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## **1** Safety Information

## 1.1 Declaration of Safety conformity and CE marking

TESCOM UPS system is designed and manufactured in accordance with ISO 9001 Quality Management Systems and ISO 14001 Environmental Management System standards. The CE marking indicates compliance with the EEC Directive by the application of the following standards in accordance with the specifications of the harmonized standards:

- 2014/35/EC Low voltage directive
- 2014/30/EC Electromagnetic Compatibility directive (EMC)
- 2011/65/EU (incl. 2015/863/EU) RoHS Directive

#### Standards as reference:

• EN-IEC 62040-1

Uninterruptible power supply (UPS). Part 1-1: General and safety requirements for UPS's used in accessible areas by end users.

• EN-IEC 62040-2

Uninterruptible power supply (UPS). Part 2: EMC requirements

• EN-IEC 62040-3

Uninterruptible power systems (UPS). Part 3: Performance and test requirements • 2011/65/EU

Restriction of the use of certain hazardous substances (RoHS) directive

## 1.2 UPS safety information

- Read all safety information and operating instructions carefully before attempting to install, service or maintain the UPS. Save this manual properly for reuse.
- This UPS is intended for indoor use only.
- Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- Be sure the air vents on the UPS are not blocked. Allow adequate space against the wall for proper ventilation.
- Do not open the UPS case as you will, there is a high risk of electric shocks inside. All connection/wiring/servicing must be performed by a qualified electrician.
- Do not connect to the equipment like hair dryer or electric heater.
- Do not use liquid extinguisher if there is a fire, a dry powder extinguisher is recommended.

#### 

UPS has high voltage inside, do not repair it by yourself. If any questions, please

contact local service center or dealer.

## 1.3 Battery safety information

- Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life. Replacing battery periodically can help to keep UPS in normal state and assure backup time required.
- Battery installing or replacing should be performed by a qualified electrician. If you
  want to replace the battery cable, please purchase it from our local service center
  or distributors to avoid fever and lighter which can cause fire by inadequate power
  capacity.
- Batteries may cause electric shocks and have a high short circuit current, follow below requirements before installing or replacing the batteries.
  - A. Remove wristwatches, rings, jewelry and other conductive materials.
  - B. Only use tools with insulated grips and handles.
  - C. Wear insulated shoes and gloves.
  - D. Do not put the metal tools or parts on the batteries.
  - E. Before disconnecting the terminals from the batteries, cut off all the loads to the batteries first.
- Do not dispose of the batteries with fire. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte inside is harmful to the skin and eyes, and maybe toxic.
- Do not connect the positive pole and negative pole directly, otherwise it will cause electric shocks or will be on fire.
- The battery circuit is not isolated from the input voltage, high voltage may occur between the battery terminals and ground, check if there is no voltage there before touching.

#### **Disposal and Recycling**

Warning	\$	Dispose of used battery according to local instructions
	*	This symbol means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. If you want to dispose of this product, please contact your local authorities or your dealer and ask for the correct disposal method. Correct disposal of this product will help save valuable resources and prevent possible adverse effects on human health and the environment that could result from improper disposal.

#### **Note:** Symbol instructions:

Symbol	Symbol Significations		Significations
$\square$	Caution	$\oplus$	Protective earth
A	Danger! High Voltage!	Ŕ	Disable/mute audible alarm
ON	Turn on	2	Overload
OFF	Turn off	⊥⊢	Battery inspection
	U Standby or Shutdown		Repeat
AC			Display screen repeat key
DC		<del>* *</del>	Battery

## 2 Product Overview

## 2.1 Specifications

Model		Teos+	101RT	Teos+	102RT	Teos+103RT		
Rated Cap	acity	1 kVA /	900W	2 kVA /	1800W	3 kVA / 2700W		
Input								
Rated inpu	ıt voltage		208 V	ac / 220 Vac /	/ 230 Vac / 24	0 Vac		
Rated inpu	It frequency		:	50 Hz / 60 Hz	(auto-sense)			
1		110 ~ 17	76Vac (power	derating linea	arly between	50% and 100% load);		
Input volta	ge range	176 ~ 280Va	c (no derating	); 280 ~ 300\	/ac (power de	rating 50%)		
Input frequ	iency range			40~7	0 Hz			
PFC				≥ 0	.99			
THDI				≤ 6	3%			
Bypass vo	ltage range			-25% ~ +15	% (settable)			
Output								
Output vol	tage	208 Vac / 220 Vac / 230 Vac / 240 Vac(settable)						
Voltage ac	curacy	± 1%						
Output PF		0.9						
Inverter ov	verload	105% ~ 125% load: transfer to bypass in 1 min; 125% ~ 150% load: transfer to bypass in 30 s;						
capability		> 150% load: transfer to bypass in 30 s, > 150% load: transfer to bypass in 300 ms						
From mair BAT mode	is mode to	0ms (transfer time)						
From mair bypass	is mode to	4 ms (typical)						
Output	Line mode			Same as inp	out frequency			
frequency	BAT mode	(50 / 60 ± 0.1) Hz						
Total voltage harmonic distortion		≤ 2% (linear load); ≤ 5% (non-linear load)						
Batteries								
Battery type		Sealed lead acid maintenance free battery						
DC voltage	Э	24 V	36V	48 V	72V	72 V		
Inbuilt batt	ery	12 V / 9 Ah	12 V / 7 Ah	12 V / 9 Ah	12 V / 7 Ah	12 V / 9 Ah		

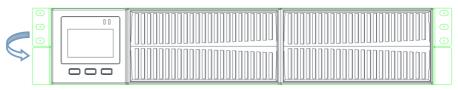
Quantity	2	3	4	6	6		
Champer autout valtage	07.4.0.4		54.0.00	81.3	81.3		
Charger output voltage	27.1± 0.4	40.6± 0.6	54.2± 0.8	± 1.2	± 1.2		
Recharging time			odel: 90% cap odel: depend				
Charging current (Max.)		Long time model: depend on the capacity of battery Standard model: 1 A					
System Control and C	ommunicatio	ons					
Protections		Over-temp protection; Fan testing protection; Overload protection; Output short circuit protection; Battery discharge protection					
Communication port	Sta	Standard: RS232; Options: USB, SNMP card, dry contacts					
Display		LCD+LED					
Environmental							
Operatinghumidity		0 ~ 95 %	5 RH @ 0 ~ 4	0°C (non-con	densing)		
Storage temperature		$-25^{\circ}C \sim 55^{\circ}C(exclude batteries)$					
Operating altitude	≤	1000m, abov	e 1000m, der	ate 1% for ea	ch rising 100m		
Protection class		IP20					
Noise level	≤50dB (at 1m)						
Others							
Dimensions (mm)	440*316*88	440*430*88	440*430*88	440*560*88	440*560*88		
W × D × H	440 310 00	440 430 00	440 430 00	440 000 00	440 500 66		
Weight (kg)	10.6	15.5	18.7	25.6	26.8		

\* Derate capacity to 70% in CUCF mode and to 90% when the output voltage is adjusted to 208V ac.

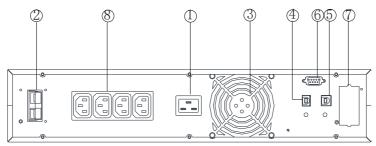
#### Note:

Model	Туре
Teos+101RT	1 kVA Standard model
Teos+102RT	2 kVA Standard model
Teos+103RT	3 kVA Standard model

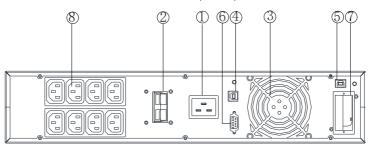
## 2.2 Front panel features



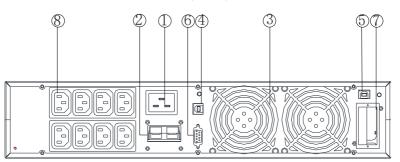
## 2.3 Rear panel features



a. Teos+101RT(DC24V)



b. Teos+102RT (DC48V)rear panel



c. Teos+103RT (DC72V) rear panel

① AC input socket	6 RS232 port
②Battery connector	⑦Intelligent slot
③ Fan	⑧Output sockets
④ USB port	
⑤EPO (Emergency Power Off) port	

#### Note:

The figure is for reference only. Due to the technology upgrading and development, the real unit might be different from the figure.

## 3 Installation

## 3.1 Unpacking inspection

- Open the UPS package and inspect the contents upon receipt. The accessories attached to the UPS contain a power cord, a user manual, communication cable, CD-ROM. The long backup model also includes the cable for connection to battery bank.
- Check if the unit is damaged during transport. Do not power on and notify the carrier and dealer if find damaged or parts missing.
- Verify this unit is the model you want to buy. Check the model name showed both on the front panel and rear panel.

#### Note:

Keep the packaging box and packaging materials for future transport use. The equipment is heavy. Always handleit with care.

## 3.2 Installation information

- The UPS installation environment must be in good ventilation, away from water, flammable gases and corrosive entities.
- Do not lie down the UPS against the wall so that front and side panel air intake hole, rear panel air outtake hole will be unobstructed.
- The ambient temperature around the UPS should be within  $0 \square {\sim} 40 \square$  ( non-condensing) .
- If dismantling the machine at low temperatures, there may be condensation droplets, users can not install or operate it before UPS completely got dry both inside and outside, otherwise there will be danger of electric shocks.
- Place the UPS near the mains source so that can cut off utility power without any delay in case of emergency.
- Make sure the load connected to the UPS is off when users connect it to UPS, and then turn on the load one by one later.
- Connect the UPS with the power outlet which is over-current protected. Do not connect the UPS with power outlets whose rated current is less than the maximum input current of this UPS.
- All power outlets should be configured with earthing device for safety.
- UPS could be electrified or powered no matter the input power cord is tied or not, even when the UPS is off. The only way to cut off the output is switching off the UPS and disconnecting the mains power supply.

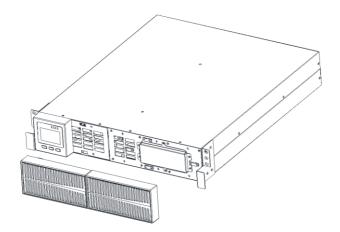
- For all standard model UPS, it is advised to charge the batteries over 8 hours before using. Once the AC mains power energizes the UPS, it will automatically charge the batteries. Without prior charging, UPS output remains as usual but with shorter back-up time than normal.
- When connected to motor, display equipment, laser printer etc., UPS power selection should be based on the startup power of the load which is usually twice as rated power.
- Wiring by a qualified electrician is required. Ensure input cables and output cables are connected correctly and firmly.
- If install a leakage current protective switch, please install it on output cable.

### 3.3 Installation and output connection

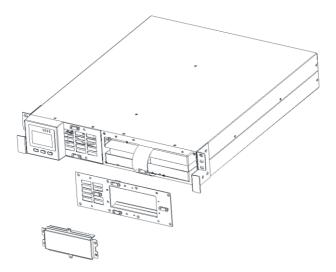
Normally, output connection of 1~3kVA series is configured with power outlets or terminal blocks, users can plug the load cable into the UPS power outlets to energize the load. Make sure the mains cable and breakers in the building are enough for the rated capacity of UPS to avoid the hazards of electric shock or fire.

## 3.4 Standard Model Built-in Battery Pack Installation Guide

Step 1 Make sure the UPS is in mains mode, remove the two plastic panels on the front.

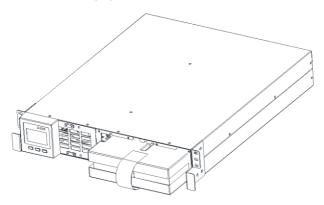


Step 2 Remove the two baffles in the picture below with a screwdriver.



Step 3 Separate the battery terminals, pull the plastic handle of the battery pack, and drag the battery pack out.

Note: The battery pack is heavy. Please pay attention to safety when taking the battery pack to prevent foot injury.



Step 4 After replacing the battery, put the battery pack back into the UPS. After connecting the battery terminals, lock the two baffles and cover the plastic panel.

## 4 Network Functions

## 4.1 Communication port

Users could monitor the UPS system through the communication port such as standard RS232 port and USB port with computer. Connecting this UPS with computer by communication cable could achieve UPS management easily.

#### >RS232 port:

Pins	1	2	3	4	5	6	7	8	9
Indication	empty	send	receive	empty	ground	empty	empty	empty	empty

#### Note:

RS232 interface is set as below:

- Bit rate: 2400 bps
- Byte: 8bit
- Completion code: 1 bit
- Bit pattern: None

#### >USB port:

Pins	1	2	3	4
Indication	+5V	date+	date-	GND

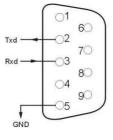
## 4.2 EPO port (optional)

EPO is the short for Emergency Power Off. EPO port is on the rear panel of the UPS. It's green. Users can cut off the output of UPS immediately by operating EPO port in case of emergency.

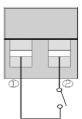
Normally, pin1 and pin2 are connected so that the machine can be working normally. When some emergencies happen, and when users have to cut off the output, just need to disconnect the connection between pin1 and pin2, or just pulling it out.

## 4.3 Intelligent card (optional)

There is an intelligent slot on the rear panel of the UPS, it's for SNMP card and dry contacts. Users can insert any type intelligent card from those three into it to monitor







and manage the UPS. And users don't have to turn off the UPS when install the intelligent card. Follow below process:

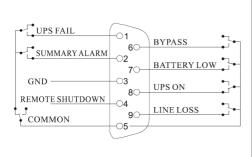
- First of all, remove the intelligent slot cover;
- Then insert the intelligent card (SNMP card and dry contacts);
- Finally, screw the intelligent card back.

#### > SNMP card (optional)

SNMP card on UPS is compatible with the most software, hardware and network operating system, it is a network management of UPS, with this function, UPS can login on internet, which can supply information of UPS status and input power, and even possible to control UPS via net management system.

#### > Dry contacts card (optional)

Insert the dry contacts card into the intelligent slot. It's another type function of intelligent monitoring.



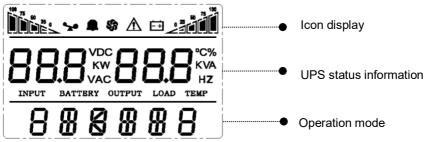
Position	Definition
PIN1	ON: UPS is malfunctioning
PIN2	ON: Alarm (system failure)
PIN3	Ground
PIN4	Remote shutdown
PIN5	Common
PIN6	ON: Bypass mode
PIN7	ON: Battery low
DINIO	ON: Inverter mode;
PIN8	OFF: Bypass mode
PIN9	ON: No AC power in

# 5 Operation

## 5.1 Button operation

Button	Function
"ON" key (	Press the two keys for more than half a second to turn on the UPS.
"OFF" key ( ◀ + ► )	Press the two keys for more than half a second to turn off the UPS.
TEST/MUTE key (	Press the two keys for more than 1 second in Line mode or ECO mode or CUCF mode: UPS runs the self-test function. Press the two keys for more than 1 second in battery mode: UPS runs the mute function.
INQUIRING key ( ◀ , ► )	<ul> <li>Not in setting mode:</li> <li>Press  or  for more than half a second (less than 2 seconds): display the items orderly.</li> <li>Press  for more than 2 seconds: Circularly and orderly display the items every 2 seconds, when press the key for some time again, it will turn to output status.</li> <li>In setting mode:</li> <li>Press  or  for more than half a second (less than 2 seconds): Select the setting option.</li> </ul>
FUNCTION SETTINGSkey (	<ul> <li>Not in setting mode:</li> <li>Press the key for more than 2 seconds: Function settings interface.</li> <li>In setting mode:</li> <li>Press the key for more than half a second (less than 2 seconds): go to the function setting options.</li> <li>Press the key for more than 2 seconds: exit from this function settings interface.</li> </ul>

## 5.2 Display interface



Display	Function
Icon display	
	Load icon:The approximate load capacity percentage (0-25%, 26-50%, 51- 75% and 76-100%) is indicated by the number of load bar sections illuminated.When UPS is overloaded, the load iconwill flash.
<b>A</b>	Mute icon: Indicates the audible alarm is disabled / mute. Press the mute key in the battery mode, themute icon flash.
ۍ ۲	Fan icon:Indicates fan working status. When the fan normally runs, the icon displays rotation; if the fan is not connected or faulty, the icon will flash.
Â	Fault icon:Indicates UPS is in fault mode.
	Battery status icon: Indicates the battery capacity of 0-25%, 26-50%, 51-75%, and 76-100%. When the capacity of battery get low or battery disconnected, the batterystatus iconwill flash.
UPS status information	
88.8 <sup>vdc</sup> vac	<ul> <li>In non-setting mode, it displays UPS output information when UPS normally runs; Fault code will be told in fault mode.</li> <li>In setting mode, users could adjust different output voltage, activate ECO mode, activate ALION mode, activate activat</li></ul>
88.8 <sup>°C%</sup> Hz	mode, activate CUCF mode, select an ID number and so on by operating function setting keys and inquiring key.
Operation mode	
888888	Indicates the power capacity of UPS within 20 secondsafter starting up. IndicatesUPS operation mode in 20 seconds, such as STDBY (standby mode), BYPASS (Bypass mode), LINE (AC mode), BAT (Battery mode), BATT (Battery Self Test mode), ECO (Economic mode), SHUTDN (Shutdownmode), CUCF (Constant Voltage and Constant Frequency mode).
LED indicator light func	tions
	They are respectively inverter light and fault light from left to right. The inverter light (green LED indicator light) illuminates continuously: it indicates that UPS is in mains mode or ECO mode or power supply status in battery mode. The fault light (red LED indicator light) illuminates continuously: it indicates that UPS is in fault status. Note: For LED indication in different modes, please refer to LED/display panel and alarm list.

## 5.3 UPS On/Off operation

Operation	Description
	> Turn on the UPS with mains power
Turn on the UPS	<ul> <li>With mains power connected, UPS works in bypass mode, its output is same as the input voltage within the input range. If there is no need of output voltage when mains power connected, you can set up bPS to 'OFF'. Default bPS is ON, it means there is bypass output when power on.</li> <li>Press the ON key for more than half a second to start the UPS, then it will start the inverter.</li> <li>Once started, the UPS will perform a self-test function. When the self-test finishes, it will turn to online mode.</li> <li><b>Turn on the UPS by battery without mains power</b></li> <li>When main power is disconnected, press the ON key for more than half a second to start UPS.</li> <li>The operation of UPS startup process is almost same as above process with mains power. After the self-test finishes, UPS will work in battery mode.</li> </ul>
Turn off the UPS	<ul> <li>&gt; Turn off the UPS in Line mode</li> <li>Press the OFF key for more than half a second to turn off the UPS.</li> <li>After UPS shutdown, there is no output. If output is needed, you can set BPS 'ON' on LCD setting menu.</li> <li>&gt; Turn off the UPS in battery mode without mains power</li> <li>Press the OFF key for more than half a second to turn off the UPS. When UPS shutdown, it will do self-test first, until there is no display on the panel.</li> </ul>
UPS self- test/mute test operation	<ul> <li>When UPS is in LINE Mode, press the self-test/mute key for more than 1 second. UPS gets to self-test mode and tests its status. It will exit automatically after finishing test.</li> <li>When UPS is in BAT Mode, press the self-test/mute key for more than 1 second, the buzzer stops beeping. If you press the self-test/mute key for one more second, it will restart to beep again.</li> </ul>
UPS Setting	<ul> <li>Enter Setup interface. Press and hold the function setting key for more than 2 seconds, then come to Setup interface, press and hold the inquiring key ( &lt; , ▶ ) for more than half a second(less than 2 seconds), select the function setting, choose the setup interface, at the moment, the letters flash.</li> <li>Enter thesetup interface. Press and hold the function setting key for more than half a second(less than 2 seconds), then come to the setup interface, at this time, the letters doesn'tflash any more, the numerical value flash. Press and hold the inquiring key ( &lt; , ▶ ) for more than half a second (less than 2 seconds), select the numerical value flash. Press and hold the inquiring key ( &lt; , ▶ ) for more than half a second (less than 2 seconds), select the numerical value in accordance with the function.</li> <li>Confirm the setup interface. After selecting numerical value, press and hold the function setting for more than half a second (less than 2 seconds).</li> </ul>

Now, the setting function is completed and the numerical value illuminates without flashing.
• Exit from the setup interface. Press and hold function setting key for
more than half a second (less than 2 seconds), exit from the setup interface
and return to the main interface.
Note:
• UPS could not be set until it is connected to the battery and it is turned off and
switched to Stdby mode (standby mode).
Disconnect mains power after setting.
• The LCD display screen will automatically extinguish in about 1 min, and the
setting will be configured normally.

## 5.4 UPS Settings

#### • Output voltage setting

LCD display	Settings
<u>™** * *</u> 0PU 220 v 5Tdby	For 208/220/230/240 VAC models, you may choose the following output voltage: 208: output voltage is 208Vac 220: output voltage is 220Vac 230 (default): output voltage is 230Vac 240: output voltage is 240Vac

### Low voltage of battery setting

LCD display	Settings
Dites → → → → → → → → → → → → → → → → → → →	The battery voltage selecting interface. You may choose the following output voltage: 9.8: Low voltage of battery is 9.8Vdc 9.9: Low voltage of battery is 9.9Vdc 10: Low voltage of battery is 10Vdc 10.2: Low voltage of battery is 10.2Vdc 10.5: Low voltage of battery is 10.5Vdc dEF(default):EOD voltage automatically varies with loads, including 20 hours discharge protection

#### Bypass mode setting

LCD display	Settings
<u>™:×                                    </u>	Enable or disable Bypass function. You may choose the following two options: <b>ON:</b> Bypass enable <b>OFF</b> (default): Bypass disable

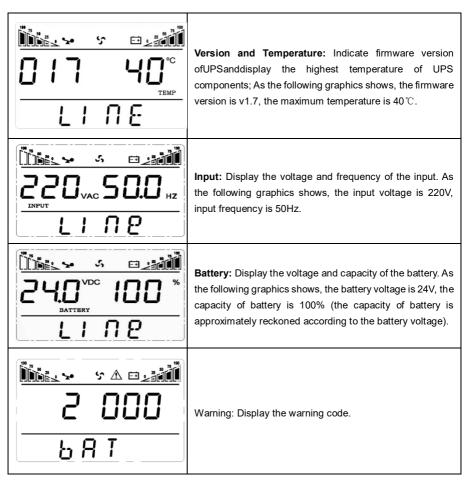
#### AUO setting

AUO setting only can be set in St mode. You may choose the follow ON: UPS will start up automatica when connect mains. OFF (Default): UPS won't sta	
<b>ST J b y</b> connect mains except EOD, it will mode.	up automatically when

### 5.5 Parameters inquiring operation

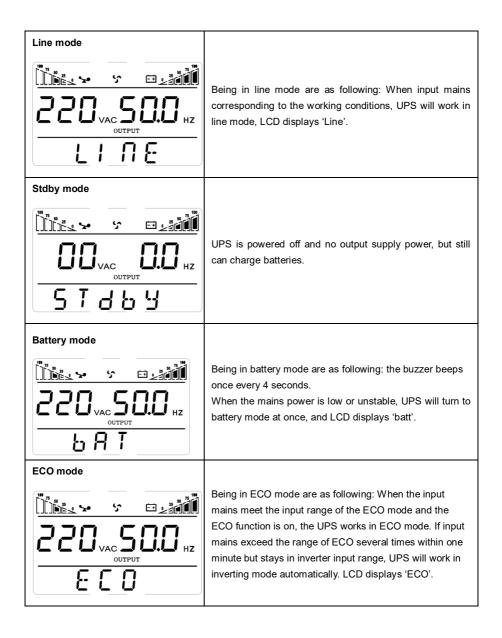
Press the inquiring key ◀ or ► for more than half a second (less than 2 seconds) to inquire about items. The inquired items include Input, Battery, Output, Load and Temperature. The displayed items on LCD screen are shown as following:

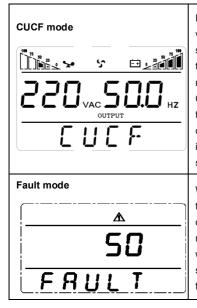
LCD display	Description		
	<b>Output:</b> Display the output voltage and output frequency of the UPS. As the following graphic shows, the output voltage is 220V, the output frequency is 50Hz.		
	<b>Load:</b> Display the numerical value of the active power (WATT) and apparent power (VA) of the load. For example, as the following graphics shows, the WATT of the load is 800W, VA is 1.0kVA (when disconnect loads, it is a normal phenomenon to show a small numerical value of WATT and VA).		



### 5.6 Operation mode

Operation mode and LCD display	Description		
Bypass mode	<ul> <li>Turn to bypass mode under the following three conditions:</li> <li>Connect mains power and the bypass setup is ON.</li> <li>Turn off the UPS in line mode and the bypass setup is ON.</li> <li>Overload in line mode.</li> <li>Note: When UPS is working in bypass mode, it has no back up function.</li> </ul>		





Frequency conversion mode is mainly to provide a stable voltage and frequency (mainly in terms of frequency). After starting this mode, its output will not be affected by utility to meet input needs of some precision equipment and make users' load more stable and secure. After opening CUCF mode setup, LCD displays 'CUCF'. In CUCF mode, the loading capacity will drop to 70% of the original capacity. The output frequency is fixed at the setting value, it doesn't vary with utility change. And the UPS cannot be set to bypass mode in this mode.

When UPS has a failure, the buzzer beeps and the UPS turns to fault mode. UPS cuts off the output and LCD displays fault codes. At the moment, users can press the mute key to make the buzzer stop beeping temporarily to wait for maintenance. Users can also press the OFF key to shut down the UPS when confirm that there is no serious fault.

# 6 Fault Messages

Fault code	Fault type	Bypass output	Note
0、1、2、3、4	Bus high	yes	
5、6、7、8、9	Bus low	yes	
10、11、12、13、14	Bus unbalance	yes	
15、16、17、18、19	Bus soft start fail	yes	
20、21、22、23、24	Inverter soft start fail	yes	
25、26、27、28、29	Inverter high	yes	
30、31、32、33、34	Inverter low	yes	
35、36、37、38、39	Bus discharge fail	yes	
40、41、42、43、44	Over heat	yes	
45、46、47、48、49	Output short	no	
50、51、52、53、54	Overload	yes	
55、56、57、58、59	Bus short	yes	
60、61、62、63、64	Shutdown fault	yes	
70、71、72、73、74	Overload 5 times	yes	

#### Table 2: Working status messages

S/	Working status	LCD display messages	Alarm beep	LCD flashes	LED flashes	
5/ N					Invert er	Fault
1	Inverter mode (mains	s power)				
	Mains power voltage	Working mode displays Line	No beep	No flash	Flash always	/
	Mains power high/low voltage protection, switch to battery mode	Working mode displays bAT	One beep /4 sec	One flash / 4 sec	One flash / sec	/
2	Battery mode					
	Battery voltage - normal	Working mode displays bAT	One beep / 4 sec	One flash /4 sec	One flash / sec	/
	Warning for abnormal voltage of battery	Working mode displays bAT, Bat flash	One beep / sec	One flash /sec	One flash / sec	/

3	Bypass mode					
	Mains power – normal ( under Bypass )	Working mode displays byPASS	One beep / 2 min	No flash	One flash /2 sec	/
4	Warning for battery disconnected					
	Bypass mode	Working mode displays byPASS, bat display is 0, and flash all the time	One beep / 4 sec	One flash / 4 sec	One flash /2 sec	/
	Inverter mode	Working mode displays Line, bat display is 0, and flash all the time	One beep / 4 sec	One flash / 4 sec	Flash always	/
	Power on / Switch	LCD illuminates when power on, and display the capacity of the UPS, later working mode	6 beeps	Flash	Flash always	Flash always
	UI	displays Line or byPASS, bat icon flash all the time		always	/	/
5	Output overload prote	ection				
	Warning for mains power overload	Working mode displays Line, load icon flash	2 beeps / sec	2 flashes /sec	Flash always	/
	Protect operation for mains power mode overload	Working mode displays FAULT and the corresponding codes	Long beep	Flash always	/	Flash always
	Warning for battery overload	Working mode displays bAT, load iconflash	2 beeps / sec	2 flashes /sec	One flash / sec	/
	Protect operation for battery mode overload	Working mode displays FAULT and the corresponding codes	Long beep	Flash always	/	Flash always
6	Warning for bypass mode overload	Working mode displays byPASS, load iconflash all the time	One beep / 2 sec	One flash / 2 sec	One flash /2 sec	/
7	Fans fault(fan icon )	Fan icon flash, working mode displays depending on current mode	One beep / 2 sec	No flash	/	/
8	Faults mode	Working mode displays FAULT, numerical value area displays the corresponding error code	Long beep	Flash always	1	Flash always

#### Note:

- End user need to provide below information when require to maintain the UPS.
- UPS Model No. & Serial No.
- Date of fault occurrence.
- Fault details (LCD status, noise, AC power situation, load capacity, battery capacity configuration ect.)

#### Table 3: Alarm code display

The alarm code will be displayed in four digital tubes on the right of the numerical part of the LCD screen(red mark), as shown below:



The alarm truth table during operations is shown as below:

• signifies the alarm occurs, blank signifies no alarm appears

The first digital tube	Display value	Bypass lost	Remote Shutdown	Overload	Batterydisconnec ted
	0				
	1	•			
	2		٠		
	3	•	٠		
	4			•	
	5	•		•	
from right to	6		•	•	
	7	•	•	•	
left	8				•
	9	•			•
	А		•		•
	В	•	•		•
	С			•	•
	D	•		•	•
	E		•	•	•

	F	•	•	•	•
	Display	Overcharging	Mains	Start-up	Ob ann an fauilt
	value	warnings	reverse	abnormal	Charger fault
	0				
	1	•			
	2		•		
	3	•	•		
	4			•	
The second	5	•		•	
digital tube	6		•	•	
from right to	7	•	•	•	
left	8				•
	9	•			•
	А		•		•
	В	•	•		•
	С			•	•
	D	•		•	•
	E		•	•	•
	F	•	•	•	•
	Display	EEPROM	Fan	Low battery	
	value	abnormal	abnormal		Median abnormal
	0				
	1	•			
	2		•		
	3	•	•		
	4			•	
The third	5	•		•	
digital tube	6		•	•	
from right to	7	•	•	•	
left	8				•
	9	•			•
	А		•		•
	В	•	•		•
	С			•	•
	D	•		•	•
	E		•	•	•
	F	•	•	•	•

	Display value	Over load fault	Mains lost	Bypass abnormal	
	0				
The fourth	1	•			
digital tube	2		•		
from right to	3	•	•		
left	4			•	
	5	•		•	
	6		•	•	
	7	•	•	•	

Example:

If the alarm code "2000" appears on the LCD screen, it indicates loss of mains power.

# 7 Troubleshooting

When the system works in fault mode, the LCD displays as below:



Problem	Possible Cause	Solution
Fault icon display, audible buzzer alarm continually, the fault code is 00-14	Bus voltage fault	Test the bus bar voltage or contact the supplier.
Fault icon display, audible buzzer alarm continually, the fault code is15-24	Soft start fault	Check the soft start circuit, especially the input fuse or contact the supplier directly.
Fault icon display, audible buzzer alarm continually, the fault code is 25-39	Inverter voltage fault	Contact the supplier.
Fault icon display, audible buzzer alarm continually, the fault code is 40-44	Over heat	Be sure that the UPS arenot overloaded, and the fan vent is not obstructed, as well as the indoor temperature is not high. Leave alone the UPS 10 minutes for cooling, and restart it. If the problempersists, contact the supplier.
Fault icon display, audible buzzer alarm continually, the fault code is 45-49	Output short	Turn off the UPS and disconnect all the loads.Be sure there is no any fault or internal short circuit of the loads. And then restart the UPS. If the problempersists, contact the supplier.
Fault icon display, audible buzzer alarm continually, the fault code is 50-54	Overload	Check the load level and disconnect the non-critical equipments, recount the total capacity of your load and reduce the load to the UPS. Check whether the load equipments has fault or not.
Fault icon display, audible buzzer alarm continually, the fault code is 55-59	Bus short	Contact the supplier.

Fault icon display, audible buzzer alarm continually, the fault code is 60-64	Shutdown fault	Check the first button of the LCD panel is pressed and cannot be bounced
Fault icon display, audible buzzer alarm continually, fan icon in the LCD flickers	Fan fault	Check whether the fans are connected and fixed well or not, and if fansare not broken. If all seems fine, contact the supplier.
	Pressing time too short	Press the power key more than 2 seconds to start the UPS.
UPS fail to start when operate 'On' key	The input connection is not ready or UPS internal battery disconnect	Connect the input well, if the battery voltage is too low, disconnect the input and start the UPS with no-load.
	UPS internal system fault	Contact the supplier.
	Battery undercharge	Keep the UPS battery recharging more than 3 hours
Back up time become short	UPS overload	Check the load level and disconnect the non-critical equipments,
	Battery maturing, capacity descend	Replace with new batteries, contact the supplier to get the new batteries and spare parts.
UPS doesn't have any power going through even mains power on	UPS input breaker disconnected	Reset the circuit breaker by manual.

### **▲Note:**

When the output is short-circuited, the action of UPS protection will show up. Before turning off the UPS, make sure to disconnect the entire loads and cut off the mains power supply, otherwise it will make the AC input shortcircuit.