



Foundation™

Enclosure & Mini Computer Room

**Integrated Protection
for Network Equipment**

User Manual
English

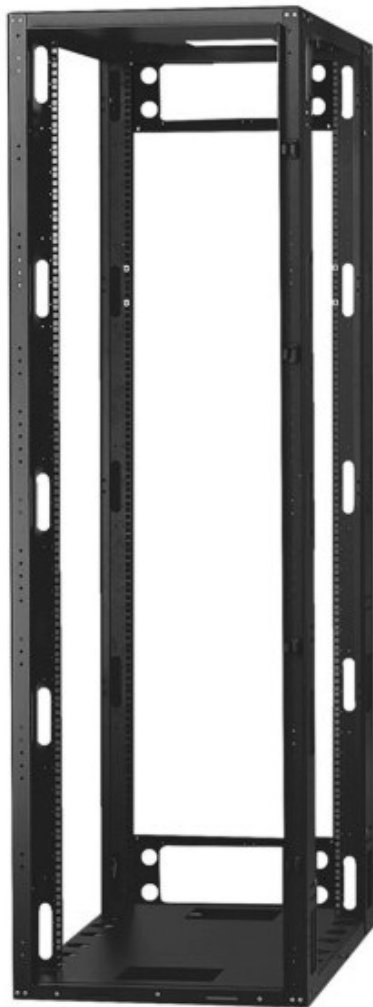


Table of Contents

IMPORTANT SAFETY INSTRUCTIONS	4
GLOSSARY OF SYMBOLS	5
INTRODUCTION	6
GENERAL DESCRIPTION	7
About this Manual	7
MAJOR COMPONENTS	8
Frame	8
Enclosure	8
Doors	8
Side Panels	8
Power	9
Uninterruptible Power Supply	9
Environmental	9
Fan Cooling System and Options	9
Environmental Control Module	9
ECM Heat Rejection Fan	10
Back-up Cooling Module (BCM)	10
Monitoring	11
SiteNet Integrator	11
Load Control Module	11
INSTALLATION	12
PREPARATION	13
Inspection	13
Required Setup Equipment	13
Site Preparation	13
UNLOADING	14
Unloading the Foundation	14
Unloading a Foundation Enclosure (HK/RK)	14
Unloading a Foundation MCR (HD/RD)	14
CONNECTIONS / CONFIGURATION	15
Internal Mounting Rails	15
Front and Rear Mount Rails—Position	15
Center Mount Rails—Position	15
Mounting Hardware	15
Door—Remove and Reverse	16
Remove the Door	16
Reverse the Door	16
Reverse the Door Handle	16

Side Panels—Remove and Replace	16
Remove a Panel	16
Replace a Panel	16
Cluster Configuration	17
Cable Management	17
Cable Access—Sealed Units	18
Cable Access—Non-Sealed Units	18
Cooling Modules	18
Environmental Control Module (ECM)	18
Backup Cooling Module (BCM)	19
FAN Cooling	19
Power Supply	19
Uninterruptible Power Supply (UPS)	19
STARTUP	20
OPERATIONS	21
ENVIRONMENTAL	22
ECM (Environmental Control Module)	22
BCM (Backup Cooling Module)	22
BCM Energy Saver	22
Heat Rejection Fan	22
Fan Cooling	22
UPS / Sitenet Integrator	23
Uninterruptible Power Supply	23
SiteNet Integrator®	23
OPTIONAL EQUIPMENT	25
OPTIONS	26
Power	26
Environmental	26
Mounting Options	26
MAINTENANCE	27
TROUBLESHOOTING	28
Periodic Maintenance	29
Cleaning the Optional FAN Air Filter	29
SPECIFICATIONS	30
MODEL NUMBERS, DIMENSIONS	31
Foundation Model Numbers	31
COOLING SYSTEMS	33
POWER SYSTEMS	34
WARRANTY	35

Important Safety Instructions

SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be closely followed during installation and maintenance of this unit. Read all safety and operating instructions before attempting to operate the Foundation. Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions.

This product is designed for Commercial / Industrial use only. This product is not intended for use with life support or other U.S. FDA designated “critical” devices. Maximum load must not exceed that shown on the Foundation rating label. See Limited Warranty.

Operate this product in an indoor environment at an ambient temperature of 65° F to 105° F (23°C to 40°C). Install in a clean environment, free from moisture, flammable liquids, gases, and corrosive substances.

Where applicable, this product must be permanently connected and powered from a suitable single-phase AC supply rated in accordance with the equipment data plate. It must be suitably grounded and protected by a circuit breaker or fuse.

This equipment complies with the requirements of the 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 with output cables not exceeding 30 feet (10 meters) in length. Use a shielded cable for external communications interface.

Assure the Foundation has proper ventilation. Never block or insert objects into the ventilation holes or other openings. Maintain a minimum clearance of 12 inches (305 mm) in front, rear and top of the Foundation for proper air flow and cooling. Top-Mount ECM's require at least 24 inches on the Foundation's sides.

Glossary of Symbols



Warning!
Hazardous Voltage Present



Caution:
Note following instructions



Consult user manual for additional information



Indicates weight



Indicates ground connection



Indicates alternating current

INTRODUCTION

General Description

About this Manual

Major Components

Frame

Enclosure

Power

Environmental

Monitoring

General Description

Congratulations on purchasing a Liebert Foundation. The highly versatile Foundation can provide an organized, secure, controlled environment in a single system for your sensitive electronic equipment.

The original Little Glass House, on which the Foundation is based, won numerous awards for its innovative design and uniqueness. We've taken suggestions from you, our valued customers, to improve an already great product. A few of the improvements found in the Foundation are:

- adjustable rack rails
- reversible door(s)
- easy access side panels
- multiple door options
- complete upgradability
- top-or bottom-mount ECM unit
- quieter ECM and fan operation
- energy saving features

The Foundation is available in a variety of configurations to suit your electronic equipment's environmental needs. Whether you need a rack to organize your electronic equipment, locking doors for security, a UPS for power protection, and/or an ECM air conditioner to keep your equipment at a constant temperature, the Foundation will provide the level of protection you require.

One of the best features of the Foundation is its flexibility. Initially, you might need only a basic enclosure unit. The Foundation can be upgraded to fit your changing needs as your operations expand and you add more sensitive electronic equipment.

About this Manual

The Foundation's flexibility means that a variety of configurations exist for the unit. The various sections cover:

- **Frame**—The basic setup; relevant to all Foundation configurations.
- **Enclosure**—The types of doors and side panels, as well as attendant hardware, available as upgrades to accommodate various options.
- **Power**—The wide selection of Uninterruptible Power Supply (UPS) models available for the Foundation.
- **Environmental**—Computer-grade environmental conditioning units that may be employed: Environmental Control Module (ECM), Back-up Cooling Module (BCM) and FAN Fan Cooling.
- **Monitoring**—Hardware to collect data about conditions within the Foundation and about its components.

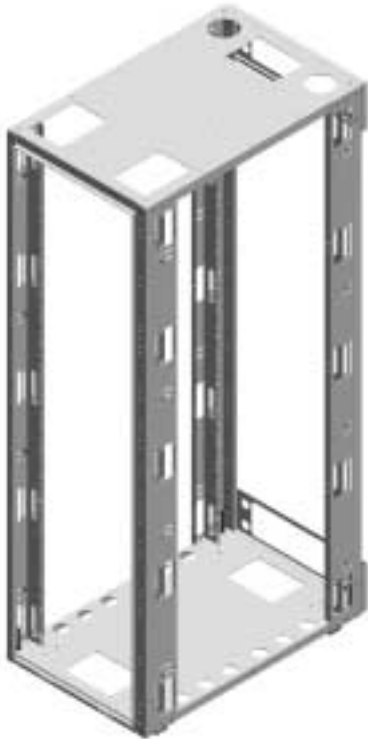
Any or all of the components may be included in your Foundation, depending on the unit's configuration. If, for example, your Foundation is equipped with an ECM, but no UPS or Monitoring equipment, you might want to read the sections on Frames, Enclosures and Environmental, skipping the sections titled Power and Monitoring.

Major Components

You may have any or all of the components discussed in this section, depending on your Foundation configuration.

Frame

The base of all Foundation products is the frame. It comes in two standard heights (44 and 78 inches) sizes and can accommodate shelf- or rack-mounted equipment on either 19- or 23-inch adjustable, square or threaded rails. See the Specifications section for measurements of different models. All units have leveling feet and grounding lug. Casters are optional.



The frame consists of heavy-duty, riveted 12-gauge steel construction, painted black. The front and rear vertical frame members accommodate Internal Mounting Rail options and provide space to route and manage customer cabling.

Various cutouts in the top, bottom and rear plates permit customer cable entry; cover plates are provided as sealing and cooling options require.

Frames are selected as either "non-sealed", (open frame or enclosure), or as "sealed" (basis for NEMA12 enclosure). All options that are added to the Mounting Frame conform to either the sealed or non-sealed requirements as the sealing selection dictates.

Enclosure

The Mounting Frame can be upgraded to an Enclosure system, or to a sealed Mini Computer Room, with the addition of factory-installed panel and door configurations, gaskets and other options.

Doors

All doors are framed from sheet metal. A multi-point latch with key lock is provided for security. All doors are removable and allow for reversible (left/right) hinging. The following doors are available:

- Plexiglas™ front door
- Sheet metal front and rear door
 - Insulation provided on ECM applications
- Perforated front and rear door

Side Panels

Side panels are fashioned from sheet metal. Special fasteners inside and outside the unit permit removal of all panels for maintenance while preserving internal security during normal operation.

An insulation option is required for Foundation systems that use ECM cooling. This provides improved thermal and sound insulation.

Power

Uninterruptible Power Supply

The Uninterruptible Power Supply (UPS) can provide your electronic equipment with:

- Surge protection and suppression
- Regulated voltage and frequency
- Battery back-up

A UPS protects your sensitive electronic equipment when utility power fails. It gives you time to perform a controlled shutdown of your operating system, preventing damage to the hardware, as well as allowing you to save valuable data. Liebert UPSs also condition utility power, eliminating power spikes that could damage your instruments.

Liebert's PowerSure Interactive and UPStation GXT, up to 3000 VA, are available for the Foundation.



GXT2U model UPS

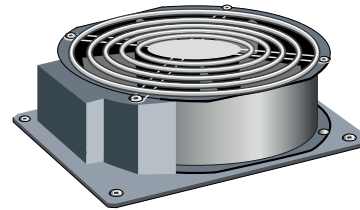


Refer to the user manual for your UPS for further details.

Environmental

Fan Cooling System and Options

A Fan Cooling Module is available to circulate air through your Foundation, providing enhanced primary cooling for enclosure systems.

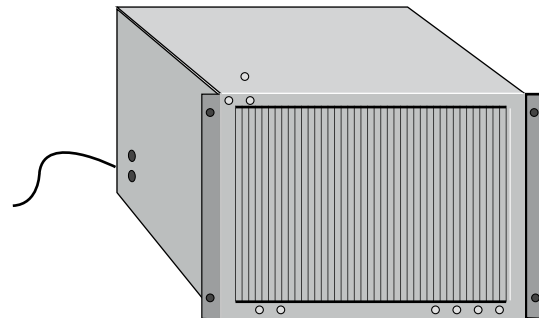


Fan Cooling Module

Environmental Control Module

The Environmental Control Module (ECM) conditions and circulates the air inside the Foundation to protect your electronic equipment from heat the equipment generates. Outside (ambient) air is used to remove heat from the enclosure through the air-cooled condenser. The ECM is capacity/load-matched to Liebert's UPS models, along with heat transmitted into the enclosure from outside.

The ECM is available as either internal rack mount or external top mount.

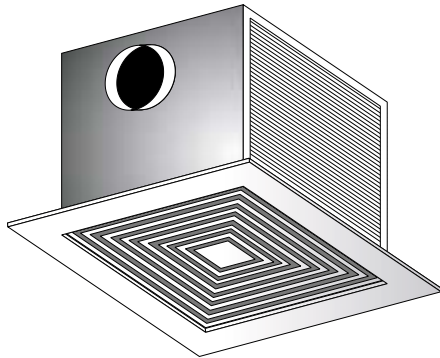


**Environmental Control Module
(Internal Rackmount)**

ECM Heat Rejection Fan

For applications in confined spaces (equipment rooms or closets), an optional, ceiling-mounted Heat Rejection Fan is available to ventilate the space outside the Foundation.

Refer to separate installation instructions provided with the Heat Rejection Fan.



Heat Rejection Fan

Back-up Cooling Module (BCM)

For back-up cooling, an optional Backup Cooling Module can be added to the Foundation. When the self-contained BCM senses an internal temperature 100°F (38°C), the Backup Cooling Module fans will circulate filtered ambient air through the enclosure.

A BCM Energy Saver (ES) Control is an add-on device that reduces energy costs by allowing the BCM to operate as the primary enclosure cooler. The BCM ES Control along with the High Temperature Alarm monitors air conditions inside and outside the enclosure and, when appropriate, cycles off the ECM and activates the BCM, reducing energy consumption.



*Back-up Cooling Module
on rear of Foundation*

INSTALLATION

Preparation

Inspection

Required Setup Equipment

Site Preparation

Unloading

Unloading the Foundation

Connections / Configuration

Front and Rear Mount Rails—Position

Center Mount Rails—Position

Cable Management

Startup

Preparation

Inspection

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

Required Setup Equipment

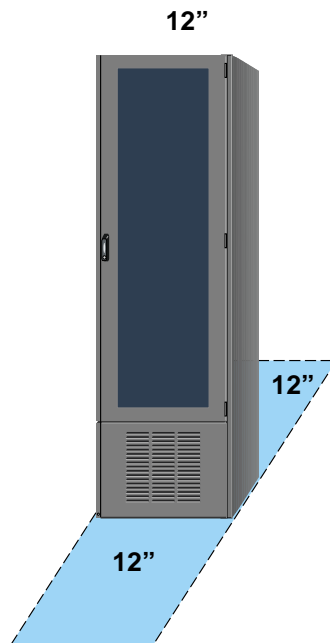
The following tools are required to set up your Foundation:

- Pallet jack
- Utility knife
- 1/2" (13mm) ratchet or wrench
- 12mm wrench (for adjusting rails)

Site Preparation

When deciding where to place your unit, make sure the location is adequately ventilated for any peripheral equipment, such as printers, used outside the Foundation.

Note the dimensions of your Foundation model to determine the required amount of space. Units with an ECM require at least 12 inches of clearance at the top, in front and at the rear. Do not block the airflow at the front or rear of the unit.



Top Mount ECM's require an additional 24 inches of free space on the sides of the unit.

To keep the unit's center of gravity as low as possible, install equipment from the bottom up, starting with the heavier units. Leave available space (if any) at the top of the enclosure.



CAUTION: After customer equipment is installed, the Foundation may have a high center of gravity, particularly when equipped with a top-mount ECM. Avoid tipping the unit when it is being moved. An optional stabilizing plate is available to enhance stability.

All electrical receptacles and sockets in the vicinity of where the Foundation will be used must be ground/earth type.

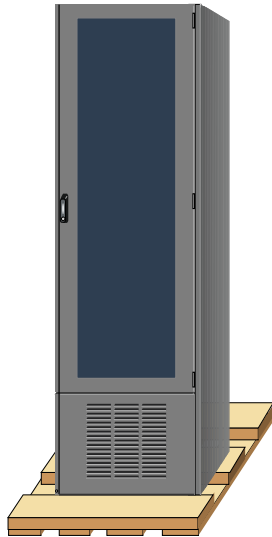
Unloading

Unloading the Foundation

Before you start unloading your Foundation, please note the unit weight of your model. This can be found in the Specifications section of this manual. Use at least two people when moving the unit.

Unloading a Foundation Enclosure (HK/RK)

1. Using a pallet jack, move the Foundation near the desired location. Cut the shipping bands with a utility knife and remove all cardboard and plastic.
2. Remove the four 2x2's nailed around the Foundation base.
3. Move the unit forward and roll it off the front of skid.



Open the door and locate the keys, which will be taped inside the enclosure along with a T-handle wrench for removing the side panels. The front and rear locks use the same key. To open either door, rotate the key 1/4 turn clockwise to unlock the door, then lift the bottom of the handle. Pull the handle away from the unit and rotate it 90 degrees counterclockwise to open door.

Inspect the interior of the unit for any damage done in shipping. If any damage is noted, file a claim with the shipper and inform your Liebert supplier.

Unloading a Foundation MCR (HD/RD)

1. Using a pallet jack, move the Foundation MCR near the desired location. Cut the shipping bands with a utility knife and remove all cardboard and plastic.
2. Remove the two 2x4's from the sides of the unit. Remove the 2x6 from the rear of the unit.
3. Using a ratchet or wrench, remove the four lag bolts from the front of the skid.
4. Remove the 2x6 from the front of the unit.
5. Slide the 4x4 runner from under the front of the skid.
6. Move the unit forward until the skid and the unit tilt.
7. Roll the unit off front of the skid.

Connections / Configuration

Internal Mounting Rails

The Foundation can accommodate rack-mounted or free-standing computer and network equipment. Depending on the model, the unit features either 19-inch or 23-inch rack rails. These internal mounting rails will be either center mount rails or front and rear mount rails. Both types are adjustable for equipment of different sizes.

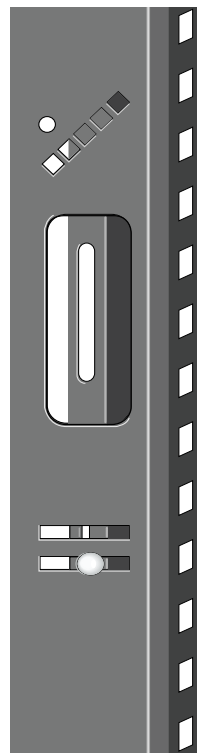
Mounting hardware compatible with front and rear mount rails includes a fixed shelf, fixed rails, a pull-out shelf, 19-inch to 23-inch rack rail adapters, and keyboard trays. Each optional kit is supplied with installation hardware.

Front and Rear Mount Rails—Position

Front and rear mount rails are secured to the Foundation by carriage bolts that pass through 3-inch-long horizontal slots in the frame. These slots permit you to change the distance between the rails as your application requires.

To position the rails:

- Determine the proper location of the rails.
- Loosen the bolts securing a rail to the frame.
- Move the rail to the desired position, using the angled row of diamond-shaped holes (at right) to get the rail square. Rail is proper aligned when rail edge is aligned through center of the diamond. (Each diamond represents a half-inch change.)
- Tighten the bolts securing the rails to the frame.
- Repeat for each of the three remaining rails.
- Install your rack-mounted equipment or the shelves to hold your free-standing equipment, making sure that your equipment and the UPS are switched off.
- Leave available space (if any) at the top of the enclosure.



Detail of Rack Rail

Center Mount Rails—Position

Bolts holding the four center mount rails pass through slots running almost the entire length of the mounting assemblies. This makes the rails more easily adjustable.

To reposition center mount rails:

- Make sure that your equipment and the UPS are switched off.
- Determine the proper location of the rails.
- Loosen the nuts holding the rails to the mounting assemblies (four bolts hold each rail).
- Slide the rails to the proper position and retighten the bolts.
- Install your rack-mounted equipment.
- Leave available space (if any) at the top of the enclosure.

Mounting Hardware

Optional shelves, both fixed and pullout, are available to accommodate your free-standing equipment for front and rear mount rails. Both types are bolted to the rails.

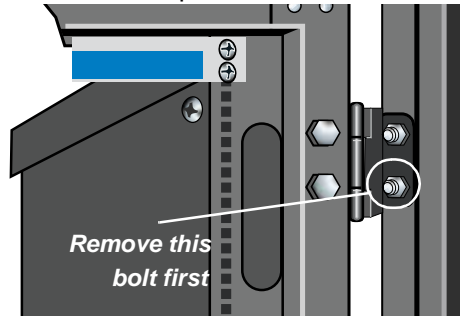
For installation, refer to the instructions included with the shelving and mounting hardware.

Door—Remove and Reverse

The doors available for the Foundation are removable for convenience when installing equipment. They also are reversible, enabling you to have the door open in a more convenient direction if it is near a wall or other equipment.

Remove the Door

- Remove the bolts securing the lower half of each two-piece hinge to the door.
- Remove the lower half of each hinge.
- Lifting the door straight up until the pins clear the hinges.
- Set the door in a safe place.



Reverse the Door

- After removing the door, take out the remaining bolts and screws to remove the top half of each hinge.
- Use a Phillips screwdriver to remove the four latches (two on the 44-inch unit).
- Attach the latches on the opposite side.
- Attach the top half of the hinges on the side where the latches had been.
- Rotate the door 180 degrees from its original position.
- Hang the door by inserting its pins into the hinges.
- Reattach the bottom half of the hinges.
- Reseal any holes that remain from previous installation.

Reverse the Door Handle

After the door has been reversed, the door handle of your Foundation will operate without adjustment, but it will be upside down. Should you wish to reverse the handle, follow these steps:

- Open the door and remove all the bolts holding the door handle and lock assembly, including the four brackets (two on the 44-inch unit). Studs and nuts secure the brackets to the door frame.
- Flip the door handle and lock assembly 180 degrees and reattach it with the bolts and nuts.
- Check the handle and lock to ensure they operate properly.

Side Panels—Remove and Replace

Foundation side panels are simple to remove and replace, making it easier to install equipment. Panel removal also improves access for maintaining or replacing equipment.

Remove a Panel

- Inside the Foundation, locate the two security bolts in each side panel. (The security bolts are about halfway up the side of the panels one is near the front edge of the panel and the other near the rear.)
- Remove the bolts with a wrench that fits an M10 bolt head.
- Locate the four panel retainers on the outside of the Foundation panel. There is one retainer in each corner of the panel.
- Using the factory-supplied T-handle Allen wrench, turn the panel retainers 90 degrees counterclockwise.
- Lift the panel off the lip at the bottom of the Foundation and set it in a safe location.

Replace a Panel

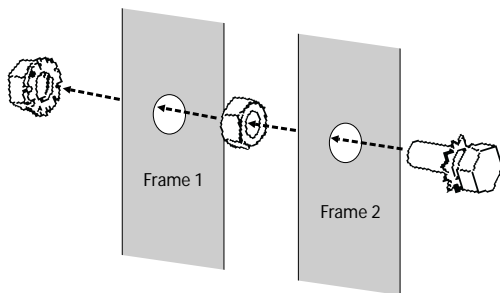
- Set the panel on the lip at the bottom of the Foundation frame.
- Using the factory-supplied T-handle Allen wrench, turn each of the four panel retainers 90 degrees clockwise.
- For additional security, insert and tighten the two security bolts inside the Foundation, using a wrench that fits an M10 bolt head.

Cluster Configuration

Two or more Foundation units can be connected into a cluster, enabling you to keep several pieces of equipment together.

To connect two units:

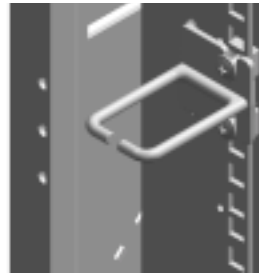
1. Remove the side panels and panel mounting brackets, if any, from the sides of the units that will be bolted together (see Remove a Panel).
2. Find the holes for the four bolts that will connect the units. These holes are at the corners of the Foundation, near the panel retainers.
3. Place a star washer on each of the four bolts and insert the bolts into the bolt holes.
4. Put a jam nut on each bolt and tighten them.
5. Slide the Foundation units together with the bolts inserted into the connection holes.
6. Put a Keps nut on each bolt and tighten securely.



Cable Management

Once your equipment has been installed, you are ready to connect cables for power and communication. Before making any connections, check the equipment to ensure that all power switches are in the OFF position.

Numerous cable entrances are built into the various Foundation configurations, both sealed and non-sealed, to ease cable installation.



Cable ring mounted on rail

Optional Vertical or Horizontal Cable Rings, are available for routing cables. These help not only to keep your cables organized but also to separate your power and communications cables, reducing electromagnetic interference.

Vertical and Horizontal Cable rings screw onto the rails. Cables are slipped through them, then pulled to the equipment for attachment.

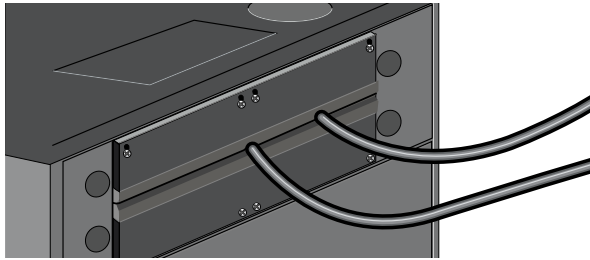
NOTE: When installing cables, leave enough slack for the unit to be rolled forward or sideways for access to components.

NOTE: Do not block or restrict cooling system (FAN, ECM or BCM - if provided) discharge or return airflow.

Also, do not defeat the ground/earth connections between the utility/mains outlet and the Foundation.

Cable Access—Sealed Units Top Cover and Back of Unit

The back of the sealed unit has a Sealed Entrance Cable Raceway (a slot with foam gaskets) near the top for cables. To use it, loosen the top half of the two-piece cover, pull your cables through the opening and replace the cover, making sure the gasket seal around the cables.



Optional Sealed Entrance Cable Bundles (cone-shaped seals and clamps) permit use of the round openings on top of the sealed Foundation for cable entry.

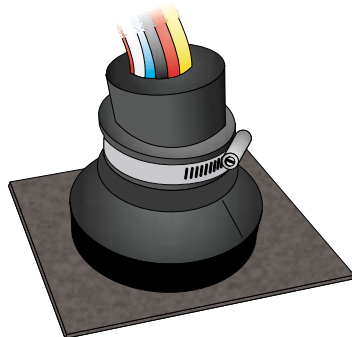
To bring cable through these holes:

- Replace the plug with a Sealed Entrance Cable Bundle.
- Pull the cable through the Bundle.
- It can be trimmed to accommodate up to three inches of cable.
- Use the clamp to secure the Bundle around the cables.

The bottom rear has a rectangular slot and four round 1" holes—two on either side—that can be used for cable entry. On some units, an optional Sealed Entrance Cable Raceway can be installed for the bottom rear. (Units with an Environmental Control Module use the rectangular opening to exhaust hot air.)

Base of Unit

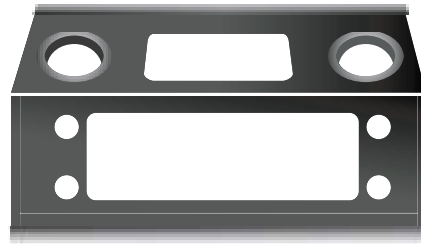
Sealed Foundations can be cabled from underneath through round 2" access holes lining both sides of the base. To install cable through these holes in a sealed Foundation, obtain Sealed Entrance Cable Bundles, similar to the one used for cabling through the top, from your Liebert representative.



**Sealed Entrance
Cable Bundle**

Cable Access—Non-Sealed Units Top Cover and Back of Unit

Non-sealed Foundation models have cable openings at the rear of the top cover and above the rear door (see illustration below). Use either of the two rectangular holes for mounting a fan or fans and the other for cabling the unit. Two round 4" holes on the top of the Foundation and four round 1" holes on either side of the rectangular slot in the rear of the Foundation allow cable entry.



Rear Top Cover of Non-Sealed Foundation

The bottom rear of the Foundation has a rectangular slot and four round holes—two on either side—that can be used for cable entry.

Base of Unit

Your non-sealed Foundation can be cabled from underneath through round 2" access holes lining both sides of the base. On units without an ECM, Backup Cooling Module or FAN, rectangular slots in the front and back also are available for cabling.

Cooling Modules

Environmental Control Module (ECM)

Your ECM air conditioner, if your Foundation is so equipped, should be powered from a dedicated electrical circuit. DO NOT plug the ECM into the optional UPS. All 60 Hz ECMs are equipped with NEMA 5-15 plugs. All 50 Hz ECMs are equipped with IEC 320M plugs. Each cord is 9 feet long.

No adjustments are required to your ECM - all parameters are factory set. The ECM will begin running as soon as power is supplied.

No plumbing connections are required because ECM condensate is evaporated into the heat rejection airstream. A condensate drain tube (3/8 inch O.D. copper) is provided with the ECM, but a customer connection is not necessary. The drain connection might be needed in exceptional situations, such as if a door is left open for an extended period while the ECM is operating, or in extremely humid environments.



CAUTION: To avoid excessive condensation, turn off the ECM any time a Foundation door is open for longer than 15 minutes.

Backup Cooling Module (BCM)

The BCM is an optional, self-contained backup cooling system. When it senses high temperature inside the Foundation via the High Temperature Alarm Module, the BCM draws filtered outside air into the unit and exhausts hot air through the back door, on which the BCM is mounted. It can be plugged into the optional UPS or a dedicated circuit. If the Foundation is supplied with a UPS and BCM, the BCM is plugged into the UPS. It is supplied with a 6 foot cord.

A BCM Energy Saver Control is an add-on device that can cut energy costs by shutting down the ECM when conditions are appropriate and using the BCM as the primary enclosure cooler.

Heat Rejection Fan

The ECM Heat Rejection Fan assists in the removal of rejected ECM heat from alcoves or confined spaces without otherwise adequate ventilation. The optional package includes a combination blower with inlet air louver plate. The package provides provisions for ceiling grid installations, and the optional connection of customer supplied 8"/20.4cm duct as may be required.

FAN Cooling

The FAN is factory installed on the top rear of the cabinet and can be field relocated to the rear top access plate. The FAN and plates can be relocated to fit all holes. All 60 Hz FAN units are supplied with NEMA5-15 plugs. All cords are 15 feet long.

Power Supply

Uninterruptible Power Supply (UPS)

If your Foundation is equipped with an Uninterruptible Power Supply, it will require connection to a dedicated electrical circuit.



Review the UPS's user manual before connecting utility power to the unit.

Startup

Before plugging in your electronic equipment, make sure that all power switches are in the OFF position.

Be certain there are no obstructions, such as wires, conduit or trash, in front of or on either side of the ECM, if your unit is so equipped. Make sure all doors are shut and sealed properly. Plug in the Environmental Control Module (ECM) into a dedicated utility circuit.

- The ECM will begin running as soon as power is supplied and will continue running unless cycled off by a thermostat or Backup Cooling Module Energy Saver Control device.

The compressor in the ECM is controlled by a thermostat located in the rear left corner of the ECM. This thermostat is factory set and does not require adjustment. If the setting is changed, contact Liebert Technical Support for assistance.

The compressor in the Environmental Control Module will shut down if the ECM return air temperature goes below 75 F (18C). The evaporator air will continue to circulate. The compressor will resume operating when the Foundation ECM return air is above 75 F (18C).

- Refer to the UPS manual for preparation for startup, details of UPS operation and the meaning of LED indicators. After you have complied with the manual's instructions, turn on the UPS. Check the UPS' indicators. If the UPS's status is normal, proceed with the next step.
- Turn on your computer and network equipment. The UPS will immediately supply conditioned, regulated power. Battery backup will be available once the batteries are fully charged.

NOTE: The UPS's batteries will need charging before it can fully supply your equipment's power needs for the rated time if utility power fails.

To charge the UPS batteries before using the unit, you can apply power to the UPS module while you are installing your equipment or while making adjustments.



CAUTION: To avoid excessive condensation, turn off the Environmental Control Module whenever a Foundation door will be open for more than 15 minutes.

OPERATIONS
Environmental
UPS / SiteNet Integrator

Environmental

ECM (Environmental Control Module)

For sealed HD/RD models, the Environmental Control Module (ECM) is normally sized to match the capacity of the UPS module and heat transmitted into the Foundation. The module is located at the bottom of the enclosure or field-installed on top of the Foundation.

Outside (ambient) air is used to remove heat from the enclosure through the air-cooled condenser. The outside air is drawn through the louver at the bottom front of the unit and discharged at the rear (near the bottom).

The compressor in the Environmental Control Module will shut down if the ECM return air temperature goes below 75°F (18°C), but air will continue to circulate. The compressor will resume operating when the Foundation ECM return air is above 75°F (18°C).

The hot gas bypass valve is factory-set so the compressor will operate nearly continuously for maximum compressor life. This valve modulates automatically to match compressor capacity to the load. Consult Liebert Technical Support if factory adjustment is desired.

BCM (Backup Cooling Module)

If your Foundation MCR is equipped with the Backup Cooling Module (BCM) option, the BCM will automatically start if the High Temperature Alarm Module detects an internal cabinet temperature of 100° F. The BCM will draw filtered exterior air into the Foundation MCR cabinet for use as supplemental cooling. An audible alarm will sound until the cabinet temperature decreases below 100° F or is silenced by depressing the Alarm Silence switch on the High Temperature Alarm Module. The ECM will continue to operate during a high temperature condition. Backup Cooling requires the High Temperature Alarm Module option. A separate Control Cable connects the BCM to the High Temperature Alarm Module. The BCM is normally powered through a 6-foot cord with NEMA 5-15 plug connected to the factory-installed UPS, but could also be powered from a source outside the cabinet.

BCM Energy Saver

The Backup Cooling Energy Saver (ES) is a factory-installed option that is useful in applications involving low exterior cabinet ambient temperatures and humidity. An enthalpy controller is used to detect the exterior cabinet ambient conditions. If the exterior ambient conditions are suitable, the Energy Saver operation will disable the ECM and enable the Back-Up Cooling system to draw filtered exterior air into the Foundation MCR cabinet for use as cooling. The High Temperature Alarm Module monitors the interior cabinet temperature and if the interior temperature is less than 90°F and the exterior conditions suitable, turns on the Backup Cooling ES and disables the ECM. If the cabinet temperature increases above 90° F, the Backup Cooling ES is disabled for a period of one hour and the ECM is enabled to supply cabinet cooling. The one-hour time-out prevents cycling of the ES option.

Heat Rejection Fan

Your Foundation requires external airspace to allow for dissipation of the heat rejected from the inside of the enclosure. The Heat Rejection Fan (HRF) is offered as a field-installed option to assist in the removal of rejected ECM heat from tight spaces or alcoves without adequate ventilation. The package includes a combination blower with inlet air louver plate. The package provides provisions for ceiling grid installation and connection of customer supplied 8" diameter duct (if required). The HRF is hardwired in the field and requires a 120VAC,60Hz, 15A power source or a 230VAC 50Hz, 10A power source.

Fan Cooling

Fan cooling can be provided by a single fan or by dual fans; a total of five fans can be installed in the unit. Outside air is drawn through the opening at the bottom of the front and back of the unit and is discharged at the top of the unit.

An optional filter is behind the intake air openings at the front and rear of the Foundation. It should be checked periodically and cleaned. Remove the nuts securing the filter clips. Take out the filter and wash it in soapy water. Then rinse, dry and replace it. Replace the filter clips and secure to the Foundation.

UPS / SiteNet Integrator

Uninterruptible Power Supply

The Foundation may be supplied with any of several Liebert UPS units, or with no UPS. For integrated/matched models, the UPS and ECM are sized with matched capacities. A larger UPS, with more battery time, can be obtained, but the connected electronics load should not exceed the ECM equipment load rating. Exceeding the ECM rating could cause high temperatures that might damage the equipment housed in the Foundation.

For Foundation models supplied with a UPS, refer to the separate UPS manual for operation and specifications.

SiteNet Integrator®

The SiteNet Integrator is a separate rack-mount unit that communicates the status of the UPS and the Foundation. The option consists of a SiteNet Integrator module that typically is mounted in the top of the Foundation cabinet.

The SiteNet Integrator is powered by one or two externally mounted power supplies. One is standard; the second optional. These power supplies provide the 9 VDC required to power the Integrator module. One supply will be plugged into the UPS or the UPS outlet strip in the rear left side of the cabinet.

The power supply output cable is plugged into the SiteNet Integrator Power Supply Main input receptacle/socket. The second supply (if present) must be on a different circuit. The second supply's output cable is plugged into the SiteNet Integrator Power Supply Auxiliary input receptacle/socket.

An optional UPS/SNI interface cable is available that allows transmission of information between the UPS and the SiteNet Integrator. This cable will plug into the DB-9 connector on the rear of the UPS. The opposite end of the cable is plugged into the 9-pin D-Type receptacle on the rear of the SiteNet Integrator marked UPS RS-232 DB-9P.

When the High Temperature Alarm module is present, contacts are provided to annunciate a High Temperature Alarm condition inside the cabinet. (These contacts are an option on units with an ECM air conditioner.) Customer connection is via .25" quick-connect terminals on the High Temperature Alarm Module in the upper right rear of the cabinet. The contacts are rated for 2 amps, 30 volts (Class 2 wiring).

Sensor Options

All the options above are available factory-installed with the order or for field installation. Field-installed options are shipped as kits containing the sensors with mounting hardware, cable and cable restraint fixtures. Field installation requires hand tools for terminating the control cables and routing the cables.

Door Ajar—This option consists of two normally open switches that are mounted on the cabinet front and rear frame supports. The switches will indicate the position of the doors as opened or closed. This is determined by the status of the dry-contact inputs connected to the SiteNet Integrator.

Temperature and Humidity Sensors (Internal and External)—The sensors allow monitoring of temperature and humidity status by the SiteNet Integrator. The internal option is for installation inside the Foundation cabinet and is supplied with a 38 inch cord for connection between the temperature/humidity sensor and the SiteNet Integrator. The external option is supplied with a 30-foot (9 m) cord for monitoring of temperature humidity status outside the Foundation cabinet. The sensor and connections for both options are identical.

Water Detect—The water detect option includes a Liquitect (LT-410) dry contact sensor mounted in the bottom of the Foundation cabinet. The sensor is powered by a 24 VAC source connected through the High Temperature Alarm module. The transformer for this source is inside the ECM or BCM (an optional 120V transformer is available when no ECM is present).

The water detector is connected to the dry-contact input on the rear of the SiteNet Integrator by a 9-foot cable. The detector may be relocated outside the Foundation cabinet, at the user's discretion, for external water detection.

Smoke Detector Option—A four-wire smoke detector with normally open contacts, heat sensor and sounder alarm is mounted in the top of the Foundation cabinet. If smoke is detected, the normally open contacts of the smoke detector will close to provide alarm status to the Integrator. The smoke detector sounder alarm will also activate. This alarm can be silenced only by shutting off power to the smoke detector.

High Temperature Alarm Option - The High Temperature Alarm is a factory installed sensor / controller module to annunciate high temperatures in the Foundation. When temperatures in the Foundation reach 100°F (38°C), an audible alarm and the BCM (if present) are activated. The High Temperature Alarm is powered by the ECM, if the ECM is not available, a Power Supply option must be selected.

OPTIONAL EQUIPMENT

**Options
Environmental
Monitoring Options**

Options

Enclosure Systems

Internal Mounting Rails

- Front /Rear Rails
- Center Mount Rails

Door/Panel Options

- Plexiglas doors
- Perforated doors
- Sheet metal doors
- Side Panels

General Enclosure Options

- Casters
- External Keyboard Trays
- Sealed Entrance Cable Raceway
- Sealed Entrance Cable Bundle
- Internal Light
- Cable Rings: Vertical & Horizontal
- Enclosure Cluster Kit
- Stabilizing Plate
- Lifting Lugs

Power

The Foundation is available with any of the following UPS models:

On-Line UPS Systems

- GXT1000, 1500, 2000 and 3000

Line Interactive Systems

- PS700, 1000, 1400 and 2200

Both types of the rack-mount UPSs above are available in either 120V or 230V versions.

Power Strips

- 6 outlet / 15 amp-120 VAC
- 10 outlet / 15 Amp-120 VAC
- 10 outlet / 20 Amp-120 VAC
- 10 outlet /10 Amp- 230 VAC

Environmental

Proper temperature levels are maintained by configuring your Foundation with the options below.

ECM Cooling Systems and Options

- ECM1000L: for 1000 VA or less UPS load, rack- or top-mount (field-installed), low noise
- ECM2000L: for 2000 VA or less UPS load, rack- or top-mount (field-installed), low noise
- ECM Heat Rejection Fan
- ECM Extension Duct (for multi-enclosure applications)

BCM Cooling Systems and Options

- BCM1000: for 1000 VA or less UPS load, rear door mount, low noise
- BCM2000: for 2000 VA or less UPS load, rear door mount, low noise

FAN Cooling Systems & Options

- FAN1000: single axial fan, low noise & high ambient
- FAN2000: dual axial fans, low noise & high ambient
- FAN Filter

Monitoring Options

- SiteNet Integrator
- Load Control Module
- SNI-GXT / PSRS232 Interface Cable
- Internal Temp / Humidity Option - SNI Interface
- External Temp / Humidity Option - SNI Interface
- Door Ajar Sensor Option
- High Temp Alarm
- Water Detected Option
- Power Supply (60Hz Only)
- Smoke Detected Option

Mounting Options

- Fixed shelves, vented, 200 pound capacity
- Pullout shelves, vented, 130 pound capacity
- Fixed Rails, 150 pound capacity
- External Keyboard Tray
- Internal Keyboard Tray (19" Rack Keyboard) - HD/K Mounting Frames 19"
- Internal Keyboard Tray (Std Keyboard) - RD/K Mounting Frames 23"
- Mounting Clipnuts and Screws 10-32 or M6 Thread (10 sets)
- 23" - 19" Rack Rail Adapters—1U, 2U, 3U, 4U, 5U and 10U

MAINTENANCE
Troubleshooting

Troubleshooting

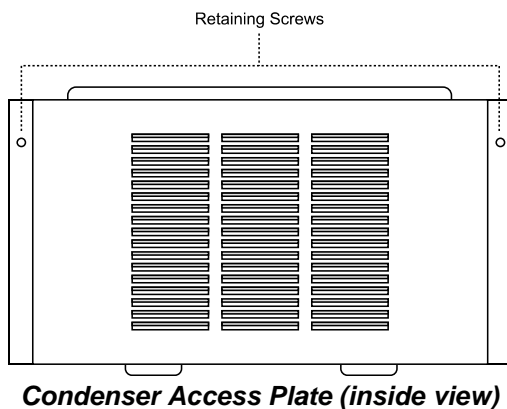
Problem	Cause	Solution
ECM not cooling	No Power	Confirm unit is plugged in.
	Refrigerant loss	Verify leak. If refrigerant system needs repaired, contact Liebert Technical Support.
	Hot Gas bypass valve set incorrectly	Contact Liebert Technical Support.
	Clogged condenser coil	Clean coil.
Fans blowing warm air	Compressor trips on thermal over-load	Open Foundation doors and let compressor cool. Plug ECM in and verify compressor is energized. Verify cold air is being discharged from the evaporator discharge.
	Faulty Compressor	Verify compressor failure. Contact Liebert Technical Support.
Condensate draining continuously	Excessive opening of doors	Reduce amount of opening. Get optional external keyboard tray. Unplug ECM when opening doors for extended period.
	Enclosure not properly sealed	Verify leak and fix or replace gasket.
Water Leaking from cabinet	Evaporator drain kinked or clogged	Remove ECM and verify plastic tubing is attached to drain. Contact Liebert Technical Support.
Excessive vibration or noise	Defective motor in blower	Contact Liebert Technical Support.
Cabinet is excessively hot	ECM is overloaded	Verify the correct UPS and load. If no UPS, verify load of equipment does not exceed the ECM rating.
	Heat not rejected from room	Verify that Foundation is located in room with air circulation and heat rejected from ECM is sufficiently removed.
	ECM not cooling	
	BCM operation	Contact Liebert Technical Support
	Cabinet not sealed	Seal any openings in cabinet

Periodic Maintenance

Mini Computer Room

The Foundation MCR requires very little maintenance. The condenser coil fins should be inspected periodically to determine the necessary cleaning interval based on conditions at the installation site. Depending on site conditions the coil fins may require cleaning as often as twice a month or as seldom as twice per year. The condenser is located at the bottom front of the Foundation MCR enclosure.

If the fins become dirty and clogged, they should be gently vacuumed with a soft bristle brush or cleaned with compressed air. To access the condenser fins open the front door of the Foundation MCR and remove the two retaining screws from the top of the front access plate. The plate will swing open freely once the screws are removed. After cleaning, swing the access plate back into position and replace the two screws.



Cleaning the Optional FAN Air Filter

The optional FAN air filter, behind the intake air openings at the front and rear of the Foundation, should be inspected periodically to determine the necessary cleaning interval, based on conditions at your installation. If the air filter becomes dirty and clogged, it will require cleaning.

To do so:

- Remove the nuts securing the filter clips.
- Take out the filter and wash it in soapy water. Rinse, dry and replace it.
- Replace the filter clips and secure to the Foundation.

SPECIFICATIONS

UPS Performance Data

Foundation Model Numbers

Cooling Systems

FAN Performance Data

ECM Performance Data

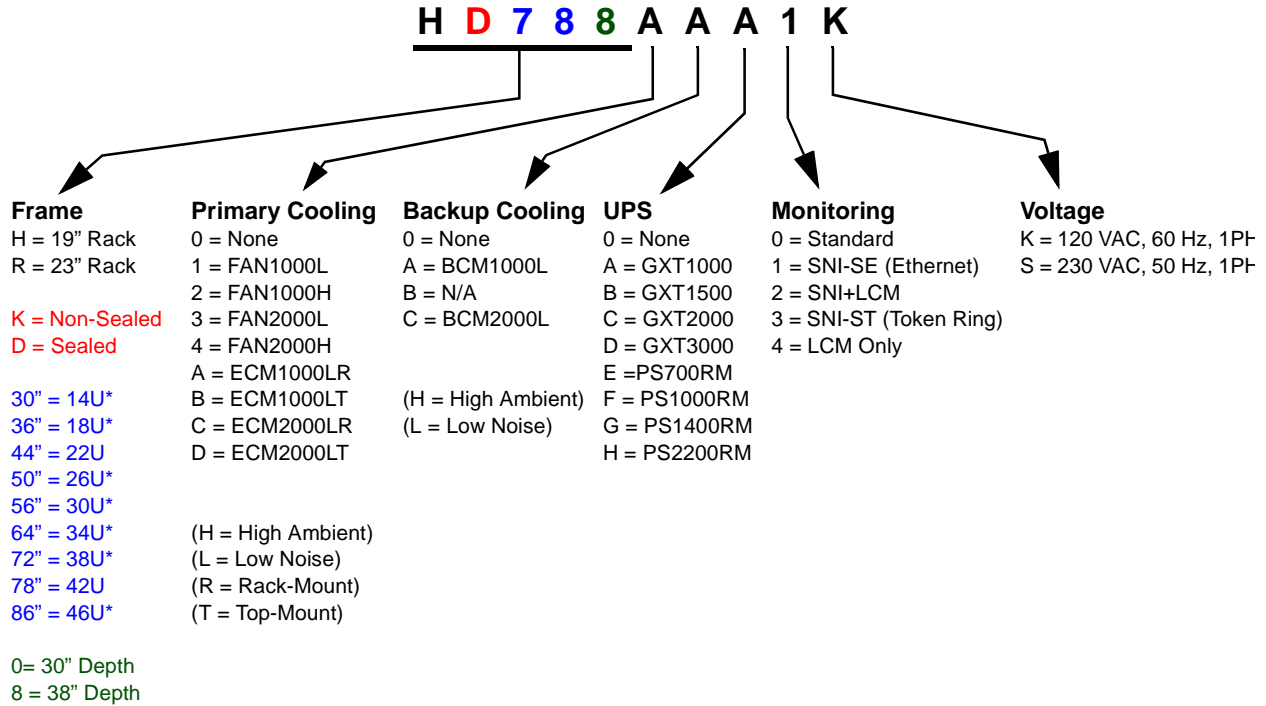
BCM Performance Data

Power Systems

UPS Performance Data

Model Numbers, Dimensions

Foundation Model Numbers



* Custom Sizes - contact a Liebert Representative for more details

Enclosure Dimensions

Model	Overall Cabinet Dimensions			Rack Width		Adjustable Rack Depth		Internal Rack Height	
	Height*	Width**	Depth***	EIA	A	B****		Rack U	In. (mm)
= D or K	In. (mm)			In. (mm)	In. (mm)	Max In. (mm)	Min In. (mm)		
H_440	42 (1067)	23.5 (597)	29.5 (750)	19 (483)	17.8 (450)	22.5 (571.5)	18.5 (470)	22	38.5 (978)
H_448	42 (1067)	23.5 (597)	37.5 (953)	19 (483)	17.8 (450)	30.5 (775)	26.5 (673)	22	38.5 (978)
R_440	42 (1067)	27.5 (699)	29.5 (750)	23 (584)	22.8 (580)	22.5 (571.5)	18.5 (470)	22	38.5 (978)
R_448	42 (1067)	27.5 (699)	37.5 (953)	23 (584)	22.8 (580)	30.5 (775)	26.5 (673)	22	38.5 (978)
H_780	77 (1956)	23.5 (597)	29.5 (750)	19 (483)	17.8 (450)	22.5 (571.5)	18.5 (470)	42	73.5 (1867)
H_788	77 (1956)	23.5 (597)	37.5 (953)	19 (483)	17.8 (450)	30.5 (775)	26.5 (673)	42	73.5 (1867)
R_780	77 (1956)	27.5 (699)	29.5 (750)	23 (584)	22.8 (580)	22.5 (571.5)	18.5 (470)	42	73.5 (1867)
R_788	77 (1956)	27.5 (699)	37.5 (953)	23 (584)	22.8 (580)	30.5 (775)	26.5 (673)	42	73.5 (1867)

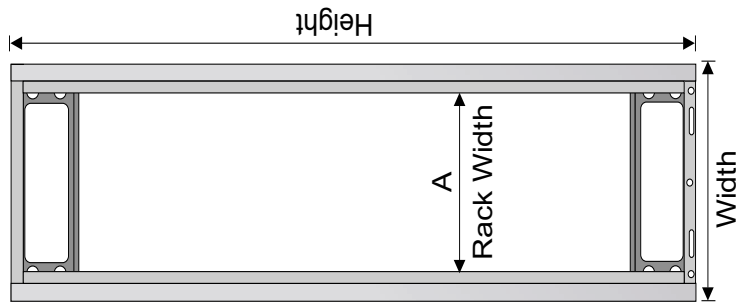
* Casters add 1.5" to overall height of frame.

** Side panels add 0.75" each to overall width of frame. Multiple frame/enclosure clustered systems add .188" (3/16") clearance width between frames.

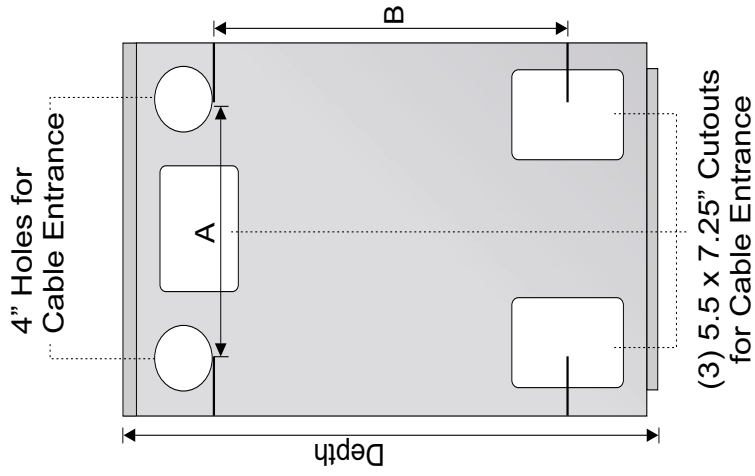
*** Front Doors add 0.25" each to overall depth and rear door adds no depth; BCM option adds an additional 3.00" to overall depth of frame.

**** Dimensions are for Front/Rear Rail options. Rails can be inverted to provide an additional 4.00" of adjustment (2" per rail set). Center Mount Rail option adjustment depth : 30" Depth Frame =22" and 38" Depth Frame = 30".

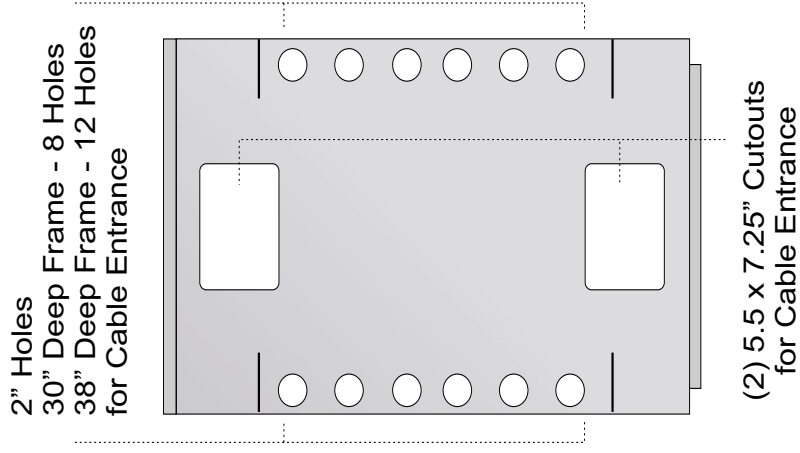
Foundation Enclosure Dimensions



Front View



Top View



Bottom View

Cooling Systems

FAN Performance Data

Model Number	Fans	Airflow	Sound	Input Power (1 ph)			
		CFM	dBA	Volts	Hertz	FLA	Plug
FAN1000L-60	1	114	47	120	60	0.2	NEMA 5-15P
FAN2000L-60	2	228	49	120	60	0.4	NEMA 5-15P
FAN1000L-50	1	94	45	230	50	0.1	IEC320M
FAN2000L-50	2	188	47	230	50	0.2	IEC320M
FAN1000H-60	1	235	59	120	60	0.3	NEMA 5-15P
FAN2000H-60	2	470	61	120	60	0.6	NEMA 5-15P
FAN1000H-50	1	200	57	230	50	0.1	IEC320M
FAN2000H-50	2	400	59	230	50	0.2	IEC320M

ECM Performance Data

Model Number	Rated Capacity	Supported Load	Max. Ambient	Height**	Width	Depth	Weight	Total Heat Rej.	Input Power (1 ph)				Sound
	BTUH (Watts)	BTUH (Watts)	°F (°C)	In (mm) - U	In (mm)	In (mm)	Lbs (kg)	BTUH (Watts)	Volts	Hertz	FLA	Plug	dBA (1.5 m)
ECM1000L*-C60	5315 (1557)	2811 (824)	105 (41)	12.25 (311) - 7	17.43 (443)	29 (737)	98 (44.5)	7146 (2094)	120	60	7.3	NEMA 5-15	52
ECM1000L*-C50	5306 (1555)	2811 (824)	100 (38)	12.25 (311) - 7	17.43 (443)	29 (737)	98 (44.5)	7698 (2255)	230	50	3.5	IEC320M	52
ECM2000L*-C60	6897 (2021)	5621 (1647)	105 (41)	12.25 (311) - 7	17.43 (443)	29 (737)	101 (45.8)	10935 (3204)	120	60	9.8	NEMA 5-15	52
ECM2000L*-C50	6708 (1965)	5621 (1647)	100 (38)	12.25 (311) - 7	17.43 (443)	29 (737)	101 (45.8)	10375 (3040)	230	50	4.8	IEC320M	52

* T (top mount) and R (rack mount). Top mount weight does not include interface plenum.

** Add 4.25" to Top Mount ECM units for interface plenum height.

Sound data based on sound pressure A- weighted scale for free field spherical radiation at 1.5 meters from cabinet. Sound data reflects only rack mount design. Consult factory for top mount data.

BCM Performance Data

Model Number	Rated Capacity	Supported Load	Max. Ambient	Height	Width	Depth	Total Heat Rej.	Input Power (1 ph)				Sound
	BTUH (Watts)	Btuh (Watts)	°F (°C)	In (Mm)	In (Mm)	In (Mm)	Btuh (Watts)	Volts	Hertz	FLA	Plug	dBA (1.5 m)
BCM 1000L-60	N/A	2811 (824)	105 (41)	35.0 (889)	15.5 (393.7)	3.75 (95.2)	3038 (890)	120	60	1.0	NEMA 5-15	57
BCM 2000L-60	N/A	2811 (824)	105 (41)	35.0 (889)	15.5 (393.7)	3.75 (95.2)	3038 (890)	120	60	2.0	NEMA 5-15	59
BCM 1000L-50	N/A	5621 (1647)	105 (41)	35.0 (889)	15.5 (393.7)	3.75 (95.2)	5918 (1734)	230	50	0.5	IEC320M	55
BCM 2000L-50	N/A	5621 (1647)	105 (41)	35.0 (889)	15.5 (393.7)	3.75 (95.2)	5918 (1734)	230	50	1.0	IEC320M	57

Above BCM weight includes rear door weight of 17 Lbs.

Sound data based on sound pressure A- weighted scale for free field spherical radiation at 1.5 meters from cabinet.

Power Systems

UPS Performance Data

Model Number	VA / Watts	Height In (mm) U	Input Power (1 ph)			
			Volts	WSA	OPD	Plug
GXT1000RT-120B	1000 / 700	7 (178) 4	120	15	15	NEMA 5-15P
GXT1500RT-120B	1500 / 1050	7 (178) 4	120	15	15	NEMA 5-15P
GXT2000RT-120B	2000 / 1400	7 (178) 4	120	20	20	NEMA 5-20P
GXT3000RT-120B	3000 / 2100	7 (178) 4	120	30	30	NEMA L5-30P
GXT1000RT-230B	1000 / 700	7 (178) 4	230	10	10	IEC320M-10A
GXT1500RT-230B	1500 / 1050	7 (178) 4	230	10	10	IEC320M-10A
GXT2000RT-230B	2000 / 1400	7 (178) 4	230	10	10	IEC320M-10A
GXT3000RT-230B	3000 / 2100	7 (178) 4	230	16	16	IEC320M-16A
PS700RM-120	700 / 450	5.25 (133) 3	120	15	15	NEMA 5-15P
PS1000RM-120	1000 / 670	5.25 (133) 3	120	15	15	NEMA 5-15P
PS1400RM-120	1400 / 950	5.25 (133) 3	120	15	15	NEMA 5-15P
PS2200RM-120	2200 / 1600	7 (178) 4	120	30	30	NEMA L5-30P
PS700RM-230	700 / 450	5.25 (133) 3	230	10	10	IEC320M-10A
PS1000RM-230	1000 / 670	5.25 (133) 3	230	10	10	IEC320M-10A
PS1400RM-230	1400 / 950	5.25 (133) 3	230	10	10	IEC320M-10A
PS2200RM-230	2200 / 1600	7 (178) 4	230	16	16	IEC320M-16A

Warranty

Limited Warranty For Foundation Products

This Warranty is given ONLY to purchasers who buy for commercial or industrial use in the ordinary course of each purchaser's business.

GENERAL:

Liebert Corporation products and systems are in our opinion the finest available. We take pride in our products and are pleased that you have chosen them. Under certain circumstances we offer with our products the following Two Year Warranty Against Defects in Material and Workmanship.

Please read your Warranty carefully. This Warranty sets forth our responsibilities in the unlikely event of defect and tells you how to obtain performance under this Warranty.

TWO YEAR LIMITED WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP

LIEBERT PRODUCTS COVERED:

Foundation®

TERMS OF WARRANTY:

As provided herein, the Liebert product is warranted to be free from defects in material and workmanship for a period of two (2) years from the shipment date provided the product has been stored in a suitable environment prior to start-up. The Liebert product is warranted to be free of defects in material and workmanship for a period of twenty-four (24) months from date of product shipment by Liebert. The shipment date will be determined only from the Liebert bill of lading. If any part or portion of the Liebert product fails to conform to the Warranty within the Warranty period, Liebert, at its option, will furnish new or factory remanufactured components for repair or replacement of that portion or part or Liebert may furnish User with a replacement product. Liebert will not assume any labor or shipping charges associated with repair or replacement of the Liebert product or part thereof.

Warranty Extends to First Purchaser for Use, Non-transferable:

This Warranty is extended to the first person, firm, association or corporation for whom the Liebert product specified herein is originally installed for use in the United States (the "User"). This Warranty is not transferable or assignable without the prior written permission of Liebert.

Assignment of Warranties:

Liebert assigns to User any warranties which are made by the manufacturers and suppliers of components of the Liebert product and which are assignable, but Liebert makes NO REPRESENTATIONS as to the effectiveness or extent of such warranties, assumes NO RESPONSIBILITY for any matters which may be warranted by such manufacturers or suppliers and extends no coverage under this Warranty to such components.

Drawings, Descriptions:

Liebert warrants for the period and on the terms of the Warranty set forth herein that the product will conform to the descriptions contained in the certified drawings, if any, applicable thereto, and to Liebert's final invoices, orders, proposals (as modified) and other descriptive documents ("Descriptions"). Liebert does not control the use of any Liebert product. Accordingly, it is understood that the Descriptions are NOT WARRANTIES OF PERFORMANCE and NOT WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE.

Warranty Claims Procedure:

Within a reasonable time, but in no case to exceed thirty (30) days, after User's discovery of a defect, User shall contact the local Liebert sales representative from whom the product was purchased. User may contact Liebert at 1-800-222-5877 for local Liebert sales representative information. Subject to the limitations specified herein, Liebert will repair or replace, at its option, without charge for Liebert labor or materials, subsequent to its inspection and F.O.B. Liebert's facility, the product shipped to Liebert with a return authorization number and warranted hereunder which does not conform to this Warranty. Replacement products shipped to User prior to User's shipment of the claimed defective product to Liebert under Liebert's unit exchange option program shall be invoiced in the full current price amount should User fail to return the claimed defective product to Liebert within thirty days of receipt of the replacement product. Warranty coverage will be extended only after Liebert's inspection discloses the claimed defect and shows no signs of treatment or use, which would void the coverage of this Warranty.

Items Not Covered By Warranty:

THIS WARRANTY DOES NOT COVER DAMAGE OR DEFECT CAUSED BY misuse, improper application, wrong or inadequate electrical current or connection, inadequate water or drain services, negligence, inappropriate on-site operating conditions, corrosive atmosphere, repair by non-Liebert designated personnel, accident in transit, tampering, alterations, exposure to the elements, Acts of God, theft, installation contrary to Liebert's recommendations, or in any event if the Liebert serial number has been altered, defaced, or removed.

THIS WARRANTY DOES NOT COVER shipping costs, installation costs, circuit breaker resetting or maintenance or service items and further, except as may be provided herein, does NOT include labor costs or transportation charges arising from the replacement of the Liebert product or any part thereof or charges to remove the same from any premises of User.

THIS WARRANTY IS VOID if User allows the battery on the Liebert product to discharge below the minimum battery voltage cutoff point. In order to prevent such discharge User should not leave the unit power in the "On" position for more than two (2) days without AC power, being supplied to the Liebert product. Also, In order to guard against this discharge User must recharge the battery every six (6) months when the Liebert product is not in use.

REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT OR PART THEREOF DOES NOT EXTEND THE ORIGINAL WARRANTY PERIOD.

Limitations

THIS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

USER'S SOLE AND EXCLUSIVE REMEDY IS REPAIR OR REPLACEMENT OF THE LIEBERT PRODUCT AS SET FORTH HEREIN.

IF USER'S REMEDY IS DEEMED TO FAIL OF ESSENTIAL PURPOSE BY A COURT OF COMPETENT JURISDICTION, LIEBERT'S RESPONSIBILITY FOR PROPERTY LOSS OR DAMAGE SHALL NOT EXCEED ONE TIMES THE NET PRODUCT PURCHASE PRICE

IN NO EVENT SHALL LIEBERT ASSUME ANY LIABILITY FOR INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER, INCLUDING WITHOUT LIMITATION LOST PROFITS, BUSINESS INTERRUPTION OR LOSS OF DATA, WHETHER ANY CLAIM IS BASED UPON THEORIES OR CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT, OR OTHERWISE.

Miscellaneous:

NO SALESPERSON, EMPLOYEE OR AGENT OF LIEBERT IS AUTHORIZED TO ADD OR VARY THE TERMS OF THIS WARRANTY. Warranty terms may be modified, if at all, only by a writing signed by a Liebert officer.

This Warranty is effective as of the date of receipt of full payment and supersedes all previous warranties. Liebert reserves the right to supplement or change the terms of this Warranty in any subsequent warranty offering to User or others.

In the event that any provision of this Warranty should be or becomes invalid and/or unenforceable during the warranty period, the remaining terms and provisions shall continue in full force and effect.

This Warranty is given in and intended to be construed under the laws of the State of Ohio.

This Warranty represents the entire agreement between Liebert and User with respect to the subject matter herein and supersedes all prior or contemporaneous oral or written communications, representations, understandings or agreements relating to this subject.



Foundation™ Enclosure & Mini Computer Room

Integrated Protection for Network Equipment

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 1.5 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 - 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.

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