User's Manual

CITO Power
On-Line UPS

MODEL

CPO-V1000RT
CPO-V2000RT
CPO-V3000RT

K01-C000915-00

IMPORTANT SAFETY INSTRUCTIONS

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) / 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 / 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.

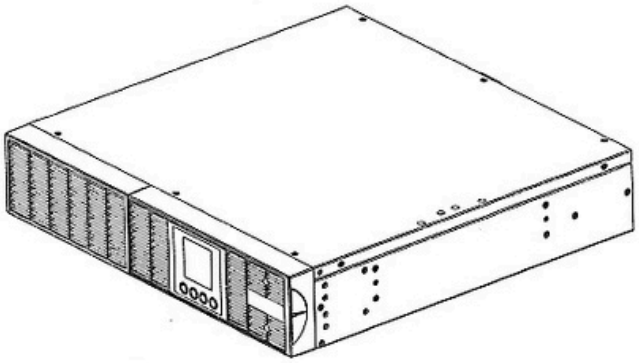
DO NOT INSTALL THE UPS WHERE IT WOULD BE EXPOSED TO DIRECT SUNLIGHT OR NEAR A STRONG HEAT SOURCE!

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

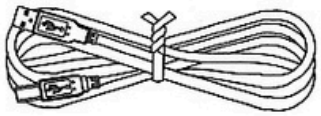


UPS

User's manual

Input power cord (optional)

Output power cord (optional)

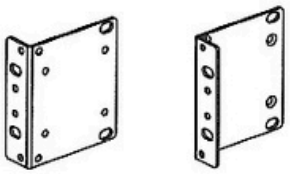


USB Communication Cable

Flat head screws: M4X8L (8)

Pan head screws: M5X12L (4)

Screw hole dust covers (8)



Rackmount ears (Stands) (2)

Install monitor software for optimal computer system protection, install UPS monitoring software to fully configure UPS shutdown. Please follow steps below to download and install monitoring software from the internet:

1. Go to the website http://www.powermonitor.software/
2. Click Power Master software icon and then choose your required OS to download the software.
3. Follow the on-screen instructions to install the software.

INSTALLATION

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.

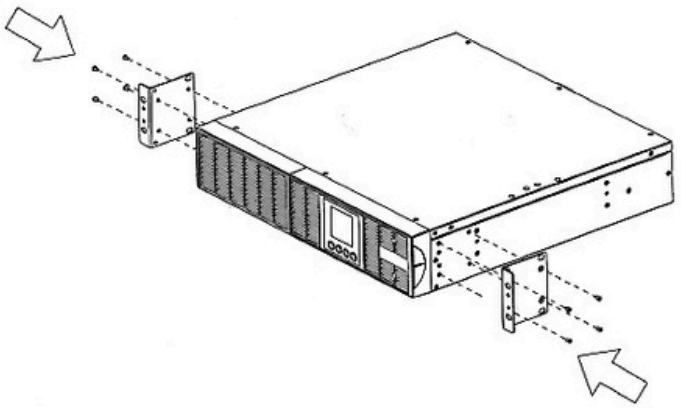
SAFETY PRECAUTIONS

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

RACKMOUNT INSTALLATION

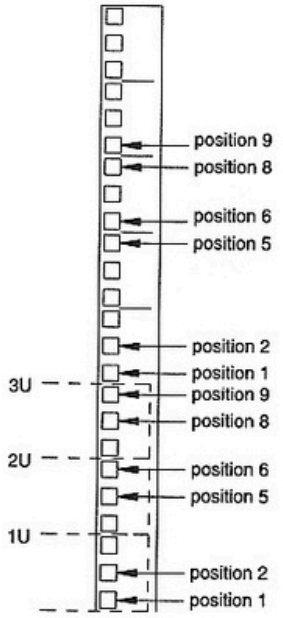
Step 1: Rackmount ears installation

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

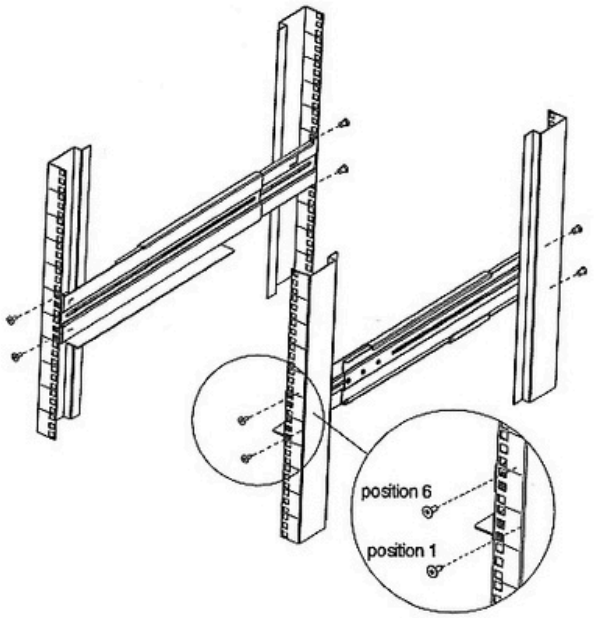


Step 2: Rackmount rails Installation

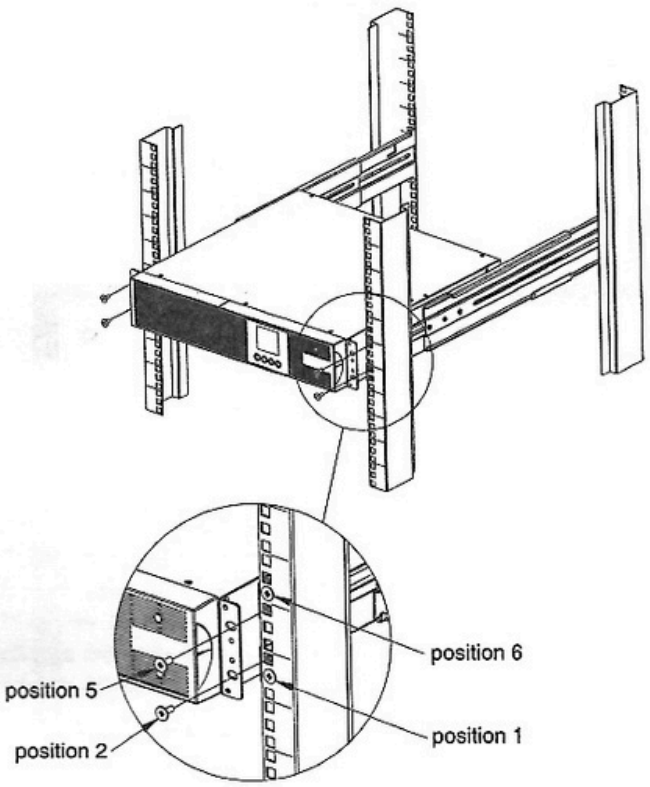
1) The rails adjust to mount in 48-cm (19-inch) panel racks from 52 to 91.5cm (20.5 to 36 inches) deep. Select the proper holes in the rack for positioning the UPS in the rack. The UPS takes up position 1 through position 6.



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 trail.



Step 3: Install the UPS on the rack

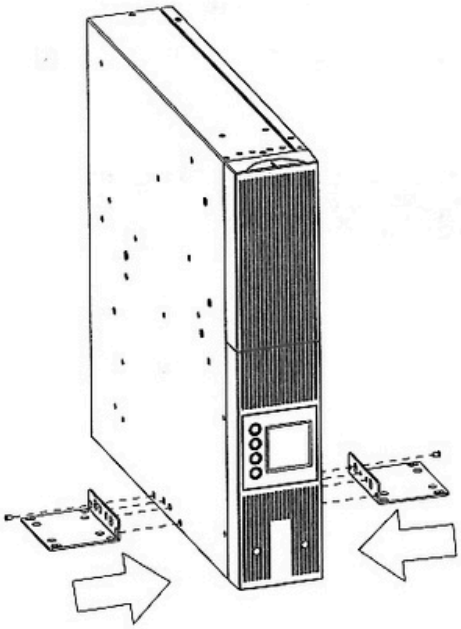


Place the UPS on a flat stable surface with the front of the unit facing toward you. Secure the UPS to your rack with four M5X12L screws at the front of the rack. (Located in position 2 & position 5).

VERTICAL/TOWER INSTALLATION

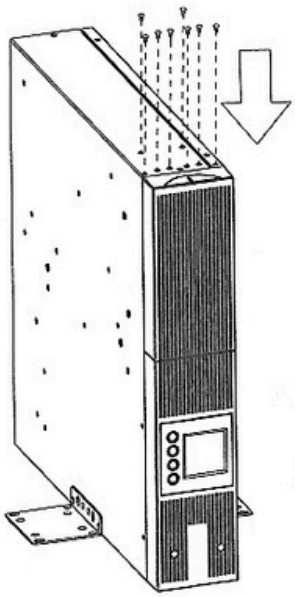
Step 1: Attach the base stands

Tighten the screws (M4X8*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.



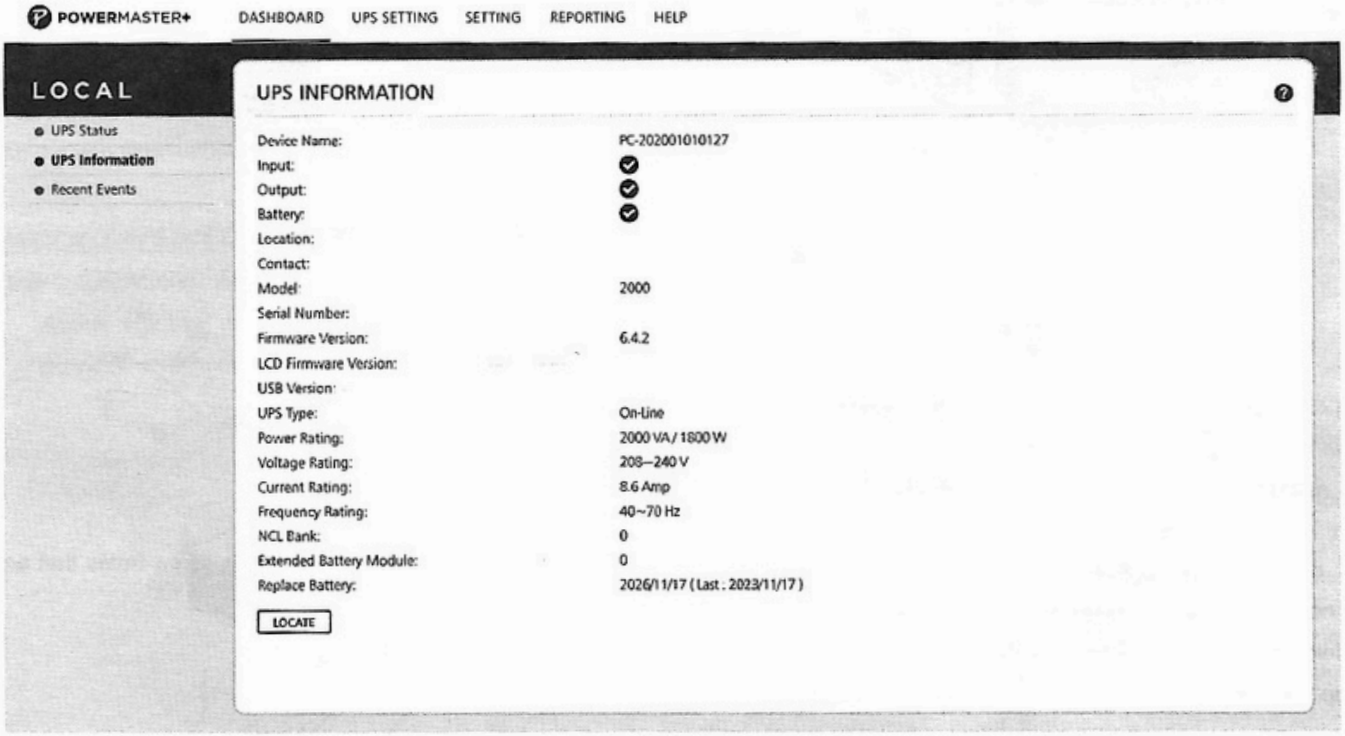
INSTALLATION

ELECTRICAL INSTALLATION

After completing the hardware installation of the UPS, you are now ready to plug in the UPS and connect your equipment.

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.

SAFETY PRECAUTIONS

CAUTION! Installation environment should be in a temperature and humidity controlled indoor area free of conductive contaminants. Do not install this UPS where excessive moisture or heat is present (Please see specifications for acceptable temperature and humidity range).

CAUTION! Never install a UPS, or associated wiring or equipment, during a lightning storm.

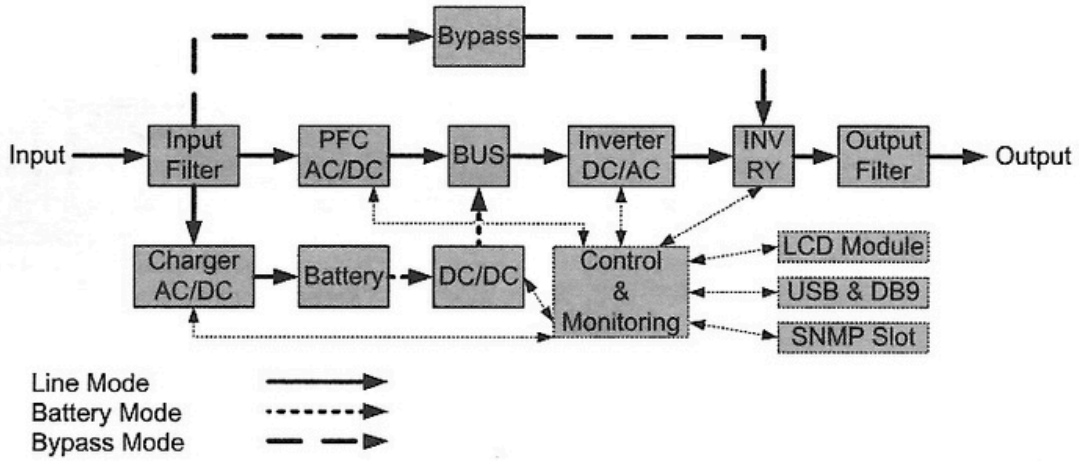
CAUTION! Do not work alone under hazardous conditions.

CAUTION! In case of the risk of electric shock, do not remove the top cover.

CAUTION! The battery can energize hazardous live parts inside even when the AC input power is disconnected.

INSTALLING YOUR UPS SYSTEM

SYSTEM BLOCK DIAGRAM



HARDWARE INSTALLATION GUIDE

1.Battery charge loss may occur during shipping and storage. Before using the UPS, it's strongly recommended to charge batteries for four hours to ensure the batteries' maximum charge capacity. To recharge the batteries, simply plug the UPS into an AC outlet.

2.When using the included software, connect either the serial or the USB cable between the computer and the corresponding port on the UPS. Note: If the USB port is used, the serial port will be disabled. They cannot be used simultaneously.

3.Connect your computer, monitor, and any externally-powered data storage device (Hard drive, Tape drive, etc.) into the outlets only when the UPS is off and unplugged. DO NOT plug a laser printer, copier, space heater, vacuum, paper shredder or other large electrical device into the UPS. The power demands of these devices will overload and possibly damage the unit.

4.To protect a fax machine, telephone, modem line or network cable, connect the telephone or network cable from the wall jack outlet to the jack marked "IN" on the UPS and connect a telephone cable or network cable from the jack marked "OUT" on the UPS to the modem, computer, telephone, fax machine, or network device.

5.Press the ON switch to turn the UPS on. If an overload is detected, an audible alarm will sound and the UPS will continuously emit one beep per second. For resetting the unit, unplug some equipment from the outlets. Make sure your equipment carries a load current within the unit's safe range, (refer to the technical specifications).

6.This UPS is equipped with an auto-charge feature. When the UPS is plugged into an AC outlet, the battery will automatically charge, even when the unit is switched off.

7.To maintain an optimal battery charge, leave the UPS plugged into an AC outlet at all times.

8.Before storing the UPS for an extended period of time, turn the unit OFF. Then cover it and store it with the batteries fully charged. Recharge the batteries every three months to ensure good battery capacity and long battery life. Maintaining a good battery charge will help prevent possible damage to the unit from battery leakage.

9. The UPS has one USB port (default) and one Serial port that allows connection and communication between the UPS and any attached computer running the Power Master software. The UPS can control the computer's shutdown during a power outage through the connection while the computer can monitor the UPS and alter various programmable parameters.

Note: Only one communication port can be used at a time. The port not in use will automatically become disabled or the serial port will be disabled if both ports are attached.

10.EPO (Emergency Power Off) / ROO(Remote on/off) Port:

EPO/ROO ports allow administrators the capability to connect the UPS unit to customer-supplied EPO/ROO switches. If EPO is enabled, these installations give operators a single access point to immediately power-off all equipment connected to the UPS during an emergency. If ROO is enabled, these installations give operators a access point to turn on/off UPS remotely.

11. To avoid electric shock, turn the unit OFF and disconnect the unit from utility power before hardwiring the UPS (in/out power cord). The in/out power cord **MUST** be grounded.

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) and ROO(Remote ON/OFF) Connector
EPO: Enable Power-Off in emergency from a remote location.

ROO: Power ON/OFF from a remote location.

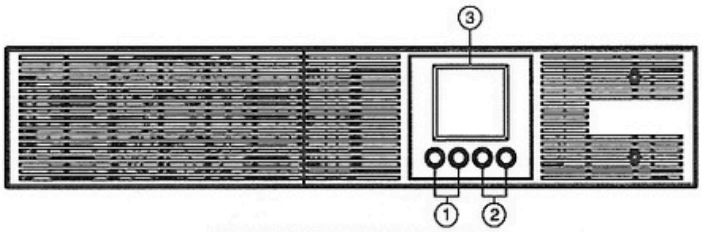
7. USB port
This is a connectivity port which allows communication and control between the UPS and the connected computer. It is recommended to install the Power master software on the PC/Server connected with the USB cord.

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.

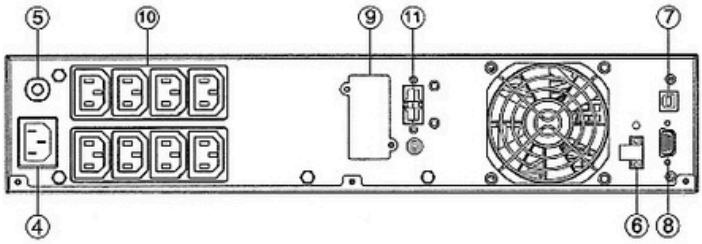
9. SNMP/HTTP Network slot
Slot to install the optional SNMP card for remote network control and monitoring.

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.

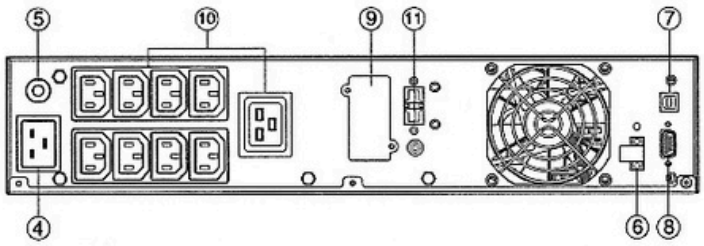
11. Extended Runtime Battery Module Connector
Connect to additional external battery modules.



1000RT/2000RT/3000RT



1000RT-2B/2000RT-4B



3000RT-6B

BASIC OPERATION

BATTERY MODULE FRONT/REAR PANEL DESCRIPTION

1. Input Connector

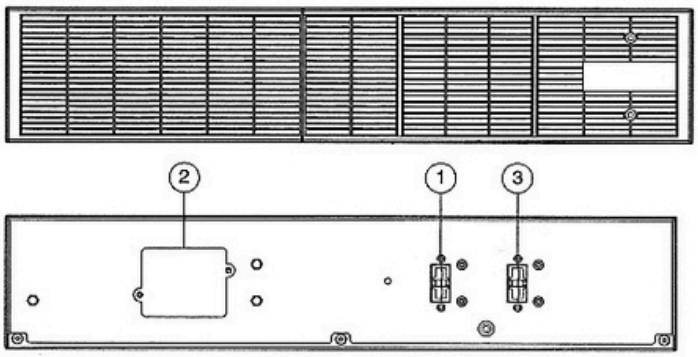
Use this input connector to daisy chain the next Battery module. Remove the connector cover for access.

2. On-board Replaceable Fuse Cover

Replaceable fuse is accessible from the rear panel. It must be done by qualified personnel.

3. Output Connector

Use this output Connector to connect the Battery module to the Power module or to the next Battery module.

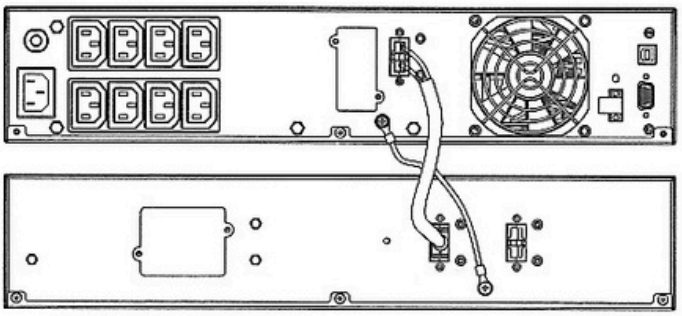


EBM24V/36V/48V/72

CONNECTION #1 : POWER MODULE WITH ONE BATTERY MODULE

Step 1: Use the battery cable to connect the 1st Battery module to the UPS.

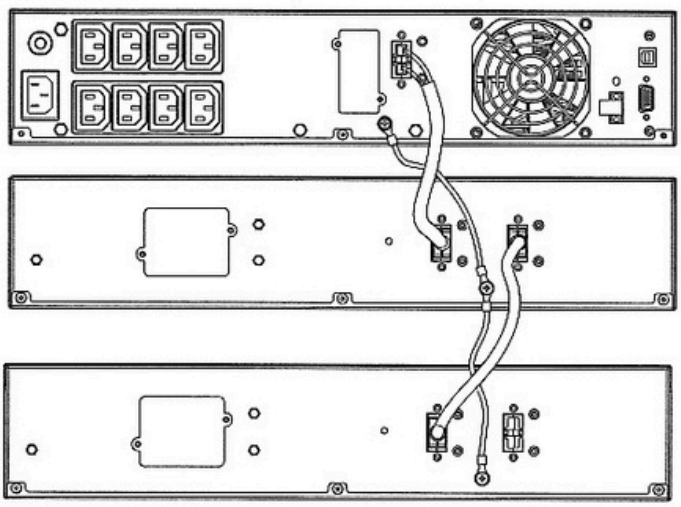
Step 2: Use two screws to tighten the ground wire.



CONNECTION #2 : POWER MODULE WITH MULTIPLE BATTERY MODULES

Step 1: Use the battery cable to connect the 2nd Battery module to the 1st Battery module.

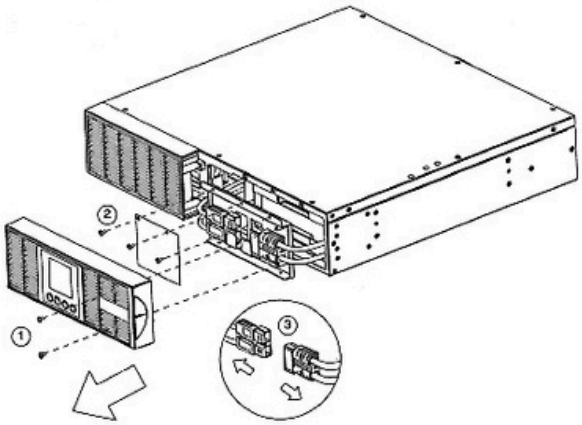
Step 2: Use screws to tighten the second ground wire.



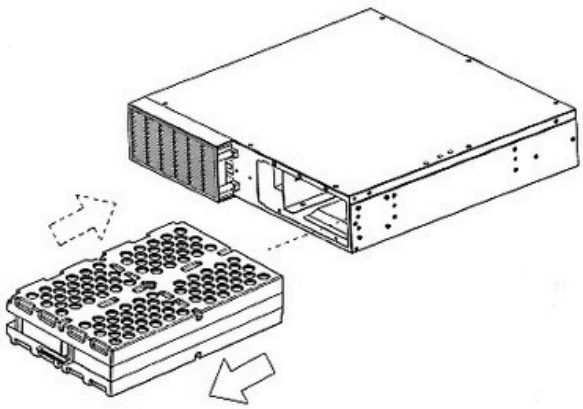
BASIC OPERATION

Battery Installation and replacement

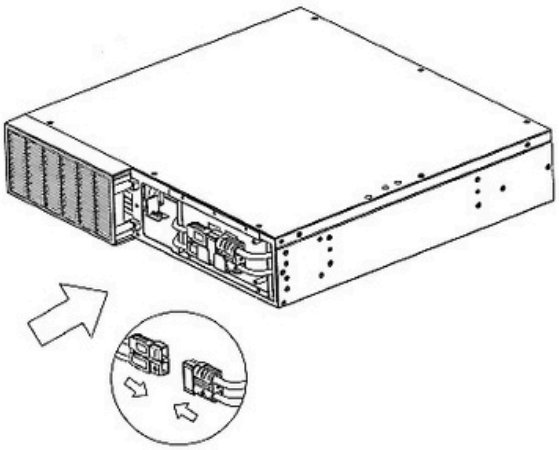
Step 1: Remove the front panel. Remove the retaining screws from the battery bracket and then remove the cover itself. undraw the connectors.



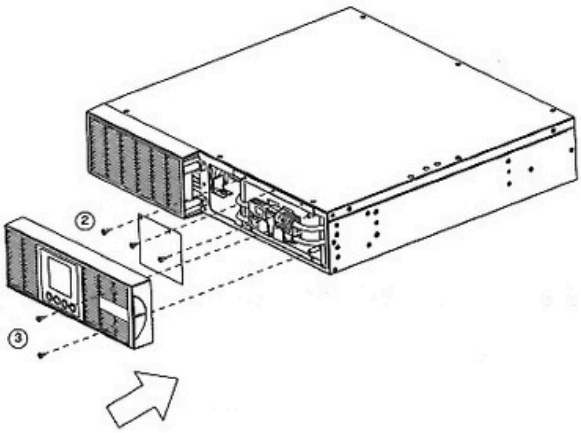
Step 2: Pull the battery tray out slowly. Put the new battery tray back into the compartment after that.



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



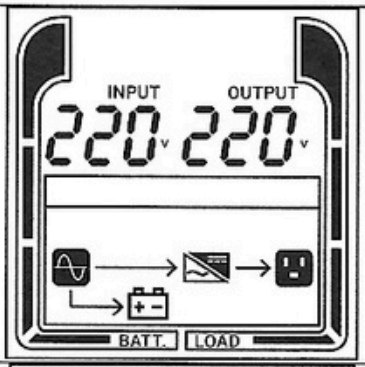
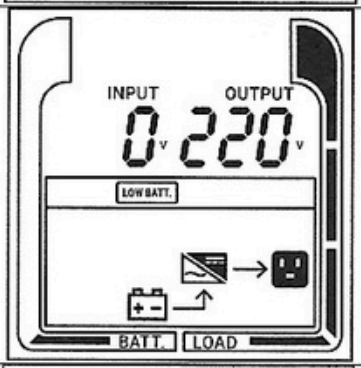
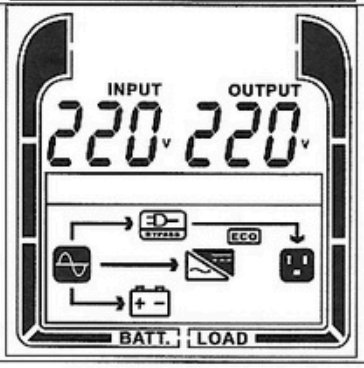
Step 4: Tighten the screws of the battery bracket and front panel .



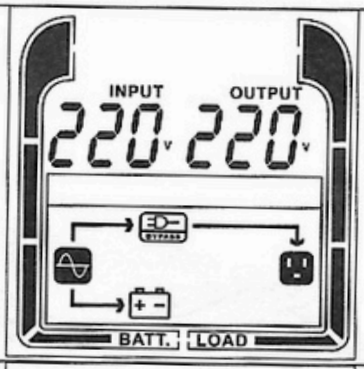
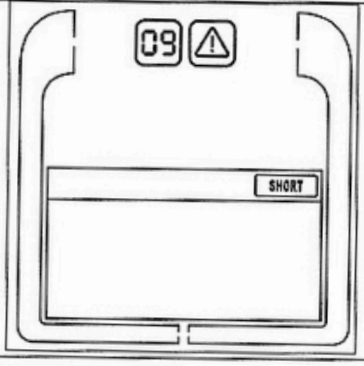
BASIC OPERATION

LCD Indicators

Operation mode LCD Display

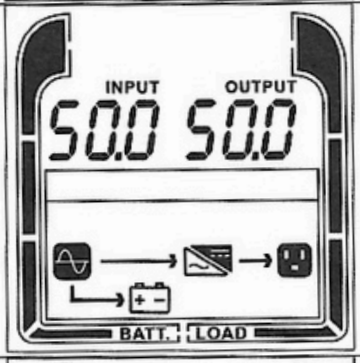
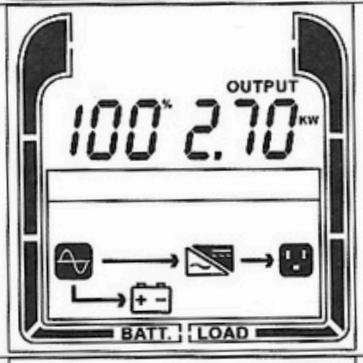
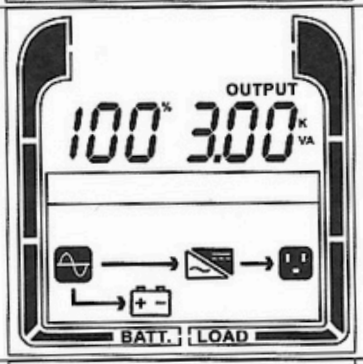
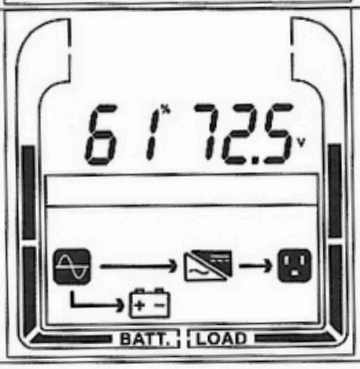
Operation mode	Description	LCD display
Line mode	Utility will provide energy to loads. It will also charge the battery at the same time.	
Battery mode	The unit will provide output power from battery.	
ECO mode	When the input voltage is within voltage regulation range, UPS will bypass voltage to output for energy saving.	

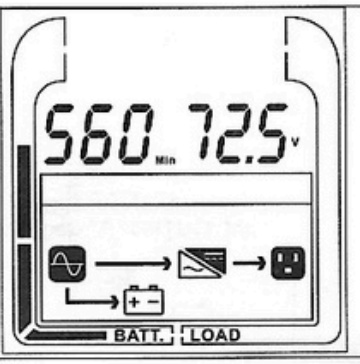
BASIC OPERATION

Bypass mode	When the input voltage is within bypass voltage range, UPS will bypass voltage to output.	
Converter mode	When input frequency is within 40Hz to 70Hz, the UPS can be set at a constant output frequency, 50Hz or 60Hz.	
Standby mode	Utility will charge the battery and no output voltage until switch on the UPS.	
Warning mode	The UPS is warning because of overload.	
Fault mode	The UPS goes to fault mode because output is short.	

BASIC OPERATION

LCD displays 6 pages in total :

1(default)	Left: AC INPUT(Voltage)V Right: OUTPUT(Voltage) V	
2	Left: INPUT(Frequency) Hz Right: OUTPUT(Frequency) Hz	
3	Left: W load percent(%) Right: OUTPUT XXX W	
4	Left: VA load percentage(%) Right: OUTPUT XXX VA	
5	Left:Battery capacity percentage(%) Right: Battery voltage(v)	

6	Left: Backup Time(min) Right: Battery voltage(v)		

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.

BASIC OPERATION

BUTTON OPERATION

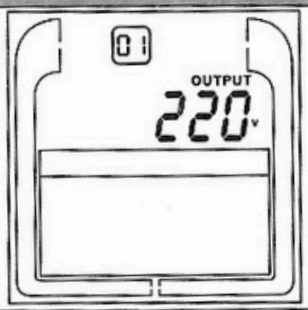
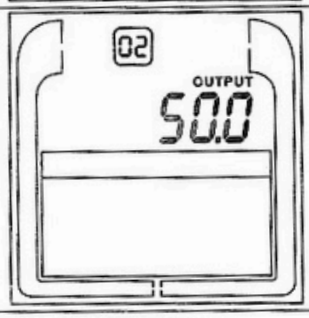
Button	Operation Description
ON	Press this button to turn on UPS. In line mode, ECO mode, or converter mode, press the "**ON**" button for 5 seconds to activate the battery test.
OFF	Press this button to turn off UPS.*
ENTER	Press and hold this button for 5 seconds to get into setting mode while in bypass 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.

LCD SETTINGS CONFIGURATION

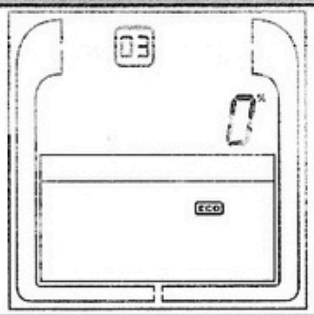
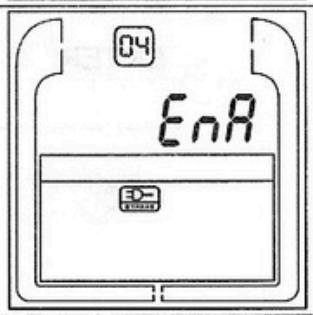
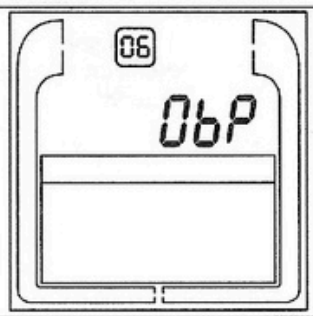
There are 9 UPS settings that can be configured by the user.

1. Press and hold 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.
2. Press the "**ENTER**" button to select the setting you want to configure.
3. Press the "**ESC**" buttons to scroll through the different parameters and select the parameter you want.
4. 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.

Setting Item	Configure Submenu	Available Settings	LCD Display
001	Output Voltage	You may choose the following output voltage in 001 setting. **208**:Present output voltage is 208Vac **220**:Present output voltage is 220Vac **230**:Present output voltage is 230Vac**(default)** **240**:Present output voltage is 240Vac	
002	Output Frequency	You may choose the following output frequency in 002 setting. **50**:Present output frequency is 50Hz**(default)** **60**:Present output frequency is 60Hz	

BASIC OPERATION

003	**ECO Mode***	**0%**: ECO mode disabled. When selected, ECO mode is not allowed **(default)** **10%**: ECO mode enabled. When selected, ECO mode is activated when the input voltage is within +/-10% of setting output voltage **15%**: ECO mode enabled. When selected, ECO mode is activated when the input voltage is within +/-15% of setting output voltage	
004	**Bypass Mode**	**DIS**: Bypass output disabled. When selected, Bypass output is not allowed when overload or other fault occurs **ENA**: Bypass output enabled. When selected, Bypass output is activated when overload or other fault occurs. **(default)**	
005	**Converter Mode****	**DIS**: Setting UPS to normal mode (non-CVCF mode).If selected, the output frequency will synchronize with the input frequency within 46~54Hz at 50Hz or within 56~64Hz at 60Hz according to setting program 002. **(default)** **ENA**: Setting UPS to CVCF mode. .If selected, the output frequency will be fixed to 50Hz or 60Hz according to setting program 002. But load capacity will be derated by 40%.	
006	**EBM Number**	You may set the number of battery package in 006 setting as [0bP]~ [3bP]	

*) 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.

***) 1. UPS cannot detect the numbers of external battery automatically, so manual input from user is necessary.

MAINTENANCE

Storage

To store your UPS for an extended period, cover it and store with the battery fully charged. Recharge the battery every three months to ensure battery life.

Safety Precautions

CAUTION! Only use replacement batteries which are certified by your dealer. Use of incorrect battery type is an electrical hazard that could lead to explosion, fire, electric shock, or short circuit.

CAUTION! Batteries contain an electrical charge that can cause severe burns. Before servicing batteries, please remove any conductive materials such as jewelry, chains, wrist watches, and rings.

CAUTION! Do not open or mutilate the batteries. Electrolyte fluid is harmful to the skin/eyes and may be toxic.

CAUTION! To avoid electric shock, turn off and unplug the UPS from the wall receptacle before servicing the battery.

CAUTION! Only use tools with insulated handles. Do not lay tools or metal parts on top of the UPS or battery terminals.

Replacement Batteries

Please refer to the front side of the UPS for the model number of the correct replacement batteries. For battery procurement, contact your local dealer.

Battery Disposal

Batteries are considered hazardous waste and must be disposed of properly. Contact your local government for more information about proper disposal and recycling of batteries. Do not dispose of batteries in fire.

TECHNICAL SPECIFICATIONS

Model		CPO-V1000RT	CPO-V2000RT	CPO-V3000RT
Capacity (VA/W)		1000VA/900W	2000VA/1800W	3000VA/2700W
Configuration				
Form Factor		Rack		
Energy-saving Technology		Yes, ECO Mode Efficiency ≧95%		
Input				
Voltage Range		110~300Vac ± 5% for 1000/2000/3000VA model 140~300Vac ± 5% for 1000/2000/3000VA model 160~300Vac ± 5% for 1000/2000/3000VA model 180~300Vac ± 5% for 1000/2000/3000VA model		@ 0~50% Load ± 5% @ 50~70% Load ± 5% @ 70~80% Load ± 5% @ 80~100% Load ± 5%
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		0.9		
Harmonic Distortion		THD < 3% at Linear Load, < 5% at Non-linear Load @ Nominal Input		
Crest Factor		3 : 1		
ECO Mode Voltage Regulation		±10%, ±15% (Configurable)		
Overload Protection	Line Mode	105~110% 110%~130% >130%		Warning, transfer to bypass after 10min. Warning, transfer to bypass after 1min. Warning, transfer to bypass after 3s.
	Battery Mode	105~110% 110%~130% >130%		Warning, shutdown after 1min. Warning, shutdown after 30s. Warning, shutdown after 3s.
	Bypass Mode	110~120% 120%~130% >130%		Warning, shutdown after 30min. Warning, shutdown after 10min. Warning, shutdown after 1min.
Short Circuit Protection		UPS Output Cut off Immediately or Input Fuse / Circuit Breaker Protection		
Surge Protection		IEC 61000-4-5 Level 4		
Battery				
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℉ to 104℉ (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)		
Software				
Power Management Software		Power Master		
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		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 derat ing 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 shutdown.	Shut off non-essential equipment. If this solves the overload problem, the UPS will transfer to normal operation.
Battery Mode	UPS is operating on battery power.	Save your data and perform a controlled-shutdown.
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.	Check battery connector when use battery packages.
	UPS has failed in Battery Test.	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 O/P V	Output voltage is too high.	1. Shut down UPS 2. Contact your dealer for repair.
Low O/P V	Output voltage is too low.	
Bus Fault	Internal DC bus voltage is too high or too low.	
Other		
Startup fail	High temperature, or fan fail, or battery low, or EPO off.	1. Restart UPS and press the "ESC" button to view the warning event. Then refer to the solution for the warning. 2. Contact your dealer for repair.