Liebert
Keeping Business in Business

POWERSURE™ PROACTIVE

350-700 VA
230V

USER MANUAL

English / Deutsch / Français /
Italiano / Español

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important safety instructions that should be followed during the installation and maintenance of the UPS and batteries. Please read this manual thoroughly before attempting to install or operate this UPS.

Several PowerSure ProActive models are available for 120VAC and 230VAC supply voltages and loads. Please verify that this model matches your AC/mains load requirements.

WARNING:

- To prevent the risk of fire or electric shock, install the UPS in a temperature and humidity controlled room, free of conductive contaminants.
- Operate the UPS only from a properly earthed AC supply.
- To reduce the risk of electric shock, do not remove the cover, as it has no user-serviceable parts inside. Some components are live, even when AC power is disconnected. For service, contact a qualified technician.
- This equipment is designed for Commercial/Industrial use only. Liebert Corporation neither recommends nor knowingly sells this product for use in critical life support applications.
- To reduce the risk of fire, use the proper rating when replacing the fuse.

CAUTION:

Although your UPS has been designed and manufactured to assure personal safety, improper use can result in electrical shock or fire. To insure safety, please observe the following rules:

- Turn off and unplug your UPS before cleaning. Do not use liquid or aerosol cleaners. A dry cloth is recommended to remove dust from the surface of your UPS.
- Do not install or operate your UPS in or near water.
- Do not place UPS on an unstable cart, stand, or table.
- Do not place UPS under direct sunlight or close to heat emitting sources.
- To allow proper ventilation of UPS, do not block or cover sides of unit.
- Do not place UPS power cord in any area where it may get damaged by heavy objects.
- The UPS relies on your building wiring overcurrent protection, which must be between 10-20 amperes.
- When installing the UPS or making input, communications port, and output connections, comply with relevant safety standards (eg; IEC950, VDE0805, EN50091-1), especially the requirements for creepage distances, clearances, and distance through insulation between primary wiring and earth, or secondary (SELV) wiring.
- Output receptacles on the UPS are electrically live if the UPS is ON, even if the UPS is not plugged in. The on/off button on the UPS does not electrically isolate the internal parts. To isolate the UPS, switch OFF the UPS first, then unplug it.
- Earth leakage current must not exceed 2.75 milli-amperes. Most data processing equipment meets this requirement if you use no more than 4 pieces of equipment. Note: These instructions may be modified by local wiring regulations.

- Follow all warnings and instructions marked on the UPS. Do not attempt to service the UPS, as it has no user-serviceable parts inside. Refer all repairs to qualified service personnel.

ATTENTION:
Turn off and unplug your UPS from the outlet and contact qualified service personnel if:

- The power cord or plug is damaged.
- Liquid has been spilled on the UPS.
- The fuse blows frequently.
- The UPS does not operate even when user follows the operating instructions.

Electromagnetic Compatibility: This equipment complies with EMC Directive 89/336/EEC and the published technical standards. Continued compliance requires installation in accordance with these instructions and the use of manufacturer approved accessories only. Use a shielded external communications interface cable.

Note*:* Phone/Fax/Modem/Network interface port is not designed to meet EN4100:1997. Legal requirements may exist regarding permission to connect equipment to a Telecommunication Network operated by a public network operator.

CONDITIONS OF USE: The input receptacle must be within 6 feet (1.8 meters) of the UPS.

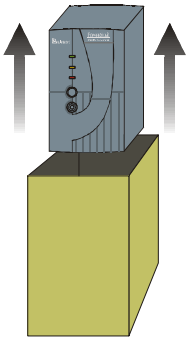
Your UPS provides conditioned power to connected equipment. Maximum load must not exceed that shown on UPS rating label. If uncertain, consult your distributor or Liebert.

Placing magnetic storage media on top of the UPS may result in data corruption.

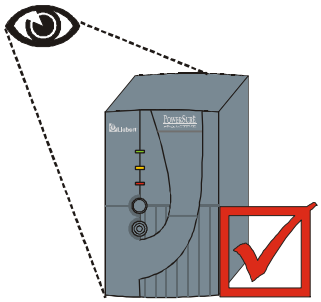
Proper battery disposal is required. Refer to local codes for disposal requirements.

This equipment can be installed and operated by individuals without previous training.

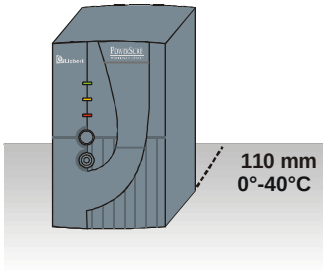
GENERAL INSTALLATION

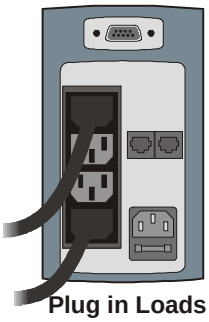


Remove from Box

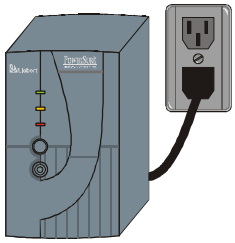


Check for Damage

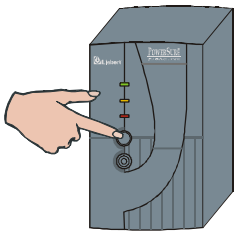




Plug in Loads



Plug UPS into AC / Mains



Press ON Button

Note: 230V models are not supplied with input power lead for connection to the mains supply socket. Contact a Liebert dealer for appropriate cords.
On 230V models: Use the two supplied cables for connecting loads.

INTRODUCTION & SYSTEM DESCRIPTION

Congratulations on your choice of the Liebert PowerSure ProActive Uninterruptible Power System (UPS). It provides conditioned power to microcomputers and other sensitive electronic equipment.

The PowerSure ProActive is a compact, "Automatic Voltage Regulation" UPS. It offers "line-interactive" features by continuously conditioning and regulating output voltage, whether the utility power is present or not. It supplies connected equipment with stepped approximation to sinewave power to simulate the power generated by the utility.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses, generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

BATTERY OPERATION

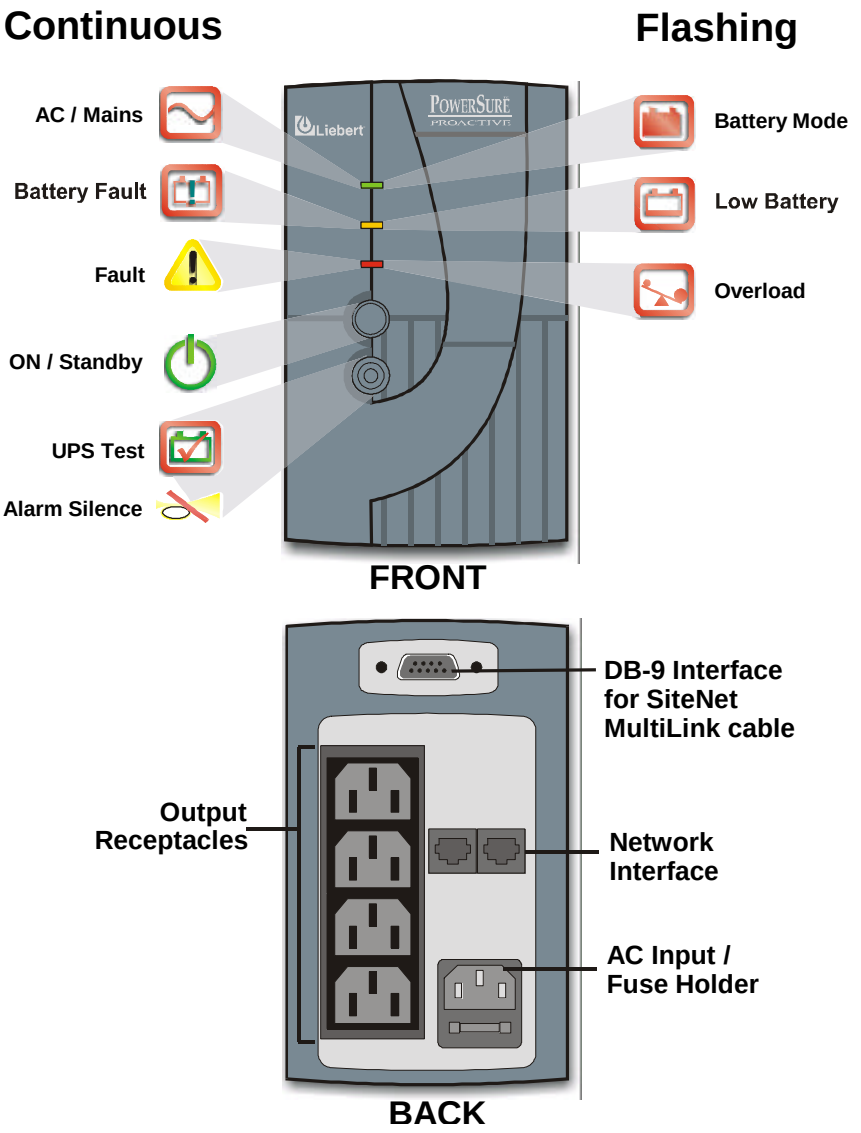
Battery mode occurs in event of extreme input conditions or complete utility failure. During battery mode the Utility LED will flash every second and an alarm will sound every 3 seconds. This will change to a beep every second when battery runs low (approximately 2 minutes remaining).

WARNING: Turning off the UPS while in battery mode will result in loss of output power.

Press UPS Test button occasionally to ensure battery is fully charged.

AUDIBLE ALARM CONDITIONS	
CONDITION	ALARM
Battery mode (utility failure)	One short beep every three seconds; more than two minutes of run time remaining
Low battery	One beep every second; less than two minutes of run time remaining
Battery replacement	Two second beep every minute
UPS output overload	Continuous tone
UPS fault	Continuous tone

MAJOR COMPONENTS



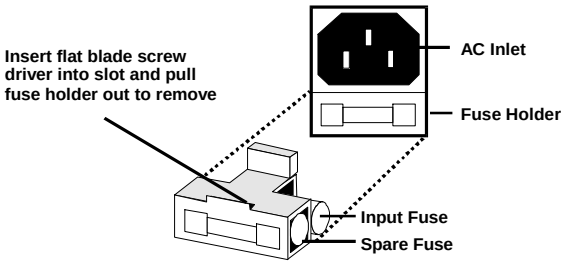
MAINTENANCE

The PowerSure ProActive UPS requires very little maintenance. The batteries are valve regulated, nonspillable, lead acid, and require that they be kept charged to obtain their designed life. When ON, the UPS continuously charges the batteries when connected to the utility supply.

When storing the UPS for any length of time, it is recommended to plug in and turn on the UPS for at least 24 hours every four to six months to ensure full recharge of the batteries.

The following will help ensure trouble-free operation for years to come:
- Vacuum dust from the ventilation intake occasionally.
- Wipe the cover periodically with a dry cloth.
- Occasionally press the UPS test button to test the condition of the batteries.

FUSE REPLACEMENT PROCEDURES



CAUTION: Before changing the supply fuse, turn off the UPS, and unplug the input cord from the AC input power supply and from the UPS.

1. Remove the fuse holder by inserting a flat blade screwdriver into the slot and pulling out as indicated in the figure above.
2. Remove the input fuse.
3. Remove the spare fuse from its position by using the screwdriver to push it out.
4. Place spare fuse in the input fuse position, and replace the fuse holder. The fuse holder will lock into position.
5. Reconnect the input power lead to the UPS, and the input power lead to the input AC supply.
6. Restart the UPS. The UPS is ready for normal operation.

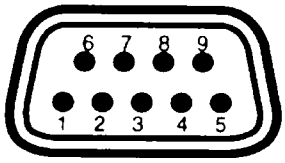
ProActive Model #	Fuse Type
PSA350-230	3.15A / 250V
PSA470-230	4A / 250V
PSA700-230	6.3A / 250V

COMMUNICATIONS

You can use SiteNet® MultiLink™ to allow your UPS to communicate to your computer via your DB-9 communications port. Download MultiLink from our web site at **www.liebert.com**.

Pin Configuration	
Pin #	**Function**
9	On Battery (N.O.)
8	On Battery (Common)
6	On Battery (N.C.)
1	Low Battery
7	Low Battery
5	UPS Ground
4	UPS Off

PIN ASSIGNMENT



Maximum voltage and current on pins 1,7,8,9 is 30 VAC or 30 VDC.

TROUBLESHOOTING

If the UPS fails to operate properly, turn off the unit and repeat the steps in the installation section of this manual. If the problem persists, refer to the chart below:

PROBLEM	CAUSE	SOLUTION
UPS will not start	Overload/Short Circuit	Check fuse at rear of UPS. If blown, replace it and restart the UPS. For further help, call your Liebert representative.
UPS starts on battery, but will not switch to AC	UPS not plugged in	Plug in power cord securely.
	Fuse blown	Replace fuse and restart UPS.
	Power not available at utility receptacle	Call a qualified electrician.
	Input voltage below threshold	Wait until voltage rises to appropriate level
	AC overvoltage	AC voltage must be less than 144 VAC for 115V, 270 VAC for 230V.
UPS shuts down	Overload/Short Circuit	Check the fuse holder at rear of UPS. If fuse is blown, replace it and restart the UPS. If problem persists, disconnect some of the equipment from your UPS - the total wattage of your equipment may exceed the capacity of the UPS. For further help, call your Liebert representative.
	Low Battery	Turn OFF equipment and recharge UPS battery for at least 8 hours. If problem persists, contact your Liebert representative.
	Sitenet 1 Shutdown	Consult the Sitenet 1 User Manual or contact your LAN administrator.

230V SPECIFICATIONS

Model Number	PSA350-230	PSA470-230	PSA700-230
Model Rating VA/W	350VA/210W	470VA/282W	700VA/420W
DIMENSIONS: mm (in)			
Unit H x W x D	166 x 115.5 x 352.5 (6.5 x 4.5 x 13.9)	166 x 115.5 x 352.5 (6.5 x 4.5 x 13.9)	166 x 115.5 x 352.5 (6.54 x 4.55 x 13.9)
Shipping H x W x D	226 x 156 x 404 (8.8 x 6.2 x 15.8)	226 x 156 x 404 (8.8 x 6.2 x 15.8)	226 x 156 x 404 (8.8 x 6.2 x 15.8)
WEIGHT: kg (lbs)			
Unit	6 (13.2)	7 (15.4)	10 (22)
Shipping	6.8 (15)	7.8 (17.2)	10.8 (23.8)
INPUT AC PARAMETERS			
Voltage Range without Battery Operation	166 to 275VAC		
Line to Boost Transfer	198VAC		
Line to Buck Transfer	250VAC		
Frequency	47-53 Hz or 57-63 Hz; auto sensing		
Input Power Receptacle	EN60320/C14 recessed plug		
OUTPUT AC PARAMETERS			
Output Receptacles	(4) EN60320/C13 sockets, (2) detachable EN60320-2-2 1.8m (6') power cords		
Voltage (Battery Mode)	230 VAC $\pm$ 5%		
Waveform (Battery Mode)	Stepped Sinewave		
Voltage (Normal)	V_{IN} * (1.0)		
Voltage (Boost Mode)	V_{IN} * (1.13)		
Voltage (Buck Mode)	V_{IN} * (0.85)		
Frequency	50 Hz or 60 Hz; auto sensing		
Overload Warning (Utility and Battery Modes)	101 – 120%		
Overload Shutdown (Utility and Battery Modes)	Overload + (15 – 30W)	Overload + (20 – 40W)	Overload + (30 – 60W)
BATTERY PARAMETERS			
Type	Valve-regulated, nonspillable, lead acid		
Quantity x Voltage x Rating	(1) x 12V x 7.0 Ah	(1) x 12V x 7.0 Ah	(1) x 12V x 11 Ah
Approved Battery Manufacturers:	CSB, Panasonic, and Yuasa		
Transfer Time	4 – 6 ms typical		
Back-up Time: Full load Half load	At 25°C (77°F), resistive loading, with fully charged batteries: > 5 minutes typical > 15 minutes typical	> 12 minutes typical	> 13 minutes typical
Recharge Time	7-10 hours to 90% capacity, after full discharge into 100% resistive load		
ENVIRONMENTAL			
Operating Temperature	0° C to +40° C (+32° F to + 104° F)		
Storage Temperature	-15° C to +50° C (+5° F to + 122° F)		
Relative Humidity	0% to 90%, non-condensing		
Operating Elevation	Up to 3000 m. (10,000 ft) at 35° C (95° F) without derating		
Audible Noise	<40 dBA, at 1 meter		
AGENCY			
Safety	EN50091-1, TUV/GS listed, CE Compliance Mark		
Surge	IEC 801-5, Level 3		
ESD	IEC 801-2, Level 3, Criterion $\leq$ 2		
Susceptibility	IEC 801-3, Level 3, Criterion $\leq$ 2		
Electrical Fast Transient/Burst	IEC 801-4, Level 4, Criterion $\leq$ 2		
Emissions	EN50091-2, EN55011 Class B		
Transportation	ISTA Project 1A		

LIMITED WARRANTY

Liebert Corporation extends the following LIMITED WARRANTY to the purchaser and to its customer (collectively referred to as the "Purchaser"): the enclosed Uninterruptible Power System (UPS) and components are free from defects in materials and workmanship under normal use, service, and maintenance FOR A PERIOD OF TWO YEARS FROM THE DATE OF ORIGINAL PURCHASE from Liebert or the Liebert dealer or retailer. THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN AND NO OTHER WARANTY IS PROVIDED, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Certain aspects of disclaimers are not applicable to consumer products acquired by individuals and used for personal, family, or household purposes (as distinguished from industrial or other purposes). Local laws may not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary according to local law.

Certain repairs or services are the responsibility of the Purchaser and the Purchaser is expected to pay for them. This warranty does not extend either to products with removed or altered serial numbers or to any losses or damages due to act of God or source external to the product, misuse, accident, abuse, neglect, negligence, unauthorized modification, alteration, or repair, use beyond rated capacity, or improper installation, maintenance, application or use, including, without limitation, use in a manner contrary to the accompanying instructions or applicable codes. WARNING: Warranty is void if the battery is allowed to discharge below the minimum battery cutoff point. To prevent such discharge DO NOT leave the unit power switch "ON" for more than two (2) days without AC power being supplied to the UPS. The battery must be recharged every four (4) to six (6) months when not in use.

If the UPS fails to conform with the above warranty within the two year warranty period, Liebert will repair or replace the UPS, at Liebert's option. Repairs or replacements are warranted for the remainder of the original warranty period. To make a warranty claim, purchaser should call a Liebert Representative to obtain a Returned Goods Authorization number and shipping instructions. Return transportation costs to Liebert are the responsibility of the Purchaser.

"LIFE SUPPORT" POLICY

This product is not recommended, and the Company will not knowingly sell this product, for use with life support and other designated "critical" devices. ANY SUCH USE BY A USER AUTOMATICALLY VOIDS AND DISCLAIMS ANY AND ALL WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND EXPRESS WARRANTIES THAT THIS PRODUCT WILL CONFORM TO ANY AFFIRMATION OR PROMISE, FOR THIS PRODUCT AND THE USER AGREES THAT IN NO EVENT SHALL THE COMPANY BE LIABLE FOR CONSEQUENTIAL OR INDIRECT DAMAGES.

POWERSURE™ PROACTIVE

350- 700 VA
230V

Technical Support

U.S.A.	1-800-222-5877
Outside the U.S.A.	614-841-6755
U.K.	+44 (0) 1793 553355
France	+33 (0) 1 43 60 01 77
Germany	+49 89 99 19 220
Italy	+39 2 98250 1
Netherlands	+31 (0) 475 503333
E-mail	upstech@liebert.com
Web site	http://www.liebert.com
Worldwide FAX tech support	+614-841-5471

The Company Behind The Products

With more than 500,000 installations around the globe, Liebert is the world leader in computer protection systems. Since its founding in 1965, Liebert has developed a complete range of support and protection systems for sensitive electronics:

- Environmental systems: close-control air conditioning from 1.5 to 60 tons.
- Power conditioning and UPS with power ranges from 250 VA to more than 1000 kVA.
- Integrated systems that provide both environmental and power protection in a single, flexible package.
- Monitoring and control — on-site or remote — from systems of any size or location
- Service and support, through more than 100 service centers around the world, and a 24-hour Customer Response Center.

SLI-23256 (3/99) Rev. 3