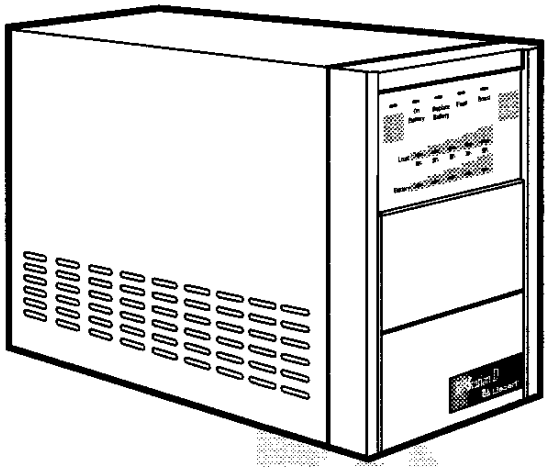
UPStation® D



Desktop Models

UD600 • UD900
UD1400 • UD2000

Rackmount Models

UD600R • UD900R
UD1400R • UD2000R

POWER PROTECTION

Uninterruptible Power System

600 - 2000 VA • 120 VAC • 60 / 50 Hz

USER'S MANUAL

Liebert®

IMPORTANT SAFETY INSTRUCTIONS

WARNING: Do not attempt to service this product yourself. There are no user-serviceable parts inside the unit. Opening or removing the cover may expose you to dangerous voltages, even when the UPS is unplugged. **Refer all servicing to qualified Liebert service personnel.**

1. **SAVE THESE IMPORTANT SAFETY INSTRUCTIONS.** ADHERE TO ALL OPERATING INSTRUCTIONS AND WARNINGS ON THE UNIT AND IN THIS MANUAL.

   CONSERVER CES INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITÉ.

2. **Liebert Corporation neither recommends nor knowingly sells this product for use with life support or other U.S. FDA designated "critical" devices.**
3. **CAUTION:** A BATTERY PRESENTS A RISK OF ELECTRICAL SHOCK OR BURN FROM HIGH SHORT CIRCUIT CURRENT. OBSERVE PROPER PRECAUTIONS.

   ATTENTION: UNE BATTERIE PEUT PRÉSENTER UN RISQUE DE CHOC ÉLECTRIQUE OU DE BRULURE PAR TRANSFERT D'ÉNERGIE. SUIVRE LES PRÉCATIONS QUI S'IMPOSENT.
4. WHEN REPLACING BATTERIES, USE THE SAME NUMBER AND THE FOLLOWING TYPE OF BATTERIES: CSB 12 V, 7 AH (600 VA); CSB 6 V, 10 AH (900 & 1400 VA); CSB 12 V, 17 AH (2000 VA). DISPOSE OF BATTERIES PROPERLY. REFER TO LOCAL CODES FOR DISPOSAL REQUIREMENTS.

   POUR LE REMPLACEMENT, UTILISEZ LE MÉME NOMBRE DE BATTERIES DU MODÉLE SUIVANT: CSB 12 V, 7 AH (600 VA); CSB 6 V, 10 AH (900 & 1400 VA); CSB 12 V, 17 AH (2000 VA). L'ÉLIMINATION DES BATERIES EST REGLEMENTÉE. CONSULTER LES CODES LOCAUX A CET EFFET.
5. **WARNING:** TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, INSTALL IN A TEMPERATURE AND HUMIDITY CONTROLLED AREA FREE FROM CONDUCTIVE CONTAMINANTS.

   AVERTISSEMENT: POUR RÉDUIRE LE RISQUE D'INCENDLE OU DE CHOC ÉLECTRIQUE, INSTALLE DANS UN SECTEUR AVEC TEMPÉRATURE CONTROLÉ ET HUMIDITÉ CONTROLÉE EXAMPT DE POLLUANTS CONDUCTEURS.
6. Read all safety and operating instructions before operating UPS. Operate UPS indoors only. Install it in a clean environment, free from moisture, flammable liquids, gases, or corrosive substances.
7. **WARNING:** Do not modify cable. Consult dealer if connector does not match equipment. Ground UPS while in use. Turn UPS OFF before unplugging, or the safety ground from UPS to equipment will be removed.
8. **CAUTION:** Output receptacles on the UPS are electrically live if the UPS is ON, **even if UPS is unplugged.** The UPS on/off switch does not electrically isolate internal parts. To isolate UPS, turn it OFF and unplug it.
9. Turn the UPS OFF and unplug it before cleaning. Use only dry cloth, never liquid or aerosol cleaners.
10. Do not plug appliances like hair dryers, heaters, or surge protectors into UPS.
11. Operate UPS only from grounded outlet (2 wire + ground) 120 VAC, 60/50 Hz.

12. The UPS is equipped with a grounded NEMA input power plug. Do not defeat the safety purpose of this plug with a ground plug adapter. If unable to fully insert plug into outlet, contact an electrician to replace the outlet.
12. Route power supply cords so they are not walked on or pinched.
13. Never block or insert objects into ventilation holes or other openings. Maintain minimum clearance of 4 inches all around UPS for proper air flow and cooling.
14. **CAUTION:** Do not open or mutilate battery. Released electrolyte is harmful to skin and eyes and may be toxic.

INTRODUCTION & SYSTEM DESCRIPTION

Congratulations on choosing the Liebert UPStation® D. It provides continuous, conditioned power to microcomputers and other data processing equipment.

Upon generation, AC power is clean and stable. However, during transmission, it may be subject to load variations or accidents which cause power problems like low voltage, voltage spikes, or complete power failure. These problems may interrupt computer operations, cause data loss, or even damage equipment.

The UPS provides protection from many of these disturbances. It smooths out voltage variations and, in the event of complete power failure, it supports equipment long enough for an orderly shutdown. These desktop and rackmount units are available in four ratings: 600, 900, 1400, and 2000 VA. This manual includes specifications for each model.

Normally, the UPS connects filtered AC utility input power to its AC outputs; but when the UPS senses a power failure, it sounds an alarm, turns ON the battery light, and provides AC power to equipment through a sealed, maintenance-free battery. Upon utility restoration, the UPS powers the equipment with filtered AC utility power, boosting it if necessary.

If a brownout occurs and AC power drops below acceptable levels, the UPS boosts voltage without battery drainage and maintains quality power indefinitely.

The UPS contains a counter which automatically initiates a 15-second battery test every 7 days and upon start-up. The UPS resets the counter after back-up operation, manual battery test, or if the UPS is switched OFF. The operator may perform a manual battery test by pressing the ALARM SILENCE button.

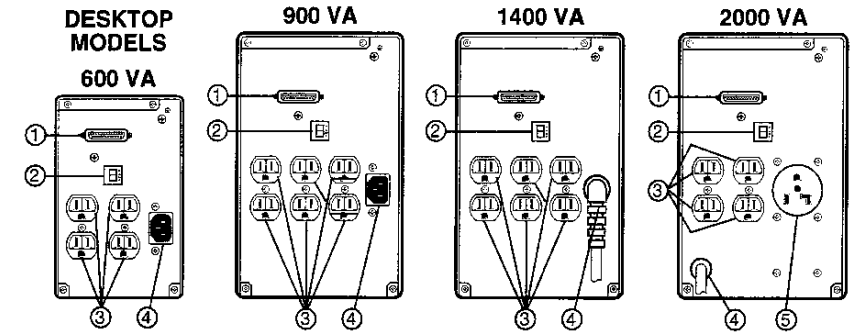
A control circuit monitors power input and battery condition and upon sensing a fault, sounds an alarm and flashes a visual indication of the UPS status. In addition, a communications port enables the UPS to inform a computer equipped with SiteNet® software of the power failure. SiteNet® automatically saves data and performs an orderly shutdown. Cables and software are available as optional computer/LAN Interface Kits. Consult your dealer for the kit suitable for your application.

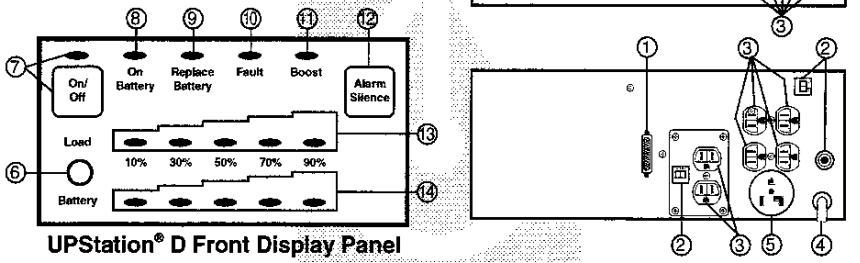
CONDITIONS OF USE: Utility receptacle must be within 6 feet of UPS. This UPS operates on 110V to 120V AC 60/50 Hz voltage. Models are available for other voltages.

Your UPS is designed to protect only Communication and Data Processing equipment. Maximum load must not exceed that shown on UPS rating label. If uncertain, consult your dealer or representative.

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

CAUTION: This UPS complies with Part 15, Subpart B of FCC rules for Class B computing devices. Operation in residential areas may interfere with radio and TV reception. The user must correct the interference.at his own expense.





UPStation® D Front Display Panel

1. Optional Communications Port
2. Input Circuit Breaker
3. Output Receptacles
4. Power Input
5. Optional Output Receptacle
6. Hidden Battery Start Button
7. On/Off Switch & LED
8. On-Battery LED
9. Replace Battery LED
10. Fault LED
11. Voltage Boost LED
12. Alarm Silence and Battery Test Button
13. Load Indicator Bar
14. Battery Charge Indicator Bar

ATTENTION: Refer to these drawings when reading this manual. This manual references the various parts of your UPS by number. UPStation® D is also available in rackmount configuration.

BEFORE INSTALLATION

Unpack UPS, carefully noting the packing method. Retain packaging. To return the UPS, re-pack as originally shipped. Inspect UPS for freight damage. Contact the carrier and/or your distributor concerning freight damage or missing parts.

Place UPS on a sturdy, dry surface in a well ventilated area where it cannot be accidently turned OFF. Keep it away from moisture, flammable liquids, gases, explosives, and direct heat sources. Operating temperature ranges from 10° to 40° C (50° to 104° F). Leave at least 4 inches (100 mm) clearance all around the UPS for adequate ventilation.

DESKTOP INSTALLATION

1. Plug in the UPS to charge the batteries. Liebert recommends charging the batteries for at least 5 hours before connecting load equipment.
2. After charging batteries, shut down load equipment and unplug it. Plug load equipment into UPS output receptacles (3).
3. When all equipment is plugged in, UPS is ready for normal operation.

RACKMOUNT INSTALLATION

1. Plug in the UPS to charge the batteries. Liebert recommends charging the batteries for at least 5 hours before connecting load equipment.
2. Liebert offers kits for UPS rail or slide installation. Install the UPS on rackmount rails, slides, or shelves. Use the installation instructions which came with your rackmount kit.
3. Shut down load equipment and unplug it. Plug load equipment into the UPS output receptacles (3). UPS is ready for normal operation.

OPERATING INSTRUCTIONS

1. Check that all power connections to and from the unit are secure and fitted with the correct cables.
2. Turn the UPS ON (7). Switch all load equipment ON.
3. Check the UPS front panel LED's. The Power LED (7) should be lit. The Load bar LEDs indicate how much power your equipment consumes as a percentage of the UPS output capability. Each LED represents a 20% increment (e.g. 3 LEDs lit = equipment using 60% of UPS output capability). The Battery Charge bar LEDs (14) indicate the battery charge in 20% increments (e.g. 4 LEDs lit = 80% battery charge).

Check the operation of your equipment. It should display normal operational conditions.

POWER DIPS, SURGES, AND OUTAGES

When utility voltage dips below 120 VAC, the UPS continues to draw power from the utility, but automatically boosts the voltage to 120 VAC. The UPS sustains load equipment indefinitely in this condition with both the Power (7) and Voltage Boost (11) LEDs steadily lit.

If utility voltage falls below 84 VAC, or rises above 132 VAC, or fails completely, the UPS immediately operates on battery power until utility voltage returns to normal levels. The On Battery LED (8) lights steadily during unboostable or unavailable utility voltage and flashes during high voltage battery operation.

Battery operation causes a 1-second alarm to sound every 5 seconds. Press the Alarm Silence button (12) to silence the alarm. Once on battery, begin a controlled shutdown of the load equipment.

The UPS provides battery power for approximately 6 minutes, depending on the load it supports. Reduced loads increase battery time. With approximately two minutes of battery time left, the alarm sounds every second instead of every 5 seconds. Complete a controlled shutdown of your equipment before the UPS exhausts the battery.

If the UPS is ON when normal utility power returns, it continues to supply power to the load equipment. Whether ON or OFF, the UPS recharges the battery when connected to normal utility power.

OVERLOAD CONDITIONS

A UPS overload causes all five LEDs along the top of the diplay panel (7-11) to light along with all of the Load bar LEDs (13) . The right most Load bar LED changes from green to red and a two-tone alarm sounds every 5 seconds until either the user corrects the overload, or the UPS shuts down. The Alarm Silence button (12) cannot silence an overload alarm. To avoid losing power to all the load equipment, disconnect non-critical equipment until alarm ceases.

An overload outside UPS parameters shuts down the UPS and may trip the Input Circuit Breaker (2). To confirm this condition, press the Hidden Battery Start switch (6); the UPS sounds the overload alarm as described above. Reset the Input Circuit Breaker (2), if tripped (See "Resetting the Circuit Breaker", next page). Press the ON/OFF switch (7). If the overload still exists, the UPS shuts down again. If the overload is gone, the UPS starts on battery. If the UPS starts on battery, turn the UPS OFF (7). After reducing the overload to normal, resetting the Input Circuit Breaker (2), and reconnecting the UPS to utility, turn the UPS ON (7). It should function normally again.

See Troubleshooting Guide for all abnormal conditions. If problems persist, consult your dealer or contact Technical Support 1-800-222-5877.

RESETTING THE CIRCUIT BREAKER

If the UPS is overloaded, the Input Circuit Breaker (2) may activate to protect the UPS. Upon activation, its plastic covering pops open. To reset the circuit breaker (2), simply push the covering back in place. If it activates often, ask your representative to check the UPS sizing.

COMPUTER INTERFACE OPTIONS

Your dealer supplies easily installed computer interface options:

LAN INTERFACE SHUTDOWN KITS
Available for Novell, UNIX, Unisys, Sun, Hewlett Packard, and DEC computer systems. This option provides automatic orderly system shutdown in the event of power failure or low battery power.

POWER SURVEILLANCE KIT
Available for UNIX, Novell, OS/2, and DOS computer systems. This option uses a serial communications link between the UPS and the connected system to provide comprehensive UPS monitoring and control. Communication with a LAN Interface Shutdown Kit or Power Surveillance Kit requires the RS-232 Option.

SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)
Provides UPS with full bi-directional, open standard communications on any secure Token Ring or Ethernet network. The UPS becomes a network node, allowing monitoring, communication, and control from any other part of the LAN.

RS-232 OPTION
Provides the signals listed below on the UPS DB-25 communications port:

PIN	FUNCTION	PIN	FUNCTION
1	Reserved	14	Not Used
2	R x D	15	Not Used
3	T x D	16	On Battery (active closed)
4	Not Used		
5	Not Used	17	Common (for pins 16 & 18)
6	Not Used		
7	Signal Ground	18	On Battery (active open)
8	Not Used		
9	Low Battery Relay Contact (common)	19	UPS Shutdown (active high)
10	Low Battery Relay Contact (active open)	20	Not Used
		21	Not Used
11	Low Battery Relay Contact (active closed)	22	Not Used
		23	Not Used
12	Shutdown (active low)	24	Not Used
13	Not Used	25	Not Used

BATTERY CARE AND USE

STORAGE: When temporarily not in use, keep UPS plugged in. It maintains battery charge whether turned ON or OFF. For extended storage, plug in the UPS and turn it ON every 5 months for 5 hours to recharge the battery.

STARTING FROM BATTERY: Unplug UPS, switch it OFF, and connect equipment to it. Press the hidden button located approximately 1 inch below the ON/OFF Switch; a high-pitched tone sounds. After the tone, press the ON/OFF Switch. The UPS provides battery power to the connected equipment. *Pay attention to time remaining during battery operation.* **NOTE: The UPS is designed to start connected equipment from utility power. High inrush current requirements may render a battery start impossible.**

BATTERY LIFE: Batteries last up to five years. Excessive battery use, storage at high ambient temperatures, and lengthy periods in a discharged state greatly reduce battery life. Your UPS maximizes battery life by limiting the depth of battery discharge and using a temperature-compensated battery charger.

When plugged in, the UPS automatically recharges the battery and tests it every 7 days for 5 seconds to warn of imminent battery replacement. Press the ALARM SILENCE button for 3 seconds to perform a manual 10-second battery test to verify battery charge and condition. The Replace Battery LED (9) lights if the battery fails a battery test (See Troubleshooting Guide).

NOTE: The UPS requires an initial minimum of 5 hours operation from utility to totally recharge batteries.

ALARM CONDITIONS

The UPStation® D sounds alarms and flashes visual indications at the front panel LED's (7-11) whenever it senses a power failure, low battery voltage (while on battery), overload, or fault condition. Sometimes, a fault in your computer equipment may cause an overload alarm. Silence alarms by pressing the ALARM SILENCE button (12), on the front panel.

Refer to the tables on the following page for alarm indications and recommended actions when alarms occur. **Check these tables first before calling for assistance.** They diagnose and solve common problems, and help prevent potential problems

UPSTATION® D LED & ALARM INDICATIONS

UPS CONDITION	LED INDICATORS	AUDIBLE ALARM	OPERATOR ACTION
Normal Operation	Power LED: Lit	None	None
Boost Circuit Operation	Power LED: Lit Voltage Boost LED: Lit	None	None
Battery Operation	On Battery LED: Lit	1-Second Beep every 5 Seconds	Check for loss of Utility Power
	On Battery LED: Flashing	1-Second Beep every 5 Seconds	Check for High Utility Power (+131 VAC)
Low Battery Warning.	Left most LED of Battery Charge bar LEDs: Flashing	4-Second Beep every 5 Seconds	Perform an Orderly Shutdown of all Load Equipment
Replace Battery	Replace Battery LED: Lit	None	See Troubleshooting Table Below
Fault	Fault LED: Lit	Continuous Tone	Switch UPS OFF. Refer to Troubleshooting Table Below
Overload Warning	Load bar LEDs all lit. Right most LED changes from green to red.	Two-Tone Beep repeated once every 5 Seconds	Remove some of the load until the condition disappears.

UPSTATION D TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
UPS will not start.	UPS not plugged in.	Plug UPS in.
	Faulty wall receptacle.	Plug UPS into a receptacle known to be good.
	Battery charge low.	Plug UPS in and charge batteries for 5 hours.
	Internal DC battery fuse blown.	Return UPS to dealer.
UPS operates continuously on battery	Rear panel circuit breaker tripped.	Reset circuit breaker.
	Faulty wall receptacle.	Plug UPS into a receptacle known to be good.
Replace Battery LED (9) lit or reduced battery time.	Battery charge low.	Plug UPS in and charge batteries for 5 hours.
	Batteries exhausted.	Return UPS to dealer.
UPS will not start with Fault LED (10) lit.	Internal fault.	Return UPS to dealer.
UPS shuts down with Fault (10) and Boost (11) LEDs lit. Continuous audible alarm.	Excessive internal UPS temperature.	Switch UPS OFF. Check for obstructions near ventilation holes. Wait 30 minutes for UPS to cool down, then restart it.
UPS shuts down with Fault (10) and On Battery (8) LEDs lit. Continuous audible alarm.	Inverter fault.	Return UPS to dealer.
	Charger or other UPS fault.	Return UPS to dealer.
Load Bar LEDs (13) all lit with right most LED changing from green to red.	UPS output overload or faulty load equipment.	Disconnect load equipment, switch UPS OFF, then restart UPS.

LIEBERT TECHNICAL SUPPORT: 800-222-5877

SPECIFICATIONS

Model Number	UD600 / UD600R	UD900 / UD900R	UD1400 / UD1400R	UD2000 / UD2000R
Rating VA / Watts	600 / 400	900 / 630	1400 / 1000	2000 / 1500
PHYSICAL				
Desktop Dimensions (W x D x H)	8 x 5.3 x 15 (206 x 135 x 381)	10.5 x 7 x 15.4 (267 x 178 x 391)	10.5 x 7 x 17.8 (267 x 178 x 452)	UPS: 10.5 x 7 x 17.8 (267 x 178 x 452) Battery: 9 x 7 x 17.8 (229 x 178 x 452)
Rackmount Dimensions (W x D x H)	5 x 17 x 21 (127 x 432 x 534)	5 x 17 x 21 (127 x 432 x 534)	7 x 17 x 21 (178 x 432 x 534)	7 x 17 x 21 (178 x 432 x 534)
Desktop Weight lbs. / kg	29 / 13.2	43 / 19.5	57 / 25.9	UPS: 34 / 15.4 Battery: 49 / 22.2
Rackmount Weight lbs. / kg	45 / 20.4	55 / 24.9	73 / 33.1	98 / 44.5
Receptacles	Four 5-15R	Six 5-15R	Six 5-15R	Four 5-15R, One 5-30R
INPUT				
Voltage	120 VAC, +10%, -30%			
Voltage Boost	Maintains output to 120V, +10%, -15% when input is 120V, +10%, -30%			
Frequency	50 or 60 Hz; unit auto-senses input frequency.			
Input Power Cord	6 feet, detachable, w / NEMA 5-15 plug		6 feet, attached, w / NEMA 5-20 plug	6 feet, attached, w / NEMA L5-30 plug
OUTPUT				
Voltage	120 VAC, +10%, -15%			
Frequency	50 or 60 Hz			
Waveform	Sinewave			
Utility Overload	200% for 5 seconds, 120% for 1 minute			
Battery Overload	150% for 1 cycle, 125% for 5 seconds			
BATTERY				
Type	Sealed, Maintenance-Free			
Qty. x Voltage x Rating	2 x 12 V x 7 ah	4 x 6 V x 10 ah	6 x 6 V x 10 ah	3 x 12 v x 17 ah
Transfer Time	4 ms maximum. Includes detect and transfer.			
Back-Up Time	6 minutes, typical.			
ENVIRONMENTAL				
Operating Temperatures	0° to 40° C.			
Storage Temperatures	0° to 50° C.			
Relative Humidity	0 to 95% non-condensing			
Operating Altitude	Up to 10,000 feet at 35° C. without derating			
Storage Altitude	50,000 feet maximum (batteries can be air freighted)			
Audible Noise	<45 dBA at 1 meter at full load			
AGENCY APPROVALS				
UL 1778, UL 1449, CSA, IEEE 587 Cat. A, FCC Class A				

LIMITED WARRANTY

We are pleased that you have purchased the UPStation® D product to enhance the reliability of utility power to your sensitive electronic equipment.

Liebert Corporation warrants to the original user that the UPStation® D product is, and will remain, free of defects in materials and workmanship for a period of two years from the date of shipment. Extended warranty contracts are available.

During the warranty period, Liebert will repair or replace (at Liebert's determination) products purchased which fail to meet the above warranty. **NOTE:** Warranty is void if the battery is allowed to discharge below the minimum battery cutoff point.

WARNING - To prevent such discharge, **DO NOT** leave the unit power switch ON for more than 2 days without AC power being supplied to the UPS. The battery must be recharged every 5 months if not in use.

No warranty applies to products which have been abused, mishandled, modified, damaged by act of God or any source external to the product, repaired by others, or which have product serial numbers removed or altered.

There are no warranties other than that described herein. In no event will Liebert be responsible beyond the purchase price of the product. SELLER DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OF THE GOODS OR THE FITNESS OF THE GOODS FOR ANY INTENDED PURPOSES. LIEBERT ASSUMES NO RESPONSIBILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF USE, PROFIT, OR INCOME.

To make a warranty claim, call 1-800-222-5877 to obtain the required return authorization number. Return transportation costs to Liebert are the responsibility of the purchaser.

Liebert®

Keeping Business in Business™

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Technical Support

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