Washington University Duncan Research Building

Section 2: Eaton 93PM – 200 kW UPS

Product brochure

20–200 kW

Eaton 93PM 200 kW UPS

Efficient. Scalable. Innovative.

The Eaton® 93PM UPS combines efficiency and reliability with an eye-catching design. A space-saving, scalable and flexible device that's as easy to deploy as it is to manage, it's the perfect three-phase white or grey space solution for today's data center.

Lowest TCO (total cost of ownership)

- Conserve valuable data center floor space with the compact footprint, internal battery back-up and optional internal maintenance bypass
- Grow effortlessly with the vertical scalability, reducing cost and unexpected future growth risks
- Reduce power and cooling OPEX through industry-leading energy efficiency
  - 99 percent efficiency with Energy Saver System (ESS)
  - Up to 97 percent efficiency in double-conversion mode

Easy deployment

- Provides flexible configurability, maximizing deployment flexibility

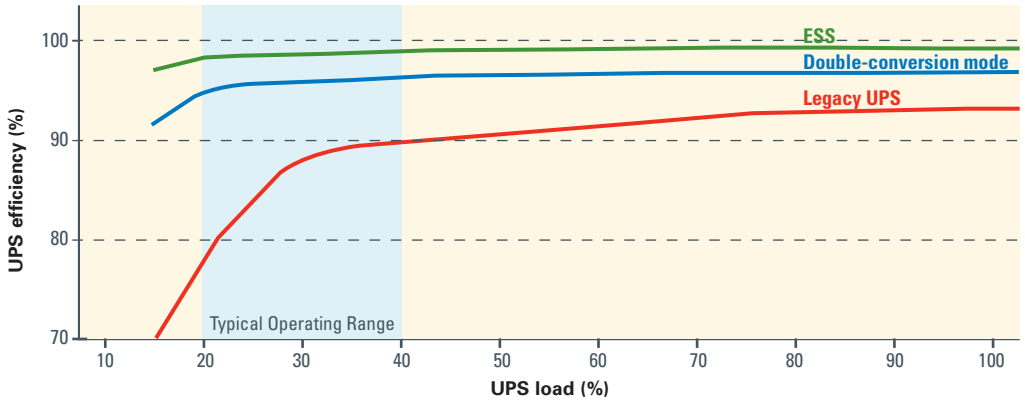
Easy management

- Track statistics on energy savings, battery time and outages profile your load and much more with the friendly graphical LCD touchscreen interface
- View system status from a distance with the green/yellow/red LED light bars

Advanced IT integration

- Supports optional communication cards that allow remote access via the HTTP(S), SNMP, MODBUS TCP/IP, Modbus RTU and BACnet IP protcols
- Manage your power devices in your physical or virtual environment with Eaton's Power Xpert® software and Intelligent Power™ Software Suite
- Increase uptime through 24x7 remote monitoring and reporting capabilities using Eaton's PredictPulse™ service that alerts technicians during critical events and results in faster resolutions when a problem is detected; learn more at **Eaton.com/PredictPulse**

Eaton 93PM efficiency in double-conversion and ESS



Powering Business Worldwide

The 93PM ESS energy cost savings pay for the UPS in less than 3 years. Calculate your 93PM savings with ESS at **Eaton.com/ESS**.

The functional core of the 93PM UPS

A **Top & bottom cable entry**
Standard right-mounted wireway, supporting both top and bottom cable entry. This section contains all input and output connections for the UPS

B **Communications and connectivity**
- Built-in device and host USB
- Five alarm inputs and dedicated EPO
- Alarm relay output
- Four communication slots

C **Color touchscreen LCD interface**

D **Serviceable redundant fan assembly**

E **Swappable power modules** (50 kW) with independent control and power

F **Soft start controls**

G **Static switch assembly**

Open front view of the unit **Front view**

EATON 93PM UPS TECHNICAL SPECIFICATIONS[1]

Power modules for 200 kW frame	
Power offering (kW)	20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 kW with optional internal N+1 redundancy through 150 kW

General characteristics	
Efficiency in Energy Saver System (ESS)	Up to 99%
Efficiency in double-conversion mode	Up to 97%
Parallel capability	Four distributed
Height x depth x width	74" x 42" x 32"

Input characteristics	
Voltage	480V 3-phase 3-wire or 4-wire (208V with IAC-D)
Voltage range	+10% / -15%
Frequency range	50/60 Hz
Power factor	> .99
Input current distortion	< 3% @ 100% load capacity

Battery	
Battery voltage	432V, 480V[2]
Charging method	ABM® or float technology

Output	
Voltage	480V 3-phase 3-wire or 4-wire (208V with IAC-D)
Regulation	±1% steady state
Voltage THD	<1% (100% linear load); <5% (non-linear load)
Load power factor range	Unity with the ability to support 0.8 leading to 0.8 lagging without de-rating

Certification	
Safety	UL 1778, UL 924 Auxiliary, cULus
EMC	FCC Part 15 subpart B class A
Surge	IEC 61000-4-5

Optional accessories
- Integrated slim maintenance bypass
- Integrated distribution cabinet (with output transformer options)
- Integrated power distribution cabinet
- Integrated battery cabinet (small and large)

UL 924 certification
The 93PM meets the strict standards for UL 924 compliance for emergency lighting applications when ordered with an emergency lighting SKU.
For more information, visit **Eaton.com/UL924UPS**

[1]Due to continued improvements, specifications are subject to change.
[2]480V battery voltage required for 480V 4-wire UPS configuration.

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Powering Business Worldwide

Learn more at: **Eaton.com/93PM**

Chapter 3 UPS Installation Plan and Unpacking

Use the following basic sequence of steps to install the UPS:

1. Create an installation plan for the UPS system (Chapter 3).
2. Prepare your site for the UPS system (Chapter 3).
3. Inspect and unpack the UPS cabinet (Chapter 3).
4. Unload and install the UPS cabinet, and wire the system (Chapter 4).
5. Install features, accessories, or options, as applicable (Chapter 4).
6. Complete the Installation Checklist (Chapter 4).
7. Have authorized service personnel perform preliminary operational checks and start up the system.

NOTE Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on page W-1 become void. This service is offered as part of the sales contract for the UPS. Contact an Eaton service representative in advance (a minimum two-week notice is required) to reserve a preferred startup date.

3.1 Creating an Installation Plan

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

3.2 Preparing the Site

For the UPS system to operate at peak efficiency, the installation site should meet the environmental parameters outlined in this manual. The operating environment must meet the weight, clearance, and environmental requirements specified.

3.2.1 Environmental and Installation Considerations

The UPS system 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 operated at an altitude no higher than 1500m (5000 ft) without derating. For additional assistance with high altitude operation, contact an Eaton service representative (see paragraph 1.9).
- The system must be installed in a temperature and humidity controlled indoor area free of conductive contaminants.

Failure to follow guidelines may void your warranty.

The basic environmental requirements for operation of the UPS are:

- Ambient Temperature Range: 5–40°C (41–104°F)
- Recommended Operating Range: 5–40°C (41–104°F)
- Maximum Relative Humidity: 95%, noncondensing

CAUTION

If battery systems are located in the same room as the UPS, the battery manufacturer's environmental requirements should be followed if they are more stringent than the UPS requirements. Operating temperatures above the recommended range will result in decreased battery life and performance, and may reduce or void the battery warranty.

The UPS ventilation requirements are shown in Table 3-1.

To allow for future power upgrades, Eaton recommends using air conditioning or ventilation sized for the fully rated UPS kW frame size installed instead of the derated kW ordered. Sizing the site cooling infrastructure to be capable of cooling the maximum kW frame size will allow a full power rating upgrade without having to modify the infrastructure.

Table 3-1. Air Conditioning or Ventilation Requirements During Full Load Operation

Model	UPS Rating	Input/Output Voltage	Heat Rejection BTU/hr x1000 (kg-cal/hr)	Minimum Required Cooling Air Flow at Full Load
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	20 kW	480/480	2.55 (643)	
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	30 kW	480/480	3.58 (903)	
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	40 kW	480/480	4.56 (1150)	
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	50 kW	480/480	5.70 (1438)	
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	60 kW	480/480	7.16 (1807)	
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	70 kW	480/480	8.36 (2108)	
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	80 kW	480/480	9.12 (2300)	
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	90 kW	480/480	10.26 (2588)	
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	100 kW	480/480	11.40 (2875)	756 liter/sec (1600 cfm)
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	110 kW	480/480	12.54 (3163)	
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	120 kW	480/480	13.68 (3450)	
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	130 kW	480/480	14.82 (3738)	
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	140 kW	480/480	15.96 (4025)	
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	150 kW	480/480	17.10 (4313)	
Eaton 93PM-200-4	160 kW	480/480	18.24 (4601)	
Eaton 93PM-200-4	170 kW	480/480	19.38 (4888)	
Eaton 93PM-200-4	180 kW	480/480	20.52 (5176)	
Eaton 93PM-200-4	190 kW	480/480	21.66 (5463)	
Eaton 93PM-200-4	200 kW	480/480	22.80 (5751)	

The UPS equipment operating environment must meet the weight requirements shown in Table 3-2 and the size requirements shown in Figure 3-1 through Figure 3-5. Dimensions are in millimeters (inches).

NOTE Refer to the *Eaton 93PM Sidecar Integrated Accessory Cabinet-Bypass (150 kW and 200 kW SIAC-B) Installation and Operation Manual* listed in paragraph 1.8 for Sidecar Integrated Accessory Cabinet-Bypass weight and size requirements.

Table 3-2. UPS Cabinet Weights

Model	Weight kg (lb) Shipping	Installed	Point Loading
Eaton 93PM-200-1	431 (950)	408 (900)	4 at 102 (225)
Eaton 93PM-200-2	495 (1090)	472 (1040)	4 at 118 (260)
Eaton 93PM-200-3	559 (1231)	536 (1181)	4 at 134 (295)
Eaton 93PM-200-4	622 (1371)	599 (1321)	4 at 150 (330)

The UPS cabinet uses forced air cooling to regulate internal component temperature. Air inlets are in the front of the cabinet and outlets are on top or in the back of the cabinet. Allow clearance in front of and on top or in back of the cabinet for proper air circulation. The clearances required around the UPS cabinet are shown in Table 3-3.

Table 3-3. UPS Cabinet Clearances

From Front of Cabinet	914 mm (36") working space
From Top of Cabinet with Top Exhaust (Zones 1 and 3 – see Figure 3-2)	457 mm (18") minimum clearance for ventilation
From Top of Cabinet (Zones 2 and 3– see Figure 3-2)	457 mm (18") working space
From Top of Cabinet with rear service access (Zone 2– see Figure 3-2)	Can be less than 457 mm (18")
From Back of Cabinet with Rear Exhaust	254 mm (10") minimum clearance for ventilation
From Back of Cabinet with Top Exhaust	None Required
From Back of Cabinet – Seismic Installation	914.4 mm (36") working space
From Right Side of Cabinet	None Required
From Left Side of Cabinet	None Required

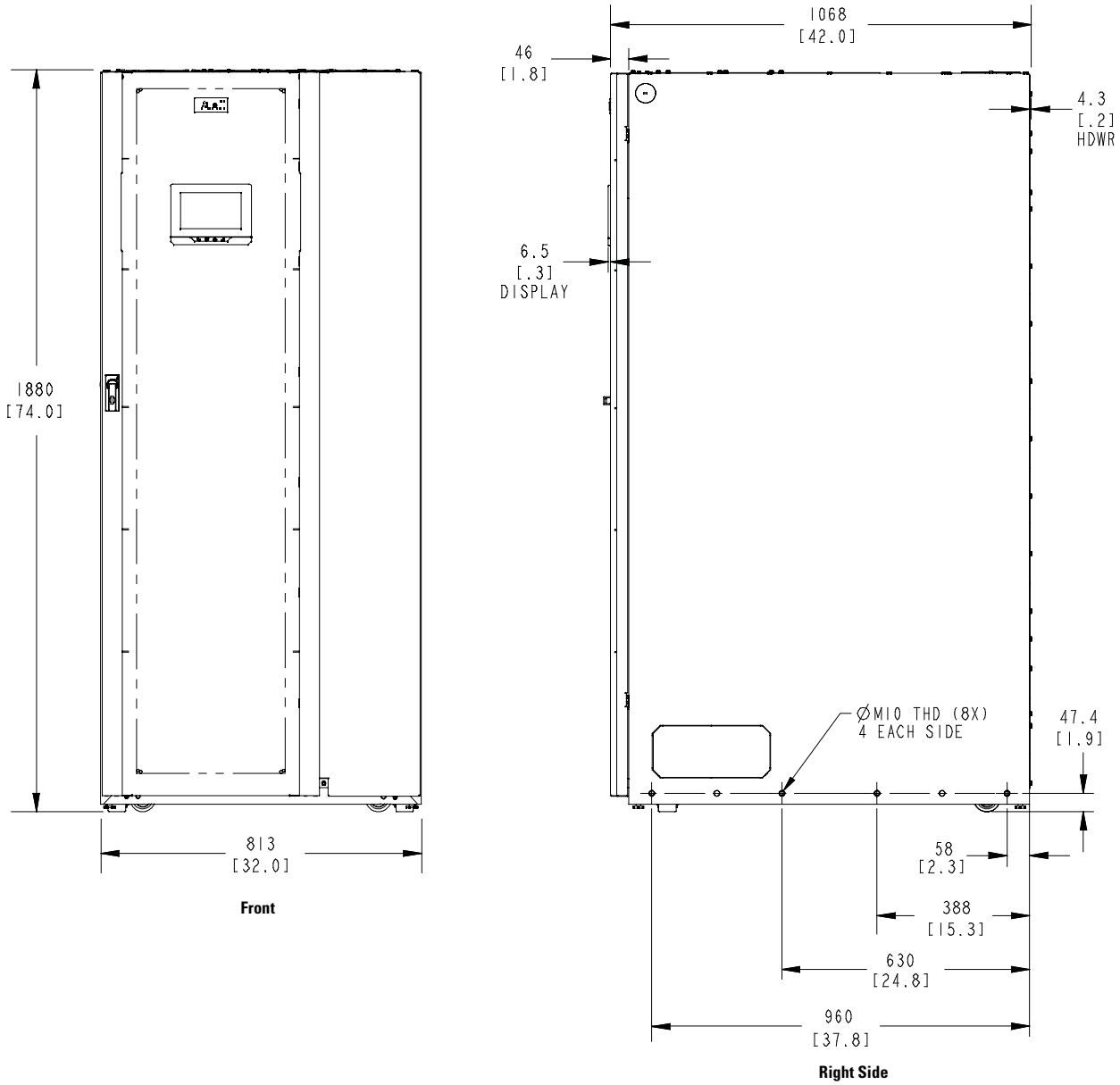
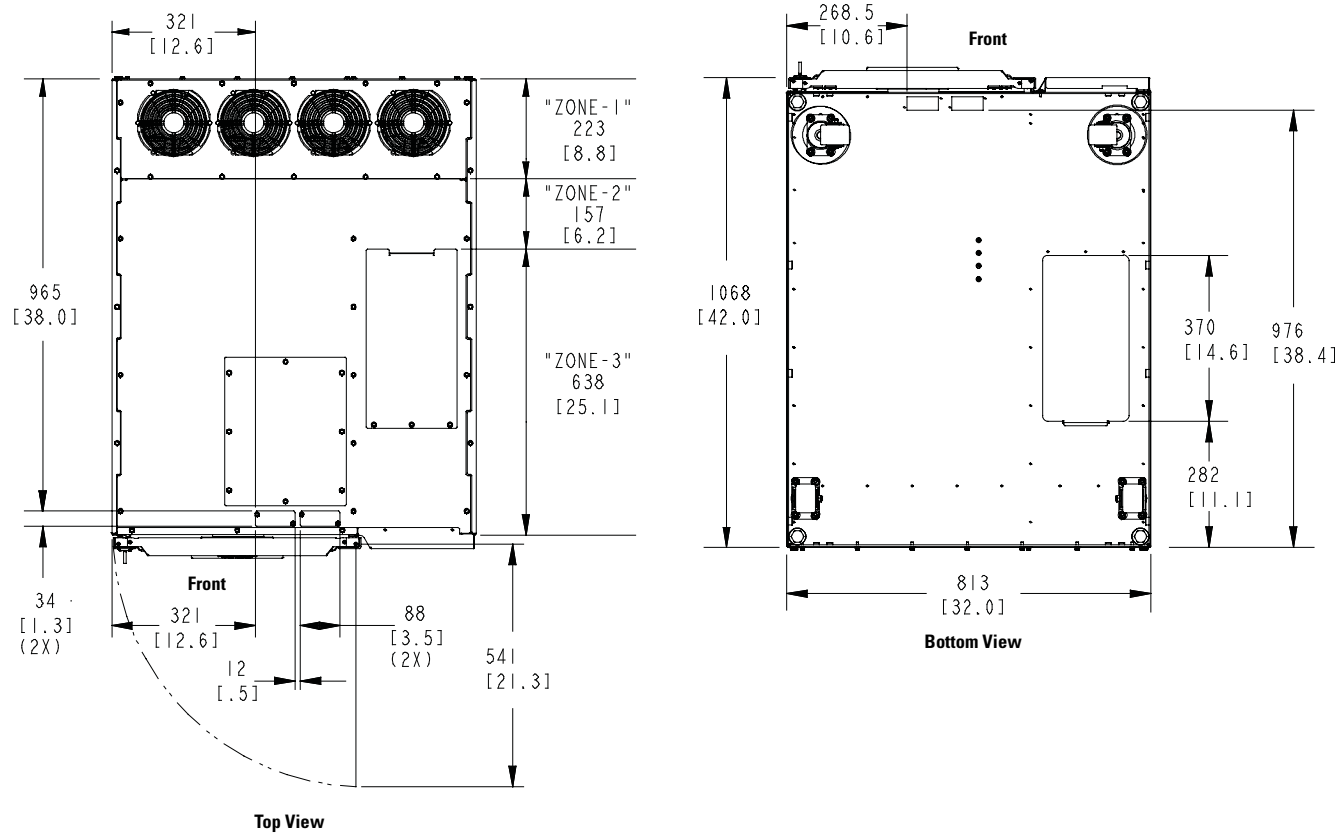


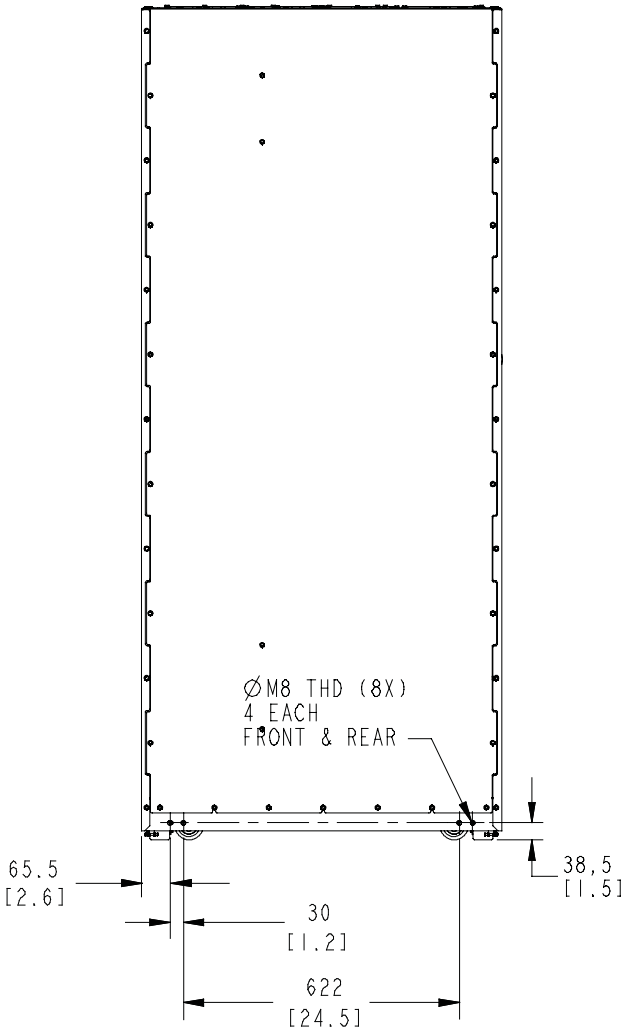
Figure 3-1. UPS Cabinet Dimensions (Front and Right Side Views)



NOTE Top exhaust configuration shown.

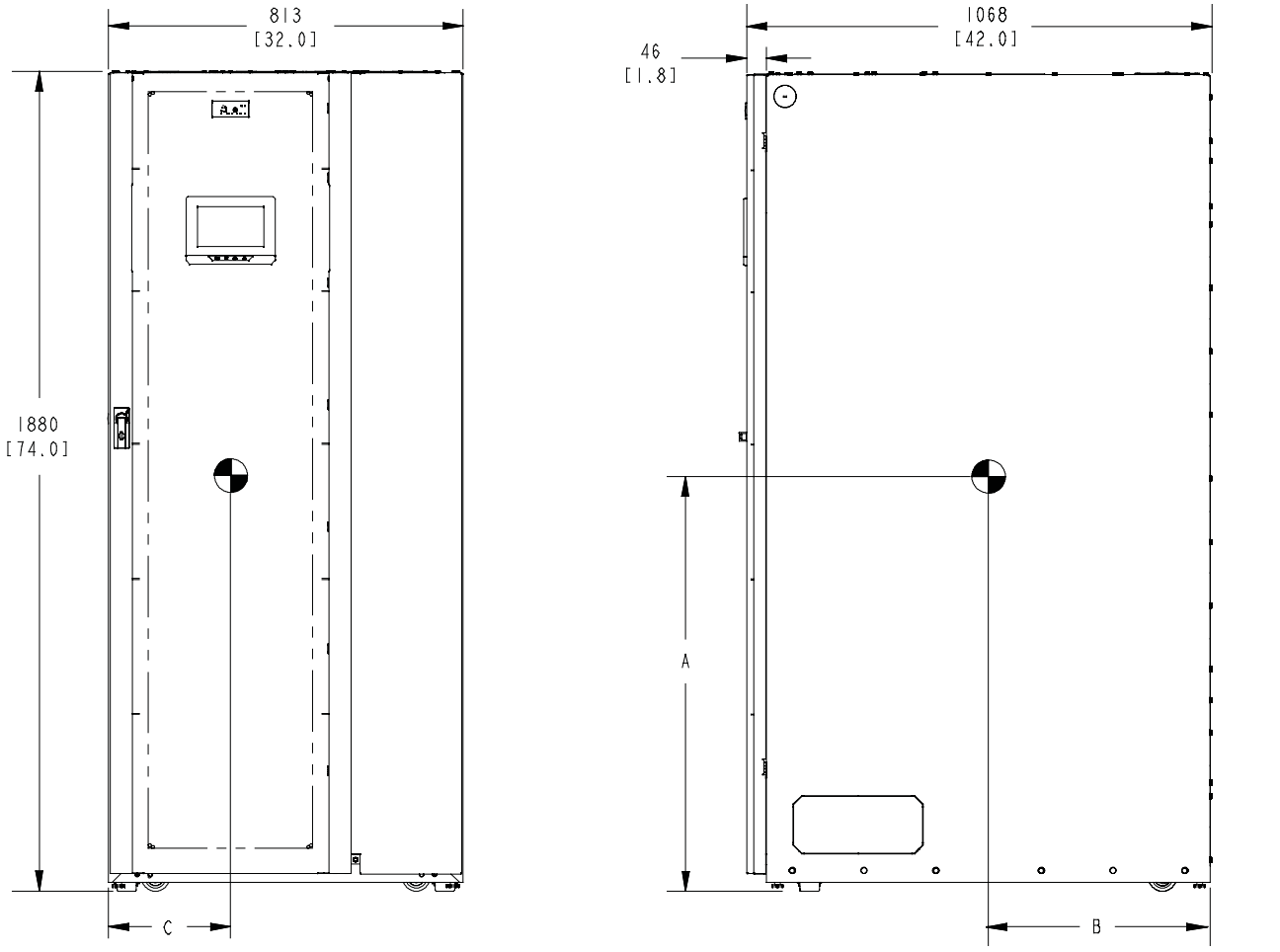
Dimensions are in millimeters [inches]

Figure 3-2. UPS Cabinet Dimensions (Top and Bottom Views)



Dimensions are in millimeters [inches]

Figure 3-3. UPS Cabinet Front and Back Floor Mounting Bracket Mounting Dimensions (Back View)



Dimensions are in millimeters [inches]

Weight and Center of Gravity				
	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-200-1 UPS	834 (32.8)	543 (21.4)	394 (15.5)	408 (900)
Eaton 93PM-200-2 UPS	852 (33.5)	543 (21.4)	379 (14.9)	472 (1040)
Eaton 93PM-200-2 UPS	909 (35.8)	543 (21.4)	367 (14.4)	536 (1181)
Eaton 93PM-200-4 UPS	989 (38.9)	543 (21.4)	358 (14.1)	599 (1321)

Figure 3-4. UPS Cabinet Center of Gravity

3.2.2 UPS System Power Wiring Preparation

NOTE Refer to the *Eaton 93PM Sidecar Integrated Accessory Cabinet-Bypass (150 kW and 200 kW SIAC-B) Installation and Operation Manual* listed in paragraph 1.8 for Sidecar Integrated Accessory Cabinet-Bypass power wiring preparation and requirements.

Read and understand the following notes while planning and performing the installation:

WARNING

As a result of the connected loads high leakage current is possible. Connection to earth ground is required for safety and proper product operation. Do not check UPS operation by any action that includes removal of the earth (ground) connection with loads attached.

- Refer to national and local electrical codes for acceptable external wiring practices.
- To allow for future power upgrades, Eaton recommends installing the UPS using wiring and external overcurrent protection breakers sized for the fully rated UPS kW frame size installed instead of the derated kW ordered. Wiring for the maximum kW frame size will allow a full power rating upgrade without having to modify the site wiring infrastructure.
- For external wiring, use 75°C copper wire. Wire sizes listed in Table 3-4 through Table 3-7 are for copper wiring only. If wire is run in an ambient temperature greater than 40°C, larger size wire may be necessary. Wire sizes are based on using the specified breakers.
- The AC output and output ground wiring to the critical load should be sized the same as the UPS rectifier, bypass, and rectifier and bypass ground wiring if the recommended output breaker listed in Table 3-13 is not installed in the system.
- Recommended wire sizes are based on NFPA National Electrical Code® (NEC®)70 Table 310.15(B)(16) 75°C ampacity with 40°C ambient correction factors.
- Connect to a 3 wire, grounded Wye source or in single source applications, a 3-wire High Resistance Ground (HRG) source. A neutral conductor is not used from the source or supplied to the load.
- Supported single source, single or dual feed power sources
  - 3-wire grounded Wye (TN,TT)
  - 3-wire High Resistance Ground (IT)
- Supported dual source, dual feed power sources
  - 3-wire grounded Wye (TN, TT)

CAUTION

SINGLE HIGH IMPEDANCE GROUND SOURCE – In North American installations, the neutral conductor from the high impedance ground source of supply CANNOT be used.

- Phase rotation must be clockwise starting with phase A (rotation A,B,C).
- Material and labor for external wiring requirements are to be supplied by designated personnel.

- The bypass feed into this equipment uses three wires. The rectifier feed into this equipment uses three wires. The phases must be symmetrical about ground (from a Wye source, phase rotation clockwise A, B, C) for proper equipment operation.
- If installing an external maintenance bypass, all feeds to the UPS including the Rectifier Input Breaker (RIB) (if installed) must have a service disconnect independent of the maintenance bypass power path. Most maintenance bypass solutions provide UPS input feeds derived from but isolated from the maintenance bypass power path. If the maintenance bypass solution being installed does not provide such functionality, DO NOT use a single feeder breaker to supply both the UPS and the maintenance bypass.

Table 3-7. Input/Output Ratings and External Wiring Requirements for the Eaton 93PM-200-4

		Units	Rating 50/60 Hz				
Basic Unit Rating		kW	160	170	180	190	200
Input and Output Voltage		Volts	480/480	480/480	480/480	480/480	480/480
AC Input to UPS Rectifier (0.99 Minimum pF)		Amps	241	253	266	278	291
Full load current plus battery recharge current (3) Phases, (1) Ground	**A**						
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	2/0 (2)	3/0 (2)	3/0 (2)	3/0 (2)	4/0 (2)
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	3 (2)	3 (2)	3 (2)	3 (2)	3 (2)
AC Input to UPS Bypass (Three Wire, Dual-Feed)		Amps	241	253	266	278	291
Full Load Current (3) Phases, (1) Ground	**B**						
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	2/0 (2)	3/0 (2)	3/0 (2)	3/0 (2)	4/0 (2)
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	3 (2)	3 (2)	3 (2)	3 (2)	3 (2)
DC Input from External Battery (Line-Up-and-Match Eaton 93PM IBC) (1) Positive, (1) Negative, (1) Ground	**C**	Total Amps (216 cell) Total Amps (240 cell)	396 356	421 378	445 401	470 423	495 445
Minimum Conductor Size (Phase Positive and Negative) Number per Pole		AWG or kcmil (each)	2/0 (1 -L or 2 -LH) See Note	2/0 (1 -L or 2 -LH) See Note	2/0 (1 -L or 2 -LH) See Note	2/0 (1 -L or 2 -LH) See Note	2/0 (1 -L or 2 -LH) See Note
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	4 (1)	4 (1)	4 (1)	4 (1)	4 (1)
DC Input from External Battery (Standalone Eaton 93PM IBC) (1) Positive, (1) Negative, (1) Ground	**C**	Total Amps (216 cell) Total Amps (240 cell)	396 356	421 378	445 401	470 423	495 445
Minimum Conductor Size (Phase Positive and Negative) Number per Pole		AWG or kcmil (each)	300 (2)	300 (2)	300 (2)	300 (2)	300 (2)
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	1 (1)	1 (1)	1 (1)	1 (1)	1 (1)
AC Output to Critical Load (Three Wire)		Amps	192	204	217	229	240
Full Load Current (3) Phases, (1) Ground	**D**						
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	300 (1)	350 (1)	350 (1)	2/0 (2)	2/0 (2)
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	4 (1)	4 (1)	4 (1)	4 (2)	4 (2)
AC Output to IAC-T (Three Wire)		Amps	192	204	217	229	240
Full Load Current (3) Phases, (1) Ground	**D**						
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	300 (1)	350 (1)	350 (1)	2/0 (2)	500 (1)
Minimum Conductor Size (Ground) Number	–	AWG or kcmil (each)	4 (1)	4 (1)	4 (1)	4 (2)	4 (2)

NOTE Callout letters **A**, **B**, **C** and **D** map to Figure 5-9.

NOTE Line-up-and-match battery wiring with a 105°C rating is factory supplied with the Eaton 93PM Integrated Battery Cabinet (IBC).

Power wiring terminals E1 through E11 are 2-hole bus bar mountings for standard NEMA 2-hole barrel lugs. The power wiring connections for this equipment are rated at 90°C. See Table 3-8 for external power cable terminations, Table 3-9 for supplied external wiring terminal hardware, and Table 3-10 for recommended installation parts and tools not supplied by Eaton Corporation.

Figure 4-7, Figure 4-9, and Figure 4-10 show the location of the UPS power cable terminals.

Table 3-8. UPS External Power Cable Terminations for the Eaton 93PM-200-1, 93PM-200-2, and 93PM-200-3

Terminal Function	Terminal	Function	Bus Landings (using back-to-back lugs)	Tightening Torque Nm (lb ft)	Bolt Size and Type
AC Input to UPS Rectifier	E1	Phase A	2 – 2 bolt mounting	35 (26)	M12 Hex
	E2	Phase B	2 – 2 bolt mounting	35 (26)	M12 Hex
	E3	Phase C	2 – 2 bolt mounting	35 (26)	M12 Hex
AC Input to Bypass	E6	Phase A	2 – 2 bolt mounting	35 (26)	M12 Hex
	E7	Phase B	2 – 2 bolt mounting	35 (26)	M12 Hex
	E8	Phase C	2 – 2 bolt mounting	35 (26)	M12 Hex
AC Output to Critical Load	E9	Phase A	2 – 2 bolt mounting	35 (26)	M12 Hex
	E10	Phase B	2 – 2 bolt mounting	35 (26)	M12 Hex
	E11	Phase C	2 – 2 bolt mounting	35 (26)	M12 Hex
DC Input from Battery	E4	Battery (+)	6 – 2 bolt mounting	35 (26)	M12 Hex
	E5	Battery (-)	6 – 2 bolt mounting	35 (26)	M12 Hex
Customer Ground	Ground	Ground	8 – #14-1/0 Pressure Termination	5.6 Nm (50 lb in)	Slotted

NOTE Customer ground, sized in accordance with NEC Table 250.122, can be run in any conduit listed inTable 3-11.

Table 3-9. Supplied External Wiring Terminal Hardware Kit

Part	Size	Quantity	Terminal Used On	Eaton Part Number
Bolt, Grade 5	M12 x 35 mm	26	Rectifier Input, Bypass Input, Battery Input, and Output to Critical Load	180190078-110
Flat Washer	M12	26	Rectifier Input, Bypass Input, Battery Input, and Output to Critical Load	180500036-120
Conical Washer	M12	26	Rectifier Input, Bypass Input, Battery Input, and Output to Critical Load	180500037-120

Table 3-10. Recommended Installation Parts and Tools (Not Supplied by Eaton)

Part	Size	Quantity	Manufacturer	Part Number	Notes
Long Barrel 2-Hole Lug	6 AWG	As Required	Thomas & Betts	256-30695-868	Copper wire only
	4 AWG			256-30695-733	
	2 AWG			54711BE	
	1 AWG			54857BE	
	1/0 AWG			256-30695-593	
	2/0 AWG			54862BE	
	3/0 AWG			54864BE	
	4/0 AWG			54866BE	
	250 MCM			54868BE	
	300 MCM			54870BE	
	350 MCM			54872BE	
Manual Hydraulic Crimp Tool	14 Ton	1		TBM14M	
Die Set	N/A	1		15506	

External overcurrent protection and disconnect are not provided by this product, but are required by codes. See Table 3-4, Table 3-5, Table 3-6, or Table 3-7 for wiring requirements. If an output lockable disconnect is required, it is to be supplied by the customer.

Table 3-12 lists the recommended rating for input and bypass circuit breakers.

Table 3-12. Recommended Input and Bypass Circuit Breaker Ratings

UPS Model	UPS Rating	Input Rating	
		Load Rating	480V
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	20 kW	80% Rated	45A
		100% Rated	40A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	30 kW	80% Rated	70A
		100% Rated	50A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	40 kW	80% Rated	80A
		100% Rated	70A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	50 kW	80% Rated	100A
		100% Rated	80A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	60 kW	80% Rated	150A
		100% Rated	110A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	70 kW	80% Rated	150A
		100% Rated	125A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	80 kW	80% Rated	175A
		100% Rated	150A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	90 kW	80% Rated	200A
		100% Rated	150A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	100 kW	80% Rated	200A
		100% Rated	175A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	110 kW	80% Rated	225A
		100% Rated	175A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	120 kW	80% Rated	250A
		100% Rated	200A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	130kW	80% Rated	250A
		100% Rated	200A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	140 kW	80% Rated	300A
		100% Rated	225A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	150 kW	80% Rated	300A
		100% Rated	250A
Eaton 93PM-200-4	160 kW	80% Rated	350A
		100% Rated	250A

Table 3-12. Recommended Input and Bypass Circuit Breaker Ratings (Continued)

UPS Model	UPS Rating	Input Rating	
		Load Rating	480V
Eaton 93PM-200-4	170 kW	80% Rated	350A
		100% Rated	300A
Eaton 93PM-200-4	180 kW	80% Rated	350A
		100% Rated	300A
Eaton 93PM-200-4	190 kW	80% Rated	400A
		100% Rated	300A
Eaton 93PM-200-4	200 kW	80% Rated	400A
		100% Rated	350A

CAUTION

To reduce the risk of fire, connect only to a circuit provided with maximum input circuit breaker current ratings from Table 3-12 in accordance with the NEC, ANSI/NFPA 70.

The line-to-line unbalanced output capability of the UPS is limited only by the full load per phase current values for AC output to critical load shown in Table 3-4, Table 3-5, Table 3-6, or Table 3-7. The recommended line-to-line load unbalance is 50% or less.

Output overcurrent protection and bypass and output disconnect switches are to be supplied by the customer. Table 3-13 lists the recommended rating for output circuit breakers.

Table 3-13. Recommended Output Circuit Breaker Ratings

UPS Model	UPS Rating	Output Rating	
		Load Rating	480V
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	20 kW	80% Rated	35A
		100% Rated	25A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	30 kW	80% Rated	50A
		100% Rated	40A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	40 kW	80% Rated	70A
		100% Rated	50A
Eaton 93PM-200-1 Eaton 93PM-200-2 (N+1)	50 kW	80% Rated	80A
		100% Rated	70A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	60 kW	80% Rated	100A
		100% Rated	80A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	70 kW	80% Rated	110A
		100% Rated	100A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	80 kW	80% Rated	125A
		100% Rated	100A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	90 kW	80% Rated	150A
		100% Rated	125A
Eaton 93PM-200-2 Eaton 93PM-200-3 (N+1)	100 kW	80% Rated	150A
		100% Rated	125A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	110 kW	80% Rated	175A
		100% Rated	150A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	120 kW	80% Rated	200A
		100% Rated	150A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	130 kW	80% Rated	200A
		100% Rated	175A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	140 kW	80% Rated	225A
		100% Rated	175A
Eaton 93PM-200-3 Eaton 93PM-200-4 (N+1)	150 kW	80% Rated	225A
		100% Rated	200A
Eaton 93PM-200-4	160 kW	80% Rated	250A
		100% Rated	200A
Eaton 93PM-200-4	170 kW	80% Rated	300A
		100% Rated	225A
Eaton 93PM-200-4	180 kW	80% Rated	300A
		100% Rated	225A
Eaton 93PM-200-4	190 kW	80% Rated	300A
		100% Rated	250A
Eaton 93PM-200-4	200 kW	80% Rated	300A
		100% Rated	250A

3.2.4 UPS System Interface Wiring Preparation

NOTE Refer to the *Eaton 93PM Sidecar Integrated Accessory Cabinet-Bypass (150 kW and 200 kW SIAC-B) Installation and Operation Manual* listed in paragraph 1.8 for Sidecar Integrated Accessory Cabinet-Bypass interface wiring preparation and requirements.

Control wiring for features and options should be connected at the customer interface terminal blocks located inside the UPS.

⚠ WARNING

Do not directly connect relay contacts to the mains related circuits. Reinforced insulation to the mains is required.

Read and understand the following notes while planning and performing the installation:

- Use Class 1 wiring methods (as defined by the NEC) for interface wiring from 30V to 600V. The wire should be rated for 600V, 1A minimum. 12 AWG maximum wire size.
- Use Class 2 wiring methods (as defined by the NEC) for interface wiring up to 30V. The wire should be rated for 24V, 1A minimum.
- Because of the battery shunt trip wiring route in the UPS cabinet, the wire should be rated for a minimum of 600V.
- Use twisted-pair wires for each input and return or common.
- All interface wiring and conduit is to be supplied by the customer.
- When installing external interface wiring between a building alarm, relay output, battery breaker trip, or Minislot and the UPS interface terminals, conduit must be installed between each device and the UPS cabinet.
- If using conduit, install the interface wiring in separate conduit from the power wiring.
- All building alarm inputs require an isolated normally-open contact or switch (rated at 24 Vdc, 20 mA minimum) connected between the alarm input and common terminal. All control wiring and switch contacts are customer-supplied.
- LAN and telephone drops for use with Minislot connectivity cards must be supplied by the customer.
- The UPS battery detect signal wiring from an UPS building alarm must be connected to the battery disconnect device.
- Program the battery detect building alarm to read battery open and for normally open contacts.
- A supplemental 48 Vdc shunt trip signal for the battery disconnect device is provided, but is not required for normal operation.
- Battery detect and 48 Vdc shunt trip wiring should be a minimum of 18 AWG
- The REPO feature opens all switchgear in the UPS cabinet and isolates power from your critical load. Local electrical codes may also require tripping upstream protective devices to the UPS.
- The REPO switch must be a latching-type switch not tied to any other circuits.
- A jumper wire must be connected between pins 3 and 4 on the REPO terminal block if using a normally-closed REPO switch.
- REPO wiring should be a minimum of 18 AWG and a maximum of 16 AWG.
- The REPO switch wiring must be in accordance with NEC Article 725 Class 2 requirements.

- The maximum distance between the REPO and the UPS cannot exceed 150 meters (500 feet).
- Alarm relay contacts have a maximum current rating of 5A and a switched voltage rating of 30 Vac.
- Alarm relay wiring should be a minimum of 18 AWG (recommended 18 AWG).

3.3 Inspecting and Unpacking the UPS Cabinet

The cabinet is shipped bolted to a metal and wood pallet (see Figure 3-7) with outer protective packaging material covering the cabinet.

NOTE Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on page W-1 become void. This service is offered as part of the sales contract for the UPS. Contact an Eaton service representative in advance (a minimum two-week notice is required) to reserve a preferred startup date.

WARNING

The UPS cabinet is heavy (see Table 3-2). 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 3-2 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 between the supports on the bottom of the pallet (see Figure 3-4) for the UPS cabinet center of gravity measurements).

CAUTION

Do not tilt the UPS 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.
4. Remove the protective packaging material from the cabinet and recycle in a responsible manner. Retain any parts kits packaged with the cabinet.
5. 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 UPS properly may void the warranty.

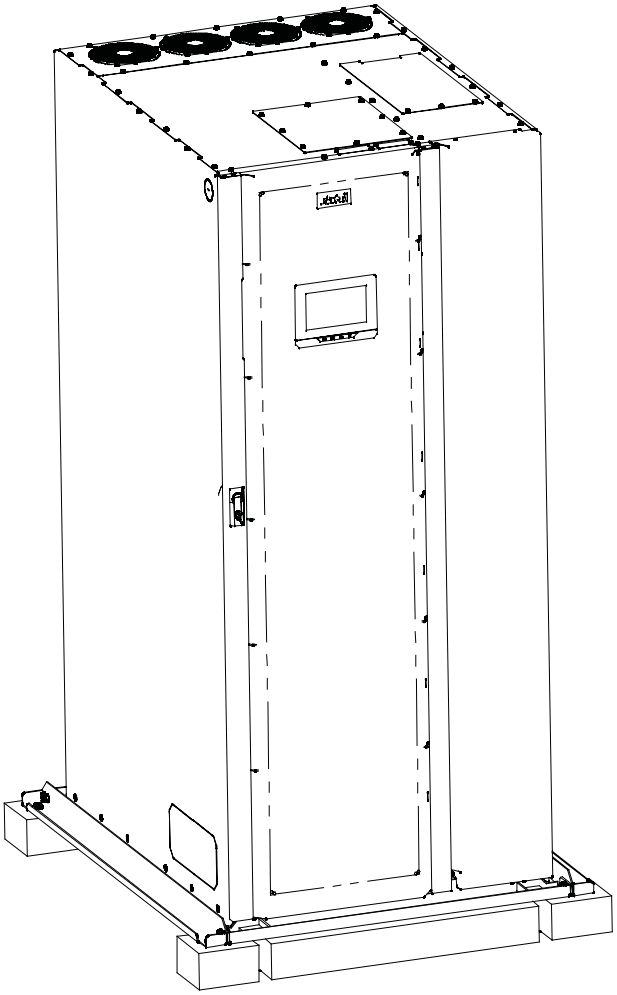


Figure 3-7. UPS Cabinet as Shipped on Pallet

Chapter 4 UPS System Installation

4.1 Preliminary Installation Information

WARNING

Installation should be performed only by qualified personnel.

Refer to the following while installing the UPS system:

- Chapter 3 for cabinet dimensions, equipment weight, wiring and terminal data, and installation notes.
- Do not tilt the cabinets more than ±10° during installation.
- Remove conduit landing plates to add conduit landing holes as required.
- If perforated floor tiles are required for ventilation, place them in front of the UPS.

4.2 Unloading the UPS Cabinet from the Pallet

WARNING

The UPS cabinet is heavy (see Table 3-2). If unpacking and unloading instructions are not closely followed, the cabinet may tip and cause serious injury.

CAUTION

- Do not tilt cabinet more than 10° from vertical.
- Lift the cabinets 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 3-2 for cabinet weight)

The UPS cabinet is bolted to a pallet consisting of four metal angle supports secured to two wood supports.

To remove the pallet:

1. If not already accomplished, use a forklift or pallet jack to move the UPS cabinet to the installation area, or as close as possible, before unloading from the pallet. Insert the forklift or pallet jack forks between the supports on the bottom of the pallet (see Figure 3-4 for the UPS cabinet center of gravity measurements).
2. Open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
3. Remove the UPS right front panel by removing two top screws and one bottom screw from the panel. Lift the panel to disengage the slotted bracket on the left side of the panel. Rotate the panel and remove from the hanger brackets on the right side of the cabinet. Retain the hardware for later use.
4. If a sidecar is attached to the UPS, remove the bottom screw securing the sidecar front panel. Lift the panel straight up to remove from the panel hanger brackets at the top of the cabinet. Retain the hardware for later use.
5. Locate the four 1/2" jacking bolts from the parts kit and install them in the threaded holes in the front and rear supports as shown in Figure 4-1. Place a floor protector from the parts kit underneath each jacking bolt, and screw the bolts down against them.

   The floor protectors protect the floor from being marred by the jacking bolts.

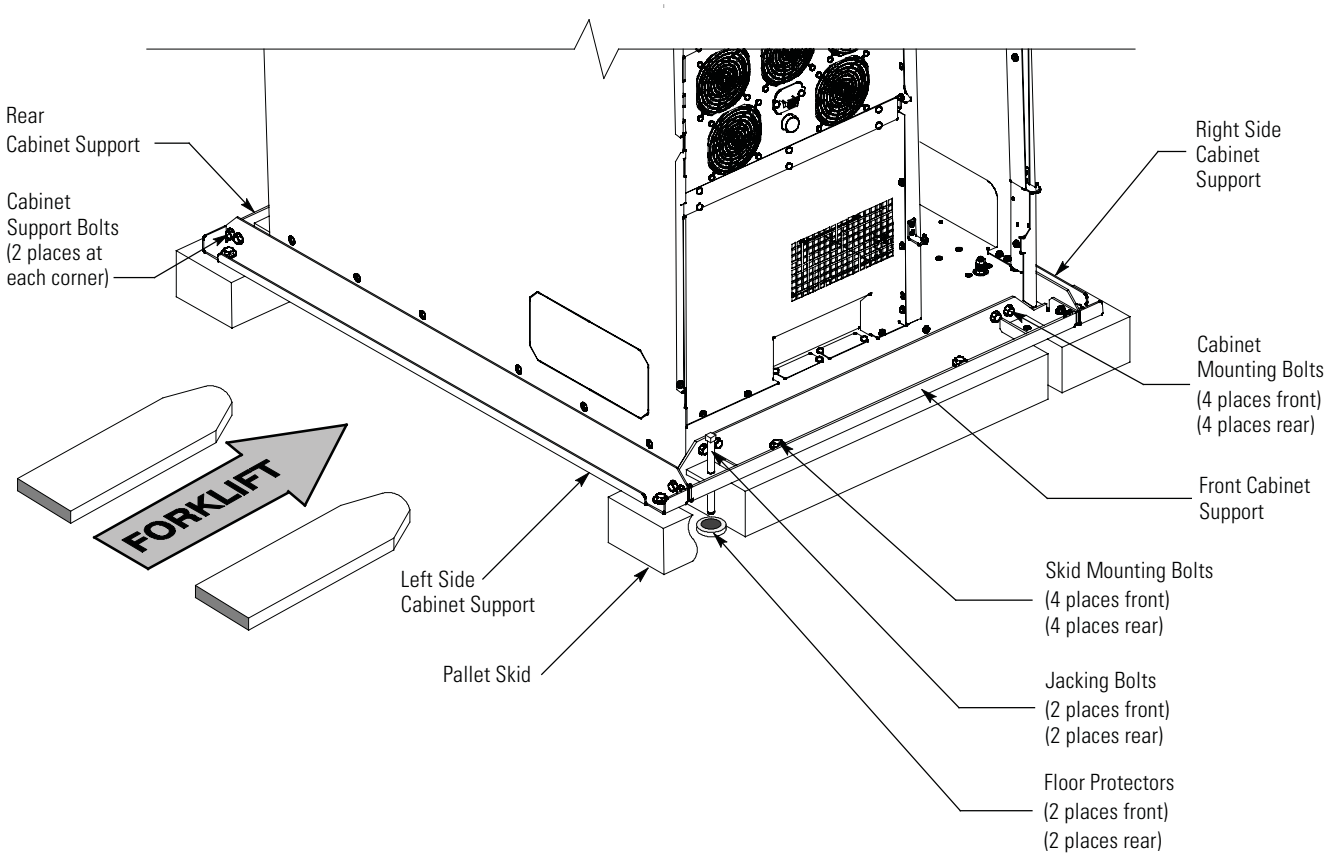


Figure 4-1. Removing the Pallet Skids and Supports – Eaton 93PM UPS

⚠ WARNING

Do not remove or loosen the cabinet mounting or cabinet support bolts until instructed.

6. Loosen, but do not remove, the skid mounting bolts holding the pallet skids to the front and rear supports, and to the left and right side supports (see Figure 4-1).
7. If a sidecar is attached to the UPS, loosen, but do not remove, the sidecar skid mounting bolts holding the sidecar pallet skids to the sidecar front and rear supports, and to the left and right supports (see Figure 4-1 and Figure 4-2).

⚠ WARNING

RISK OF INSTABILITY. Turning the jacking bolts unevenly may cause the cabinet to become unbalanced. To prevent tipping the cabinet, raise and lower the jacking bolts evenly.

⚠ CAUTION

CABINET MAY TIP. Raise the UPS no more than 3 mm (1/8") above the floor (just enough to allow the removal of the pallet skids).

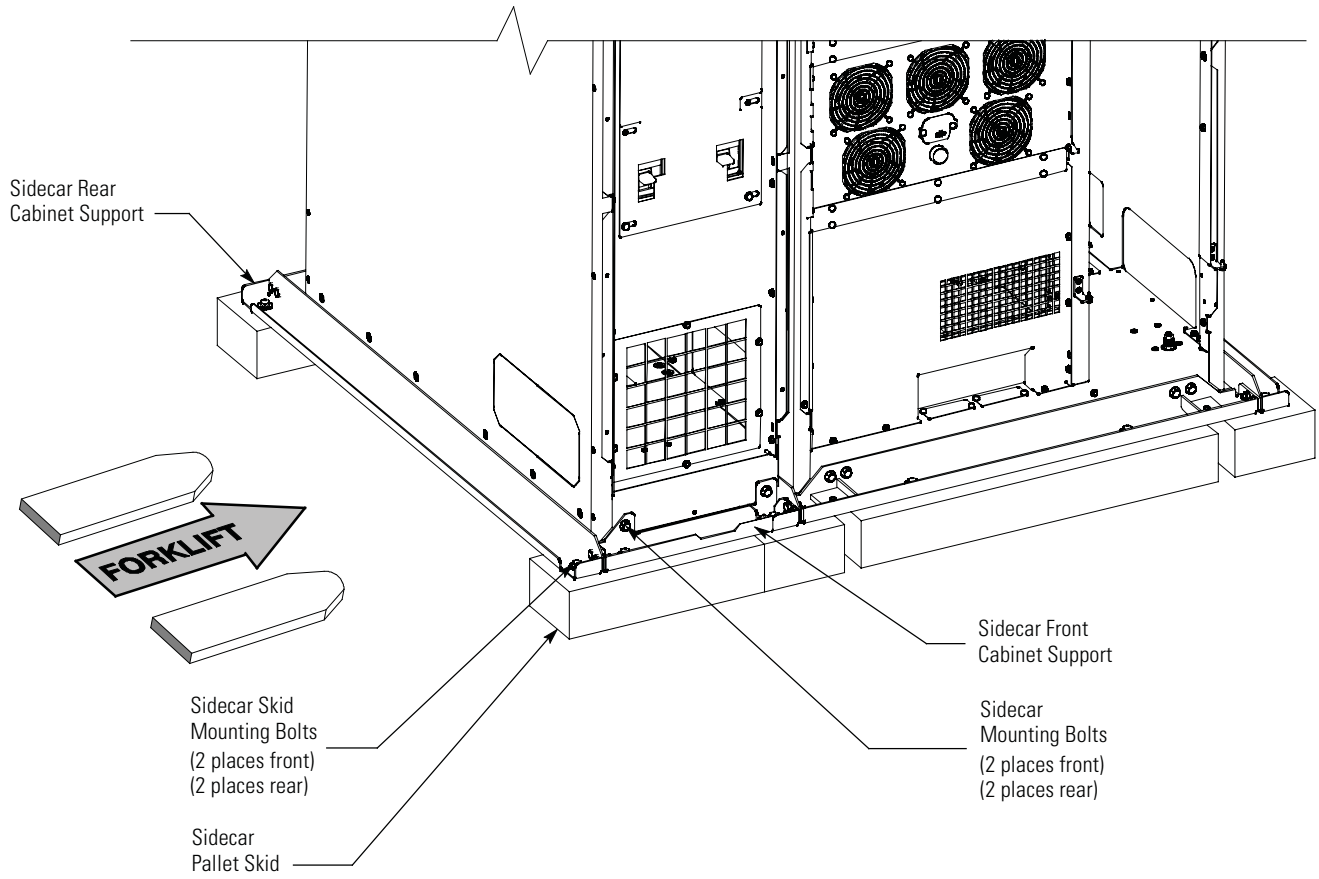


Figure 4-2. Removing the Sidecar Pallet Skids and Supports – Eaton 93PM UPS

8. Turn each jacking bolt consecutively, two full turns, until the pallet skids clear the floor by approximately 3 mm (1/8").
9. Remove the hardware loosened in Step 6.
10. If a sidecar is attached to the UPS, remove the hardware loosened in Step 7.
11. Pull the pallet skids out from under the metal angle supports without disturbing the jacking bolts. Recycle the pallet skids and hardware in a responsible manner.

⚠ CAUTION

CABINET MAY FALL. Do not loosen the hardware attaching the front supports to the cabinet base. The cabinet must be lowered by the jacking bolts before the supports can be removed.

12. Carefully and evenly **lower the cabinet by turning each jacking bolt consecutively two full turns (maximum)** until the casters contact the floor and the cabinet is no longer supported by the jacking bolts.
13. After the UPS is resting on the floor, remove the jacking bolts and floor protectors. Recycle them in a responsible manner.
14. Remove the cabinet support bolts fastening the front, rear, and side cabinet supports together and remove the side supports (see Figure 4-1).
15. If a sidecar is attached to the UPS, remove the sidecar mounting bolts holding the front and rear sidecar supports to the cabinet base (see Figure 4-2).

16. Remove the cabinet mounting bolts holding the front and rear supports to the cabinet base (see Figure 4-1).
17. If installing the cabinet permanently, retain the cabinet mounting bolts; otherwise, recycle the bolts along with the support brackets in a responsible manner.
18. Close the door and secure the latch.
19. If a sidecar is attached to the UPS, remove the screws securing sidecar rear shipping bracket. Remove the bracket and reinstall the screws (see Figure 4-3).
20. If the leveling feet are not retracted, turn all four leveling feet until they are retracted as far into the cabinet as possible.

⚠ CAUTION

To prevent tipping when rolling the cabinet, push the cabinet from the rear whenever possible.

21. Roll the cabinet to the final installation location.

NOTE Use the leveling feet to level and lock the cabinet in place.

22. Secure the UPS in position by lowering the leveling feet until the cabinet is level and locked in place.

NOTE Either front and back floor mounting brackets or left and right side floor mounting brackets are available for permanently mounting the UPS.

23. If permanently mounting the UPS using the left and right side floor mounting brackets, proceed to Step 24; if using the front and rear floor mounting brackets, proceed to Step 28; otherwise, proceed to Step 32.
24. Locate the left and right side floor mounting brackets from the floor mounting kit.
25. Using the retained cabinet mounting bolts, install the floor mounting brackets to the left and right side of the UPS with the angle facing outward.
26. Secure the cabinet to the floor with customer-supplied hardware.
27. Proceed to paragraph 4.3.
28. Locate the front and back floor mounting brackets from the floor mounting kit.
29. Using the retained cabinet mounting bolts, install the floor mounting brackets to the front and rear of the UPS with the angle facing outward.
30. Secure the cabinet to the floor with customer-supplied hardware.
31. Proceed to paragraph 4.3.

NOTE Black cover dots are provided, if side mounting bracket holes need to be covered for aesthetic reasons.

32. Locate the black cover dots from the parts kit and install over the left and right side bracket mounting holes.
33. Proceed to paragraph 4.3.

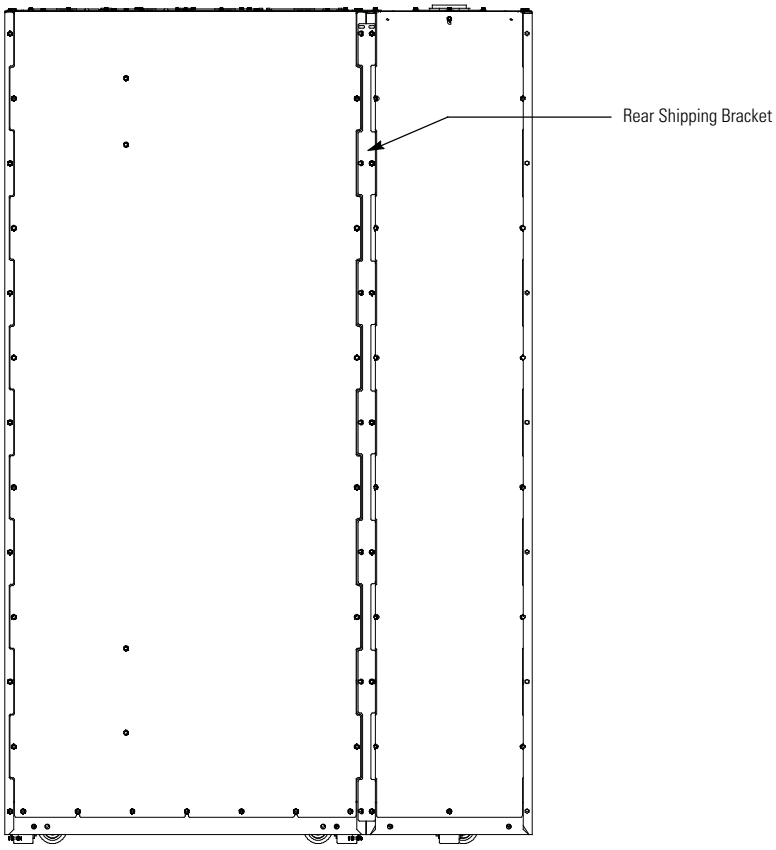


Figure 4-3. Removing the Sidecar Rear Shipping Bracket – Eaton 93PM 200 kW UPS

4.3 Integrated Battery Cabinet Installation

If installing Integrated Battery Cabinets (IBCs), refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8, for installation instructions.

After the IBC is installed, proceed to paragraph 4.4 if a Sidecar Integrated Accessory Cabinet-Bypass (SIAC-B) is attached to the UPS, or to paragraph 4.5 if installing an Integrated Accessory Cabinet-Tie (IAC-T), or to paragraph 4.6 if installing an Integrated Accessory Cabinet-Distribution (IAC-D); otherwise, proceed to paragraph 4.7 to complete the wiring of the UPS.

4.4 Sidecar Integrated Accessory Cabinet-Bypass Wiring Installation

If an SIAC-B is attached to the UPS, refer to the *Eaton 93PM Sidecar Integrated Accessory Cabinet-Bypass (150 kW and 200 kW SIAC-B) Installation and Operation Manual* listed in paragraph 1.8 for wiring installation instructions.

After the SIAC-B is wired, proceed to paragraph 4.5 if installing an Integrated Accessory Cabinet-Tie (IAC-T), or to paragraph 4.6 if installing Integrated Accessory Cabinet-Distribution; otherwise, proceed to paragraph 4.7 to complete the wiring of the UPS.

4.5 Integrated Accessory Cabinet-Tie

If an IAC-T is attached to the UPS, refer to the *Eaton 93PM Integrated Accessory Cabinet-Tie (150 kW and 200 kW) Installation and Operation Manual* listed in paragraph 1.8 for wiring installation instructions.

After the IAC-T is wired, proceed to paragraph 4.6 if installing Integrated Accessory Cabinet-Distribution; otherwise, proceed to paragraph 4.7 to complete the wiring of the UPS.

4.6 Integrated Accessory Cabinet-Distribution

If installing Integrated Accessory Cabinet-Distribution (IAC-D), refer to the *Eaton 93PM Integrated Accessory Cabinet-Distribution (50 kW, 100 kW, 150 kW, and 200 kW IAC-D) Installation and Operation Manual* listed in paragraph 1.8 for installation instructions.

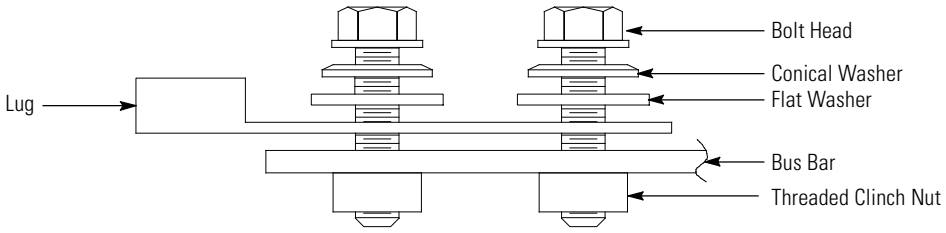
After the IAC-D is installed, proceed to paragraph 4.7 to complete the wiring of the UPS.

4.7 Two-Hole Barrel Lug Terminations to Bus Bar Installation

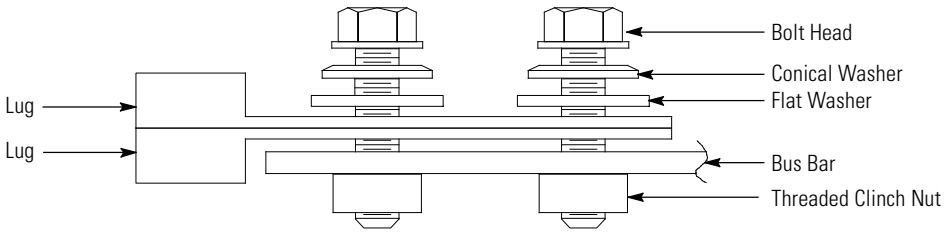
Paragraphs 4.8 and 4.9 require connecting input, output, and battery power wiring using 2-hole barrel lugs. See Figure 4-4 for the hardware sequence when installing the lugs to the bus bars. Tighten the bolt to the torque value listed in Table 3-8.

Proceed to paragraph 4.8.

NOTE Conical washers are special purpose washers that look similar to flat washers, except for a slight conical shape. When installing conical washers, the top of the dome should be next to the bolt head and the base of the washer should be against a flat surface such as a bus bar, flat washer, or large terminal.



Single Lug Installation



Double Lug Installation

Figure 4-4. Typical Bus Bar Barrel Lug Mounting – Hardware Assembly Sequence

4.8 External AC Power Wiring Installation

To install wiring:

1. Open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
2. Remove the UPS right front panel by removing two top screws and one bottom screw from the panel. Lift the panel to disengage the slotted bracket on the left side of the panel. Rotate the panel and remove from the hanger brackets on the right side of the cabinet. Retain the hardware for later use.
3. Remove the screws securing the bottom internal safety shield panel and remove the panel to gain access to the ground terminals. Retain the hardware for later use.
4. If wiring the UPS using the top entry wiring access, proceed to Step 8; otherwise proceed to Step 5.
5. **Bottom Entry Wiring.** Remove the bottom conduit plate (see Figure 4-5) from the inside bottom of the UPS. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the UPS. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through conduit into the wiring area.
6. Route the input and output cables through the bottom of the cabinet to the UPS terminals. See Figure 4-5 for wiring access information and Figure 4-7 and Figure 4-8 for terminal locations.
7. Proceed to Step 10.
8. **Top Entry Wiring.** Remove the top conduit plate (see Figure 4-5) from the top of the cabinet. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.
9. Route the input and output cables through the top of the UPS cabinet to the UPS terminals. See Figure 4-5 for wiring access information and Figure 4-7 and Figure 4-8 for terminal locations.
10. Locate the external wiring terminal hardware kit packed on the bottom right side of the UPS cabinet.
11. Using hardware from the external wiring terminal hardware kit (see Table 3-9), connect phase A, B, and C rectifier input power wiring from the utility source to the rectifier input terminals. See paragraph 3.2.2 for wiring and termination requirements.

    For a detailed view of the UPS AC terminals, see Figure 4-9.
12. Using hardware from the external wiring terminal hardware kit (see Table 3-9), connect phase A, B, and C bypass input power wiring from the utility source to the bypass input terminals. See paragraph 3.2.2 for wiring and termination requirements.

    For a detailed view of the UPS AC terminals, see Figure 4-9.
13. If wiring an external parallel system, proceed to Step 14; otherwise, proceed to Step 15.

⚠ CAUTION

External parallel system wiring length should be in accordance with Figure 3-6, to ensure approximately equal current sharing when in Bypass mode.

14. Using hardware from the external wiring terminal hardware kit (see Table 3-9), connect phase A, B, and C power wiring from the output terminals of each UPS to the tie cabinet.

    For a detailed view of the UPS terminal blocks, see Figure 4-9.

Proceed to Step 16.

15. Using hardware from the external wiring terminal hardware kit (see Table 3-9), connect phase A, B, and C power wiring from output terminals to the critical load. See paragraph 3.2.2 for wiring and termination requirements.

    For a detailed view of the UPS AC terminals, see Figure 4-9.

⚠ WARNING

As a result of the connected loads high leakage current is possible. Connection to earth ground is required for safety and proper product operation. Do not check UPS operation by any action that includes removal of the earth (ground) connection with loads attached.

16. Ground the UPS according to local and/or national electrical wiring codes by routing and connecting the ground wire to the input ground lug. See Figure 4-8 for UPS ground terminal locations.
17. Proceed to paragraph 4.9.

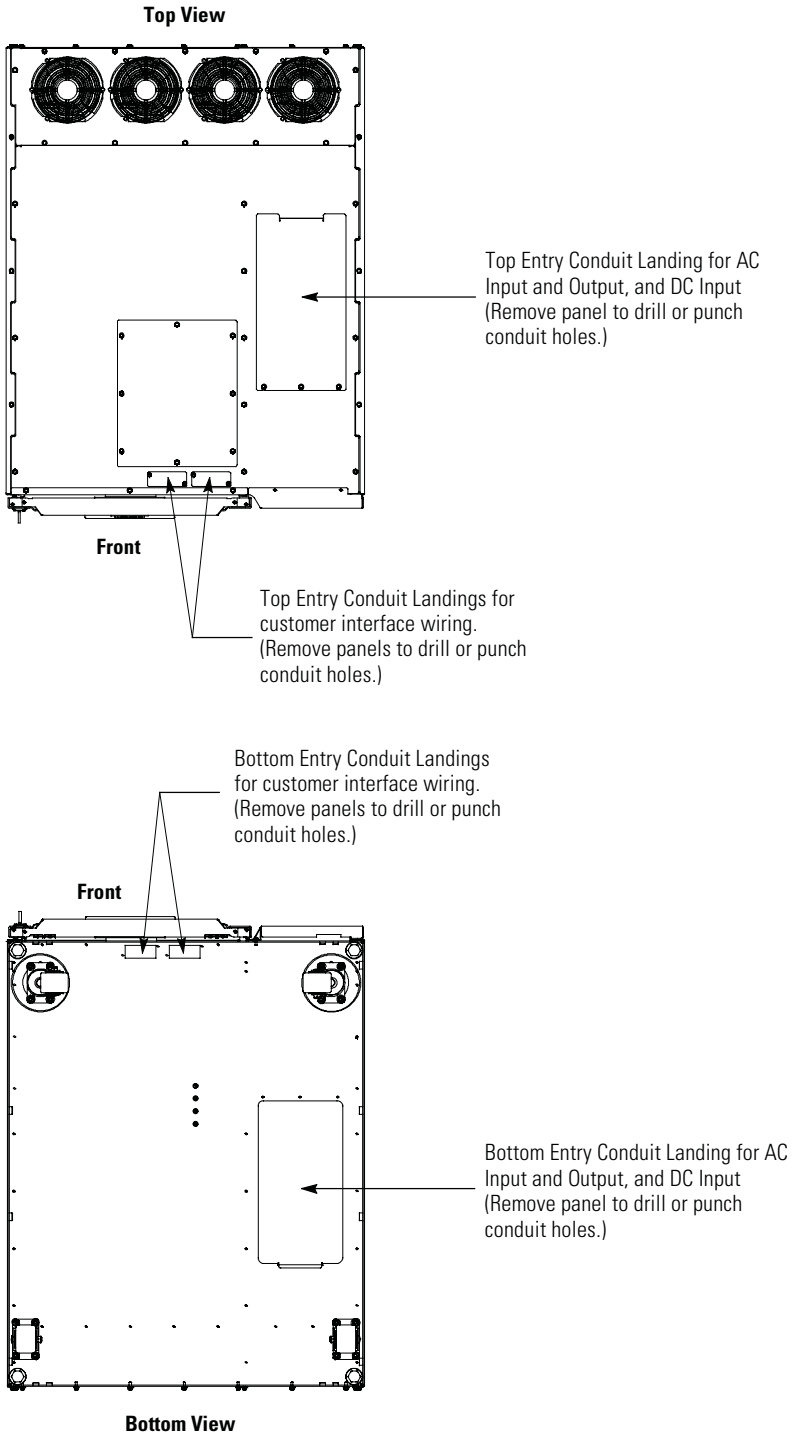


Figure 4-5. UPS Conduit and Wire Entry Locations

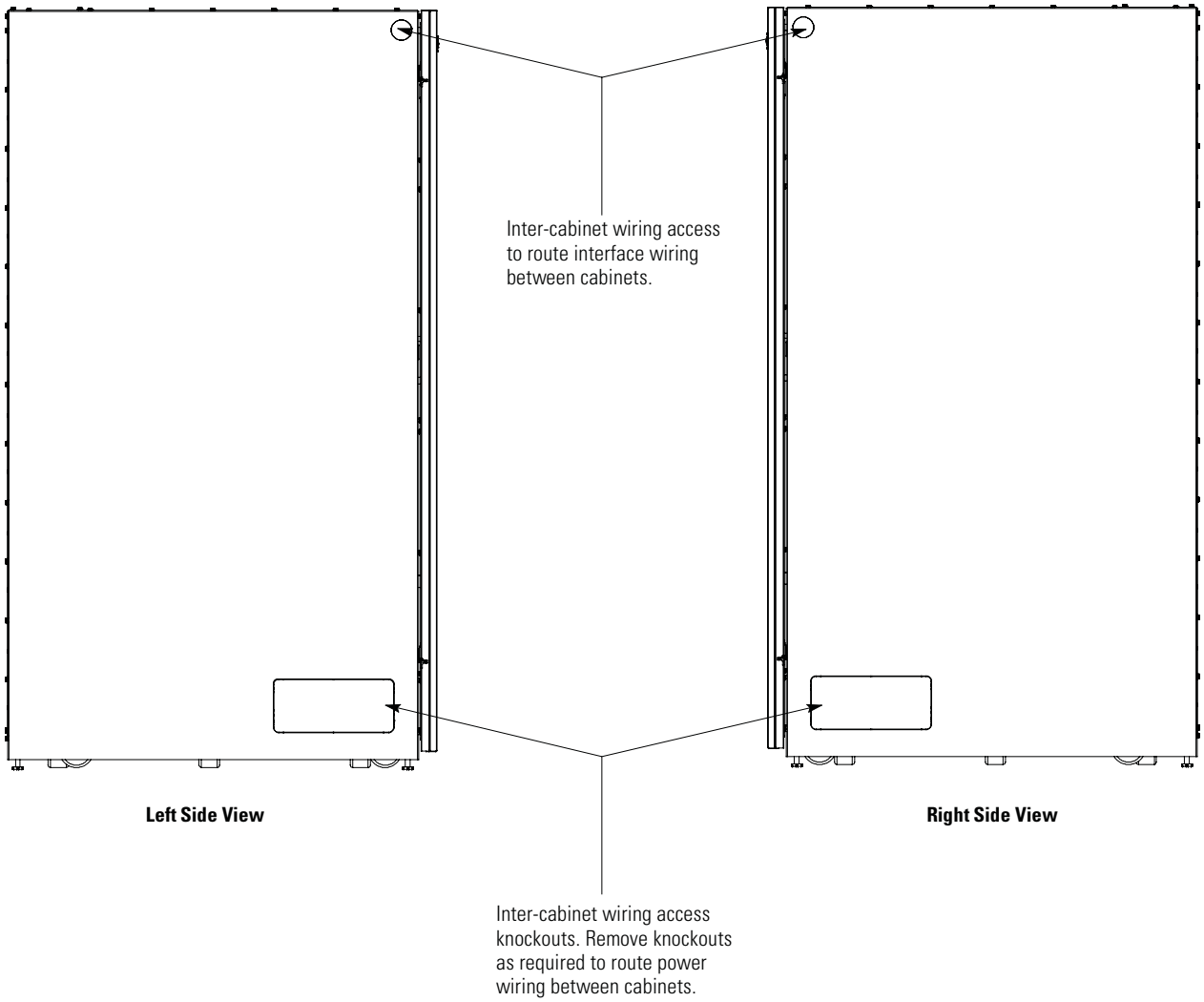


Figure 4-6. UPS Inter-Cabinet Wiring Access Location

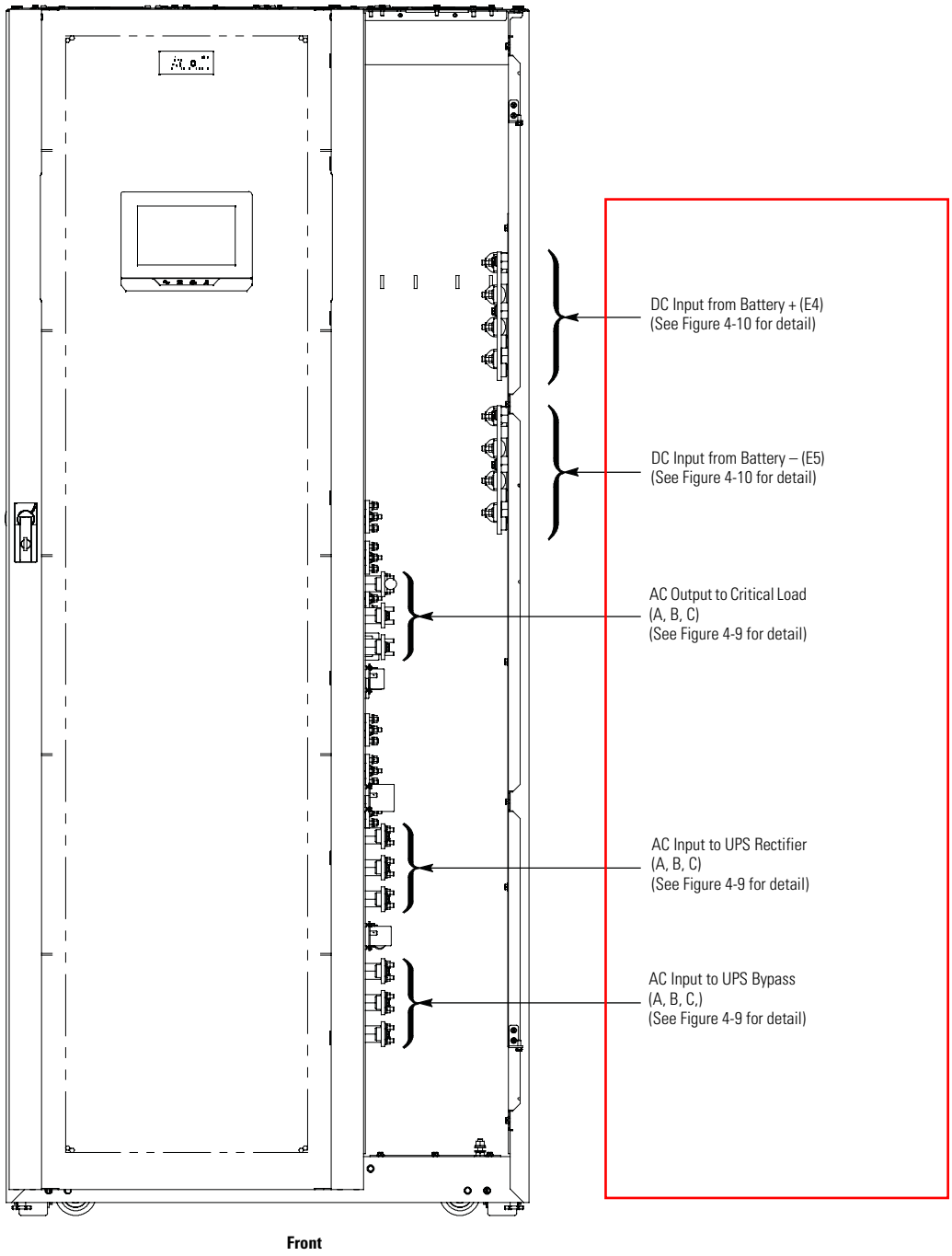


Figure 4-7. Power Terminal Locations

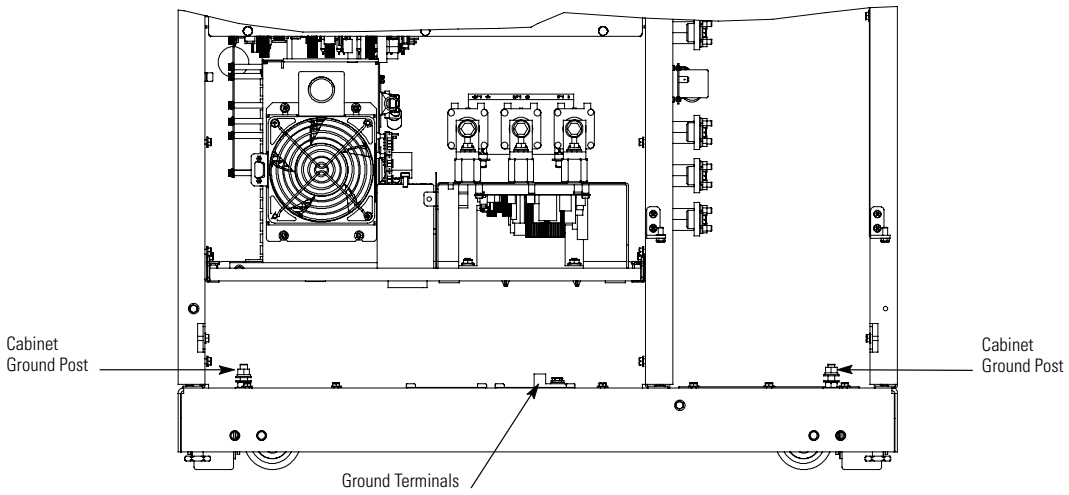


Figure 4-8. Ground Terminals

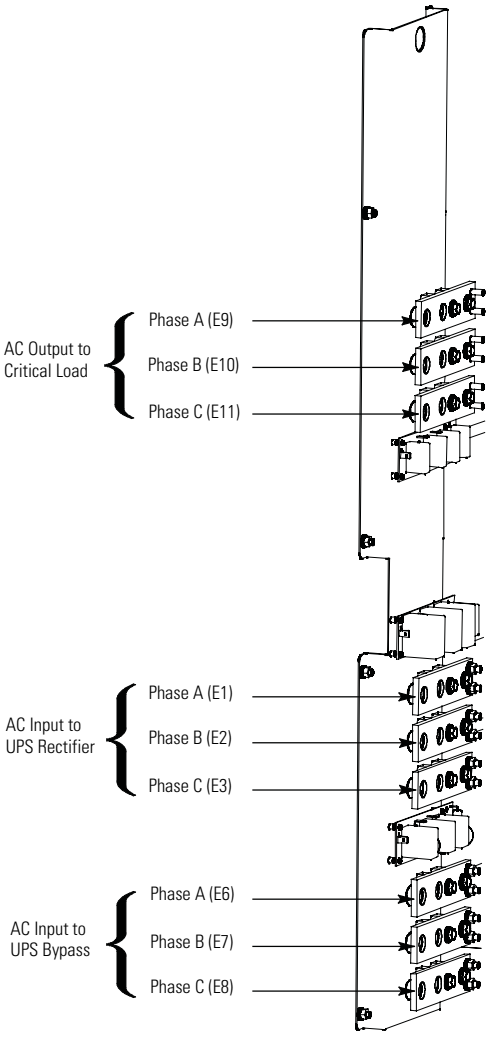


Figure 4-9. AC Power Terminal Detail

4.9 Battery Power Wiring

CAUTION

When sizing the battery system, do not exceed the internal battery charger capabilities. See Chapter 9, "Product Specifications," for maximum battery charger currents.

To install wiring:

1. Route and connect the battery cables between the UPS and battery cabinet or battery disconnect according to the instructions in the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate* listed in paragraph 1.8. See Figure 4-5 and Figure 4-6 for wiring access information and Figure 4-7 for terminal locations.
2. Using hardware from the external wiring terminal hardware kit (see Table 3-9), connect the positive, negative, and ground DC power wiring from the battery cabinet or disconnect to the UPS cabinet battery and ground terminals. See paragraph 3.2.2 for wiring and termination requirements

   For a detailed view of the UPS DC terminals, see Figure 4-10.
3. After wiring the UPS system to the facility power and critical load, be sure to ground the system according to local and/or national electrical wiring codes.
4. If wiring interface connections, proceed to paragraph 4.10; otherwise, proceed to Step 5.
5. Reinstall all safety shield panels previously removed and secure with the retained hardware.
6. Reinstall the UPS right front panel and secure with the retained hardware.
7. Close the UPS outside door and secure the latch.

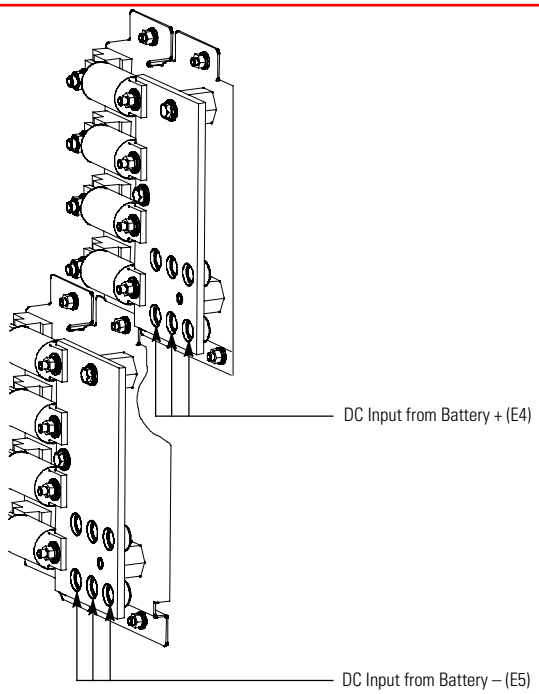


Figure 4-10. DC Power Terminal Detail

4.10 Installing Interface Connections

NOTE If installing the IAC-D CT wiring, refer to the *Eaton 93PM Integrated Accessory Cabinet-Distribution (50 kW, 100 kW, 150 kW, and 200 kW IAC-D) Installation and Operation Manual* listed in paragraph 1.8 for installation instructions.

Use the procedures in the following paragraphs to connect the customer and battery interface connections.

4.10.1 Installing Building Alarm and Relay Contact Connections

NOTE 1 If installing interface wiring connections between standalone cabinets or separate devices, conduit must be installed between each cabinet or device.

NOTE 2 Disconnect terminal block plugs from terminal blocks to wire plugs.

To install wiring:

1. Verify the UPS system is turned off and all power sources are removed. See Chapter 6, "UPS Operating Instructions," for shutdown instructions.
2. If not already opened, open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
3. If wiring the interface terminals from the bottom of the UPS, proceed to Step 8; otherwise, proceed to Step 4.
4. **Top Entry Wiring.** Remove the top interface entry conduit landing plates to drill or punch holes (see Figure 4-5).
5. Reinstall the interface entry plates and install the conduit.
6. Route the UPS building alarm and relay output interface wiring through the top interface entry conduit landing plates to the UPS building alarm and relay output terminals. See Figure 4-5 for wiring access information and Figure 4-11 and Figure 4-12 for UPS interface terminal locations.
7. Proceed to Step 13.
8. **Bottom Entry Wiring.** Remove the bottom interface entry conduit landing plates to drill or punch holes (see Figure 4-13).
9. Reinstall the interface entry plates and install the conduit.
10. Route the UPS building alarm and relay output interface wiring through the bottom interface entry conduit landing plates to the bottom access interface wiring channel along the inside of the front door (see Figure 4-13).
11. Route the wiring along the interface wiring channel (see Figure 4-13) to the UPS building alarm and relay output terminals. See Figure 4-11 and Figure 4-12 for UPS interface terminal locations.
12. Secure the wiring to the wire tie anchors provided (see Figure 4-14) using Zip ties.
13. Connect the building alarm interface wiring to the building alarm terminals. See paragraph 3.2.4 and Table 4-3 for wiring and termination requirements, and Figure 4-15 for terminal assignments.
14. Connect the relay output interface wiring to the relay output terminals. See paragraph 3.2.4 and Table 4-3 for wiring and termination requirements, and Figure 4-16 for terminal assignments.

15. If wiring battery detect connections, proceed to paragraph 4.10.2; if wiring battery shunt trip connections, proceed to paragraph 4.10.3; if wiring generator interface connections, proceed to paragraph 4.10.4; if wiring external parallel CAN connections, proceed to paragraph 4.10.5; if wiring external parallel pull chain connections, proceed to paragraph 4.10.6; if wiring Minislot connections, proceed to paragraph 4.10.7; if wiring REPO connections, proceed to paragraph 4.11; otherwise, proceed to Step 16.
16. Close the UPS outside door and secure the latch.

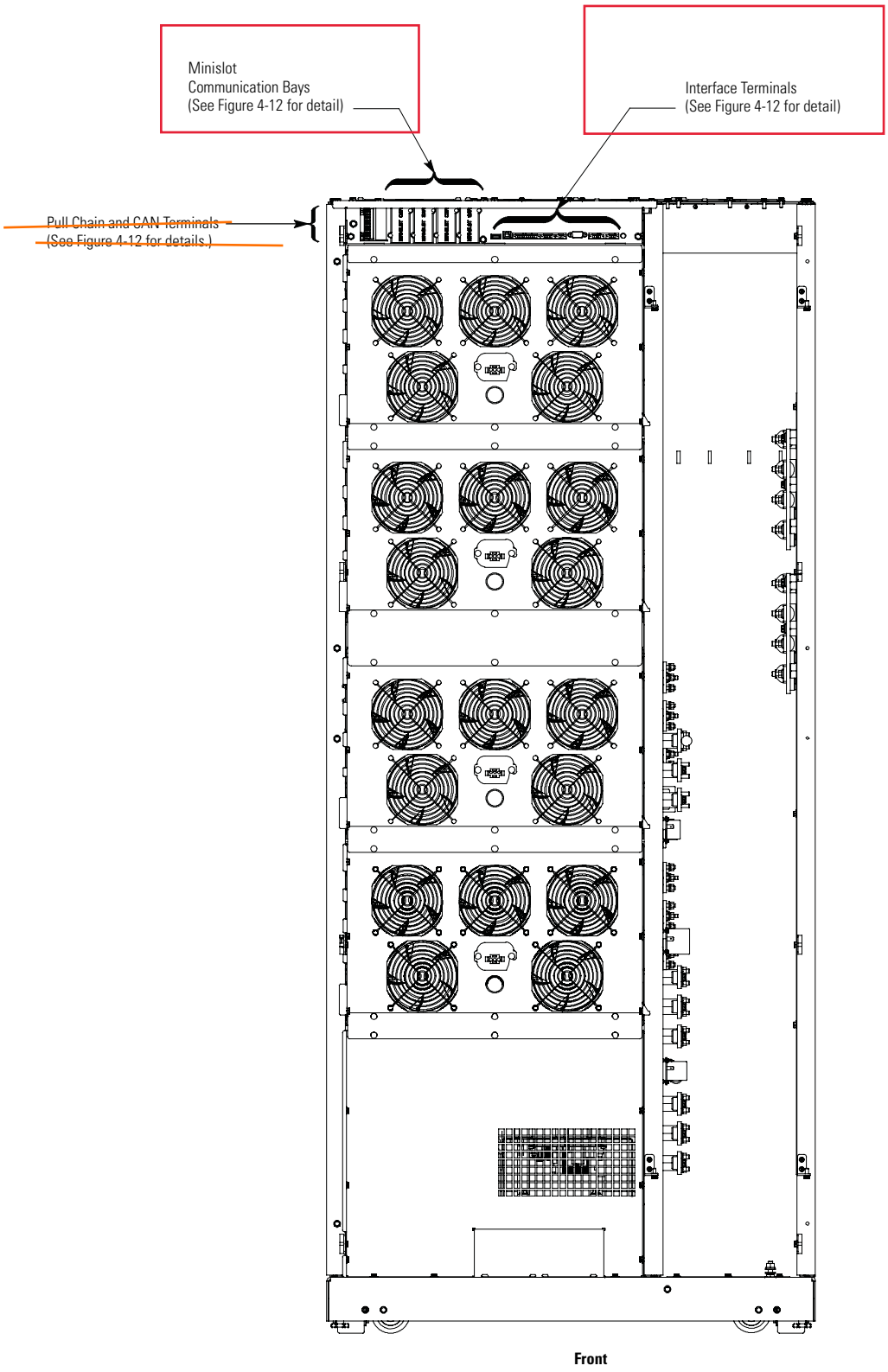


Figure 4-11. Interface Terminal Locations

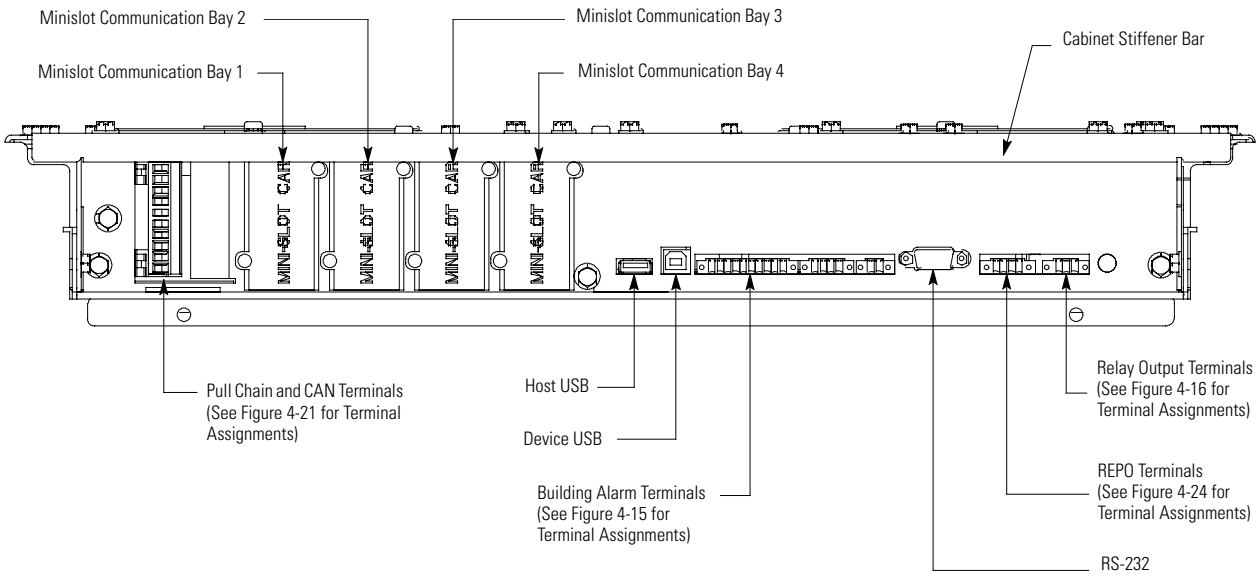


Figure 4-12. Interface Terminal Detail

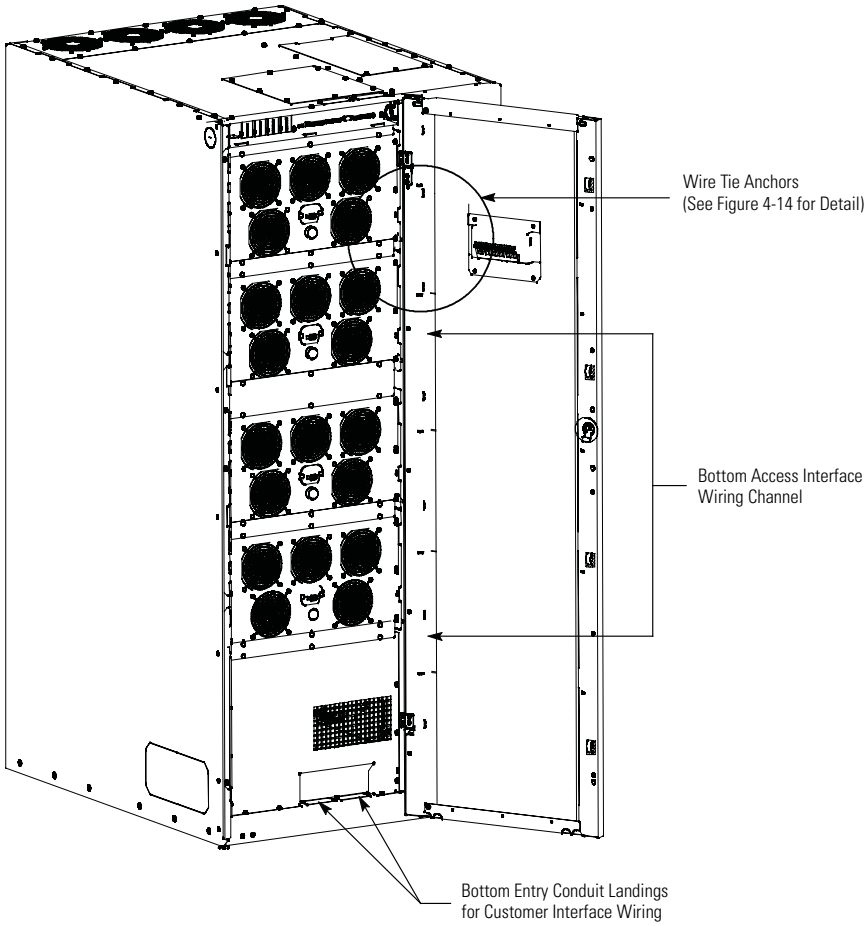


Figure 4-13. Bottom Access Interface Wiring Location

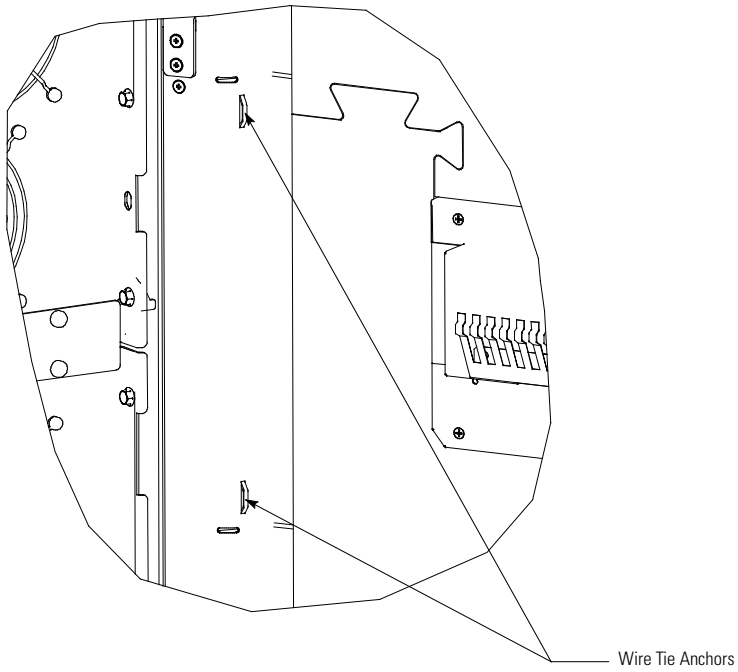


Figure 4-14. Wire Tie Anchors

Table 4-1. Building Alarm Connections and Wire Terminations

Terminal	Name	Description	Recommended Wire Size	Size of Pressure Termination	Tightening Torque
10	Building Alarm 1	Input: Programmable UPS alarm, activated by a remote dry contact closure	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
9	Building Alarm 1 Return				
8	Building Alarm 2	Input: Programmable UPS alarm, activated by a remote dry contact closure	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
7	Building Alarm 2 Return				
6	Building Alarm 3	Input: Programmable UPS alarm, activated by a remote dry contact closure	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
5	Building Alarm 3 Return				
4	Building Alarm 4	Input: Programmable UPS alarm, activated by a remote dry contact closure	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
3	Building Alarm 4 Return				
2	Building Alarm 5	Input: Programmable UPS alarm, activated by a remote dry contact closure	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
1	Building Alarm 5 Return				

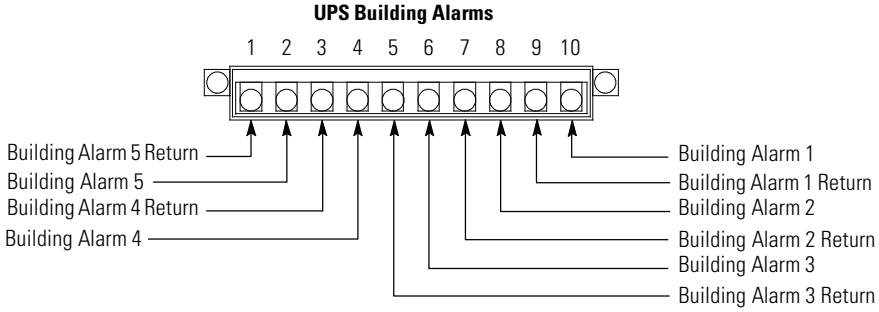


Figure 4-15. Building Alarm Terminal Block Connector Assignments

Table 4-2. Relay Contact Connections and Wire Terminations

Terminal	Name	Description	Recommended Wire Size	Size of Pressure Termination	Tightening Torque
1	Relay Contact NC	Output: General purpose normally-closed (NC) relay contact.	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
3	Relay Contact Common				
2	Relay Contact NO	Output: General purpose normally-closed (NO) relay contact.	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
3	Relay Contact Common				

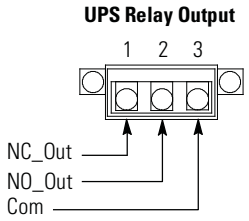


Figure 4-16. Relay Contact Terminal Block Connector Assignments

4.10.2 Installing Battery Detect Interface Connections

NOTE 1 The UPS battery detect signal uses an UPS building alarm input to indicate an open battery breaker.

NOTE 2 Any pair of unused building alarm terminals may be used for the battery detect connections.

NOTE 3 Program the battery detect building alarm to read battery open and for normally open contacts.

NOTE 4 If installing interface wiring connections between standalone cabinets, conduit must be installed between cabinets.

NOTE 5 Disconnect terminal block plugs from terminal blocks to wire plugs.

To install wiring:

1. Verify the UPS system is turned off and all power sources are removed. See Chapter 6, "UPS Operating Instructions," for shutdown instructions.
2. If not already opened, open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
3. If wiring the battery detect connections using the inter-cabinet wiring access pass-through (line-up-and-match configurations), proceed to Step 4; if wiring the battery interface connections using bottom entry access, proceed to Step 6; if wiring the battery interface connections using top entry access, proceed to Step 12.
4. **Pass-through Wiring.** Route the battery detect wiring from the battery cabinet through the top UPS inter-cabinet wiring access pass-through to the UPS building alarm terminals. See Figure 4-6 for UPS wiring access information and Figure 4-11 and Figure 4-12 for UPS terminal locations. Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
5. Proceed to Step 15.

6. **Bottom Entry Wiring.** Remove the bottom interface entry conduit landing plate to drill or punch holes (see Figure 4-13).
7. Reinstall the interface entry plate and install the conduit.
8. Route the battery detect wiring from the battery cabinet through the bottom interface entry conduit landing plate to the bottom access interface wiring channel along the inside of the front door (see Figure 4-13). Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
9. Route the wiring along the interface wiring channel (see Figure 4-13) to the UPS building alarm terminals. See Figure 4-11 and Figure 4-12 for UPS interface terminal locations.
10. Secure the wiring to the wire tie anchors provided (see Figure 4-14) using Zip ties.
11. Proceed to Step 15.
12. **Top Entry Wiring.** Remove the top interface entry conduit landing plate to drill or punch holes (see Figure 4-5).
13. Reinstall the interface entry plate and install the conduit.
14. Route the battery detect wiring from the battery cabinet through the top interface entry conduit landing plate to the UPS building alarm terminals. See Figure 4-5 for wiring access information and Figure 4-11 and Figure 4-12 for UPS interface terminal locations. Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
15. Connect the battery detect wiring to one pair of building alarm terminals. See paragraph 3.2.4 and Table 4-1 for wiring and termination requirements, and Figure 4-15 for terminal assignments.
16. If wiring battery shunt trip connections, proceed to paragraph 4.10.3; if wiring generator interface connections, proceed to paragraph 4.10.4; if wiring external parallel CAN connections, proceed to paragraph 4.10.5; if wiring external parallel pull chain connections, proceed to paragraph 4.10.6; if wiring Minislot connections, proceed to paragraph 4.10.7; if wiring REPO connections, proceed to paragraph 4.11; otherwise, proceed to Step 17.
17. Close the UPS outside door and secure the latch.

4.10.3 Installing Battery Shunt Trip Interface Connections

NOTE 1 If installing interface wiring connections between standalone cabinets, conduit must be installed between cabinets.

NOTE 2 Disconnect terminal block plugs from terminal blocks to wire plugs.

To install wiring:

1. Verify the UPS system is turned off and all power sources are removed. See Chapter 6, "UPS Operating Instructions," for shutdown instructions.
2. If not already opened, open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
3. If not already removed, remove the screws securing the bottom internal safety shield panel and remove the panel. Retain the hardware for later use.
4. Remove the screws securing the internal safety shield panel above the bottom safety panel and remove the panel to gain access to the battery shunt trip wiring terminals. Retain the hardware for later use.

5. If wiring the battery shunt trip connections using the inter-cabinet wiring access pass-through (line-up-and-match configurations), proceed to Step 6; if wiring the battery shunt trip connections using bottom entry access, proceed to Step 8; if wiring the battery shunt trip connections using top entry access, proceed to Step 10.
6. **Pass-through Wiring.** Route the battery shunt trip wiring from the battery cabinet through the bottom UPS inter-cabinet wiring access pass-through and static switch shelf bushing to the UPS battery shunt trip terminals. See Figure 4-6 for UPS wiring access information and Figure 4-17 and Figure 4-18 for UPS terminal locations. Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
7. Proceed to Step 11.
8. **Bottom Entry Wiring.** Route the battery shunt trip wiring from the battery cabinet or battery disconnect through the bottom of the UPS and static switch shelf bushing to the UPS battery shunt trip terminals. See Figure 4-5 for UPS wiring access information and Figure 4-17 and Figure 4-18 for UPS terminal locations. Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
9. Proceed to Step 11.
10. **Top Entry Wiring.** Route the battery shunt trip wiring from the battery cabinet or battery disconnect through the top of the UPS cabinet and the bottom UPS internal inter-cabinet wiring access pass-through and static switch shelf bushing to the UPS battery shunt trip terminals. See Figure 4-5 for UPS wiring access information and Figure 4-17 and Figure 4-18 for UPS terminal locations. Refer to the *Eaton 93PM Integrated Battery Cabinet Installation Manual – Large and Large High Rate*, listed in paragraph 1.8 for battery cabinet wiring access information and instructions.
11. Connect the wiring to the battery shunt trip terminals. See paragraph 3.2.4 and Table 4-3 for wiring and termination requirements, and Figure 4-19 for terminal assignments.
12. If wiring generator interface connections, proceed to paragraph 4.10.4; if wiring external parallel CAN connections, proceed to paragraph 4.10.5; if wiring external parallel pull chain connections, proceed to paragraph 4.10.6; if wiring Minislot connections, proceed to paragraph 4.10.7; if wiring REPO connections, proceed to paragraph 4.11; otherwise, proceed to Step 13.
13. Reinstall all safety shield panels previously removed and secure with the retained hardware.
14. If removed, reinstall the UPS right front panel and secure with the retained hardware.
15. Close the UPS outside door and secure the latch.

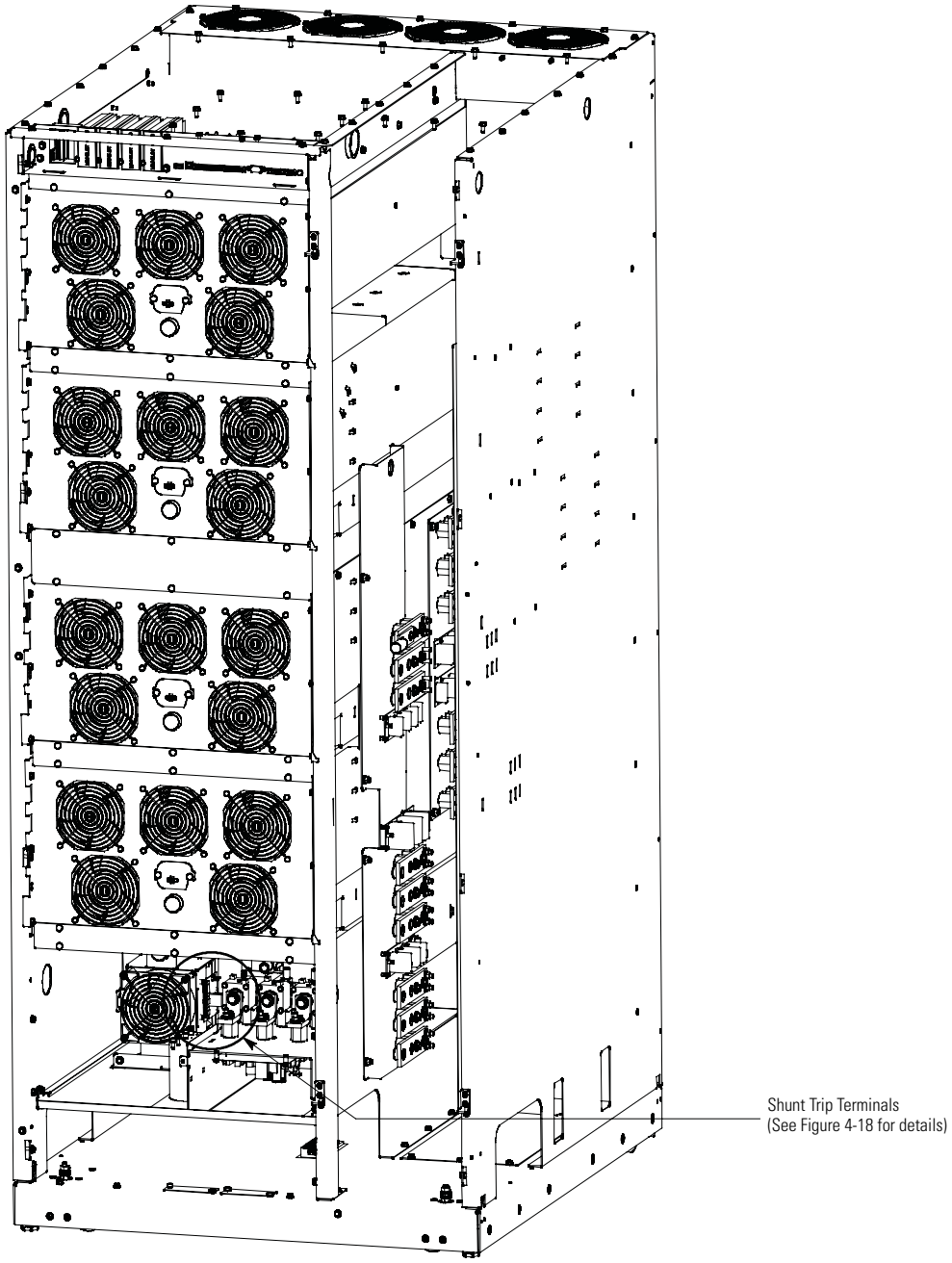


Figure 4-17. Battery Shunt Trip Locations

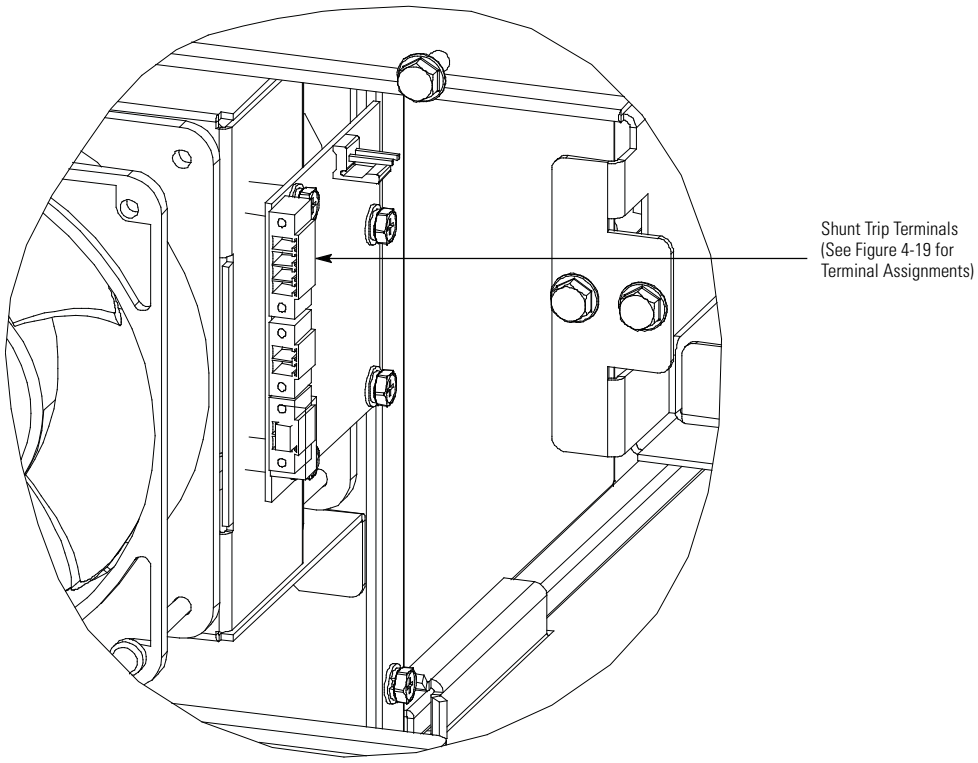


Figure 4-18. Battery Shunt Trip Terminal Detail

Table 4-3. Battery Shunt Trip Connections and Wire Terminations

Terminal	Name	Description	Recommended Minimum Wire Size	Size of Pressure Termination	Tightening Torque
1	48 Vdc Battery Shunt Trip +	Output: Contacts used to open battery breaker or disconnect	Twisted Pair Wires #18 AWG	#14–#30 AWG	2 lb in (0.22-0.25 Nm)
2	48 Vdc Battery Shunt Trip –				
3	Not Used				
4	Not Used				

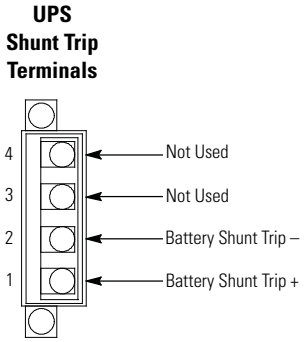


Figure 4-19. Battery Shunt Trip Terminal Assignments

4.10.4 Generator Interface Connections

Optional

If ESS is enabled and the UPS will be fed by a site generator at any time, the On Generator building alarm must be wired and configured to a Building Alarm Input. Wiring the On Generator sensing circuit to a building alarm allows the UPS to optimize its operation with the generator by transferring the UPS from ESS mode to Normal (double conversion) mode.

NOTE 1 An UPS building alarm input is used to indicate On Generator.

NOTE 2 Any pair of unused building alarm terminals may be used for On Generator connections.

NOTE 3 Program the building alarm to read On Generator and for either Normally Open (default) or Normally Closed as required by the generator sensing output.

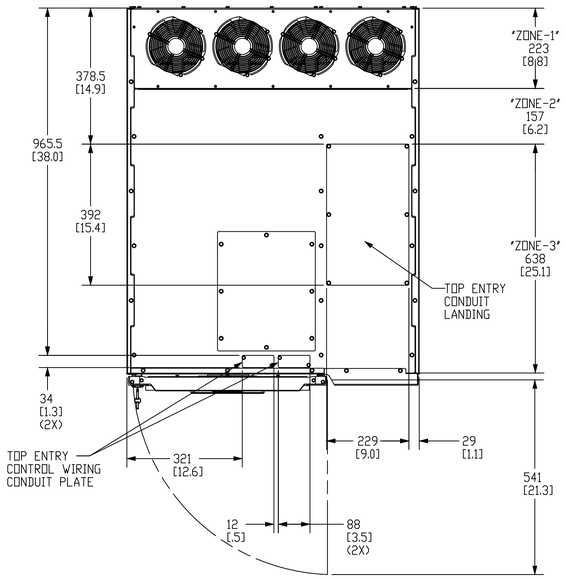
NOTE 4 If installing interface wiring connections between standalone cabinets, conduit must be installed between cabinets.

NOTE 5 Disconnect terminal block plugs from terminal blocks to wire plugs.

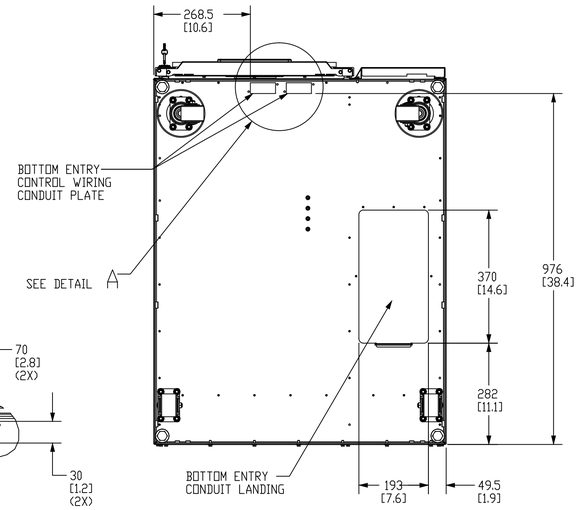
To Install wiring:

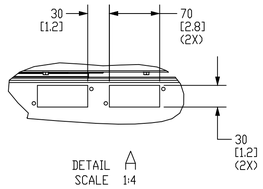
1. Verify the UPS system is turned off and all power sources are removed. See Chapter 6, "UPS Operating Instructions," for shutdown instructions.
2. If not already opened, open the front door by lifting the latch from the bottom and turning to the right (counterclockwise) and swing the door open.
3. If wiring the interface terminals from the bottom of the UPS, proceed to Step 8; otherwise, proceed to Step 4.
4. **Top Entry Wiring.** Remove the top interface entry conduit landing plates to drill or punch holes (see Figure 4-5).
5. Reinstall the interface entry plates and install the conduit.
6. Route the UPS building alarm interface wiring through the top interface entry conduit landing plates to the UPS building alarm terminals. See Figure 4-5 for wiring access information and Figure 4-11 and Figure 4-12 for UPS interface terminal locations.
7. Proceed to Step 13.
8. **Bottom Entry Wiring.** Remove the bottom interface entry conduit landing plates to drill or punch holes (see Figure 4-13).
9. Reinstall the interface entry plates and install the conduit.
10. Route the UPS building alarm interface wiring through the bottom interface entry conduit landing plates to the bottom access interface wiring channel along the inside of the front door (see Figure 4-13).
11. Route the wiring along the interface wiring channel (see Figure 4-13) to the UPS building alarm terminals. See Figure 4-11 and Figure 4-12 for UPS interface terminal locations.
12. Secure the wiring to the wire tie anchors provided (see Figure 4-14) using Zip ties.
13. Connect the building alarm interface wiring to the building alarm terminals. See paragraph 3.2.4 and Table 4-1 for wiring and termination requirements, and Figure 4-15 for terminal assignments.
14. If wiring external parallel CAN connections, proceed to paragraph 4.10.5; if wiring external parallel pull chain connections, proceed to paragraph 4.10.6; if wiring Minislot connections, proceed to paragraph 4.10.7; if wiring REPO connections, proceed to paragraph 4.11; otherwise, proceed to Step 15.
15. Close the UPS outside door and secure the latch.

TOP VIEW
(TOP EXHAUST OPTION)



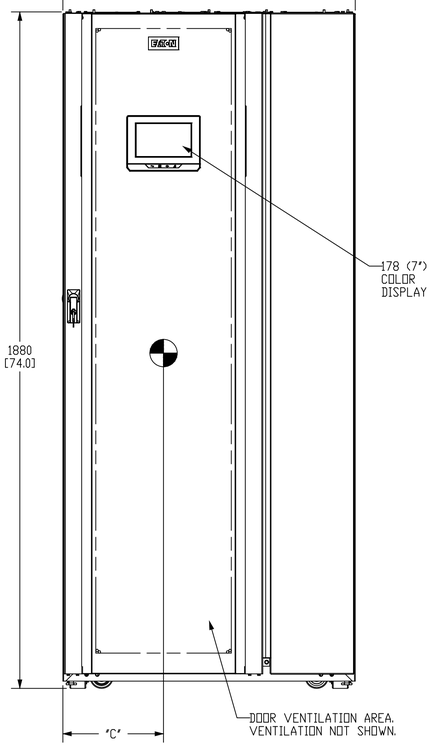
BOTTOM VIEW



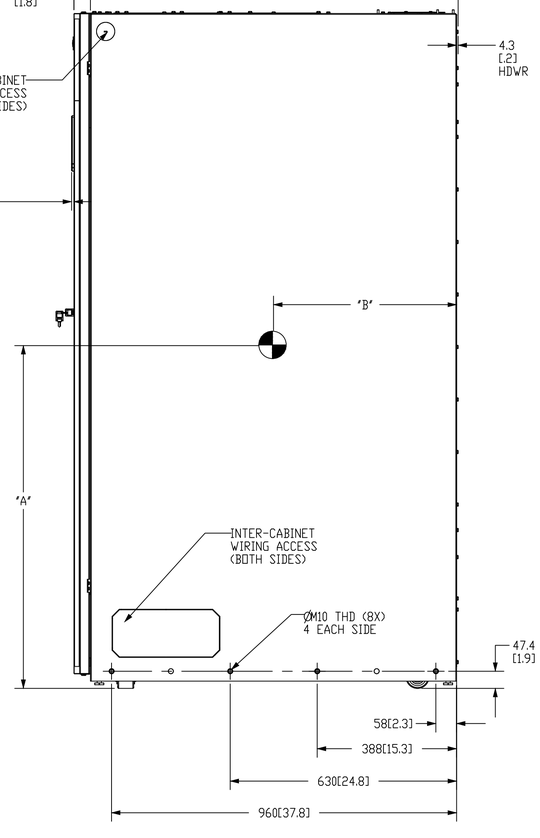


DETAIL A
SCALE 1:4

FRONT VIEW



SIDE VIEW



WEIGHT AND CENTER OF GRAVITY	DIMENSIONS MM (IN)			WEIGHT kg [lbs]
	A	B	C	
200KW CAPACITY FRAME- 1 50KW UPM INSTALLED	834 [32.8]	543 [21.4]	394 [15.5]	411 [907]
200KW CAPACITY FRAME- 2 50KW UPM INSTALLED	852 [33.5]	543 [21.4]	379 [14.9]	475 [1047]
200KW CAPACITY FRAME- 3 50KW UPM INSTALLED	909 [35.8]	543 [21.4]	367 [14.4]	539 [1188]
200KW CAPACITY FRAME- 4 50KW UPM INSTALLED	989 [38.9]	543 [21.4]	358 [14.1]	602 [1328]

PRODUCT SPECIFICATIONS

UPS RATING		AC INPUT VOLTAGE	AC OUTPUT VOLTAGE	AC INPUT/ BYPASS CURRENT	AC OUTPUT CURRENT	MAX HEAT DISSIPATION AT 100% LOAD	DC INPUT VOLTAGE	DC INPUT CURRENT (432/480V)
KVA	KW	V	V	AMP	AMP	KW [BTU/HR]	V	AMP
20	20			35	24	0.75 [2550]		50/45
30	30			48	36	1.05 [3580]		74/67
40	40			60	48	1.34 [4560]		99/89
50	50			73	60	1.67 [5700]		124/111
60	60			94	72	2.10 [7164]		149/134
70	70			108	84	2.45 [8358]		165/156
80	80			120	96	2.67 [9121]		198/178
90	90			133	108	3.01 [10261]		223/200
100	100			146	120	3.34 [11402]		247/223
110	110	480	480	168	132	3.68 [12542]	432/480	272/245
120	120			181	144	4.01 [13682]		297/267
130	130			193	156	4.34 [14822]		322/289
140	140			206	168	4.68 [15962]		346/312
150	150			218	180	5.01 [17102]		371/334
160	160			241	192	5.35 [18243]		396/356
170	170			253	204	5.68 [19383]		421/378
180	180			266	217	6.01 [20523]		445/401
190	190			278	229	6.35 [21663]		470/423
200	200			291	240	6.68 [22803]		495/445

NOTES:
1. THE SYSTEM MUST BE INSTALLED ON A LEVEL FLOOR SURFACE SUITABLE FOR COMPUTER OR ELECTRONIC EQUIPMENT.
2. UPS COMES WITH REMOVABLE TOP AND BOTTOM ENTRY CONDUIT LANDING PLATE.
3. CONTROL WIRE ENTRY THROUGH REMOVABLE CONTROL LANDING PLATE.
4. THE SYSTEM MUST BE INSTALLED IN A TEMPERATURE AND HUMIDITY CONTROLLED INDOOR AREA FREE OF CONDUCTIVE CONTAMINANTS.
5. AMBIENT TEMPERATURE RANGE 5-40degC [41-104degF] AT AN ELEVATION UP TO 1500M WITHOUT DERATING.
   STORAGE TEMPERATURE -25 to +55degC.
   RELATIVE HUMIDITY (OPERATING AND STORAGE) 5% TO 95% MAX NON CONDENSING.
6. UPS CABINET CLEARANCES:
   FRONT OF THE CABINET: 914mm[36.0"]
   FROM TOP OF THE CABINET: 457mm[18.0"] ALWAYS IN ZONE-1 AND ZONE-3
   ZONE-2 CAN BE LESS THAN 457mm[18.0"] WITH REAR SERVICE ACCESS
   FROM BACK OF THE CABINET WITH REAR EXHAUST: 457mm[18.0"]
7. MINIMUM REQUIRED AIR FLOW FOR CABINET AT FULL LOAD IS 1600 CFM.
8. THE UPS CABINET CAN BE INSTALLED IN LINE-UP-AND-MATCH OR STANDALONE CONFIGURATIONS.
9. ALL WIRING IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRIC CODES.
10. WEIGHT OF THE CABINET DOES NOT INCLUDE CUSTOMER WIRING.
11. AC INPUT TO UPS RECTIFIER: 3 PHASES, GROUND, WYE.
    AC OUTPUT TO LOAD: 3 PHASES, GROUND.
    AC INPUT TO UPS BYPASS: 3 PHASES, GROUND, WYE.
    DC INPUT TO UPS (EXTERNAL BATTERY ONLY): POSITIVE, NEGATIVE, GROUND.
12. SPECIFICATIONS ARE SUBJECT TO CHANGE.

METRIC | THIRD ∠ PROJECTION | EATON CORPORATION

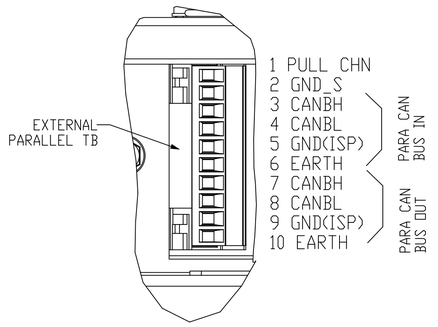
DIMENSIONS ARE IN MILLIMETERS AFTER PLATING. DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-1994. SEE NOTES FOR TOLERANCES.

DESCRIPTION: 93PM-200 FRAME UPS SITE PLAN

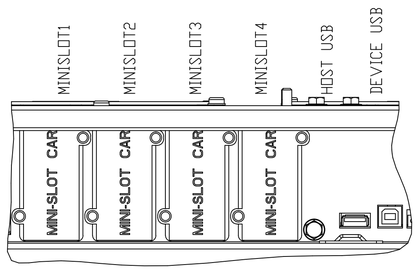
ORIGINATED: CAULFIELD	2013SEP26	ECD: ECD-137391	NAME:	REVISION: 06	SIZE: A1
MODIFIED: MULE V.	28-MAR-2018				SCALE:
CHECKED:		DOCUMENT TYPE:	P-110000260	STATE: RELEASE	1:3100
SAFETY:		PRO-E DRAWING			SHEET:
APPROVED:					1 OF 3

A1

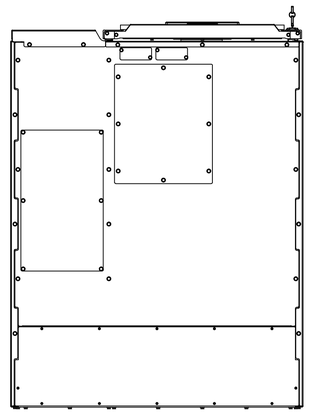
CUSTOMER CONTROL WIRE CONNECTIONS



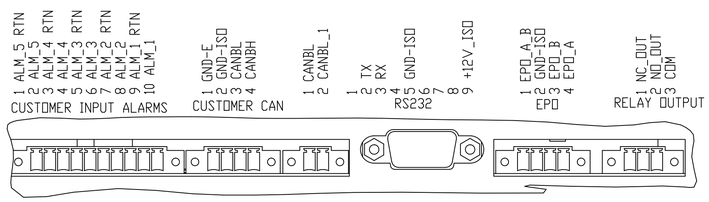
DETAIL B



DETAIL C

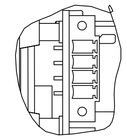


TOP VIEW
(REAR EXHAUST OPTION)



DETAIL D

UPS SHUNT TRIP TERMINAL



4. NOT USED
3. NOT USED
2. 48Vdc BATTERY SHUNT TRIP -
1. 48Vdc BATTERY SHUNT TRIP +

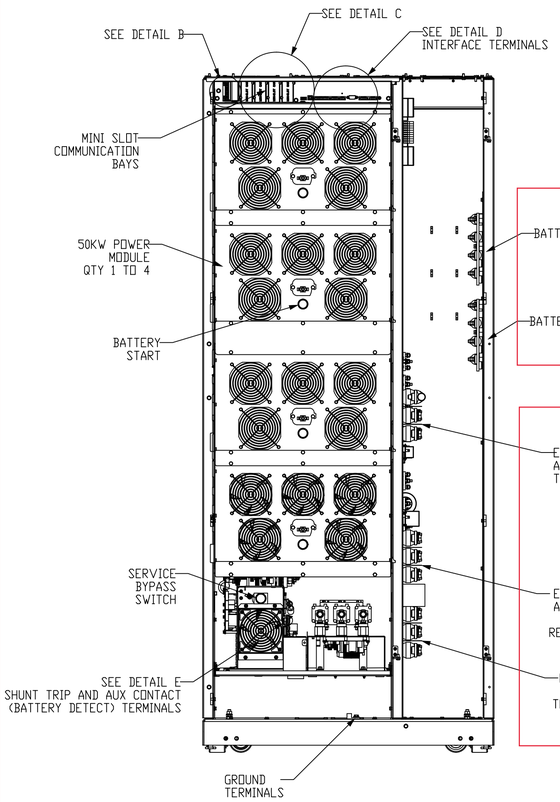
DETAIL E

CUSTOMER WIRING			
WIRES	ACCEPTED WIRE RANGE	TORQUE RATING N*M [LB.IN]	RECOMMENDED MINIMUM WIRE SIZE FOR 75 DEG C COPPER STRANDED WIRE (WIRE SIZES ARE FOR 200KW)
INPUT PHASE WIRES	N/A LONG BARREL 2-HOLE 1.75" SPACING COMPRESSION LUGS (CUSTOMER SUPPLIED) REF INSTALLATION & OPERATION MANUAL	35 [310]	(2) 4/0 PER PHASE
BYPASS PHASE WIRES			(2) 4/0 PER PHASE
OUTPUT PHASE WIRES			(2) 2/0 PER PHASE **SEE NOTE**
DC INPUT FROM BATTERY			(2) 300 MCM
GROUND WIRES (BATTERY)			(1) 1AWG
GROUND WIRES (INPUT, BYPASS, AND OUTPUT)	(8) 14AWG-1/0	5.6 [50]	INPUT AND BYPASS- (1) 3AWG OUTPUT- (1) 4AWG
CONTROL WIRE (DETAIL B)	12-22 AWG	0.56-0.79 [5-7]	TWISTED PAIR WIRES 18AWG
CONTROL WIRE (DETAIL D,E)	14-30 AWG	0.22-0.25 [2]	
NOTE IF USING WITH IAC-T, THE MINIMUM RECOMMENDED SIZE OF OUTPUT PHASE WIRE IS (1) 500MCM PER PHASE.			

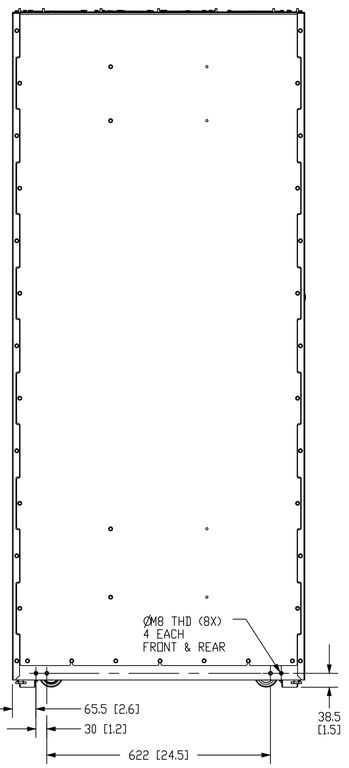
BREAKER AND FUSE INFORMATION - 93PM UPS			
BREAKER/FUSE APPLICATION	MANUFACTURER	PART NUMBER	QUANTITY/LOCATION
RECTIFIER INPUT FUSE	BUSSMANN	160FEE	3 PER POWER MODULE (UPM)
INVERTER OUTPUT FUSE	BUSSMANN	160FEE	3 PER POWER MODULE (UPM)
DC FUSE	BUSSMANN	FWH-200B	8 PER UPS
BYPASS FUSE	BUSSMANN	170M3421	3 PER UPS

UPS ONLY	PACKAGED ENVELOPE DIMENSIONS MM [IN]		
	WIDTH	DEPTH	HEIGHT
	1041 [40.98]	1229 [48.38]	1975 [77.76]

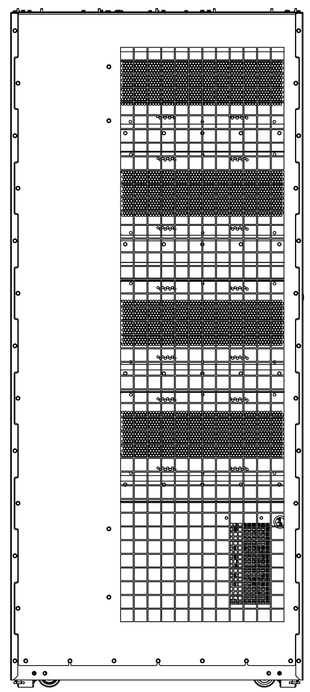
FRONT VIEW
W/O DOOR, WIRING COVER,
AND LOWER DEADFRONT



BACK VIEW
(TOP EXHAUST OPTION)



BACK VIEW
(REAR EXHAUST OPTION)



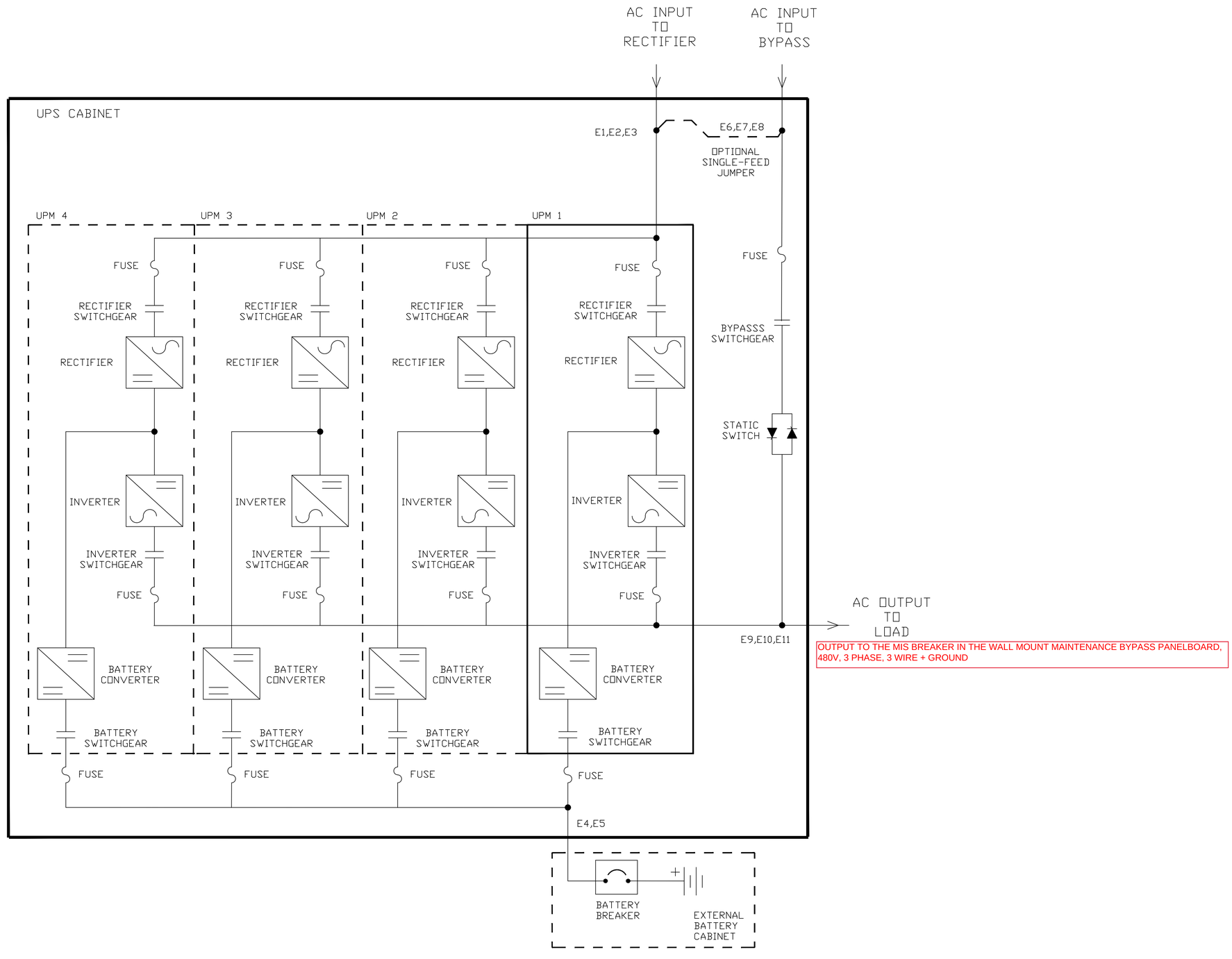
METRIC — THIRD ANGLE PROJECTION — EATON CORPORATION

DIMENSIONS ARE IN MILLIMETERS AFTER PLATING, DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-1994. SEE NOTES FOR TOLERANCES.

DESCRIPTION: 93PM-200 FRAME UPS SITE PLAN

DESIGNED: CAULFIELD	2013SEP26	ECO: ECO-137391	NAME:	REVISION: 06	SIZE: A1
MODIFIED: MULE V.	28-MAR-2018				SCALE:
CHECKED:		DOCUMENT TYPE:	P-110000260	STATE: RELEASE	1:100
SAFETY:		PRO-E DRAWING			SHEET:
APPROVED:					2 OF 3

A1



NOTE: AC INPUT TO RECTIFIER IS NOT USED IN SINGLE FEED CONFIGURATION.
DASHED LINES INDICATE OPTIONAL FEATURES/COMPONENTS.

METRIC	THIRD ∠ PROJECTION	EATON CORPORATION			EATON
DIMENSIONS ARE IN MILLIMETERS AFTER PLATING. DIMENSIONS AND TOLERANCES IN ACCORDANCE WITH ASME Y14.5M-1994. SEE NOTES FOR TOLERANCES.					
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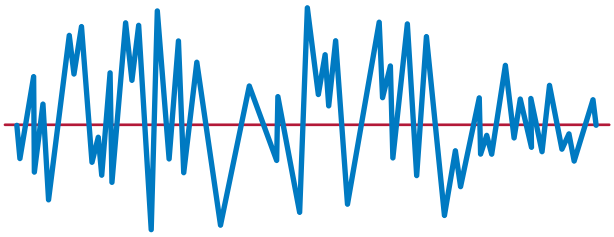
DESIGNED: CAULFIELD	2013SEP26	ECO: ECO-137391	NAME:	REVISION: 06	SIZE: A1
MODIFIED: MULE V.	28-MAR-2018				SCALE: NTS
CHECKED:		DOCUMENT TYPE:	P-110000260	STATE: RELEASE	
SAFETY:		PRO-E DRAWING			SHEET: 3 OF 3
APPROVED:					

A1

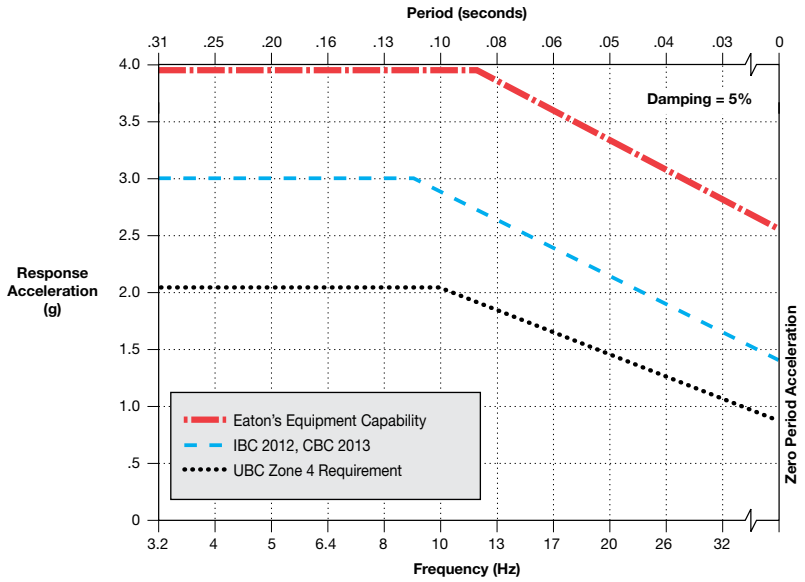
Seismic qualified



Eaton Corporation's equipment identified below was tested for seismic withstand capability and tested in accordance with the combined requirements specified in the International Building Code, the California Building Code, and the Uniform Building Code.

As required by the codes, the equipment demonstrated its ability to function after the seismic tests. The seismic capability of the equipment exceeds the worst-case required levels, as illustrated in the figure below.

93PM Uninterruptible Power Supplies (50–200 kW)



The frequency sweep tests revealed that the lowest equipment natural frequency is:

5.8 Hz

Drawing Number
SA153018EN

21 OCT 14

William V. Joerger, S.E.
ISAT

3RD PARTY TEST ENGINEER IN CHARGE

For interpretation of testing data, refer to Eaton Publication SA12501SE

TESTED BY
Wyle Laboratories
June, 2014–71589R14

Powering Business Worldwide

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Eaton 93PM UPS (150 kW Redundant and 200 kW Frames) Seismic Mounting Bracket Installation Instructions

Use these instructions to install front and rear seismic mounting brackets to secure the Uninterruptible Power Supply (UPS) to the facility floor.

NOTE Refer to the applicable installation and operation manual supplied with UPS for dimensions and required clearances.

Seismic Mounting Bracket Kit Contents	
Front Mounting Bracket	1
Rear Mounting Bracket	1
Hex Bolts	8

To install the brackets:

1. Unload and mechanically install the UPS according to the instructions in the applicable installation and operation manual.
2. Drill holes in the floor for the mounting brackets. Size the holes for the type of customer-supplied hardware being used to secure the bracket to the floor. See Figure 1 for the bracket mounting hole locations.
3. Remove the front seismic mounting bracket from the kit and secure to the UPS cabinet base using the bolts supplied with the kit. See Figure 2 for mounting bracket installation location.
4. Remove the rear seismic mounting bracket from the kit and secure to the UPS cabinet base using the bolts supplied with the kit. See Figure 3 for mounting bracket installation location.
5. Secure the cabinet to the floor with customer-supplied hardware.

For More Information

Refer to the *Eaton 93PM UPS (20–150 kW, 480V – 150 kW Redundant Frame) Installation and Operation Manual* or the *Eaton 93PM UPS (20-200 kW, 480V – 200 kW Frame) Installation and Operation Manual* for the following additional information:

- Installation instructions, including site preparation, planning for installation, wiring and safety information, and detailed illustrations of cabinets with dimensional and connection point drawings

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

Getting Help

If help is needed with any of these instructions, please call the **Customer Reliability Center** at:

United States: **1-800-843-9433**
Canada: **1-800-461-9166 ext 260**
All other countries: **Call your local service representative**

Please use the following e-mail address for comments, suggestions, or to report an error in these instructions:

E-ESSDocumentation@eaton.com

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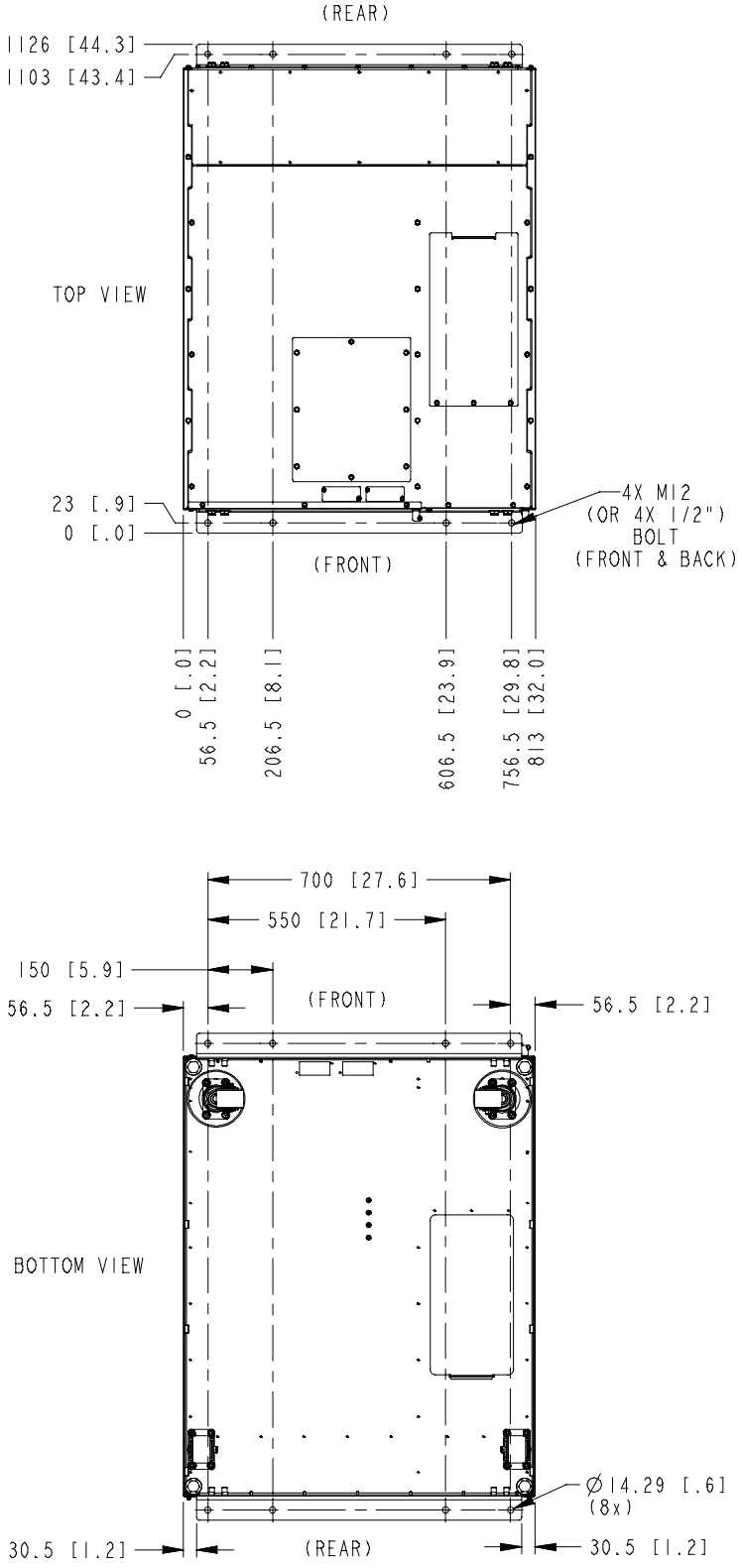

Figure 1. Seismic Mounting Bracket Mounting Hole Locations

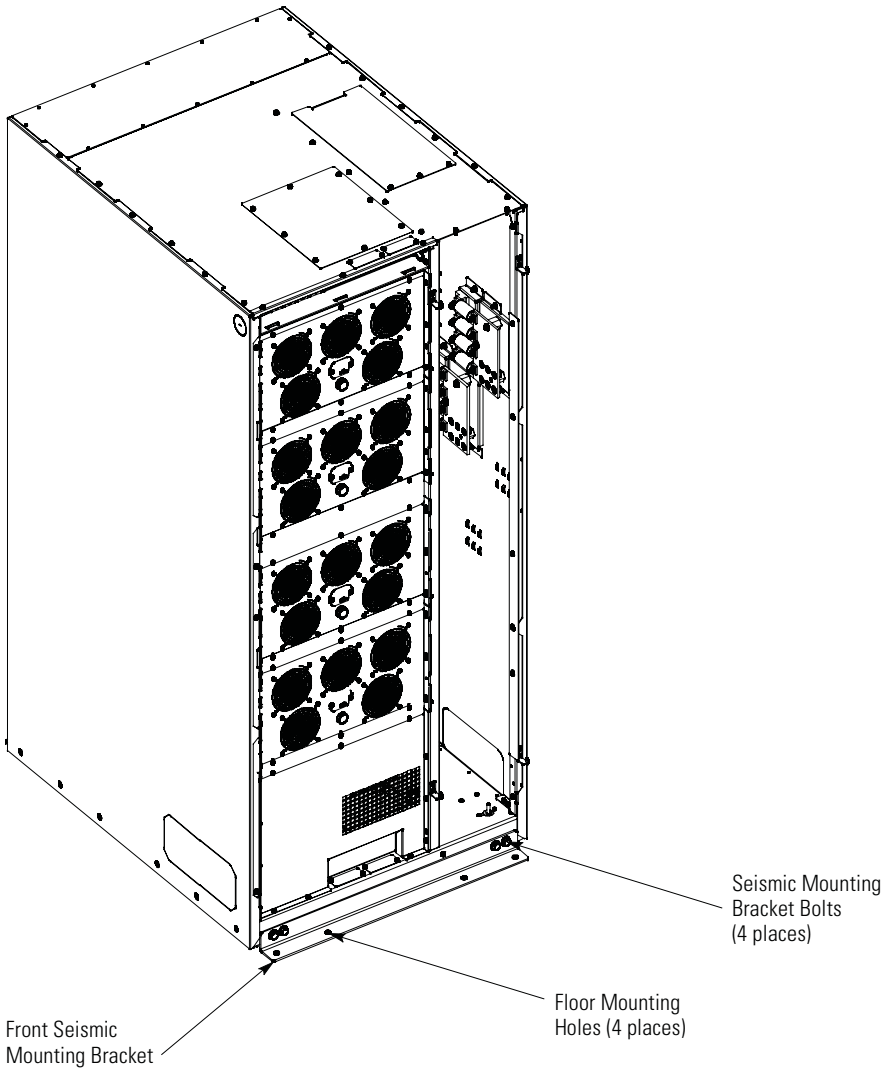

Figure 2. Front Seismic Mounting Bracket Installation

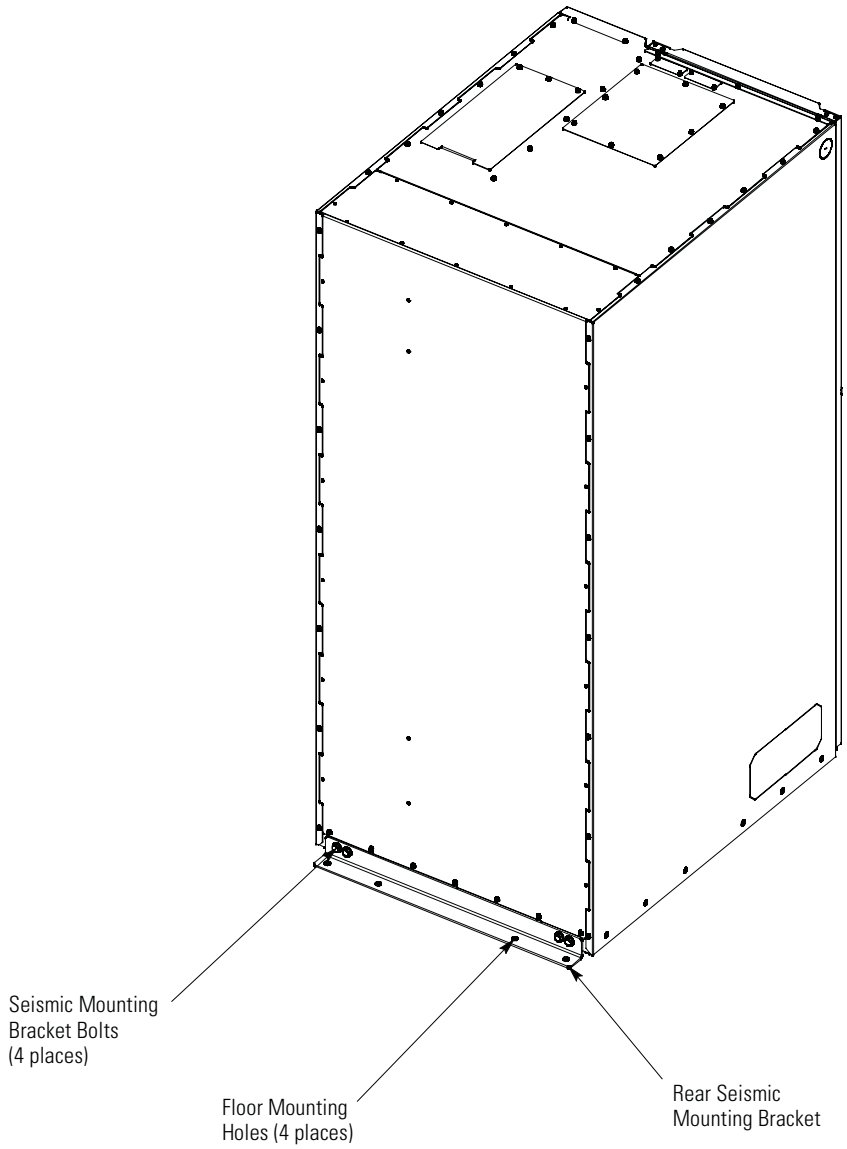

Figure 3. Rear Seismic Mounting Bracket Installation

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