Eaton® 93PM Sidecar Integrated Accessory Cabinet-Tie and Tie Bypass

50 kW SIAC-T
50 kW SIAC-TB
100 kW SIAC-T
100 kW SIAC-TB
Installation and Operation Manual

Powering Business Worldwide

p/n: P-164000370
Revision 05

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.

⚠ IMPORTANT

To ensure you have the most up-to-date content and information for this product, please review the latest manual revision on our website, www.eaton.com/93PM.

Table of Contents

List of Figures

List of Tables

Chapter 1 Introduction

The Eaton® Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) and Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB) are designed for use with the 93PM 50 kW and 100 kW UPS. The SIAC-T provides parallel tie, and the SIAC-TB parallel tie with maintenance bypass functions each with configurable features, enabling adaptation and expansion without costly electrical rework.

The SIAC-T and SIAC-TB are housed in single cabinets attached directly to one of the UPS cabinets in a two UPS parallel system. Safety shields behind the front panel provide protection from hazardous voltage. Mechanical lug input terminals reduce installation time. The cabinets match the UPS cabinet in style and color.

NOTE Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on the product's resources page become void. See Chapter 9 *Warranty* for details. 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.

1.1 Features

The following descriptions provide a brief overview of the SIAC-T and SIAC-TB functions:

- SIAC-T – Module Output Breakers (MOB) 1 and 2 enable two UPSs to be paralleled together for increased capacity or redundant capability. An optional Maintenance Isolation (MIS) breaker provides output control to the critical load for the whole system.
- SIAC-TB – MOB 1 and MOB 2 enable two UPSs to be paralleled together for increased capacity or redundant capability. Maintenance Bypass (MBP) and Maintenance Isolation (MIS) breakers enable power to completely bypass the UPSs externally, allowing the UPSs to be safely serviced or replaced without interrupting power to critical systems.

Figure 1 shows the 50 kW SIAC-T or 50 kW SIAC-TB mounted to the 50 kW UPS cabinet. Figure 2 shows the 100 kW SIAC-T mounted to the 100 kW UPS cabinet and Figure 3 show the 100 kW SIAC-TB mounted to the 100 kW UPS cabinet.

1.2 Installation Features

The SIAC-T or SIAC-TB is factory attached to and directly integrated with the first UPS cabinet in a two UPS parallel system and must be ordered mounted on either the left or right side of the UPS. The SIAC-T and SIAC-TB are designed to be located between two UPS in a line-up-and-match configuration. The SIAC-T and SIAC-TB match the UPS cabinet in style and color. It has safety shields behind the removable front panel for hazardous voltage protection and mechanical lug input and output terminals reduce installation time. Power wiring between the first UPS and SIAC-T or SIAC-TB are factory installed. Power wiring is routed between the second UPS and SIAC-T or SIAC-TB using the inter-cabinet wiring access in the sides of UPS cabinet and SIAC-T or SIAC-TB. Output power wiring to the critical load is routed using external conduit.

1.3 Model Configurations

The following model configurations are available:

- 93PM 50 kW SIAC-T
  - Right-mounted configuration containing two MOBs with auxiliary contacts
  - Right-mounted configuration containing two MOBs with auxiliary contacts and a MIS breaker
  - Left-mounted configuration containing two MOBs with auxiliary contacts
  - Left-mounted configuration containing two MOBs with auxiliary contacts and a MIS breaker

- 93PM 50 kW SIAC-TB
  - Right-mounted configuration containing two MOBs with auxiliary contacts, a MBP breaker with auxiliary contacts, and a MIS breaker
  - Left-mounted configuration containing two MOBs with auxiliary contacts, a MBP breaker with auxiliary contacts, and a MIS breaker
- 93PM 100 kW SIAC-T
  - Right-mounted configuration containing two MOBs with auxiliary contacts
  - Right-mounted configuration containing two MOBs with auxiliary contacts and a MIS breaker
  - Left-mounted configuration containing two MOBs with auxiliary contacts
  - Left-mounted configuration containing two MOBs with auxiliary contacts and a MIS breaker
- 93PM 100 kW SIAC-TB
  - Right-mounted configuration containing two MOBs with auxiliary contacts, a MBP breaker with auxiliary contacts, and a MIS breaker
  - Left-mounted configuration containing two MOBs with auxiliary contacts, a MBP breaker with auxiliary contacts, and a MIS breaker

Figure 1. 93PM 50 kW SIAC-T or 93PM 50 kW SIAC-TB attached to an Eaton 93PM 50 kW UPS

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

Figure 2. 93PM 100 kW SIAC-T attached to an Eaton 93PM 100 kW UPS

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

Figure 3. Eaton 93PM 100 kW SIAC-TB attached to an Eaton 93PM 100 kW UPS

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

1.4 Using This Manual

This manual describes how to install the SIAC-T and SIAC-TB and is divided into chapters. Read and understand the procedures described to ensure trouble-free installation and operation.

Read through each procedure before beginning the procedure. Perform only those procedures that apply to the UPS system being installed or operated.

1.5 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
Note	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, an external battery system, and options or accessories installed.

The term line-up-and-match refers to accessory cabinets that are physically located adjacent to the UPS. The term standalone refers to accessory cabinets that are located separate from the UPS.

1.6 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 contains 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.

1.7 For More Information

Refer to the *Eaton 93PM UPS (20–100 kW, 480V 100 kW Frame) Installation and Operation Manual* or the *Eaton 93PM UPS (20–50 kW, 480V 50 kW Frame) Installation and Operation Manual* for the following additional information:

- UPS, 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 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.

Refer to the *Eaton 93PM Integrated Accessory Cabinet-Distribution (50 kW, 100 kW, 150 kW, and 200 kW IAC-D) 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
- Operation, including breakers, standard features and optional accessories, procedures for using the tie and bypass functions, and information about maintenance

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

1.8 Getting Help

If help is needed with any of the following:

Scheduling initial startup

Regional locations and telephone numbers

A technical question about any of the information in this manual

A question this manual does not answer

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 manual comments, suggestions, or to report an error in this manual:

E-ESSDocumentation@eaton.com

1.9 Equipment Registration

Please visit www.eaton.com/pq/register to register your new Eaton UPS / Eaton UPS Accessory.

Model Number: _____

Serial Number: _____

Chapter 2 Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during installation and maintenance of the UPS system and batteries. Read all instructions before operating the equipment and save this manual for future reference.

The UPS system is designed for industrial or computer room applications, and contains safety shields behind the door and front panels. However, the UPS system is a sophisticated power system and should be handled with appropriate care.

DANGER

This UPS system contains LETHAL VOLTAGES. All repairs and service should be performed by AUTHORIZED SERVICE PERSONNEL ONLY. There are NO USER SERVICEABLE PARTS inside the UPS.

WARNING

- The UPS system is powered by 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 system in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% maximum). The system is not intended for outdoor use.
- 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 system operation by any action that includes removal of the earth (ground) connection with loads attached.
- Ensure all power is disconnected before performing installation or service.
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any UPS system or battery wiring or connectors. Attempting to alter wiring can cause injury.

CAUTION

- Installation or servicing should be performed by qualified service personnel knowledgeable of UPS and battery systems, and required precautions. Keep unauthorized personnel away from equipment. Consider all warnings, cautions, and notes before installing or servicing equipment.
- Keep the Accessory cabinet doors closed and front panels installed to ensure proper cooling airflow and to protect personnel from dangerous voltages inside the unit.
- Do not install or operate the UPS system 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.

Chapter 3 Installation Plan and Unpacking

NOTE The SIAC-T or SIAC-TB is attached to and directly integrated with one of the UPS cabinets at the factory for use in a two UPS parallel system. The SIAC-T and SIAC-TB are designed to be located between two UPS in a line-up-and-match configuration. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual during installation planning and unpacking.

This chapter includes planning for the Eaton 93PM 100 kW Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) or the Eaton 93PM 100 kW Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB).

Use the following basic sequence of steps to install the SIAC-T or SIAC-TB:

1. Create an installation plan for the SIAC-T or SIAC-TB.
2. Prepare your site for the SIAC-T or SIAC-TB.
3. Inspect and unpack the SIAC-T or SIAC-TB.
4. Unload and install the SIAC-T or SIAC-TB.
5. External wire the SIAC-T or SIAC-TB.
6. Complete the Installation Checklist.
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 the product's resources page become void. See Chapter 9 *Warranty* for details. 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 SIAC-T or SIAC-TB, read and understand how this manual applies to the system being installed. Use the procedures and illustrations in this section to create a logical plan for installing the SIAC-T or SIAC-TB.

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 for the applicable accessory cabinet. Specifications subject to change.

3.2.1 Environmental and Installation Considerations

The UPS system installation, including the SIAC-T and SIAC-TB, 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 1.8 *Getting Help*).
- 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 SIAC-T and SIAC-TB are:

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

The SIAC-T and SIAC-TB operating environment must meet the weight requirements shown in Table 1 and Table 2. The SIAC-T size requirements are shown in Figure 4 through Figure 6 and the SIAC-TB size requirements are shown in Figure 7 through Figure 9. Dimensions are in millimeters (inches).

Table 1. 50 kW SIAC-TB Cabinet Weights

Model	Internal Battery Strings	Frame	Weight kg (lb)		
			Shipping	Installed	Point Loading
Eaton 93PM-50-1 with Left or Right SIAC-TB with Four Breakers	0	Capacity	437 (963)	414 (913)	6 at 69 (152)
	3	Capacity	797 (1756)	774 (1706)	6 at 129 (284)
	4	Capacity	902 (1987)	879 (1937)	6 at 147 (323)
	5	Capacity	1006 (2218)	983 (2168)	6 at 164 (361)
	0	Redundant	453 (998)	430 (948)	6 at 72 (158)
	3	Redundant	790 (1741)	767 (1691)	6 at 128 (282)
Eaton 93PM-50-2 with Left or Right SIAC-TB with Four Breakers	0	Redundant	517 (1138)	494 (1088)	6 at 82 (181)
	3	Redundant	854 (1881)	831 (1831)	6 at 139 (305)

Table 2. 100 kW SIAC-T and SIAC-TB Cabinet Weights

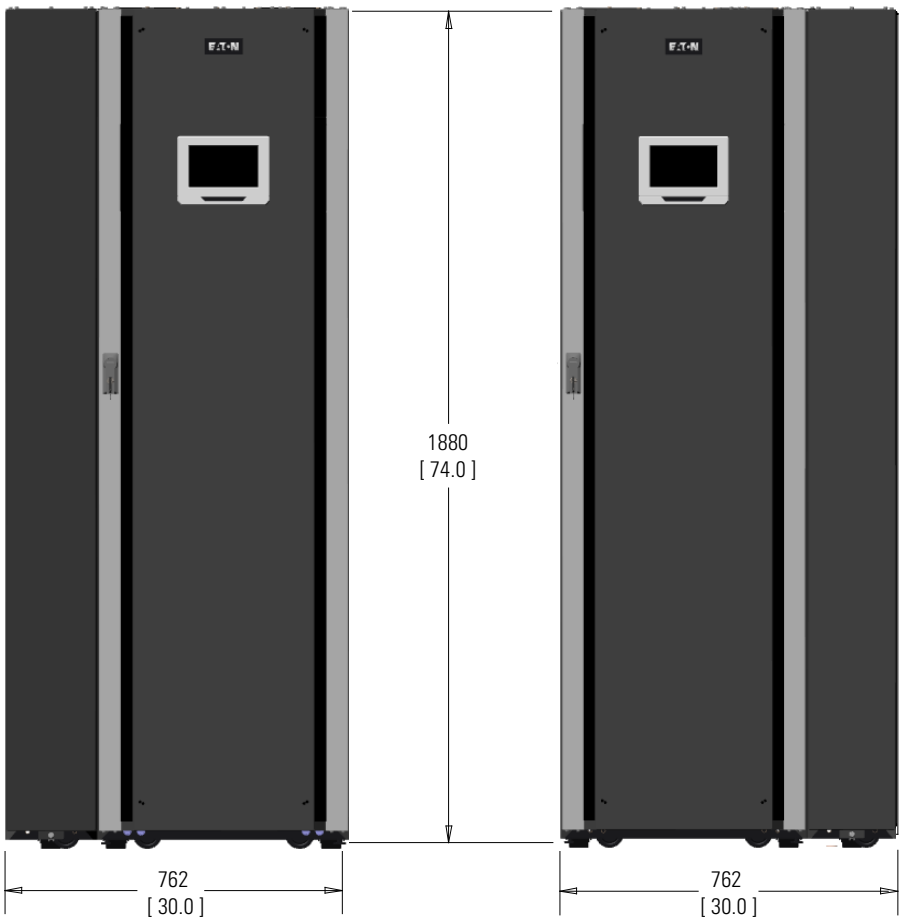
Model	Frame	Weight kg (lb)		
		Shipping	Installed	Point Loading
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-T	Capacity	460 (1015)	435 (960)	6 at 72 (160)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-T	Capacity	518 (1141)	492 (1086)	6 at 82 (181)
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-T	Redundant	466 (1028)	441 (973)	6 at 73 (162)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-T	Redundant	530 (1168)	505 (1113)	6 at 84 (186)
Eaton 93PM-100-3 UPS with Left or Right-Mounted SIAC-T	Redundant	594 (1309)	569 (1254)	6 at 95 (209)
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-T with MIS	Capacity	466 (1028)	441 (973)	6 at 73 (162)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-T with MIS	Capacity	523 (1154)	498 (1099)	6 at 83 (183)
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-T with MIS	Redundant	472 (1041)	447 (986)	6 at 75 (164)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-T with MIS	Redundant	536 (1181)	511 (1126)	6 at 85 (188)
Eaton 93PM-100-3 UPS with Left or Right-Mounted SIAC-T with MIS	Redundant	600 (1322)	575 (1267)	6 at 96 (211)

Table 2. 100 kW SIAC-T and SIAC-TB Cabinet Weights (Continued)

Model	Frame	Weight kg (lb)		
		Shipping	Installed	Point Loading
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-TB with MIS and MBP	Capacity	497 (1096)	467 (1029)	6 at 78 (172)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-TB with MIS and MBP	Capacity	560 (1236)	530 (1169)	6 at 88 (195)
Eaton 93PM-100-1 UPS with Left or Right-Mounted SIAC-TB with MIS and MBP	Redundant	503 (1109)	473 (1042)	6 at 79 (174)
Eaton 93PM-100-2 UPS with Left or Right-Mounted SIAC-TB with MIS and MBP	Redundant	566 (1249)	536 (1182)	6 at 89 (197)
Eaton 93PM-100-3 UPS with Left or Right-Mounted SIAC-TB with MIS and MBP	Redundant	630 (1390)	600 (1323)	6 at 100(221)

The clearances required around the SIAC-T or SIAC-TB are the same as the attached UPS.

Figure 4. Eaton 93PM 50 kW UPS with 93PM 50 kW SIAC-T, 93PM 50 kW UPS with 93PM 100 kW SIAC-TB, or 93PM 100 kW UPS with 93PM 100 kW SIAC-T Dimensions (Front View)

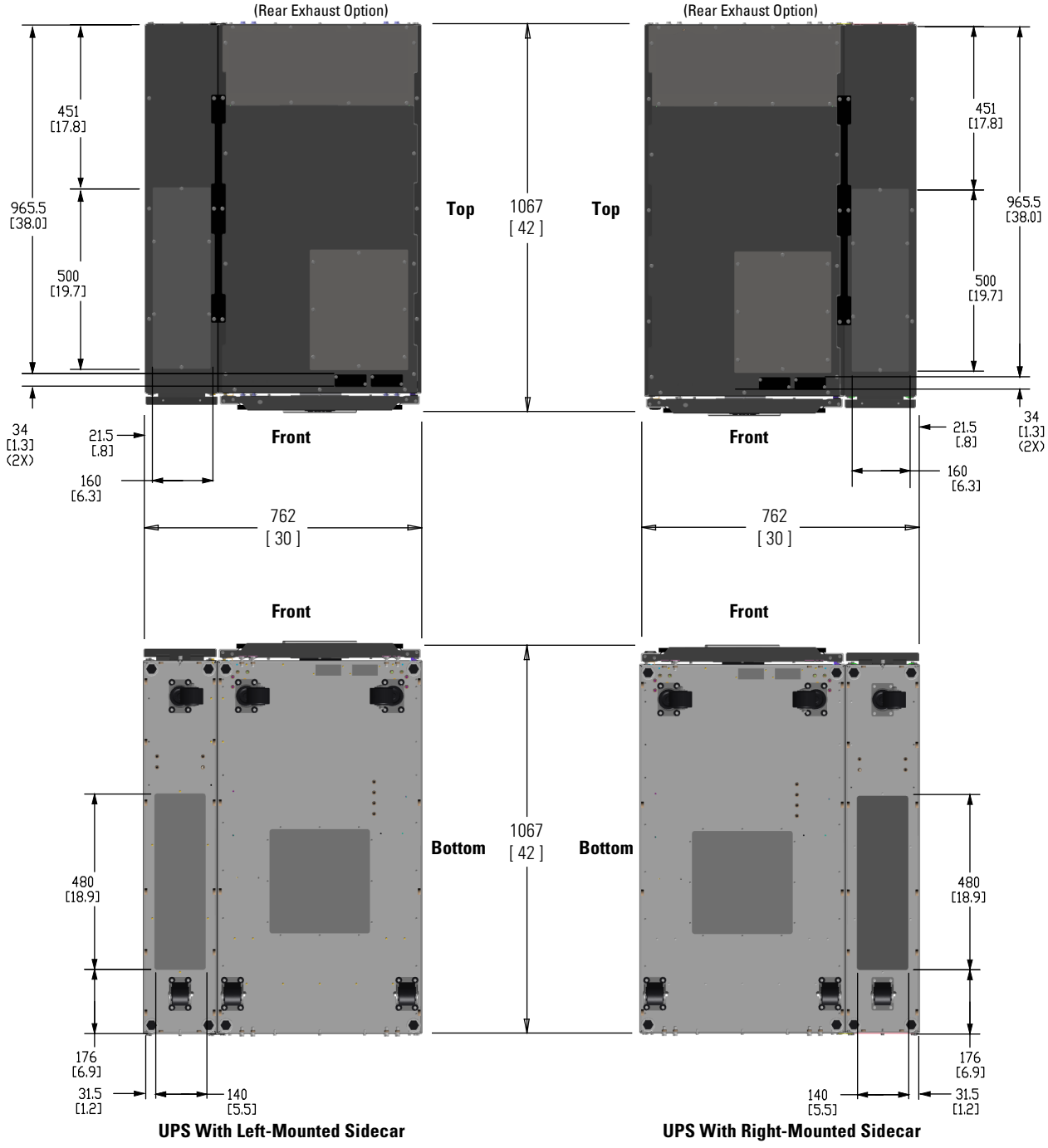


Front
UPS With Left-Mounted Sidecar

Front
UPS With Right-Mounted Sidecar

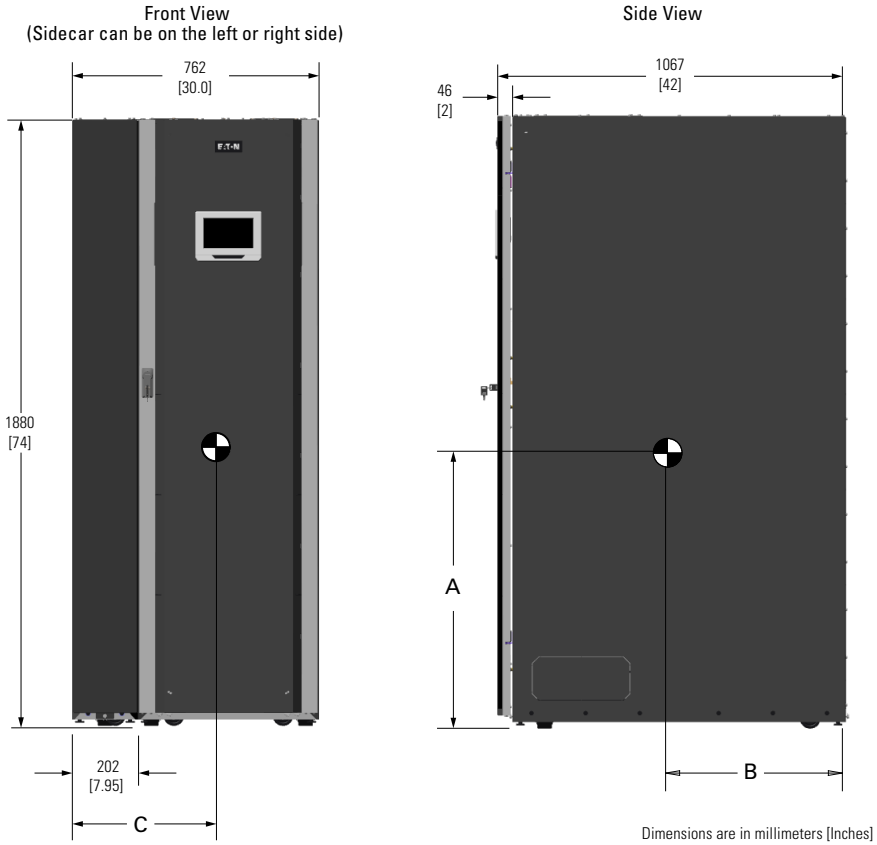
Dimensions are in millimeterse [Inches]

Figure 5. Eaton 93PM 50 kW UPS with 93PM 50 kW SIAC-T, 93PM 50 kW UPS with 93PM 100 kW SIAC-TB, or 93PM 100 kW UPS with 93PM 100 kW SIAC-T Dimensions (Top and Bottom Views)



Dimensions are in millimeters [Inches]

Figure 6. Eaton 93PM 50 kW UPS with 93PM 50 kW SIAC-T, 93PM 50 kW UPS with 93PM 100 kW SIAC-TB, or 93PM 100 kW UPS with 93PM 100 kW SIAC-T Center of Gravity



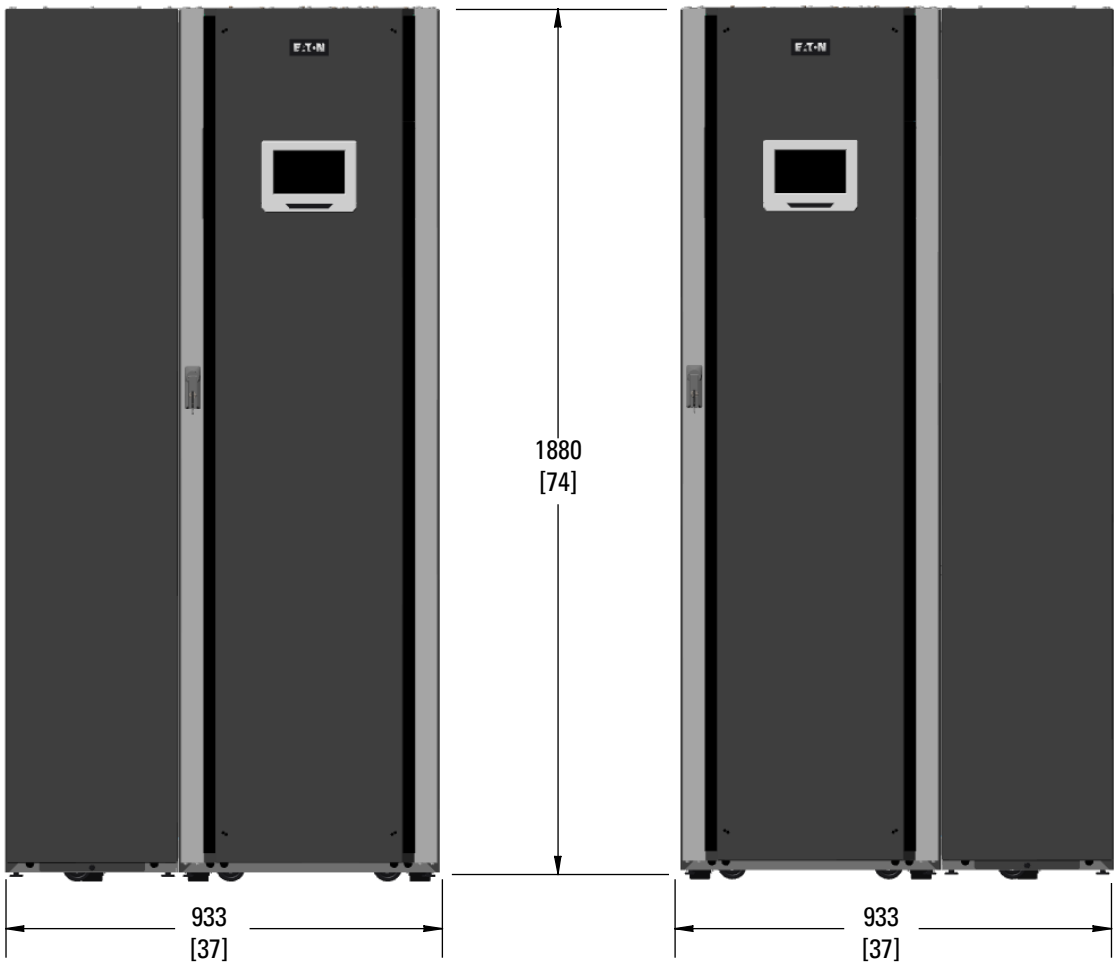
Weight and Center of Gravity with Left-Mounted 50 kW SIAC-TB (letters A, B, and C map to Figure 9)						
	Internal Battery Strings	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-50-1 UPS	0	Capacity	981 (38.6)	588 (23.1)	386 (15.2)	414 (913)
	3	Capacity	839 (33.0)	559 (22.0)	431 (17.0)	774 (1706)
	4	Capacity	857 (33.7)	555 (21.9)	437 (17.2)	879 (1937))
	5	Capacity	888 (35.0)	551 (21.7)	442 (17.4)	983 (2168)
	0	Redundant	927 (36.5)	588 (23.1)	389 (15.3)	430 (948)
	3	Redundant	805 (31.7)	560 (22.0)	430 (16.9)	767 (1691)
Eaton 93PM-50-2 UPS	0	Redundant	1020 (40.2)	581 (22.9)	401 (15.8)	494 (1088)
	3	Redundant	870 (34.3)	559 (22.0)	434 (17.1)	831 (1831)

Weight and Center of Gravity with Right-Mounted 50 kW SIAC-TB (letters A, B, and C map to Figure 9)						
	Internal Battery Strings	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-50-1 UPS	0	Capacity	1007 (39.6)	561 (22.1)	370 (14.6)	414 (913)
	3	Capacity	830 (32.7)	542 (21.3)	328 (12.9)	774 (1706)
	4	Capacity	851 (33.5)	539 (21.2)	323 (12.7)	879 (1937)
	5	Capacity	887 (34.9)	538 (21.2)	318 (12.5)	983 (2168)
	0	Redundant	997 (39.3)	562 (22.1)	367 (14.4)	430 (948)
	3	Redundant	821 (32.3)	544 (21.4)	329 (13.0)	767 (1691)
Eaton 93PM-50-2 UPS	0	Redundant	1052 (41.4)	558 (22.0)	356 (14.0)	494 (1088)
	3	Redundant	866 (34.1)	543 (21.4)	325 (12.8)	831 (1831)

Weight and Center of Gravity with Left-Mounted 100 kW SIAC-T (letters A, B, and C map to Figure 6)					
	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-100-1 UPS with SIAC-T	Capacity	873 (34.4)	479 (18.9)	378 (14.9)	435 (960)
Eaton 93PM-100-2 UPS with SIAC-T	Capacity	930 (36.6)	479 (18.9)	389 (15.3)	492 (1086)
Eaton 93PM-100-1 UPS with SIAC-T	Redundant	875 (34.4)	479 (18.9)	380 (15.0)	441 (973)
Eaton 93PM-100-2 UPS with SIAC-T	Redundant	931 (36.7)	479 (18.9)	391 (15.4)	505 (1113)
Eaton 93PM-100-3 UPS with SIAC-T	Redundant	1010 (39.8)	479 (18.9)	400 (15.7)	569 (1254)
Eaton 93PM-100-1 UPS SIAC-T with MIS	Capacity	870 (34.3)	476 (18.7)	376 (14.8)	441 (973)
Eaton 93PM-100-2 UPS SIAC-T with MIS	Capacity	927 (36.5)	476 (18.7)	387 (15.2)	498 (1099)
Eaton 93PM-100-1 UPS SIAC-T with MIS	Redundant	872 (34.3)	476 (18.7)	377 (14.8)	447 (986)
Eaton 93PM-100-2 UPS SIAC-T with MIS	Redundant	928 (36.5)	476 (18.7)	389 (15.3)	511 (1126)
Eaton 93PM-100-3 UPS SIAC-T with MIS	Redundant	1007 (39.6)	476 (18.7)	398 (15.7)	575 (1267)

Weight and Center of Gravity with Right-Mounted 100 kW SIAC-T (letters A, B, and C map to Figure 6)					
	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-100-1 UPS with SIAC-T	Capacity	873 (34.4)	479 (18.9)	557 (21.9)	435 (960)
Eaton 93PM-100-2 UPS with SIAC-T	Capacity	930 (36.6)	479 (18.9)	568 (22.4)	492 (1086)
Eaton 93PM-100-1 UPS with SIAC-T	Redundant	875 (34.4)	479 (18.9)	558 (22.0)	441 (973)
Eaton 93PM-100-2 UPS with SIAC-T	Redundant	931 (36.7)	479 (18.9)	570 (22.4)	505 (1113)
Eaton 93PM-100-3 UPS with SIAC-T	Redundant	1010 (39.8)	479 (18.9)	580 (22.8)	569 (1254)
Eaton 93PM-100-1 UPS SIAC-T with MIS	Capacity	870 (34.3)	476 (18.7)	579 (22.8)	441 (973)
Eaton 93PM-100-2 UPS SIAC-T with MIS	Capacity	927 (36.5)	476 (18.7)	590 (23.2)	498 (1099)
Eaton 93PM-100-1 UPS SIAC-T with MIS	Redundant	872 (34.3)	476 (18.7)	580 (22.8)	447 (986)
Eaton 93PM-100-2 UPS SIAC-T with MIS	Redundant	928 (36.5)	476 (18.7)	592 (23.3)	511 (1126)
Eaton 93PM-100-3 UPS with SIAC-T 2+0 with MIS	Redundant	1007 (39.6)	476 (18.7)	778 (30.6)	575 (1267)

Figure 7. Eaton 93PM 100 kW UPS with 93PM 100 kW SIAC-TB Dimensions (Front View)

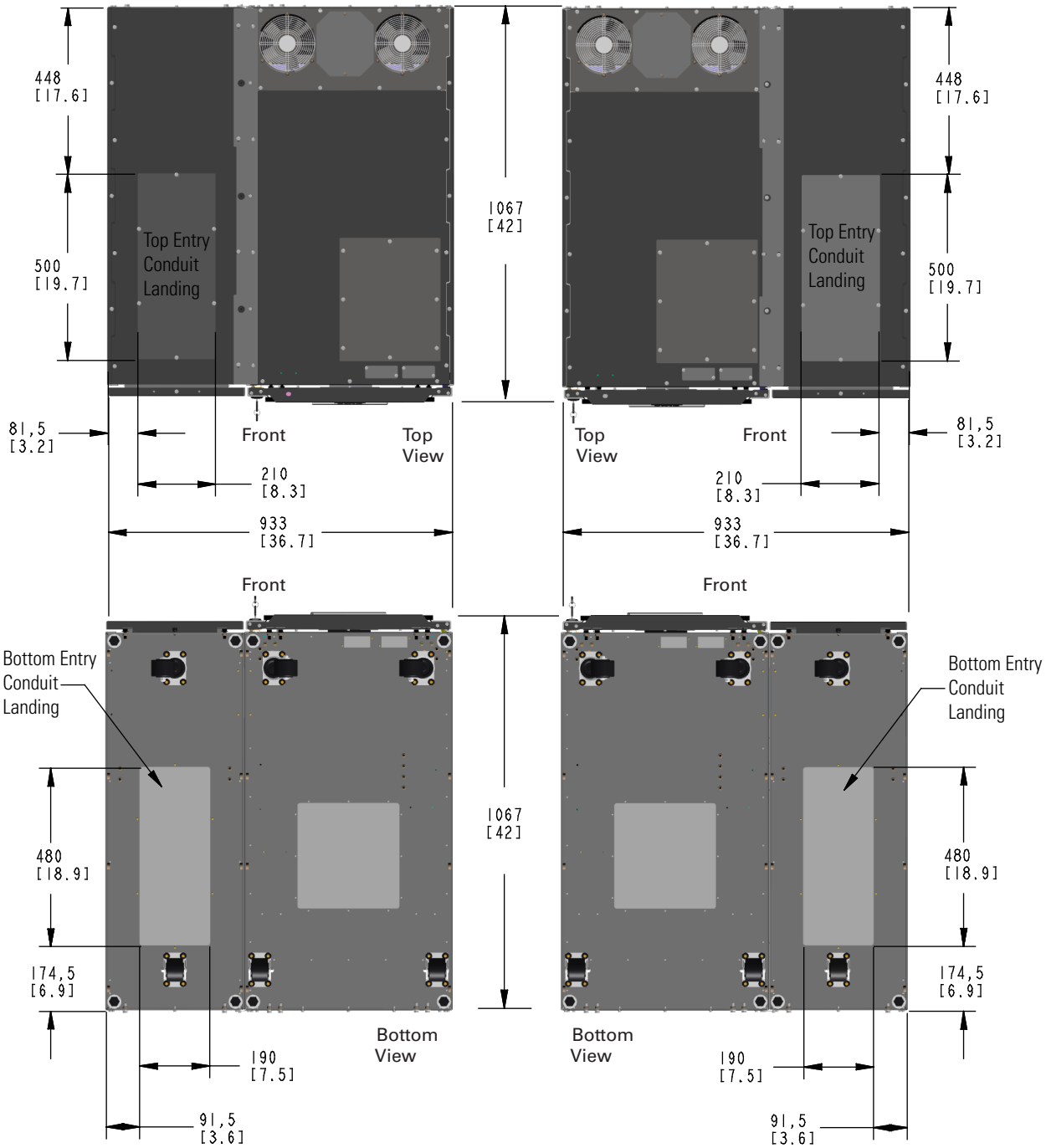


UPS with Left-Mounted SIAC-B

UPS with Right-Mounted SIAC-B

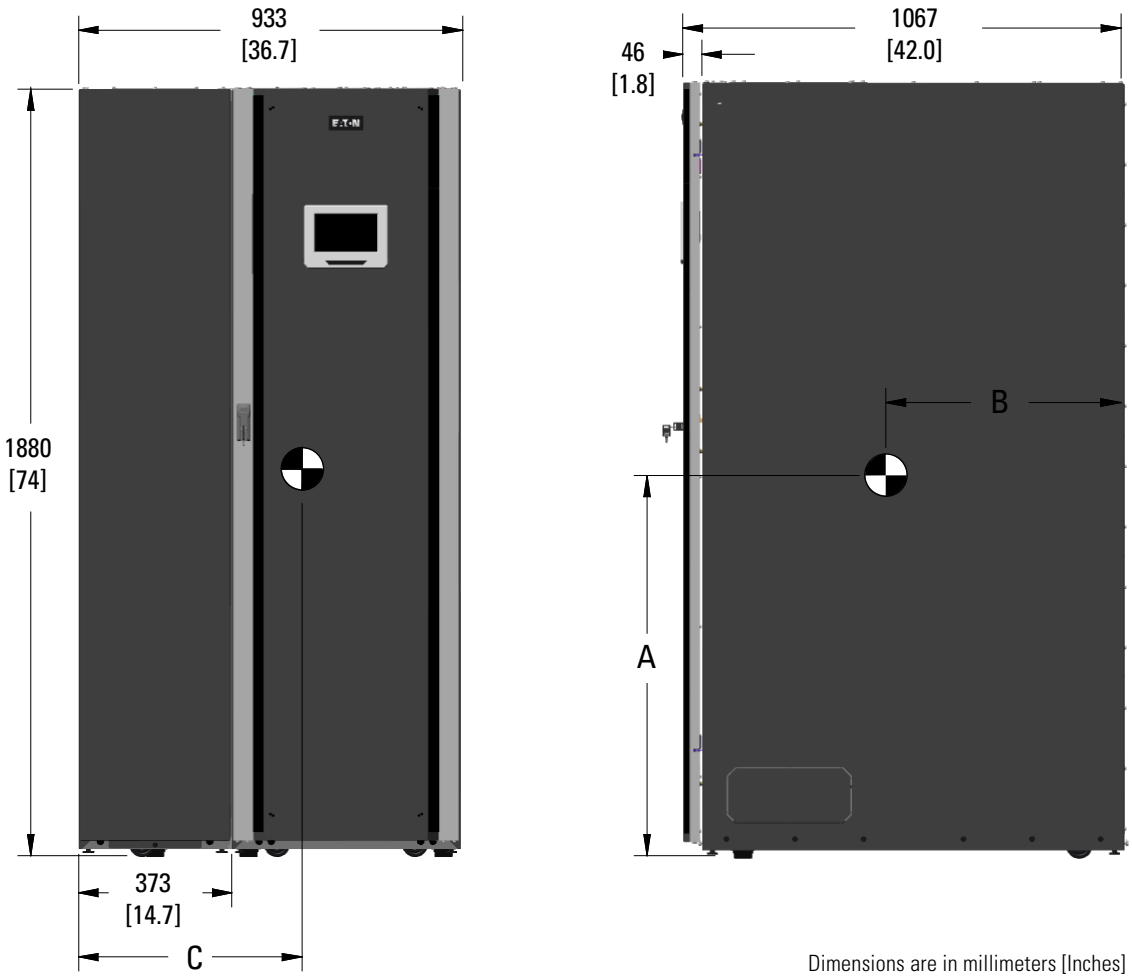
Dimensions are in millimeters [inches]

Figure 8. Eaton 93PM 100 kW UPS with 93PM 100 kW SIAC-TB Dimensions (Top and Bottom Views)



Dimensions are in millimeters [inches]

Figure 9. Eaton 93PM 100 kW UPS with 93PM 100 kW SIAC-TB Center of Gravity



Dimensions are in millimeters [Inches]

NOTE The 93PM UPS is shown with a left-mounted sidecar. A UPS with a right-mounted sidecar is the mirror image.

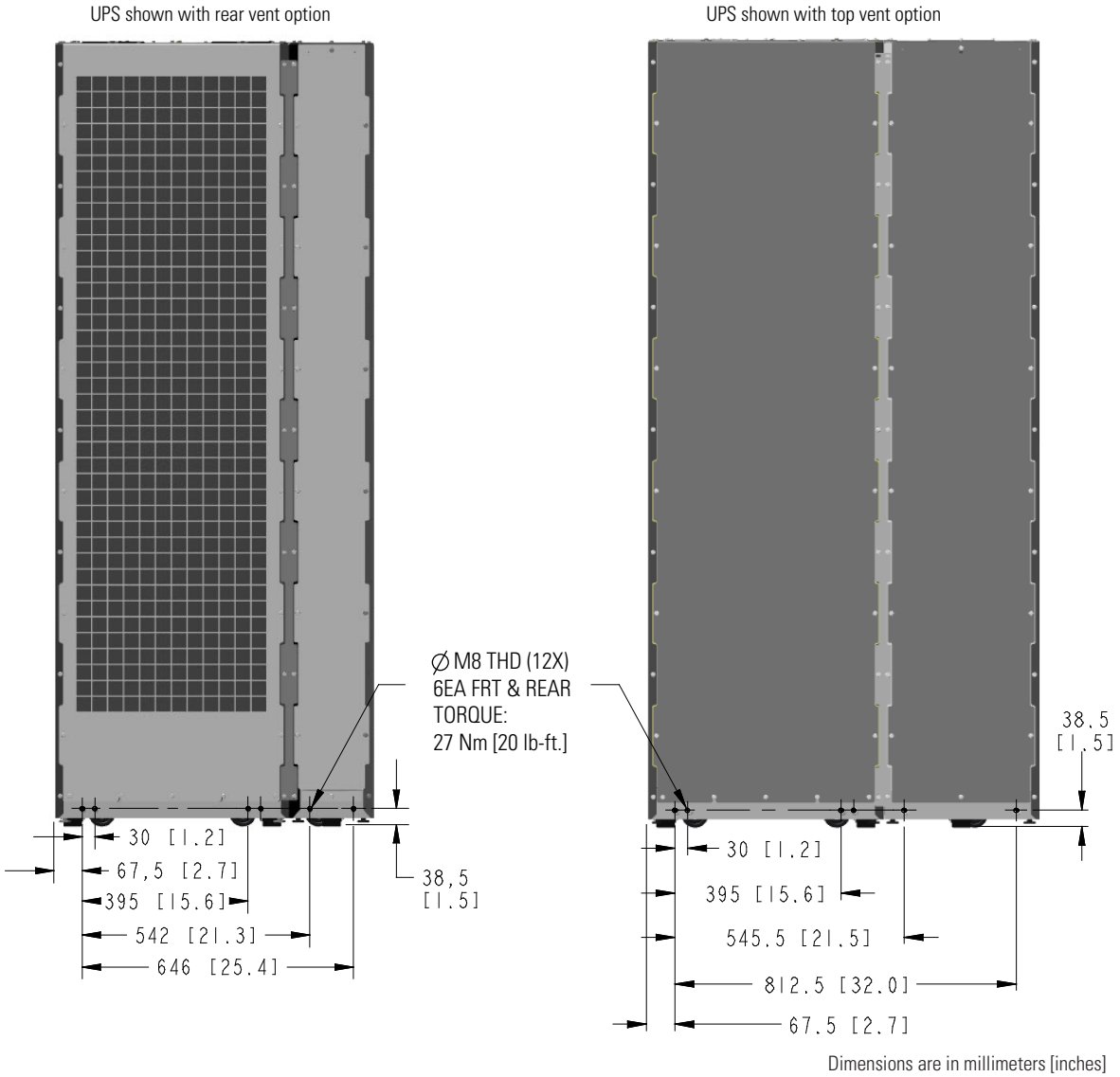
Weight and Center of Gravity with Left-Mounted 100 kW SIAC-TB (letters A, B, and C map to Figure 9)					
	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-100-1 UPS with SIAC-TB with MIS and MBP	Capacity	865 (34.1)	555 (21.9)	528 (20.8)	467 (1029)
Eaton 93PM-100-2 UPS with SIAC-TB with MIS and MBP	Capacity	922 (36.3)	552 (21.7)	543 (21.4)	530 (1169)
Eaton 93PM-100-1 UPS with SIAC-TB with MIS and MBP	Redundant	867 (34.1)	554 (21.8)	529 (20.8)	473 (1042)
Eaton 93PM-100-2 UPS with SIAC-TB with MIS and MBP	Redundant	924 (36.4)	552 (21.7)	544 (21.4)	536 (1182)
Eaton 93PM-100-3 UPS with SIAC-TB with MIS and MBP	Redundant	1002 (39.4)	551 (21.7)	556 (21.9)	600 (1323)

Weight and Center of Gravity with Right-Mounted 100 kW SIAC-TB (letters A, B, and C map to Figure 9)					
	Frame	A mm (in)	B mm (in)	C mm (in)	Installed Weight kg (lb)
Eaton 93PM-100-1 UPS with SIAC-TB with MIS and MBP	Capacity	865 (34.1)	555 (21.9)	401 (15.8)	467 (1029)
Eaton 93PM-100-2 UPS with SIAC-TB with MIS and MBP	Capacity	922 (36.3)	552 (21.7)	386 (15.2)	530 (1169)
Eaton 93PM-100-1 UPS with SIAC-TB with MIS and MBP	Redundant	867 (34.1)	554 (21.8)	399 (15.7)	473 (1042)
Eaton 93PM-100-2 UPS with SIAC-TB with MIS and MBP	Redundant	924 (36.4)	552 (21.7)	385 (15.2)	536 (1182)
Eaton 93PM-100-3 UPS with SIAC-TB with MIS and MBP	Redundant	1002 (39.4)	551 (21.7)	374 (14.7)	600 (1323)

3.2.2 Floor Mounting Brackets

Floor mounting brackets are optionally available to secure the UPS and SIAC-T or SIAC-TB to the facility floor. Figure 10 shows the mounting hole locations for the brackets.

Figure 10. Eaton 93PM UPS Cabinet with SIAC-T or SIAC-TB Front and Rear Floor Mounting Bracket Mounting Dimensions



NOTE The 93PM UPS is shown with a left-mounted sidecar. A UPS with a right-mounted sidecar is the mirror image.

3.2.3 SIAC-T and SIAC-TB Power Wiring Preparation

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 SIAC-B 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.
- For external wiring, use 75°C copper wire. Wire sizes listed in Table 3 through Table 6 are for copper wiring only. If wire is run in an ambient temperature greater than 40°C, higher temperature wire and/or larger size wire may be necessary. Wire sizes are based on using the specified breakers.
- The SIAC-T AC output wiring to the critical load for a 1+1 parallel configuration should be sized the same as if wiring a 2+0 parallel system if a Maintenance Isolation Switch (MIS) is not installed in the SIAC-T.
- 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.
- A neutral conductor is not used from the source or supplied to the load.
- Refer to NEC Article 250 and local codes for proper grounding practices.
- Phase rotation must be clockwise starting with phase A (rotation A, B, C).
- Per NEC Article 300-20(a), all three-phase conductors must be run in the same conduit. A ground wire must be run in the same conduit as the phase conductors.
- Conduit is to be sized to accommodate three phase conductors and one ground conductor.
- Refer to the appropriate Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS cabinet conduit and terminal specifications and locations.
- Material and labor for external wiring requirements are to be provided by the customer.
- The term line-up-and-match refers to accessory cabinets that are physically located adjacent to the UPS. The term standalone refers to accessory cabinets that are located separate from the UPS.

For SIAC-T external power wiring recommendations, including the minimum AWG size of external wiring, see Table 3 or Table 4. Wire sizes listed are for copper wiring only.

Table 3. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-T – 1+1 Parallel Configuration

		Units	Rating 60 Hz	
Basic Unit Rating		kW	50	100
Input/Output Voltage		Volts	480/480	480/480
AC Input from each UPS Full Load Current from each UPS (3) Phases, (1) Ground		Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase	**A**	AWG or kcmil (each)	Factory Prewired 2 (1)	Factory Prewired 2 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)

Table 3. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-T – 1+1 Parallel Configuration (Continued)

AC Output to Critical Load with MIS (3-Breaker) Full Load Current (3) Phases, (1) Ground	**B**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	3 (1)	2/0 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)
AC Output to Critical Load without MIS (2-Breaker) Full Load Current (3) Phases, (1) Ground	**B**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	2/0 (1)	300 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)
Building and Inter-Cabinet Ground Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)

NOTE Callout letters **A** and **B** map to the Oneline Schematics detailed in Chapter 5 *Onelines and Schematics*.

Table 4. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-T – 2+0 Parallel Configuration

		Units	**Rating 60 Hz**	**Rating 60 Hz**
Basic Unit Rating		kW	50	100
Input/Output Voltage		Volts	480/480	480/480
AC Input from each UPS Full Load Current from each UPS (3) Phases, (1) Ground	**A**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	Factory Prewired 2 (1)	Factory Prewired 2 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)
AC Output to Critical Load with MIS (3-Breaker) Full Load Current (3) Phases, (1) Ground	**B**	Maximum Amps	120	240
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	2/0 (1)	300 (1)

Table 4. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-T – 2+0 Parallel Configuration (Continued)

Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)
AC Output to Critical Load without MIS (2-Breaker) Full Load Current (3) Phases, (1) Ground	**B**	Maximum Amps	120	240
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	2/0 (1)	300 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)
Building and Inter-Cabinet Ground Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)

NOTE Callout letters **A** and **B** map to the Oneline Schematics detailed in Chapter 5 *Onelines and Schematics*.

For (SIAC-TB) external power wiring recommendations including the minimum AWG size of external wiring, see Table 5 or Table 6. Wire sizes listed are for copper wiring only.

Table 5. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-TB – 1+1 Parallel Configuration with Maintenance Bypass

		Units	**Rating 60 Hz**	**Rating 60 Hz**
Basic Unit Rating		kW	50	100
Input/Output Voltage		Volts	480/480	480/480
AC Input from each UPS Full Load Current from each UPS (3) Phases, (1) Neutral, (1) Ground	**A**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	Factory Prewired 2 (1)	Factory Prewired 2 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)
AC Input to Maintenance Bypass (3) Phases, (1) Neutral, (1) Ground	**B**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase		AWG or kcmil (each)	3 (1)	2/0 (1)
AC Output to Critical Load Full Load Current (3) Phases, (1) Neutral, (1) Ground	**C**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C)		AWG or kcmil	3	2/0

Table 5. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-TB – 1+1 Parallel Configuration with Maintenance Bypass (Continued)

Number per Phase		(each)	(1)	(1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)
Building and Inter-Cabinet Ground Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)

NOTE Callout letters **A**, **B,** and **C** map to the Oneline Schematics detailed in Chapter 5 *Onelines and Schematics*.

Table 6. External Power Wiring Recommendations: Eaton 93PM 50 kW and 100 kW SIAC-TB – 2+0 Parallel Configuration with Maintenance Bypass

		Units	**Rating 60 Hz**	**Rating 60 Hz**
Basic Unit Rating		kW	50	100
Input/Output Voltage		Volts	480/480	480/480
AC Input from each UPS Full Load Current from each UPS (3) Phases, (1) Neutral, (1) Ground	**A**	Maximum Amps	60	120
Minimum Conductor Size (Phase A, B, and C) Number per Phase	**A**	AWG or kcmil (each)	Factory Prewired 2 (1)	Factory Prewired 2 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	8 (1)	6 (1)
AC Input to Maintenance Bypass (3) Phases, (1) Neutral, (1) Ground	**B**	Maximum Amps	120	240
Minimum Conductor Size (Phase A, B, and C) Number per Phase	**B**	AWG or kcmil (each)	2/0 (1)	300 (1)
AC Output to Critical Load Full Load Current (3) Phases, (1) Neutral, (1) Ground	**C**	Maximum Amps	120	240
Minimum Conductor Size (Phase A, B, and C) Number per Phase	**C**	AWG or kcmil (each)	2/0 (1)	300 (1)
Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)
Building and Inter-Cabinet Ground Minimum Conductor Size (Ground) Number per Phase	—	AWG or kcmil (each)	6 (1)	4 (1)

NOTE Callout letters **A**, **B,** and **C** map to the Oneline Schematics detailed in Chapter 5 *Onelines and Schematics*.

The power wiring terminals are pressure terminations, UL and CSA rated. See Table 7 or Table 9 for SIAC-T and Table 8 or Table 10 for SIAC-TB external input power cable terminations.

Figure 16 shows the location of the SIAC-T power cable terminals. Figure 20 or Figure 21 shows the location of the SIAC-TB power cable terminals.

Table 7. External Input Power Cable Terminations: Eaton 93PM 50 kW SIAC-T – 1+1 and 2+0 Parallel Configurations

Terminal Function	Termi-nal	Func-tion	Number and Size of Pressure Termination (AWG or kcmil)	Tightening Torque Nm (lb in)	Size Screw and Type
AC Output to Critical Load (1+1 and 2+0 without MIS (1+1 and 2+0 without MIS – 2-breaker)	Load A	Phase A	1 – #6–500	31 (275)	5/16" Hex
	Load B	Phase B	1 – #6–500	31 (275)	5/16" Hex
	Load C	Phase C	1 – #6–500	31 (275)	5/16" Hex
AC Output to Critical Load (1+1 with MIS – 3-breaker)	Load A	Phase A	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load B	Phase B	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load C	Phase C	1 – #4–4/0	13.6 (120)	5/16" Hex
AC Output to Critical Load (2+0 with MIS – 3-breaker)	Load A	Phase A	1 – #4–350	20 (180)	5/16" Hex
	Load B	Phase B	1 – #4–350	20 (180)	5/16" Hex
	Load C	Phase C	1 – #4–350	20 (180)	5/16" Hex
Building, Inter-Cabinet, and Load Ground	TBG	Ground	4 – #14–1/0	5.1 (45)	Slotted

Table 8. External Input Power Cable Terminations: Eaton 93PM 50 kW SIAC-TB – 1+1 and 2+0 Parallel Configurations

Terminal Function	Termi-nal	Func-tion	Number and Size of Pressure Termination (AWG or kcmil)	Tightening Torque Nm (lb in)	Size Screw and Type
AC Input to Maintenance Bypass (1+1)	Load A	Phase A	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load B	Phase B	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load C	Phase C	1 – #4–4/0	13.6 (120)	5/16" Hex
AC Input to Maintenance Bypass (2+0)	Load A	Phase A	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load B	Phase B	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load C	Phase C	1 – #4–4/0	13.6 (120)	5/16" Hex
AC Output to Critical Load	Load A	Phase A	1 – #6–500	31 (275)	1/2" Hex
	Load B	Phase B	1 – #6–500	31 (275)	1/2" Hex
	Load C	Phase C	1 – #6–500	31 (275)	1/2" Hex
Building, Inter-Cabinet, and Load Ground	TBG	Ground	4 – #14–1/0	5.1 (45)	Slotted

Table 9. External Input Power Cable Terminations for the Eaton 93PM 100 kW SIAC-T – 1+1 and 2+0 Parallel Configurations

Terminal Function	Terminal	Function	Number and Size of Pressure Termination (AWG or kcmil)	Tightening Torque Nm (lb in)	Size Screw and Type
AC Output to Critical Load (1+1 and 2+0 without MIS (1+1 and 2+0 without MIS – 2-breaker)	Load A	Phase A	1 – #6–500	56 (500)	1/2" Hex
	Load B	Phase B	1 – #6–500	56 (500)	1/2" Hex
	Load C	Phase C	1 – #6–500	56 (500)	1/2" Hex
AC Output to Critical Load (1+1 with MIS – 3-breaker)	Load A	Phase A	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load B	Phase B	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load C	Phase C	1 – #4–4/0	13.6 (120)	5/16" Hex
AC Output to Critical Load (2+0 with MIS – 3-breaker)	Load A	Phase A	1 – #4–350	20 (180)	5/16" Hex
	Load B	Phase B	1 – #4–350	20 (180)	5/16" Hex
	Load C	Phase C	1 – #4–350	20 (180)	5/16" Hex
Building, Inter-Cabinet, and Load Ground	TBG	Ground	4 – #14–1/0	5.1 (45)	Slotted

Table 10. External Input Power Cable Terminations: Eaton 93PM 100 kW SIAC-TB – 1+1 and 2+0 Parallel Configurations

Terminal Function	Terminal	Function	Number and Size of Pressure Termination (AWG or kcmil)	Tightening Torque Nm (lb in)	Size Screw and Type
AC Input to Maintenance Bypass (1+1)	Load A	Phase A	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load B	Phase B	1 – #4–4/0	13.6 (120)	5/16" Hex
	Load C	Phase C	1 – #4–4/0	13.6 (120)	5/16" Hex
AC Input to Maintenance Bypass (2+0)	Load A	Phase A	1 – #4–350	20 (180)	5/16" Hex
	Load B	Phase B	1 – #4–350	20 (180)	5/16" Hex
	Load C	Phase C	1 – #4–350	20 (180)	5/16" Hex
AC Output to Critical Load	Load A	Phase A	1 – #6–500	56 (500)	1/2" Hex
	Load B	Phase B	1 – #6–500	56 (500)	1/2" Hex
	Load C	Phase C	1 – #6–500	56 (500)	1/2" Hex
Building, Inter-Cabinet, and Load Ground	TBG	Ground	4 – #14–1/0	5.1 (45)	Slotted

3.2.4 SIAC-T and SIAC-TB Interface Wiring Preparation

Control wiring for features and options should be connected at the customer interface terminal block located inside the SIAC-T or SIAC-TB.

⚠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.
- Use twisted-pair wires for each input and return or common.
- All interface wiring and conduit is to be supplied by the customer.
- Interface wiring can be installed using the inter-cabinet wiring access pass-through or by routing wiring through conduit between cabinets.
- Install the interface wiring in separate conduit from the power wiring.

3.3 Inspecting and Unpacking the SIAC-T or SIAC-TB

The SIAC-T or SIAC-TB is attached to the UPS cabinet at the factory. The integrated cabinets are shipped bolted to a metal and wood pallet (see Figure 11, Figure 12, or Figure 13) with outer protective packaging material covering the cabinet. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for inspection and unpacking instructions.

Figure 11. 93PM 50 kW SIAC-T or 93PM 50 kW SIAC-TB attached to 50 kW UPS as Shipped on Pallet

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

Figure 12. Eaton 93PM 100 kW SIAC-T attached to 100 kW UPS as Shipped on Pallet

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

Figure 13. Eaton 93PM 100 kW SIAC-TB attached to 100 kW UPS as Shipped on Pallet

UPS with Left-Mounted Sidecar

UPS with Right-Mounted Sidecar

Chapter 4 Installation

This chapter includes installation instructions for the Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) and Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB).

NOTE The SIAC-T or SIAC-TB is attached to and directly integrated with one of the UPS cabinets at the factory for use in a two UPS parallel system. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information* during installation.

4.1 Preliminary Installation Information

⚠WARNING

Installation should be performed only by qualified personnel.

Refer to the following while installing the SIAC-T or SIAC-TB:

- Chapter 3 *Installation Plan and Unpacking* for cabinet dimensions, equipment weight, wiring and terminal data, and installation notes.
- Do not tilt the cabinets more than ±10° during installation. See Figure 6 for SIAC-T center of gravity measurements or Figure 9 for the SIAC-TB center of gravity measurements.

4.2 Unloading the SIAC-T or SIAC-TB from the Pallet and Mechanical Installation

The SIAC-T or SIAC-TB is attached to and directly integrated with one of the UPS cabinets at the factory for use in a two UPS parallel system. Refer to the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information* for unloading and mechanical installation instructions.

NOTE The SIAC-T or SIAC-TB is attached to and directly integrated with one of the UPS cabinets at the factory for use in a two UPS parallel system. The SIAC-T and SIAC-TB are designed to be located between two UPS in a line-up-and-match configuration. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information* during installation.

After completing the unloading and installation of the UPS with the attached SIAC-T or SIAC-TB, use the same instructions to unload the second UPS and install adjacent to the SIAC-T or SIAC-TB.

4.3 Installing the SIAC-T or SIAC-TB Prewired Cables

NOTE 1 The SIAC-T or SIAC-TB Module Output Breaker (MOB) phase wiring is prewired between the attached UPS and the SIAC-T or SIAC-TB.

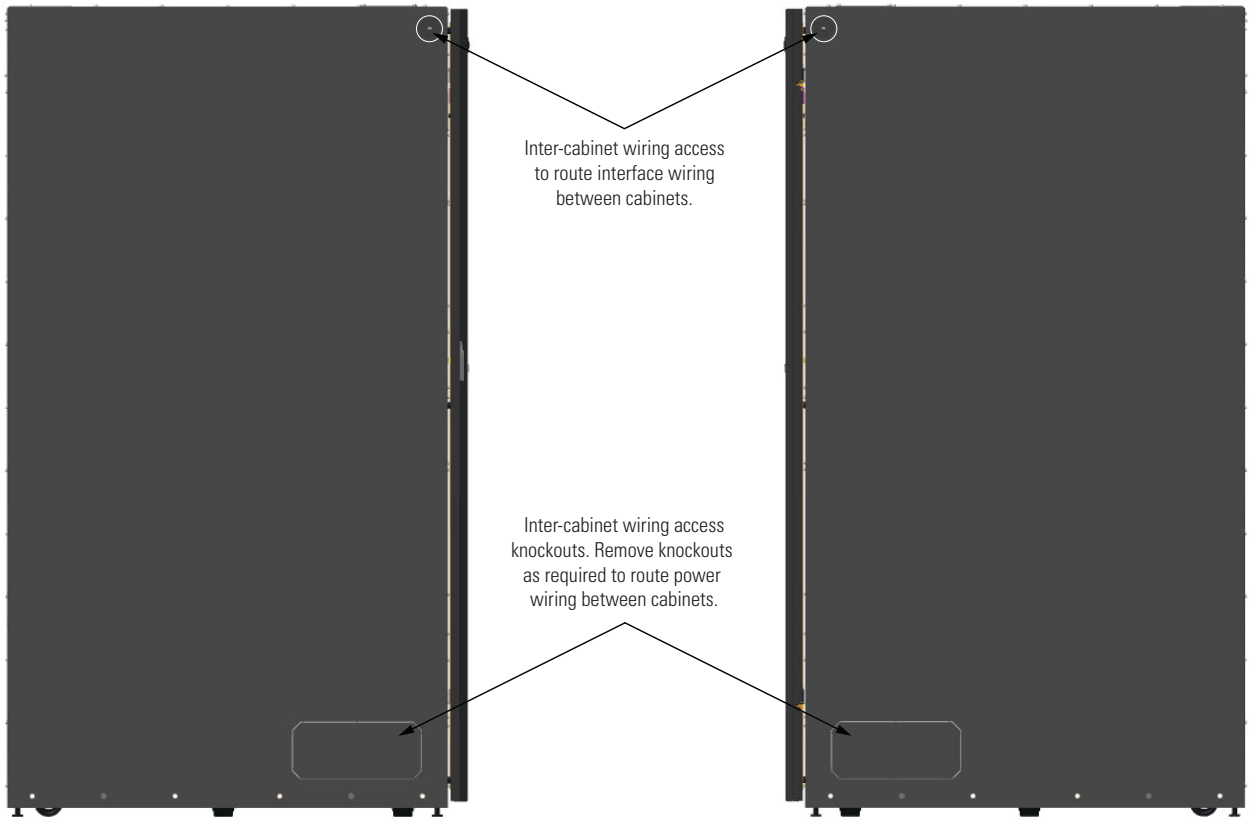
NOTE 2 The SIAC-T or SIAC-TB MOB phase wiring for the second UPS is prewired to the MOB and is coiled inside the sidecar.

To install wiring:

1. Verify the UPS system is turned off and all power sources are removed. Refer to the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information*, for UPS operating procedures.
2. Remove the screw securing the bottom of the SIAC-T or SIAC-TB front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later reuse.

3. Remove the screws securing the internal safety shield panel and remove the panel to gain access to the prewired cables. Retain screws for later reuse.
4. Locate the bundled cables inside the cabinet and route the wires from the SIAC-T or SIAC-TB through the lower SIAC-T or SIAC-TB and second UPS inter-cabinet wiring access pass-through (see Figure 14) to the second UPS output terminals. Refer to the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information*, for wiring access information and UPS cabinet terminal locations.
5. Connect the MOB phase wiring from the SIAC-T or SIAC-TB to the UPS power terminals. Follow the cable, phase, and neutral designations marked on the cables to connect the cables to the correct terminals. Refer to the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information*, for UPS cabinet termination requirements and installation procedures.
6. Proceed to paragraph 4.4 *Installing SIAC-T External Power Wiring*.

Figure 14. Line-Up-and-Match Wiring Access Locations



4.4 Installing SIAC-T External Power Wiring

NOTE 1 External power wiring can be routed either through the top or bottom of the SIAC-T.

NOTE 2 Remove the SIAC-T top or bottom conduit landing plate to drill or punch conduit holes (see Figure 4-2).

To install wiring:

1. If wiring the SIAC-T using top entry wiring access, proceed to Step 2; otherwise, proceed to Step 5.
2. **Top Entry Wiring.** Remove the top conduit landing plate (see Figure 15) from the top of the SIAC-T. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top cover prior to mounting on the SIAC-T. Install the top conduit plate and install all conduit runs into the top cover.
3. Route the critical load output cables (phase A, B, and C, and Ground) through the conduit on the top of the SIAC-T to the SIAC-T terminals. See Figure 15 for SIAC-T wiring access information and Figure 16 for terminal locations.
4. Proceed to Step 7.
5. **Bottom Entry Wiring.** Remove the bottom conduit landing plate (see Figure 15) from the bottom of the SIAC-T. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the SIAC-T. Install the conduit plate and install all conduit runs into the plate.
6. Route the critical load output cables (phase A, B, and C, and Ground) through the conduit on the bottom of the SIAC-T to the SIAC-T terminals. See Figure 15 for SIAC-T wiring access information, and Figure 16 for terminal locations.
7. Connect phase A, B, and C, and Ground output power wiring from the SIAC-T output terminals to the critical load or Integrated Accesssory Cabinet-Distribution (IAC-D). See paragraph 3.2.3 *SIAC-T and SIAC-TB Power Wiring Preparation*, Table 3 or Table 4 and Table 7 or Table 9 for SIAC-T wiring and termination requirements. 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 1.7 *For More Information* for conduit and terminal locations and termination requirements.

   For a detailed view of the SIAC-T terminals, see Figure 17 (with MIS) or Figure 18 (without MIS).
8. Route and connect ground wiring between the SIAC-T and the UPS cabinet ground terminals.
9. If wiring interface connections, proceed to paragraph 4.6 *Installing SIAC-T and SIAC-TB Interface Connections*; otherwise, proceed to Step 10.
10. Reinstall the internal safety shield panel and secure with retained screws.
11. Reinstall the SIAC-T front panel and secure with retained screw.
12. After the SIAC-T is wired, return to the applicable Eaton 93PM UPS installation and operation manual listed in paragraph 1.7 *For More Information* to complete the UPS wiring.

Figure 15. 93PM 50 kW SIAC-T, 93PM 50 kW SIAC-TB, and 93PM 100 kW SIAC-T Conduit Landing Wire Entry Locations

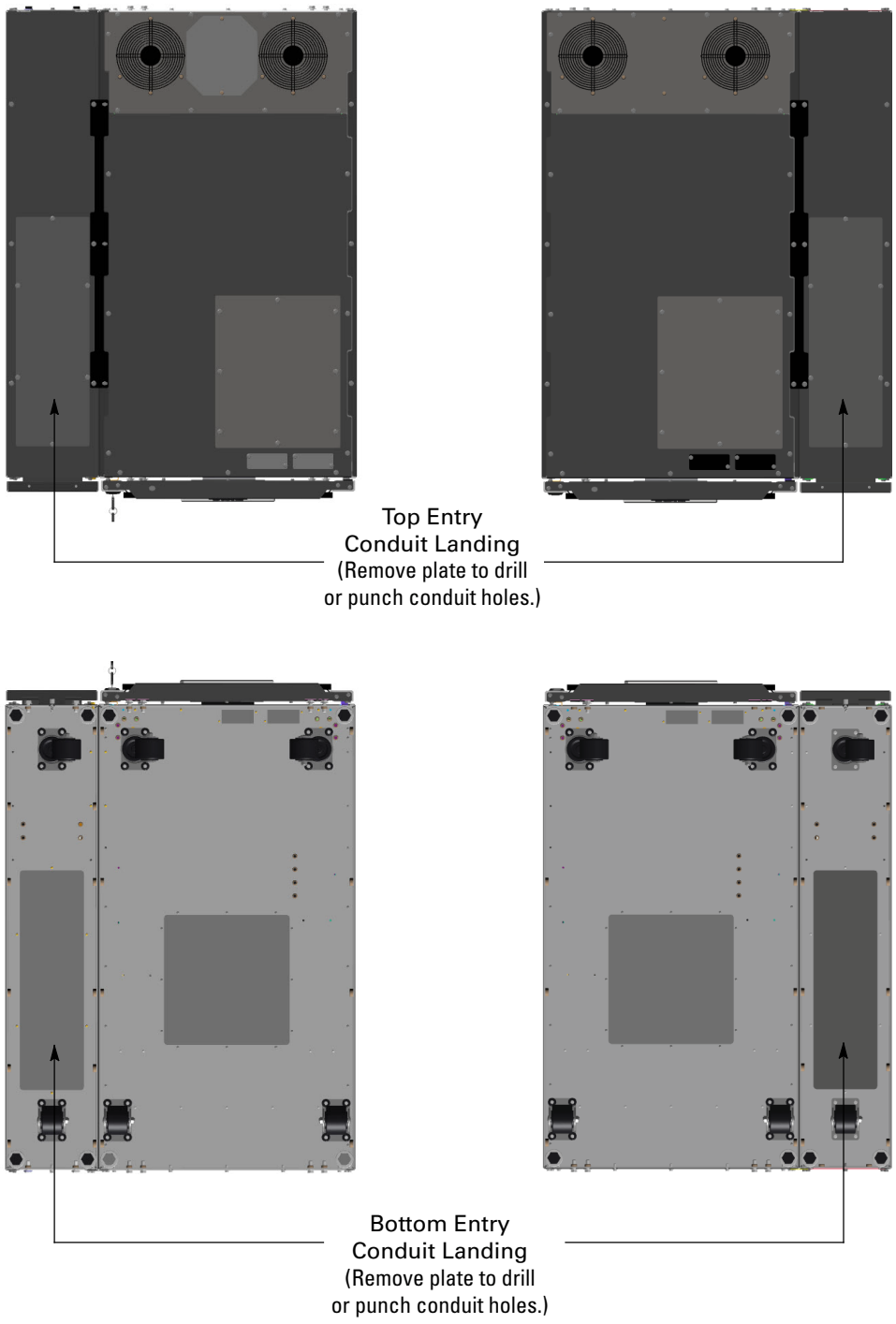


Figure 16. 93PM 50 kW SIAC-T and 93PM 100 kW SIAC-T Output Power and Ground Terminal Locations

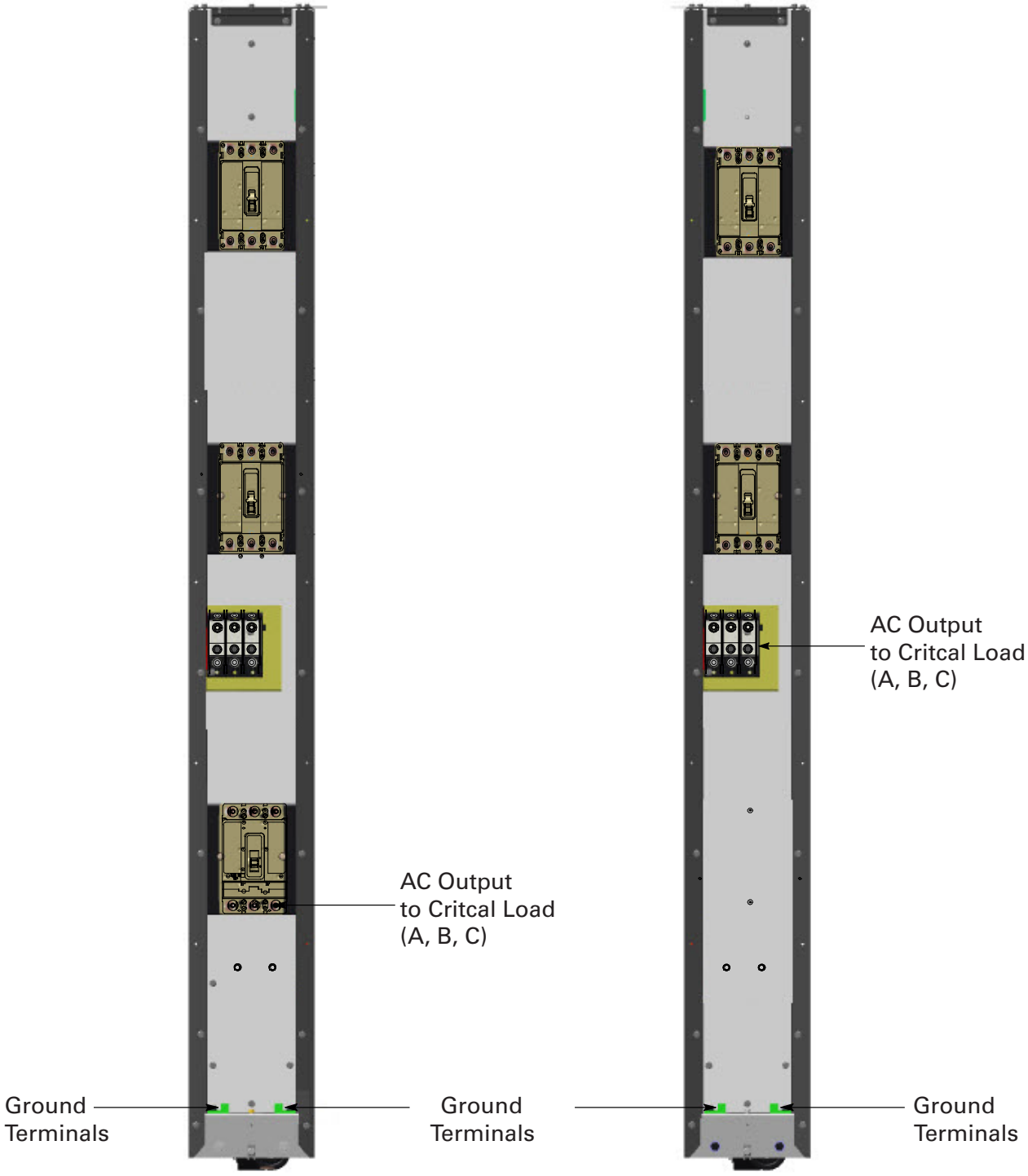


Figure 17. 93PM 50 kW SIAC-T and 93PM 100 kW SIAC-T with MIS Output Power Terminal Detail

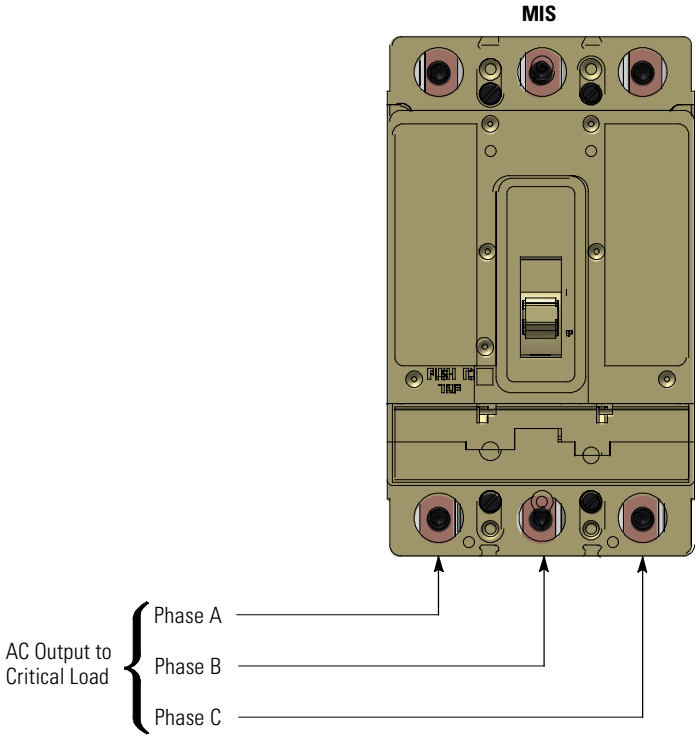
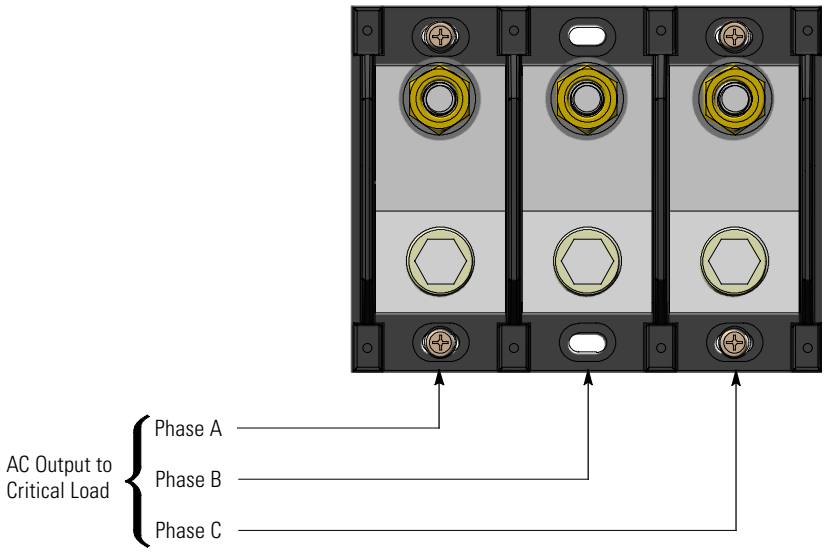


Figure 18. 93PM 50 kW SIAC-T and 93PM 100 kW SIAC-T without MIS Output Power Terminal Detail



4.5 Installing SIAC-TB External Power Wiring

NOTE 1 External power wiring can be routed either through the top or bottom of the SIAC-TB.

NOTE 2 Remove the SIAC-TB top or bottom conduit landing plate to drill or punch conduit holes (see Figure 4-6).

To install wiring:

1. If wiring the SIAC-TB using top entry wiring access, proceed to Step 2; otherwise, proceed to Step 5.
2. **Top Entry Wiring.** Remove the top conduit landing plate (see Figure 15 or Figure 19) from the top of the SIAC-TB. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top cover prior to mounting on the SIAC-TB. Install the top conduit plate and install all conduit runs into the top cover.
3. Route the maintenance bypass input and critical load output cables (phase A, B, and C, and Ground) through the conduit on the top of the SIAC-TB to the SIAC-TB terminals. See Figure 15 or Figure 19 for SIAC-TB wiring access information and Figure 20 or Figure 21 for terminal locations.
4. Proceed to Step 7.
5. **Bottom Entry Wiring.** Remove the bottom conduit landing plate (see Figure 15 or Figure 19) from the bottom of the SIAC-TB. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the SIAC-TB. Install the conduit plate and install all conduit runs into the plate.
6. Route the maintenance bypass input and critical load output cables (phase A, B, and C, and Ground) through the conduit on the bottom of the SIAC-TB to the SIAC-TB terminals. See Figure 15 or Figure 19 for SIAC-TB wiring access information, and Figure 20 or Figure 21 for terminal locations.

7. Connect phase A, B, and C, and Ground bypass input power wiring from the utility source to the SIAC-TB maintenance bypass input terminals. See paragraph 3.2.3 *SIAC-T and SIAC-TB Power Wiring Preparation*, Table 5 or Table 6 and Table 8 or Table 10 for SIAC-TB wiring and termination requirements.

   For a detailed view of the SIAC-TB terminals, see Figure 22.

8. Connect phase A, B, and C, and Ground output power wiring from the SIAC-TB output terminals to the critical load or Integrated Accesssory Cabinet-Distribution (IAC-D). See paragraph 3.2.3 *SIAC-T and SIAC-TB Power Wiring Preparation*, Table 5 or Table 6 and Table 8 or Table 10 for SIAC-TB wiring and termination requirements. 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 1.7 *For More Information* for conduit and terminal locations and termination requirements.

   For a detailed view of the SIAC-TB terminals, see Figure 23 or Figure 24.

9. Route and connect ground wiring between the SIAC-TB and the UPS cabinet ground terminals.

10. If wiring interface connections, proceed to paragraph 4.6 *Installing SIAC-T and SIAC-TB Interface Connections*; otherwise, proceed to Step 11.

11. Reinstall the internal safety shield panel and secure with retained screws.

12. Reinstall the SIAC-TB front panel and secure with retained screw.

13. After the SIAC-TB is wired, return to the applicable Eaton 93PM UPS installation and operation manual listed in paragraph 1.7 *For More Information* to complete the UPS wiring.

Figure 19. 93PM 100 kW SIAC-TB Conduit Landing Wire Entry Locations

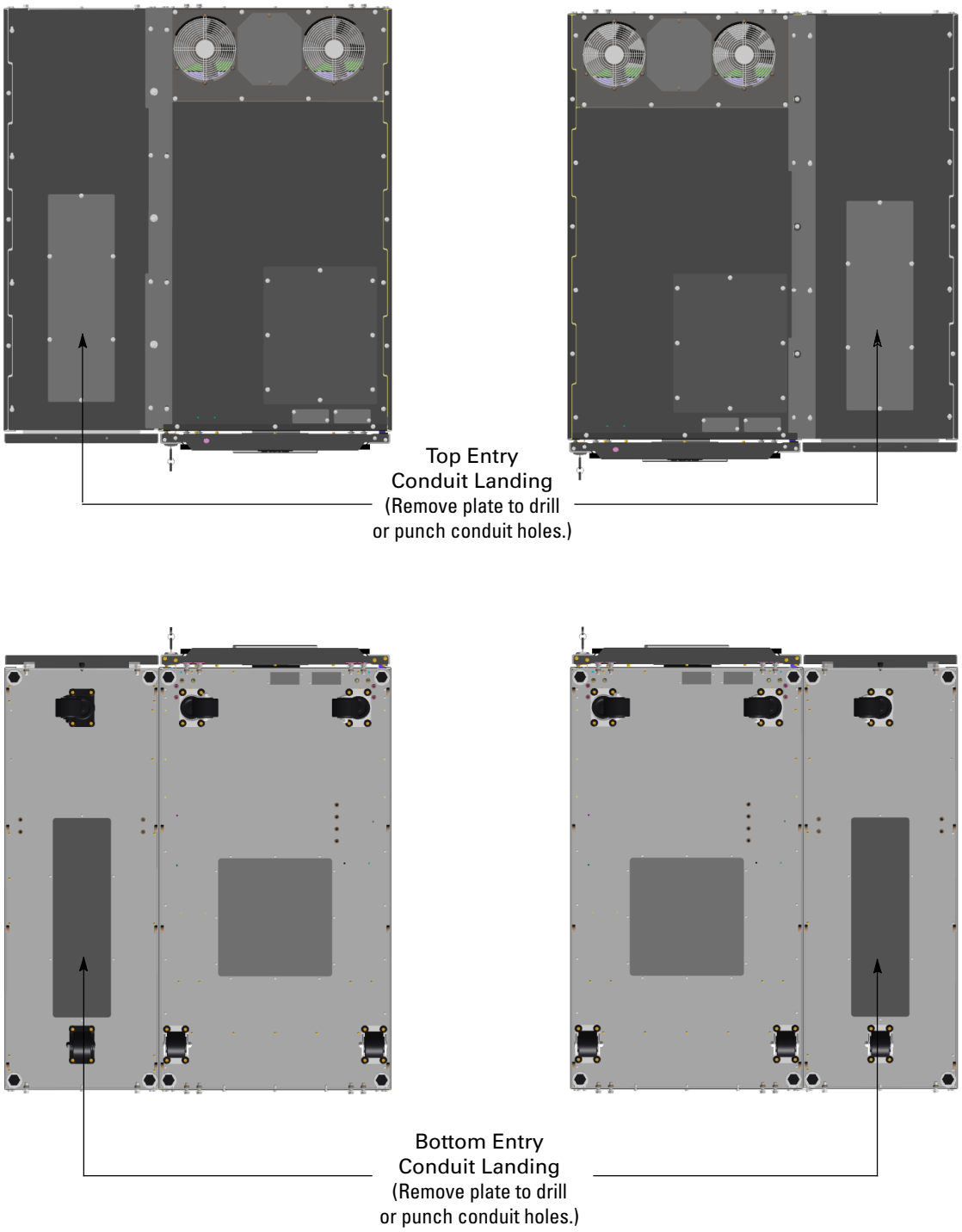


Figure 20. 93PM 50 kW SIAC-TB Bypass Input Power, Output Power, and Ground Terminal Locations

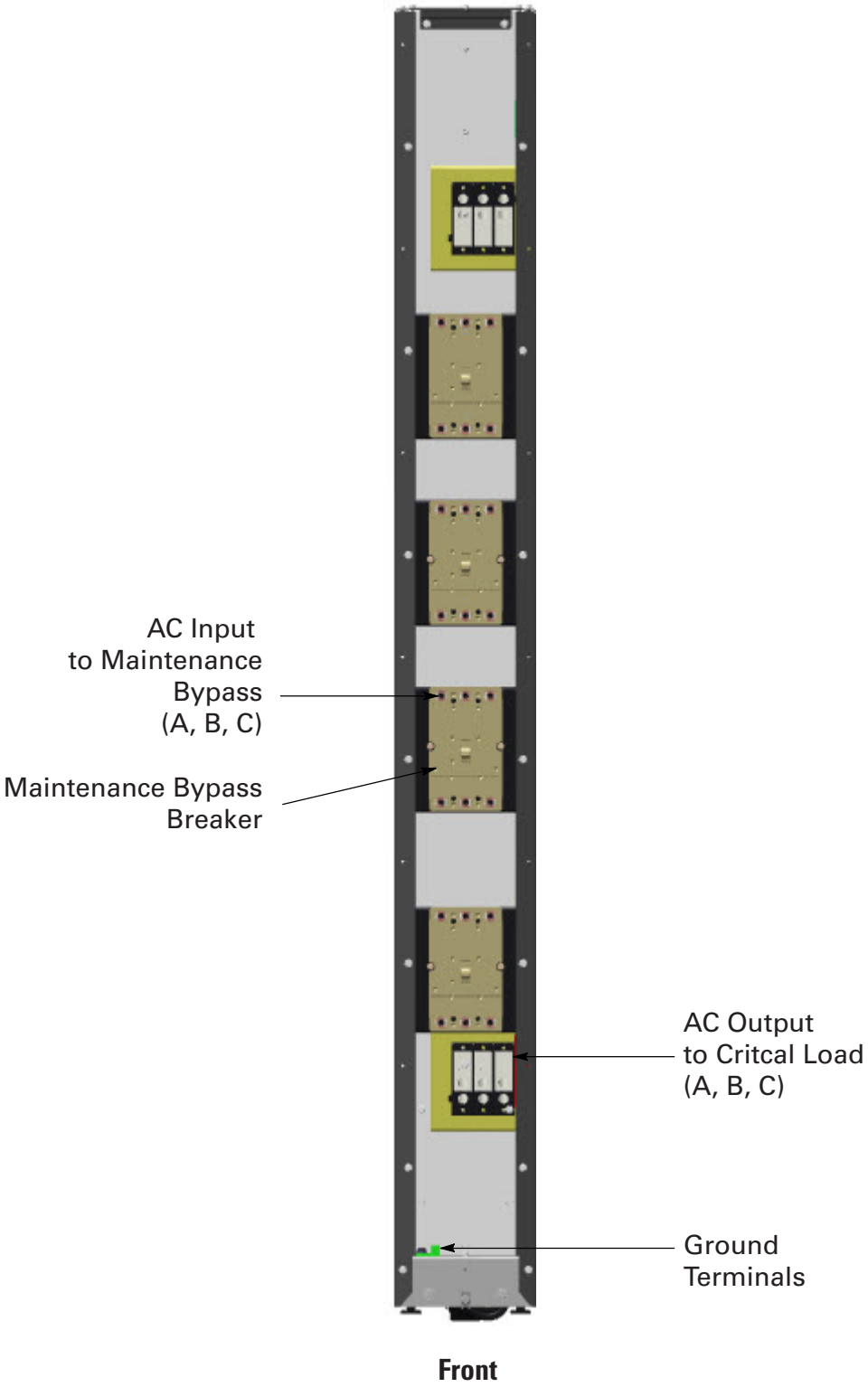


Figure 21. 93PM 100 kW SIAC-TB Bypass Input Power, Output Power, and Ground Terminal Locations

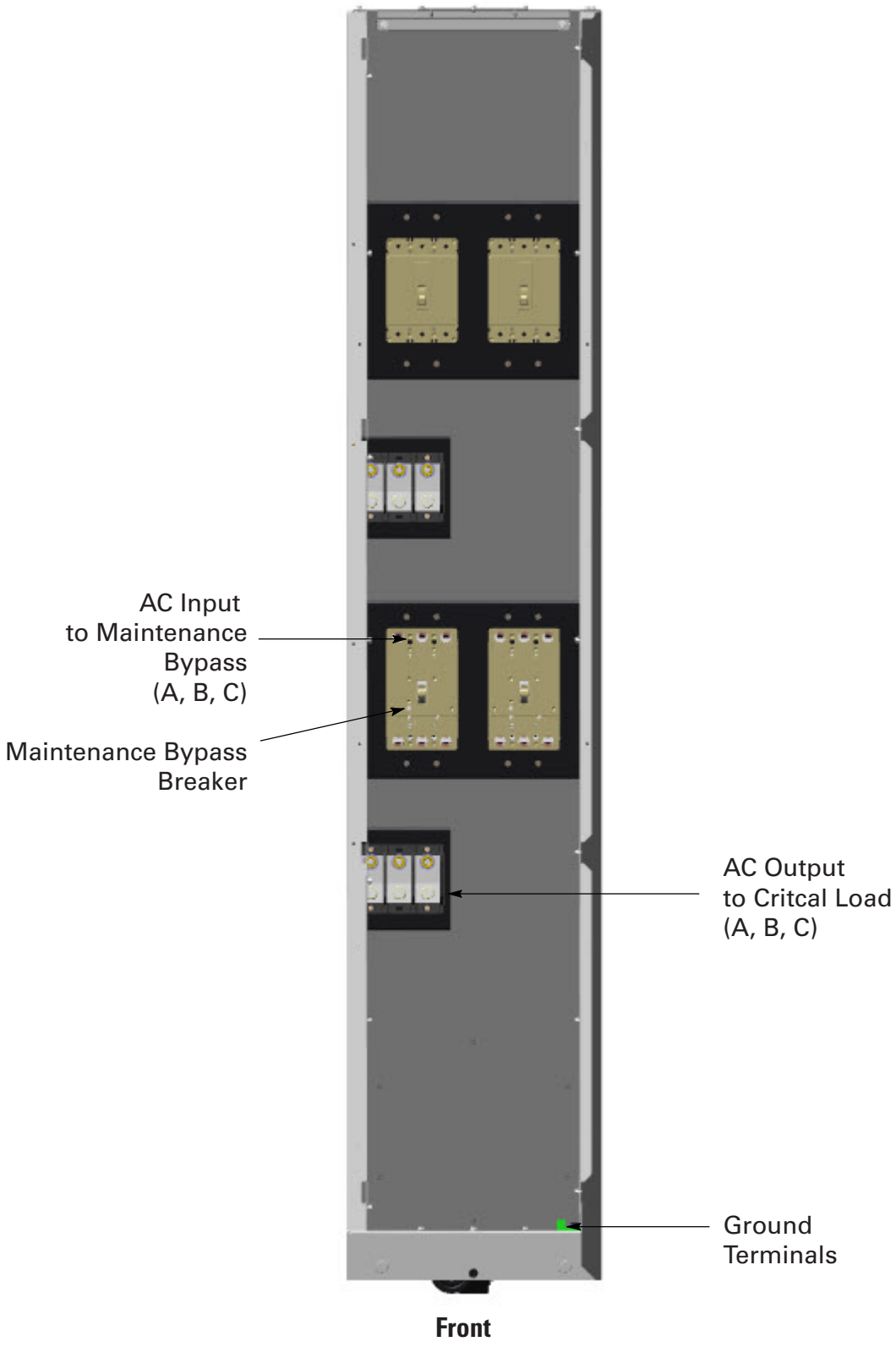


Figure 22. 93PM 50 kW SIAC-TB and 93PM 100 kW SIAC-TB Bypass Input Power Terminal Detail

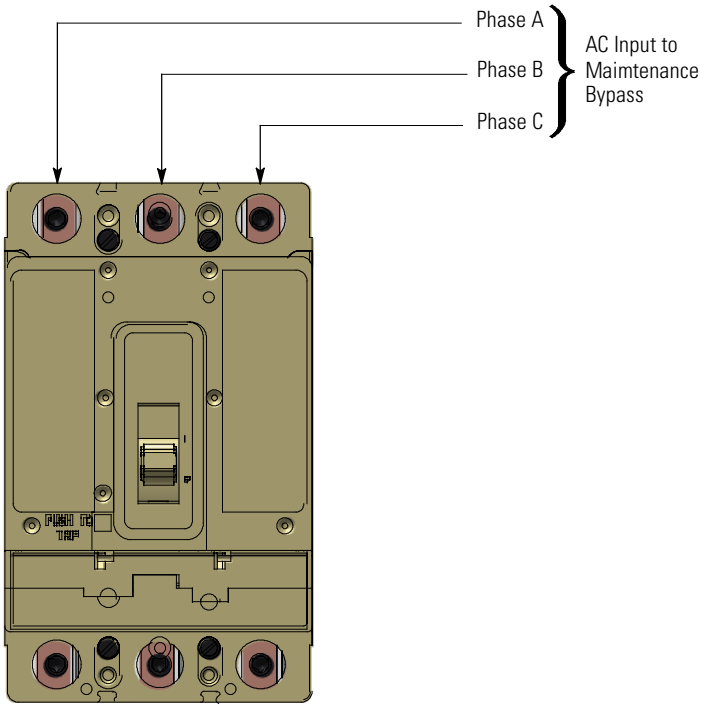


Figure 23. 93PM 50 kW SIAC-TB Output Power Terminal Detail

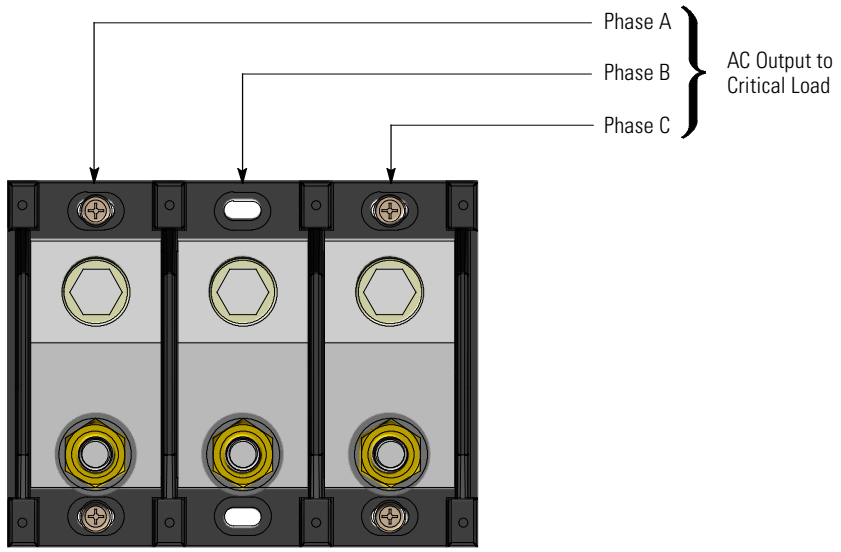
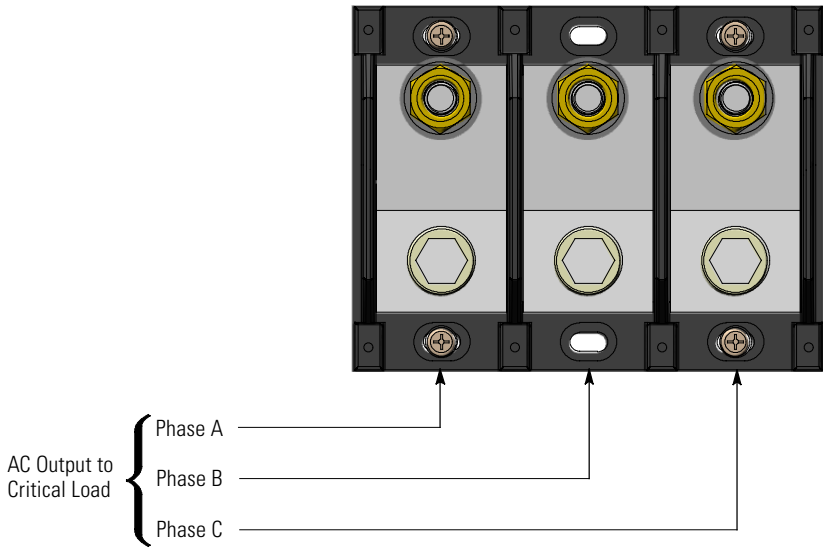


Figure 24. 93PM 100 kW SIAC-TB Output Power Terminal Detail



4.6 Installing SIAC-T and SIAC-TB Interface Connections

NOTE 1 The SIAC-T or SIAC-TB is attached to and directly integrated with one of the UPS cabinets at the factory for use in a two UPS parallel system. This section must be used along with the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, during installation.

NOTE 2 SIAC-TB MBP auxiliary contact control interface wiring is prewired between the attached UPS and the SIAC-T or SIAC-TB.

NOTE 3 The SIAC-TB MBP auxiliary contact control interface wiring for the second UPS is prewired to the MBP terminal block and is coiled inside the sidecar.

NOTE 4 The SIAC-T or SIAC-TB MOB and pull chain auxiliary contact control interface wiring is customer supplied.

NOTE 5 Keep interface wiring separate from power wiring.

NOTE 6 Any pair of unused building alarm terminals may be used for the MOB connections.

To install wiring:

1. Verify the UPS system is turned off and all power sources are removed. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS operating procedures.
2. Remove the screw securing the bottom of the SIAC-T or SIAC-TB front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later reuse.
3. Remove the screws securing the internal safety shield panel and remove the panel to gain access to the terminals and prewired cables. Retain screw for later reuse.
4. Route the customer supplied MOB and pull chain control wiring between the SIAC-T or SIAC-TB interface terminals and the first UPS cabinet interface terminals through the upper SIAC-T or SIAC-TB and first UPS inter-cabinet wiring access pass-through. See Figure 14 for wiring access information, and Figure 25 for SIAC-T, or Figure 27 or Figure 28 for SIAC-TB interface terminal locations. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for wiring access information and UPS cabinet terminal locations.
5. Connect the MOB and pull chain control wiring to the pull chain and building alarm terminals. See paragraph 3.2.4 *SIAC-T and SIAC-TB Interface Wiring Preparation* and Table 11 for terminal block wiring and termination requirements. See Table 12 or Table 13 and Figure 30 for wiring information and terminal assignments.

   For a detailed view of the SIAC-T or SIAC-TB terminals, see Figure 26 or Figure 29.
6. Connect the MOB and pull chain control wiring to the first UPS pull chain and building alarm terminals. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS termination requirements and terminal assignments.
7. Route the customer supplied MOB and pull chain control wiring between the SIAC-T or SIAC-TB interface terminals and the second UPS cabinet interface terminals through the upper SIAC-T or SIAC-TB and second UPS inter-cabinet wiring access pass-through. See Figure 14 for wiring access information, and Figure 25 for SIAC-T, or Figure 27 or Figure 28 for SIAC-TB interface terminal locations. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for wiring access information and UPS cabinet terminal locations.
8. Connect the MOB and pull chain control wiring to the pull chain and building alarm terminals. See paragraph 3.2.4 *SIAC-T and SIAC-TB Interface Wiring Preparation* and Table 11 for terminal block wiring and termination requirements. See Table 12 or Table 13 and Figure 30 for wiring information and terminal assignments.

For a detailed view of the SIAC-T or SIAC-TB terminals, see Figure 26 or Figure 29.

9. Connect the MOB and pull chain control wiring to the second UPS pull chain and building alarm terminals. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS termination requirements and terminal assignments.
10. If wiring the SIAC-TB MBP interface connection, proceed to Step 11; otherwise, proceed to Step 13.
11. Locate the twisted pair MBP interface cable with connector attached inside the cabinet and route the cable from the SIAC-TB through the lower SIAC-TB and second UPS inter-cabinet wiring access pass-through (see Figure 14) to the second UPS MBP interface terminals. See Figure 31 for UPS cabinet MBP interface terminal location. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for wiring access information.
12. Connect the SIAC-TB MBP interface cable connector to the UPS MBP terminal. See Figure 32 for a detailed view of the SIAC-TB MBP terminal.
13. Reinstall the internal safety shield panel and secure with retained screws.
14. Reinstall the SIAC-TB front panel and secure with retained screw.
15. After the SIAC-TB is wired, return to the applicable Eaton 93PM UPS installation and operation manual, listed in paragraph 1.7 *For More Information*, to complete the UPS wiring.

Figure 25. SIAC-T Interface Terminal Location

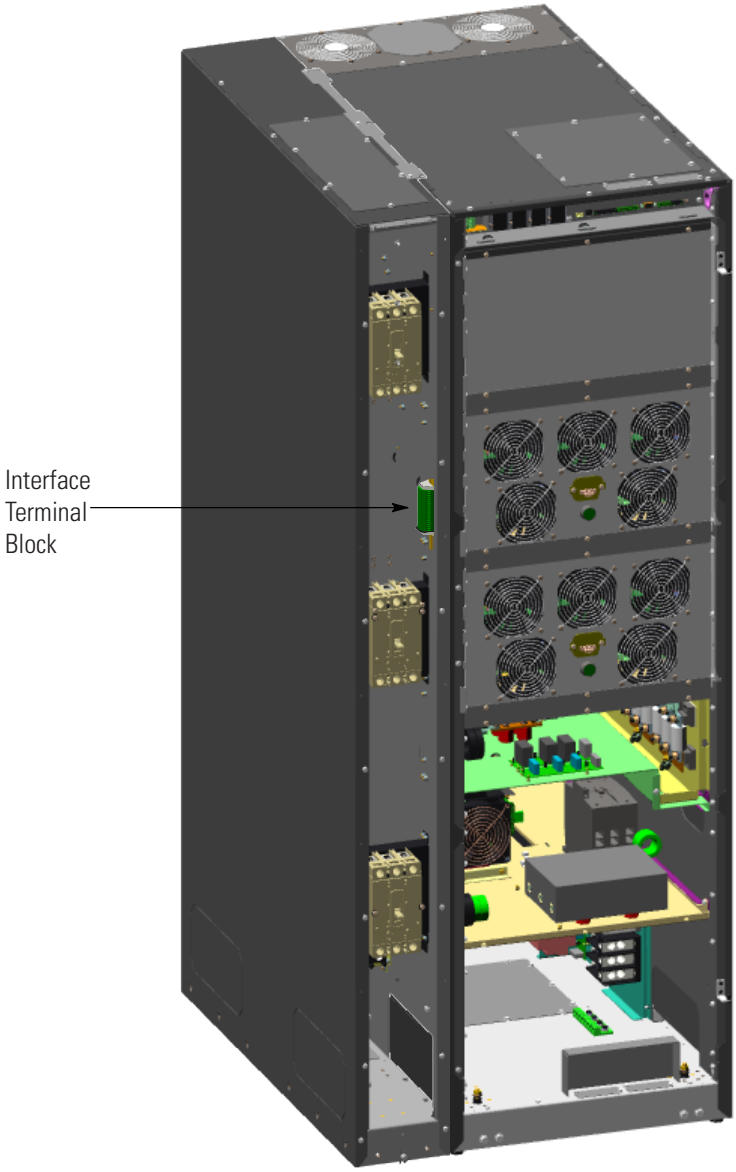
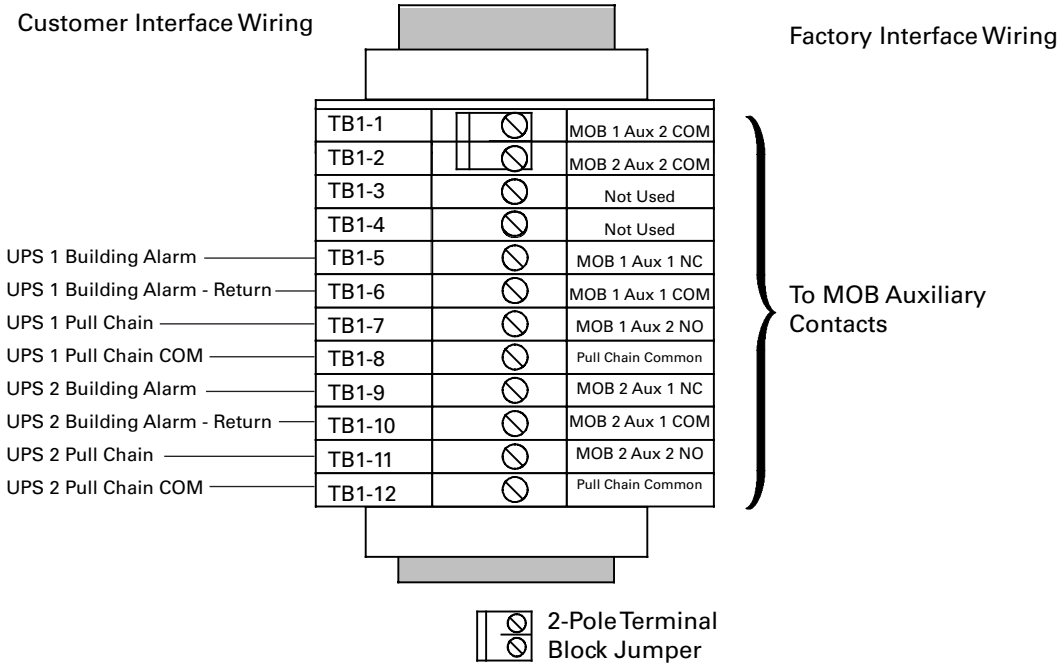


Figure 26. SIAC-T Interface Terminal Detail



NOTE UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-T MOBs assumes that the UPS Building Alarm is programmed to monitor Normally Closed (NC) contacts.

Figure 27. Eaton 93PM 50 kW SIAC-TB Interface Terminal Location

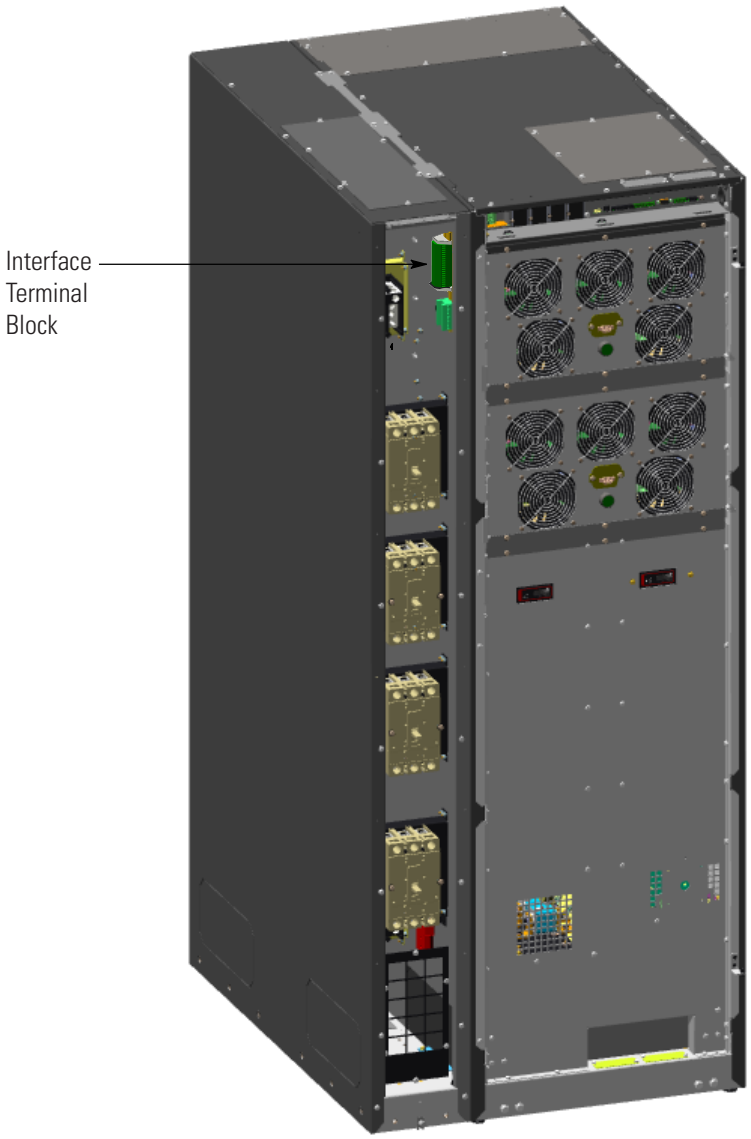


Figure 28. 93PM 100 kW SIAC-TB Interface Terminal Location

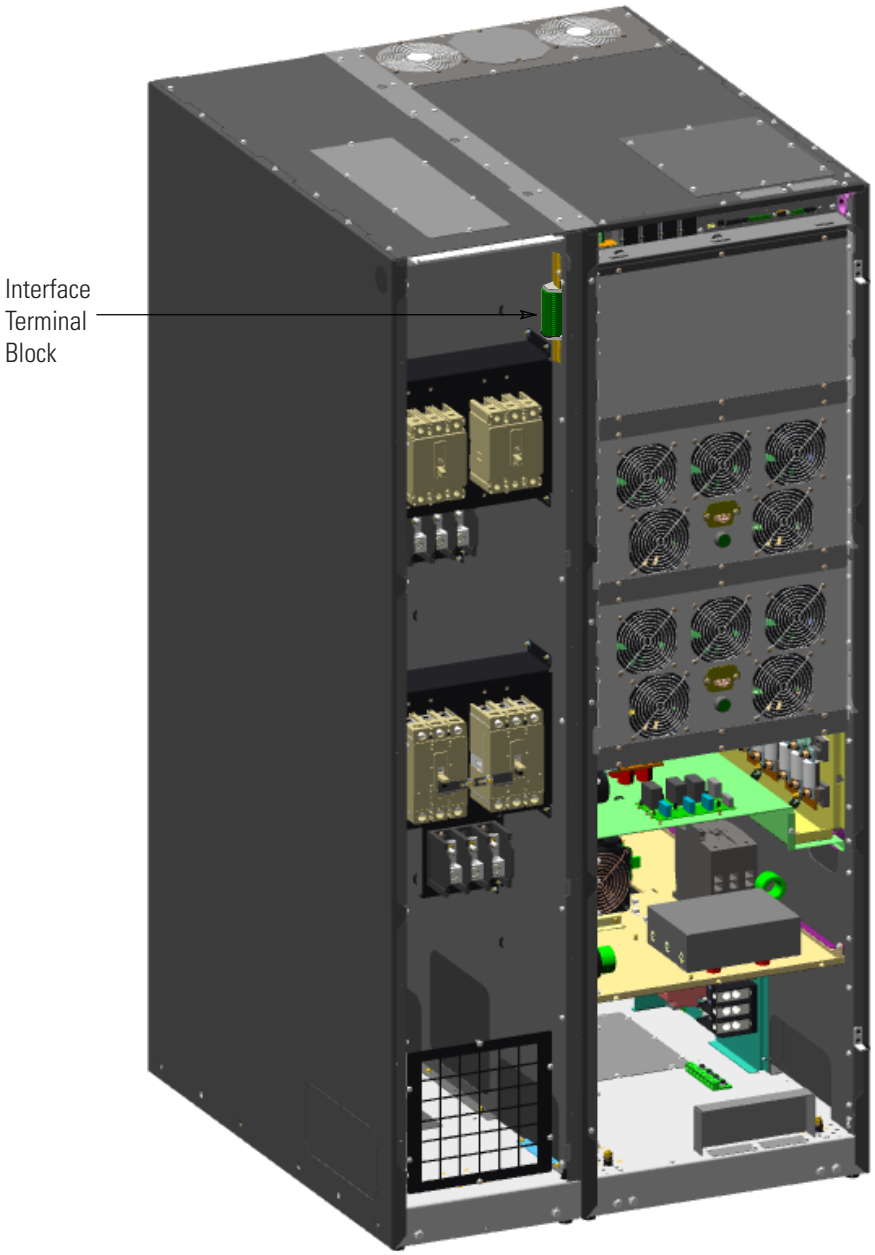
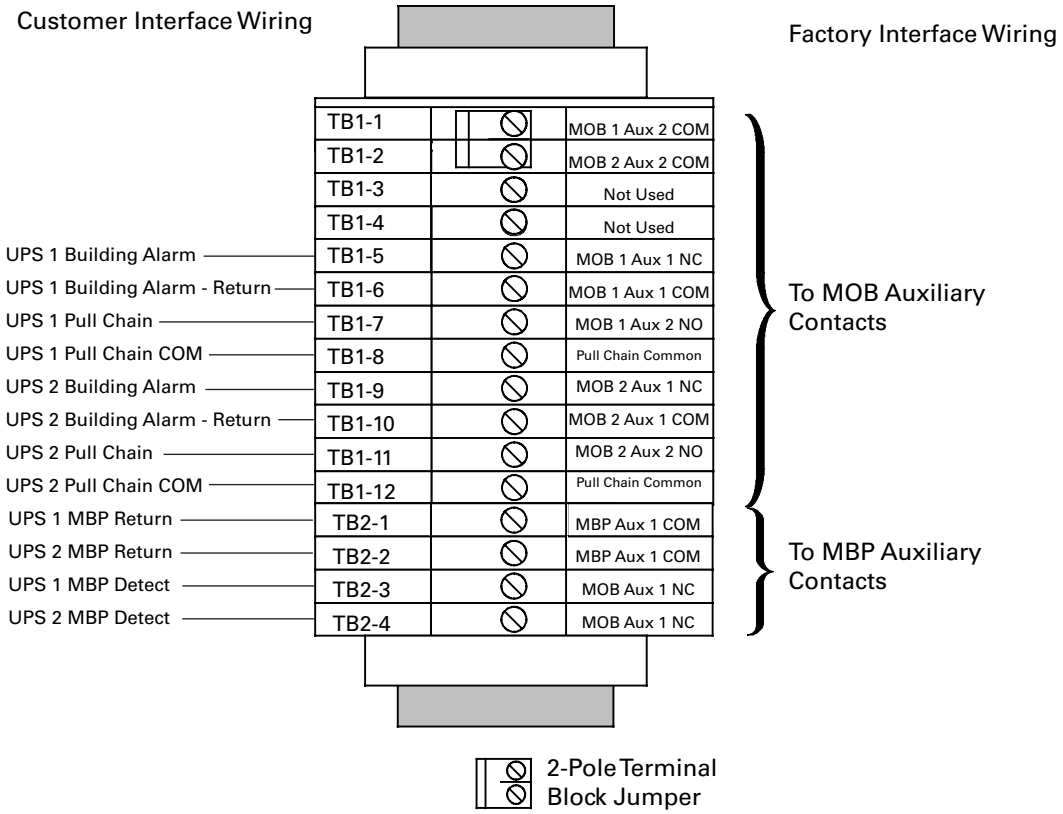


Figure 29. SIAC-TB Interface Terminal Detail



NOTE UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-TB MOBs assumes that the UPS Building Alarm is programmed to monitor Normally Closed (NC) contacts.

Table 11. SIAC-T and SIAC-TB Interface Wiring Terminal Block Terminations

Terminal Function	Recommended Minimum Wire Size	Size of Pressure Termination	Tightening Torque Nm (lb in)	Type Screw	Comments
Auxiliary Contacts	#18 AWG	#26–#12	0.4 (3.5) - 0.8 (7.1)	Slotted	Use twisted-pair wires for each input and return or common. Strip wire insulation back 10 millimeters to wire terminal blocks.

Table 12. SIAC-T MOB and Pull Chain Interface Terminals

SIAC-T Terminal	Name	UPS Terminal	Description
TB1-1	MOB1 Aux #2 COM	—	Jumper terminal for MOB 1 and MOB 2 Aux 2 common connections
TB1-2	MOB2 Aux #2 COM	—	
TB1-3	Not Used	—	Not Used
TB1-4	Not Used	—	Not Used
TB1-5	MOB1 Aux #1 NC	UPS 1 Building Alarm	Output: Normally Closed (NC) contact used to indicate whether MOB 1 is open. Contacts are closed when MOB 2 is open.
TB1-6	MOB1 Aux #1 COM	UPS 1 Building Alarm Return	
TB1-7	MOB1 Aux #2 NO	UPS 1 Pull Chain – Terminal 1	Output: UPS 1 Pull Chain – Backup control for parallel operation
TB1-8	Pull Chain Common	UPS 1 Pull Chain Return – Terminal 2	Output: UPS 1 Pull Chain Common
TB1-9	MOB2 Aux #1 NC	UPS 2 Building Alarm	Output: Normally Closed (NC) contact used to indicate whether MOB 2 is open. Contacts are closed when MOB 2 is open.
TB1-10	MOB2 Aux #1 COM	UPS 2 Building Alarm Return	
TB1-11	MOB2 Aux #2 NO	UPS 2 Pull Chain – Terminal 1	Output: UPS 2 Pull Chain – Backup control for parallel operation
TB1-12	Pull Chain Common	UPS 2 Pull Chain Return – Terminal 2	Output: UPS 2Pull Chain Common

NOTE

- UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-T MOBs assumes that the UPS Building Alarm is programmed to monitor Normally Closed (NC) contacts.
- "Return" indicates connection to electronics circuit ground. "Common" indicates connection to common side of isolated relay contact

Table 13. SIAC-TB MOB, MBP, and Pull Chain Interface Terminals

SIAC-T Terminal	Name	UPS Terminal	Description
TB1-1	MOB1 Aux #2 COM	—	Jumper terminal for MOB 1 and MOB 2 Aux 2 common connections
TB1-2	MOB2 Aux #2 COM	—	
TB1-3	Not Used	—	Not Used
TB1-4	Not Used	—	Not Used
TB1-5	MOB1 Aux #1 NC	UPS 1 Building Alarm	Output: Normally Closed (NC) contact used to indicate whether MOB 1 is open. Contacts are closed when MOB 2 is open.
TB1-6	MOB1 Aux #1 COM	UPS 1 Building Alarm Return	

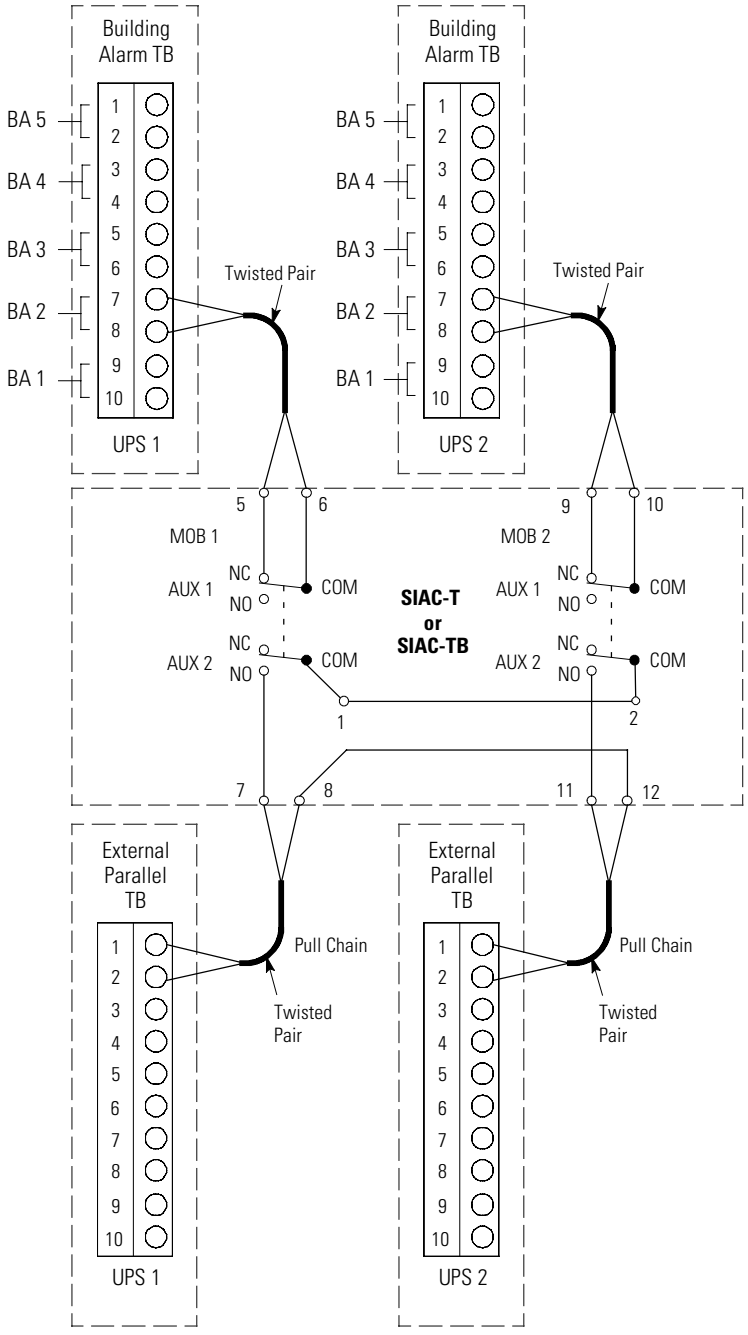
Table 13. SIAC-TB MOB, MBP, and Pull Chain Interface Terminals (Continued)

SIAC-T Terminal	Name	UPS Terminal	Description
TB1-7	MOB1 Aux #2 NO	UPS 1 Pull Chain – Terminal 1	Output: UPS 1 Pull Chain – Backup control for parallel operation
TB1-8	Pull Chain Common	UPS 1 Pull Chain Return – Terminal 2	Output: UPS 1 Pull Chain Common
TB1-9	MOB2 Aux #1 NC	UPS 2 Building Alarm	Output: Normally Closed (NC) contact used to indicate whether MOB 2 is open. Contacts are closed when MOB 2 is open.
TB1-10	MOB2 Aux #1 COM	UPS 2 Building Alarm Return	
TB1-11	MOB2 Aux #2 NO	UPS 2 Pull Chain – Terminal 1	Output: UPS 2 Pull Chain – Backup control for parallel operation
TB1-12	Pull Chain Common	UPS 2 Pull Chain Return – Terminal 2	Output: UPS 2Pull Chain Common
TB2-1	MBP Aux 1 COM	UPS 1 MBP	Output: Normally Open (NO) contact used to indicate whether the MBP is closed and the UPS system is on maintenance bypass. Contacts are closed when the MBP is closed.
TB2-3	MBP Aux 1 NC	UPS 1MBP Return	
TB2-2	MBP Aux 2 COM	UPS 2 MBP	Output: Normally Open (NO) contact used to indicate whether the MBP is closed and the UPS system is on maintenance bypass. Contacts are closed when the MBP is closed.
TB2-4	MBP Aux 2 NC	UPS 2 MBP Return	

NOTE

- UPS building alarm signals are customer programmable. Customer interface wiring for the SIAC-TB MOBs assumes that the UPS Building Alarm is programmed to monitor Normally Closed (NC) contacts.
- "Return" indicates connection to electronics circuit ground. "Common" indicates connection to common side of isolated relay contact

Figure 30. MOB and Pull Chain Wiring



NOTE 1 MOB and pull chain connections between the UPS and MOB Aux contacts require twisted pair wire.

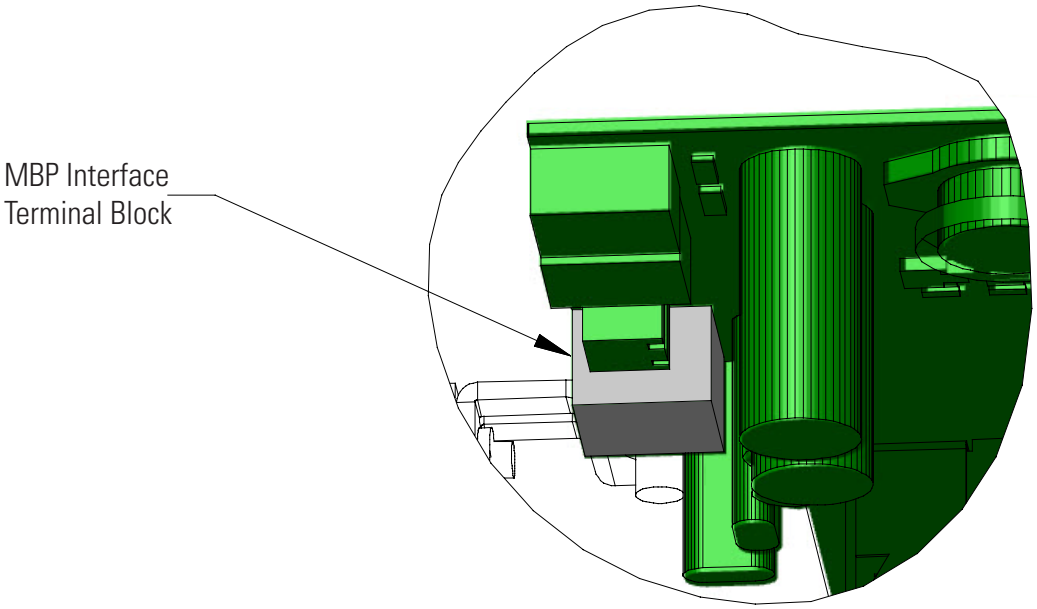
NOTE 2 NC and NO designations on MOB AUX contacts are defined with breaker in OFF (open) position.

NOTE 3 Always confirm contact operation prior to wiring.

NOTE 4 Any pair of unused building alarm terminals may be used for the MOB Aux 1 connections.

Figure 31. UPS MBP Interface Terminal Location

Figure 32. UPS MBP Interface Terminal Detail



4.7 Initial Startup

Startup and operational checks must be performed by an authorized Eaton Customer Service Engineer, or the warranty terms specified on the product's resources page become void. See Chapter 9 *Warranty* for details. 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.

4.8 Completing the Installation Checklist

The final step in installing the SIAC-T or SIAC-TB is completing the following Installation Checklist. This checklist ensures that you have completely installed all hardware, cables, and other equipment. 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 UPS system and commission it to support the critical load. The service representative cannot perform any installation tasks other than verifying 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 UPS system for the first time.

Installation Checklist

- ❑ All packing materials and restraints have been removed from each cabinet.
- ❑ The UPS and SIAC-T or SIAC-TB are installed on a level floor in a suitable location for computer or electronic equipment.
- ❑ All conduits and cables are properly routed between the SIAC-T or SIAC-TB and the UPS.
- ❑ All power cables are properly sized and terminated.
- ❑ A ground conductor is properly installed.
- ❑ Interface wiring between the SIAC-T or SIAC-TB and UPS cabinets is properly installed.
- ❑ Air conditioning equipment is installed and operating correctly.
- ❑ The area around the UPS system is clean and dust-free.
- ❑ Adequate workspace exists around the SIAC-T or SIAC-TB and other cabinets.
- ❑ Adequate lighting is provided around all SIAC-T or SIAC-TB and UPS equipment.
- ❑ A 120 Vac service outlet is located within 7.5 meters (25 feet) of the SIAC-T or SIAC-TB and UPS equipment.
- ❑ Startup and operational checks are performed by an authorized Eaton Customer Service Engineer.
- ❑ Visit www.eaton.com/pq/register to register your new Eaton UPS / Eaton UPS Accessory.

Notes

Chapter 5 Onelines and Schematics

5.1 Onelines

Figure 33 and Figure 34 show the simplified internal structure of the Sidecar Integrated Accessory Cabinet-Ties (SIAC-T) and Figure 35 shows the simplified internal structure of the Sidecar Integrated Accessory Cabinet-Tie Bypasss (SIAC-TB).

Figure 33. Two-Breaker (no MIS) Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) Internal Oneline

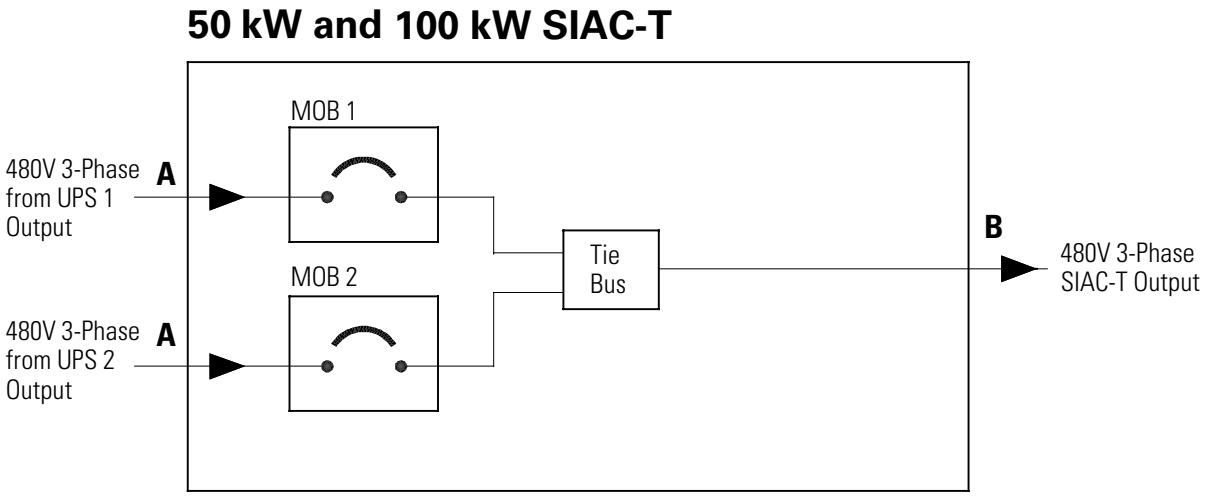


Figure 34. Three-Breaker (with MIS) Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) Internal Oneline

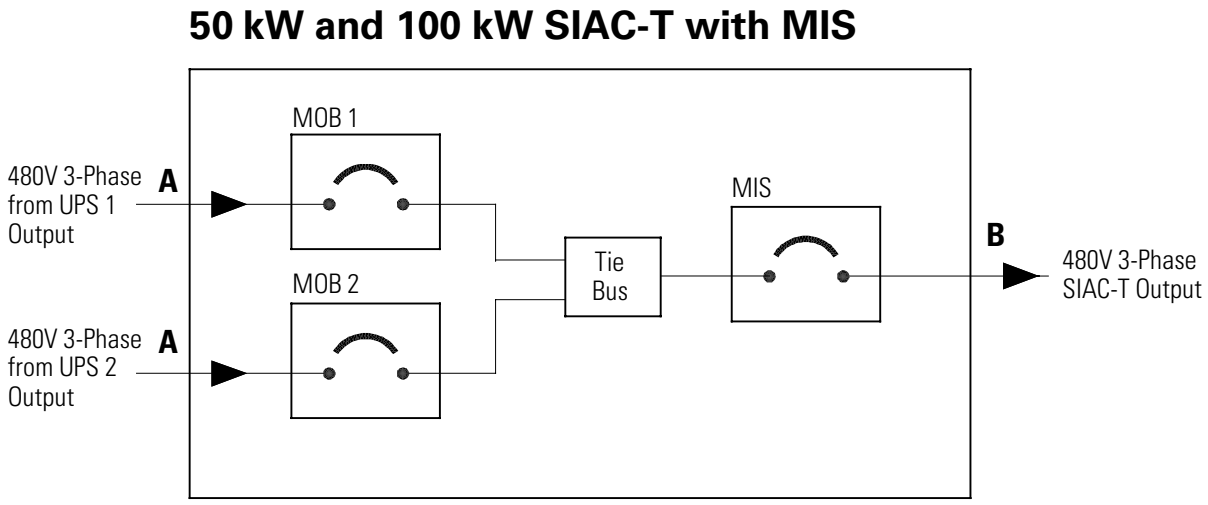
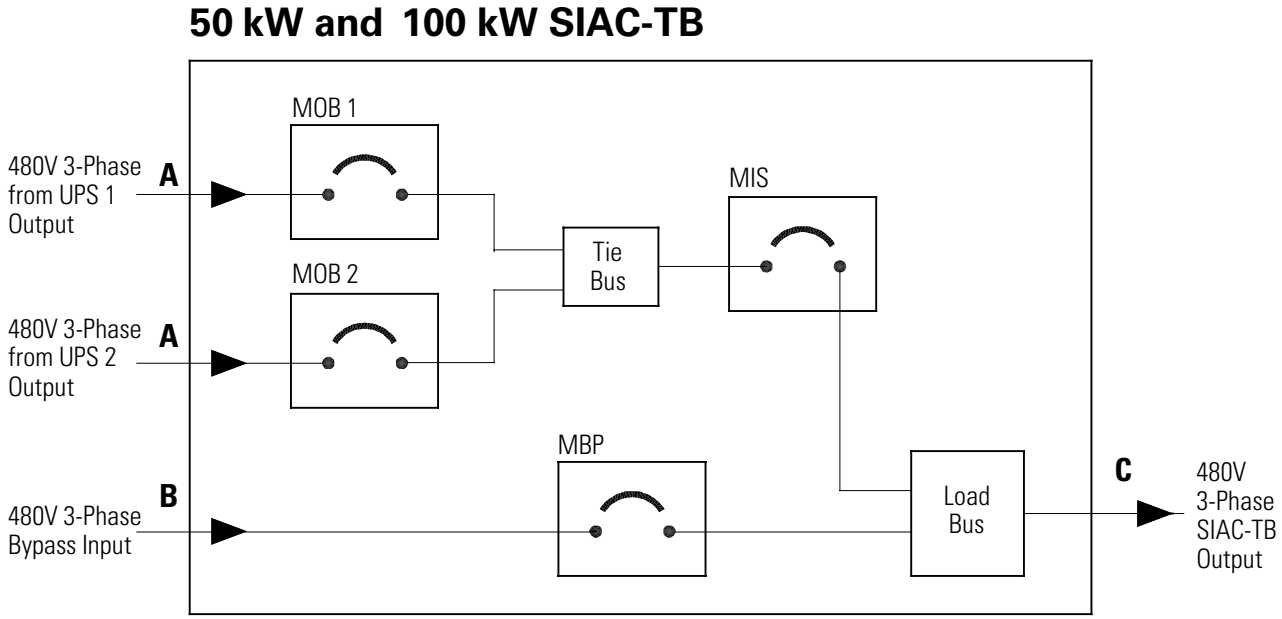


Figure 35. Four-Breaker (with MIS and MBP) Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB) Internal Oneline

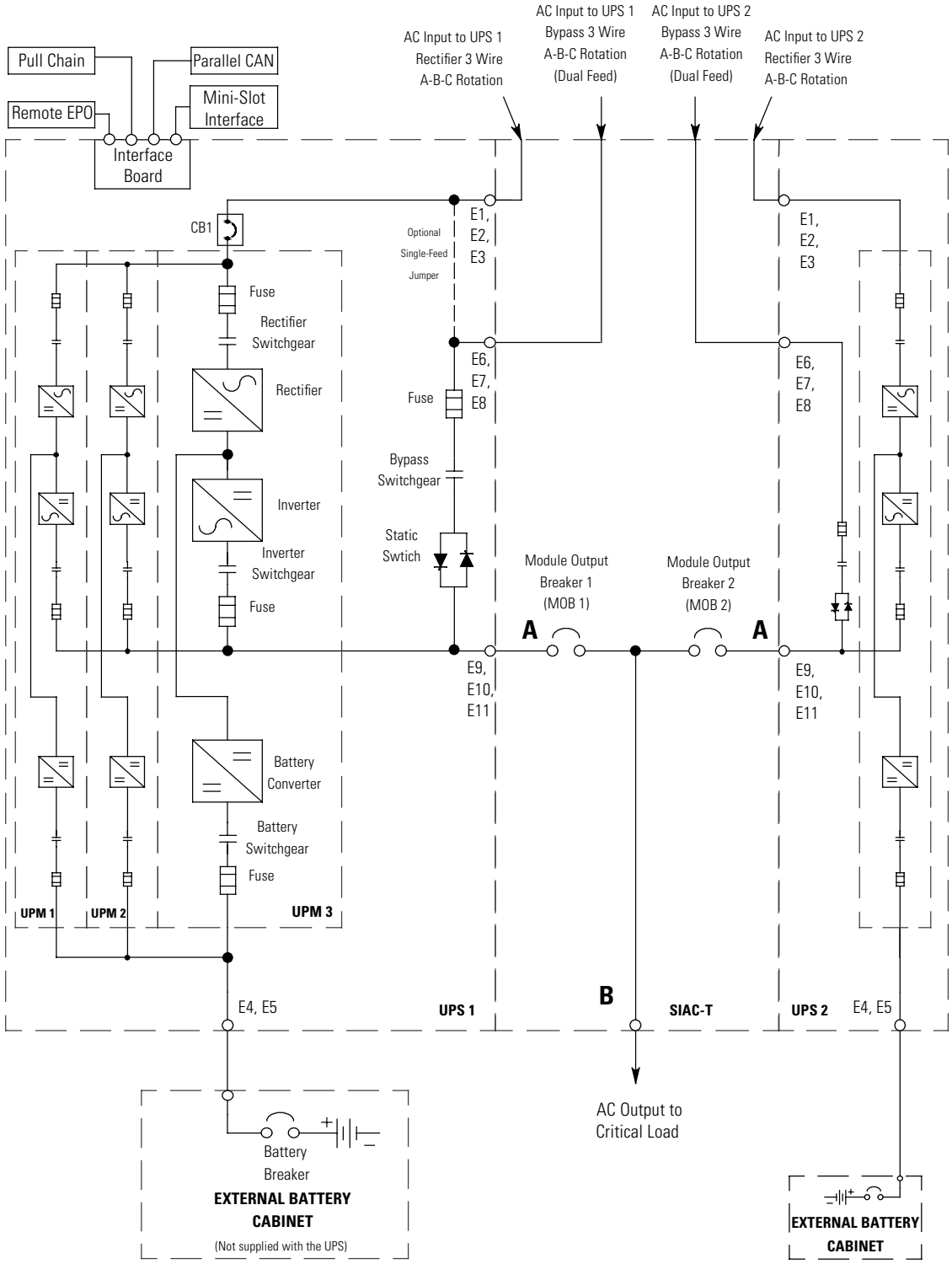


5.2 System Onelines

Figure 36 through Figure 38 show the simplified internal structure of the UPS and SIAC-T and SIAC-TB.

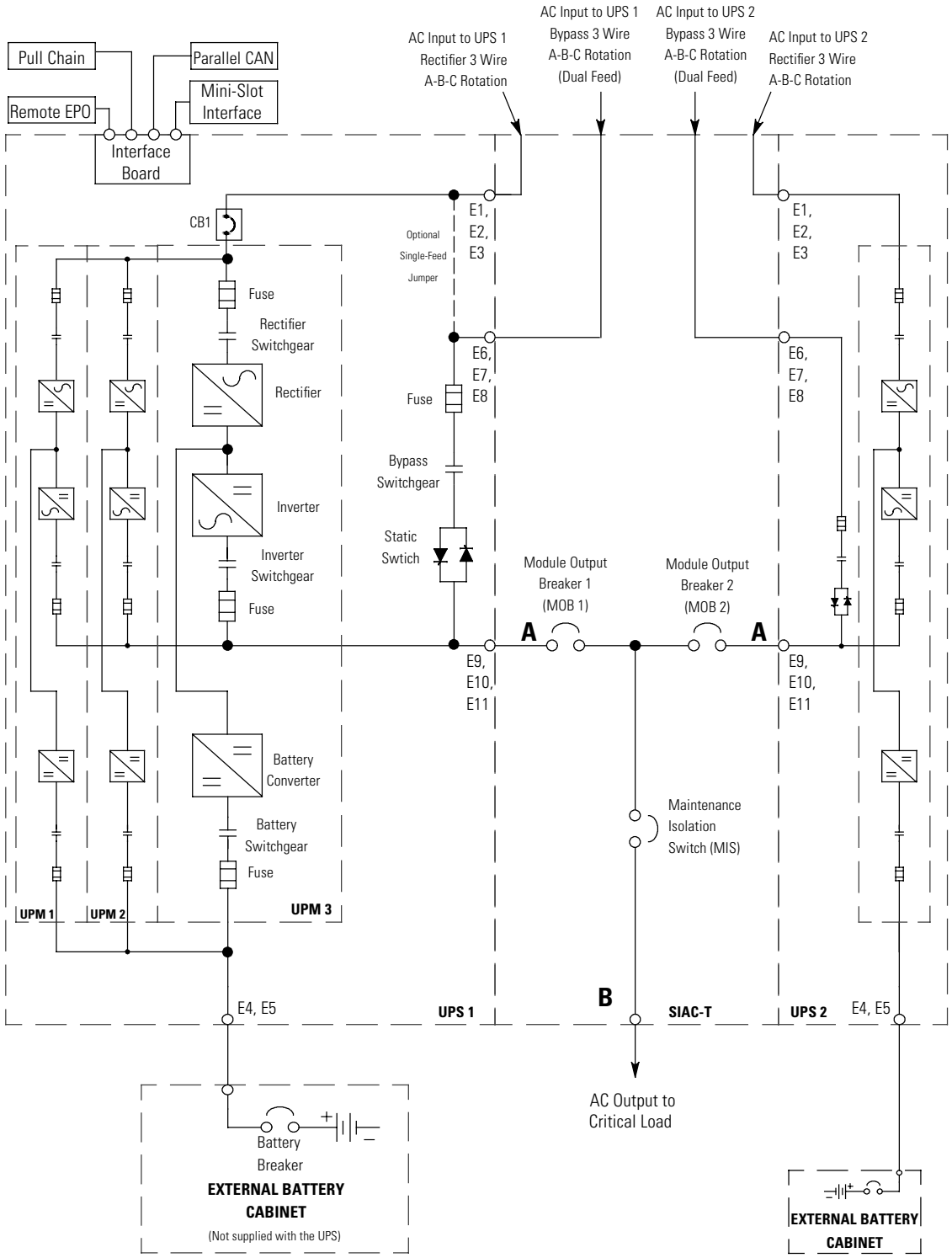
NOTE The onelines in Figure 5-4 through Figure 5-6 do not show each UPM in each UPS in detail, but represents each UPS in the parallel system. The internal structure of each UPS is shown in more detail in the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*.

Figure 36. Eaton 93PM 50 kW or 100 kW UPS with Eaton 93PM 50 kW or 100 kW SIAC-T System Online – Two-Breaker (no MIS)



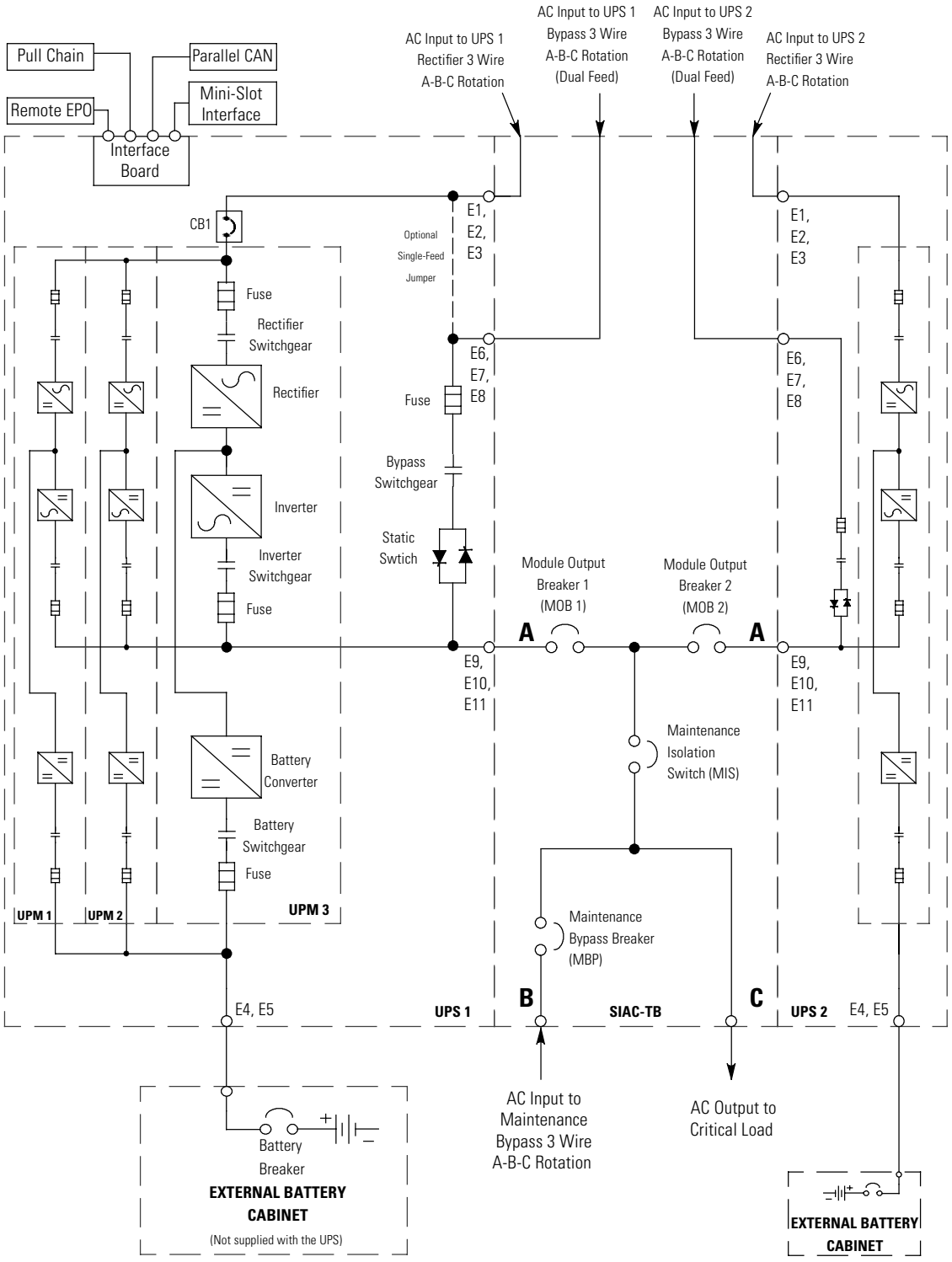
NOTE 50 kW Frame models contain a maximum of two UPMs.
100 kW Frame models contain a maximum of three UPMs.

Figure 37. Eaton 93PM 50 kW or 100 kW UPS with Eaton 93PM 50 kW or 100 kW SIAC-T System Online – Three-Breaker (with MIS)



NOTE 50 kW Frame models contain a maximum of two UPMs.
100 kW Frame models contain a maximum of three UPMs.

Figure 38. Eaton 93PM 50 kW or 100 kW UPS with Eaton 93PM 50 kW or 100 kW SIAC-TB System Online



NOTE 50 kW Frame models contain a maximum of two UPMs.
100 kW Frame models contain a maximum of three UPMs.

5.3 Schematics

Figure 39 and Figure 40 show the SIAC-T schematics. Figure 41 shows the SIAC-TB schematics.

Figure 39. Eaton 93PM 50 kW SIAC-T and 93PM 100 kW SIAC-T Two-Breaker (without MIS) Schematic

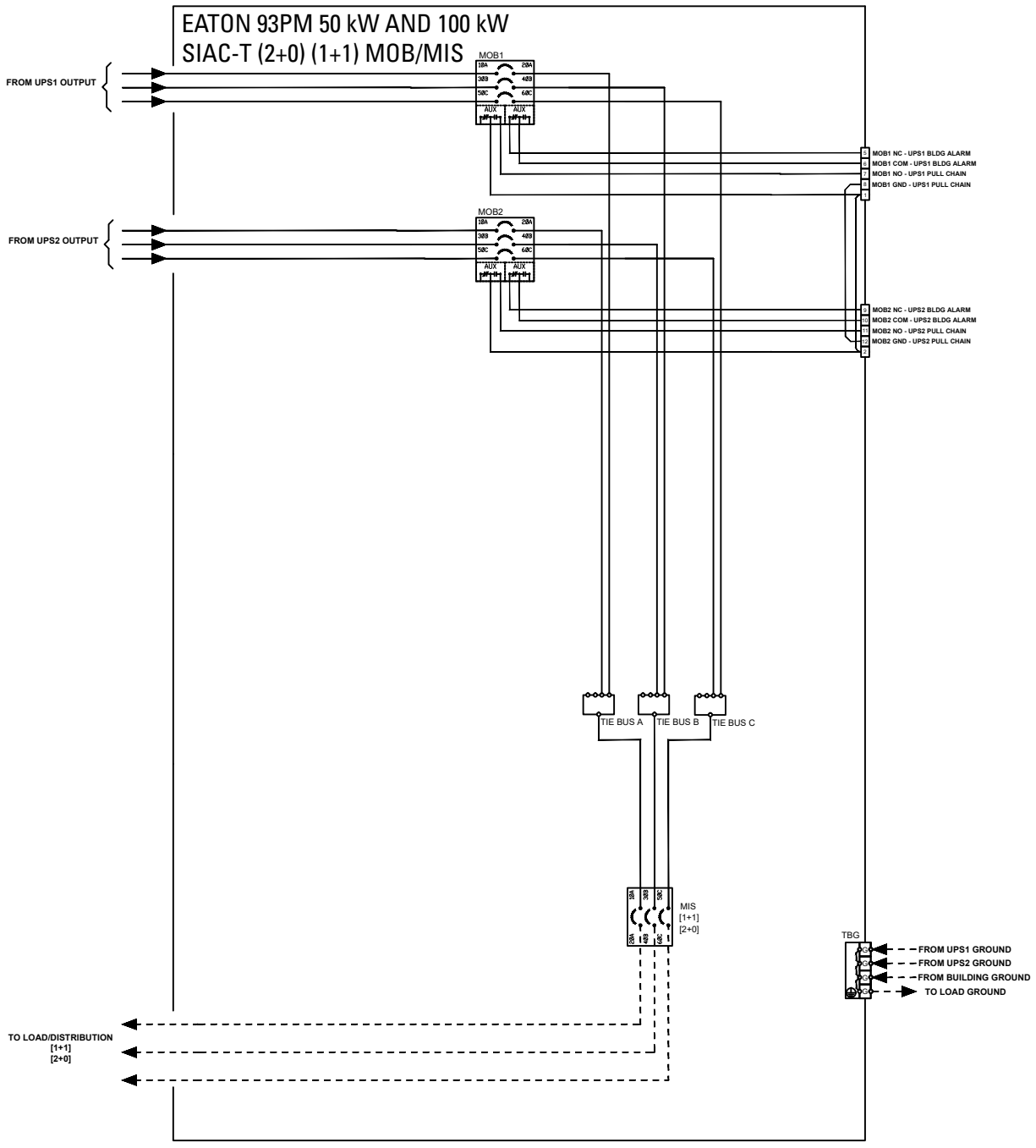


Figure 40. Eaton 93PM 50 kW SIAC-T and 93PM 100 kW SIAC-T Three-Breaker (with MIS) Schematic

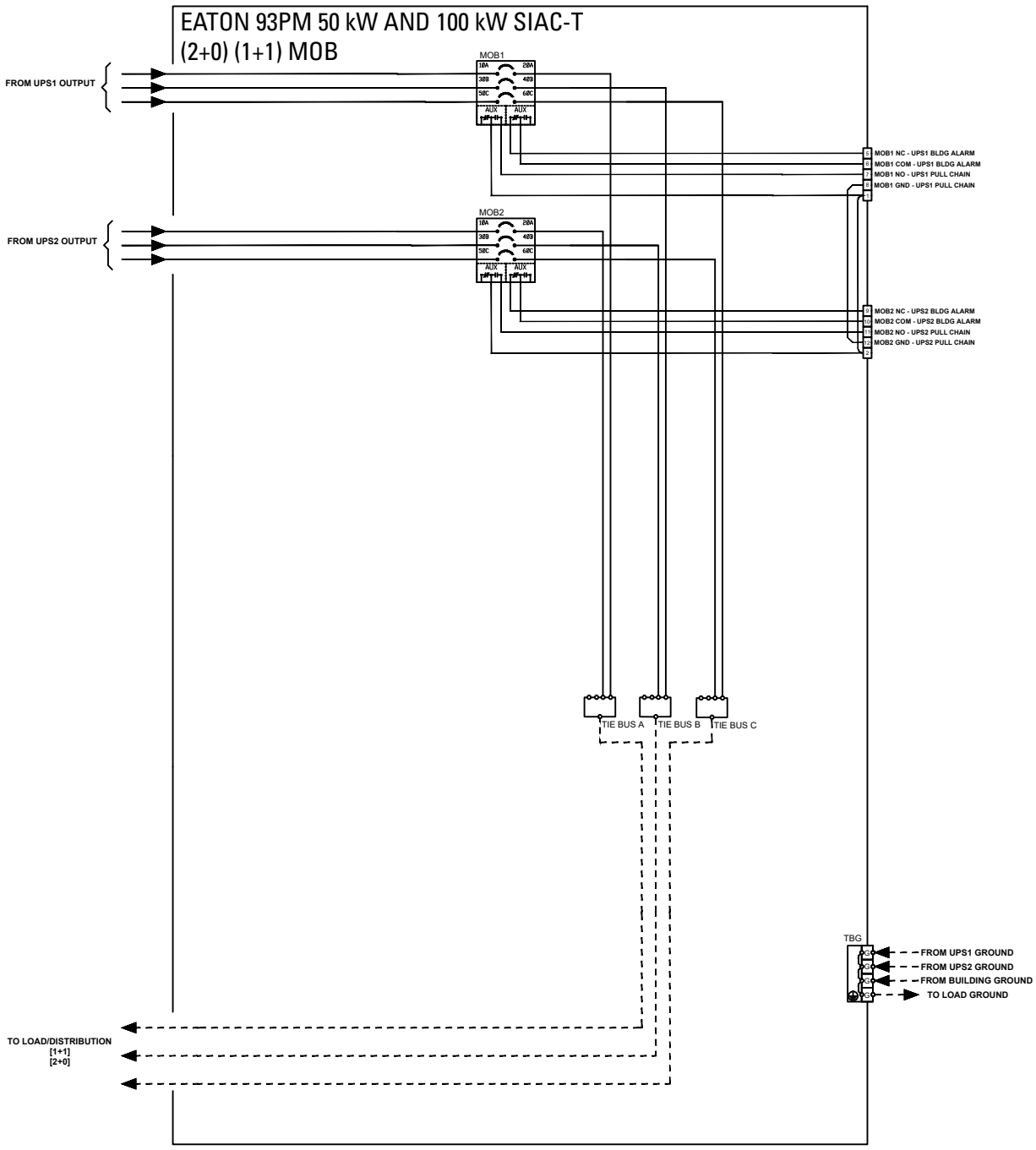
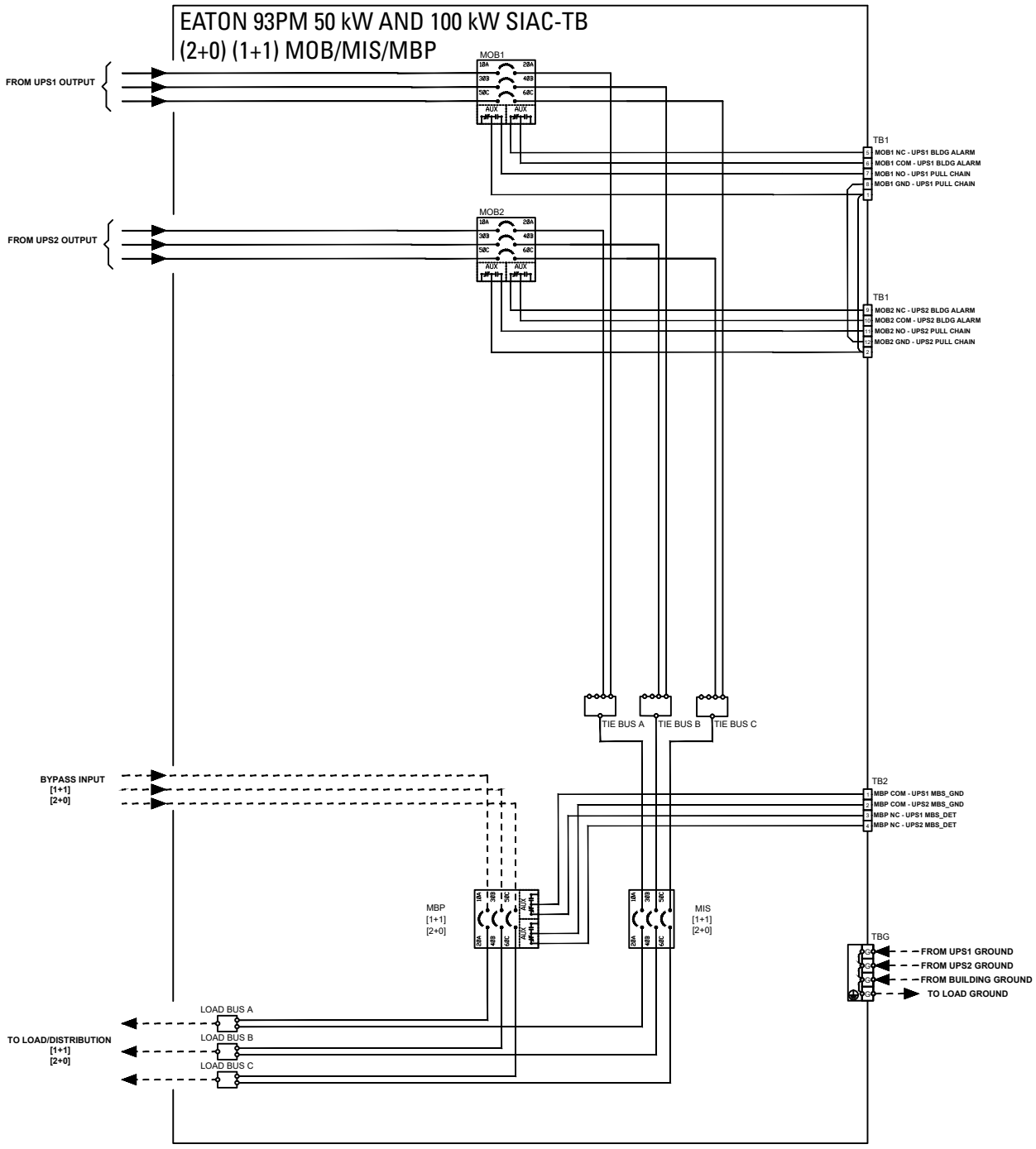


Figure 41. Eaton 93PM 50 kW SIAC-TB and 93PM 100 kW SIAC-TB Schematic



Chapter 6 SIAC-T and SIAC-TB Operating Instructions

This section describes how to operate the Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) and the Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB).

NOTE 1 Before using the SIAC-T or SIAC-TB, ensure all installation tasks are complete and a preliminary startup has been performed by authorized service personnel. The preliminary startup verifies all electrical interconnections to ensure the installation was successful and the system operates properly.

NOTE 2 Read this section of the manual and have thorough knowledge of UPS and SIAC-T or SIAC-TB operation before attempting to operate any of the controls.

6.1 Sidecar Integrated Accessory Cabinet-Tie

6.1.1 Circuit Breakers

Figure 42 identifies and shows the location of the circuit breakers in the SIAC-T. The descriptions provide a brief overview of the SIAC-T breaker use.

- **Module Output Breaker** – The Module Output Breaker (MOB) controls the output from the UPS modules and enable two modules to be paralleled together for redundancy or increased capacity
- **Maintenance Isolation Breaker** – The Maintenance Isolation Breaker (MIS) isolates the UPS from the bypass feed and the load.

6.1.2 Using the UPS when an SIAC-T is Installed

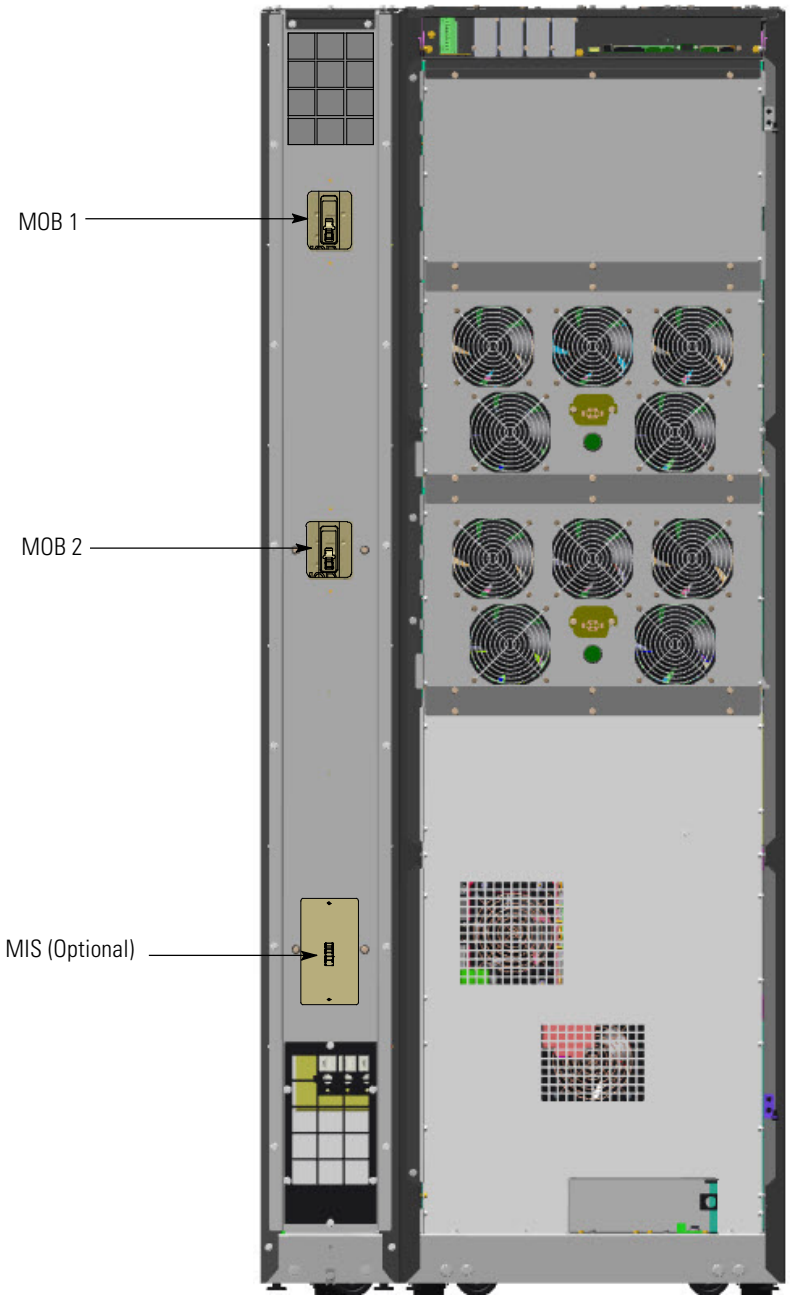
To operate the SIAC-T:

1. Remove the screw securing the bottom of the SIAC-T front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Verify that the IAC-T circuit breakers are set as follows (see Figure 42 for breaker locations):

MOB 1	**CLOSED**
MOB 2	**CLOSED**
MIS	**CLOSED**

3. Start the UPS. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for multiple UPS parallel operating procedures.
4. Reinstall the SIAC-T front panel and secure with retained screw.

Figure 42. 93PM 50 kW SIAC-T or 93PM 100 kW SIAC-T Breakers



NOTE The 93PM 100 kW UPS is shown with a left-mounted SIAC-T. A UPS with a right-mounted SIAC-T is the mirror image.

6.2 Sidecar Integrated Accessory Cabinet-Tie Bypass

6.2.1 Circuit Breakers

Figure 44 identifies and shows the location of the circuit breakers in the SIAC-TB. The descriptions provide a brief overview of the SIAC-TB breaker use.

- **Module Output Breaker** – The Module Output Breaker (MOB) controls the output from the UPS modules and enable two modules to be paralleled together for redundancy or increased capacity
- **Maintenance Bypass Breaker** – The Maintenance Bypass Breaker (MBP) transfers the load from the UPS output to the bypass input feeder.
- **Maintenance Isolation Breaker** – The Maintenance Isolation Breaker (MIS) isolates the UPS from the bypass feed and the load.

6.2.2 Using the UPS when an SIAC-TB is Installed

To operate the SIAC-TB:

1. Remove the screw securing the bottom of the SIAC-TB front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Close the SIAC-TB bypass input feeder circuit breaker.
3. Verify that the SIAC-TB circuit breakers are set as follows (see Figure 44 or Figure 44 for breaker locations):

MOB 1	**CLOSED**
MOB 2	**CLOSED**
MBP	**OPEN**
MIS	**CLOSED**

4. Start the UPS. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS operating procedures.
5. Reinstall the SIAC-TB front panel and secure with retained screw.

6.2.3 Transferring the UPS to Maintenance Bypass using an SIAC-TB

⚠CAUTION

Only trained personnel familiar with the operation of this equipment should transfer loads. Failure to follow this transfer sequence may cause loss of power to loads.

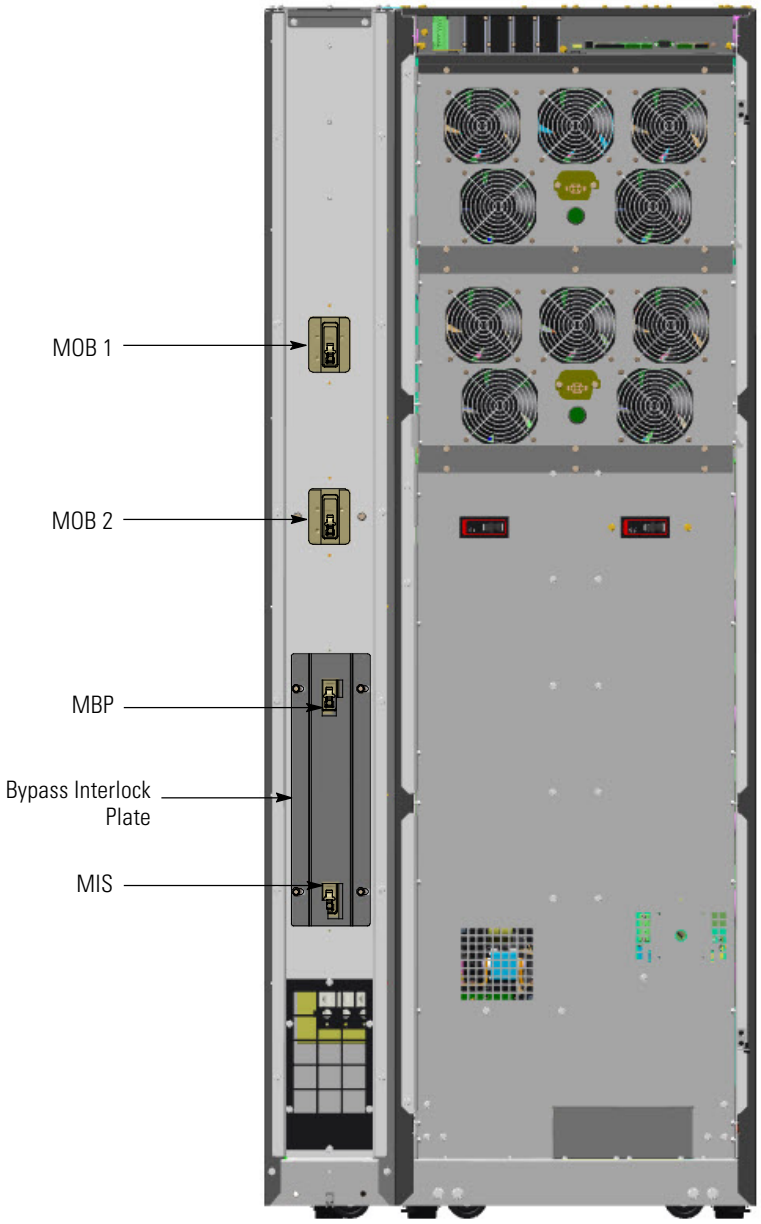
⚠CAUTION

In Bypass mode, the critical load is not protected from commercial power interruptions and abnormalities.

To transfer the load to maintenance bypass:

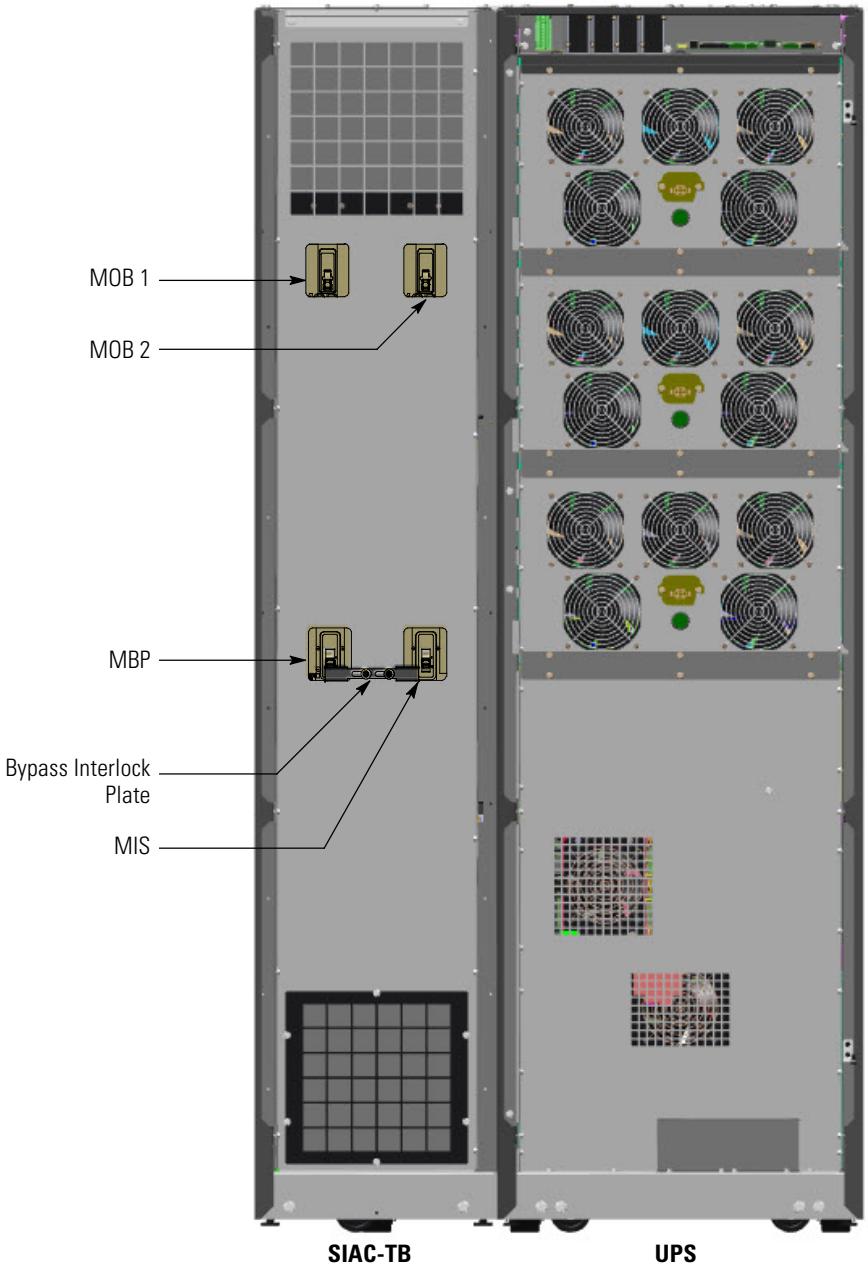
1. Remove the screw securing the bottom of the SIAC-TB front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Transfer the UPS from normal mode to bypass mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS operating procedures.

Figure 43. 93PM 50 kW SIAC-TB Breakers



NOTE The 93PM 50 kW UPS is shown with a left-mounted SIAC-TB. A UPS with a right-mounted SIAC-TB is the mirror image.

Figure 44. 93PM 100 kW SIAC-TB Breakers



NOTE The 93PM 100 kW UPS is shown with a left-mounted SIAC-TB. A UPS with a right-mounted SIAC-TB is the mirror image.

⚠CAUTION

Failure to close the MBP before opening the MIS will result in the loss of power to the critical load.

3. Close the MBP
4. Slide the bypass interlock bar to the left (see Figure 44 or Figure 44).
5. Open the MIS.

   The critical load is supplied by the maintenance bypass source.
6. Open the MOBs.
7. Reinstall the SIAC-TB front panel and secure with retained screw.
8. Shut down the UPS. Refer to the applicable Eaton 93PM UPS Installation and Operation manual listed in paragraph 1.7 *For More Information* for UPS operating procedures.

6.2.4 Transferring the UPS from Maintenance Bypass using an SIAC-TB

⚠CAUTION

Only trained personnel familiar with the operation of this equipment should transfer loads. Failure to follow this transfer sequence may cause loss of power to loads.

To transfer the load from maintenance:

1. Remove the screw securing the bottom of the SIAC-TB front panel. Lift the panel straight up to remove it from the panel hanger bracket at the top of the cabinet. Retain screw for later use.
2. Close the MOBs.
3. Start the UPS in bypass mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS operating procedures.

⚠CAUTION

Failure to close the MIS before opening the MBP will result in the loss of power to the critical load.

4. Close the MIS.
5. Slide the bypass interlock bar to the right (see Figure 44 or Figure 44).
6. Open the MBP.
7. Reinstall the SIAC-TB front panel and secure with retained screw.
8. Transfer the UPS to Normal mode. Refer to the applicable Eaton 93PM UPS Installation and Operation manual, listed in paragraph 1.7 *For More Information*, for UPS operating procedures.

Chapter 7 Maintenance

The components inside the Sidecar Integrated Accessory Cabinets (SIACs) are secured to a sturdy metal frame. All repairable parts and assemblies are located for easy removal, with very little disassembly. This design allows authorized service personnel to perform routine maintenance and servicing quickly.

You must schedule periodic performance checks of the UPS system to keep it running properly. Regular routine checks of operation and system parameters enable your system to function efficiently for many trouble-free years.

7.1 Important Safety Instructions

Remember that your UPS system is designed to supply power **EVEN WHEN DISCONNECTED FROM THE UTILITY POWER**.

⚠WARNING

- No user serviceable components.
- Servicing and maintenance should be performed by qualified service personnel only.
- LETHAL VOLTAGE PRESENT. This unit should not be operated with the cabinet doors open or protective panels removed. Do not make any assumptions about the electrical state of any cabinet in the UPS system.

7.2 Performing Preventive Maintenance

The UPS system requires very little preventive maintenance. However, the system should be inspected periodically to verify that the units are operating normally. Record maintenance results and any corrective actions in a suitable log.

7.2.1 DAILY Maintenance

Perform the following steps daily:

1. Check the area surrounding the UPS system. Ensure the area is not cluttered, allowing free access to the unit.
2. Ensure the air intakes on the Accessory cabinets are not blocked.
3. Ensure the operating environment is within the parameters specified in paragraph 3.2.1 *Environmental and Installation Considerations* and Chapter 8 *Product Specifications*

7.2.2 PERIODIC Maintenance

Periodic inspections of the SIACs should be made to determine if components, wiring, and connections exhibit evidence of overheating. Particular attention should be given to the compression lug connections. Maintenance procedures should specify that the compression lug connections be retorqued to values listed in this manual.

7.2.3 ANNUAL Maintenance

Annual preventive maintenance should be performed only by authorized service personnel familiar with maintenance and servicing of the UPS system. Contact an Eaton service representative for more information about service offerings.

7.3 Maintenance Training

A basic training course, available from Eaton, gives you a competent working knowledge of the UPS system operation and teaches you how to perform first level corrective maintenance. For more information about training and other services, contact the Customer Reliability Center (see paragraph 1.8 *Getting Help*).

Chapter 8 Product Specifications

This section provides the following specifications:

- Model Numbers
- Input specifications
- Output specifications
- Environmental and safety specifications

8.1 Model Numbers

The Sidecar Integrated Accessory Cabinets (SIACs) are available in the models listed below to meet the needs of the Eaton 93PM 50 kW and 100 kW UPS product line.

Models	Description
Eaton 93PM 50 kW SIAC-T	Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) for the Eaton 93PM 50 kW UPS
Eaton 93PM 50 kW SIAC-TB	Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB) for the Eaton 93PM 50 kWUPS
Eaton 93PM 100 kW SIAC-T	Sidecar Integrated Accessory Cabinet-Tie (SIAC-T) for the Eaton 93PM 100 kW UPS
Eaton 93PM 100 kW SIAC-TB	Sidecar Integrated Accessory Cabinet-Tie Bypass (SIAC-TB) for the Eaton 93PM 100 kWUPS

8.2 Specifications

The following sections detail the input, output, and environmental and safety specifications for the SIACs.

8.2.1 Input

Operating Input Voltage and Frequency	480 Vac, 50/60 Hz
Input Wiring	3 wire + ground – No neutral
Operating Input Current	See Table 3 through Table 6

8.2.2 Output

Operating Output Voltage and Frequency	480 Vac, 50/60 Hz
Output Wiring	3 wire + ground – No neutral
Output Current	See Table 3 through Table 6

8.2.3 Environmental and Safety Specifications

Operating Temperature	5 to 40°C (41 to 104°F) without derating. The recommended operating temperature is 25°C (77°F)
Storage Temperature	-25 to +55°C (-13 to +131°F)
Operating Altitude	Maximum 1500m (5000 ft) at 40°C without derating

Ventilation	Convection
Relative Humidity (operating and storage)	5% to 95% maximum noncondensing
Acoustical Noise	Not applicable
Safety Conformance	UL1778 5th edition
Agency Markings	cULus

Chapter 9 Warranty

To view the UPS warranty please click on the link or copy the address to download from the Eaton website:
UPS Product Warranty

https://www.eaton.com/content/dam/eaton/products/backup-power-ups-surge-it-power-distribution/backup-power-ups/portfolio/eaton-three-phase-ups-warranty.pdf

EQUIPMENT REGISTRATION

Please visit www.eaton.com/pq/register to register your new Eaton UPS / Eaton UPS Accessory.

Model Number:

Serial Number:

P-164000370 05