Power Protection for
Business-Critical Continuity

Liebert PS UPS
User Manual

EMERSON™
Network Power

Liebert PS UPS

User Manual

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Emerson Network Power provides customers with technical support. Users may contact the nearest Emerson local sales office or service center.

While every precaution has been taken to ensure accuracy and completeness in this manual, Emerson Network Power assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

Emerson Network Power pursues a policy of continuous product development and reserves the right to change the equipment design without notice.

Safety Instructions

As dangerous voltages are present within the UPS, only an Emerson technician or an Emerson-authorized technician is permitted to open it. Failure to observe this could result in electric shock risk and invalidation of any implied warranty

Transport

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

Set-up

- Condensation may occur if the UPS system is moved directly from a cold to a warm environment. The UPS system must be absolutely dry before being installed. Please allow an acclimatization time of at least two hours.
- Do not install the UPS system near water or in damp environments.
- Do not install the UPS system where it would be exposed to direct sunlight or near heat source.
- Do not block off ventilation openings in the UPS system's housing.

Installation

This manual contains information concerning the installation and operation of the Emerson Network Power Liebert PS Uninterruptible Power System (UPS)
All relevant parts of the manual should be read prior to commencing the installation.

- Do not connect appliances or equipment (e.g. laser printer) to the output socket, which would overload the UPS system.
- Place cables in such a way that no one can step on or trip over them.
- Do not connect domestic appliances such as hair dryers to UPS output sockets.
- Connect the UPS system only to an earthed shockproof socket outlet. Connection to any type of receptacle other than two pole, three wire grounded receptacle may result in shock hazard
- The building wiring socket outlet (shockproof socket outlet) must be easily accessible and close to the UPS system.
- Please use only VDE-tested, CE-marked mains cable (e.g. the mains cable of your computer) to connect the UPS system to the building wiring socket outlet (shockproof socket outlet).
- Please use only VDE-tested, CE-marked power cables to connect the loads to the UPS system.
- The UPS must be serviced by an authorized representative of Emerson Network Power. Failure to do so could result in personnel safety risk, equipment malfunction and invalidation of warranty.
- The Liebert PS has been designed for Commercial/Industrial use only, and is not recommended for use in life support applications.

- In the event of Emergency press 'OFF' button and disconnect the power cord from AC Power supply to properly disable the UPS
- Do not plug UPS input to its own output. Do not attach power-strip or surge suppressor to the UPS

Operation

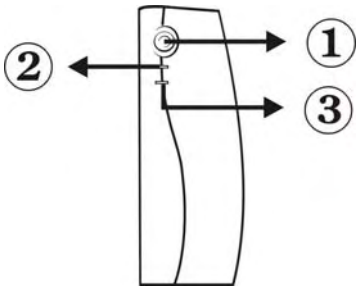
- Do not disconnect the mains cable on the UPS system or the building wiring socket outlet (shockproof socket outlet) during operations since this would cancel the protective earthing of the UPS system and of all connected loads.
- The UPS system features its own, internal current source (batteries). The UPS output sockets or output terminals block may be electrically live even if the UPS system is not connected to the building wiring socket outlet.
- In order to fully disconnect the UPS system, first press the Standby switch then disconnect the mains lead.
- Ensure that no fluids or other foreign objects can enter the UPS system.

Maintenance, servicing and faults

- The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.
- Caution - risk of electric shock. Even after the unit is disconnected from the mains power supply (building wiring socket outlet), components inside the UPS system are still connected to the battery and are still electrically live and dangerous.
- Before carrying out any kind of servicing and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exist in the terminals of high capability capacitor such as BUS-capacitors.
- Only persons who are familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorised persons must be kept well away from the batteries.
- Caution - risk of electric shock. The battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground. Before touching, please verify that no voltage is present!
- Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries:
  - remove wristwatches, rings and other metal objects
  - use only tools with insulated grips and handles
- Do not short circuit battery terminals
- When changing batteries, install the same number and same type of batteries.
- Do not attempt to dispose of batteries by burning them. This could cause battery explosion.
- Do not open or destroy batteries. Escaping 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 system

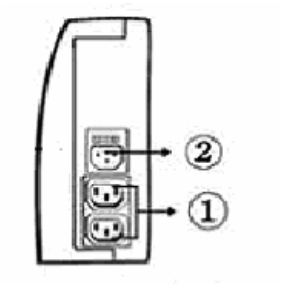
1. System Description

1a. Front panel



1. *Power Switch*
2. *UPS status Indicator*
   AC Mode: Green lighting
   Battery Mode: Green flashing
3. *Fault LED: Red flashing*

1b. Back Panel

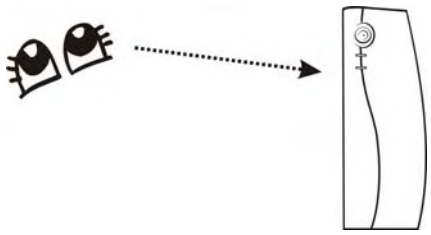


1. Output receptacles
2. AC Input with input fuse

2. Installation and operation

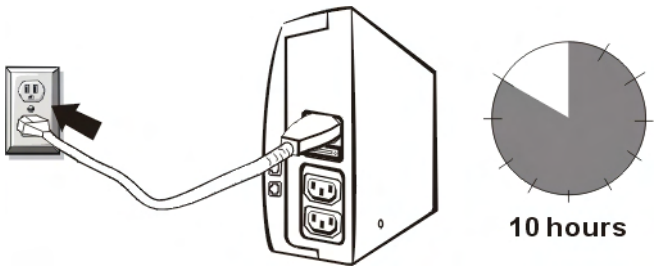
2.1 Inspection

Remove the UPS from its packaging and inspect it for damage that may have occurred during shipping. If any damage is discovered, repack the unit and return it to the place of purchase.



2.2 Charging

This unit is shipped from the factory with its internal battery fully charged, however, some charge may be lost during shipping and the battery should be recharged prior to use. Plug the unit into an appropriate power supply and allow the UPS to charge fully by leaving it plugged in for at least 10 hours with no load (no electrical devices such as computers, monitors, etc.) connected.

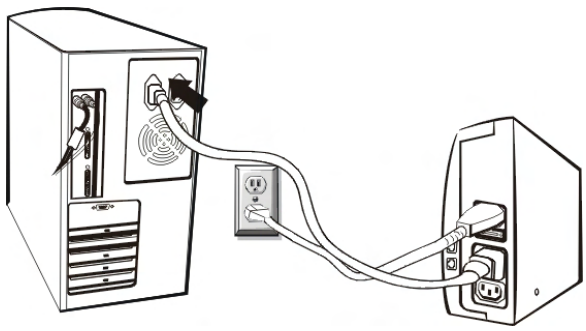


2.3 Placement

Install the UPS unit in any protected environment that provides adequate airflow around the unit, and is free from excessive dust, corrosive fumes and conductive contaminants. Do not operate your UPS in an environment where the ambient temperature or humidity is high.

2.4 Computer Connection

Plug the UPS into a 2-pole, 3-wire grounded receptacle. Then connect one computer-related device into each of the power receptacles supplied on the back of the UPS.



2.5 Turn On/Off

Press the switch of the UPS continuously for 1 second and the UPS turns into its normal state (the green light is on and the beeper is off) after it performs a self-diagnosis (the beeper and the red and green indicator lights are on) for several seconds. At this time, user may turn on the PC and other loads. Press the switch of the UPS continuously for 1 second to turn off the UPS.

Note: *1. For the convenient maintenance, please turn on the UPS first before turning on the PC and the other loads, and turn off the UPS after the loads are turned off.*
2. At ordinary times, we recommend to keep the UPS on with the battery charging (even if the loads are turned off), this will help in the convenient maintenance of the battery.

3. Trouble Shooting

Symptom	Possible Cause	Remedy
No LED display on the front panel.	1. Missing battery.	1. Charge battery up to 8 hours.
	2. Battery defect.	2. Replace with the same type of battery.
	3. Power switch is not pressed.	3. Press power switch again.
In the occurrence of a power failure, backup time is short.	1. Overload of the UPS.	1. Remove some noncritical load.
	2. Battery voltage is too low.	2. Charge battery 8 hours or more.
	3. Battery defect due to high temperature operation environment, or improper operation to battery.	3. Replace with the same type of battery.
Mains normal but LED is flashing.	1. Fuse is blown.	1. Replace the same type of fuse.
	2. Power cord is loose.	2. Reconnect the power cord properly.

Contact Information

Warranty administration : microups.warranty@liebert.com

UPS Applications/tech : upstech@liebert.com

4. Specification

MODEL		Liebert PS 400-AS	Liebert PS 600-AS
DESCRIPTION		PS 400VA UPS 230V Off Line - Asia	PS 600VA UPS 230V Off Line - Asia
CAPACITY	VA/W	400VA/200W	600VA/300W
INPUT	Voltage	220/230/240VAC	
	Voltage Range	170-280VAC	
	Frequency	45-65 Hz (Auto Sensing)	
OUTPUT	Voltage	220/230/240VAC	
	Voltage Regulation(Batt. Mode)	±10%	
	Frequency	50/60Hz	
	Frequency Regulation (Batt. Mode)	+/-1 Hz	
	Output Waveform	Modified Sinewave	
BATTERY	Battery Type & Number	12V/4.5Ah x 1pc	12V/7AH x 1pc
	Back up Time (at a PC load with 15" monitor)	6 to 9 minutes	13 to18 minutes
	Recharge Time	10 hours to 90% after complete discharge	
TRANSFER TIME	Typical	2-6ms	
INDICATOR	AC Mode	Green LED lighting	
	Battery Mode	Green LED flashing every 4 seconds	
	Low Battery at Battery Mode	Green LED flashing every second	
	Fault	Red LED lighting	
	Battery Weak at AC Mode	Red LED flashing every 2 seconds for 30 seconds	
	Battery Fault at AC Mode	Red LED flashing three times every 2 seconds	
AUDIBLE ALARM	Battery Mode	Sounding every 4 seconds	
	Low Battery at Battery Mode	Sounding every second	
	Fault	Continuously sounding	
	Battery Weak at AC Mode	Sounding every 2 seconds for 30 seconds	
	Battery Fault at AC Mode	Sounding three times every 2 seconds	
PROTECTION	Full Protection	Discharge, overcharge, and overload protection	
PHYSICAL	Dimension, DXWXH (mm)	176.5x80x230	
	Net Weight (kgs)	2.5	3.1
ENVIRONMENT	Operating Environment	0- 40°C, 0-90 % relative humidity (non-condensing)	
	Noise Level	Less than 40dB	

Emerson Network Power
1050 Dearborn Drive P.O. Box 29186 Columbus, Ohio 43229
T: 614-8880246 F: 614-8416022
T: 800-8779222 (US and Canada Only)

Emerson Network Power Asia Pacific Headquarters
7/F, Dah Sing Financial Centre, 108 Gloucester Road,
Wanchai, Hong Kong
T: 852-25722201 F: 852-28310114

Country Offices

Emerson Network Power (Australia) Pty Ltd
Block P, Regents Park Estate, 391 Park Road, Regents Park,
Sydney, NSW 2143, Australia
T: 61-1300367686 F: 61-2-97438737

Emerson Network Power (China) Ltd
No.1 Kefa Road, Science & Industry Park, Nanshan District,
Shenzhen 518057, China
T: 86-755-86010808 F: 86-755-86010909

Emerson Network Power (Hong Kong) Ltd
7/F, Dah Sing Financial Centre, 108 Gloucester Road,
Wanchai, Hong Kong
T: 852-25722201 F: 852-28310114

Emerson Network Power (India) Private Ltd
Plot No. C-20, Road No. 19, Wagle Industrial Estate,
Thane (West), Maharashtra 400604, India
T: 91-22-25807000 / 2388 F: 91-22-25828358

Emerson Network Power (Indonesia),c/o PT Emerson Indonesia
c/o PT Emerson Indonesia Wisma Pondok Indah 1st Floor, Jl. Sultan
Iskandar Muda V TA, Jakarta 12310, Indonesia
T: 62-21-7507800 F: 62-21-7507899

Emerson Network Power Division / Emerson Japan Ltd
New Pier Takeshiba, South Tower 7F, 1-16-1 Kaigan,
Minato-ku, Tokyo 105-0022, Japan
T: 81-3-54038594 F: 81-3-54032924

Emerson Network Power (Korea)
8th Fl. HongIk University KangNam Art Center,
51-12 Banpo-Dong, Seocho-Gu, Seoul 137-044, Korea
T: 82-2-34831500 F: 82-2-5927883

Emerson Network Power (Malaysia) Sdn Bhd
Wisma Glomac 3, Block C, 7th Floor, Jalan SS 7/19,
Kelana Jaya, 47301 Petaling Jaya, Selangor Darul Ehsan, Malaysia
T: 60-3-78845000 F: 60-3-78845188

Emerson Network Power (New Zealand) Co. Ltd.
Unit 2, 75 Blenheim Road, Christchurch New Zealand
T: 64-3-3430235 F: 64-3-3430250

Emerson Network Power (Philippines), Inc.
3/F, King's Court 1 Building, 2129 Chino Roces Avenue ,
Makati City 1200, Philippines
T: 63-2-8934177 / 178 F: 63-2-8112027

Emerson Network Power (Singapore) Pte Ltd
27 International Business Park # 03-01 Primefield-Landmark Building
Singapore 609924
T: 65-64672211 F: 65-64670130

Emerson Network Power (Taiwan) Ltd
11F, 141 Jen Ai Road, Section 3, Taipei 106, Taiwan, R.O.C.
T: 886-2-87713655 F: 886-2-87717297

Emerson Network Power (Thailand) Co Ltd
123 Suntowers Bldg.-B, 22nd Fl, Vibhavadi-Rangsit Road,
Ladyao, Chatuchak, Bangkok 10900, Thailand
T: 66-2-6178260 F: 66-2-6178277 / 278

Countries covered by our Asia Network include:
Bangladesh, Sri Lanka, Nepal, Pakistan, Vietnam, Laos,Seychelles,
Cambodia, Brunei, Papua New Guinea, Fiji

Mail **marketing@emersonnetwork-ap.com** for contact details

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