

Mechanical Installation Manual

**Power Xpert™ 9395P Field Installed UPM
Mechanical Installation Manual**

**IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS**

This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

**CONSIGNES DE SÉCURITÉ IMPORTANTES
CONSERVER CES INSTRUCTIONS**

Ce manuel comporte des instructions importantes que vous êtes invité à suivre lors de toute procédure d'installation et de maintenance des batteries et de l'onduleur. Veuillez consulter entièrement ces instructions avant de faire fonctionner l'équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.



WARNING

**This is a product for restricted sales distribution to informed partners (EN/IEC 62040-2).
Installation restrictions or additional measures may be needed to prevent electromagnetic disturbances.**

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1 Introduction

The Eaton Power Xpert® 9395P Field Installed UPM (FI-UPM) provides increased capacity or N+1 redundancy for Eaton 9395P UPS systems. Capacity increase depends on the capabilities of the originally installed system. The FI-UPM may be installed at any time when power needs change. The module cabinet installs on the left side of the UPS cabinet and wires directly to the UPS. No input or output wiring changes are needed for a capacity increase if the original installation was wired with increased capacity in mind. Operation remains the same as the original UPS.

The FI-UPM is housed in a single, free-standing cabinet with safety shields behind the front panel for hazardous voltage protection. The cabinet matches the UPS cabinet in style and color. Figure 1-1 shows the Eaton 9395P FI-UPM.



Wiring, startup, and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on page 23 become void. This service is offered as part of the sales contract for the FI-UPM. Contact an Eaton service representative in advance (usually a two-week notice is required) to request service.

1.1 Using This Manual

This manual describes how to mechanically install the Eaton 9395P FI-UPM cabinet. Electrical installation will be performed by an Eaton Customer Service Engineer. Read and understand the procedures described in this manual to ensure trouble-free installation.

1.2 Conventions Used in This Manual

This manual uses these type conventions:

- **Bold type** highlights important concepts in discussions, key terms in procedures, and menu options, or represents a command or option that you type or enter at a prompt.
- *Italic type* highlights notes and new terms where they are defined.
- `Screen type` represents information that appears on the screen or LCD.

Icon	Description
	Information notes call attention to important features or instructions.
[Keys]	Brackets are used when referring to a specific key, such as [Enter] or [Ctrl].

In this manual, the term UPS refers only to the UPS cabinet and its internal elements. The term UPS system refers to the entire power protection system – the UPS cabinet, the battery cabinet, and options or accessories installed.

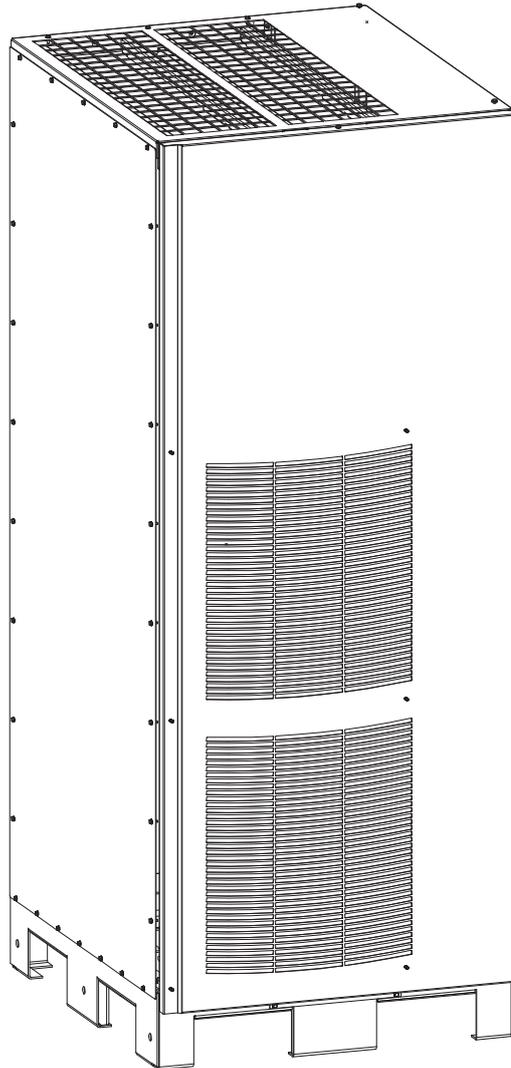


Figure 1-1. Eaton 9395P Field Installed UPM

1.3 Symbols, controls, and indicators

The following are examples of symbols used on the UPS or accessories to alert you to important information:



RISK OF ELECTRIC SHOCK - Observe the warning associated with the risk of electric shock symbol.



CAUTION: REFER TO OPERATOR'S MANUAL - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.



This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. This product involves sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.



This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

1.4 For More Information

Refer to the following manuals for additional information:

- Power Xpert™ 9395 UPS 250 kVA / 300 kVA
- Power Xpert™ 9395 UPS 500 kVA / 600 kVA
- Power Xpert™ 9395 UPS 900 kVA / 1100 kVA

These manuals describe:

- UPS cabinet, optional components, and accessory installation instructions, including site preparation, planning for installation, and wiring and safety information. Detailed illustrations of cabinets and optional accessories with dimensional and connection point drawings are provided.
- UPS operation, including UPS cabinet controls, functions of the UPS, standard features and optional accessories, procedures for starting and stopping the UPS, and information about maintenance and responding to system events.
- Communication capabilities of the UPS system.

Visit www.eaton.com/power quality or contact Eaton service representative for information on how to obtain copies of these manuals.

1.5 Getting Help

If help is needed with any of the following:

- Scheduling initial startup

- Regional locations and telephone numbers
- A question about any of the information in this manual
- A question this manual does not answer

Please call your local service representative.

2 Safety warnings

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during installation of the Field Installed UPM (FI-UPM). Read all instructions before operating the equipment and save this manual for future reference.

The FI-UPM cabinet is designed for industrial or computer room applications, and contains safety shields behind the panel. However, the FI-UPM is a sophisticated power system and should be handled with appropriate care.



DANGER

The FI-UPM contains LETHAL VOLTAGES. All repairs and service should be performed by AUTHORIZED SERVICE PERSONNEL ONLY. There are NO USER SERVICEABLE PARTS inside the FI-UPM.



WARNING

- **The UPS system contains its own energy source (batteries). The output terminals may carry live voltage even when the UPS is disconnected from an AC source.**
 - **To reduce the risk of fire or electric shock, install this UPS and FI-UPM in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C. Do not operate near water or excessive humidity (95% maximum). The system is not intended for outdoor use.**
 - **Ensure all power is disconnected before performing installation or service.**
 - **ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.**
-



CAUTION

- **Keep the FI-UPM front panel installed to ensure proper cooling airflow and to protect personnel from dangerous voltages inside the unit.**
 - **Do not install or operate the UPS system or FI-UPM close to gas or electric heat sources.**
 - **The operating environment should be maintained within the parameters stated in this manual.**
 - **Keep surroundings uncluttered, clean, and free from excess moisture.**
 - **Observe all DANGER, CAUTION, and WARNING notices affixed to the inside and outside of the equipment.**
-

3 Field Installed UPM Installation Plan and Unpacking

Use the following basic sequence of steps to install the Field Installed UPM (FI-UPM):

1. Create an installation plan for the FI-UPM (Chapter 3).
2. Prepare your site for the FI-UPM (Chapter 3).
3. Inspect and unpack the FI-UPM cabinet (Chapter 3).
4. Unload and install the FI-UPM cabinet (Chapter 4).
5. Complete the Installation Checklist (Chapter 4).
6. Have authorized service personnel install wiring, perform preliminary operational checks, and start up the system.



NOTE

Wiring, startup, and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on page 23 become void. This service is offered as part of the sales contract for the FI-UPM. Contact an Eaton service representative in advance (usually a two-week notice is required) to request service.

3.1 Creating an Installation Plan

Before installing the FI-UPM, read and understand how this manual applies to the system being installed. Use the procedures and illustrations in Section 3.2 and Chapter 4 to create a logical plan for installing the system.

3.2 Preparing the Site

For the FI-UPM to operate at peak efficiency, the installation site should meet the environmental parameters outlined in this manual. If the FI-UPM is to be operated at an altitude higher than 1000 m, contact an Eaton service representative for important information about high altitude operation. The operating environment must meet the weight, clearance, and environmental requirements specified.

The FI-UPM installation must meet the following guidelines:

- The system must be installed on a level floor suitable for computer or electronic equipment.
- The system must be installed in a temperature and humidity controlled indoor area free of conductive contaminants.
- The cabinet must be installed in line-up-and-match configuration.

Failure to follow guidelines may void your warranty.

The FI-UPM operating environment must meet the weight requirements shown in Table 3-1 and the size requirements shown in Figure 3-1 through Figure 3-6. Dimensions are in millimeters (inches).

Model	Weight (kg)	
	Shipping	Installed
Eaton 9395P FI-UPM	690	650

Table 3-1: FI-UPM Cabinet Weight

The FI-UPM cabinet uses forced air cooling to regulate internal component temperature. Air inlets are in the front of the cabinet and outlets are in the top. Allow clearance in front of and above each cabinet for proper air circulation. The clearances required around the FI-UPM cabinet are shown in Table 3-2.

From Top of Cabinet	450 mm minimum clearance for ventilation
From Front of Cabinet	900 mm working space
From Back of Cabinet	None Required
From Right Side of Cabinet	None Required
From Left Side of Cabinet	None Required

Table 3-2: FI-UPM Cabinet Clearances

The basic environmental requirements for operation of the FI-UPM are:

- Ambient Temperature Range: 0–40°C
- Recommended Operating Range: 20–25°C
- Maximum Relative Humidity: 95%, noncondensing

The FI-UPM ventilation requirements are shown in Table 3-3.

Rating	Heat Rejection kW	Heat rejection BTU / h x 1000
250 kVA	10.1	34.5
300 kVA	12.5	42.7

Table 3-3: FI-UPM Air Conditioning or Ventilation Requirements During Full Load Operation

Ventilation required for cooling air exhaust: approximately 920 liter/sec/250/300kVA unit, +260 liter/sec (ISBM).

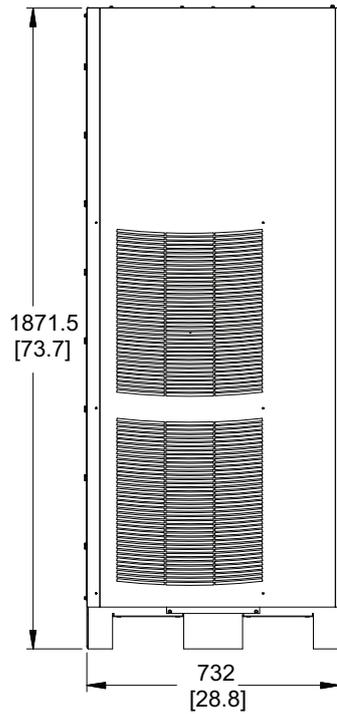


Figure 3-1. FI-UPM Cabinet Dimensions (Front View; dimensions are in millimeters [inches])

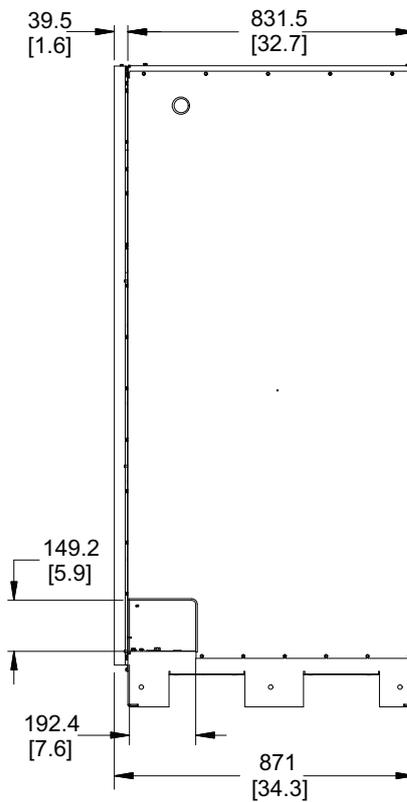


Figure 3-2. FI-UPM Cabinet Dimensions (Right Side View, dimensions are in millimeters [inches])

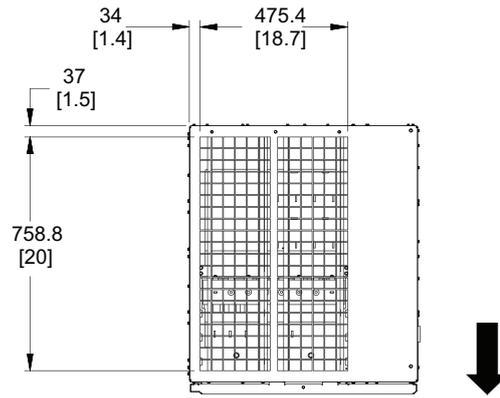


Figure 3-3. FI-UPM Cabinet Dimensions (Top View; dimensions are in millimeters [inches])

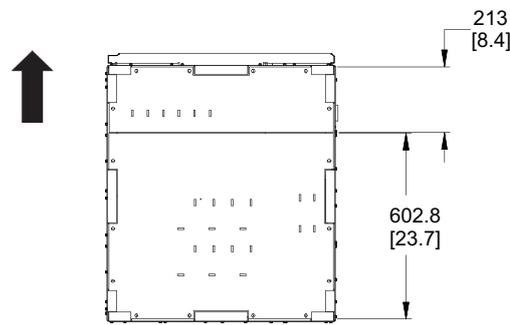


Figure 3-4. FI-UPM Cabinet Dimensions (Bottom View; dimensions are in millimeters [inches])

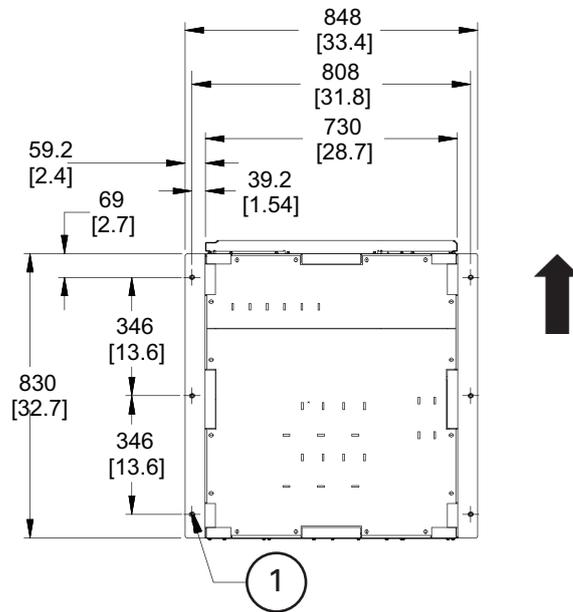


Figure 3-5. FI-UPM Cabinet Dimensions (Bottom View with Mounting Brackets; dimensions are in millimeters [inches])

1	12.7 [0.5] X 15.8 [0.62] Slot (6X)
---	------------------------------------

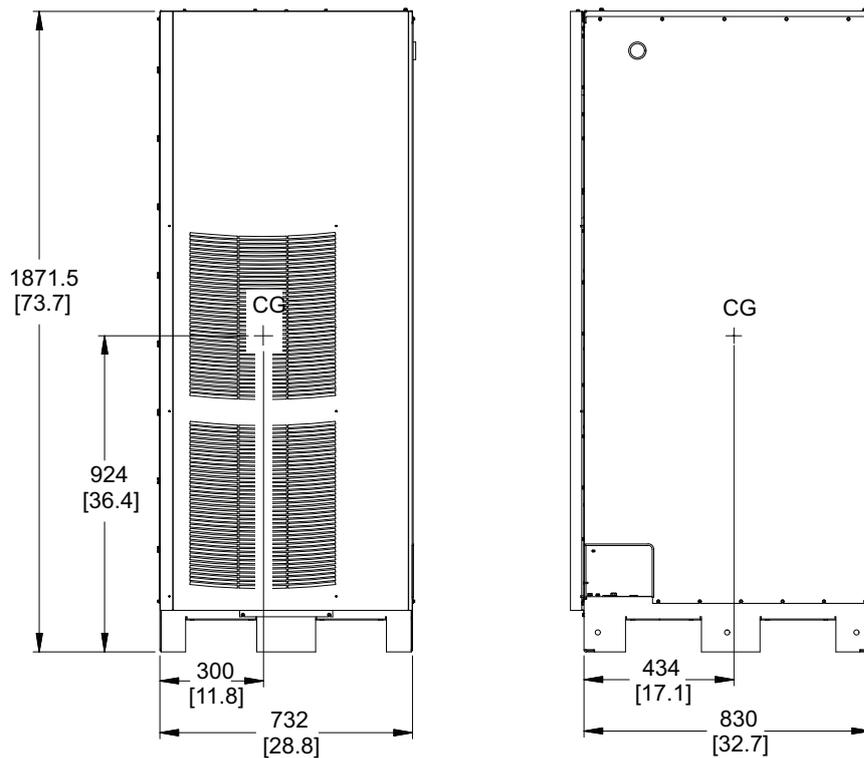


Figure 3-6. FI-UPM Cabinet Center of Gravity (dimensions are in millimeters [inches])

3.3 Inspecting and Unpacking the FI-UPM Cabinet

The FI-UPM cabinet is palletted separately for shipping. The cabinet is shipped bolted to a wooden pallet and protected with outer protective packaging material (see Figure 3-7).



WARNING

The FI-UPM cabinet is heavy (see Table 3-1 on page 8). If unpacking and unloading instructions are not closely followed, the cabinet may tip and cause serious injury.

1. Carefully inspect the outer packaging for evidence of damage during transit.



CAUTION

Do not install a damaged cabinet. Report any damage to the carrier and contact an Eaton service representative immediately.



NOTE

For the following step, verify that the forklift or pallet jack is rated to handle the weight of the cabinet (see Table 3-1 on page 8 for cabinet weight).

2. Use a forklift or pallet jack to move the packaged cabinet to the installation site, or as close as possible, before unpacking. If possible, move the cabinet using the pallet. Insert the forklift or pallet jack forks from the right side of the pallet (facing the cabinet), between the supports on the bottom of the pallet (see Figure 3-6 for the FI-UPM cabinet center of gravity measurements).
-



CAUTION

Do not tilt the FI-UPM cabinet more than 10° from vertical or the cabinet may tip over.

3. Set the pallet on a firm, level surface, allowing a minimum clearance of 3m (10 ft) on each side for removing the cabinet from the pallet.
-



NOTE

The FI-UPM cabinet is shipped with a debris shield covering the ventilation grill on top of the unit. Do not remove the debris shield until installation is complete.

4. Remove the protective covering from the cabinet.
 5. Remove the packing material, and discard or recycle in a responsible manner.
 6. Inspect the contents for any evidence of physical damage, and compare each item with the Bill of Lading. If damage has occurred or shortages are evident, contact an Eaton service representative immediately to determine the extent of the damage and its impact on further installation.
-



NOTE

While waiting for installation, protect the unpacked cabinet from moisture, dust, and other harmful contaminants. Failure to store and protect the FI-UPM properly may void your warranty.

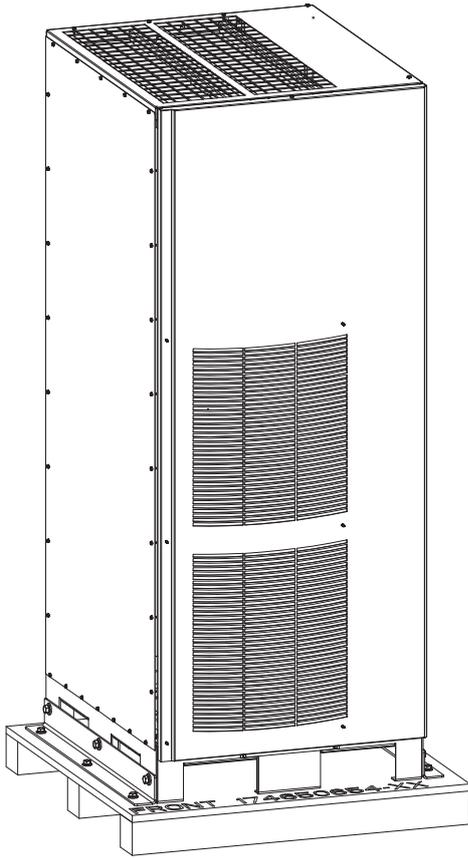


Figure 3-7. Eaton 9395P FI-UPM Cabinet as Shipped on Pallet

4 Field Installed UPM Installation

4.1 Preliminary Installation Information



WARNING

Installation should be performed only by qualified personnel.

Refer to the following while installing the Field Installed UPM (FI-UPM):

- Chapter 3 for cabinet dimensions, equipment weight, wiring and terminal data, and installation notes.
- Do not tilt the cabinet more than 10° during installation.
- The FI-UPM cabinet is installed on the left side of the UPS cabinet.
- The FI-UPM cabinet is shipped with a debris shield covering the ventilation grill on top of the unit. Do not remove the debris shield until installation is complete. However, remove the shield before operating the UPS system. Once the debris shield is removed, do not place objects on the ventilation grill.
- A FI-UPM is always designated as UPM 4.

4.2 Unloading the FI-UPM Cabinet from the Pallet

The FI-UPM cabinet is bolted to a wooden pallet supported by wood skids. To remove the pallet:



WARNING

The FI-UPM cabinet is heavy (see Table 3-1 on page 8). If unpacking and unloading instructions are not closely followed, the cabinet may tip and cause serious injury.



CAUTION

- Do not tilt cabinets more than 10° from vertical.
 - Lift the cabinet only with a forklift or damage may occur.
-



NOTE

For the following steps, verify that the forklift or pallet jack is rated to handle the weight of the cabinet (see Table 3-1 on page 8 for cabinet weight).

1. If not already accomplished, use a forklift or pallet jack to move the cabinet to the installation area, or as close as possible, before unloading from the pallet. If possible, move the cabinet using the pallet. Insert the forklift or pallet jack forks from the right side of the pallet (facing the cabinet), between the supports on the bottom of the pallet (see Figure 3-6 on page 11 for the FI-UPM cabinet center of gravity measurements).
2. Remove the three bolts securing the left side shipping bracket to the cabinet and three bolts securing the bracket to the pallet (see Figure 4-1). Remove the left side shipping bracket. If installing the cabinet permanently, retain the shipping bracket and securing hardware for later use.

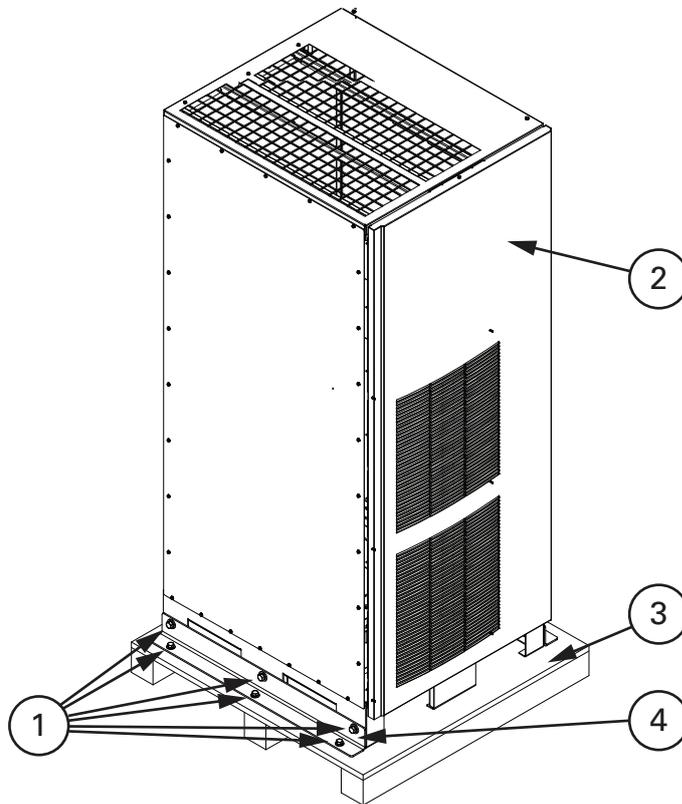


Figure 4-1. Removing the Left Side Shipping Bracket

1	Shipping Bracket Bolts
2	FI-UPM Removable Front Panel
3	Pallet
4	Left Side Shipping Bracket

3. Remove the three bolts securing the right side shipping bracket to the cabinet and three bolts securing the bracket to the pallet (see Figure 4-2). Remove the right side shipping bracket.
4. Using a forklift, raise the FI-UPM cabinet section until the cabinet bottom clears the pallet by approximately 3 mm.
5. Pull the pallet from under the FI-UPM cabinet.
6. Discard or recycle the pallet and unused shipping brackets in a responsible manner.
7. Carefully lower the FI-UPM cabinet until the cabinet base contacts the floor.

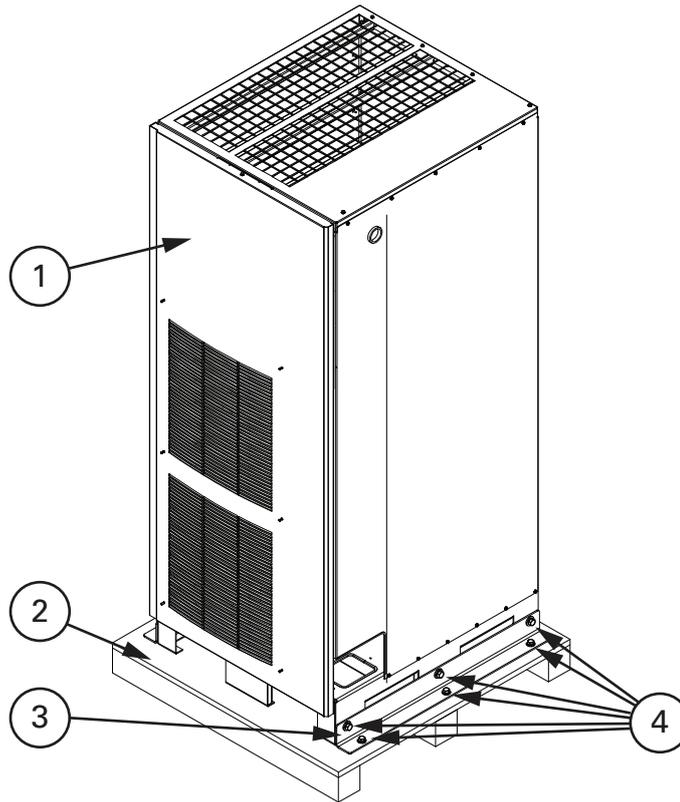


Figure 4-2. Removing the Right Side Shipping Bracket

1	FI-UPM Removable Front Panel
2	Pallet
3	Right Side Shipping Bracket
4	Shipping Bracket Bolts

4.3 Mechanical Installation

To mechanically install the FI-UPM:

1. Remove the wire entry plate located on the bottom left side of the UPS cabinet (see Figure 4-3).
2. If not already removed, remove the wire entry knockout located on the top left side of the UPS cabinet (see Figure 4-3).
3. Locate the hardware kit (packed inside of the cabinet). Locate the nylon grommet from the hardware kit. If not already installed, install the nylon grommet in the knockout hole.
4. Using a forklift, move the FI-UPM cabinet to the final installed location on the left side of the UPS cabinet. Verify that the FI-UPM cabinet right side is against the UPS cabinet left side and the front panels are flush with each other.
5. Carefully lower the FI-UPM cabinet until the cabinet base contacts the floor.



NOTE

A flat cabinet joining bracket is provided for securing the cabinets at the top front (see Step 7).

6. Remove and retain one top screw and two bottom screws securing the FI-UPM front panel (see Figure 4-2). Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet.
7. Locate the small flat bracket and screws from the hardware kit. Align the holes in the small flat bracket over holes in the top of the FI-UPM and UPS cabinets. Secure the bracket with the screws from the hardware kit.
8. Reinstall the FI-UPM front panel removed in Step 6, and secure with the retained hardware.
9. If permanently mounting the system, proceed to Step 10; otherwise, continue to Step 12.
10. Using the retained hardware, reinstall the left shipping bracket removed in Section 4.2, Step 2 on page 16 to the left side of the FI-UPM cabinet with the angle facing outward (see Figure 4-1 on page 16).
11. Secure the cabinet to the floor with customer-supplied hardware.
12. Proceed to Section 4.4.

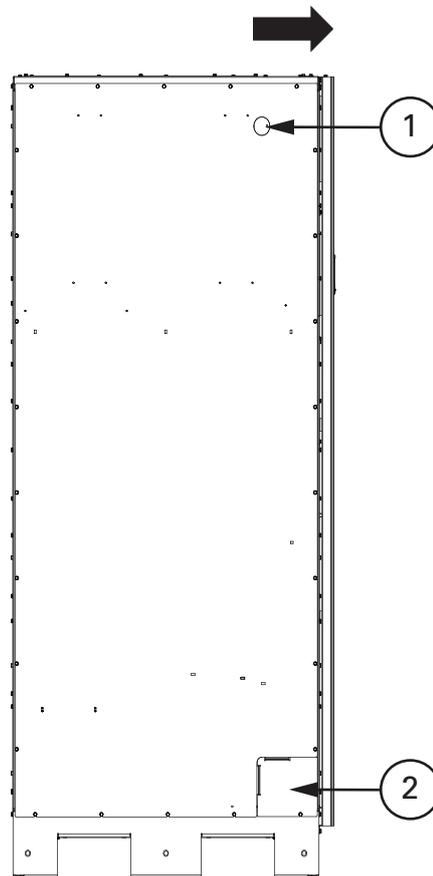


Figure 4-3. UPS Cabinet Wire Entry Plate and Knockout Locations (Left side view)

1	Wire entry knockout. Remove knockout to route wires between cabinets. (Install nylon-grommet after removal of knockout.)
2	Wire Entry Plate Remove plate to route wires between cabinets.

4.4 Electrical Installation

Install FI-UPM battery wiring from the battery cabinet to the FI-UPM battery terminal location in the UPS (refer to the applicable UPS manual listed in Section 1.4 on page 3). Wiring between the FI-UPM and the UPS, and FI-UPM battery terminals will be installed by an Eaton Customer Service Engineer. This service is offered as part of the sales contract for the FI-UPM. Contact an Eaton service representative in advance (usually a two-week notice is required) to request service.

4.5 Initial Startup

Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on page 23 become void. This service is offered as part of the sales contract for the FI-UPM. Contact an Eaton service representative in advance (usually a two-week notice is required) to reserve a preferred startup date.

4.6 Completing the Installation Checklist

The final step in installing the FI-UPM is completing the following Installation Checklist. This checklist ensures that all hardware, cables, and other equipment have been completely installed. Complete all items listed on the checklist to ensure a smooth installation. Make a copy of the Installation Checklist before filling it out, and retain the original.

After the installation is complete, an Eaton Customer Service Engineer must verify the operation of the FI-UPM and UPS system and commission it to support the critical load. The service representative will verify software and operating setup parameters. Service personnel may request a copy of the completed Installation Checklist to verify all applicable equipment installations have been completed.



NOTE

The Installation Checklist MUST be completed prior to starting the FI-UPM and UPS system for the first time.

Installation Checklist

All packing materials and restraints have been removed from the cabinet.	
UPS cabinet wire entry plate and knockout have been removed from the cabinet.	
The FI-UPM cabinet is placed in its installed location.	
A cabinet grounding/mounting kit is installed between the FI-UPM and UPS cabinets.	
All cables are properly routed from the FI-UPM to the UPS.	
Air conditioning equipment is installed and operating correctly	
The area around the installed UPS system is clean and dust-free. (It is recommended that the UPS be installed on a level floor suitable for computer or electronic equipment.)	
Adequate workspace exists around the FI-UPM and UPS cabinets.	
Adequate lighting is provided around all UPS equipment.	
A 230 Vac service outlet (depending on local mains voltage) is located within 7.5 meters of the UPS equipment.	
The debris shield covering the FI-UPM cabinet ventilation grill is removed.	
Startup and operational checks are performed by an authorized Eaton Customer Service Engineer.	

Warranty

The product is warranted against defects in design, materials and workmanship for a period of twelve (12) months from its original date of purchase. The local office or distributor may grant a warranty period different to the above and refer to local terms of liability as defined in the supply contract. The UPS manufacturer is not responsible for

- Any costs resulting from a failure if the installation, commissioning, repair, alternation, or ambient conditions of the equipment do not fulfil the requirements specified in the documentation delivered with the unit and other relevant documentation.
- Equipment subjected to misuse, negligence or accident
- Equipment comprised of materials provided or designs stipulated by the purchaser.

Under no circumstances shall the manufacturer, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, losses or penalties.

The technical data, information and specifications are valid at the time of printing. The UPS manufacturer reserves the right to modifications without prior notice.