service center and dealer. The transportation charges shall be born by the buyer within the warranty period.

This limited warranty does not apply to conditions as following.

- Out of warranty validity;
- The finished product which the serial number is changed or lost;
- Damage or loss resulted from force majeure or external causes including transport, move improperly, careless mistake and so on;
- Disobeying provisions of operating/using the unit;
- Battery over discharged or man-made damage.

Version：01
614-12006-01