



# Liebert® PSL UPS, 650-2000VA

User Manual



## IMPORTANT SAFETY INSTRUCTIONS (SAVE THESE INSTRUCTIONS)

This manual contains important instructions that should be followed during installation and maintenance of the UPS.

- Intended for installation in a controlled environment.
- Maximum ambient temperature 104°F (40°C).

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

**CAUTION!** To reduce the risk of overheating the UPS, do not cover the UPS' cooling vents and avoid exposing the unit to direct sunlight or installing the unit near heat emitting appliances such as space heaters or furnaces.

**CAUTION!** Do not attach non-computer-related items, such as medical equipment, life-support equipment, microwave ovens, or vacuum cleaners to UPS.

**CAUTION!** Do not plug the UPS input into its own output.

**CAUTION!** Do not allow liquids or any foreign object to enter the UPS. Do not place beverages or any other liquid-containing vessels on or near the unit.

**CAUTION!** In the event of an emergency, press the OFF button and disconnect the power cord from the AC power supply to properly disable the UPS.

**CAUTION!** Do not attach a power strip or surge suppressor to the UPS.

**CAUTION!** If the UPS is with metal chassis, for safety purpose, grounding is a must during UPS installation in order to reduce leakage current below 3.5mA.

**CAUTION!** When replacing the batteries, use the same number and type of batteries.

**CAUTION!** Internal battery voltage is 12VDC. Sealed, lead-acid, 6-cell battery.

**Attention** hazardous through electric shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from battery. The battery supply should be therefore disconnected in the plus and minus pole at the quick connectors of the battery when maintenance or service work inside the UPS is necessary.

**CAUTION!** Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

**CAUTION!** Do not dispose of batteries in a fire. The battery may explode. Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes.

**CAUTION!** Unplug the UPS prior to cleaning and do not use liquid or spray detergent.

**CAUTION!** A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed before replacing batteries:

- 1) Remove watches, rings, or other metal objects.
- 2) Use tools with insulated handles.
- 3) Wear rubber gloves and boots.
- 4) Do not lay tools or metal parts on top of batteries.
- 5) Disconnect charging source prior to connecting or disconnecting batteries terminal.

## SETUP

### Step 1 Inspect the Package

Inspect the package and the UPS upon receipt. Notify the carrier and dealer of visible damage.



UPS



Quick-start guide



USB cable

### Step 2 Decide Where to Place the UPS

The UPS must be placed indoors, protected from water, direct sunlight and excessive heat.

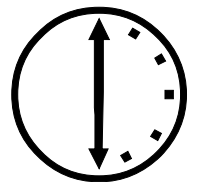
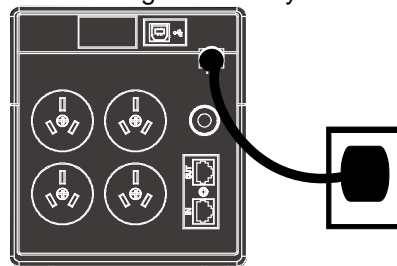
Provide at least 7.8" (20 cm) of clearance on all sides of the unit for proper ventilation.



### Step 3 Charge the UPS Battery Before Use

The UPS battery is fully charged before shipping. However, some charge may be lost during shipping and the battery should be recharged prior to use.

- Plug in the AC input cord to the wall outlet. For the best results, suggest to charge the battery at least 6 hours before initial use. The unit charges its battery while connecting to the utility.



## SETUP (CONTINUE.)

### Step 4 Start the UPS

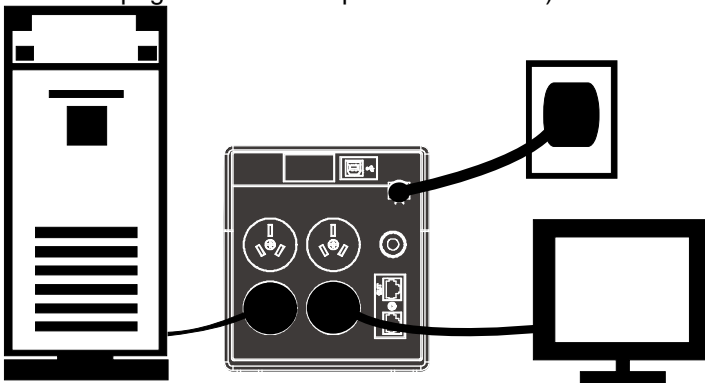
After the battery is fully charged:

- Turn on the UPS by pressing the On/Off button. Normal mode LED should be illuminated, indicating the UPS is operating in Normal mode.



### Step 5 Connect the Loads

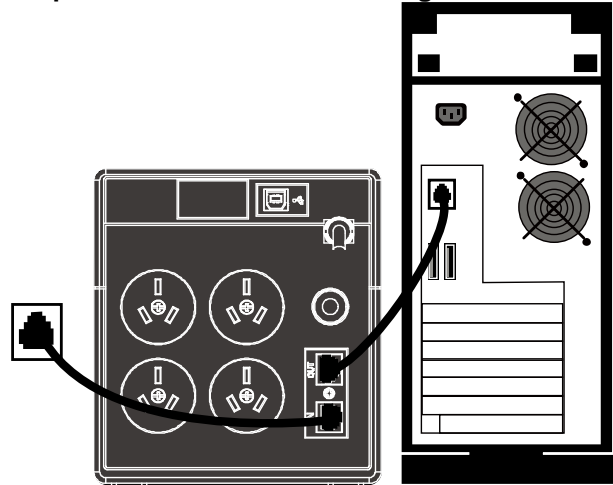
The UPS is equipped with battery backup outlets that provide power when the UPS operates on battery. (see Figure 2, 4 or 6 on next two pages for different power rated UPS)



- Plug the loads into the battery backup outlets on the rear of the UPS.

**CAUTION: NEVER** connect a laser printer or scanner to the UPS unit. This may cause the damage of the unit.

### Step 6 Connect the Network Surge Protection

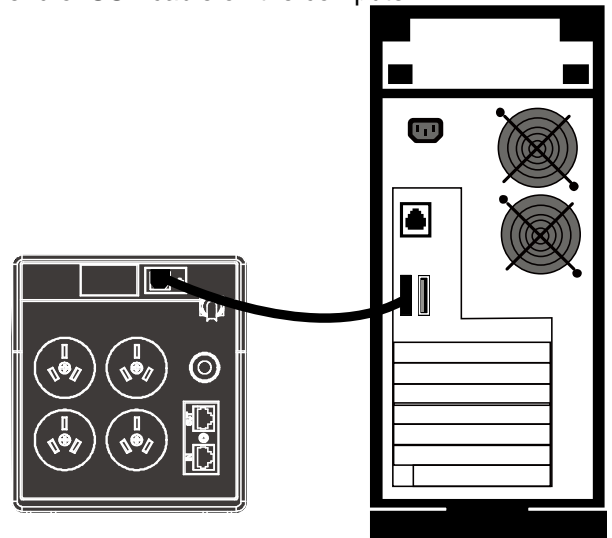


- Connect a single phone cable into the RJ-45 network surge protection IN jack on the rear panel of the UPS.
- Connect a RJ-45 phone cable from the OUT jack on the rear of the UPS to a port on a PC

### Step 7 Set Up Shutdown Software

To start using shutdown software:

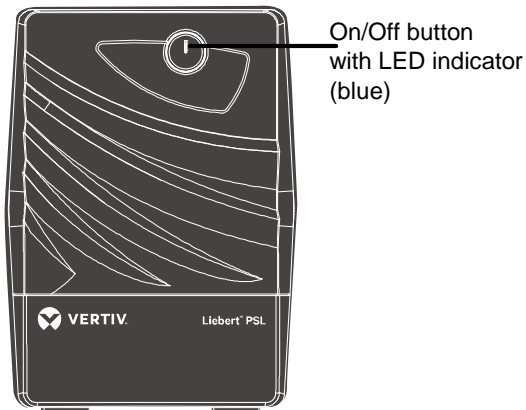
- Connect one end of USB cable (supplied) to the USB port on the rear panel of the UPS. Connect the other end of USB cable on the computer



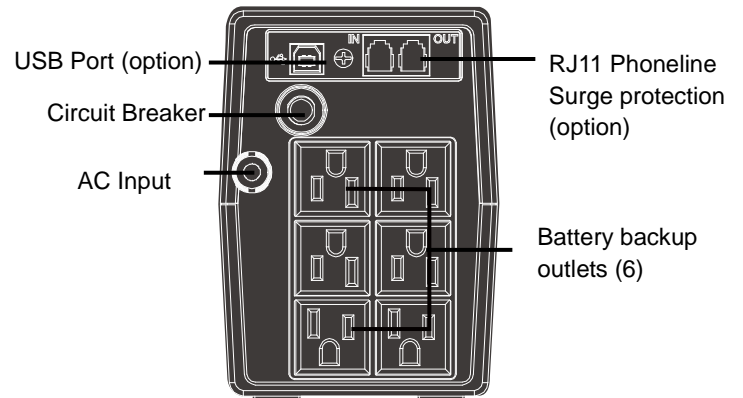
- Download ViewPower shutdown software from the internet:  
[www.power-software-download.com/viewpower.html](http://www.power-software-download.com/viewpower.html)  
Follow on-screen instruction to install the shutdown software.

## UPS CONTROLS AND CONNECTIONS (FOR PSL 650BX/850BX)

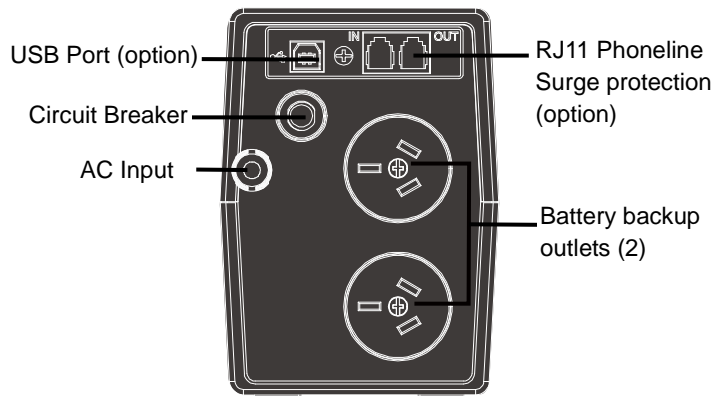
**Figures 1 – Front Panel LEDs**



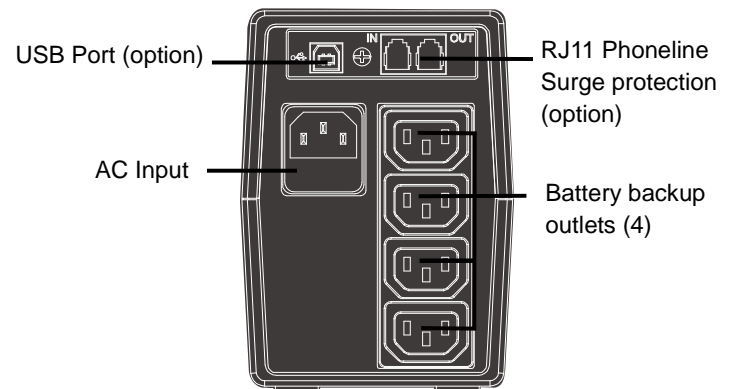
**Figure 2 – Rear Panel (NEMA 120V)**



**Figure 3 – Rear Panel (IRAM 230V)**



**Figure 4 – Rear Panel (IEC 230V)**

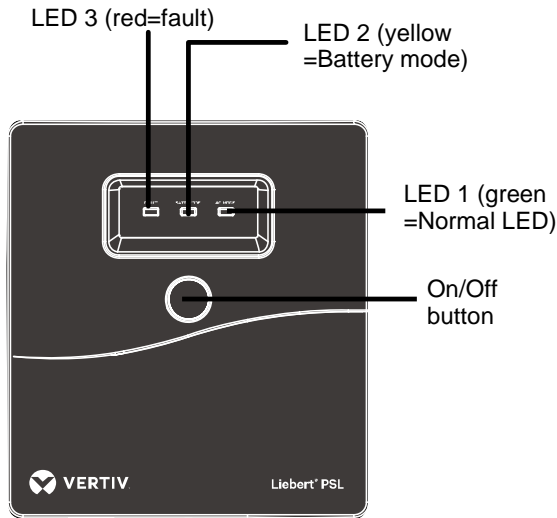


## UPS Status, Alarm Conditions and Alerts

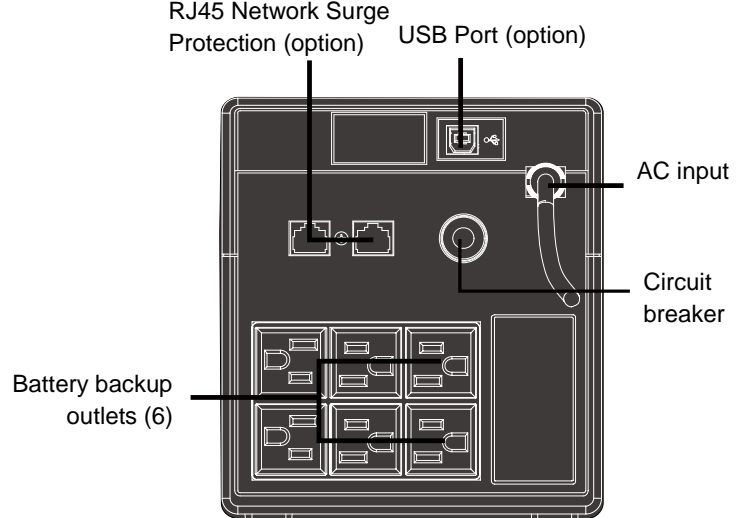
Condition	Color	Solid/Flashing/OFF	Audible Alarm
Normal mode	Blue	Solid	(none)
Battery mode	Blue	Flashes	Every 10 seconds
Battery low	Blue	Flashes	Every 1 second
Overload at Normal mode	Blue	Solid	Every 0.5 second
Overload at Battery mode	Blue	Flashes	UPS shuts down immediately
Fault	Blue	OFF	Continuous until UPS shuts down

## UPS CONTROLS AND CONNECTIONS (FOR PSL 1000BX)

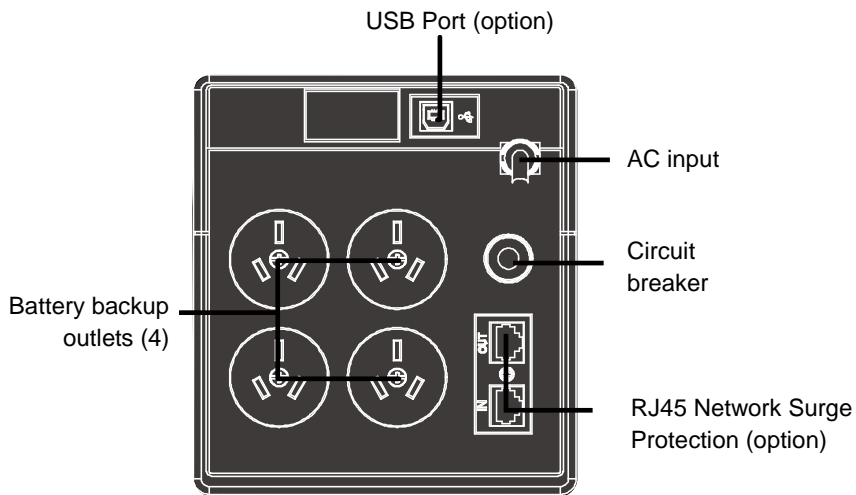
**Figures 5 – Front Panel**



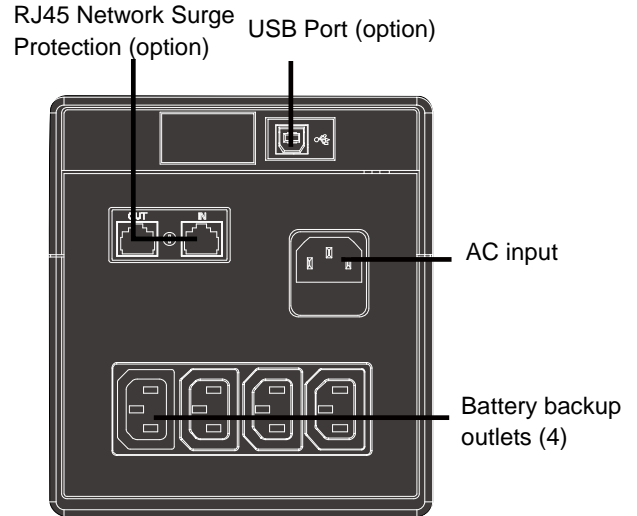
**Figures 6– Rear Panel (NEMA 120V)**



**Figures 7– Rear Panel (IRAM 230V)**



**Figures 8– Rear Panel (IEC 230V)**

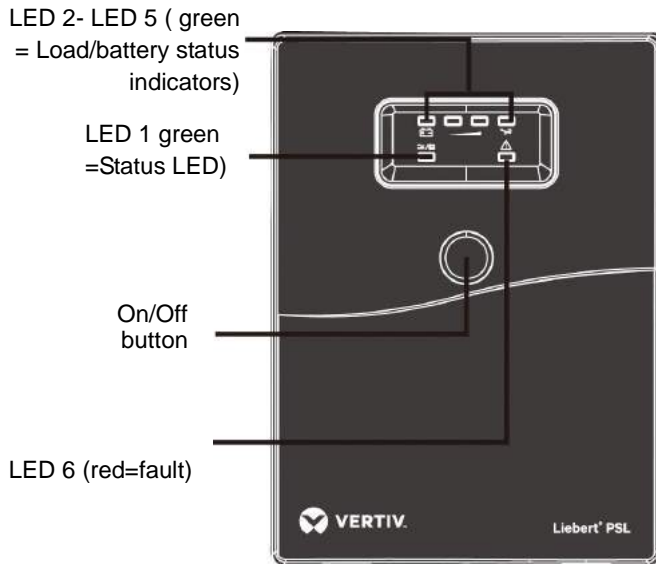


## UPS Status, Alarm Conditions and Alerts

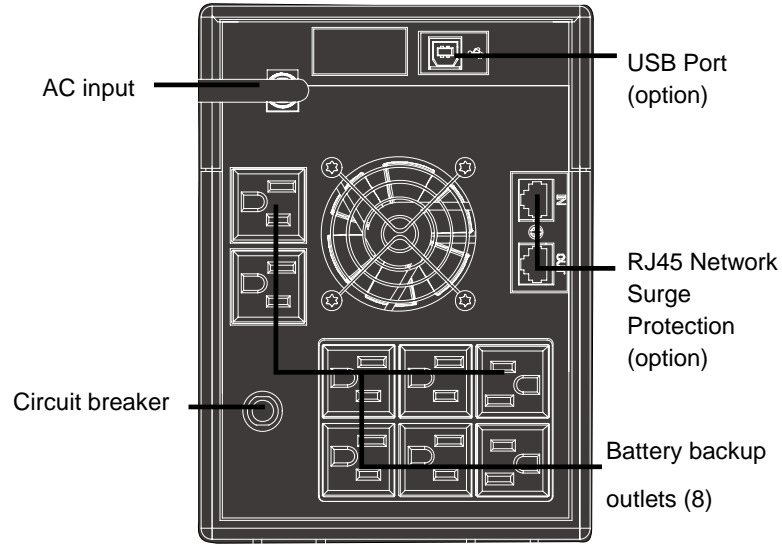
Condition	LED	Color	Solid/Flashing	Audible Alarm
Normal mode	LED 1	Green	Solid	(none)
Battery mode	LED 2	Yellow	Flashes	Every 10 seconds
Battery low	LED 2	Yellow	Flashes	Every 1 second
Overload at Normal mode	LED 1	Green	Solid	Every 0.5 second
Overload at Battery mode	LED 2	Yellow	Flashes	UPS shuts down immediately
Fault	LED 3	Red	Solid	Continuous until UPS shuts down

## UPS CONTROLS AND CONNECTIONS (FOR PSL 1500BX/2000BX)

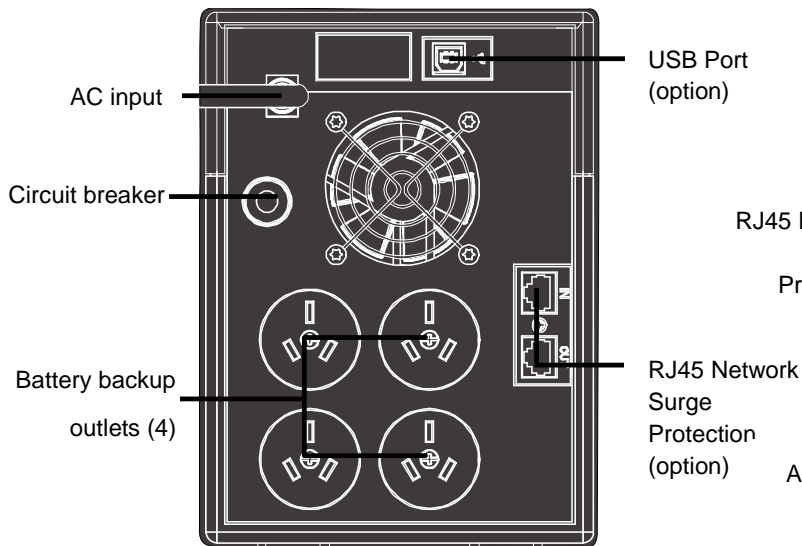
**Figures 9 – Front Panel**



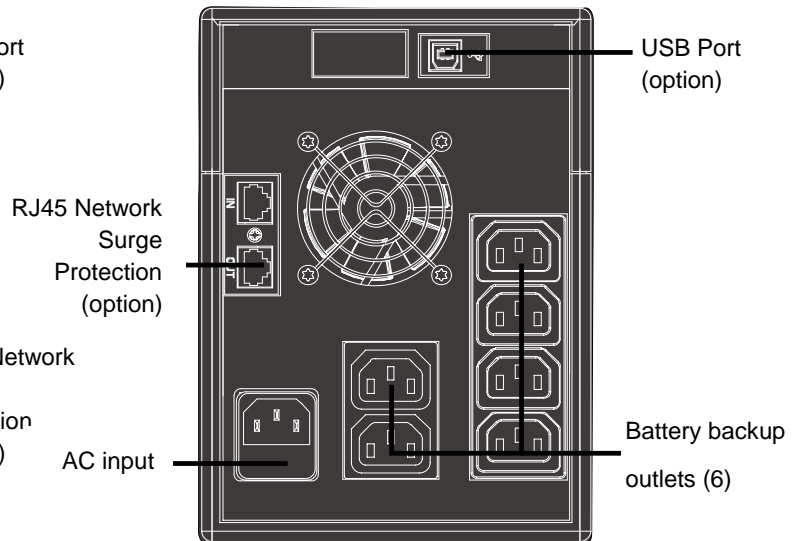
**Figure 10 – Rear Panel (NEMA 120V)**



**Figure 11 – Rear Panel (IRAM 230V)**



**Figures 12– Rear Panel (IEC 230V)**



## UPS Status, Alarm Conditions and Alerts

Condition	LED	Color	Solid/Flashing	Audible Alarm
Normal mode	LED 1	Green	Solid	(none)
Load level in Normal mode	LED 2 – LED 5	Green	Solid	(none)
Overload in Normal mode	*Indicating load level in %	Green	Solid	Every 0.5 second
Battery mode	LED 1	Green	Flashes	Every 10 seconds
Battery level in Battery mode	LED 2 – LED 5	Green	Solid	
Battery low in Battery mode	LED 1	Green	Flashes	UPS shuts down immediately.
Fault	LED 6	Red	Solid	Continuously sounding until UPS shuts down

## TROUBLESHOOTING

If the UPS malfunctions during operation, check the following chart for proper adjustment. For further assistance, please contact your local Vertiv representative.

Problem	Possible Causes	Solutions
Utility is normal, but Normal LED is not illuminated.	Battery capacity may be low. The UPS battery reached end of life. The UPS may not be turned on.	<ul style="list-style-type: none"> <li>● Recharge the UPS at least 6 hours.</li> <li>● Replace the battery with the same type of battery.</li> <li>● Press the On/Off button to turn on the UPS.</li> </ul>
Alarm buzzer beeps continuously although utility power is normal.	The UPS may be overloaded.	<ul style="list-style-type: none"> <li>● Disconnect some equipment from the UPS.</li> </ul>
UPS does not provide expected backup time.	The UPS may be overloaded Battery voltage may be low. The UPS battery reached end of life.	<ul style="list-style-type: none"> <li>● Disconnect some equipment from the UPS.</li> <li>● Recharge the UPS at least 6 hours.</li> <li>● Replace the battery with the same type of battery.</li> </ul>
Utility is normal, but UPS is on battery mode.	The power cord may not be connected properly.	<ul style="list-style-type: none"> <li>● Connect the power cord securely into a wall outlet.</li> </ul>

## SPECIFICATIONS

Model Number	Liebert PSL 650BX	Liebert PSL 850BX
Capacity (VA/W)	650/360	850/480
Net Weight, lb. (kg)	9.37 (4.2)	10.8 (4.9)
Dimensions – W x D x H, in. (mm)	3.98 x 10.98 x 5.6 (101 x 279 x 142)	
On-Line Input Voltage	81-145 VAC or 162-268 VAC	
On-Line Frequency	50Hz (Auto sensing)	
Output Voltage (Utility Power Normal)	120 VAC or 230 VAC	
Output Voltage (Battery Operation)	+10% & -10%	
On-Battery Wave Form	Stepped sinewave	
Battery Type – VDC x Ah x Quantity	12V x 7 Ah x 1	12V x 9 Ah x 1
Typical Recharge Time	4 hours to 90%	
Battery Run Time* – Half Load	6 minutes	3 minutes
Operating Temperature, °F (°C)	32 to 104 (0 to 40)	
Storage Temperature, °F (°C)	-4 to 122 (-20 to 50)	
Operating /Storage Relative Humidity	0 – 90%, non-condensing	

Model Number	Liebert PSL 1000BX	Liebert PSL 1500BX	Liebert PSL 2000BX
Capacity (VA/W)	1000/600	1500/900	2000/1200
Net Weight, lb. (kg)	17.64 (8.0)	24.5 (11.1)	25.4 (11.5)
Dimensions – W x D x H, in. (mm)	5.75 x 13.8 x 6.3 (146 x 350 x 160)	5.75 x 15.6 x 8.07 (146 x 397 x 205)	
On-Line Input Voltage	81-145 VAC or 162-268 VAC		
On-Line Frequency	50Hz (Auto sensing)		
Output Voltage (Utility Power Normal)	120 VAC or 230 VAC		
Output Voltage (Battery Operation)	+10% & –10%		
On-Battery Wave Form	Stepped sinewave		
Battery Type – VDC x Ah x Quantity	12V x 7 Ah x 2	12V x 9 Ah x 2	12V x 9 Ah x 2
Typical Recharge Time	4-6 hours to 90%		
Battery Run Time* – One PC Load	7 minutes	6 minutes	5 minutes
Operating Temperature, °F (°C)	32 to 104 (0 to 40)		
Storage Temperature, °F (°C)	-4 to 122 (-20 to 50)		
Operating /Storage Relative Humidity	0 – 90%, non-condensing		

\*Battery run time may vary depending on load.

