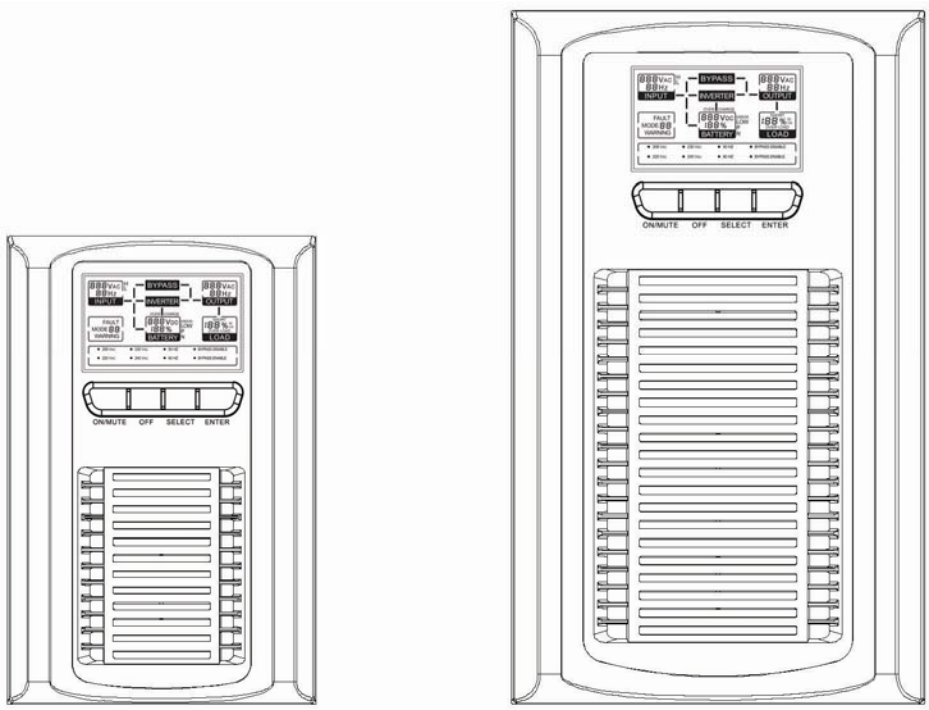
On Line UPS



LUC-1000 / 3000 & LUCR-1000 / 3000

User Manual

LONGTIME
Power Solution Provider

Save This Manual

Please read this manual carefully prior to storage, installation, wiring, operation and maintenance of the UPS.

This manual contains important instructions and warnings that you should follow during the storage, installation, wiring, operation and maintenance of the UPS. Failure to follow these instructions and warnings will void the warranty.

Please note that only qualified and trained technician can do installation, wiring, operation and maintenance of the UPS.

Important Safety Instructions


See installation instructions before connecting to the supply.


Condensation may occur if the UPS is moved directly from a cold to a warm environment. The UPS must be absolutely dry before being installed. Please allow an acclimatization time of at least two hours.


Do not install the UPS near water or in damp environment.


Do not install the UPS where it would be exposed to direct sunlight or near heat.


Do not connect appliances or items of equipment which would overload the UPS (e.g. laser printers, etc) to the UPS output.


Place cables in such a way that no one can step on or trip over them.


Assure to connect with the earth reliably.


Assure external battery source must be earthed.


Connect the UPS only to an earthed shockproof socket outlet.


The building wiring socket outlet (shockproof socket outlet) must be easily accessible to close to the UPS.


With the installation of the equipment, the sum of the leakage current of the UPS and the connected load does not exceed 3.5mA.


Do not block ventilation openings in the UPS housing. Ensure the air vents on the front, side and rear of the UPS are not blocked. Allow at least 25cm of space on each side.


UPS has provided earthed terminal, in the final installed system configuration, equipotential earth bonding to the external UPS battery cabinets.


Do not disconnect the mains cable on the UPS or the building wiring socket (grounded shockproof socket) during operation as this would remove the ground to the UPS and of all connected loads.


The UPS features its own, internal current source (batteries). You may be electric shock when you touch the UPS output sockets or output terminal block even if the UPS is not connected to the building wiring socket.


In order to fully disconnect the UPS, first press the OFF button to turn off the UPS, then disconnect the mains lead.


Ensure that no liquid or other foreign objects can enter the UPS.

Do not remove the enclosure. This system is to be serviced by qualified service personnel only.

Remove the protective panel only after disconnecting the terminal connections.

Use No. 12AWG (for 3K output terminal), 90℃ copper wire and 12 lb-in Torque force when connecting to terminal block.

The UPS operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.

Even after the unit is disconnected from the mains power supply (building wiring socket), components inside the UPS are still connected to the battery which are potentially dangerous.

Before carrying out any kind of service and/or maintenance, disconnect the batteries. Verify that no current is present and no hazardous voltage exists in the capacitor or BUS capacitor terminals.

Batteries must be replaced only by qualified personnel.

The battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground. Verify that no voltage is present before servicing.

Batteries have a high short-circuit current and pose a risk of shock. Take all precautionary measures specified below and any other measures necessary when working with batteries:

- remove all jewellery, wristwatches, rings and other metal objects.
- use only tools with insulated grips and handles.

When changing batteries, replace with the same quantity and the same type of batteries.

Do not attempt to dispose of batteries by burning them. It could cause explosion.

Do not open or destroy batteries. Effluent electrolyte can cause injury to the skin and eyes. It may be toxic.

Please replace the fuse only by a fuse of the same type and of the same amperage in order to avoid fire hazards.

Do not dismantle the UPS, except the qualified maintenance personnel.

Please transport the UPS only in the original packaging (to protect against shock and impact).

The UPS must be stockpiled in the room where it is ventilated and dry.

Contents

1. Introduction

1-1 Product Introduction

The LUC / LUCR Series is true online double-conversion UPS. It provides perfect protection for critical load such as computer system. It can eliminate almost all mains power disturbances. The input AC current can be corrected to a wave following the mains voltage, so it is a high power factor system. Through the PWM control technology, the output voltage can be a pure & stable sine wave AC voltage.

When the mains input become abnormal, the controller will stop the AC/DC and start the DC/DC section immediately to make sure the DC/AC (inverter) section can continue to work. After the mains input come back to normal range, the DC/DC will be stopped and the AC/DC works again. So the load is always power-supplied through inverter without any interrupt if the UPS is turned on.

The LUC / LUCR Series also provide an internal bypass path so that the load can be powered by mains input directly when the UPS is off or failed.

The LUC / LUCR Series is equipped with an internal charger for batteries which charges the batteries when the mains are within a reasonable range under “bypass mode” or “line mode”.

1-2 Appearance

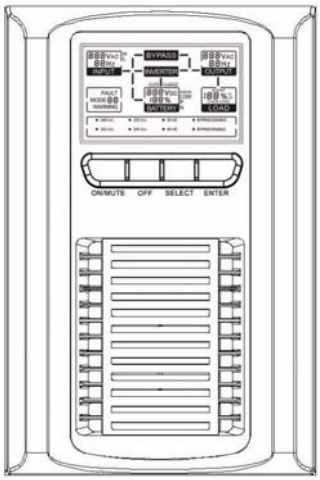


Figure 1 : LUC-1000 Appearance

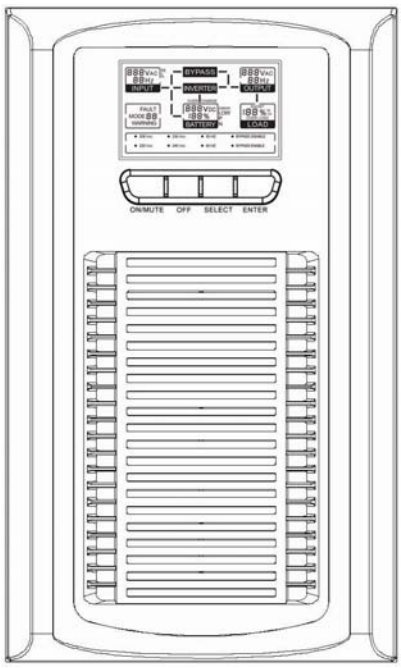


Figure 2 : LUC-3000 Appearance

1-3 Front Panel

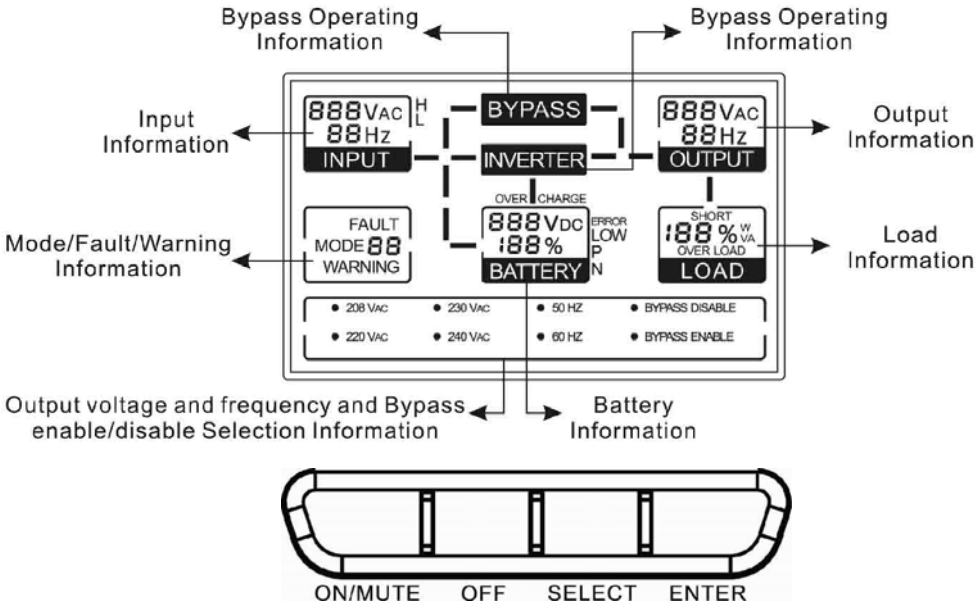


Figure 3 : Front Panel

Name	Description
ON / MUTE Button	● Turn on the UPS: press this button to turn on the UPS. ● Mute alarm: press this button to mute alarm in battery mode. ● Battery test: press this button the UPS can do the battery test in the Line mode or ECO mode or Converter mode.
OFF Button	● When mains power is normal, the UPS system switches to no output or bypass mode by pressing this button, and the inverter is off. At this moment, if bypass is enabled, then the output sockets are supplied with voltage via the bypass if the mains power is available. ● Mute alarm: press this button an acoustic alarm can be deactivated in the bypass mode.
SELECT Button	If the UPS system is no output or in bypass mode, the output voltage / frequency / bypass disable or enable / operating mode could be selected by pressing Select button, and confirmed by pressing Enter button.
ENTER Button	

Name	Description	
Input Information	888VAC	Indicates the input Line voltage value.
	88Hz	Indicates the frequency value of input Line voltage.
	H	Indicates the input Line voltage is higher than the SPEC range, and the UPS would be working in Battery mode
	L	Indicates the input Line voltage is lower than the SPEC range, and the UPS would be working in Battery mode
Output Information	888VAC	Indicates the UPS output voltage.
	88Hz	Indicates the UPS output frequency.
Load Information	188% W VA	Indicates the load percent in Watt or VA, only the maximum value of them could be displayed.
	SHORT	Indicates the UPS output is short, UPS would shut down.

	OVER LOAD	Indicates the load is over the SPEC range.
Battery Information	888VDC	Indicates the battery voltage.
	188%	Indicates the battery capacity.
	OVER CHARGE	Indicates the battery is over charged, and the UPS would be switched to Battery mode
	LOW	Indicates the battery is weak, and the UPS would shut down soon
Mode / Fault / Warning code information	FAULT MODE 88 WARNING	Indicates the operating mode of the UPS, Mode code or Fault code or Warning code could be displayed, and the codes are illuminated in detail in the following chapter
Inverter / bypass operating information	INVERTER	Indicates the circuit of the inverter is working
	BYPASS	Indicates the circuit of Bypass is working
Setting Information	208 VAC 230 VAC 220 VAC 240 VAC	The four value of the output voltage could be selected when the UPS is in No output or Bypass mode, and only one of them could be active in the same time
	50 HZ 60 HZ	The two frequency value of the output voltage could be selected when the UPS is in No output or Bypass mode, and only one of them could be active in the same time
	BYPASS DISABLE BYPASS ENABLE	Bypass disable or enable could be selected when the UPS is in No output or Bypass mode, and only one of them could be active in the same time

1-4 Rear Panel

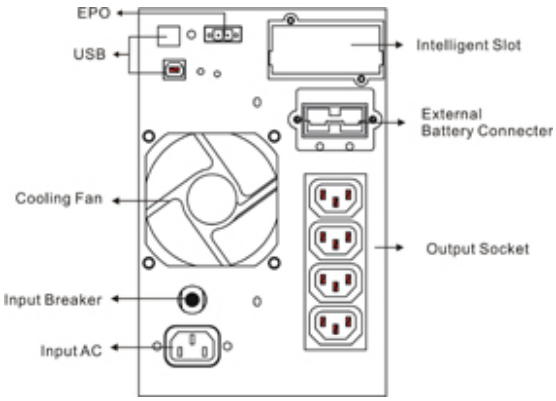


Figure 4 : LUC-1000

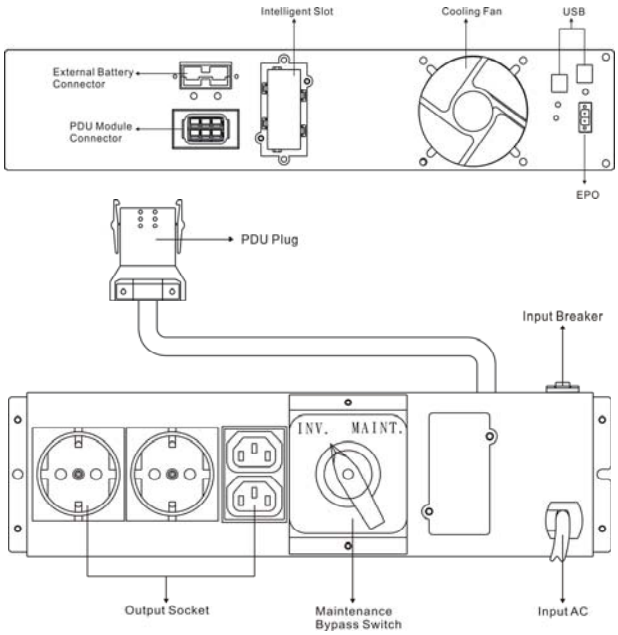


Figure 5 : LUCR-1000

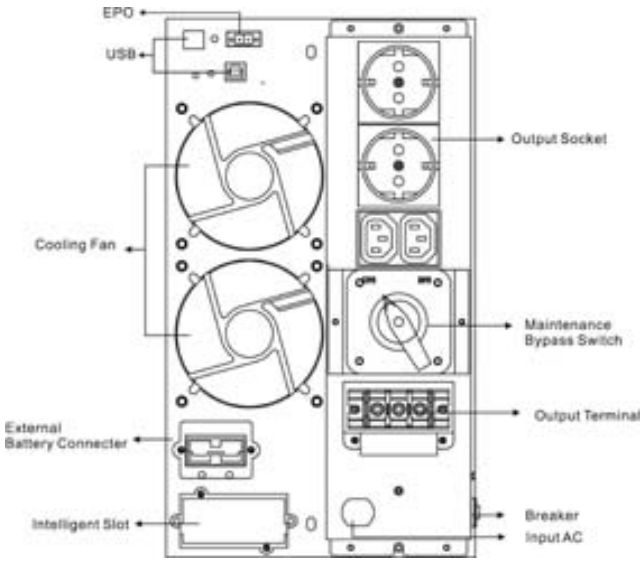


Figure 6 : LUC-3000

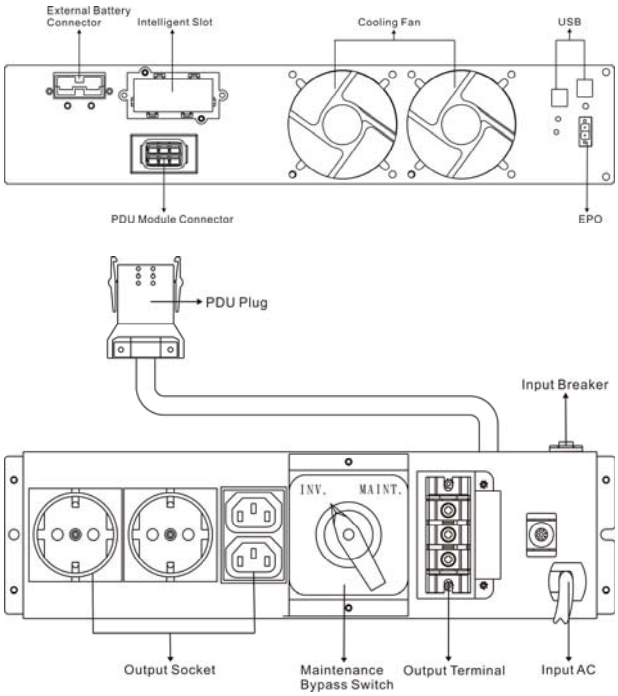


Figure 7 : LUCR-3000

2. Mode Description

The different codes could be displayed on the LCD screen corresponding to their own operating modes, and they are illustrated as the following table. At any time, only one normal operating mode or fault mode is presented. But the warning, even several warnings could appear in a certain normal operating mode at one time. And the normal operating mode code and the warning code would be shown circularly. Once one fault is come forth, then all previous warnings would not be shown again but only the fault code is presented.

Operating Mode	Code
No output mode	0
Bypass mode	1
Line mode	2
Battery mode	3
Battery test mode	4
ECO mode	5
Converter mode	6

2-1 Line Mode

The LCD display in Line mode is shown in the following diagram. The information about the utility power, the battery, the UPS output and the load could be displayed. The “MODE” and “2” code indicate the UPS is working in Line mode.

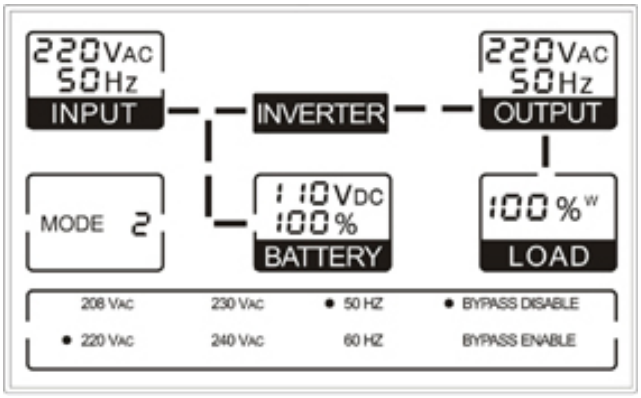


Figure 8 : Line Mode

If output overloaded, the load percent is shown and alarm will keep twice every second. You should get rid of some unnecessary loads one by one to decrease the loads connected to the UPS less than 90% of its nominal power capacity.

Please follow the following steps to connect the generator:

- Activate the generator and wait until the operation is stable before supplying power of the generator to the UPS (be sure that the UPS is in idle mode). Then turn on the UPS according to the start-up procedure. After the UPS is turned on, then the loads can be connected to the UPS one by one.
- The power capacity of the AC generator should be at least twice of the UPS capacity.

2-2 Battery Mode

The LCD display in battery mode is shown in the following diagram. The information about the utility power, the battery, the UPS output and the load could be displayed. The “MODE” and “3” code indicate the UPS is working in the battery mode.

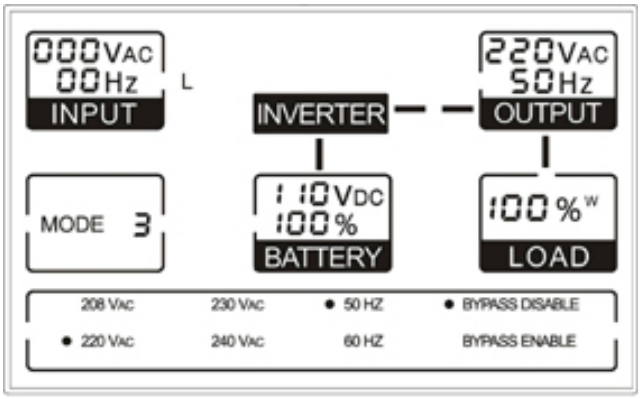


Figure 9 : Battery Mode

- When the UPS is running in battery mode, the buzzer beeps once every 4 seconds. If the “ON” button on the front panel is pressed for more than 1 second again, the buzzer will stop beeping (in silence mode). Press the “ON” button once again for more than 1 second to resume the alarm function.
- If the UPS is working in battery mode for the input line voltage is higher than the SPEC range, the alarm symbol - “H” will be shown; if the UPS is working in battery mode for the input line voltage is lower than the SPEC range, the alarm symbol - “L” will be shown; if the input line voltage is lost, the alarm symbol - “L” would be shown.

2-3 Bypass Mode

The LCD display in bypass mode is shown in the following diagram. The information about the utility power, the battery, the UPS output and the load could be displayed. The UPS will beep once every 2 minutes in bypass mode. The “MODE” and “1” code indicate the UPS is working in the bypass mode.

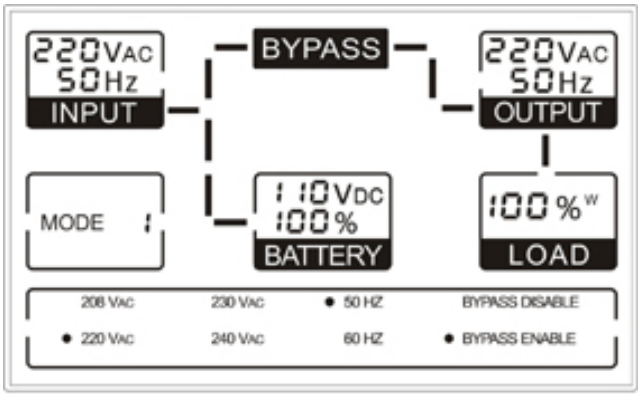


Figure 10 : Bypass Mode

The UPS does not have the backup function when it is in bypass mode. The power used by the load is supplied from the utility power via internal filter.

2-4 No Output Mode

The LCD display in No output mode is shown in the following diagram. The information about the utility power, the battery, the UPS output and the load could be displayed. The “0” code indicates the UPS is working in the No output mode.

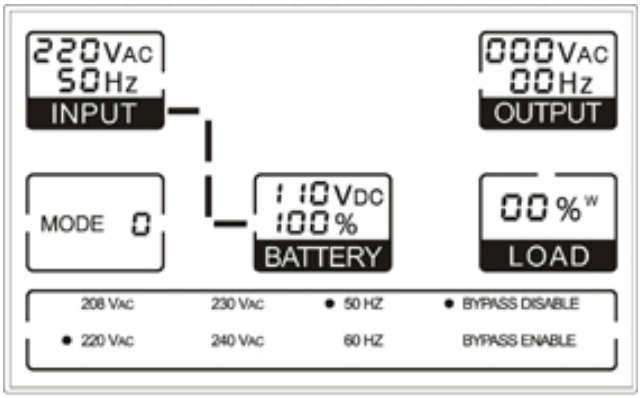


Figure 11 : No Output Mode

2-5 EPO Mode

It is also called RPO (Remote Power Off). On LCD display, the mode code is “0”, the word of “EPO” are presented in the position of output voltage. It is a special status in which the UPS would shut the output off and alarm. The UPS could not be turned off by pressing “OFF” button on the panel, only after releasing EPO status by turning off the EPO switch.

2-6 ECO Mode

It is also called high efficiency mode. In ECO mode, on LCD display, the mode code is “5”. After the UPS is turned on, the power used by the load is supplied from the utility power via internal filter while the utility power is in normal range, so the high efficiency could be gained in the ECO mode. Once the mains is loss or abnormal, the UPS would transfer to battery mode and the load is supplied continuously by the battery.

- It could be enabled through the LCD setting.
- It is attention that the transfer time of UPS output from ECO mode to battery mode is less than 10ms. But it is still too long for some sensitive load

2-7 Converter Mode

In converter mode, on LCD display, the mode code is “6”. The UPS would free run with fixed output frequency (50Hz or 60Hz) in converter mode. Once the Utility is loss or abnormal, the UPS would transfer to battery mode and the load is supplied continuously by the battery.

- It could be enabled through the LCD setting.
- The load should be derating to 60% in converter mode.

2-8 Abnormal Mode

In abnormal mode such as Bus fault etc., the corresponding fault code would be shown to indicate the operating mode of the UPS. And some warning words could also be shown, for example “short!” would be shown when the load or the UPS output is short and the UPS is in inverter fault mode.

3. Connection and Operation

The system may be installed and wired only by qualified electricians in accordance with applicable safety regulations.

When installing the electrical wiring, please note the nominal amperage of your incoming feeder.

3-1 Inspection

Inspect the packaging carton and its contents for damage. Please inform the transport agency immediately should you find signs of damage. Please keep the packaging in a safe place for future use.

**** Note: Please ensure that the incoming feeder is isolated and secured to prevent it from being switched back on again.***

3-2 UPS Input Connection

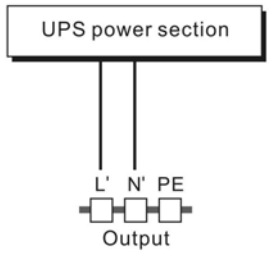
If the UPS is connected via the power cord, please use a proper socket with protection against electric current, and pay attention to the capacity of the socket: over 9A for 1K, over 26A for 3K. If the UPS is connected via wires, it is recommended to select the 2.5mm2 wire, and the “GND” terminal should be grounded first by using the green/yellow wire. The wiring is shown as the following.

The UPS System has an input breaker on the cabinet. But we still recommend users to connect an external breakers or protective components to the input terminals. It is recommended to select the NFB (Non-Fuse Breaker) instead of the traditional combination kit including breaker and fuse. When selecting the NFB, the user can refer to below table for detailed information when installation.

Mode	UPS Input N.F.B.	
1K	300VAC	8A
3K	300VAC	20A

3-3 UPS Output Terminal Block Connection

The wiring configuration is shown as the following procedure:



- Remove the small cover of the terminal block
- Use 2.5mm2 wires for wiring configuration
- Upon completion of the wiring configuration, please check whether the wires are securely affixed
- Put the small cover back to the rear panel

**** Caution: Do not connect equipment which would overload the UPS system (e.g. laser printers).***

3-4 Battery Charge

Fully charge the batteries of the UPS system by leaving the UPS system connected to the mains for 1-2 hours. You may use the UPS system directly without charging it but the stored energy time may be shorter than the nominal value specified.

3-5 Turn on the UPS

- With utility power connecting: Press “ON” button continuously for more than 1 second to turn on the UPS, the UPS will get into the inverter mode, the LCD screen will indicate the state of the UPS.
- Without utility power connecting: If UPS is cold start without utility power connecting, user need to push “ON”button twice, first pushing “ON” button is for UPS to get power, and second pushing “ON” button continuously for more than 1 second is for UPS to turns on, the UPS will get into the inverter mode.In fact, the two pushing “ON” button is to make further sure user operation for turning on UPS, the LCD screen will indicate the state of the UPS.

**** Note: The default setting for bypass mode is no output after UPS is connecting utility power and breaker is turned on. This can be configured by monitoring the LCD panel or firmware.***

3-6 Test Function

Test the function of the UPS system by pressing the On-Switch “ON” for more than 1 second, the UPS would detect whether the battery is connected or the battery is low. And the UPS could also do the test automatically and periodically, the period time could be set by user.

3-7 Turn off the UPS

- In Inverter Mode: Press “OFF“ button continuously for more than 1 second to turn off the UPS, the UPS will get into no output or bypass mode. At this time, the UPS might has output if bypass is enabled. Disconnect the utility power to turn off the output.
- In Battery Mode: Press “OFF“ button continuously for more than 1 second to turn off the UPS, the UPS will be turned off completely.

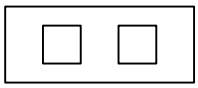
3-8 Audible Alarm Mute Function

If the alarm is too annoying in battery mode, you may press “MUTE” button continuously for more than 1 second to clear it. Moreover, the alarm will be enabled when the battery is low to remind you to shutdown the load soon. If the alarm is too annoying in bypass mode, you may press “OFF“ button continuously for more than 1 second to clear it. The action doesn’t affect the warning and fault alarm.

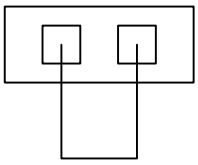
3-9 EPO Connection

User can select the polarity of EPO, EPO is Normally close as default setting.

- Normally open: normally the EPO connector is open on the rear panel. Once the connector is closed with a wire, the UPS would stop the output until the EPO status is disabled.

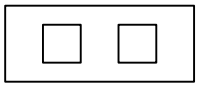


Disable EPO Status

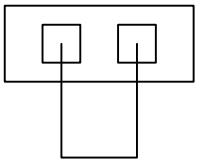


Enable EPO Status

- Normally close: normally the EPO connector is closed with a wire on the rear panel. Once the connector is open, the UPS would stop the output until the EPO status is disabled



Enable EPO Status



Disable EPO Status

4. Communication Port

4-1 USB

The USB port is compliance with USB 1.1 protocol.

4-2 AS400 Interface (option)

Except for the communication protocol as mentioned above, this series UPS has AS400 card (an optional accessory) for AS400 communication protocol. Please contact your local distributor for details.

5. Setting

The output voltage and frequency, and bypass state, and ECO mode, and Converter mode could be set directly through LCD module.

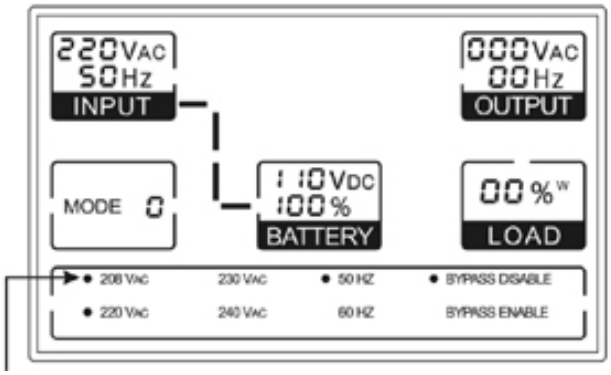
The output voltage could be set to 208V, 220V, 230V and 240V. The output frequency could be set to 50Hz and 60Hz. The operating mode of UPS could be set between the Line mode, ECO mode and Converter mode. The bypass state could be set to enable and disable. But all the settings could only be done when the UPS is in bypass or no output mode.

In bypass or no output mode, pressing the “Select” button on the LCD panel for more than one second, a flickering black dot would be shown before “208V” on the screen. And if pressing the “Select” button continuously again, the flickering black dot would move to “220V”, next to “230V”, “240V”, “50Hz”, “60Hz”, “Bypass Disable”, “Bypass Enable”, “UPS”, “ECO”, “CVF” in turn. (Here “UPS” means the normal inverter mode, and “UPS”, “ECO”, and “CVF” would be presented circularly at the position of output current).

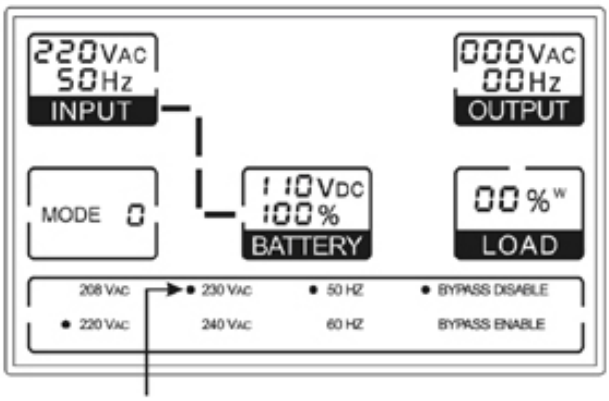
If pressing the “Enter” button for more than one second at this time, the flickering black dot would turn to flickerless and the output voltage or frequency or bypass state or mode state setting would be modified to the selected value. And if no any pressing on the “Select” or “Enter” button lasting for more than 30 seconds, the flickering black dot would disappear.

The only one voltage value could be selected in “208V”, “220V”, “230V”, “240V” at any time. The only one frequency value could be selected in “50Hz”, “60Hz” at any time. And the output voltage and frequency would be changed to the corresponding value after the right values are selected on the LCD panel and the UPS is turn on by pressing the “ON” Button. The UPS would turn to bypass mode in several seconds after “Bypass Enable” is selected, and turn to no output mode in several seconds after “Bypass Disable” is selected. The mode change would be active only after the UPS is turned on.

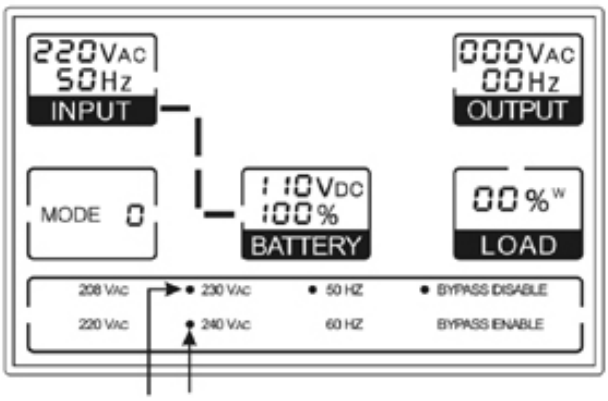
Beolow is an example for changing the output voltage from 220VAC to 230VAC through the LCD panel.



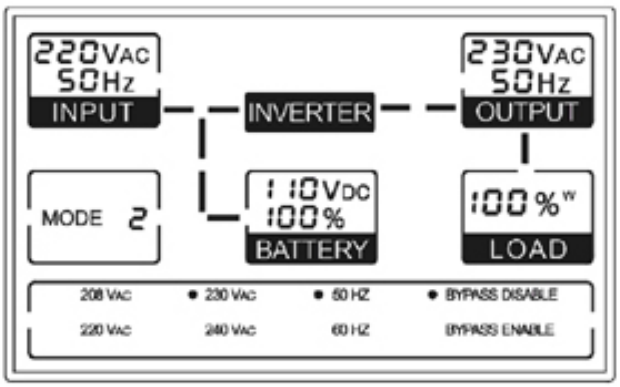
Step 1: One flickering black dot would appear before “208Vac” after pressing the “Select” button.



Step 2: The flickering dot would move to “230Vac” after pressing the “Select” button two times again.



Step 3: The dot before “230Vac” would turn to flickerless after pressing the “Enter” button.



Step 4: The output voltage would be 230Vac after the UPS is turned on.

6. Trouble Shooting

If the UPS system does not operate correctly, check the operating status on the LCD display.

Warning	Code
Site fail	09
Fan fail	10
Battery over voltage (over charged)	11
Battery low	12
Charge fail	13
DC-DC temperature high	21
Inverter temperature high	24
Ambient temperature high	25
Ling voltage high (OVCD action)	26
Battery open	27
Overload	29

Fault	Code
Bus fault	05
Inverter fault	06
Overload fault	07
Over temperature fault	08
Inverter short	14
Bus short	28

If the UPS system does not operate correctly, please attempt to solve the problem using the table below.

Problem	Possible Cause	Remedy
No indication, no warning tone even though system is connected to mains power supply	No input voltage	Check building wiring socket outlet and input cable.
Display Mode code ”1” in LCD, even though the power supply is available	Inverter not switched on	Press On-Switch.

Problem	Possible Cause	Remedy
Display Mode code ”3” in LCD, and audible alarm sounding every 1 beep in every 4 seconds	Mains power supply has failed, or Input power and/or frequency are out of tolerance	Switching to battery mode automatically. Check input power source and inform dealer if necessary.
Emergency supply period shorter than nominal value	Batteries not fully charged / batteries defect	Charge the batteries for at least 5 - 8 hours and then check capacity. If the problem still persists, consult your dealer.
Fan fail	Fan abnormal	Check if the fan is running
Battery over voltage	Battery is over charged	Switching to battery mode automatically, and after the battery voltage is normal and the mains is normal, the UPS would Switching to line mode automatically again.
Battery low	Battery voltage is low	When audible alarm sounding every second, battery is almost empty.
Charge fail	The charge is broken	Notify dealer.
DC-DC temperature high	Inside temperature of the UPS is too high	Check the ventilation of the UPS, check the ambient temperature.
Inverter temperature high	Inside temperature of the UPS is too high	Check the ventilation of the UPS, check the ambient temperature.
Ambient temperature high	The ambient temperature is too high	Check the environment ventilation.
Line voltage high (OVCD action)	Input power voltage is too high	Switching to battery mode automatically, and after the mains is normal, the UPS would Switching to line mode automatically again.
Battery open	Battery pack is not connected correctly	Do the battery test to confirm. Check the battery bank is connected to the UPS. Check the battery breaker is turn on.
Overload	Overload	Check the loads and remove some non-critical loads. Check whether some loads are failed.
Site fail	Phase and neutral conductor at input of UPS system are reversed	Rotate mains power socket by 180° or connect UPS system.
EPO active	EPO function is enabled	Turn off the EPO switch.
Bus fault	UPS internal fault	Notify dealer

Problem	Possible Cause	Remedy
Inverter fault	UPS internal fault	Notify dealer
Over temperature fault	Over temperature	Check the ventilation of the UPS, check the ambient temperature and ventilation.
Inverter short	Output short circuit	Remove all the loads. Turn off the UPS. Check whether the output of UPS and loads is short circuit. Make sure the short circuit is removed, and the UPS has no internal faults before turning on again.
Bus short	UPS internal fault	Notify dealer

7. Maintenance


No matter the UPS is connected to the mains power or not, the output may have electricity. The parts (battery, capacitor) inside the unit may still have hazardous voltage after turning off the UPS.


Make sure to disconnect the batteries before carrying out any kind of maintenance or repair. The battery may result in electrical shock.


Verify that no voltage between the battery terminals and the ground is present before maintenance or repair. In this product, the battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground.


Verify that no hazardous voltage exists in the energy storage capacitor before maintenance or repair.


Remove all jewellery, wristwatches, rings and other metal personal goods before maintenance or repair.


Only use tools with insulated grips and handles when maintaining or repairing.


Disconnect the charging source prior to connecting or disconnecting battery terminals.


Do not short the positive and negative of the battery electrode. Batteries have a high short-circuit current and may cause a risk of serious shock or fire.


When changing the batteries, replace them with the same quantity and the same type of batteries.


Do not attempt to dispose the batteries by burning them as it could cause explosion. The batteries must be rightly deposed according to local regulation.


Do not open or destroy the batteries. Effluent electrolyte can cause injury to the skin and eyes and may be toxic to the environment.


Do not dispose of batteries in a fire. The batteries may explode.


Please replace the fuse only with a fuse of the same type and of the same amperage in order to avoid fire hazards.

7-1 UPS

Check the UPS quarterly and inspect:

- Whether the UPS, LCD, LED and alarm function are operating normally.
- Whether the UPS works in bypass mode (normally the UPS will work in online mode). If yes, check if any error, overload, internal fault, etc. occurs.
- Whether battery voltage is normal. If the battery voltage is too high or too low, find the root

cause.

UPS Cleaning:

Regularly clean the UPS, especially the slits and openings, to ensure that the air freely flows into the UPS to avoid overheating. If necessary, use an air-gun to clean the slits and openings to prevent any object from blocking or covering these areas.

7-2 Battery

- The battery used for standard models are valve regulated sealed lead-acid maintenance free battery. It shall be charged regularly in order to maximize the expected life for the battery. When being connected to the mains power, whenever the UPS is turned on or not, the UPS keeps charging the batteries and also offers the protective function of overcharging and over-discharging.
- The UPS shall be recharged once every 4 to 6 months if it is not going to be used for a long time.
- In the regions with hot climates, the battery should be recharged/ discharged every 2 months. The recharging time should be >12 hours.
- In normal conditions, the battery life lasts 3 to 5 years. If the battery is found in bad condition, earlier replacement is recommended.
- Do not replace the battery individually. All batteries must be replaced at the same time following the instructions of the supplier.

7-3 Fan

Higher temperatures shorten fan life. When the UPS is running, please check if all fans work normally and make sure if the ventilation air can move freely around and through the UPS. If not, replace the fans.

**** Note:***

- ***Please ask your local dealer for more maintenance information. Do not perform maintenance if you are not trained for it.***

7-4 Maintenance Bypass Switch

Maintenance bypass switch is on “INV.” When UPS works normally.

Make sure the cover of maintenance bypass switch locked tightly when operating UPS. Do not open or remove the cover.

Only the UPS need to be repaired can operate maintenance bypass switch.

Maintenance bypass switch can only be operated by qualified personnel.

- If UPS is turned on, Press "OFF" button to switch UPS to Bypass Mode to avoid serious danger.
- Switch Maintenance Bypass Switch from "INV." to “MAINT.” Before remove PDU module. The loads will continue be supplied by the Utility.
- There are two screws for each top and bottom of PDU module. Disassemble screws and PDU module is available to remove.

8. Specification

Model		LUC-1000	LUC-3000
Capacity		800W	2400W
Input	Voltage Range	55VAC - 150VAC or 110VAC - 300VAC	
	Frequency	50Hz or 60Hz (Auto Sensing)	
	THD	< 5% at Full Load	
Output	Voltage	100 / 110 / 115 / 120VAC or 208 / 220 / 230 / 240VAC	
	Voltage Regulation	± 2%	
	Frequency	50Hz or 60Hz ± 0.2Hz (Battery Mode)	
	Waveform	Pure Sine Wave	
	THD	< 4% (Linear Load)	
	Crest Ratio	3:1	
Efficiency	AC Mode	> 88%	
	Battery Mode	> 85%	
	ECO Mode	> 93%	
Battery	Voltage	36VDC	110VAC System: 72VDC 220VAC System: 96VDC
	Recharge Time	5Hrs to 90%	
Transfer Time	Line to Battery Mode	0ms	
	Battery to Bypass, ECO	< 4ms	
	ECO to Battery Mode	< 10ms	
Display	LCD	Input, Output, Load, Battery, Mode/Fault/Warning code, Inverter/Bypass operating, Output Voltage/Frequency/Bypass selection information	
Alarm	Battery Mode	Beeping Every 4 Seconds	
	Battery Low	Beeping Every Second	
	Overload	Beeping Twice Every Second	
	Fault	Beeping Continuously	
Communication	Interface	USB / SNMP (Optional)	
Environment	Temperature	0 ° C - 40 ° C	
	Humidity	20 – 90%, non-condensing	
	Noise	< 50dB at 1M	
Dimension	D X W X H (mm)	430 x 143 x 210	540 x 192 x 340
Net Weight	Kgs	13	37

Model		LUCR-1000	LUCR-3000
Capacity		800W	2400W
Input	Voltage Range	55VAC - 150VAC or 110VAC - 300VAC	
	Frequency	50Hz or 60Hz (Auto Sensing)	
	THD	< 5% at Full Load	
Output	Voltage	100 / 110 / 115 / 120VAC or 208 / 220 / 230 / 240VAC	
	Voltage Regulation	± 2%	
	Frequency	50Hz or 60Hz ± 0.2Hz (Battery Mode)	
	Waveform	Pure Sine Wave	
	THD	< 4% (Linear Load)	
	Crest Ratio	3:1	
Efficiency	AC Mode	> 88%	
	Battery Mode	> 85%	
	ECO Mode	> 93%	
Battery	Voltage	36VDC	110VAC System: 72VDC 220VAC System: 96VDC
	Recharge Time	5Hrs to 90%	
Transfer Time	Line to Battery Mode	0ms	
	Battery to Bypass, ECO	< 4ms	
	ECO to Battery Mode	< 10ms	
Display	LCD	Input, Output, Load, Battery, Mode/Fault/Warning code, Inverter/Bypass operating, Output Voltage/Frequency/Bypass selection information	
Alarm	Battery Mode	Beeping Every 4 Seconds	
	Battery Low	Beeping Every Second	
	Overload	Beeping Twice Every Second	
	Fault	Beeping Continuously	
Communication	Interface	USB / SNMP (Optional)	
Environment	Temperature	0 ° C - 40 ° C	
	Humidity	20 – 90%, non-condensing	
	Noise	< 50dB at 1M	
Dimension	D X W X H (mm)	465 x 19” x 2U	465 x 19” x 4U
Net Weight	Kgs	19	42