

User Manual

Online UPS

ZEUS51E1K / ZEUS51E2K / ZEUS51E3K

This manual contains important instructions. Please read and follow all instructions carefully during installation and operation of the unit. Read this manual thoroughly before attempting to unpack, install, or operate the UPS.

CAUTION! The UPS must be connected to a grounded AC power outlet with fuse or circuit breaker protection. DO NOT plug the UPS into an outlet that is not grounded. If you need to power-drain this equipment, turn off and unplug the unit.

CAUTION! The battery can power hazardous components inside the unit, even when the AC input power is disconnected.

CAUTION! The UPS should be placed near the connected equipment and easily accessible.

CAUTION! To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area, free of conductive contaminants. (Please see specifications for acceptable temperature and humidity range).

CAUTION! (No User Serviceable Parts): Risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION! (Non-Isolated Battery Supply): Risk of electric shock, battery circuit is not isolated from AC power source; hazardous voltage may exist between battery terminals and ground. Test before touching.

CAUTION! To reduce the risk of fire, connect the UPS to a branch circuit with 10 amperes (1000 / 1500 / 2000) / 16 amperes (3000) maximum over-current protection in accordance to CE requirement.

CAUTION! The AC outlet where the UPS is connected should be close to the unit and easily accessible.

CAUTION! Please use only VDE-tested, CE-marked mains cable, (e.g. the mains cable of your equipment), to connect the UPS to the AC outlet.

CAUTION! Please use only VDE-tested, CE-marked power cables to connect any equipment to the UPS.

CAUTION! When installing the equipment, ensure that the sum of the leakage current of the UPS and the connected equipment does not exceed 3.5mA.

CAUTION! The 1000 / 1500 / 2000 / 3000 / Battery module models are only qualified maintenance personnel may carry out installations.

CAUTION! Do not unplug the unit from AC Power during operation, as this will invalidate the protective ground insulation.

CAUTION! To avoid electric shock, turn off and unplug the unit before installing the input/output power cord with a ground wire. Connect the ground wire prior to connecting the line wires!

CAUTION! Do not use an improper size power cord as it may cause damage to your equipment and cause fire hazards.

CAUTION! Wiring must be done by qualified personnel.

CAUTION! DO NOT USE FOR MEDICAL OR LIFE SUPPORT EQUIPMENT! Under no circumstances this unit should be used for medical applications involving life support equipment and/or patient care.

CAUTION! DO NOT USE WITH OR NEAR AQUARIUMS! To reduce the risk of fire, do not use with or near aquariums. Condensation from the aquarium can come in contact with metal electrical contacts and cause the machine to short out.

CAUTION! Do not dispose of batteries in fire as the battery may explode.

CAUTION! Do not open or mutilate the battery, released electrolyte is harmful to the skin and eyes.

CAUTION! A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries

1. Remove watches, rings or other metal objects.

2. Use tools with insulated handles.

CAUTION! The unit has a dangerous amount of voltage. When the UPS indicators is on, the units may continue to supply power thus the unit's outlets may have a dangerous amount of voltage even when it's not plugged in to the wall outlet.

CAUTION! Make sure everything is turned off and disconnected completely before conducting any maintenance, repairs or shipment.

CAUTION! Connect the Protection Earth (PE) safety conductor before any other cables are connected.

WARNING! (Fuses): To reduce the risk of fire, replace only with the same type and rating of fuse.

DO NOT INSTALL THE UPS WHERE IT WOULD BE EXPOSED TO DIRECT SUNLIGHT OR NEAR A STRONG HEAT SOURCE!

DO NOT BLOCK OFF VENTILATION OPENINGS AROUND THE HOUSING!

DO NOT CONNECT DOMESTIC APPLIANCES SUCH AS HAIR DRYERS TO UPS OUTPUT SOCKETS!

SERVICING OF BATTERIES SHOULD BE PERFORMED OR SUPERVISED BY PERSONNEL KNOWLEDGE OF BATTERIES AND THE REQUIRED PRECAUTIONS. KEEP UNAUTHORIZED PERSONNEL AWAY FROM BATTERIES!

UNPACKING

(1) UPSx1; (2) Quick installation guide x1; (3) Input power cord (EU/UK) x2; (4) Rackmount ears (Stands) x2; (5) Flat head screws: M4x8Lx8; (6) Screw hole dust covers x8; (7) Pan head screws:M5x12Lx4; (8) Plastic washers x8; (9) USB cable x1; (10) RS232 cable x1

HARDWARE INSTALLATION

These versatile UPS systems can be mounted in a rackmount or vertical tower orientation. This versatility is especially important to growing organizations with changing needs that value having the option to position a UPS on a floor or in a rackmount system. Please follow the instructions below for the respective mounting methods.

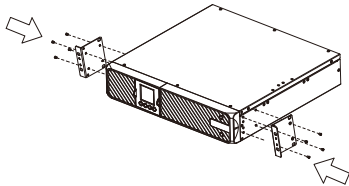
SAFETY PRECAUTIONS

CAUTION! To prevent the risk of fire or electric shock, only use the supplied hardware to attach the mounting brackets.

RACKMOUNT INSTALLATION

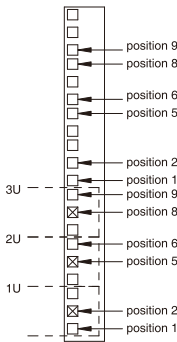
Step 1: Rackmount ears installation

Attach the two rackmount ears to the UPS using the provided screws M4X8L*8pcs.

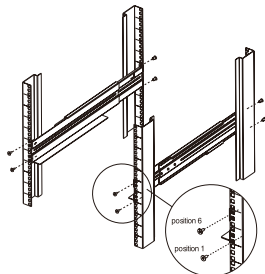


Step 2: Rackmount rails Installation(optional)

1) The rails adjust to mount in 48-cm (19-inch) panel racks from 52 to 91.5cm (20.5 to 36 inches) deep. Select the proper holes in the rack for positioning the UPS in the rack. The UPS takes up position 1 through position 6.

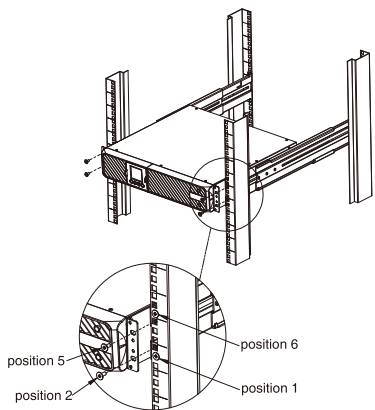


2) Attach the rackmount rail to your rack with two M5X12L screws and two plastic washers at the front of the rack. (Located in position 1 & position 6) Do not tighten the screws. Adjust the rail size on the rail assembly of your rack. Secure the rail to the rear of the rack with two M5X12L screws and two plastic washers. Tighten all screws at the front and rear of the rail. Once completed, perform the same steps for assembling the other rackmount rail.



Step 3: Install the UPS on the rack (optional)

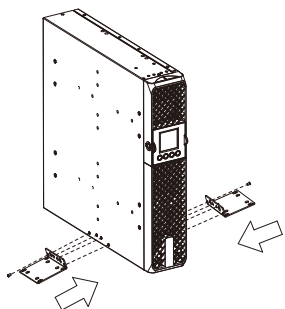
Place the UPS on a flat stable surface with the front of the unit facing toward you. Secure the UPS to your rack with four M5X12L screws at the front of the rack. (Located in position 2 & position 5).



VERTICAL/TOWER INSTALLATION

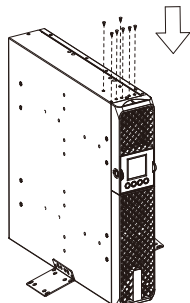
Step 1: Attach the base stands

Tighten the screws (M4X8L*8pcs) of the base stands (rackmount ears) onto the bottom of the UPS.



Step 2: Attach dust covers

Insert dust cover into the rackmount ear screw holes that are not being used.



POWER MODULE FRONT/REAR PANEL DESCRIPTION

1. Power On/Off Button

Master ON/OFF for the UPS.

2. Function Buttons

Scroll up, scroll down, select and cancel LCD menu.

3. Multifunction LCD Readout

Indicate status information, settings and events.

4. AC Input Inlet

Connect the AC Power cord to a properly wired and grounded outlet.

5. Input Circuit Breaker

Provide input overload and fault protection.

6. EPO (Emergency Power Off) Connector

Enable Power-Off in emergency from a remote location.

7. USB port

This is a connectivity port which allows communication and control between the UPS and the connected computer. It is recommended to install the Power master software on the PC/Server connected with the USB cord.

8. Serial Port

Serial port provides communication between the UPS and the computer. The UPS can control the computer's shutdown during a power outage through the connection while the computer can monitor the UPS and alter its various programmable parameters.

9. SNMP/HTTP Network slot

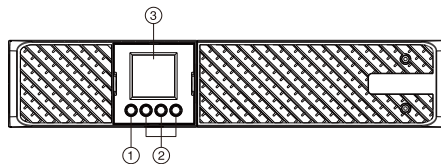
Slot to install the optional SNMP card for remote network control and monitoring.

10. Battery Backup & Surge Protected Outlets

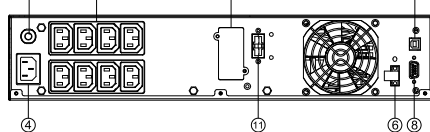
Provide battery backup and surge protection. They ensure power is provided to connected equipment over a period of time during a power failure.

11. Extended Runtime Battery Module Connector

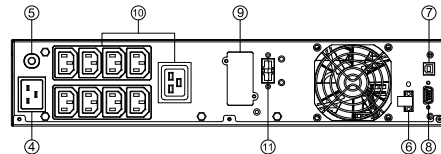
Connect to additional external battery modules.



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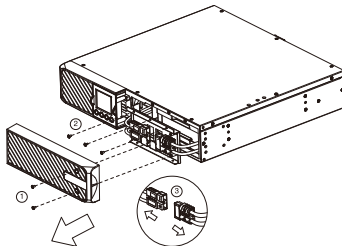


ZEUS51E1K / ZEUS51E2K

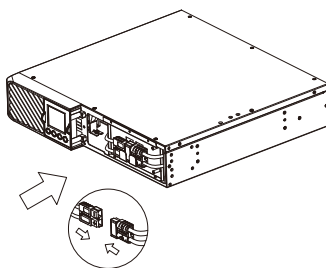


ZEUS51E3K

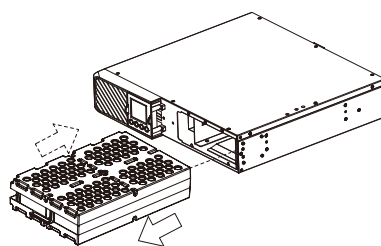
Step 1: Remove the front panel. Remove the retaining screws from the battery bracket and then remove the cover itself. undraw the connectors.



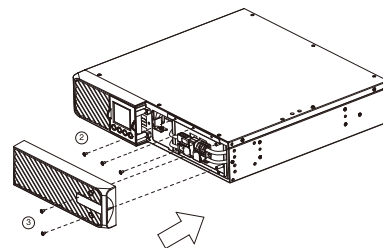
Step 3: Fasten the battery bracket and then insert the connectors. Place the connectors in the bracket.



Step 2: Pull the battery tray out slowly. Put the new battery tray back into the compartment after that.

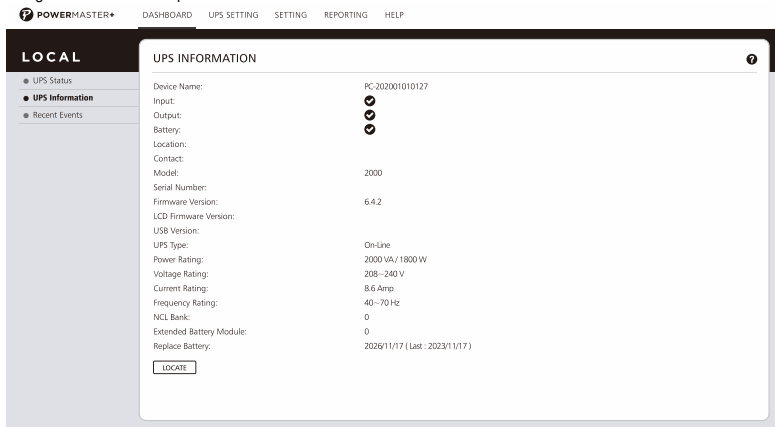


Step 4: Tighten the screws of the battery bracket and front panel .



SOFTWARE INSTALLATION

Power Master+ management software provides a user-friendly interface for your power systems. The graphic user-interface is intuitive and displays essential power information at a glance. Please follow procedure below to install the software.



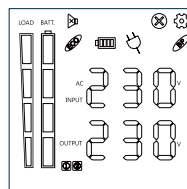
Installation procedure:

Download Power Master+ from the website: <http://www.powermonitor software/>


















Double-click the file and follow the installation steps.

When your computer restarts, the Power Master+ software will appear as a blue icon located in the system tray.

LCD Panel

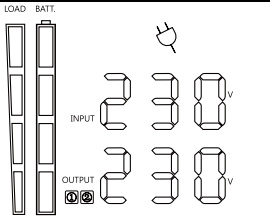
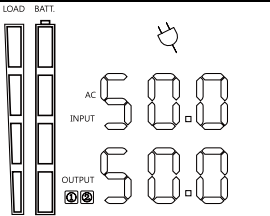
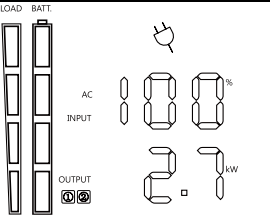
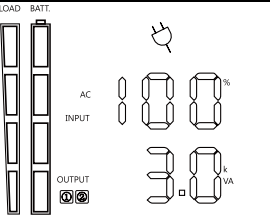
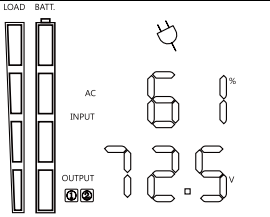
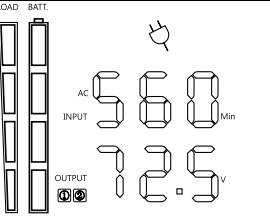










DEFINITIONS FOR OTHER ICONS

	MUTE: This icon appears whenever the UPS is in silent mode. The alarm does not beep during silent mode until the battery reaches low capacity.
	SCHEDULE: Users can setup the schedule to turn on and shut down the computer and UPS through Power Master software. The LCD display will show how much time is left before the UPS will turn back on or shut down.
	FAULT: This icon appears if there is a problem with the UPS.
	Setting mode
	ECO mode
	Bat mode ** When this icon is blinking, the batteries need to be replaced.
	Line mode: lighting Converter mode: blinking
	Bypass mode
	Load capacity  100 75 50 25 0 Battery capacity: Bat mode: battery capacity Line mode: 1. Battery charging: cycle lighting 2. Battery full charged: lighting 3. Line mode without charger: battery capacity  100 75 50 25 0
	OUTPUT Program: indicate the status of outlets, if NCL outlets is enable, "  " will be lighting, if NCL outlets is disable, "  " will be off.
	OUTPUT Program: indicate the status of outlets, if critical output outlets is enable, "  " will be lighting, if critical output outlets is disable, "  " will be off.

**) When operating in ECO Mode, the efficiency of UPS is higher than that in online mode, but transfer time should not be 0ms.
**) When operating in Converter Mode, the frequency of output should be always 50Hz or 60Hz, but load capacity will be derated.

LCD displays 6 pages in total :

Page	Description	LCD display	
1-2	INPUT(Voltage)V VOUTPUT(Voltage)V INPUT(Frequency) Hz OUTPUT(Frequency) Hz		
3-4	W load percent(%) OUTPUT XXX W VA load percentage(%) OUTPUT XXX VA		
5-6	Battery capacity percent (%) Battery voltage(v) Backup Time(min) Battery voltage(v)		

003	ECO Mode	[0%] (Disable) [10%][15%] (Enable)	0%	
004	Bypass Mode	[DIS] (Disable) [ENA] (Enable)	Enable	
005	Converter Mode	[DIS] (Disable) [ENA] (Enable)	Disable	
006	EPO/ROO	[EPo] / [ROo]	EPO	
007	EBM Number	[0bP]/[1bP]/[2bP]/[3bP]/[4bP]/[5bP] /[6bP]/[7bP]/[8bP]/[9bP] / [AbP]	0(for standard models) / 1 (for long-run models)	
008	Bypass when UPS is Off	[DIS] (Disable) [ENA] (Enable)	Disable	
009	Buzzer	[DIS] (Disable) [ENA] (Enable)	Enable	
010	NCL Output	[DIS] (Disable) [ENA] (Enable)	Enable	

*) When operating in ECO Mode, the efficiency of UPS is higher than that in online mode, but transfer time should not be 0ms
**) When operating in Converter Mode, the frequency of output should be always 50Hz or 60Hz, but load capacity will be derated by 40%.
*) This function would be set as 0% when Converter Mode is enabled.
**) UPS has no bypass when Converter Mode is enabled.
***) ROO (Remote On/Off): If ROO is enabled, UPS can be turn on/off by the ROO port. If ROO port is disconnected, UPS will be turned off. If ROO port is connected, UPS will be turned on when the utility is normal
****) 1. UPS cannot detect the numbers of external battery automatically, so manual input from user is necessary.
2. For standard models, the maximum number is prefer to 1. For long run models, the maximum number is just 1 EBM, the charge current will be 4A, if EBM number is over 1, the charge current will be 8A.

TECHNICAL SPECIFICATIONS

Model	ZEUS51E1K	ZEUS51E2K	ZEUS51E3K
Capacity (VA/W)	1000VA/1000W	2000VA/2000W	3000VA/3000W
Configuration			
Form Factor	Rack		
Energy-saving Technology	Yes, ECO Mode Efficiency ≧ 95%		
Input			
Voltage Range	80~300Vac±5% for 1000/2000/3000VA model		@0~30%Load±5%
	120~300Vac±5% for 1000/2000VA model		@30~60%Load±5%
	140~300Vac±5% for 3000VA only		
	140~300Vac±5% for 1000/2000VA model		@60~80%Load±5%
	160~300Vac±5% for 3000VA only		@80~100%Load±5%
	160~300Vac±5% for 1000/2000VA model		
190~300Vac±5% for 3000VA only			
Frequency Range	40~70Hz		
Power Factor	0.99		
Cold Start	Yes		
Output			
Output Voltage	208/220/230/240Vac±1%		
Output Waveform	Pure Sine Wave		
Output Frequency	50 / 60Hz (Auto-Sensing or Configurable) ±0.5Hz*		
Transfer Time (Typically)	0ms		
Rated Power Factor	1.0		
Harmonic Distortion	THD < 3% at Linear Load, < 5% at Non-linear Load @ Nominal Input		
Crest Factor	3 : 1		

Event ID Descriptions

Event ID	Description of Cause
E01	Bus Start Fail: DC-DC converter or bus sensing circuit failed.
E02	Bus Volt High: DC-DC converter failed.
E03	Bus Volt Low: DC-DC converter failed.
E04	Bus Unbalanced: DC-DC converter failed.
E06	INV Start Fail: Inverter circuit failed.
E07	INV Volt High: Inverter circuit or output voltage sensing circuit failed.
E08	INV Volt Low: The load may be too heavy or inverter circuit failed.
E09	INV Short: The inverter circuit failed.
E11	Bat Volt High: The external battery module connection is wrong, or the charger failed.
E12	Bat Volt Low: Batteries failed.
E14	Over Load: UPS is overloaded.
E18	Fan Fail: The ventilation hole has been covered, or the fans can't work.
E19	Over Temperature: High ambient temperature, or the ventilation hole has been covered.
A56	Bat Volt Low: Battery voltage is low.
A57	Bat Cap Low: Battery capacity is low.
A59	Bat disconnect: Battery is disconnect.
A60	Overcharge: Charger voltage is high.
A61	Charger fail: Charger is failed.
A62	Bat Bad: Battery failed.
A64	Over Load warning: UPS is overload.
A66	EPO Off: Missing the EPO connection
A68	High Temperature: High ambient temperature, or the ventilation hole has been covered. This is shown only when start up UPS.
A69	Fan Lock: fans can't work because of lock.



BUTTON OPERATION

Button	Operation Description
ON	Press this button to turn on UPS. In line mode, ECO mode, or converter mode, press the "ON" button for 5 seconds to activate the battery test.
OFF	Press this button to turn off UPS.*
ENTER	Press this button for 5 seconds to get into setting mode while in bypass mode, or standby mode. In setting mode, press this button to confirm selection, or press this button for long time to exit setting mode and saving changes. Press this button to scroll up in the LCD menu.
ESC	In setting mode, press this button to display next selection, or press this button for long time to exit setting mode without saving changes. Press and hold the "ESC" button for 5 seconds to disable and enable buzzer alarm. Press this button to scroll down in the LCD menu.
ENTER + ESC	Switch to bypass mode: When the main power is normal, press these two buttons simultaneously for 5 seconds, then UPS will enter to bypass mode.
ON + ENTER	Rotate the LCD display: if user want to change LCD to tower display, press these two buttons simultaneously for 5 seconds

LCD SETTINGS CONFIGURATION

There are 9 UPS settings that can be configured by the user.

- Press the "ENTER" button for 5 seconds to activate the setting mode.
The first configuration parameter will be displayed on the LCD screen.
Note: The manual settings programming mode can ONLY be invoked while UPS is in Bypass mode or Standby mode. To make UPS on Standby mode or Bypass mode, connect utility power to UPS and do not turn on UPS.
- Press the "ENTER" button to select the setting you want to configure.
- Press the "ENTER" buttons to scroll through the different parameters and select the parameter you want.
- Press the "ESC" button for 5 seconds to cancel and exit setting mode. Press the "ENTER" button for 5 seconds to save all the settings you just do and exit setting mode.
- In any mode(Except setting mode), Press the "ESC" button for 5 seconds to disable and enable buzzer alarm.

Setting item	Configure Submenu	Available Settings	Default Setting	LCD Display
001	Output Voltage	= [208V] [220V] [230V] [240V]	230V	
002	Output Frequency	= [50Hz] [60Hz]	50Hz	

ECO Mode Voltage Regulation		±10%, ±15% (Configurable)		
Overload Protection	Line Mode	100~110% Warning, transfer to bypass after 2min 110%~130% Warning, transfer to bypass after 1min >130%Transfer to bypass after 3s		
	Battery Mode	100~130% Warning, shutdown after 60s >130%Shutdown after 3s		
Short Circuit Protection		UPS Output Cut off Immediately or Input Fuse / Circuit Breaker Protection		
Surge Protection		IEC 61000-4-5 Level 4		
Battery				
Model Name		1000R-2B	2000R-4B	3000R-6B
Battery Voltage		24V	48V	72V
Battery Type		12V/9AH	12V/9AH	12V/9AH
		For long-run Models, NO Battery Inside.		
Recharge Time (Typically)		4 Hours (inside batteries)		
Sealed, Maintenance Free		Yes		
Status Indicators				
LCD Screen		Graphic LCD		
Audible Alarms		Battery Mode, Battery Low, Overload, UPS Fault, Replace Battery, Bypass Mode Charger Failure /Over Charged, Fan failure, EPO active		
Environment				
Operating Temperature		32°F to 104°F (0℃ to 40℃)		
Operating Relative Humidity		20 to 90% Non-Condensing		
Management				
On-Device Features		Self Test, Auto-Charge, Auto-Restart, Auto-Overload Recovery		
Connectivity Ports		(1) Serial Port (RS232), (1) USB Port,		
SNMP/HTTP Capable		(1) Expansion Port (With optional card)		
Physical				
Dimensions (H x W x D)		3.46 x 17.24 x 16.93 in. 88 x 438 x 430 mm		3.46 x 17.24 x 24.02 in. 88 x 438 x 610 mm
Net Weight(Kg)		10.56	17.32	27.34

*) Within 50/60Hz±8% by default, the output frequency is synchronization with input mains. User can adjust the acceptable range for output frequency (±1, 2, 3, 4, 5, 6, 7, 8, 9, 10%). When input frequency is out of synchronization window but within 40-70Hz, UPS can stay in line mode and output frequency is regulated at 50/60Hz+0.5% with load derating by 40%.

TROUBLE SHOOTING

Problem	Possible Cause	Solution
Warning		
O/P Overload	Your equipment requires more power than the UPS can provide. If the UPS is in Line Mode then it will transfer to Bypass Mode; if the UPS is in Battery Mode it will shut down.	Shut off non-essential equipment. If this solves the overload problem, the UPS will transfer to normal operation.
Battery Low	UPS is operating on battery power and will be shutting down soon due to extremely low battery voltage.	UPS will restart automatically when acceptable utility power returns.
BAT Disconnected/ Battery Replace	Missing battery power. UPS has failed in Battery Test.	Check battery connector when use battery packages. Contact technical support to replace the battery.
Charger Failure	Charger has failed.	1. Shut down UPS and turn off AC input. 2. Contact your dealer for repair.
EPO OFF	Missing the EPO connection.	Check the EPO connection.
Fault		
Over Temperature	High ambient temperature.	1. Shut down UPS. Restart UPS to Check the fan for operation and if the ventilation hole has been covered 2. Contact your dealer for repair.
Output Short	Output short circuit.	1. Shut down UPS 2. Your attached equipment may have problems, please remove them and check again.
High or low O/P V	Output voltage is too high or too low.	Shut down UPS and contact your dealer for repair.
Bus Fault	Internal DC bus voltage is too high or too low.	