

# Extended Battery Cabinet for Nfinity

USER MANUAL





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# IMPORTANT SAFETY INSTRUCTIONS

## SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be closely followed during installation of this Extended Battery Cabinet.

This product is designed for commercial/industrial use only. This product is not intended for use with life-support and other designated "critical" devices.



### WARNING

**Lethal voltages may be present within this unit even when it is apparently not operating. Observe all cautions and warnings in this manual. Failure to do so may result in serious injury or death. Never work alone.**

Observe the following precautions when working with batteries:



### CAUTION

**DO NOT dispose of battery modules in a fire; the battery module may explode.**

**DO NOT open or mutilate batteries; released electrolyte is harmful to skin and eyes and may be toxic.**

**A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries.**

- **Remove watches, rings and other metal objects.**
- **Use tools with insulated handles.**



### CAUTION

**Lead-acid batteries contain hazardous toxic materials. Handle, transport and recycle in accordance with local regulations.**

This UPS equipment is designed for use on a properly grounded electrical system. This equipment is intended to be installed by a qualified, certified electrician who must review and approve customer-supplied wiring, circuit breakers and earth connections to ensure compliance with technical standards and local electrical codes. Installation instructions and warning notices only for use by qualified personnel are located in the **INSTALLATION** section of this manual.

## Electromagnetic Compatibility

This UPS equipment complies with the requirements of the EMC directive 89/336/EEC, the published technical standards and Class A digital device pursuant to Part 15 of FCC rules. These limits provide reasonable protection against harmful electromagnetic interference in a commercial environment.

This device generates, uses and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference with radio communications. Operating this device in a residential area is likely to cause harmful electromagnetic interference that the user must correct at his own expense.

## Operating Environment




















Operate the Extended Battery Cabinet in an indoor environment only in an ambient temperature range of 32°F to 104°F (0°C to 40°C). For optimum battery life, operate the unit in an ambient temperature range of 59°F to 77°F (15°C to 25°C). Install the Extended Battery Cabinet in a clean environment, free from conductive contaminants, moisture, flammable liquids, gases and corrosive equipment in an indoor environment.

Turn the UPS off and isolate the system before cleaning. Use only a soft cloth, never liquid or aerosol cleaners. Keep the front and rear vents free of dust accumulation that could restrict air flow.

Never block or insert any object into the ventilation holes or other openings.

This Extended Battery Cabinet contains user replaceable modules. No attempts should be made to access the interior of any module. See **MODULE REPLACEMENT** on page 9 for details on this procedure.

# GLOSSARY OF SYMBOLS

	<b>Risk of electrical shock</b>
	<b>Indicates caution followed by important instructions</b>
	<b>AC input</b>
	<b>AC output</b>
	<b>Requests the user to consult the manual</b>
	<b>Indicates the unit contains a valve-regulated lead acid battery</b>
	<b>Recycle</b>
	<b>DC voltage</b>
	<b>Equipment grounding conductor</b>
	<b>Bonded to ground</b>
	<b>AC voltage</b>
	<b>OFF</b>
	<b>ON</b>
	<b>Standby</b>
	<b>No telecommunication connection</b>
	<b>Locked position</b>
	<b>Unlocked position</b>
	<b>Contact closure signals</b>
	<b>Serial communications</b>

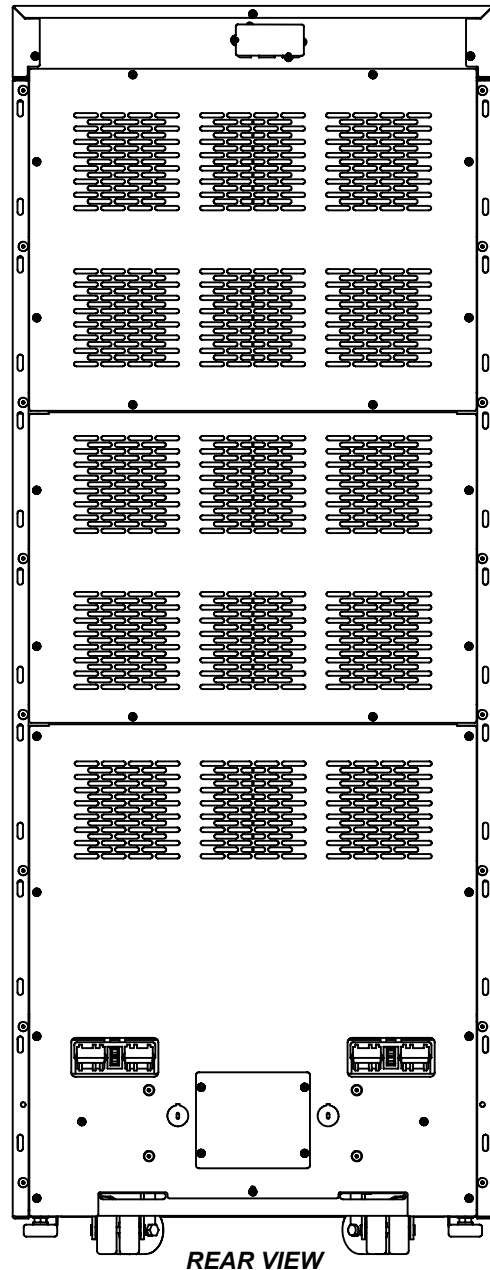
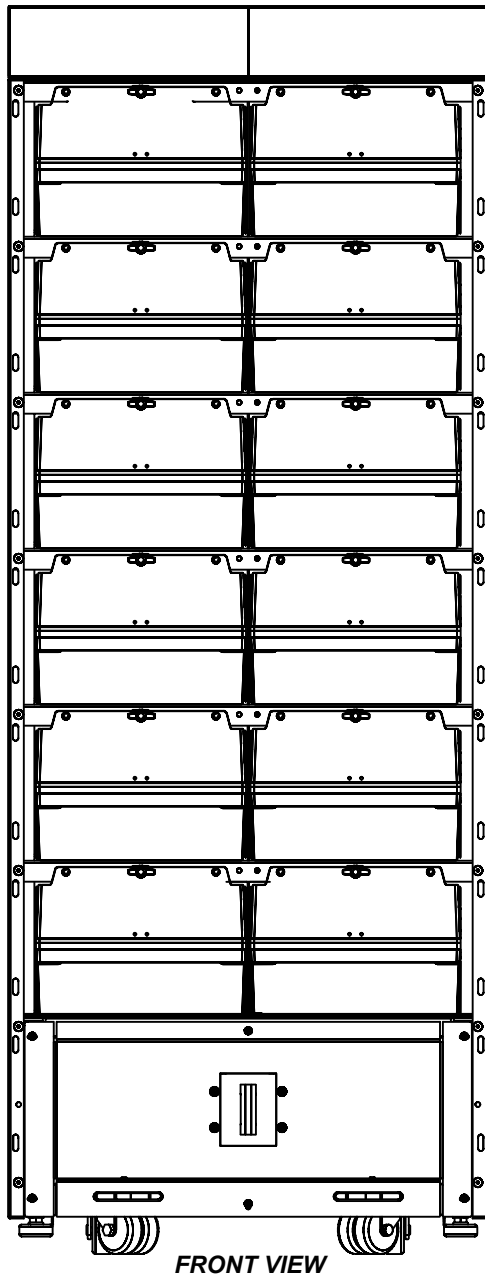
# GENERAL DESCRIPTION

## System Description

The Extended Battery Cabinet is a modular cabinet intended for use with the *Nfinity*™ modular UPS system. The cabinet will hold a maximum of 12 battery modules with the same level of monitoring and control as the battery modules fitted in the UPS.

## Features:

- Up to four Extended Battery Cabinets can be used with a single Nfinity UPS
- Up to 12 battery modules per cabinet
- A user-friendly interface, on the UPS, for custom configuration
- Continuous system monitoring
- Warning alarms and event logs.



# PREPARATION

These installation instructions provide all the information needed for positioning the Extended Battery Cabinet (including environmental requirements) and for connecting the input and output power cables.

## Inspection

Upon receiving the Extended Battery Cabinet, examine the packaging for any signs of mishandling or damage. If any damage is noted, call your local Liebert representative and/or notify your carrier.

## Environment



### NOTE

*Operating in temperatures above 77°F (25°C) will reduce battery life. The environment must be free of conductive contaminants and excessive moisture (water condensation), flammable vapors, chemical fumes, or corrosive gases and liquids.*

## Required Setup Equipment

The tools below are required in order to properly set up your Extended Battery Cabinet.

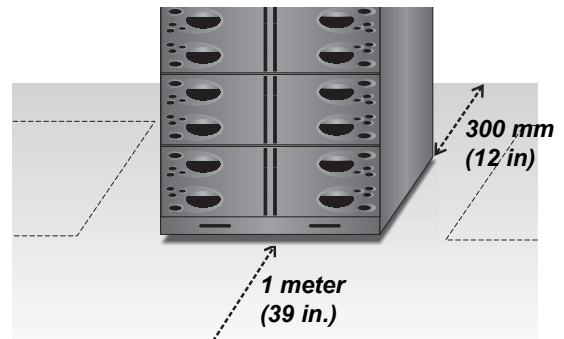
- Pallet jack
- 13 mm or 1/2" wrench
- Flathead screwdriver
- #2 Phillips screwdriver

## Site Preparation

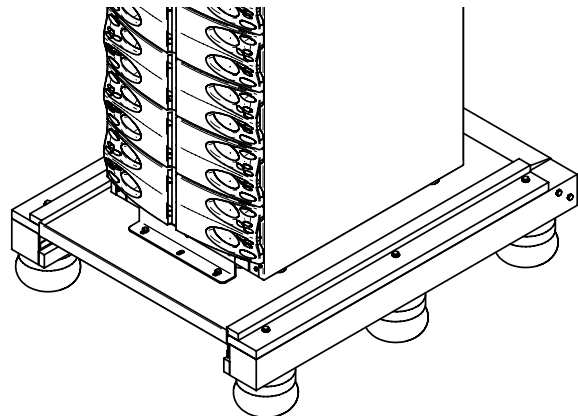
When deciding where to locate your Extended Battery Cabinet, consider the weight and size of the unit. Make sure that the structural integrity of the floor can withstand the weight. Refer to the table below for size and fully populated weight considerations:

Max Weight lbs (kg)	H x W x D in (mm)
942 (427)	52" x 20" x 28" (1320 x 508 x 711)

Check to make sure that your Extended Battery Cabinet will be located in a well-ventilated area with at least 300 mm (12") behind it. It should have at least one meter (39 in.) in front to change modules when necessary.



The unit frame is bolted to the shipping pallet to ensure safety. It is recommended that a pallet jack be used to transport the unit to its operating location (prior to unbolting the unit).





# UNLOADING

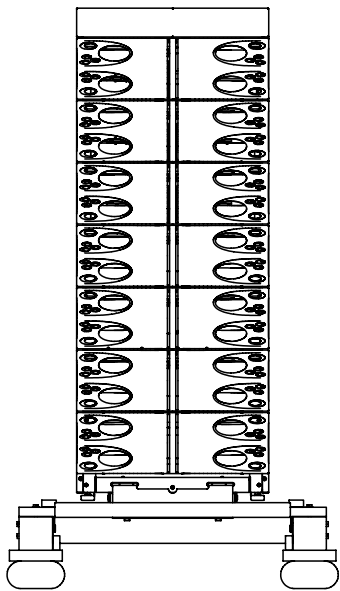
## Unloading the Extended Battery Cabinet



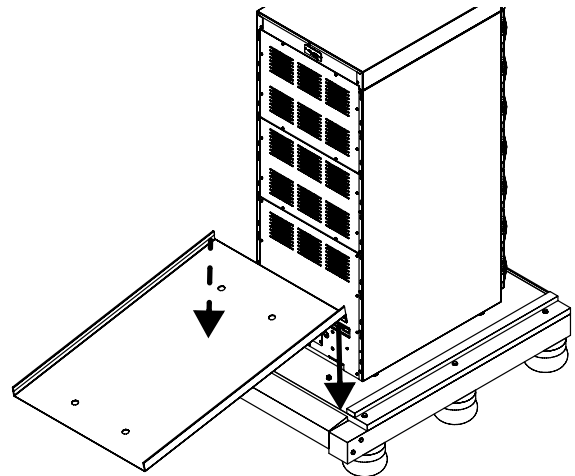
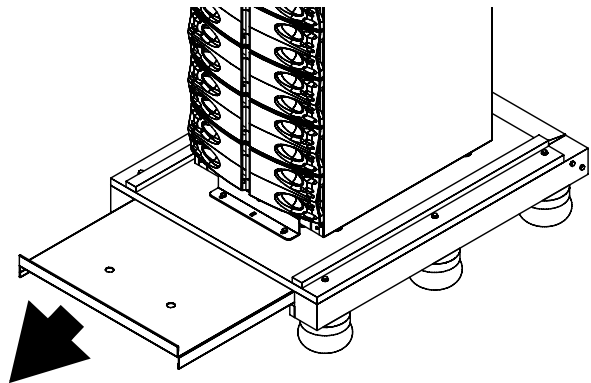
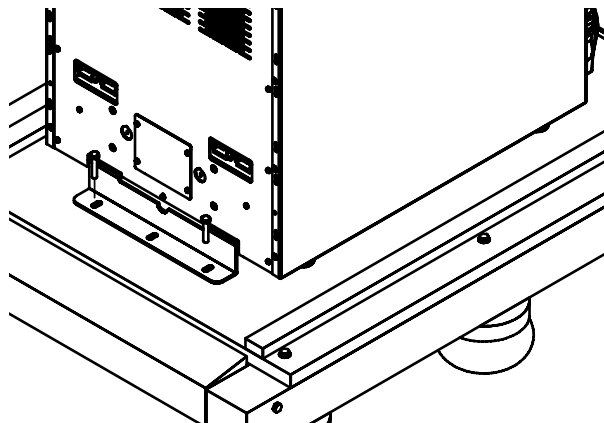
### CAUTION

This battery cabinet is heavy (see weight on previous page). At least two people should be present to unload it from the pallet.

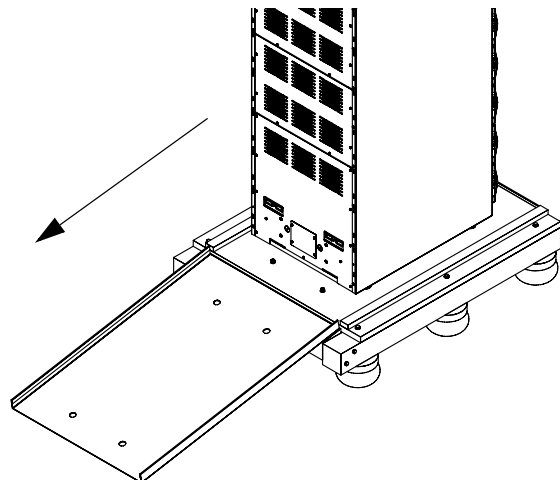
1. Once the Extended Battery Cabinet is near the desired operating location, remove the cardboard cover.



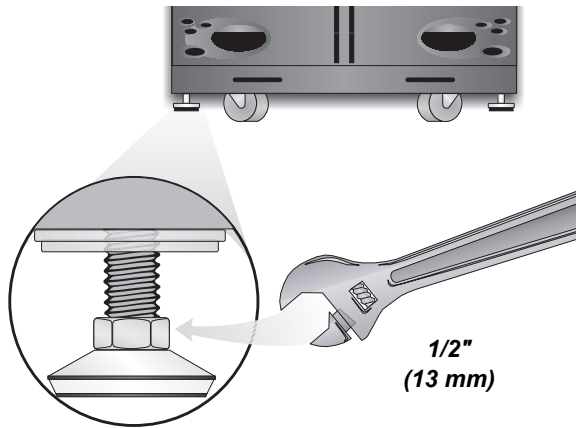
2. Use a 13 mm (1/2") wrench to remove the four mounting bolts from each of the pallet brackets. Remove mounting brackets from the pallet and cabinet. Keep brackets and bolts for future transportation of cabinet or for additional stability once in place.



3. Remove the metal ramp from the bottom of the battery cabinet, rotating it. Fit ramp in pallet slot as shown above.
4. Using two people, slowly move the cabinet down the ramp until the Extended Battery Cabinet is on a level surface.

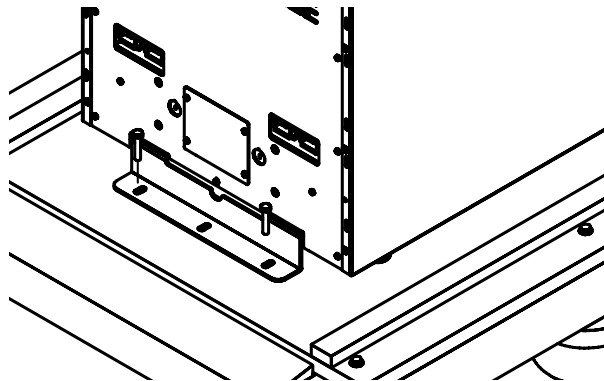


5. Once the Extended Battery Cabinet is in the desired location, adjust the leveling feet to secure its position.



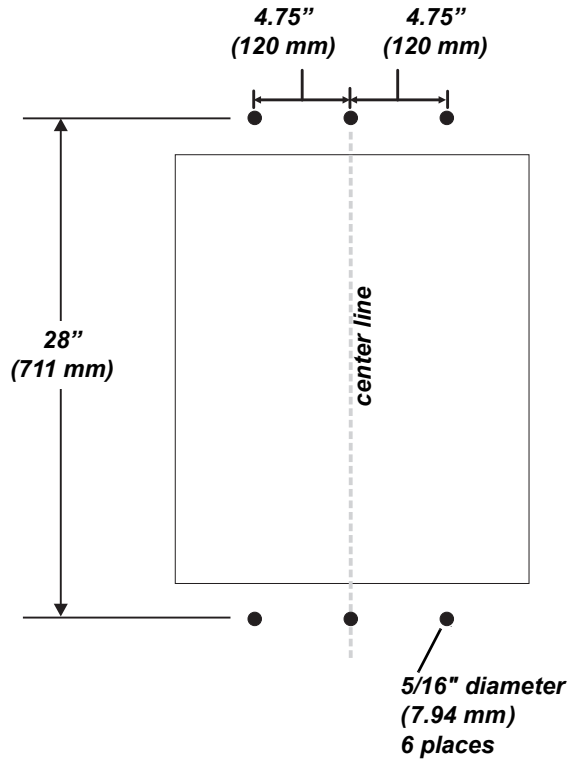
### Stationary Mounting

Additional stability can be added by bolting the mounting brackets (used in shipping) to the floor.



### Optional Stationary Mounting

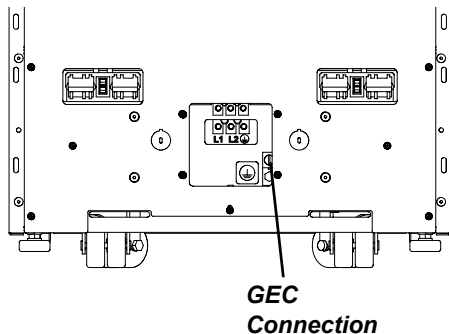
For greater stability, use a higher-grade bolt. Refer to the dimensions below when drilling holes for stationary mounting.



# INSTALLATION

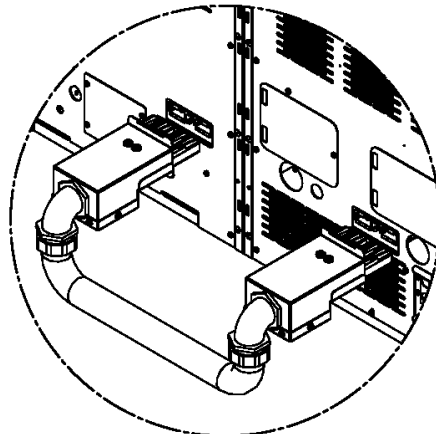
## Grounding

The Extended Battery Cabinet must be installed with a dedicated grounding electrode conductor (GEC) to the site grounding system in accordance with national and local wiring codes and regulations as shown below.



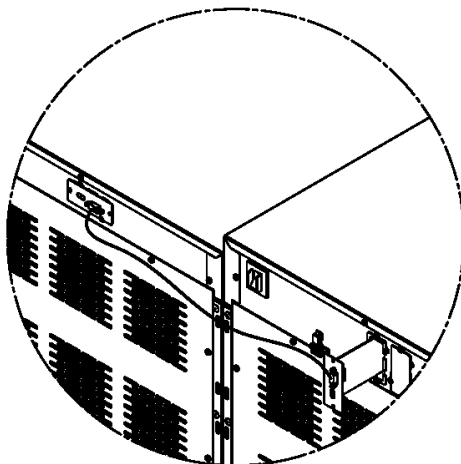
## DC Power

DC connection with the UPS unit must be via the factory-supplied battery cables, or if longer connection cable is required, via the optional Extended Battery Cable kits. See below.



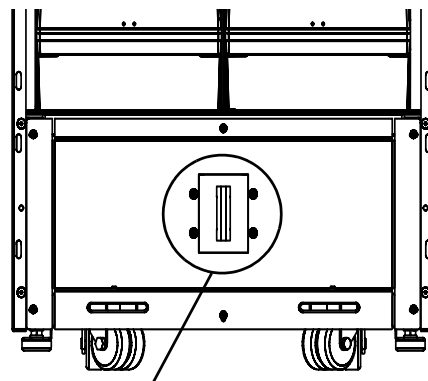
## Communications

To enable communication between the Extended Battery Cabinet and the *Nfinity*, it is necessary to install an Intellislot Battery Card (IBC) in the Intellislot port of the UPS. See below. A second, included IBC is installed in the Extended Battery Cabinet. The provided serial cable is to be connected between the two cards.



Communications

After connections are made and verified, the output circuit breaker must be closed to connect the batteries inside the Extended Battery Cabinet to the *Nfinity* UPS. To do this, move the handle of the circuit breaker under the lower-most bezel to the ON position **I** (see illustration below for circuit breaker location).



Output Circuit Breaker




### NOTE

*Failure to turn on the circuit breaker may cause damage to the batteries in the Extended Battery Cabinet. Failure to follow this procedure may limit your warranty.*

## Configuration Setting

For the UPS system to be aware of the presence of the Extended Battery Cabinet(s), the system has to be configured with the necessary information. To enter the information, follow the steps below:

After initialization, pressing the  button will take you to the main menu.

Scroll down to **UPS Configuration**, and select it by pressing the  button.

### Main Menu

```
UPS Status
> UPS Configuration
Display Date/Time
Event Log
Alarm Log
Transfer to Bypass
Module Replacement
Tools
```

Scroll down to **Change Settings**; press .

### UPS Configuration



```
UPS Configuration
Review Settings
> Change Settings
Service Mode
```

Scroll down to **Intellislot Battery Ca.**; select it by pressing .

### Change Settings

```
Input Voltage
Frequency Sync Range
Frequency Slew Rate
Set Password
Auto Battery Test
Low Battery Warning
Auto Restart
User Settings
Set Date/Time
Max Load Alarm Set
UPS Shutdown Delay
Redund Alarm Set
Service Contact
Remote Shutdown
External Battery
Bypass Alarm Mode
> Intelli-Batt Ca.
Air Filter Reminder
Factory Defaults
```

Enter the quantity of Extended Battery Cabinets installed.

Press  return arrow and then press  to save your changes and exit.

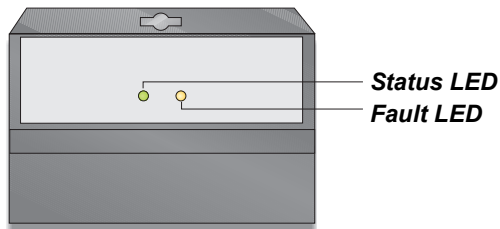
The system is now configured.

# MODULE REPLACEMENT

Follow the instructions below when replacing a battery module and when adding modules to the system.

## Removing Modules

1. Remove bezel cover of appropriate module. When replacing a battery module, verify the faulty module by confirming the amber LED is lit.
2. Turn fastener counterclockwise until it is loosened.



3. Start to pull out module. About 2/3 out it will stop. Slide module away from the center of the unit.



### CAUTION

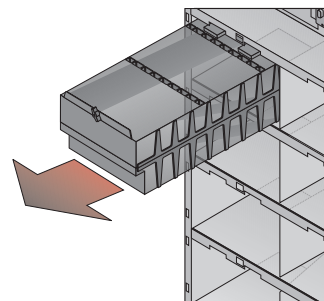
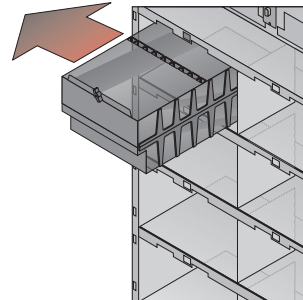
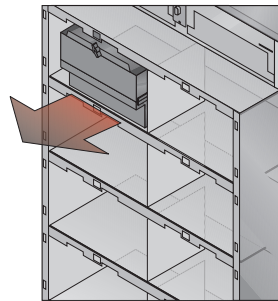
Battery modules are heavy: 30 kg (66 lbs). Make sure to use two people when removing a battery module. Continue to pull until module is removed (seen at right).

4. Dispose of the removed module in an environmentally responsible way that complies with local codes and regulations or return the module to Liebert for proper disposal.



### NOTE

Battery modules may contain shipping screws. These screws may be removed and discarded.

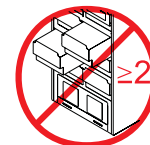
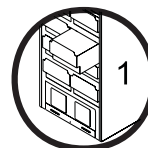


### WARNING



#### POTENTIAL TIP HAZARD

Install all modules starting with bottom bays and moving to top. For module removal, start with top bays and proceed to bottom. Do not remove more than one module at a time—doing so may cause unit to tip over and cause serious injury.



## Replacing Modules

1. Lift the module to the appropriate bay, resting the end of the module on the bay shelf. Use caution not to rest the module on the lower bezel cover.
2. Push the module into bay. Once it is half way in, slide the module sideways toward the center of the unit. Continue pushing module until fully inserted.
3. Press and turn fastener clockwise until locked.
4. Wait about 15 seconds as the module performs a start-up test and synchronizes with the other modules. Both the amber and green LEDs should be flashing. A green flashing LED will then confirm that the module is properly connected.
5. Replace the bezels.

# BATTERY RUN TIMES

## Internal and Extended Battery Cabinets (minutes)

Load VA	Load Watts	Quantity of Battery Modules										Quantity of Extended Battery Cabinets			
		1	2	3	4	5	6	7	8	9	10	1	2	3	4
20,000	14,000	-	-	-	-	7	9	-	-	-	-	25	51	75	99
19,500	13,650	-	-	-	-	7	9	-	-	-	-	25	56	80	104
19,000	13,300	-	-	-	-	7	9	-	-	-	-	26	57	81	105
18,500	12,950	-	-	-	-	8	11	-	-	-	-	27	58	82	106
18,000	12,600	-	-	-	-	8	12	-	-	-	-	28	61	97	133
17,500	12,250	-	-	-	-	8	12	-	-	-	-	28	63	99	135
17,000	11,900	-	-	-	-	8	12	-	-	-	-	29	64	100	136
16,500	11,550	-	-	-	-	9	13	-	-	-	-	30	66	102	138
16,000	11,200	-	-	-	7	8	12	17	-	-	-	32	68	104	140
15,500	10,850	-	-	-	7	9	13	17	-	-	-	33	70	106	142
15,000	10,500	-	-	-	7	11	14	18	-	-	-	34	72	108	144
14,500	10,150	-	-	-	8	12	15	19	-	-	-	36	74	110	146
14,000	9,800	-	-	-	8	13	16	20	-	-	-	37	82	130	178
13,500	9,450	-	-	-	8	13	16	20	-	-	-	38	85	133	181
13,000	9,100	-	-	-	9	13	17	21	-	-	-	39	86	134	182
12,500	8,750	-	-	-	10	14	18	22	-	-	-	42	90	138	186
12,000	8,400	-	-	7	12	16	20	24	28	-	-	44	93	141	189
11,500	8,050	-	-	7	12	17	21	25	29	-	-	46	97	145	193
11,000	7,700	-	-	7	12	17	21	26	30	-	-	48	101	149	197
10,500	7,350	-	-	8	14	18	23	28	32	-	-	51	111	171	231
10,000	7,000	-	-	9	15	19	24	29	34	-	-	54	113	173	233
9,500	6,650	-	-	10	15	21	26	30	36	-	-	57	119	179	239
9,000	6,300	-	-	11	16	22	28	33	38	-	-	60	131	203	275
8,500	5,950	-	-	12	17	23	29	35	40	-	-	64	139	211	283
8,000	5,600	-	7	13	19	25	31	37	43	49	-	68	142	214	286
7,500	5,250	-	8	14	21	28	34	40	47	53	-	73	149	221	293
7,000	4,900	-	8	16	23	30	36	43	50	57	-	78	161	245	329
6,500	4,550	-	9	17	24	32	40	47	55	62	-	84	174	258	342
6,000	4,200	-	11	19	24	36	43	51	60	68	-	92	190	286	382
5,500	3,850	-	12	21	23	39	47	56	66	74	-	101	203	299	395
5,000	3,500	-	14	23	28	42	52	61	72	80	-	110	223	331	439
4,500	3,150	-	15	25	37	47	57	67	78	88	-	119	245	365	485
4,000	2,800	7	19	31	43	55	66	79	91	104	115	140	285	429	573
3,500	2,450	9	23	37	51	65	79	93	107	123	136	165	333	489	645
3,000	2,100	11	28	44	60	76	93	109	126	143	159	192	387	567	747
2,500	1,750	14	33	52	71	89	109	128	147	167	185	224	448	652	856
2,000	1,400	18	42	65	88	112	136	160	183	207	230	276	554	818	1,082
1,500	1,050	26	57	87	119	151	182	213	243	276	306	367	734	1,094	1,454
1,000	700	45	94	144	195	246	294	344	393	444	493	570	1145	1,685	2,225
900	630	50	105	160	216	273	327	382	436	492	547	627	1261	1,849	2,437
800	560	55	116	177	238	300	359	420	480	540	601	684	1378	2,014	2,650
700	490	61	128	195	263	331	396	463	529	594	661	752	1515	2,223	2,931
600	420	72	149	227	304	382	457	535	610	685	762	887	1776	2,628	3,480
500	350	82	171	258	346	433	518	606	691	777	862	1022	2036	3,032	4,028

**NOTE:** Backup times are in minutes and are based on resistive loading at an ambient temperature of 77°F (25°C).  
 Extended battery cabinets are fully loaded with 12 battery modules.  
 Extended battery cabinets assume that the UPS frame is fitted with all available battery modules.







# **Extended Battery Cabinet for Nfinity**

## **USER MANUAL**

### **The Company Behind the Products**

With over a million 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 to 60 tons
- Power conditioning and UPS with power ranges from 300 VA to more than 1000 kVA
- Integrated systems that provide both environmental and power protection in a single, flexible package
- Monitoring and control—from systems of any size or location, on-site or remote
- Service and support through more than 100 service centers around the world and a 24/7 Customer Response Center

While every precaution has been taken to ensure the accuracy and completeness of this literature, Liebert Corporation assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

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SL-23966 (3/02) Rev. 2

### **Technical Support**

#### **United States**

1050 Dearborn Drive  
P.O. Box 29186  
Columbus, OH 43229

#### **Single-Phase UPS**

800-543-2378

#### **Outside the United States**

614-841-6598

#### **3-Phase UPS**

800-543-2378

#### **Environmental Control**

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