Eaton® Three-Phase Power Distribution Unit (PDU)

300 kVA
Installation and Operation Manual

Includes all 200-300 kVA PDU Models
IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the PDU. 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 de la PDU. Veuillez consulter entièrement ces instructions avant de faire fonctionner l’équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.

Class A EMC Statements

FCC Part 15

NOTE
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING
This is a product for restricted sales distribution to informed partners. Installation restrictions or additional measures may be needed to prevent electromagnetic disturbances.

Eaton, Cutler-Hammer, PowerChain Management, Power Xpert, and X-Slot are registered trademarks of Eaton Corporation or its subsidiaries and affiliates. HyperTerminal is a registered trademark of Hilgraeve. Modbus is a registered trademark of Schneider Automation, Inc. National Electrical Code and NEC are registered trademarks of National Fire Protection Association, Inc. Square D is a registered trademark of Schneider Electric. All other trademarks are property of their respective companies.

©Copyright 2010-2019 Eaton Corporation, Raleigh, NC, USA. All rights reserved. No part of this document may be reproduced in any way without the express written approval of Eaton Corporation.
Eaton End-User License Agreement

IMPORTANT, READ CAREFULLY. THIS END USER LICENSE AGREEMENT (THE “AGREEMENT”) IS A BINDING CONTRACT BETWEEN YOU, THE END-USER (THE “LICENSEE”) AND EATON INTELLIGENT POWER LIMITED, IRELAND, OR ONE OF ITS AFFILIATES (“EATON” OR “LICENSOR”). BY OPERATING THIS UNINTERRUPTIBLE POWER SUPPLY (UPS) PRODUCT INCLUDING SOFTWARE EMBEDDED IN IT (FIRMWARE), YOU, THE LICENSEE, ARE AGREEING TO BE BOUND BY THE TERMS, CONDITIONS, AND LIMITATIONS OF THIS AGREEMENT. READ THE TERMS AND CONDITIONS OF THIS AGREEMENT CAREFULLY BEFORE, INSTALLING OR OPERATING THE PRODUCT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, PROMPTLY RETURN THE UNUSED PRODUCT TO EATON.

1.0 DEFINITIONS

1.1 Documentation. “Documentation” means the user guides and manuals for the installation and use of the UPS, whether made available over the internet, provided in CD-ROM, DVD, hard copy or other form.

1.2 Firmware. “Firmware” means software programs that are embedded in the product for which Licensee is granted a license hereunder, the Documentation therefore and, to the extent available, Updates thereto. The Firmware is licensed hereunder in object code (machine readable) form only except that certain software programs may include limited portions in source code (human-readable) form. 1.3 Update. “Update” means a subsequent release of the Firmware, if and when developed by Eaton. An Update does not include any release, new version, option, or future product, which Eaton licenses separately.

2.0 FIRMWARE LICENSE

2.1 Ownership. Eaton or its third party licensors retains all title, copyright and other proprietary rights in, and ownership of the Firmware regardless of the media upon which the original or any copy may be recorded or fixed.

2.2 License Grant. Eaton grants to Licensee a limited, revocable, non-exclusive, non-assignable license to use the Firmware in conjunction with the operation of the product to which the Firmware pertains or other products as described by Eaton in the Documentation. Licensee does not acquire any rights, express or implied, other than those expressly granted in this Agreement.

2.3 Restrictions and Requirements. Licensee will not, nor will it permit others to, modify, adapt, translate, reverse engineer, decompile, or disassemble the Firmware or any component thereof (including the Documentation), or create derivative works based on the Firmware (including the Documentation), except to the extent such foregoing restriction is prohibited by applicable law or applicable open source license to, and only to, any open source software component that is incorporated into the Firmware (if any). Copyright laws and international treaties protect the Firmware, including the Documentation. Unauthorized copying of the Firmware, the Documentation or any part thereof, is expressly prohibited. For avoidance of doubt, Eaton does not grant Licensee a license to any of Eaton’s brands, logos, designs, trade dress, service marks, trademarks, domain names or trade names, in whole or in part. Licensee agrees to install or allow installation of all corrections of substantial defects, security patches, minor bug fixes and updates, including any enhancements, for the Firmware in accordance with the instructions and as directed by Eaton.

2.4 Transfer and Assignment Restrictions. Licensee will not sell, resell, assign, lease, sublicense, encumber, or otherwise transfer its interest in this Agreement or in the Firmware, or the Documentation in whole or in part, or allow any other person or entity, including any parent or subsidiary of Licensee or other subsidiary of Licensee’s parent, to copy, distribute, or otherwise transfer the Firmware without the prior written consent of Eaton. Licensee may transfer the Firmware directly to a third party only in connection with the sale of the Eaton product in which it is installed.

3.0 TERMINATION

3.1 Termination. This Agreement and the license granted hereunder automatically terminates if Licensee breaches any provision of this Agreement. Eaton may terminate this license at any time with or without cause.

3.2 Effect of Termination. Immediately upon termination of this Agreement or the license granted hereunder, Licensee will cease using the product. The parties’ rights and obligations under the following sections of this Agreement will survive termination of this Agreement: Article 1.0, Section 2.1, Section 2.3, Section 2.4, Article 3.0, Article 4.0 and Article 5.0.

4.0 INFRINGEMENT AND WARRANTIES

4.1 Infringement. If Licensee learns of a threat, demand, allegation, or indication that the UPS with its firmware infringes or misappropriates any third party intellectual property rights (including but not limited to any patent, copyright, trademark, trade dress, or trade secret) (“Intellectual Property Claim”), Licensee will notify Eaton promptly of such claim. Eaton may, in its sole discretion, elect to assume sole control of the defense and settlement of said Intellectual Property Claim and Licensee will provide reasonable information and assistance to Eaton for the defense of such claim.

4.2 Disclaimer of Warranties. THE FIRMWARE IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. EATON DOES NOT WARRANT THAT THE FIRMWARE WILL BE ERROR-FREE OR SECURE FROM UNAUTHORIZED ACCESS. THE LICENSEE EXPRESSLY ACKNOWLEDGES THAT TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE USE OF THE PRODUCT IS AT LICENSEE’S SOLE RISK.
5.0 GENERAL PROVISIONS

5.1 Update Policy. Eaton may from time to time, but has no obligation to, create Updates of the Firmware or components thereof.

5.2 Limitation on Liability. NOTWITHSTANDING ANY PROVISION OF THIS AGREEMENT TO THE CONTRARY, LICENSEE EXPRESSLY UNDERSTANDS AND AGREES THAT EATON, ITS AFFILIATES, AND ITS LICENSORS, WILL NOT BE LIABLE FOR: (A) ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES WHICH MAY BE INCURRED BY LICENSEE OR ANY THIRD PARTY, HOWEVER CAUSED AND UNDER ANY THEORY OF LIABILITY. THIS WILL INCLUDE, BUT NOT BE LIMITED TO, ANY LOSS OF PROFIT (WHETHER INCURRED DIRECTLY OR INDIRECTLY), ANY LOSS OF GOODWILL OR BUSINESS REPUTATION, ANY LOSS OF DATA SUFFERED, COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR OTHER INTANGIBLE LOSS; (B) ANY LOSS OR DAMAGE WHICH MAY BE INCURRED BY LICENSEE OR ANY THIRD PARTY. THESE LIMITATIONS ON EATON'S LIABILITY WILL APPLY WHETHER OR NOT EATON GOODS OR SERVICES, OR OTHER INTANGIBLE LOSS; ANY LOSS OF DATA SUFFERED, COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR OTHER INTANGIBLE LOSS; (B) ANY LOSS OR DAMAGE WHICH MAY BE INCURRED BY LICENSEE OR ANY THIRD PARTY. THESE LIMITATIONS ON EATON'S LIABILITY WILL APPLY WHETHER OR NOT EATON HAS BEEN ADVISED OF OR SHOULD HAVE BEEN AWARE OF THE POSSIBILITY OF ANY SUCH LOSSES ARISING. TO THE EXTENT PERMITTED BY LAW, THE TOTAL LIABILITY OF EATON, ITS AFFILIATES, AND ITS LICENSORS, FOR ANY CLAIMS OF GOODWILL OR BUSINESS REPUTATION, ANY LOSS OF DATA SUFFERED, COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR OTHER INTANGIBLE LOSS; ANY LOSS OF DATA SUFFERED, COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR OTHER INTANGIBLE LOSS; (B) ANY LOSS OR DAMAGE WHICH MAY BE INCURRED BY LICENSEE OR ANY THIRD PARTY. THESE LIMITATIONS ON EATON'S LIABILITY WILL APPLY WHETHER OR NOT EATON HAS BEEN ADVISED OF OR SHOULD HAVE BEEN AWARE OF THE POSSIBILITY OF ANY SUCH LOSSES ARISING. TO THE EXTENT PERMITTED BY LAW, THE TOTAL LIABILITY OF EATON, ITS AFFILIATES, AND ITS LICENSORS, FOR ANY CLAIMS UNDER THESE TERMS, INCLUDING FOR ANY IMPLIED WARRANTIES, IS LIMITED TO THE AMOUNT PAID FOR THE UPS. THIS SECTION 5.2 STATES EATON’S ENTIRE LIABILITY AND LICENSEE’S SOLE AND EXCLUSIVE REMEDY UNDER THIS AGREEMENT, AND IS SUBJECT TO ALL LIMITATIONS STATED IN SECTION 4.2.

5.3 Notices. All notices required to be sent hereunder will be in writing and will be deemed to have been given when mailed by first class mail to the address shown below:

LICENSE NOTICES:
Eaton Intelligent Power Limited
Eaton House,
3 Pembroke Road,
Dublin 4,
D04 Y0C2,
Ireland

5.4 Severability. If any provision of this Agreement is held to be invalid or unenforceable, the remaining provisions of this Agreement will remain in full force.

5.5 Waiver. The waiver by either party of any default or breach of this Agreement will not constitute a waiver of any other or subsequent default or breach. Failure to enforce or delay in enforcing any provision of this Agreement will not constitute a waiver of any rights under any provisions of this Agreement.

5.6 Entire Agreement. This Agreement constitutes the complete agreement between the parties and supersedes all prior or contemporaneous agreements or representations, written or oral, concerning the subject matter of this Agreement. This Agreement may not be modified or amended except in a writing specifically referencing this Agreement and signed by a duly authorized representative of each party. No other act, document, usage or custom will be deemed to amend or modify this Agreement. The Firmware, or portions thereof, may also be subject to additional paper or electronic license agreements. In such cases, the terms of this Agreement will be supplemental to those in the additional agreements, to the extent not inconsistent with the additional agreements. If a copy of this Agreement in a language other than English is included with the Firmware or Documentation, it is included for convenience and the English language version of this Agreement will control.

5.7 Heirs. Successors, and Assigns. Each and all of the covenants, terms, provisions and agreements herein contained will be binding upon and inure to the benefit of the parties hereto and, to the extent expressly permitted by this Agreement, their respective heirs, legal representatives, successors and assigns.

5.8 Export Restrictions. Licensee agrees to comply fully with all relevant export laws and regulations of the United States and all other countries in the world (the “Export Laws”) to assure that neither the Firmware nor any direct product thereof are (i) exported, directly or indirectly, in violation of Export Laws; or (ii) are intended to be used for any purposes prohibited by the Export Laws. Without limiting the foregoing, Licensee will not export or re-export the Firmware: (i) to any country to which the U.S. has embargoed or restricted the export of goods or services (see http://www.treasury.gov/resource-center/sanctions/Programs/Pages/Programs.aspx), or to any national of any such country, wherever located, who intends to transmit or transport the Firmware back to such country; (ii) to any end user who Licensee knows or has reason to know will utilize the Firmware in the design, development or production of nuclear, chemical or biological weapons; or (iii) to any end-user who has been prohibited from participating in U.S. export transactions by any federal agency of the U.S. government.

5.9 U.S. Government Restricted Rights. The Firmware is a “commercial item” as that term is defined at 48 C.F.R. § 2.101, consisting of “commercial computer software” and “commercial computer software documentation”, as such terms are used in 48 C.F.R. § 12.212, and is provided to the U.S. Government only as a commercial end item. Consistent with 48 C.F.R. §§ 12.212 and 48 C.F.R. §§ 227.7202-1 through 227.7202-4, all U.S. Government End Users acquire the Firmware with all those rights set forth herein. Contractor/manufacturer is Eaton Corporation, 1000 Eaton Boulevard, Cleveland, Ohio 44122.

5.10 Third Party Intellectual Property Rights. The Firmware may contain components (including open source software components) that are owned by third parties (“Third Party Licensors”) and are provided with, incorporated into, or embedded in, the Firmware pursuant to license arrangements between Eaton and such third parties. Third Party Licensor components in the Firmware are not licensed or warranted under the terms of this document, but are instead subject to the Third Party
Licensors’ license agreements. Licensee will not modify, delete, or obfuscate any copyright or other proprietary rights notices of Third Party Licensors contained in the Firmware.

5.11 Indemnity. Licensee shall defend, indemnify and hold Eaton and its officers, directors, employees, and agents harmless from and against all losses, damages, liabilities, claims, actions, and associated costs and expenses (including reasonable attorneys’ fees and expenses) by reason of injury or death to any person or damage to any tangible or intangible property arising or resulting from the negligence or willful misconduct of the Licensee, its employees, contractors, or agents, in connection with Licensee’s use of Firmware and Documentation. Licensee shall be responsible for any breach of this Agreement by its officers, directors, employees, contractors, or agents. Licensee shall defend, indemnify, and hold Eaton and its officers, directors, employees, and agents harmless from and against any and all losses, damages, liabilities, claims, actions, and associated costs and expenses (including reasonable attorneys’ fees and expenses) arising out of or in connection with any breach of this Agreement.

5.12 Open Source Software. The Firmware may contain certain components owned by Eaton that are provided with, incorporated into, linked to, or embedded in the Firmware that are subject to third party open source licenses (“Eaton Open Source Components”). Eaton OpenSource Components are subject to the open source licenses corresponding to the particular software component. To the extent there are any conflicts between the terms of this Agreement and any open source license corresponding to Eaton Open Source Components or additional obligations by such open sources license that are not set forth in this Agreement, the terms of the open source license will control.

5.13 Confidentiality. Licensee acknowledges that confidential aspects of the Firmware (including any proprietary source code) are a trade secret of Eaton, the disclosure of which would cause substantial harm to Eaton that could not be remedied by the payment of damages alone and such confidential aspects of the Firmware shall not be disclosed to third parties without the prior written consent of Eaton. Accordingly, Eaton will be entitled to preliminary and permanent injunctive and other equitable relief for any breach of this Section 5.13.

5.14 Note on JAVA Support. The Firmware may contain support for programs written in JAVA. JAVA technology is not fault tolerant and is not designed, manufactured, or intended for use or resale as online control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communications systems, air traffic control, direct life support machines, or weapons systems, in which the failure of JAVA technology could lead directly to death, personal injury, or severe physical or environmental damage. EATON DISCLAIMS ALL DAMAGES INCLUDING DIRECT, INDIRECT AND CONSEQUENTIAL DAMAGES RELATING TO THE FAILURE OF ANY SOFTWARE INCLUDING JAVA PROGRAMS AND/OR JAVA TECHNOLOGY.

5.15 Governing Law. This Agreement will be interpreted and enforced in accordance with the laws of Ireland, without regard to choice of law principles. Any claim or suit with respect to this Agreement shall be brought in the Courts of Ireland, unless mandatory law imposes otherwise.
This page intentionally left blank.
# Eaton PDU (300 kVA) Installation and Operation Manual 164202127—Rev 9  www.eaton.com/powerquality

## Table of Contents

1 **INTRODUCTION**  
   1.1 PDU Standard Features .................................................. 1-1  
   1.1.1 Control Panel .......................................................... 1-1  
   1.1.2 Power Monitoring .................................................... 1-1  
   1.1.3 Manual Restart ........................................................ 1-6  
   1.1.4 Output Transformer and Transformer Monitoring ................ 1-6  
   1.1.5 Customer Interface .................................................. 1-6  
   1.1.6 Fault Monitoring ..................................................... 1-6  
   1.1.7 Installation Features ............................................... 1-7  
   1.1.8 Expansion ............................................................. 1-7  
   1.2 Options ................................................................. 1-7  
   1.2.1 Front Only Service Access ........................................ 1-7  
   1.2.2 Front Only Service Access Infrared Inspection Port .......... 1-7  
   1.2.3 Distribution Panels ................................................... 1-7  
   1.2.4 Branch and Subfeed Breakers ..................................... 1-7  
   1.2.5 Subfeed Shunt Trip and Auxiliary Contacts .................... 1-7  
   1.2.6 Square D Distribution Panels ..................................... 1-7  
   1.2.7 Surge Protective Device ............................................ 1-8  
   1.2.8 Lightning Arrestor .................................................. 1-8  
   1.2.9 Sidecars .............................................................. 1-8  
   1.2.10 Dual Input Breaker Sidecar ...................................... 1-8  
   1.2.11 Crimp Lug Input ................................................... 1-8  
   1.2.12 Branch Circuit Monitoring ....................................... 1-8  
   1.2.13 Optional X-Slot Cards ............................................. 1-8  
   1.2.14 Remote Emergency Power-off .................................... 1-9  
   1.2.15 See-through Door .................................................. 1-9  
   1.2.16 Floorstand .......................................................... 1-9  
   1.2.17 Floor Mounting Brackets ......................................... 1-9  
   1.2.18 Air Skirt ............................................................ 1-9  
   1.2.19 Cable Management Sidecar ....................................... 1-9  
   1.3 Configurations .......................................................... 1-9  
   1.4 Using This Manual ..................................................... 1-10  
   1.5 Conventions Used in This Manual ................................... 1-10  
   1.6 Symbols ................................................................. 1-10  
   1.7 Safety Warnings ........................................................ 1-11  
   1.8 For More Information .................................................. 1-12  
   1.9 Getting Help ........................................................... 1-12  

## SECTION 1 — INSTALLATION

2 **PDU INSTALLATION PLAN AND UNPACKING** .......................................................... 2-1  
   2.1 Creating an Installation Plan .......................................... 2-1  
   2.2 Preparing the Site ...................................................... 2-1  
   2.2.1 Environmental Considerations ..................................... 2-1  
   2.2.2 Preparing for Wiring the PDU ...................................... 2-2  
   2.3 Inspecting and Unpacking the PDU .................................... 2-2  
   2.3.1 Standard Pallet Unpacking Procedure ............................ 2-2
# Table of Contents

**SECTION 1 — INSTALLATION**

1 INSTALLING THE PDU

1.1 Preliminary Installation Information

1.2 Unloading the PDU from the Pallet

1.3 Installing the Optional Floorstand

1.4 Installing the Optional Air Skirt

1.5 Installing PDU Power Wiring

1.6 Installing TB1, TB2, Shunt Trip, and Auxiliary Contact Interface Connections

1.7 Initial Startup

1.8 Completing the Installation Checklist

**SECTION 2 — OPERATION**

2 UNDERSTANDING PDU OPERATION

2.1 Distribution Panelboard and Subfeed Breaker Power Routing

2.2 Distribution Panelboard and Subfeed Breaker Configurations

3 PDU OPERATING INSTRUCTIONS

3.1 Preliminary Installation Information

3.2 Unloading the PDU from the Pallet

3.3 Installing the Optional Floorstand

3.4 Installing the Optional Air Skirt

3.5 Installing PDU Power Wiring

3.6 Installing TB1, TB2, Shunt Trip, and Auxiliary Contact Interface Connections

3.7 Initial Startup

3.8 Completing the Installation Checklist

3.9 Installing the PDU

3.10 Installing the Optional Floorstand

3.11 Installing the Optional Air Skirt

3.12 Installing PDU Power Wiring

3.13 Installing TB1, TB2, Shunt Trip, and Auxiliary Contact Interface Connections

3.14 Initial Startup

3.15 Completing the Installation Checklist

**SECTION 3 — OPERATING INSTRUCTIONS**

4 INSTALLING A REMOTE EMERGENCY POWER-OFF SWITCH

4.1 Operating Instructions

4.2 Using the Control Panel

4.3 Surge Protective Device Status Indicators (Non-EMS Monitored SPD)

4.4 Single Input PDU Operating Instructions

4.5 Basic (Single Key) Dual Input PDU Operating Instructions

4.6 Premier Dual Input PDU Operating Instructions

4.7 Using the Remote Emergency Power-off Switch

**SECTION 4 — MONITORING AND REPORTING**

5 UNDERSTANDING PDU OPERATION

5.1 Distribution Panelboard and Subfeed Breaker Power Routing

5.2 Distribution Panelboard and Subfeed Breaker Configurations

6 PDU OPERATING INSTRUCTIONS

6.1 PDU Controls, Breakers, and Displays

6.2 Using the Control Panel

6.3 Surge Protective Device Status Indicators (Non-EMS Monitored SPD)

6.4 Single Input PDU Operating Instructions

6.5 Basic (Single Key) Dual Input PDU Operating Instructions

6.6 Premier Dual Input PDU Operating Instructions

6.7 Using the Remote Emergency Power-off Switch

---

vi Eaton PDU (300 kVA) Installation and Operation Manual 164202127—Rev 9  www.eaton.com/powerquality
Table of Contents

7 COMMUNICATION ................................................................. 7-1
  7.1 X-Slot Cards ................................................................. 7-1
  7.2 Terminal Mode ............................................................. 7-2
    7.2.1 PDU LCD Screens .................................................. 7-2
    7.2.2 Profile Log .......................................................... 7-2
    7.2.3 Event History Log .................................................. 7-3
  7.3 Modbus Register Mapping ............................................... 7-5
    7.3.1 Read Input Status .................................................. 7-5
    7.3.2 Read Input Registers .............................................. 7-6

8 PDU MAINTENANCE .............................................................. 8-1
  8.1 Important Safety Instructions .......................................... 8-1
  8.2 Performing Preventive Maintenance .................................... 8-1
    8.2.1 DAILY Maintenance ................................................ 8-1
    8.2.2 PERIODIC Maintenance ............................................ 8-1
    8.2.3 ANNUAL Maintenance .............................................. 8-1
  8.3 Short Circuits ............................................................. 8-1
  8.4 Optional Front Only Service Access Infrared Inspection Ports .... 8-2

9 PRODUCT SPECIFICATIONS .................................................. 9-1
  9.1 Model Number ............................................................. 9-1
  9.2 PDU Input ................................................................. 9-1
  9.3 PDU Output ............................................................... 9-1
  9.4 Environmental Specifications .......................................... 9-1
  9.5 Optional Surge Protective Devices .................................... 9-2

10 WARRANTY ................................................................. 10-1

APPENDIX A - INSTALLATION REFERENCE .................................... A-1
  A.1 Power Distribution Unit Physical Features and Requirements ...... A-1
  A.2 Oneline Drawings and Schematic ...................................... A-28
  A.3 Power Wiring Installation Notes ...................................... A-34
  A.4 Location of Conduit Landing and Wire Entry Plates ................. A-42
  A.5 Location of Power Terminals ......................................... A-45
  A.6 Interface Wiring Notes ................................................ A-61
  A.7 Optional Remote Emergency Power-off ................................ A-75
  A.8 Optional Floor Mounting Brackets .................................. A-77
  A.9 Optional Floorstand .................................................... A-78
  A.10 Optional Air Skirt ..................................................... A-81
Table of Contents

This page intentionally left blank.
List of Figures

Figure 1-1. Eaton 300 kVA Three-Phase PDU Cabinet .................................................. 1-2
Figure 1-2. Eaton 300 kVA Three-Phase PDU Cabinet with Left and Right Front-Facing Sidecars ................................................................. 1-3
Figure 1-3. Eaton 300 kVA Three-Phase PDU Cabinet with Left and Right Side-Facing Sidecars ................................................................. 1-4
Figure 1-4. Eaton 300 kVA PDU Cabinet with Dual-Input Sidecar ............................................... 1-5
Figure 2-1. Eaton 300 kVA Three-Phase PDU as Shipped on Standard Pallet ....................... 2-3
Figure 2-2. Eaton 300 kVA Three-Phase PDU with Two Front-Facing Sidecars as Shipped on Lifting Tube Pallet .................................................. 2-5
Figure 3-1. Removing Shipping Supports from Standard Pallet ........................................... 3-3
Figure 3-2. Lifting the PDU Using the Lifting Tubes .......................................................... 3-5
Figure 3-3. Removing the Lifting Tubes ........................................................................... 3-6
Figure 3-4. Removing the Lifting Tubes – Detail A ........................................................... 3-7
Figure 3-5. Removing Shipping Supports from Lifting Tube Pallet .................................... 3-8
Figure 3-6. Removing Shipping Supports – Detail A ......................................................... 3-9
Figure 3-7. BCM CT Wiring ......................................................................................... 3-15
Figure 4-1. Eaton REPO Switch .................................................................................. 4-1
Figure 4-2. REPO Switch Wiring .................................................................................. 4-2
Figure 5-1. Current Path Through the PDU with Distribution Panelboards (Single Source) ........................................................................... 5-2
Figure 5-2. Current Path Through the PDU with Distribution Panelboards (Dual Source) .................................................................................. 5-3
Figure 5-3. Current Path Through the PDU with Subfeed Breakers (Single Source) ......... 5-4
Figure 5-4. Current Path Through the PDU with Subfeed Breakers (Dual Source) ........... 5-5
Figure 6-1. PDU Controls – Doors Closed ....................................................................... 6-2
Figure 6-2. PDU Breakers and SPD Display – Doors Removed with Distribution Panels ........................................................................... 6-3
Figure 6-3. PDU Breakers and SPD Display – Doors Removed with Subfeed Breakers ........................................................................... 6-4
Figure 6-4. PDU Breakers and SPD Display – Front Only Service Access with Doors Removed ................................................................. 6-5
Figure 6-5. Basic Dual Input Sidecar Controls and Breakers – Door Removed with Input Breakers ................................................................. 6-6
Figure 6-6. Premier Dual Input Sidecar Controls and Breakers – Door Removed with Input Breakers ................................................................. 6-7
Figure 6-7. Front-Facing Sidecar Breakers – Doors Removed showing Distribution Panels ........................................................................... 6-8
Figure 6-8. Front-Facing Sidecar Breakers – Doors Removed showing Subfeed Breakers ........................................................................... 6-9
Figure 6-9. Side-Facing Sidecar Breakers – Doors Removed Showing Distribution Panels ........................................................................... 6-10
Figure 6-10. Side-Facing Sidecar Breakers – Doors Removed Showing “F” Frame Subfeed Breakers (PRL3a) ................................................................. 6-11
Figure 6-11. Side-Facing Sidecar Breakers – Doors Removed Showing “F” Frame Subfeed Breakers (PRL3B) ................................................................. 6-12
Figure 6-12. PDU Control Panel .................................................................................. 6-13
Figure 6-13. Parts of the LCD ...................................................................................... 6-15
Figure 6-14. Main Menu and Mimic Screen with Dual Input Breaker .................................. 6-17
Figure 6-15. Status Indicator Display for Non-EMS monitored SPD ................................. 6-22
Figure 6-16. REPO Operation ...................................................................................... 6-31
Figure 7-1. Optional X-Slot Cards .................................................................................. 7-1
Figure 7-2. Sample History Log .................................................................................... 7-4
Figure 8-1. Infrared (IR) Inspection Port Locations – Front Only Service Access PDU ........................................................................... 8-2
Figure 8-2. Transformer Tap and Phase Tie Point Terminal Visibility – Front Only Service Access PDU ................................................................. 8-3
Figure A-1. Eaton 300 kVA PDU .................................................................................. A-4
Figure A-2. Eaton Power Xpert Gateway Card with Left and Right Front-Facing Sidecars ........................................................................... A-5
Figure A-3. Eaton Power Xpert Gateway Card with Left and Right Side-Facing Sidecars ........................................................................... A-6
Figure A-4. Eaton 300 kVA PDU with Dual Input Sidecar ........................................................................... A-7
Figure A-5. PDU Dimensions – Front and Right Side View ........................................................................... A-8
Figure A-6. PDU Dimensions – Top and Bottom Views ........................................................................... A-9
Figure A-7. PDU – Rear View ...................................................................................... A-10
List of Figures

Figure A-8. PDU Dimensions – Front View with Left Front-Facing Sidecar ..................................................... A-11
Figure A-9. PDU Dimensions – Top and Bottom Views with Left Front-Facing Sidecar .......................................... A-12
Figure A-10. PDU Dimensions – Front View with Right Front-Facing Sidecar or Dual Input Sidecar ......................... A-13
Figure A-11. PDU Dimensions – Top and Bottom Views with Right Front-Facing Sidecar or Dual Input Sidecar .......... A-14
Figure A-12. PDU Dimensions – Front View with Left and Right Front-Facing Sidecars ....................................... A-15
Figure A-13. PDU Dimensions – Top and Bottom View with Left and Right Front-Facing Sidecars ......................... A-16
Figure A-14. PDU Dimensions – Front View with Left Side-Facing Sidecar ...................................................... A-17
Figure A-15. PDU Dimensions – Top and Bottom Views with Left Side-Facing Sidecar ........................................ A-18
Figure A-16. PDU Dimensions – Front View with Right Side-Facing Sidecar ..................................................... A-19
Figure A-17. PDU Dimensions – Top and Bottom Views with Right Side-Facing Sidecar ...................................... A-20
Figure A-18. PDU Dimensions – Front View with Left and Right Side-Facing Sidecars ......................................... A-21
Figure A-19. PDU Dimensions – Top and Bottom Views with Left and Right Side-Facing Sidecars ......................... A-22
Figure A-20. Front Only Service Access PDU Dimensions – Front View with Left Side-Facing PRL4B Sidecar .......... A-23
Figure A-21. Front Only Service Access PDU Dimensions – Top and Bottom Views with Left Side-Facing PRL4B Sidecar A-24
Figure A-22. Front Only Service Access PDU Dimensions – Front View with Right Side-Facing PRL4B Sidecar .......... A-25
Figure A-23. Front Only Service Access PDU Dimensions – Top and Bottom Views with Right Side-Facing PRL4B Sidecar A-26
Figure A-24. Cable Management Sidecar Detail ................................................................. A-27
Figure A-25. Single Input PDU with Two Sidecars ......................................................................................... A-29
Figure A-26. PDU with Dual Input Sidecar and Breaker Sidecar ........................................................................ A-30
Figure A-27. PDU with Dual Sidecars and Single Input - Front Access Only .................................................... A-31
Figure A-28. PDU with Single Sidecar and Dual Input - Front Access Only ...................................................... A-32
Figure A-29. PDU Distribution Panel Schematic .............................................................................................. A-33
Figure A-30. PDU Conduit Landing Plate Locations – Top View of PDU with Front-Facing Sidecars ..................... A-42
Figure A-31. PDU Conduit Landing Plate Locations – Bottom View of PDU with Front-Facing Sidecars ................. A-42
Figure A-32. PDU Conduit Landing Plate Locations – Top View of PDU with Side-Facing Sidecars ....................... A-43
Figure A-33. PDU Conduit Landing Plate Locations – Bottom View of PDU with Side-Facing Sidecars ................. A-43
Figure A-34. PDU Conduit Landing Plate Locations – Top View of PDU with Dual Input Sidecar ......................... A-44
Figure A-35. PDU Conduit Landing Plate Locations – Bottom View of PDU with Dual Input Sidecar ..................... A-44
Figure A-36. Power Terminal Locations – PDU with Two Output Distribution Panels ........................................ A-45
Figure A-37. Power Terminal Locations – PDU with Left and Right “F” Frame Subfeed Breakers (PRL3a) ............... A-46
Figure A-38. Power Terminal Locations – PDU with Left and Right “F” Frame Subfeed Breakers (PRL4B) ............... A-47
Figure A-39. Power Terminal Locations – PDU with “K” Frame Subfeed Breakers (PRL4B) ................................. A-48
Figure A-40. Power Terminal Locations – PDU with “L” Frame Subfeed Breakers (PRL4B) ................................. A-49
Figure A-41. Power Terminal Locations – Single Input Crimp Lugs ................................................................. A-50
Figure A-42. Power Terminal Locations – Single Input Crimp Lug Detail (Cover Removed) ...................................... A-50
Figure A-43. Power Terminal Locations – Front Only Service Access PDU ........................................................ A-51
Figure A-44. Power Terminal Locations – Front Only Service Access with Single Input Crimp Lugs ...................... A-52
Figure A-45. Power Terminal Locations – Front Only Service Access with Single Input Crimp Lug Detail (Cover Removed) A-52
Figure A-46. Power Terminal Locations – Dual Input Sidecar ............................................................................. A-53
Figure A-47. Power Terminal Locations – Dual Input Crimp Lug Detail .............................................................. A-54
Figure A-48. Power Terminal Locations – Left or Right Front-Facing Sidecar with Two Output Distribution Panels ... A-55
Figure A-49. Power Terminal Locations – Left or Right Front-Facing Sidecar with “F” Frame Subfeed Breakers (PRL3a) A-56
Figure A-50. Power Terminal Locations – Left or Right Side-Facing Sidecar with Two Output Distribution Panels .... A-57
Figure A-51. Power Terminal Locations – Left or Right Side-Facing Sidecar with “F” Frame Subfeed Breakers (PRL3a) A-58
Figure A-52. Power Terminal Locations – Left or Right Side-Facing Sidecar with “F” Frame Subfeed Breakers (PRL4B). A-59
Figure A-53. Power Terminal Locations – “K” Frame PDU Input Main Breaker CB1 or CB2 Terminal Detail ............. A-60
Figure A-54. Power Terminal Locations – “L” Frame PDU Input Main Breaker CB1 or CB2 Terminal Detail ............. A-60
Figure A-55. Power Terminal Locations – “F” Frame Output Subfeed Breaker Terminal Detail ............................... A-60
Figure A-56. Power Terminal Locations – “K” Frame Output Subfeed Breaker Terminal Detail ........................................... A-61
Figure A-57. Power Terminal Locations – “L” Frame Output Subfeed Breaker Terminal Detail ........................................... A-61
Figure A-58. PDU Interface Terminal Locations for Unmonitored Subfeed Breaker Monitoring ........................................... A-63
Figure A-59. PDU Interface Terminal Locations for Two PRL3 and Subfeed Breaker Monitoring ........................................... A-64
Figure A-60. PDU Interface Terminal Locations for PRL4 Monitoring – Main PDU and Sidefacing Sidecar .......................... A-65
Figure A-61. PDU Interface Terminal Locations for No Panelboards .................................................................................. A-66
Figure A-62. Terminal Blocks for PRL3 and Optional Unmonitored Subfeed Breaker Monitoring ......................................... A-67
Figure A-63. PRL3 Terminal Block Detail ......................................................................................................................... A-68
Figure A-64. Unmonitored Subfeed Breaker Terminal Block Detail .................................................................................... A-68
Figure A-65. Terminal Block for PRL4 Monitoring ............................................................................................................... A-69
Figure A-66. PRL4 Terminal Block Detail ......................................................................................................................... A-70
Figure A-67. Front Facing Sidecar Interface Terminal Location ............................................................................................ A-71
Figure A-68. Side Facing Sidecar Interface Terminal Location ............................................................................................. A-72
Figure A-69. Terminal Block for Front and Side Mounted Sidecar PRL3 Aux and Shunt Trip Option ..................................... A-73
Figure A-70. PDU Customer Input Terminal Detail ........................................................................................................... A-74
Figure A-71. Typical Alarm Relay Connection .................................................................................................................... A-74
Figure A-72. REPO Wiring – Normally Open Switch ........................................................................................................... A-75
Figure A-73. REPO Wiring – Normally Closed Switch .......................................................................................................... A-75
Figure A-74. Optional Eaton REPO Switch ......................................................................................................................... A-76
Figure A-75. Optional Floor Mounting Bracket Dimensions ................................................................................................ A-77
Figure A-76. Optional Floorstand Dimensions .................................................................................................................. A-78
Figure A-77. Optional Floorstand Mounting Views ............................................................................................................... A-79
Figure A-78. Optional Floorstand Mounting Features ......................................................................................................... A-80
Figure A-79. 300 kVA PDU Main Unit with Optional Air Skirt Installed (Front and Side View) .............................................. A-81
Figure A-80. Typical Air Skirt for Power Xpert Gateway Card ............................................................................................... A-82
List of Tables

Table 3-1. Branch Breaker Wire Torques ................................................................. 3-14
Table 4-1. REPO Wire Terminations ....................................................................... 4-2
Table 6-1. Status Indicators .................................................................................. 6-14
Table 6-2. Display Function Menu Map. ................................................................. 6-16
Table 6-3. Display Menu Operation. ...................................................................... 6-18
Table A. Equipment Weight – Standard Service Access PDUs ................................ A-1
Table B. Equipment Weight – Front Service Access PDUs ...................................... A-2
Table C. Clearances for Standard PDU Front/Rear Access Cabinet ......................... A-2
Table D. Clearances for PDU Front Access Only Cabinet ....................................... A-2
Table E. PDU Cooling Requirements During Full Load Operation ......................... A-3
Table F. Eaton 300 kVA PDU One-line Configurations .......................................... A-28
Table G. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (380V) ................................................................. A-35
Table H. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (400V) ................................................................. A-35
Table I. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (415V) ................................................................. A-36
Table J. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (480V) ................................................................. A-36
Table K. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (600V) ................................................................. A-37
Table L. PDU Input Circuit Breaker Ratings ........................................................... A-37
Table M. Eaton 300 kVA PDU Input Power Cable Terminations (380V) ................. A-38
Table N. Eaton 300 kVA PDU Input Power Cable Terminations (400V) ................. A-38
Table O. Eaton 300 kVA PDU Input Power Cable Terminations (415V) ................. A-39
Table P. Eaton 300 kVA PDU Input Power Cable Terminations (480V) ................. A-39
Table Q. Eaton 300 kVA PDU Input Power Cable Terminations (600V) ................. A-39
Table R. Eaton 300 kVA PDU Single or Dual Input Crimp Lug Input Power Cable Terminations ................................................................. A-40
Table S. Recommended Installation Parts and Tools (Not Supplied by Eaton) .......... A-40
Table T. Eaton 300 kVA PDU Output Power Cable Terminations for Subfeed Breakers ................................................................. A-41
Table U. Tightening Torque for F-Frame Breaker and Ground Lug using Slotted Screws ................................................................................................. A-41
Table V. UCB TB1 and TB2 Interface Connections ................................................ A-62
Table W. PDU Aux & Shunt Trip Wiring Terminal Block Terminations .................. A-62
List of Tables

This page intentionally left blank.
Chapter 1  Introduction

The Eaton® 300 kVA Three-Phase Power Distribution Unit (Eaton 300 kVA PDU) is designed for use with all three-phase uninterruptible power systems (UPSs) and three-phase power sources. The PDU provides power distribution, voltage transformation, metering, status monitoring, and load profiling with easy adaptation and expansion without costly electrical rework.

The PDU is housed in a single, free-standing cabinet, with safety shields behind the doors for hazardous voltage protection. Figure 1-1 through Figure 1-4 show the Eaton 300 kVA PDU.

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

1.1  PDU Standard Features

The PDU has the following standard features that provide cost-effective and consistently reliable power distribution.

1.1.1  Control Panel

The control panel, located on the front of the PDU, contains an LCD panel and pushbutton switches to control the operation and to display the status of the PDU.

See Chapter 6, “PDU Operating Instructions,” for additional information.

1.1.2  Power Monitoring

The PDU provides the following standard monitoring features:

- PDU status and event log recording
- PDU metering for the following:
  - Input voltages – phase to phase
  - Output voltages – phase to phase and phase to neutral
  - Output current
  - kVA, kW, frequency, ground current, and power factor
  - Percent loading per phase
- Load profiling
  - Minimum and maximum voltage, current, frequency, and kilowatt
  - Highest reading on a monthly basis

See Chapter 6, “PDU Operating Instructions,” for additional information.
Figure 1-1. Eaton 300 kVA Three-Phase PDU Cabinet
Figure 1-2. Eaton 300 kVA Three-Phase PDU Cabinet with Left and Right Front-Facing Sidecars
Figure 1-3. Eaton 300 kVA Three-Phase PDU Cabinet with Left and Right Side-Facing Sidecars
Figure 1-4. Eaton 300 kVA PDU Cabinet with Dual-Input Sidecar
1.1.3 Manual Restart
If Manual Restart is enabled, the main input breaker will trip when input power to the PDU is lost. Opening the main input breaker on power failure prevents the possibility of a power surge when power is restored in systems with multiple PDUs and sensitive loads. When power returns, each PDU can be restarted individually, preventing or minimizing any power fluctuations.

See Chapter 6, “PDU Operating Instructions,” for additional information.

1.1.4 Output Transformer and Transformer Monitoring
The PDU has the following transformer and transformer monitoring features.

- **Output Transformer** – An output transformer provides 208 Vac output from a 380 Vac, 400 Vac, 415 Vac, 480 Vac, or 600 Vac input for use with the distribution panels supplying 208/120 Vac to the load.

- **Transformer Overtemperature Monitoring** – An overtemperature sensor is provided to monitor the PDU transformer and issue a warning alarm if the temperature of the transformer reaches 180°C. This feature is disabled by default and can be enabled or disabled by an Eaton Customer Service Engineer.

- **Transformer Shutdown Monitoring** – A shutdown sensor is provided to shut down the PDU if the temperature of the transformer reaches 200°C. This feature is disabled by default and can be enabled or disabled by an Eaton Customer Service Engineer.

1.1.5 Customer Interface
The PDU has the following customer interface features.

- **Building Alarm Monitoring** – Two inputs are available to connect to the facility’s building alarm system, such as smoke detectors or overtemperature alarms. The building alarms can be programmed to display the alarm functional name using the front panel LCD. The PDU uses these inputs to monitor the building alarms in addition to the PDU status.

- **Alarm Contact** – One general-purpose form C, normally-closed or normally-open relay contact is provided on the PDU. This contact can be connected to equipment at the facility such as a light, an audible alarm, or a computer terminal to signal when an alarm occurs.

- **X-Slot® Communication** – Two communication bays are standard equipment. One or two optional X-Slot cards can be installed in the PDU at any time. See Chapter 7, “Communication,” for additional information.

1.1.6 Fault Monitoring
The following conditions can initiate a PDU shutdown and trip the PDU main input breaker CB1 (or CB2 if installed). These features can be enabled, disabled, or configured by an Eaton Customer Service Engineer.

- **Overload Shutdown** – An overload beyond a pre-set level is detected. This level can be set at 100%, 110%, or 125% of maximum rated output, or at a customer-specified level.

- **Over or Under Voltage Shutdown** – An over or under voltage beyond pre-set levels is detected. This level can be set at ±2.5% of the nominal voltage detected for a period greater than 5 seconds.

- **Over or Under Frequency Shutdown** – An over or under frequency beyond pre-set levels is detected. This level can be set at ±15% of the nominal frequency detected for a period greater than 5 seconds.

- **Phase Rotation Shutdown** – A phase wiring error is detected.

- **Phase Loss Shutdown** – A phase loss is detected on both the input and the output.

- **Ground and Neutral Overcurrent Shutdown** – A ground or neutral overcurrent is detected beyond a pre-set value.
1.1.7 Installation Features
Cabinets can be permanently bolted to the floor or left standing on leveling feet.

Power and control wiring can be routed through the top or bottom of the cabinet with connections made to easily accessible terminals.

Optional X-Slot connectivity cards are quickly installed at the front of the unit and are hot-pluggable.

1.1.8 Expansion
The PDU supports custom configurations and scalability to adapt to changing and future power and distribution needs. See paragraph 1.2 for available options.

1.2 Options
The following options are available to enhance the performance of your system. Contact an Eaton sales representative for information about any of these available options.

1.2.1 Front Only Service Access
Optional main PDU cabinet that requires front only access for transformer tap adjustment or for terminal inspection. Optional infrared (IR) inspection ports are available to IR temperature measuring equipment. No side or rear clearance is required for any service related tasks. To accomplish front only service access, no distribution breakers are contained in the main PDU cabinet. Front-facing or side-facing sidecars are required for distribution panel boards or subfeed breakers.

1.2.2 Front Only Service Access Infrared Inspection Port
Optional IR inspection ports are available with the front only service access option for easy transformer tap and phase tie point terminal inspection using IR temperature measuring equipment.

1.2.3 Distribution Panels
Optional output distribution panels distribute the output power from the output transformer to the load. The main cabinet of the PDU can be equipped with up to two distribution panels rated at 225A, 400A, or 800A, or one distribution panel rated at 1200A. The distribution panels are behind the hinged doors on the front of the PDU.

1.2.4 Branch and Subfeed Breakers
Optional branch and subfeed output circuit breakers distribute the output power from the output transformer to the loads or remote power panels. Each 225A or 400A distribution panel can hold up to 42 single-pole branch circuit breakers (either Eaton bolt-on type BAB or QBHW, or plug-on type HQP or QPHW) that can be configured to meet facility needs. For larger loads of up to 225A, up to four 3-pole F-frame breakers can be installed on a 800A distribution panel in the PDU. For even larger loads of up to 600A, F, K and L-frame breakers can be installed on a 1200A distribution panel. Up to two additional non-monitored sub-feed breakers may be added to the PDU.

1.2.5 Subfeed Shunt Trip and Auxiliary Contacts
Optional shunt trip terminals can be used to easily connect subfeed breaker shunt trips to emergency off devices. Auxiliary contact connections are also provided to allow monitoring of the breaker open or closed status.

1.2.6 Square D Distribution Panels
Optional 225A and 400A Square D® NO-type distribution panels using bolt-on type QOB breakers are available for installations needing to limit breaker resources to a single type. These panels are available for use in both the main cabinet and the sidecars.
1.2.7 Surge Protective Device
An optional Surge Protective Device (SPD) module provides protection for sensitive electronic equipment from damaging transients, surges, and electrical line noise.

See Chapter 6, “PDU Operating Instructions,” for SPD status display indicators.

1.2.8 Lightning Arrestor
An optional Lightning Arrestor provides protection for equipment from damaging from lightning surges.

1.2.9 Sidecars
Optional front-facing or side-facing sidecars installed on the left, right, or both sides of the main PDU provide additional branch circuit capacity and flexibility to meet facility needs. Each sidecar is capable of holding up to two 225A or 400A 42-pole panelboards using Cutler-Hammer bolt-on type BAB or QBHW or plug-on type HQP or QPHW breakers, or one 800A panelboard with up to four F-Frame 3-pole subfeed breakers. Front only service access PDUs are available with a right or left side-facing sidecar containing one 1200A panelboard with up to twelve F-Frame 3-pole subfeed breakers. The distribution panels are enclosed behind the hinged door on the sidecar. Sidecar availability and placement may vary when the dual input option selected.

1.2.10 Dual Input Breaker Sidecar
The Dual Input option allows you to switch the utility source that feeds the PDU without dropping critical loads (Make-Before-Break transition). The Dual Input uses a key interlock system to minimize the chances of an unintentional load drop due to human error. A basic model with single key interlocks and a premier model with double key interlocks are available. The sidecar is mounted on the right side of the main PDU and is front facing.

1.2.11 Crimp Lug Input
Standard customer input connections to PDU the are made directly to the main input breaker and are secured by the mechanical lugs on the breaker terminal. The crimp lug input option can be ordered to ease installation by allowing the electrician to crimp the power cables prior to connecting them to the pre-mounted assembly that feeds the main input breaker. Crimp lugs are available for both single and dual input PDUs.

1.2.12 Branch Circuit Monitoring
The Eaton Energy Management System (EMS) Premium metering (EMS Premium metering) is designed to provide branch circuit monitoring (BCM) features for Eaton PDUs (available in both the 60A or 100A option). The unique benefits include the following:

- For 225A or 400A 42-pole panelboards, BCM is available to monitor full load at 60A or 100A per branch circuit breaker. For 225A or 400A 42-pole Square-D distribution panelboards, BCM is available to monitor full load at 60A per branch circuit breaker only.
- For 800A panelboards, BCM is available to monitor full load at 225A per F-frame subfeed breaker.
- For 1200A panelboards, BCM is available to monitor full load up to 225A per F-frame subfeed breaker and up to 600A per K and L-frame subfeed breaker.
- Monitors voltage and current for branch and subfeed breakers.
- Eaton EMS is designed to measure and store the energy parameter for each of the outputs delivered to the customer’s load.

1.2.13 Optional X-Slot Cards
The optional X-Slot cards support several protocols, such as SNMP and Modbus®. See Chapter 7, “Communication,” for additional information.
1.2.14 Remote Emergency Power-off
A Remote Emergency Power-off (REPO) option provides tripping of the main input breaker in situations where immediate shutdown of the PDU output to the load is needed from a remote location. This switch must be a normally-open or normally-closed latching-type switch not tied into any other circuits. The factory default configuration is set up for use with a normally-open switch. To use a normally-closed switch, the configuration must be changed during setup by an Eaton Customer Service Engineer.

See Chapter 6, “PDU Operating Instructions,” for REPO operation.

1.2.15 See-through Door
Optional see-through doors can allow instant visual inspection of the state of branch circuit breakers without having to open the front doors.

1.2.16 Floorstand
An optional floorstand can be used to support the PDU when installed in facilities with raised floors that will not support the weight of the PDU directly.

1.2.17 Floor Mounting Brackets
Optional front and rear floor mounting brackets are available to permanently secure the PDU to the facility floor.

1.2.18 Air Skirt
An air skirt is available as an accessory kit for the PDU. An air skirt can be installed at the bottom of the PDU to prevent the loss of air flow caused by the gap between the bottom of the cabinet and the raised floor. Use air skirts only when the PDU is installed on a raised floor where the raised floor acts as a plenum and provides adequate air flow to the PDU. Inadequate air flow will cause the PDU to overheat.

1.2.19 Cable Management Sidecar
An optional cable management sidecar is available for installations that require additional input and output cable management. This option requires a PRL4 in the main cabinet only.

1.3 Configurations
The following PDU configurations are possible for an output range of 200 kVA, 225 kVA, and 300 kVA with K13 and K14 transformers:

- 380V/400V/415V/480V/600V Input and 208V Output with transformer and:
  - one or two 225A or 400A 42-pole distribution panels
  - one or two 800A distribution panels for up to four “F” Frame 3-pole subfeed breakers each.
  - one 1200A distribution panel for “F”, “K” and “L” Frame 3-pole subfeed breakers.
  - one to two unmonitored “F” frame 3-pole subfeed breakers or one unmonitored “K” frame 3-pole subfeed breaker.
  - up to two front-facing or side facing sidecars with one or two 225A or 400A 42-pole distribution panels, or one 800A distribution panel for up to four “F” Frame 3-pole subfeed breakers per sidecar, or one 1200A distribution panel with F, K and L-frame breakers up to 600A.
  - a PRL4 sidecar is for front access only unit.

Other configurations may be available. Please contact an Eaton sales representative.
1.4 Using This Manual

This manual describes how to install and operate the Eaton 300 kVA PDU. Read and understand the procedures described in this manual to help ensure trouble-free installation and operation. In particular, be thoroughly familiar with the REPO procedure (see paragraph 6.7).

The information in this manual is divided into sections and chapters. The system, options, and accessories being installed dictate which parts of this manual should be read. At a minimum, Chapters 1 through 3 and Chapter 6 should be examined.

Referenced paragraphs A.1 through A.10, Figure A-1 through Figure A-80, and Table A through Table V can be found in Appendix A “Installation Reference,” at the back of this manual.

Read through each procedure before beginning the procedure. Perform only those procedures that apply to the PDU 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.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="note.png" alt="Note" /></td>
<td>Information notes call attention to important features or instructions.</td>
</tr>
<tr>
<td><a href="keys.png">Keys</a></td>
<td>Brackets are used when referring to a specific key, such as [Enter] or [Ctrl].</td>
</tr>
</tbody>
</table>

1.6 Symbols

The following are examples of symbols used on the PDU 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 waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.
1.7 Safety Warnings

**IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS**

This manual contains important instructions that should be followed during installation and maintenance of the PDU. Please read all instructions before operating the equipment and save this manual for future reference.

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

**DANGER**

The PDU contains LETHAL VOLTAGES. All repairs and service should be performed by AUTHORIZED SERVICE PERSONNEL ONLY. There are NO USER SERVICEABLE PARTS inside the PDU with the exception of adding and wiring branch circuit breakers.

**WARNING**

- To reduce the risk of fire or electric shock, install this PDU 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.
- Ensure all power is disconnected before performing installation or service.
- As a result of the connected loads high leakage current is possible. Connection to earth ground is required for safety and proper product operation.
- Locate the PDU on concrete or other non-combustible surface only.

**CAUTION**

- Keep the PDU doors closed to ensure proper cooling airflow and to protect personnel from dangerous voltages inside the unit.
- Do not operate the PDU 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.
- Use leveling feet only for distributing the weight of the cabinet equally. Using the leveling feet to raise the cabinet may result in serious injury to personnel or damage to the cabinet.
- Observe all DANGER, CAUTION, and WARNING notices affixed to the inside and outside of the equipment.
1.8 For More Information

Refer to the Eaton Energy Management System (EMS) Branch Circuit Management System (BCMS) Interface User’s Guide for EMS Premium metering information, as well as the following:

- Branch circuit monitoring configuration instructions, including branch circuit parameter setup and alarm setup.
- Branch circuit monitoring operation, including using the PDU LCD and menu map.
- Branch circuit monitoring troubleshooting, including alarms and conditions, and service and support.

Visit [www.eaton.com/powerquality](http://www.eaton.com/powerquality) or contact an Eaton service representative or information on how to obtain copies of this manual.

1.9 Getting Help

If help is needed with any of the following:

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

Please call the Eaton Corporation Help Desk 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 for manual comments, suggestions, or to report a technical error.

E-ESSDocumentation@Eaton.com
Section 1

Installation
**Chapter 2  PDU Installation Plan and Unpacking**

Use the following basic sequence of steps to install the Power Distribution Unit (PDU).

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

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

### NOTE 2
Referenced paragraph A.1, Figure A-5 through Figure A-19, and Table A, Table C and Table D can be found in Appendix A “Installation Reference” at the back of this manual.

#### 2.1 Creating an Installation Plan

Before installing the PDU, read and understand how this manual applies to the system being installed. Use the procedures and illustrations in the following chapters to create a logical plan for installing the system.

#### 2.2 Preparing the Site

For the PDU to operate at peak efficiency, the installation site should meet the environmental parameters outlined in this manual. If the PDU is to be operated at an altitude higher than 1500m (5000 ft), contact an Eaton service representative for important information about high-altitude operation. The operating environment must meet the weight, clearance, and environmental requirements specified in paragraph A.1 and size requirements specified in Figure A-5 through Figure A-19.

The PDU uses natural convection cooling to regulate internal component temperature. Air inlets are in the front of the cabinet and outlets are in the top (see Figure A-5 through Figure A-19). Provide clearance free of any obstructions in front of and above the PDU for proper air circulation. See Table C and Table D for clearances.

#### 2.2.1 Environmental Considerations

The life of the PDU is adversely affected if the installation does not meet the following guidelines:

- The system must be installed on a level concrete or non-combustible floor suitable for computer or electronic equipment or on the floorstands available from Eaton. Floorstands must be installed on a level concrete or non-combustible floor suitable for computer or electronic equipment.
- 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.
2.2.2 Preparing for Wiring the PDU

**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.

---

**CAUTION**

Cable insulation with 90°C or better is required for the incoming 3-phase cables connecting to the input main circuit breaker. Failure to meet this requirement may lead to catastrophic system failure.

---

Wiring requirements for the PDU, including the minimum AWG size of external wiring, can be found in Table J and Table K. The input power wiring connections for this equipment are rated at 90°C. If wire is run in an ambient temperature greater than 40°C, higher temperature wire and/or larger size wire may be necessary.

2.3 Inspecting and Unpacking the PDU

Use the applicable procedure from the following list for the PDU model being installed:

- For PDU models with PDU main cabinet, PDU main cabinet and one or two side facing sidecars bolted to a standard pallet, or PDU main cabinet and one front facing sidecar, proceed to paragraph 2.3.1.
- For PDU models with PDU main cabinet and two front facing sidecars bolted to a lifting tube pallet, proceed to paragraph 2.3.2.

2.3.1 Standard Pallet Unpacking Procedure

The cabinet is shipped bolted to a standard wooden and metal pallet (see Figure 2-1) and protected with outer protective packaging material.

**CAUTION**

The PDU is heavy (see Table A). If unpacking 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.

---

2. Use a forklift to move the packaged cabinet to the installation site, or as close as possible, before unpacking. Insert the forklift forks between the pallet supports on the bottom of the unit.

**NOTE**

Verify that the forklift is rated to handle the weight of the cabinet (see Table A for cabinet weight).
CAUTION

Do not tilt the PDU 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 covering from the cabinet.
5. Remove the packing material, and discard or recycle in a responsible manner.
6. Inspect the contents for any evidence of physical damage, and compare each item with the Bill of Lading. If damage has occurred or shortages are evident, contact an Eaton service representative immediately to determine the extent of the damage and its impact upon further installation.

NOTE

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

Figure 2-1. Eaton 300 kVA Three-Phase PDU as Shipped on Standard Pallet
2.3.2 Lifting Tube Pallet Unpacking Procedure

The cabinet is shipped bolted to a wooden and metal lifting tube pallet (see Figure 2-2) and protected with outer protective packaging material.

**CAUTION**

The PDU is heavy (see Table A). If unpacking 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.

2. Use a forklift to move the packaged cabinet to the installation site, or as close as possible, before unpacking. Insert the forklift forks into the lifting tubes on the right side of the cabinet (see Figure 2-2).

**NOTE**

Verify that the forklift is rated to handle the weight of the cabinet (see Table A for cabinet weight).

**CAUTION**

Do not tilt the PDU 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 covering from the cabinet.

5. Remove the packing material, and discard or recycle in a responsible manner.

6. Inspect the contents for any evidence of physical damage, and compare each item with the Bill of Lading. If damage has occurred or shortages are evident, contact an Eaton service representative immediately to determine the extent of the damage and its impact upon further installation.

**NOTE**

While waiting for installation, protect the unpacked cabinet from moisture, dust, and other harmful contaminants. Failure to store and protect the PDU properly may void your warranty.
Figure 2-2. Eaton 300 kVA Three-Phase PDU with Two Front-Facing Sidecars as Shipped on Lifting Tube Pallet
Chapter 3  Installing the PDU

Use the following procedures to install the Power Distribution Unit (PDU).

NOTE  Referenced paragraphs A.1 through A.10, Figure A-1 through Figure A-80, and Table A through Table V can be found in Appendix A “Installation Reference” at the back of this manual.

3.1  Preliminary Installation Information

WARNING

Installation should be performed only by qualified personnel.

Refer to the following while installing the PDU:

• Appendix A contains installation drawings and additional installation notes.
• Dimensions are in millimeters and inches.
• Do not tilt the cabinets more than ±10° during installation.
• Remove the conduit landing plates to add conduit landing holes or remove knockouts, as required. Plate material is 16 gauge steel (1.5 mm/0.060” thick).
• Install the cabinets on a level concrete or non-combustible floor suitable for computer or electronic equipment.
• If installing with a UPS, refer to the applicable UPS Installation and Operation manual for UPS cabinet wiring requirements and conduit and terminal locations.
• See Table A for equipment weight and point loading.

3.2  Unloading the PDU from the Pallet

Use the applicable procedure from the following list for the PDU model being installed:

• For PDU models with PDU main cabinet, PDU main cabinet and one or two side facing sidecars, or PDU main cabinet and one front facing sidecar bolted to a standard pallet, proceed to paragraph 3.2.1.
• For PDU models with PDU main cabinet and two front facing sidecars bolted to a lifting tube pallet, proceed to paragraph 3.2.2.

3.2.1  Standard Pallet Unloading Procedure

The PDU cabinet is bolted to a pallet consisting of four angle metal supports secured to two four-inch by six-inch wood supports.

WARNING

• The PDU is heavy (see Table A). If unloading instructions are not closely followed, the cabinet may cause serious injury.
• Do not install a damaged cabinet. Report any damage to the carrier and contact an Eaton service representative immediately.
• Do not tilt the PDU more than 10° from vertical or the cabinet may tip over.
1. If not already moved, use a forklift to move the cabinet to the installation site, or as close as possible, before unloading from the pallet. Insert the forklift forks between the pallet supports on the bottom of the unit.

2. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

3. Loosen the screws securing the inside distribution panel doors, and swing the doors open.

4. If the leveling feet are not fully retracted, turn the leveling feet until they are retracted.

5. Locate the field kit (packed inside of the cabinet). Locate the four 1/2" jacking bolts and install them in the threaded holes in the front and rear supports as shown in Figure 3-1. Place a floor protector underneath each jacking bolt, and screw the bolts down against them.

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

6. Close the inside distribution panel doors and secure with screws.

7. Close the outside doors and secure the latch.

8. Loosen, but do not remove, the hardware holding the 4 × 6 supports to the front and rear supports (see Figure 3-1).

   **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 PDU cabinet no more than 3 mm (1/8") above the floor (just enough to allow the removal of the 4 × 6 supports).

9. Turn each jacking bolt consecutively, two full turns, until the 4 × 6 supports clear the floor by approximately 3 mm (1/8”).

   **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.

10. For PDUs installed on an optional floorstand. Unscrew and remove the leveling feet from the bottom of the PDU. Recycle the leveling feet in a responsible manner. (There should be sufficient clearance to remove the leveling feet. If not, turn the jacking bolts to provide additional clearance.)

11. Remove the hardware loosened in Step 8. Pull the 4 × 6 supports out from under the PDU cabinet. Recycle the hardware in a responsible manner.
Installing the PDU

Figure 3-1. Removing Shipping Supports from Standard Pallet

---

**CAUTION**

CABINET MAY FALL. Do not loosen the hardware attaching the side or front supports to the cabinet base, or the front and side supports to each other, at this time. 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 PDU cabinet is resting on the floor, remove the jacking bolts and recycle them in a responsible manner.

14. Remove the hardware holding the front, rear, and side supports to the cabinet base. Recycle the hardware and support brackets in a responsible manner.

15. Roll the cabinet to the installation location.

16. If the PDU is being installed onto a floorstand, proceed to paragraph 3.3; otherwise, proceed to Step 18.

17. If permanently mounting the PDU, proceed to Step 20; otherwise, continue to Step 18.

18. Secure the PDU in position by lowering the leveling feet until the cabinet is locked in place.

---

**CAUTION**

Use the leveling feet only to lock the cabinet in place. Using the leveling feet to raise the cabinet may result in serious injury to personnel or damage to the cabinet.

20. Install the optional front and rear floor mounting brackets (see Figure A-75) according to the instructions provided with the floor mounting bracket kit.

21. If the optional air skirt is being installed, proceed to paragraph 3.4; otherwise, proceed to paragraph 3.5.

### 3.2.2 Lifting Tube Pallet Unloading Procedure

The PDU cabinet is bolted to a pallet consisting of six angle metal supports (three front and three rear) secured to four wood pallet skids and two lifting tubes.

### WARNING

- The PDU is heavy (see Table A). If unloading instructions are not closely followed, the cabinet may cause serious injury.
- Do not install a damaged cabinet. Report any damage to the carrier and contact an Eaton service representative immediately.
- Do not tilt the PDU more than 10° from vertical or the cabinet may tip over.

### NOTE 1

Verify that the forklift is rated to handle the weight of the cabinet (see Table A for cabinet weight).

### NOTE 2

Leave adequate space on the right side of the cabinet to remove the lifting tubes. After lifting tubes have been removed, cabinet can be moved into final position using the casters on the cabinet.

1. If not already moved, use a forklift to move the cabinet to the installation site, or as close as possible, before unloading from the pallet. Insert the forklift forks into the lifting tubes on the right side of the cabinet (see Figure 3-2).

2. Remove the bolts (six per lifting tube) securing the lifting tubes to the right side pallet skid (see Figure 3-3 and Figure 3-4).

3. Slide each lifting tube out from under the pallet skids and PDU (see Figure 3-3). Recycle the lifting tubes and hardware in a responsible manner.

4. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

5. Loosen the screws securing the inside distribution panel doors, and swing the doors open.

6. If the leveling feet are not fully retracted, turn the leveling feet until they are retracted.

7. Locate the field kit (packed inside of the cabinet). Locate the four 1/2” jacking bolts and install them in the threaded holes in the front and rear supports as shown in Figure 3-5 and Figure 3-6. Place a floor protector underneath each jacking bolt, and screw the bolts down against them.

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

8. Close the inside distribution panel doors and secure with screws.

9. Close the outside doors and secure the latch.

10. Loosen, but do not remove, the skid mounting bolts holding the pallet skids to the front and rear supports (see Figure 3-5).
Figure 3-2. Lifting the PDU Using the Lifting Tubes
Figure 3-3. Removing the Lifting Tubes

See Detail A
Figure 3-4. Removing the Lifting Tubes – Detail A
Figure 3-5. Removing Shipping Supports from Lifting Tube Pallet
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 PDU cabinet no more than 3 mm (1/8") above the floor (just enough to allow the removal of the pallet skids).

11. Turn each jacking bolt consecutively, two full turns, until the pallet skids clear the floor by approximately 3 mm (1/8”).

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.

12. For PDUs installed on an optional floorstand. Unscrew and remove the leveling feet from the bottom of the PDU. Recycle the leveling feet in a responsible manner. (There should be sufficient clearance to remove the leveling feet. If not, turn the jacking bolts to provide additional clearance.)

13. Remove the hardware loosened in Step 10. Pull the four pallet skids out from under the front and rear supports and PDU cabinet. 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.

14. 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.
15. After the PDU cabinet is resting on the floor, remove the jacking bolts and recycle them in a responsible manner.

16. Remove the cabinet mounting bolts holding the front and rear supports to the cabinet base. Remove the sidecar supports first, then the main cabinet supports (see Figure 3-5). Recycle the hardware and support brackets in a responsible manner.

17. Roll the cabinet to the installation location.

18. If the PDU is being installed onto a floorstand, proceed to paragraph 3.3; otherwise, proceed to Step 20.

19. If permanently mounting the PDU, proceed to Step 22; otherwise, continue to Step 20.

20. Secure the PDU in position by lowering the leveling feet until the cabinet is locked in place.

**CAUTION**

Use the leveling feet only to lock the cabinet in place. Using the leveling feet to raise the cabinet may result in serious injury to personnel or damage to the cabinet.


22. Install the optional front and rear floor mounting brackets (see Figure A-75) according to the instructions provided with the floor mounting bracket kit.

23. If the optional air skirt is being installed, proceed to paragraph 3.4; otherwise, proceed to paragraph 3.5.

### 3.3 Installing the Optional Floorstand

Optional floorstands are used for raised floor installations. The floorstand is used when raised floors cannot bear the weight of the PDU. See paragraph A.9 for floorstand installation diagrams.

To install the optional floorstand:

1. Position the floorstand at the installation location. The front span of the floorstand should be oriented to correspond to the front of the PDU when mounted. (See Figure A-78 to identify the front and back of the floorstand.)

2. Adjust the floorstand leveling feet.
   - Ensure that the floorstand top mounting surface is at the correct level (relative to the raised floor) to install the PDU at the appropriate height.
   - Ensure that the floorstand top mounting plane is level.

3. Anchor the floorstand base to the floor per local codes.

4. Roll the PDU into position at the front or rear of the floorstand.

5. Continue to roll the PDU onto the floor stand.
   - Align the PDU leveling feet mounting holes with the mounting holes on the floorstand top mounting surface.

**WARNING**

- The PDU is heavy (see Table A). Follow all standard local safety practices when moving the cabinet. Failing to do so may cause serious injury.
- Do not tilt the PDU more than 10° from vertical or the cabinet may tip over.

6. Size the steel spacers needed to mount the PDU to the floorstand. Ensure that the spacer sizing allows the PDU to be level when mounted (see Figure A-78).
7. Install the steel spacers between the floorstand and the PDU.
8. Position the PDU casters, ensuring that they rest on permanent surfaces and do not block access to any conduit plates.

**NOTE** The casters may or may not rest solidly on the floorstand. When the PDU is installed on the floorstand, the casters carry some of the weight load, but the PDU weight load is primarily supported by the customer-provided steel bushings.

9. Ensure the PDU is level.
10. Secure the PDU to the floorstand adhering to the appropriate local codes.
11. If the optional air skirt is being installed, proceed to paragraph 3.4; otherwise, proceed to paragraph 3.5.

### 3.4 Installing the Optional Air Skirt

**CAUTION**
Use air skirts only when the PDU is installed on a raised floor where the raised floor acts as a plenum and provides adequate air flow to the PDU. The side skirts are to keep forced air from escaping, but will block air if installed on a concrete or similar non-raised flat floor. Inadequate air flow will cause the PDU to overheat.

The optional air skirt can be installed on PDU configurations with or without side cars. Custom air skirt installation kits are available for each configuration.

The installation process is the same for either left or right Side-Facing or Front-Facing sidecars. See paragraph A.10 for a typical air skirt installation and air skirt footprint diagrams.

To install the optional air skirt:

1. Lay out the air skirt brackets that correspond to each side around the base of the PDU configuration.
2. Starting at the front of the PDU, align the first bracket with the four base mounting holes. Use a 15 mm socket to secure the air skirt bracket over the base with the M10 screws (provided).
3. Moving counter-clockwise, install the remaining air skirt brackets around the base of the Main Unit PDU by first aligning them with the base mounting holes, and then securing them with M10 screws.
   
   See Figure A-80 through Figure A-80 for air skirt bracket installation.
4. Proceed to paragraph 3.5.
### 3.5 Installing PDU Power Wiring

**NOTE 1** The PDU is shipped with debris shields covering the ventilation grills on top of the cabinet (see paragraph A.4). Do not remove the debris shields until installation is complete. However, remove the shields before operating the PDU. Once the debris shields are removed, do not place objects on the ventilation grills.

**NOTE 2** Remove the PDU cabinet top or bottom conduit landing plate to drill or punch conduit holes or remove knockouts (see paragraph A.4).

---

**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.

---

**CAUTION**

DO NOT overtighten the terminal lugs to prevent stripping the threads. Tighten lugs to the torque values specified in Table M through Table T.

---

1. Verify that all power sources are removed.
2. If not already open, open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
3. Loosen the screws securing the inside distribution panel doors and swing the doors open.
4. Loosen the screws securing the inside terminal cover plates and remove the plates.
5. If installing a PDU with the optional dual input sidecar, proceed to Step 6; otherwise, proceed to Step 9.
6. If not already open, open the dual input sidecar front door by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the door open.
7. Loosen the screws securing the inside door and swing the door open.
8. Loosen the screws securing the inside terminal cover plate and remove the plate.
9. To review the wiring and termination requirements, see paragraph A.3.
10. If installing a PDU with the optional dual input sidecar, proceed to Step 11; otherwise, proceed to Step 17.
11. If installing a PDU with the optional crimp lug dual input sidecar, proceed to Step 12; otherwise, proceed to Step 15.
12. Remove the screws securing the crimp lug terminal covers and remove the covers.
13. Route the PDU input cables from the AC sources through either the top or bottom of the dual input sidecar cabinet to the CB1 and CB2 crimp input terminals. See paragraph A.5 for wiring access and terminal locations. See paragraph A.4 for conduit landing plate locations.

**Top Access Wiring** – Remove the top conduit plate from the top of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

**Bottom Access Wiring** – Remove the bottom conduit plate from the inside bottom of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.
14. Proceed to Step 22.
15. Route the PDU input cables from the AC sources through either the top or bottom of the dual input sidecar cabinet to the input terminals on main input breakers CB1 and CB2. See paragraph A.5 for wiring access and terminal locations. See paragraph A.4 for conduit landing plate locations.

**Top Access Wiring** – Remove the top conduit plate from the top of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

**Bottom Access Wiring** – Remove the bottom conduit plate from the inside bottom of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

16. Proceed to Step 22.
17. If installing a PDU with the optional single crimp lugs, proceed to Step 18; otherwise, proceed to Step 21.
18. Remove the screws securing the crimp lug terminal cover and remove the cover.
19. Route the PDU input cables from the AC sources through either the top or bottom of the cabinet to the CB1 crimp input terminals. See paragraph A.5 for wiring access and terminal locations. See paragraph A.4 for conduit landing plate locations.

**Top Access Wiring** – Remove the top conduit plate from the top of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

**Bottom Access Wiring** – Remove the bottom conduit plate from the inside bottom of the dual input sidecar. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

20. Proceed to Step 22.
21. Route the PDU input cables from the AC source through either the top or bottom of the cabinet to the PDU input terminals on the main input breaker CB1. See paragraph A.5 for wiring access and terminal locations. See paragraph A.4 for conduit landing plate locations.

**Top Access Wiring** – Remove the top conduit plate from the top of the PDU. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting on the PDU. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

**Bottom Access Wiring** – Remove the bottom conduit plate from the inside bottom of the PDU. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the dual input sidecar. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

22. Connect phase A, B, and C, power wiring between the AC source and the PDU main input breaker or crimp terminals. See Table M through Table R for termination requirements.
23. Ground the PDU according to local and/or national electrical wiring codes by routing and connecting the ground wire to the input ground lug. See paragraph A.5 for PDU terminal locations.
24. If wiring a PDU with subfeed breakers, proceed to Step 28; if wiring a PDU with distribution panels or a distribution panel and subfeed breakers, proceed to Step 25.
25. Install customer-supplied branch circuit breakers into the distribution panel (see Figure A-36). Use Cutler-Hammer bolt-on type BAB or QBHW breakers for bolt-on panels, or plug-on type HOP or QPHW breakers for plug-on panels. If Square D panelboards are installed, use Square D bolt-on type QOB breakers.

**NOTE 1** When wiring branch circuits, begin adding conduits at the back of the center conduit landing plate to simplify future circuit additions.

**NOTE 2** When wiring a PDU with branch circuit monitoring, use THHN wire for branch circuit output distribution. Using THHN wire will facilitate routing the wire through the branch CTs to the branch breakers.

**NOTE 3** When installing or replacing branch breakers, use only hand tools and follow torque specifications. See Table 3-1. Failure to follow torque specifications may result in damage to bus bar or branch breaker.

---

**Table 3-1. Branch Breaker Wire Torques**

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Torque Nm (lb in)</th>
<th>Wire Size</th>
<th>Torque Nm (lb in)</th>
<th>Wire Size</th>
<th>Torque Nm (lb in)</th>
<th>Across Flats</th>
<th>Screwdriver</th>
<th>Socket Head</th>
<th>Bolt Size</th>
<th>Torque Nm (lb in)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neutral &amp; Ground Bar</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Opening</td>
<td>Large Opening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 3.3 mm² (14 12 AWG)</td>
<td>2.3 Nm (20 lb in)</td>
<td>2.1 5.3 mm² (14 10 AWG)</td>
<td>4.0 Nm (35 lb in)</td>
<td>0.8 5.3 mm² (18 10 AWG)</td>
<td>4.0 Nm (35 lb in)</td>
<td>1/8&quot;</td>
<td>5.1 Nm (45 lb in)</td>
<td>–</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
</tr>
<tr>
<td>5.3 mm² (10 AWG)</td>
<td>2.3 Nm (20 lb in)</td>
<td>8.4 mm² (8 AWG)</td>
<td>4.5 Nm (40 lb in)</td>
<td>8.4 mm² (8 AWG)</td>
<td>4.5 Nm (40 lb in)</td>
<td>5/32&quot;</td>
<td>11.3 Nm (100 lb in)</td>
<td>5/16&quot;</td>
<td>#10</td>
<td>7.4 Nm (65 lb in)</td>
</tr>
<tr>
<td>8.4 mm² (8 AWG)</td>
<td>2.9 Nm (25 lb in)</td>
<td>18.0 13.3 mm² (4 6 AWG)</td>
<td>5.1 Nm (45 lb in)</td>
<td>13.3 18.0 mm² (6 4 AWG)</td>
<td>5.1 Nm (45 lb in)</td>
<td>3/16&quot;</td>
<td>13.6 Nm (120 lb in)</td>
<td>3/8&quot;</td>
<td>#10</td>
<td>16.9 Nm (150 lb in)</td>
</tr>
<tr>
<td>13.3 mm² (6 AWG)</td>
<td>4.0 Nm (35 lb in)</td>
<td>26.7 53.4 mm² (3 1/0 AWG)</td>
<td>5.6 Nm (50 lb in)</td>
<td>33.6 67.3 mm² (2 2/0 AWG)</td>
<td>5.6 Nm (50 lb in)</td>
<td>7/32&quot;</td>
<td>19.9 Nm (175 lb in)</td>
<td>1/2&quot;</td>
<td>#10</td>
<td>67.8 Nm (60 lb ft)</td>
</tr>
<tr>
<td><strong>Other Terminals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bus Bar Connections</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
</tr>
<tr>
<td><strong>Connecting Wire Torques</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Small Opening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>22.6 Nm (200 lb in)</td>
<td>1/4&quot;</td>
<td>22.6 Nm (200 lb in)</td>
<td>1/4&quot;</td>
<td>22.6 Nm (200 lb in)</td>
<td>1/4&quot;</td>
<td>22.6 Nm (200 lb in)</td>
<td>1/4&quot;</td>
<td>22.6 Nm (200 lb in)</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
<td>3.4 Nm (30 lb in)</td>
<td>#10</td>
</tr>
<tr>
<td><strong>Large Opening</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/16&quot;</td>
<td>31.1 Nm (275 lb in)</td>
<td>5/16&quot;</td>
<td>31.1 Nm (275 lb in)</td>
<td>5/16&quot;</td>
<td>31.1 Nm (275 lb in)</td>
<td>5/16&quot;</td>
<td>31.1 Nm (275 lb in)</td>
<td>5/16&quot;</td>
<td>31.1 Nm (275 lb in)</td>
<td>5/16&quot;</td>
</tr>
<tr>
<td><strong>Screwdriver</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>42.4 Nm (375 lb in)</td>
<td>3/8&quot;</td>
<td>42.4 Nm (375 lb in)</td>
<td>3/8&quot;</td>
<td>42.4 Nm (375 lb in)</td>
<td>3/8&quot;</td>
<td>42.4 Nm (375 lb in)</td>
<td>3/8&quot;</td>
<td>42.4 Nm (375 lb in)</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td><strong>Socket Head</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>56.5 Nm (500 lb in)</td>
<td>1/2&quot;</td>
<td>56.5 Nm (500 lb in)</td>
<td>1/2&quot;</td>
<td>56.5 Nm (500 lb in)</td>
<td>1/2&quot;</td>
<td>56.5 Nm (500 lb in)</td>
<td>1/2&quot;</td>
<td>56.5 Nm (500 lb in)</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td><strong>Torque Nm (lb ft)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9/16&quot;</td>
<td>67.8 Nm (600 lb in)</td>
<td>9/16&quot;</td>
<td>67.8 Nm (600 lb in)</td>
<td>9/16&quot;</td>
<td>67.8 Nm (600 lb in)</td>
<td>9/16&quot;</td>
<td>67.8 Nm (600 lb in)</td>
<td>9/16&quot;</td>
<td>67.8 Nm (600 lb in)</td>
<td>9/16&quot;</td>
</tr>
</tbody>
</table>

**NOTE:** Use 50 lb in for 3 #10 conductors.

---

26. Route output cables to the branch circuit breakers and wire the branch circuits according to the branch circuit breaker manufacturer’s ratings and instructions, and national and local electrical codes (input is prewired to the panelboard). See Table T for termination requirements.

If the optional Eaton Energy Management System (EMS) Premium metering branch circuit monitoring (BCM) is installed, route branch wiring through the current transformer (CT) opposite the breaker terminal to the breaker lug (see Figure 3-7). Use care when bending and routing the wires through the CTs.
27. If wiring a PDU with subfeed breakers, proceed to Step 28; otherwise, proceed to Step 29.

**NOTE 1** When wiring subfeed breakers, begin adding conduits at the back of the center conduit landing plate to simplify future circuit additions.

**NOTE 2** When wiring a PDU with branch circuit monitoring, use THHN wire for branch circuit output distribution. Using THHN wire will facilitate routing the wire through the branch CTs to the branch breakers.

28. Route output cables from subfeed breakers to the critical load and connect phase A, B, and C, and Neutral power wiring to the subfeed breakers and neutral terminals. See paragraph A.5 for wiring access and terminal locations. See Table T for termination requirements.

If the optional EMS Premium metering BCM is installed, verify the location of the subfeed CTs. If the CTs are mounted on the input side of the breaker, proceed to Step 29; if the CTs are mounted on the output side of the breaker, route branch wiring through the CTs opposite the breaker terminal to the breaker lug.

29. If wiring a PDU with sidecars, proceed to Step 30; otherwise, proceed to Step 35.

30. If not already open, open the sidecar front door by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the door open.

31. Loosen the screws securing the inside distribution panel doors and swing the doors open.

32. Loosen the screws securing the inside terminal cover plates and remove the plates.

33. Install customer-supplied branch circuit breakers into the sidecar distribution panel (see Figure A-48 through Figure A-51). Use Cutler-Hammer bolt-on type BAB or QBHW breakers for bolt-on panels, or plug-on type HQP or QPHW breakers for plug-on panels. If Square D panelboards are installed, use Square D bolt-on type QOB breakers.

**NOTE 1** When wiring branch circuits, begin adding conduits at the back of the center conduit landing plate to simplify future circuit additions.

**NOTE 2** When wiring a PDU with branch circuit monitoring, use THHN wire for branch circuit output distribution. Using THHN wire will facilitate routing the wire through the branch CTs to the branch breakers.
34. Route output cables to the branch circuit breakers and wire the branch circuits according to the branch circuit breaker manufacturer’s ratings and instructions, and national and local electrical codes (input is prewired to the panelboard).

If the optional EMS Premium metering BCM is installed, route branch wiring through the CT opposite the breaker terminal to the breaker lug (see Figure 3-7). Use care when bending and routing the wires through the CTs.

35. Reinstall all inside terminal cover plates removed in previous steps.

36. Close the inside doors and secure with screws.

37. If wiring interface connections, proceed to paragraph 3.6; otherwise, proceed to Step 38.

38. Close the outside doors and secure the latch.

3.6 Installing TB1, TB2, Shunt Trip, and Auxiliary Contact Interface Connections

**NOTE** When installing control wiring (such as building alarms, alarm contacts, shunt trips, and auxiliary contacts) to the PDU interface terminals, conduit must be installed between the device and the PDU. Install the control wiring in separate conduit from the power wiring.

**CAUTION**

Alarm relay contacts should not be operated in excess of 30 Vac @ 5A maximum.

1. Verify that the PDU is turned off and all power sources are removed. See Chapter 6, “PDU Operating Instructions,” for shutdown instructions.

2. If not already open, open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

3. Loosen the screw securing the inside interface access panel and remove the panel (see Figure 6-2).

4. To review the wiring and termination requirements, see paragraphs A.6 and A.7.

5. Route the PDU interface wiring through either the top or bottom of the cabinet to the PDU interface terminals. See paragraph A.6 for wiring access and terminal locations. See paragraph A.4 for conduit landing plate locations.

**Top Access Wiring.** Remove the top conduit plate from the top of the PDU. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the top conduit plate prior to mounting on the PDU. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

**Bottom Access Wiring.** Remove the bottom conduit plate from the inside bottom of the PDU. Identify all conduit requirements and mark their location. Drill and punch all conduit holes in the bottom conduit plate prior to mounting on the PDU. Install the conduit plate and install all conduit runs into the plate. Pull the wiring through the conduit into the wiring area.

6. Route and connect the wiring.

7. Close the inside distribution panel doors and secure with screws.

8. Close the outside doors and secure the latch.
3.7 Initial Startup

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

3.8 Completing the Installation Checklist

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

After the installation is complete, a service representative will be able to verify the operation of the PDU 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 PDU for the first time.

Installation Checklist

- All packing materials and restraints have been removed from each cabinet.
- The PDU is placed in its installed location.
- The PDU cabinet is secured in position with leveling feet lowered until the cabinet is not resting on the casters and the cabinet is level.
- The PDU cabinet is installed and secured the floorstand. (Optional)
- All conduits and cables are properly routed to the PDU.
- All power cables are properly sized and terminated.
- Distribution panel branch circuit breakers are installed and wired to load. (Optional)
- A ground conductor is properly installed.
- Alarm relays and building alarms are wired appropriately. (Optional)
- Shunt Trip and Auxiliary connections are wired appropriately. (Optional)
- LAN drop is installed. (Optional)
- All LAN connections have been completed.
- The PDU air skirts are installed. (Optional)
- Any debris shields covering the PDU cabinet ventilation grills are removed.
- Air conditioning equipment is installed and operating correctly.
- The area around the installed PDU is clean and dust-free. (The PDU must be installed on a level concrete or non-combustible floor suitable for computer or electronic equipment.)
- Adequate workspace exists around the PDU and other cabinets.
- Adequate lighting is provided around the PDU.
- A 120V service outlet is located within 7.5m (25 ft) of the PDU.
- Startup and operational checks are performed by an authorized Eaton Customer Service Engineer.
Chapter 4 Installing a Remote Emergency Power-off Switch

A latching-type Eaton Customer Service Engineer (REPO) switch can be used in an emergency to shut down the UPS and remove power to the critical load from a location away from where the Power Distribution Unit (PDU) is installed. Figure 4-1 shows an Eaton REPO switch.

NOTE 1 Before installing a REPO switch, verify that the PDU was installed according to the instructions in Chapter 3, “Installing the PDU.”

NOTE 2 When installing the REPO switch, you must install conduit between the device and the PDU cabinet for wiring the switch.

NOTE 3 The REPO switch must be a normally-open or normally-closed latching-type switch not tied into any other circuits. The factory default configuration is set up for use with a normally-open switch. To use a normally-closed switch, the configuration must be changed during setup by an Eaton Customer Service Engineer.

NOTE 4 This procedure is intended to be used for the installation of the Eaton REPO switch. If installing another manufacturer’s switch, use this procedure only as a guide.

NOTE 5 The REPO switch wiring must be in accordance with National Electrical Code® (NEC®) Article 725 Class 2 requirements.

To install a REPO station:

1. Verify the PDU is turned off and all power sources are removed. See Chapter 6 “PDU Operating Instructions,” for shutdown instructions.

2. Securely mount the REPO station. Recommended locations include operator’s consoles or near exit doors. See Figure A-74 for enclosure dimensions and wiring knockouts.

3. If not already open, open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

4. Loosen the screw securing the inside interface access panel and remove the panel (see Figure 6-2).
5. Remove the PDU cabinet interface entry conduit landing plates to drill or punch holes (see paragraph A.4).

6. Reinstall the interface entry plates and install conduit.

7. To locate the appropriate terminals and review the wiring and termination requirements, see Figure 4-1 and paragraphs A.6 and A.7.

8. Route and connect the wiring as shown in Table 4-1 and Figure 4-2.

Table 4-1. REPO Wire Terminations

<table>
<thead>
<tr>
<th>From REPO Station(s) Switch Contact Block (either block)</th>
<th>To Customer Interface Terminal Board TB1 on the PDU Universal Control Board (UCB)</th>
<th>Wire Size</th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 NO TB1 5</td>
<td>Twisted Wires (2)</td>
<td></td>
<td>7 lb in</td>
</tr>
<tr>
<td>4 NO TB1 6</td>
<td>14 22 AWG (0.75 4.0 mm²)</td>
<td></td>
<td>(0.8 Nm)</td>
</tr>
</tbody>
</table>

NOTE REPO switch rating is 24 Vdc, 1A minimum.

NOTE The REPO switch must be a normally-open or normally-closed latching-type switch not tied into any other circuits. The factory default configuration is set up for use with a normally-open switch. To use a normally-closed switch, the configuration must be changed during setup by an Eaton Customer Service Engineer.

NOTE The REPO switch wiring must be in accordance with NEC Article 725 Class 2 requirements.

Figure 4-2. REPO Switch Wiring
9. If you are installing multiple normally-open REPO switches, wire additional switches in parallel with the first REPO switch. If you are installing multiple normally-closed REPO switches, wire additional switches in series with the first REPO switch.

10. If required, install ½” conduit and wiring from the second contact block in the REPO station to trip circuitry of other equipment, such as upstream protective devices, facility monitoring devices, or alarms. Using the contact block that was not used for the UPS EPO wiring will help maintain isolation between the control systems.

A normally open (NO) contact and a normally closed (NC) contact are provided, and the two are electrically isolated. If single-pole, double-throw action is desired, one side of the NO contact can be jumpered to one side of the NC contact to form the common connection point. REPO switch wiring must be according to UL Class I requirements.

11. When all wiring is complete, close the inside distribution panel doors and secure with screws.

12. Close the outside doors and secure the latch.
Section 2

Operation
Chapter 5  Understanding PDU Operation

The Power Distribution Unit (PDU) consists of a main input breaker, an isolation output transformer, a monitoring/operation control panel, an integrated communication server, and a distribution panel or subfeed breaker system.

5.1 Distribution Panelboard and Subfeed Breaker Power Routing

Power from the AC source is routed through the main input breaker and the isolation output transformer to the distribution tie bus. From the distribution tie bus, power is directed to panelboards and subfeed breakers as detailed in paragraph 5.2. Power is then distributed to the critical loads through customer-provided branch circuit breakers or the subfeed breakers.

Figure 5-1 and Figure 5-2 show examples of the path of electrical power through the PDU with two 225A or 400A distribution panelboards and two unmonitored subfeed breakers for single and dual input sources.

Figure 5-3 and Figure 5-4 show examples of the path of electrical power through the PDU with 1200A PRL4B subfeed breakers for single and dual input sources.

5.2 Distribution Panelboard and Subfeed Breaker Configurations

From the distribution tie bus, each 300 kVA main cabinet PDU can be configured as follows:

- One or two 225A or 400A 42-pole branch circuit breaker panelboards
- One or two 800A PRL3a subfeed circuit breaker panelboards
- One 225A or 400A 42-pole branch circuit breaker panelboard and one 800A PRL3a subfeed circuit breaker panelboard
- One 1200A PRL4B subfeed circuit breaker panelboard
- Up to two unmonitored subfeed breakers can be added to any of the above three configurations if needed.

NOTE 1 The number of subfeed breakers depends on the breaker rating and PDU configuration.

NOTE 2 Each 800A PRL3a subfeed circuit breaker panelboard can have up to four 3-pole F-frame subfeed breakers.

NOTE 3 Each 1200A PRL4B subfeed circuit breaker panelboard can have up to twelve 3-pole F-frame subfeed breakers, up to five 3-pole K-frame subfeed breakers, or up to three 3-pole L-frame subfeed breakers.
Figure 5-1. Current Path Through the PDU with Distribution Panelboards (Single Source)
Figure 5-2. Current Path Through the PDU with Distribution Panelboards (Dual Source)
Figure 5-3. Current Path Through the PDU with Subfeed Breakers (Single Source)
Understanding PDU Operation

Figure 5-4. Current Path Through the PDU with Subfeed Breakers (Dual Source)
This page intentionally left blank.
Chapter 6  PDU Operating Instructions

This section describes how to operate the Power Distribution Unit (PDU).

NOTE 1  Before starting the PDU, ensure all installation tasks are complete and a preliminary startup has been performed by an Eaton Customer Service Engineer. The preliminary startup verifies all electrical interconnections to ensure the installation was successful and the PDU operates properly.

NOTE 2  Read this section of the manual and have thorough knowledge of PDU operation before attempting to operate any of the controls.

6.1 PDU Controls, Breakers, and Displays

Figure 6-1 through Figure 6-11 identify and show the location of the controls, breakers, and displays on the PDU and optional sidecars. The descriptions provide a brief overview of the PDU controls with standard and optional features.

NOTE  Read the operation sections of this manual and have thorough knowledge of PDU operation before attempting to operate any of the PDU controls.

The PDU can contain the following controls, breakers, and displays:

- Main input breaker CB1 (and CB2 if Dual Input Sidecar is installed)
- Surge Protective Device (SPD) status display (if non-EMS-monitored SPD is installed)
- Control panel
- PDU right and left distribution panels with panel input breakers
- Up to twelve PDU subfeed breakers depending on breaker rating and PDU configuration
- Sidecar top and bottom distribution panels with panel input breakers
- Sidecar subfeed breakers
Figure 6-1. PDU Controls – Doors Closed
**NOTE** The PDU is shown with both left and right distribution panels. However, the installed configuration may contain only a left or right distribution panel.

**Figure 6-2. PDU Breakers and SPD Display – Doors Removed with Distribution Panels**
NOTE The PDU is shown with twelve 225A subfeed breakers. However, the installed configuration may contain one to twelve 225A subfeed breakers, one to five 400A subfeed breakers, or one to three 800A subfeed breakers.

Figure 6-3. PDU Breakers and SPD Display – Doors Removed with Subfeed Breakers
Figure 6-4. PDU Breakers and SPD Display – Front Only Service Access with Doors Removed
Figure 6-5. Basic Dual Input Sidecar Controls and Breakers – Door Removed with Input Breakers
Figure 6-6. Premier Dual Input Sidecar Controls and Breakers– Door Removed with Input Breakers
**NOTE** The sidecar is shown with both top and bottom distribution panels. However, the installed configuration may contain only a top or bottom distribution panel.

*Figure 6-7. Front-Facing Sidecar Breakers – Doors Removed showing Distribution Panels*
Figure 6-8. Front-Facing Sidecar Breakers – Doors Removed showing Subfeed Breakers
NOTE The sidecar is shown with both top and bottom distribution panels. However, the installed configuration may contain only a top or bottom distribution panel.

Figure 6-9. Side-Facing Sidecar Breakers – Doors Removed Showing Distribution Panels
Figure 6-10. Side-Facing Sidecar Breakers — Doors Removed Showing “F” Frame Subfeed Breakers (PRL3a)
Figure 6-11. Side-Facing Sidecar Breakers – Doors Removed Showing “F” Frame Subfeed Breakers (PRL3B)
6.2 Using the Control Panel

The following paragraphs describe the PDU control panel, including controls and indicators, and how to monitor and control the PDU. The control panel (see Figure 6-12) is located on the front door of the PDU.

![Figure 6-12. PDU Control Panel](image)

The control panel consists of:

- A liquid crystal display (LCD) (1)
- A horizontal row of pushbuttons (2)
- A vertical column of status indicators (3)

The following paragraphs describe how to use the PDU control panel to monitor the PDU. For specific procedures, see paragraph 6.4.

When the unit powers up, the screen displays the Eaton logo as shown in Figure 6-12. To advance to the main menu and mimic screen, press any control panel pushbutton once.

6.2.1 Status Indicators

The four symbols on the right side of the control panel are status indicators. They are colored light emitting diode (LED) lamps, and they work with the alarm horn to let you know the operating status of the PDU.

Table 6-1 describes the status indicators.
6.2.2 System Events

When the PDU is operating, it continually monitors itself and the incoming utility power. System events on the PDU can be indicated by horns, lights, messages, or all three.

Select EVENTS from the menu bar on the main menu screen to look at the active events screen. This screen shows any currently active alarms, notices, or commands. For more information on using the events screen, see paragraph 6.2.7.

- **System Event Horns** – The system event horn beeps to alert an operator that an event needing attention is taking place. The horn cycles at a half-second rate.

- **System Event Indicators** – The status indicators on the PDU control panel work with the event horn to let the operator know when the PDU is operating in any mode other than normal. Only the ON indicator is visible during normal PDU operation. The other indicators illuminate to indicate alarms or events. When an alarm occurs, first check these indicators to see what type of event has taken place. For descriptions of the status indicators, see paragraph 6.2.1.

- **System Event Messages** – When a system event occurs, a message appears on the LCD in the PDU status area. This message is also written to the Active Events Log and may be added to the History Log. The messages are divided into four categories: alarms, notices, status, and commands.
6.2.3 Using the LCD and pushbuttons

The LCD on the control panel provides an operator interface with the PDU. Figure 6-13 identifies the display areas.

![Figure 6-13. Parts of the LCD](image)

- **A** The PDU status area alternately displays the Eaton PDU name, the current date and time, and any current alarm messages.
- **B** The information area contains data about PDU status and operations.
- **C** The menu bar lists the available screens. To select a screen, press the pushbutton under the screen.
- **D** Each navigation pushbutton function depends on the screen displayed. Use the pushbuttons to select menu screens or scroll through available screens. The LCD options above the pushbuttons indicate each pushbutton’s function.

You can use the LCD and the pushbuttons to:
- Look at a log of PDU events (alarms, notices, and commands)
- Monitor PDU operation
- Set PDU parameters
- Control PDU operation

See paragraph 6.2.7 for detailed menu operation.

After approximately 15 minutes (default delay), the display screen darkens. To restore the screen, press any pushbutton once. The timeout delay is programmable. Contact an Eaton service representative for programming.
6.2.4 Display and Metering Screens

The Eaton Energy Management System (EMS) provides System Level and Premium metering display and metering configurations for the PDU:

- System Level metering includes system level input and output meters, Active Events and History Logs, setup menu, mimic screen, Profile Log, and two X-Slot communication bays.
- Premium metering has all the features of System Level metering and includes branch circuit or subfeed breaker level monitoring.

System Level metering is the standard configuration for the PDU; Premium metering is optional.

6.2.5 Using the Menu

The PDU main menu bar allows you to display data in the information area to help you monitor and control PDU operation. Table 6-2 shows the basic menu structure.

Table 6-2. Display Function Menu Map

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENTS</td>
<td>Displays the list of Active System Events and a historical log of system events.</td>
</tr>
<tr>
<td>METER</td>
<td>Displays performance meters for the system or critical load.</td>
</tr>
<tr>
<td>CONTROL</td>
<td>Displays the Control screen to turn the PDU load off.</td>
</tr>
<tr>
<td>PROFILE</td>
<td>Displays load profile data for the most recent 24 months. Profile data includes highest and lowest input and output currents, frequencies, power levels, power factors, AC undervoltage, and Total Harmonic Distortion (THD).</td>
</tr>
<tr>
<td>SETUP</td>
<td>Allows the entry of a password, viewing the firmware version numbers, setting the display contrast, changing the password, setting the date and time, clearing the history screen, clearing the load profile screen, setting up the building alarms, displaying the unit type, configuring the THD, and changing the unit name. Available functions depend on the setup level authorized.</td>
</tr>
<tr>
<td></td>
<td>Returns to main menu and mimic screen from the Events, Meter, Control, Profile, or Setup screens. Returns to the main System Setup Level screen from a setup submenu.</td>
</tr>
<tr>
<td>↑ ↓</td>
<td>Up or down arrows scroll through screens and lists or highlight settings.</td>
</tr>
<tr>
<td>← →</td>
<td>Left or right arrows select or adjust settings displayed on the screen.</td>
</tr>
</tbody>
</table>
6.2.6 Mimic Screen

Figure 6-14 shows the main menu and mimic screen. To select the mimic screen from the Events, Meters, Profile, or Setup screens, press the pushbutton on the current menu bar.

The mimic screen shows the internal components of the PDU and a real-time graphical representation of the operating status of the system.

![Figure 6-14. Main Menu and Mimic Screen with Dual Input Breaker](image)
### 6.2.7 Display Menu Operation

Table 6-3 describes the menu functions and how to use them.

<table>
<thead>
<tr>
<th>Function</th>
<th>Subfunction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Events</td>
<td></td>
<td>Press the <strong>EVENTS</strong> pushbutton on the main menu to display a listing of all system events that are currently active. The most recent event is listed first. As events clear, they are removed from the Active System Events listing. To scroll through the events, press the up or down arrow pushbuttons on the menu bar.</td>
</tr>
<tr>
<td>History</td>
<td></td>
<td>Press the <strong>HISTORY</strong> pushbutton on the Active Events menu bar to display the History Log. The History Log lists up to 127 system events in chronological order, with the most recent event listed last (once 127 is reached, the earliest event is overwritten). The end of the log (the most recent events) is displayed first; scroll upward to view older event listings. To scroll through the events, press the up or down arrow pushbuttons on the menu bar. To return to the Active Events screen, press the <strong>EVENTS</strong> pushbutton on the menu bar.</td>
</tr>
<tr>
<td>Meters</td>
<td></td>
<td>The Meter screens show the PDU input and output meter readings. Press the <strong>METER</strong> pushbutton on the main menu bar to display the Meter screens. To switch between the Output and Input screens, press the <strong>INPUT</strong> or <strong>OUTPUT</strong> pushbutton on the menu bar. To scroll through the meter screens, press the up or down arrow pushbuttons on the menu bar. The current PDU readings are displayed in the information area of the screen.</td>
</tr>
<tr>
<td>Output RMS (phase-to-phase)</td>
<td></td>
<td>The screen shows the total output voltage, output current (each phase), and frequency being supplied by the PDU, as well as kVA, kW, neutral and ground currents, and power factor measurements.</td>
</tr>
<tr>
<td>Output RMS (phase-to-neutral)</td>
<td></td>
<td>The screen shows the total output voltage, output current (each phase), and frequency being supplied by the PDU, as well as kVA, kW, neutral and ground currents, and power factor measurements.</td>
</tr>
<tr>
<td>Output %</td>
<td></td>
<td>The screen shows the ratio of present output voltage compared to nominal output voltage rating of the PDU in %, as well as kVA and output current.</td>
</tr>
<tr>
<td>Output THD</td>
<td></td>
<td>The screen displays the ratio of the distortion present on the output in the form of harmonics and noise compared to fundamental pure sine wave (utility frequency), as well as output current. This value is displayed in tenth percent and does not require calibration.</td>
</tr>
<tr>
<td>Output Crest</td>
<td></td>
<td>The screen displays the ratio of peak to RMS output current in %.</td>
</tr>
<tr>
<td>Output kWh</td>
<td></td>
<td>The screen shows the total power being supplied by the PDU.</td>
</tr>
<tr>
<td>Input RMS (phase-to-phase)</td>
<td></td>
<td>The screen shows the total input voltage and frequency being supplied to the PDU. If optional input CTs are installed, input current (each phase), kVA, kW, and power factor measurements are displayed.</td>
</tr>
<tr>
<td>Input RMS (phase-to-neutral)</td>
<td></td>
<td>The screen shows the total input voltage and frequency being supplied to the PDU. If optional input CTs are installed, input current (each phase), kVA, kW, and power factor measurements are displayed.</td>
</tr>
<tr>
<td>Input %</td>
<td></td>
<td>The screen shows the ratio of present input voltage compared to nominal input voltage rating of the PDU in %. If optional input CTs are installed, input current (each phase) is displayed.</td>
</tr>
<tr>
<td>Input THD</td>
<td></td>
<td>The screen displays the ratio of the distortion present on the input in the form of harmonics and noise compared to fundamental pure sine wave (utility frequency). This value is displayed in tenth percent and does not require calibration. If optional input CTs are installed, input current (each phase) is displayed.</td>
</tr>
<tr>
<td>Input Crest</td>
<td></td>
<td>If optional input CTs are installed, the screen displays the ratio of peak to RMS input current in %.</td>
</tr>
<tr>
<td>Input kWh</td>
<td></td>
<td>If optional input CTs are installed, the screen shows the total power being supplied to the PDU.</td>
</tr>
<tr>
<td>BCM</td>
<td></td>
<td>If the optional Energy Management System branch circuit monitoring (BCM) is installed, press the <strong>PANEL</strong> pushbutton to display the BCM meter screens. Refer to the Eaton Energy Management System (EMS) Branch Circuit Management System (BCMS) Interface User’s Guide. If BCM is not installed, an option unavailable message will be displayed.</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>Use this selection to manually shunt trip input breakers. Press the <strong>CONTROL</strong> pushbutton on the main menu bar to display the Control screen. Press the <strong>ALLOFF</strong> pushbutton to display the Enter Password screen. Use the left or right arrow pushbuttons to select the password character position. Use the up or down arrow pushbuttons to change the password character. Once the password is entered, press the <strong>DONE</strong> pushbutton. Press the <strong>ALLOFF</strong> pushbutton and hold for three seconds to turn off the load. The default password is L1.</td>
</tr>
</tbody>
</table>
Table 6-3. Display Menu Operation (Continued)

<table>
<thead>
<tr>
<th>Function</th>
<th>Subfunction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile</td>
<td></td>
<td>Press the PROFILE pushbutton on the main menu bar to display the Load Profile screen. If the unit has been powered on for less than one minute, the Initializing Load Profile screen will be displayed counting down to zero. After completing initialization, the Load Profile screen will be displayed. During normal operation, the Load Profile screen will be displayed without delay. The screen shows the highest and lowest currents, frequencies, power level, and THD. Data is compared every 5 ms. Scroll the display to observe the statistics for the current month and past 23 months. Use the left or right arrow pushbuttons to select the month to view. To scroll through the profile screen, press the up or down arrow pushbuttons on the menu bar. The recorded PDU readings are displayed in the information area of the screen.</td>
</tr>
<tr>
<td>System Setup Level 0</td>
<td></td>
<td>This screen can be used to set the screen contrast, show the firmware versions installed, and enter a password to access Level 1 functions. No password is necessary to access Level 0 functions. Function Selection Press the SETUP pushbutton on the main menu bar to display the System Setup Level 0 Screen. Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the function screen. Function Selection Press the SETUP pushbutton on the main menu bar to display the System Setup Level 0 Screen. Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the function screen.</td>
</tr>
<tr>
<td>System Setup Level 1</td>
<td></td>
<td>The system setup Level 1 screen can be used to change the Level 1 password, set the PDU date and time, clear the History Log, clear the Profile Log, set up the modem, set up the building alarms, and log out of Level 1. In addition, all of the Level 0 functions are available. A password is required to access the Level 1 functions. Enter Password If not already in a system setup menu, press the SETUP pushbutton on the main menu bar to display the System Setup Level 0 Screen. Select ENTER PASSWORD from the System Setup Level 0 menu to display the Enter Password screen. Use the left or right arrow pushbuttons to select the password character position. Use the up or down arrow pushbuttons to change the password character. Once the password is entered, press the DONE pushbutton. The System Setup Level 1 menu screen is displayed. The default password is L1. Function Selection Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the function screen. The Level 1 screen times out after 60 minutes or can be logged out at any time by selecting the LOG OUT function from the menu screen. When logged out the screen returns to the Level 0 screen. Function Selection Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the function screen. The Level 1 screen times out after 60 minutes or can be logged out at any time by selecting the LOG OUT function from the menu screen. When logged out the screen returns to the Level 0 screen.</td>
</tr>
<tr>
<td>Change Access Level Password (change password)</td>
<td></td>
<td>The Change Access Level Password (change password) screen allows the system setup Level 1 password to be changed. Select CHANGE PASSWORD from the System Setup Level 1 menu to display the Change Access Level Password (change password) screen. Use the left or right arrow pushbuttons to select the password character position. Use the up or down arrow pushbuttons to change the password character. Once the new password is entered, press the DONE pushbutton. The Change Access Level Password (change password save) screen is displayed.</td>
</tr>
</tbody>
</table>

- The Change Access Level Password (change password save) screen lets the user save the new password, retry another password, or abort the password change. Press SAVE, RETRY, or ABORT.
  - If SAVE or ABORT is pressed, the action is completed, and the System Setup screen displays.
  - If RETRY is pressed, the Change Access Level Password (change password) screen is redisplayed.
Table 6-3. Display Menu Operation (Continued)

<table>
<thead>
<tr>
<th>Function</th>
<th>Subfunction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Setup Level 1</td>
<td>Set Date and Time MM/DD/YYYY</td>
<td>The Set Date and Time MM/DD/YYYY screen allows the internal date and time of the PDU to be set in the month/day/year format. The date and time information is used for display on the screen and for logging events in the Event and History Logs. Use the left or right arrow pushbuttons to highlight the setting to be changed. Use the up or down arrow pushbuttons to make the change. When finished making changes, use the left or right arrow pushbuttons to highlight SAVE and the up or down arrow pushbuttons to select YES. To complete the save function and return to the System Setup screen, select the return arrow pushbutton.</td>
</tr>
<tr>
<td>Clear History</td>
<td></td>
<td>The Clear History screen allows the History Log to be cleared. Select CLEAR HISTORY from the System Setup Level 1 menu to display the Clear History screen. Use the CLEAR pushbutton to clear the log. To return to the System Setup screen without clearing the log, press the CANCEL pushbutton.</td>
</tr>
<tr>
<td>Clear Load Profile</td>
<td></td>
<td>The Clear Load Profile screen allows the Profile Log to be cleared. Select CLEAR LOAD PROFILE from the System Setup Level 1 menu to display the Clear Load Profile screen. Use the CLEAR pushbutton to clear the log. To return to the System Setup screen without clearing the log, press the CANCEL pushbutton.</td>
</tr>
<tr>
<td>Building Alarm Setup</td>
<td></td>
<td>The Building Alarm Setup screen is used to change the building alarm names and the action that occurs when a building alarm is received. Select BUILDING ALARM SETUP from the System Setup Level 1 menu to display the Building Alarm Setup screen. Use the up or down arrow pushbuttons to highlight the building alarm to set up, then press the SELECT pushbutton to display the Setup screen.</td>
</tr>
<tr>
<td>Building Alarm Setup</td>
<td>Setup</td>
<td>The Setup screen Name String selection allows the building alarm name to be changed. The Setup screen Settings selection sets the action that occurs when a building alarm is received. the load can be turned off or remain on. Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the screen.</td>
</tr>
<tr>
<td>Building Alarm Name</td>
<td></td>
<td>The Building Alarm Name screen allows the building alarm name to be changed. Select NAME STRING from building alarm Setup screen to display the Building Alarm Name screen. Use the left or right arrow pushbuttons to select the name character position. Use the up or down arrow pushbuttons to change the name character. Once the new name is entered, press the DONE pushbutton. The Building Alarm Name (save) screen is displayed.</td>
</tr>
<tr>
<td>Building Alarm Name (save)</td>
<td></td>
<td>The Building Alarm Name Save screen lets the user save the new building alarm name, retry another name, or abort the name change. Press SAVE, RETRY, or ABORT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If SAVE or ABORT is pressed, the action is completed, and the System Setup screen displays.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If RETRY is pressed, the Building Alarm Name screen is redisplayed.</td>
</tr>
<tr>
<td>THD Alarm Level</td>
<td></td>
<td>Use this screen to set the voltage and current Total Harmonic Distortion, and enable or disable this feature. Select THD SETTING to configure the THD alarm level. The default selection is 5.0. Select ENABLED/DISABLED to enable or disable alarms for THD. The alarm feature is disabled by default.</td>
</tr>
</tbody>
</table>
System Setup Level 2

The System Setup Level 2 screen can be used to change the Level 2 password, set the PDU unit type, the PDU unit name, and log out of Level 2. In addition, all of the Level 0 and Level 1 functions are available. A password is required to access the Level 2 functions.

Enter Password

If not already in a system setup menu (Level 0 or 1), press the SETUP pushbutton on the main menu bar to display the System Setup Level 0 Screen. Select ENTER PASSWORD from the System Setup Level 0 or 1 menu to display the Enter Password screen. Use the left or right arrow pushbuttons to select the password character position. Use the up or down arrow pushbuttons to change the password character. Once the password is entered, press the DONE pushbutton. The System Setup Level 2 menu screen is displayed. The default password is SUP.

Function Selection

Use the up or down arrow pushbuttons to highlight the setup function screen desired, then press the SELECT pushbutton to display the function screen. The Level 2 screen times out after 60 minutes or can be logged out at any time by selecting the LOG OUT function from the menu screen. When logged out the screen returns to the Level 0 screen.

Change Access Level Password (change password)

The Change Access Level Password (change password) screen allows the System Setup Level 2 password to be changed. Select CHANGE PASSWORD from the System Setup Level 2 menu to display the Change Access Level Password (change password) screen. Use the left or right arrow pushbuttons to select the password character position. Use the up or down arrow pushbuttons to change the password character. Once the new password is entered, press the DONE pushbutton. The Change Access Level Password (change password save) screen is displayed.

Change Access Level Password (change password save)

The Change Access Level Password (change password save) screen lets the user save the new password, retry another password, or abort the password change. Press SAVE, RETRY, or ABORT.

- If SAVE or ABORT is pressed, the action is completed, and the System Setup screen displays.
- If RETRY is pressed, the Change Access Level Password (change password) screen is redisplayed.

Reset All Lower Level Passwords

This selection resets the Level 1 password to the default setting. Press RESET or CANCEL.

- If RESET is pressed, the action is completed, and the System Setup screen displays.
- If CANCEL is pressed, the System Setup screen is redisplayed.

Unit Type

The Unit Type screen provides the model, CTO, and serial number of the PDU. Select UNIT TYPE from the System Setup Level 2 menu to display the Unit Type screen. To return to the System Setup screen, press the return arrow pushbutton.

Unit Name

The Unit Name screen allows the unit name to be changed. Select UNIT NAME from the System Setup Level 2 menu to display the Unit Name screen. Use the left or right arrow pushbuttons to select the name character position. Use the up or down arrow pushbuttons to change the name character. Once the new name is entered, press the DONE pushbutton. The Unit Name (save) screen is displayed.

Unit Name (save)

The Unit Name (save) screen lets the user save the new name, retry another name, or abort the name change. Press SAVE, RETRY, or ABORT.

- If SAVE or ABORT is pressed, the action is completed, and the System Setup screen displays.
- If RETRY is pressed, the Unit Name screen is redisplayed.
6.3 Surge Protective Device Status Indicators (Non-EMS Monitored SPD)

The optional Surge Protective Device (SPD) is equipped with eight indicators to provide the working status of the SPD (see Figure 6-15). For the location of the SPD, see Figure A-36. For specification details, see paragraph 9.5.

Figure 6-15. Status Indicator Display for Non-EMS monitored SPD

6.4 Single Input PDU Operating Instructions

6.4.1 Starting the Single Input PDU

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

2. Verify that the PDU circuit breakers and switches are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Distribution Panel Input Breakers or Subfeed Breakers (if installed)</td>
<td>OPEN</td>
</tr>
<tr>
<td>Distribution Panel Branch Breakers (if installed)</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

**NOTE** If the PDU is supplied by a UPS, it is recommended that the UPS be placed in bypass mode before starting the PDU because of the possibility of high inrush current creating a UPS overload condition.

3. Apply AC source power to the PDU Main Input Breaker CB1.

4. Verify that the PDU control panel display becomes active after approximately 30 seconds, indicating logic power.

5. Verify that the **OFF** and **ALARM** status indicators on the PDU control panel are illuminated and the horn is sounding.

6. Press any key to silence the audible alarm.

7. Set the date and time.

8. Verify the input frequency and input voltage displayed are within the expected range and no alarm is associated with the input.

9. Verify that the PDU control panel output current meters read zero (lines 1, 2, and 3 only). If the meters do not read zero, wait until the meters zero out before continuing to Step 10.

10. Close PDU main input breaker CB1.
11. Verify that the **OFF** and **ALARM** status indicators on the PDU control panel are extinguished.
12. Verify that the **ON** status indicator on the PDU control panel is illuminated.
13. Close the PDU distribution panel input breakers (if installed) or the subfeed breakers (if installed).
14. Close the distribution panel branch breakers (if installed).
15. Close the outside doors and secure the latch.

### 6.4.2 Restarting the Single Input PDU

To restart the PDU after an unscheduled shutdown (main input breaker shunt trip or REPO) or if manual restart is enabled (main input breaker will trip when input power to the PDU is lost):

---

**CAUTION**

Do not attempt to restart the PDU until the cause of the shutdown has been identified and cleared.

---

1. If shutdown occurred because of a REPO trip, follow the REPO resetting procedure in paragraph 6.7.
2. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
3. Reset the main input breaker CB1 to the OFF position.
4. Close the PDU main input breaker CB1.
5. Verify that the **OFF** and **ALARM** status indicators on the PDU control panel are extinguished.
6. Verify that the **ON** status indicator on the PDU control panel is illuminated.
7. Close the outside doors and secure the latch.

### 6.4.3 Single Input Shutdown

To shut down the PDU:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
2. Shut down the load equipment according to the manufacturer’s recommended shutdown sequence.
   Load equipment may be turned off at the equipment or at the circuit breakers on the PDU.
3. Turn off all the panelboard main input circuit breakers or subfeed breakers.
4. Open main input breaker CB1 or use the control panel.
5. To remove power from the PDU completely, turn off utility power to the PDU.
6. Close the outside doors and secure the latch.

---

**NOTE**

If the PDU is supplied by a UPS, it is recommended that the UPS be placed in bypass mode before starting the PDU because of the possibility of high inrush current creating an UPS overload condition.
6.5 Basic (Single Key) Dual Input PDU Operating Instructions

6.5.1 Starting the Basic Dual Input PDU

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

2. Verify that the PDU circuit breakers and switches are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
</tr>
<tr>
<td>PDU Distribution Panel Input Breakers or Subfeed Breakers (if installed)</td>
</tr>
<tr>
<td>Distribution Panel Branch Breakers (if installed)</td>
</tr>
</tbody>
</table>

| **NOTE** | To start the PDU using CB2, transfer CB1 to CB2 using procedure in paragraph 6.5.4. |

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
</tr>
</tbody>
</table>

| **NOTE** | If the PDU is supplied by a UPS, it is recommended that the UPS be placed in bypass mode before starting the PDU because of the possibility of high inrush current creating a UPS overload condition. |

4. Apply AC source power to the PDU Main Input Breaker CB1 or CB2.

5. Verify that the PDU control panel display becomes active after approximately 30 seconds, indicating logic power.

6. Verify that the OFF and ALARM status indicators on the PDU control panel are illuminated and the horn is sounding.

7. Press any key to silence the audible alarm.

8. Set the date and time.

9. Verify the input frequency and input voltage displayed are within the expected range and no alarm is associated with the input.

10. Verify that the PDU control panel output current meters read zero (lines 1, 2, and 3 only). If the meters do not read zero, wait until the meters zero out before continuing to Step 11.

11. Close the PDU main input breaker CB1 or CB2 and turn key “A” to extend bolt and lock CB1 or CB2 in the closed position.

12. Remove key “A” from the interlock on CB1 or CB2 and insert the key into the key “A” interlock on CB1 or CB2. Turn key “A” to retract bolt. Key “A” is held captive.

13. Verify that the OFF and ALARM status indicators on the PDU control panel are extinguished.

14. Verify that the ON status indicator on the PDU control panel is illuminated.

15. Close the PDU distribution panel input breakers (if installed) or the subfeed breakers (if installed).

16. Close the distribution panel branch breakers (if installed).

17. Close the outside doors and secure the latch.
6.5.2 Restarting the Basic Dual Input PDU

To restart the PDU after an unscheduled shutdown (main input breaker shunt trip or REPO) or if manual restart is enabled (main input breaker will trip when input power to the PDU is lost):

**CAUTION**

Do not attempt to restart the PDU until the cause of the shutdown has been identified and cleared.

1. If shutdown occurred because of a REPO trip, follow the REPO resetting procedure in paragraph 6.7.
2. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
3. Reset the main input breaker CB1 (or CB2 if the PDU was powered through CB2 prior to the unscheduled shutdown), to the OFF position.

**NOTE**

If the PDU is supplied by a UPS, it is recommended that the UPS be placed in bypass mode before starting the PDU because of the possibility of high inrush current creating a UPS overload condition.

4. Close the PDU main input breaker CB1 (or CB2 if the PDU was powered through CB2 prior to the unscheduled shutdown).
5. Verify that the OFF and ALARM status indicators on the PDU control panel are extinguished.
6. Verify that the ON status indicator on the PDU control panel is illuminated.
7. Close the outside doors and secure the latch.

6.5.3 Basic Dual Input Shutdown

To shut down the PDU:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
2. Shut down the load equipment according to the manufacturer’s recommended shutdown sequence.
   Load equipment may be turned off at the equipment or at the circuit breakers on the PDU.
3. Turn off all the panelboard main input circuit breakers or subfeed breakers.
4. Open the upstream feeder breaker for main input breaker CB1 (or CB2 if the PDU was powered through CB2).
5. If not already accomplished, turn off utility power to the PDU to remove power from the PDU completely.
6. Close the outside doors and secure the latch.
6.5.4 Basic Dual Input PDU CB1 to CB2 Transition

**CAUTION**
Do not attempt the transition sequence if the two power sources are not synchronized.

To switch the current path of the PDU from CB1 to CB2:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
2. Verify that the PDU main input breakers are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>PDU Main Input Breaker CB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOSED</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>PDU Main Input Breaker CB2</th>
</tr>
</thead>
</table>

4. Ensure that the two power sources are synchronized.

**CAUTION**
Do not continue the transition sequence if the two power sources are not synchronized.

5. Close main input breaker CB2 and turn key “A” to extend bolt and lock CB2 in the closed position.
6. Remove key “A” from the interlock on CB2 and insert the key into the key “A” interlock on CB1. Turn key “A” to retract bolt. Key “A” is held captive.
7. Open the main input breaker CB1.
8. Close the outside doors and secure the latch.

6.5.5 Basic Dual Input PDU CB2 to CB1 Transition

**CAUTION**
Do not attempt the transition sequence if the two power sources are not synchronized.

To switch the current path of the PDU from CB2 to CB1:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
2. Verify that the PDU main input breakers are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>PDU Main Input Breaker CB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>CLOSED</td>
</tr>
</tbody>
</table>

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>PDU Main Input Breaker CB2</th>
</tr>
</thead>
</table>
4. Ensure that the two power sources are synchronized.

**CAUTION**

Do not continue the transition sequence if the two power sources are not synchronized.

5. Close main input breaker CB1 and turn key “A” to extend bolt and lock CB1 in the closed position.
6. Remove key “A” from the interlock on CB1 and insert the key into the key “A” interlock on CB2. Turn key “A” to retract bolt. Key “A” is held captive.
7. Open the main input breaker CB2.
8. Close the outside doors and secure the latch.

### 6.6 Premier Dual Input PDU Operating Instructions

#### 6.6.1 Starting the Premier Dual Input PDU

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.
2. Verify that the PDU circuit breakers and switches are set as follows:

<table>
<thead>
<tr>
<th>Breaker/Panel/Unit</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB1</td>
<td>OPEN</td>
</tr>
<tr>
<td>PDU Main Input Breaker CB2</td>
<td>OPEN</td>
</tr>
<tr>
<td>PDU Distribution Panel Input Breakers</td>
<td>OPEN</td>
</tr>
<tr>
<td>Subfeed Breakers (if installed)</td>
<td></td>
</tr>
<tr>
<td>Distribution Panel Branch Breakers (if installed)</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

**NOTE** To start the PDU using CB2, transfer CB1 to CB2 using the procedure in paragraph 6.6.4.

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>Interlock on Main Input Breaker CB1</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt in retracted position. Only key “A” held captive.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interlock on Main Input Breaker CB2</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt in extended position. Only key “B” held captive.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solenoid Key Release Unit (SKRU)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKRU indicator off. Key “A” held captive.</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** If the PDU is supplied by a UPS, it is recommended that the UPS be placed in bypass mode before starting the PDU because of the possibility of high inrush current creating a UPS overload condition.

4. Apply AC source power to the PDU Main Input Breaker CB1 or CB2.
5. Verify that the PDU control panel display becomes active after approximately 30 seconds, indicating logic power.
6. Verify that the **OFF** and **ALARM** status indicators on the PDU control panel are illuminated and the horn is sounding.
7. Press any key to silence the audible alarm.
8. Set the date and time.
9. Verify the input frequency and input voltage displayed are within the expected range and no alarm is associated with the input.
10. Verify that the PDU control panel output current meters read zero (lines 1, 2, and 3 only). If the meters do not read zero, wait until the meters zero out before continuing to Step 10.

11. Close the PDU main input breaker CB1 or CB2.

12. Verify that the OFF and ALARM status indicators on the PDU control panel are extinguished.

13. Verify that the ON status indicator on the PDU control panel is illuminated.

14. Close the PDU distribution panel input breakers (if installed) or the subfeed breakers (if installed).

15. Close the distribution panel branch breakers (if installed).

16. Close the outside doors and secure the latch.

6.6.2 Restarting the Premier Dual Input PDU

To restart the PDU after an unscheduled shutdown (main input breaker shunt trip, EPO, or REPO) or if manual restart is enabled (main input breaker will trip when input power to the PDU is lost):

**CAUTION**

Do not attempt to restart the PDU until the cause of the shutdown has been identified and cleared.

1. If shutdown occurred because of a REPO trip, follow the REPO resetting procedure in paragraph 6.7.

2. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

3. Reset the main input breaker CB1 (or CB2 if the PDU was powered through CB2 prior to the unscheduled shutdown), to the OFF position.

4. Close the PDU main input breaker CB1 (or CB2 if the PDU was powered through CB2 prior to the unscheduled shutdown).

5. Verify that the OFF and ALARM status indicators on the PDU control panel are extinguished.

6. Verify that the ON status indicator on the PDU control panel is illuminated.

7. Close the outside doors and secure the latch.

6.6.3 Premier Dual Input Shutdown

To shut down the PDU:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

2. Shut down the load equipment according to the manufacturer’s recommended shutdown sequence. Load equipment may be turned off at the equipment or at the circuit breakers on the PDU.

3. Turn off all the panelboard main input circuit breakers or subfeed breakers.

4. Open main input breaker CB1 (or CB2 if the PDU was powered through CB2), or use the control panel.

5. To remove power from the PDU completely, turn off utility power to the PDU.

6. Close the outside doors and secure the latch.
6.6.4 Premier Dual Input PDU CB1 to CB2 Transition

--- CAUTION ---
Do not attempt the transition sequence if the two power sources are not synchronized.

To switch the current path of the PDU from CB1 to CB2:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

2. Verify that the PDU main input breakers are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>Bolt in retracted position. Only key “A” held captive.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
<td>Bolt in extended position. Only key “B” held captive.</td>
</tr>
<tr>
<td>Solenoid Key Release Unit (SKRU)</td>
<td>SKRU indicator off. Key “A” held captive.</td>
</tr>
</tbody>
</table>

4. Apply AC source power to PDU main input breaker CB2.

5. Verify SKRU indicator is on.

6. On SKRU, depress key release pushbutton and turn key “A”. Remove key from SKRU and release pushbutton.

7. Insert key “A” into the key “A” interlock on CB2. Turn key to retract bolt and unlock breaker. Key “A” is held captive and key “B” is removable.

--- CAUTION ---
Do not continue the transition sequence if the SKRU indicator does not stay on. The SKRU indicator stays on if both power sources are synchronized and ready to be tied together.

8. Ensure that the two power sources are synchronized.

9. Close main input breaker CB2.

10. Open main input breaker CB1.

11. Remove key “B” from the interlock on CB2 and insert the key into the key “B” interlock on CB1. Turn key “B” to extend bolt and lock breaker open. Key “B” is held captive and key “A” is removable.

12. Remove key “A” from the interlock on CB1 and insert the key into the SKRU key “A” lock. Turn key “A” to lock. Key “A” is held captive.

13. Close the outside doors and secure the latch.
6.6.5 Premier Dual Input PDU CB2 to CB1 Transition

**CAUTION**

Do not attempt the transition sequence if the two power sources are not synchronized.

To switch the current path of the PDU from CB2 to CB1:

1. Open the front doors by pressing the key insert to release the handle, turn the handle in either direction to unfasten the door latch and swing the doors open.

2. Verify that the PDU main input breakers are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>OPEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
<td>CLOSED</td>
</tr>
</tbody>
</table>

3. Verify that the interlocks are set as follows:

<table>
<thead>
<tr>
<th>PDU Main Input Breaker CB1</th>
<th>Bolt in extended position. Only key “B” held captive.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU Main Input Breaker CB2</td>
<td>Bolt in retracted position. Only key “A” held captive.</td>
</tr>
<tr>
<td>Solenoid Key Release Unit (SKRU)</td>
<td>SKRU indicator off. Key “A” held captive.</td>
</tr>
</tbody>
</table>

4. Apply AC source power to PDU main input breaker CB1.

5. Verify SKRU indicator is on.

6. On SKRU, depress key release pushbutton and turn key “A”. Remove key from SKRU and release pushbutton.

7. Insert key “A” into the key “A” interlock on CB1. Turn key to retract bolt and unlock breaker. Key “A” is held captive and key “B” is removable.

**CAUTION**

Do not continue the transition sequence if the SKRU indicator does not stay on. The SKRU indicator stays on if both power sources are synchronized and ready to be tied together.

8. Ensure that the two power sources are synchronized.


10. Open main input breaker CB2.

11. Remove key “B” from the interlock on CB1 and insert the key into the key “B” interlock on CB2. Turn key “B” to extend bolt and lock breaker open. Key “B” is held captive and key “A” is removable.

12. Remove key “A” from the interlock on CB2 and insert the key into the SKRU key “A” lock. Turn key “A” to lock. Key “A” is held captive.

13. Close the outside doors and secure the latch.
6.7 Using the Remote Emergency Power-off Switch

A PDU Emergency Power-off can be initiated by the REPO pushbutton switch. In an emergency, you can use this switch to control the PDU output. The REPO switch de-energizes the critical load without asking for verification.

The PDU remains off until restarted.

⚠️ CAUTION

All power to the critical load is lost when the REPO switch is activated in the following step. Use this feature only when you want to de-energize the critical load.

NOTE

The following instructions are for the Eaton-supplied REPO switch. A customer-supplied REPO switch may not activate in the same manner; refer to the operating instructions provided with the switch.

To activate the REPO pushbutton switch:

14. Firmly push the red pushbutton until it locks into place. The switch latches into the activated state (see Figure 6-16).

The PDU main input breaker trips, and the PDU turns off immediately, without asking for verification. If a UPStream feeder breaker is connected to the REPO, the feeder breaker also trips.

⚠️ WARNING

Power is present inside the PDU cabinet until the upstream input feeder circuit breaker is opened.

⚠️ CAUTION

Do not attempt to restart the system after using the REPO until the cause of the shutdown has been identified and cleared.

15. To restart the PDU after activating the REPO, deactivate the REPO switch by inserting the supplied key and rotating clockwise until the red pushbutton releases (see Figure 6-16). To remove the key, rotate the key back to the vertical position and follow the procedure in paragraph 6.4.2, 6.5.2, or 6.6.2.

Figure 6-16. REPO Operation
This page intentionally left blank.
Chapter 7  Communication

This chapter describes the communication features of the Eaton 300 kVA PDU and provides information about connecting hardware and using Terminal mode.

7.1  X-Slot Cards

The PDU has two factory-installed X-Slot communication bays. See Figure 6-2 for bay locations. The PDU is compatible with the following X-Slot cards (see Figure 7-1):

- Modbus Card – provides direct integration of the Eaton 300 kVA PDU’s parameters (meters and status) to a Building Management System (BMS) using the Modbus RTU protocol.

- Eaton Power Xpert Gateway Card – Provides remote monitoring through a Web browser interface, e-mail, and a network management system using SNMP; connects to a twisted-pair Ethernet (10/100BaseT) network. Modbus Card TCP support provides direct integration of the Power Xpert Gateway Card’s parameters to a Building Management System (BMS). It has a built-in switching hub that allows one additional network device to be connected to the network without the requirement of an additional network drop.

- Eaton Power Xpert Gateway PXGX PDP Card– provides Web-enabled, real-time monitoring of Eaton power distribution products (PDPs) through standard Web pages, Power Xpert Software, or third-party software. An integral part of the Eaton Power Xpert Architecture, which provides end-to-end PowerChain Management solutions, the PXGX PDP Card provides a central point to connect PDPs to the Ethernet network. Modbus TCP support provides direct integration of the PDU’s parameters to a Building Management System (BMS). It has a built-in switching hub that allows one additional network device to be connected to the network without the requirement of an additional network drop.

LAN drops for use with X-Slot connectivity cards must be provided by facility planners or the customer.

For installation and setup of all other X-Slot cards, please contact an Eaton service representative (see “Getting Help” on page 12). Refer to the manual supplied with the X-Slot card for user instructions.

NOTE  Either the Power Xpert® Gateway Card or the Power Xpert Gateway PXGX PDP Card can be used.

- Eaton Power Xpert Gateway Card – Provides remote monitoring through a Web browser interface, e-mail, and a network management system using SNMP; connects to a twisted-pair Ethernet (10/100BaseT) network. Modbus Card TCP support provides direct integration of the Power Xpert Gateway Card’s parameters to a Building Management System (BMS). It has a built-in switching hub that allows one additional network device to be connected to the network without the requirement of an additional network drop.

- Eaton Power Xpert Gateway PXGX PDP Card– provides Web-enabled, real-time monitoring of Eaton power distribution products (PDPs) through standard Web pages, Power Xpert Software, or third-party software. An integral part of the Eaton Power Xpert Architecture, which provides end-to-end PowerChain Management solutions, the PXGX PDP Card provides a central point to connect PDPs to the Ethernet network. Modbus TCP support provides direct integration of the PDU’s parameters to a Building Management System (BMS). It has a built-in switching hub that allows one additional network device to be connected to the network without the requirement of an additional network drop.

LAN drops for use with X-Slot connectivity cards must be provided by facility planners or the customer.

For installation and setup of all other X-Slot cards, please contact an Eaton service representative (see “Getting Help” on page 12). Refer to the manual supplied with the X-Slot card for user instructions.

![Figure 7-1. Optional X-Slot Cards](image-url)
7.2 Terminal Mode

NOTE  The brackets ([ ] ) in the following bullets indicate standard keyboard characters. To use a key combination, hold down the Escape key and press the indicated letter key.

Terminal mode requires a computer with a serial (RS-232) port connected to the RS-232 port on the PDU. The computer can use HyperTerminal® set to emulate ANSI.

In Terminal mode, the following can be requested:

- \[ESC\] [V] displays the screens as shown on the PDU LCD.
- \[ESC\] [P] displays the Profile Log.
- \[ESC\] [H] displays the History Log.
- \[ESC\] [A] displays any new event.

7.2.1 PDU LCD Screens

To display the PDU LCD screens on a local computer, press \[ESC\] [V]. In this mode, keyboard keys 1, 2, 3, 4, and 5 are substituted for the five pushbuttons on the PDU LCD screen. The various screens are invoked using the same procedure described in Chapter 6, “PDU Operating Instructions.”

7.2.2 Profile Log

If a computer operating in terminal mode is connected to the RS-232 port on the PDU, press \[Esc\] [P] to print the entire Profile Log. The printout begins with the oldest monthly entries in the queue and ends with the most recent. Statistics for the current month and past 23 months are displayed.
7.2.3 Event History Log

If a computer operating in terminal mode is connected to the RS-232 port on the PDU, press [Esc] [H] to print the entire History Log with a firmware version header. The printout begins with the oldest alarm entry in the queue and ends with the most recent. Any alarms that occur while the History Log is printing are included in chronological order.

The History Log lists up to 127 system events in chronological order with the most recent event listed last. Figure 7-2 shows a sample History Log printout.

In this mode, system events are continually logged through the serial port to the device connected to the port.

The printed log entries contain a time and date stamp and the alarm text message. Terminal mode uses the following format for printing alarm entries:

```
MM DD YYYY   HH:MM:SS.hhh   KYWD   MESSAGE   <CR> <LF>
```

<table>
<thead>
<tr>
<th>Where</th>
<th>Equals</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM</td>
<td>Month (2 digits)</td>
</tr>
<tr>
<td>DD</td>
<td>Day (2 digits)</td>
</tr>
<tr>
<td>YYYY</td>
<td>Year (4 digits)</td>
</tr>
<tr>
<td>HH</td>
<td>Hour (2 digits)</td>
</tr>
<tr>
<td>MM</td>
<td>Minute (2 digits)</td>
</tr>
<tr>
<td>SS</td>
<td>Second (2 digits)</td>
</tr>
<tr>
<td>hhh</td>
<td>Hundredths of Second (3 digits)</td>
</tr>
<tr>
<td>KYWD</td>
<td>Keyword (ALARM, NOTICE, COMMAND, or STATUS)</td>
</tr>
<tr>
<td>Message</td>
<td>System Diagnostic Information</td>
</tr>
<tr>
<td>&lt;CR&gt;</td>
<td>Carriage Return Character (ASCII 13)</td>
</tr>
<tr>
<td>&lt;LF&gt;</td>
<td>Line Feed (ASCII 10)</td>
</tr>
</tbody>
</table>

An alarm that clears is prefixed by the word –CLEAR– in the history Log.
Figure 7-2. Sample History Log

04/14/2006 04:31:17.310 ALARM: Output Phase Loss 1
04/14/2006 04:31:17.310 ALARM: Output Phase Loss 2
04/14/2006 04:31:17.310 ALARM: Output Phase Loss 3
04/14/2006 04:32:16.595 STATUS: Control Power Status On
04/14/2006 04:32:16.635 NOTICE: Output AC Under Voltage
04/14/2006 04:32:16.635 NOTICE: Input AC Under Voltage
04/14/2006 04:32:16.905 STATUS: Input Switchgear Open
04/14/2006 04:32:17.710 ALARM: Input Phase Loss 1
04/14/2006 04:32:17.710 ALARM: Input Phase Loss 2
04/14/2006 04:32:17.710 ALARM: Input Phase Loss 3
04/14/2006 04:33:16.995 STATUS: Control Power Status On
04/14/2006 04:33:17.035 NOTICE: Output AC Under Voltage
04/16/2006 08:05:36.015 ALARM: Building Alarm 2
04/16/2006 08:05:36.335 ALARM: Building Alarm 2 Ok
04/16/2006 08:05:36.035 ALARM: Remote Emergency Power Off
04/16/2006 08:04:32.475 NOTICE: Output Under Or Over Frequency
04/16/2006 22:34:00.530 NOTICE: Output AC Under Voltage
04/16/2006 22:34:00.530 NOTICE: Input AC Under Voltage
04/16/2006 22:34:00.570 ALARM: Output Phase Loss
04/16/2006 22:34:00.790 STATUS: Input Switchgear Open
04/16/2006 22:34:01.620 ALARM: Input Phase Loss 1
04/16/2006 22:34:01.620 ALARM: Input Phase Loss 2
04/16/2006 22:34:01.620 ALARM: Input Phase Loss 3
04/16/2006 22:34:01.620 ALARM: Output Phase Loss 1
04/16/2006 22:34:01.620 ALARM: Output Phase Loss 2
04/16/2006 22:34:01.620 ALARM: Output Phase Loss 3
04/16/2006 22:35:00.875 STATUS: Control Power Status On
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 1
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 2
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 3
04/17/2006 13:35:00.095 STATUS: Control Power Status On
04/17/2006 13:35:00.125 ALARM: Output Phase Loss
04/17/2006 13:35:00.135 NOTICE: Output AC Under Voltage
04/17/2006 13:35:00.135 NOTICE: Input AC Under Voltage
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 1
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 2
04/17/2006 13:35:01.225 ALARM: Input Phase Loss 3
04/17/2006 13:35:01.225 ALARM: Output Phase Loss 1
04/17/2006 13:35:01.225 ALARM: Output Phase Loss 2
04/17/2006 13:35:01.225 ALARM: Output Phase Loss 3
04/18/2006 08:05:36.015 ALARM: Building Alarm 1
04/18/2006 08:05:36.335 ALARM: Building Alarm 1 Ok
04/18/2006 08:04:32.475 NOTICE: Output Under Or Over Frequency
04/18/2006 08:04:29.690 ALARM: Remote Emergency Power Off
04/18/2006 07:36:01.225 ALARM: Input Phase Loss 1
04/18/2006 07:36:01.225 ALARM: Input Phase Loss 2
04/18/2006 07:36:01.225 ALARM: Input Phase Loss 3
04/18/2006 08:05:32.565 STATUS: Control Power Status On
### 7.3 Modbus Register Mapping

#### 7.3.1 Read Input Status

Modbus Function Code 02  
Input registers start at 10000.

<table>
<thead>
<tr>
<th>Register</th>
<th>Name</th>
<th>Value</th>
<th>Format</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>System normal</td>
<td>1</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>16</td>
<td>PDU Off</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
</tbody>
</table>

Registers 1–16 are mutually exclusive.

<table>
<thead>
<tr>
<th>Register</th>
<th>Name</th>
<th>Value</th>
<th>Format</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>Input AC over voltage</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>151</td>
<td>Input AC under voltage</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>152</td>
<td>Input under or over frequency</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>153</td>
<td>Output AC over voltage</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>154</td>
<td>Output AC under voltage</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>155</td>
<td>Output under or over frequency</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>156</td>
<td>Remote emergency power-off</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>162</td>
<td>Building Alarm 2</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>163</td>
<td>Building Alarm 1</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>169</td>
<td>Output overload</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>241</td>
<td>Emergency shutdown command</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>303</td>
<td>Greater than 106% overload on phase A</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>304</td>
<td>Greater than 106% overload on phase B</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>305</td>
<td>Greater than 106% overload on phase C</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>306</td>
<td>Greater than 125% overload on phase A</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>307</td>
<td>Greater than 125% overload on phase B</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>308</td>
<td>Greater than 125% overload on phase C</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>309</td>
<td>Greater than 150% overload on phase A</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>310</td>
<td>Greater than 150% overload on phase B</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>311</td>
<td>Greater than 150% overload on phase C</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>338</td>
<td>Site wiring fault</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>345</td>
<td>Transformer Over temperature</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
<tr>
<td>361</td>
<td>Input breaker failed</td>
<td>0</td>
<td>BOOL</td>
<td>Status</td>
</tr>
</tbody>
</table>
## 7.3.2 Read Input Registers

Modbus Function Code 04  
Input registers start at 30000.

<table>
<thead>
<tr>
<th>Register</th>
<th>Meter Name</th>
<th>Value</th>
<th>Scale</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>INPUT VOLTS AB</td>
<td>4875</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>5</td>
<td>INPUT VOLTS BC</td>
<td>4915</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>6</td>
<td>INPUT VOLTS CA</td>
<td>4895</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>19</td>
<td>INPUT CURRENT PHASE A</td>
<td>0</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>20</td>
<td>INPUT CURRENT PHASE B</td>
<td>0</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>21</td>
<td>INPUT CURRENT PHASE C</td>
<td>0</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>22</td>
<td>OUTPUT TRUE POWER</td>
<td>51</td>
<td>/10</td>
<td>kW</td>
</tr>
<tr>
<td>23</td>
<td>INPUT TRUE POWER</td>
<td>0</td>
<td>/10</td>
<td>kW</td>
</tr>
<tr>
<td>24</td>
<td>OUTPUT APPARENT POWER</td>
<td>51</td>
<td>/10</td>
<td>kVA</td>
</tr>
<tr>
<td>25</td>
<td>INPUT APPARENT POWER</td>
<td>0</td>
<td>/10</td>
<td>kVA</td>
</tr>
<tr>
<td>26</td>
<td>OUTPUT POWER FACTOR</td>
<td>100</td>
<td>/100</td>
<td>--</td>
</tr>
<tr>
<td>27</td>
<td>INPUT POWER FACTOR</td>
<td>0</td>
<td>/100</td>
<td>--</td>
</tr>
<tr>
<td>28</td>
<td>OUTPUT FREQUENCY</td>
<td>600</td>
<td>/10</td>
<td>Hz</td>
</tr>
<tr>
<td>29</td>
<td>INPUT FREQUENCY</td>
<td>600</td>
<td>/10</td>
<td>Hz</td>
</tr>
<tr>
<td>57</td>
<td>INPUT VOLTS PHASE A</td>
<td>2828</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>58</td>
<td>INPUT VOLTS PHASE B</td>
<td>2835</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>59</td>
<td>INPUT VOLTS PHASE C</td>
<td>2840</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>66</td>
<td>LOAD CURRENT PHASE A</td>
<td>138</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>67</td>
<td>LOAD CURRENT PHASE B</td>
<td>138</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>68</td>
<td>LOAD CURRENT PHASE C</td>
<td>140</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>69</td>
<td>LOAD CURRENT PHASE A BAR CHART</td>
<td>2266</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>70</td>
<td>LOAD CURRENT PHASE B BAR CHART</td>
<td>2266</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>71</td>
<td>LOAD CURRENT PHASE C BAR CHART</td>
<td>2266</td>
<td>/10</td>
<td>Amps</td>
</tr>
<tr>
<td>79</td>
<td>OUTPUT VOLTS A</td>
<td>1230</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>80</td>
<td>OUTPUT VOLTS B</td>
<td>1223</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>81</td>
<td>OUTPUT VOLTS C</td>
<td>1227</td>
<td>/10</td>
<td>Volts</td>
</tr>
<tr>
<td>82</td>
<td>NEUTRAL CURRENT</td>
<td>10</td>
<td>/10</td>
<td>Amps</td>
</tr>
</tbody>
</table>
Chapter 8  PDU Maintenance

The components inside the Power Distribution Unit (PDU) 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.

8.1  Important Safety Instructions

The PDU interior is unsafe until AC source power is removed.

**WARNING**

- 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 the PDU.

8.2  Performing Preventive Maintenance

The PDU requires very little preventive maintenance. However, the system should be inspected periodically to verify that the unit is operating normally.

8.2.1  DAILY Maintenance

Perform the following steps daily:

1. Check the area surrounding the PDU. Verify the area is not cluttered, allowing free access to the unit.
2. Verify the air intakes (vents on front of cabinet) and exhaust opening (on top of the cabinet) are not blocked.
3. Verify the operating environment is within the parameters specified in Chapter 9, “Product Specifications,” and paragraph A.1.
4. Record the check results and any corrective actions in a suitable log.

8.2.2  PERIODIC Maintenance

Periodic inspections of the PDU should be made to determine if components, wiring, and connections exhibit evidence of overheating. Particular attention should be given to bolted connections. Maintenance procedures should specify that the bolted connections be retorqued to values listed on labels posted on the equipment.

Refer to the distribution panel manufacturer’s circuit breaker application and maintenance literature for recommended maintenance practices and procedures.

8.2.3  ANNUAL Maintenance

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

8.3  Short Circuits

Short circuits are not considered normal phenomena in PDU system applications. Tripping of protective devices due to low impedance short circuits should be thoroughly investigated for damage to conductors, insulation, and the protective devices in accordance with the manufacturer’s recommendations.
8.4 Optional Front Only Service Access Infrared Inspection Ports

Front only service access PDU models that have the optional infrared (IR) inspection ports allow transformer tap and phase tie point terminal inspection using IR temperature measuring equipment. Figure 8-1 shows the port locations and Figure 8-2 shows what areas are visible for measurement.

Figure 8-1. Infrared (IR) Inspection Port Locations – Front Only Service Access PDU
Figure 8-2. Transformer Tap and Phase Tie Point Terminal Visibility – Front Only Service Access PDU

**NOTE** Frame Parts Removed for Clarity.
# Chapter 9  Product Specifications

## 9.1 Model Number

The Power Distribution Unit (PDU) is housed in a free-standing cabinet with safety shields behind the doors.

<table>
<thead>
<tr>
<th>Model</th>
<th>Power Rating</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eaton 300 kVA Three-Phase Power Distribution Unit</td>
<td>200–300 kVA</td>
<td>60 Hz</td>
</tr>
</tbody>
</table>

## 9.2 PDU Input

<table>
<thead>
<tr>
<th>Operating Input Voltage (Nominal +5/–10%)</th>
<th>400 Vac nominal (360–425 Vac) at 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>480 Vac nominal (432–504 Vac) at 60 Hz</td>
</tr>
<tr>
<td></td>
<td>600 Vac nominal (540–630 Vac) at 60 Hz</td>
</tr>
<tr>
<td>Input Wiring: 3W + G</td>
<td></td>
</tr>
<tr>
<td>Operating Input Frequency Range</td>
<td>60 Hz ± 5 Hz</td>
</tr>
<tr>
<td>Operating Input Current</td>
<td>See Appendix A, Table G through Table K.</td>
</tr>
</tbody>
</table>

## 9.3 PDU Output

<table>
<thead>
<tr>
<th>Operating Output Voltage (Nominal +10/15%)</th>
<th>208/120 Vac nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Wiring: 3W + G</td>
<td></td>
</tr>
<tr>
<td>Operating Input Frequency Range</td>
<td>60 Hz ± 5 Hz</td>
</tr>
<tr>
<td>Output Current</td>
<td>See Appendix A, Table G through Table K.</td>
</tr>
</tbody>
</table>

## 9.4 Environmental Specifications

<table>
<thead>
<tr>
<th>Operating Temperature</th>
<th>0 to 40°C (32 to 104°F) without derating. The recommended operating temperature is 25°C (77°F).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Altitude</td>
<td>Maximum 1500m (5000 ft) at 40°C without derating</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-25°C to 60°C (-13°F to 140°F)</td>
</tr>
<tr>
<td>Relative Humidity (operating and storage)</td>
<td>10% to 95% maximum noncondensing</td>
</tr>
<tr>
<td>Acoustical Noise</td>
<td>Meets or exceeds ANSI C89 standard for transformers</td>
</tr>
<tr>
<td>EMI Suppression</td>
<td>Meets FCC Regulation 47, Part 15, for class A devices</td>
</tr>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>Meets IEC 61000-4-2 specifications. Exposed contacts on ungrounded connectors may be exempt from testing.</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td></td>
</tr>
<tr>
<td>Agency Marking</td>
<td>US Domestic/Canadian: UL/CSA 60950-1-Ed2</td>
</tr>
</tbody>
</table>
## 9.5 Optional Surge Protective Devices

<table>
<thead>
<tr>
<th>Platform</th>
<th>Thermally protected, MOV surge suppressor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>100 kA/phase (non-EMS monitored)</td>
</tr>
<tr>
<td></td>
<td>100 kA/phase (EMS monitored)</td>
</tr>
<tr>
<td></td>
<td>200 kA/phase (EMS monitored)</td>
</tr>
<tr>
<td>Indicators</td>
<td>Dual-colored indicator lights for each phase protected; audible alarm with silence button (non-EMS monitored)</td>
</tr>
<tr>
<td>Noise Attenuation</td>
<td>EMI/RFI filtering, up to 50 dB noise attenuation from 10 kHz to 100 MHz</td>
</tr>
<tr>
<td>Safety Conformance</td>
<td>UL 1449 3rd Ed; UL 1283 (Type 2 only)</td>
</tr>
<tr>
<td>Relay Contact</td>
<td>Form C relay contact (EMS monitored)</td>
</tr>
</tbody>
</table>
Chapter 10  Warranty

Limited Factory Warranty

Three Phase Eaton Power Distribution Unit (PDU) and Static Switch (STS) Products

WARRANTOR: The warrantor for the limited warranties set forth herein is Eaton Corporation Inc., an Ohio Corporation (“Eaton”).

LIMITED WARRANTY: This limited warranty (this “Warranty”) applies only to the original end-user (the “End-User”) of the Eaton Three-Phase PDU and STS Products (the “Product”) and cannot be transferred. This Warranty applies even in the event that the Product is initially sold by Eaton for resale to an End-User. This warranty is not valid unless a separately purchased Startup service is purchased.

LIMITED WARRANTY PERIOD: The period covered by this Warranty for Product installed [and currently located] in the fifty (50) United States and the District of Columbia is twelve (12) months from the date of Product startup or eighteen (18) months from the date of Product shipment, whichever occurs first, for parts coverage and 90 days from the date of Product startup for labor coverage. The period covered by this Warranty for Product installed [and currently located] outside of the fifty (50) United States and the District of Columbia is twelve (12) months from the date of Product startup or eighteen (18) months from the date of Product shipment, whichever occurs first, for parts coverage.

WHAT THIS LIMITED WARRANTY COVERS: The warrantor warrants that the Eaton three-phase PDU and STS electronics and Eaton-provided accessories (individually and collectively, the “Warranted Items”) are free from defects in material and workmanship. If, in the opinion of Eaton, a Warranted Item is defective and the defect is within the terms of this Warranty, Eaton’s sole obligation will be to repair or replace such defective item (including by providing service, parts, and labor, as applicable), at the option of Eaton. The Warranted Item will be repaired or replaced onsite at the End-User’s location or such other location as determined by Eaton. Any parts that are replaced may be new or reconditioned. All parts replaced by Eaton shall become the property of Eaton.

WHAT THIS LIMITED WARRANTY DOES NOT COVER: This Warranty does not cover any defects or damages caused by: (a) failure to properly store the Product before installation; (b) shipping and delivery of the Product if shipping is FOB Factory; (c) neglect, accident, fire, flood, lightning, vandalism, acts of God, Customer’s neglect, abuse, misuse, misapplication, incorrect installation; (d) repair or alteration not authorized in writing by Eaton personnel or performed by an authorized Eaton Customer Service Engineer or Agent; or (e) improper testing, operation, maintenance, adjustment, or any modification of any kind not authorized in writing by Eaton personnel or performed by an authorized Eaton Customer Service Engineer or Agent.

This Warranty is not valid: (a) unless an authorized Eaton Customer Service Engineer (in the USA) or Agent (outside of the USA) performs startup and commissioning of the Product; (b) if the Product is moved to a new location by someone other than an authorized Eaton Customer Service Engineer (in the USA) or Agent (outside of the USA); or (c) if the Product’s serial numbers have been removed or are illegible. Any Warranted Items repaired or replaced pursuant to this Warranty will be warranted for the remaining portion of the original Warranty subject to all the terms thereof. Labor warranty is not provided for Product located outside of the fifty (50) United States or the District of Columbia. Any equipment, parts, or materials included in the Product and not manufactured by Eaton are warranted solely by the manufacturer of such equipment, parts, or materials and are not included as part of this Warranty.

THIS WARRANTY IS THE END-USER’S SOLE REMEDY AND IS EXPRESSLY IN LIEU OF, AND THERE ARE NO OTHER EXPRESSED OR IMPLIED WARRANTIES (INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED).

LIMITATION OF LIABILITY: In no event shall Eaton be liable for any indirect, incidental, special, or consequential damages of any kind or type whatsoever, or based on any claim or cause of action, however denominated. Eaton shall not be responsible for failure to provide service or parts due to causes beyond Eaton’s reasonable control. In no case will Eaton’s liability under this Warranty exceed the replacement value of the Warranted Items.

END-USER’S OBLIGATIONS: In order to receive the benefits of this Warranty, the End-User must use the Product in a normal way, follow the Product’s user’s guide, and protect against further damage to the Product if there is a covered defect.
OTHER LIMITATIONS: Eaton’s obligations under this Warranty are expressly conditioned upon receipt by Eaton of all payments due to it (including interest charges, if any). During such time as Eaton has not received payment of any amount due to it for the Product, in accordance with the contract terms under which the Product is sold, Eaton shall have no obligation under this Warranty. Also during such time, the period of this Warranty shall continue to run and the expiration of this Warranty shall not be extended upon payment of any overdue or unpaid amounts.

COSTS NOT RELATED TO WARRANTY: The End-User shall be invoiced for, and shall pay for, all services not expressly provided for by the terms of this Warranty, including without limitation site calls involving an inspection that determines no corrective maintenance is required. Any costs for replacement equipment, installation, materials, freight charges, travel expenses, or labor of Eaton representatives outside the terms of this Warranty will be borne by the End-User.

OBTAINING WARRANTY SERVICE: In the USA, call the Eaton Customer Reliability Center 7x24 at 800-843-9433. Outside of the USA, call your local Eaton sales or service representative, or call the Eaton Customer Reliability Center in the USA at 919-870-3028. For comments or questions about this Limited Factory Warranty, write to the Customer Quality Representative, 3301 Spring Forest Road, Raleigh, North Carolina 27616 USA.
Appendix A  Installation Reference

The information in this appendix will help you plan for and install the Eaton 300 kVA Three-Phase Power Distribution Unit (Eaton Power Xpert Gateway Card). This appendix contains the following information:

- Physical features and requirements, including dimensions
- Oneline drawings and distribution panel schematic
- Power wiring installation notes
- Location of conduit and wire entry landing plates
- Location of power terminals
- Interface wiring notes, including terminal locations
- Optional Remote Emergency Power-off (REPO)
- Optional floor mounting brackets
- Optional floorstand
- Optional air skirt

A.1 Power Distribution Unit Physical Features and Requirements

1. The Power Distribution Unit (PDU) is palleted for shipping.
2. Do not tilt the PDU cabinet more than 10° from vertical or the cabinet may tip over.
3. Dimensions are in millimeters [inches].
4. Table A and Table B are for the maximum weight cabinet configurations. Your cabinet may weigh less due to your selected configuration.
5. The PDU equipment operating environment for the installed PDU configuration must meet the weight requirements shown in Table A or Table B and size requirements shown in Figure A-5 through Figure A-19.

Table A. Equipment Weight – Standard Service Access PDUs

<table>
<thead>
<tr>
<th>Component</th>
<th>Rating kVA</th>
<th>Shipping kg</th>
<th>Installed kg</th>
<th>Point Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU</td>
<td>300</td>
<td>1687 (3720)</td>
<td>1649 (3635)</td>
<td>6 at 275 (606)</td>
</tr>
<tr>
<td>PDU with single front-facing sidecar</td>
<td>300</td>
<td>1958 (4316)</td>
<td>1901 (4192)</td>
<td>6 at 317 (699)</td>
</tr>
<tr>
<td>PDU with single side-facing sidecar</td>
<td>300</td>
<td>1879 (4142)</td>
<td>1836 (4047)</td>
<td>6 at 306 (675)</td>
</tr>
<tr>
<td>PDU with dual front-facing sidecar</td>
<td>300</td>
<td>2228 (4912)</td>
<td>2154 (4749)</td>
<td>6 at 359 (792)</td>
</tr>
<tr>
<td>PDU with dual side-facing sidecar</td>
<td>300</td>
<td>2070 (4564)</td>
<td>2023 (4459)</td>
<td>6 at 337 (743)</td>
</tr>
<tr>
<td>PDU with single front-facing sidecar and single side-facing sidecar</td>
<td>300</td>
<td>2149 (4738)</td>
<td>2088 (4604)</td>
<td>6 at 348 (767)</td>
</tr>
<tr>
<td>PDU dual input sidecar</td>
<td>300</td>
<td>1896 (4180)</td>
<td>1840 (4056)</td>
<td>6 at 307 (676)</td>
</tr>
<tr>
<td>PDU with dual input sidecar and single front-facing sidecar</td>
<td>300</td>
<td>2166 (4776)</td>
<td>2092 (4613)</td>
<td>6 at 349 (769)</td>
</tr>
<tr>
<td>PDU with dual input sidecar and single side-facing sidecar</td>
<td>300</td>
<td>2087 (4602)</td>
<td>2027 (4468)</td>
<td>6 at 338 (745)</td>
</tr>
</tbody>
</table>
6. The recommended clearances around the PDU cabinet are shown in Table C and Table D. Side clearances are based on the assumption that the doors do not need to be opened beyond 90° and can be removed if additional service clearance is needed.

### Table B. Equipment Weight – Front Service Access PDUs

<table>
<thead>
<tr>
<th>Component</th>
<th>Rating kVA</th>
<th>Shipping</th>
<th>Installed</th>
<th>Weight kg (lb)</th>
<th>Point Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU</td>
<td>300</td>
<td>1596 (3518)</td>
<td>1557 (3433)</td>
<td>6 at 260 (572)</td>
<td></td>
</tr>
<tr>
<td>PDU with single front-facing sidecar</td>
<td>300</td>
<td>1866 (4114)</td>
<td>1810 (3990)</td>
<td>6 at 302 (665)</td>
<td></td>
</tr>
<tr>
<td>PDU with single side-facing sidecar</td>
<td>300</td>
<td>1787 (3940)</td>
<td>1744 (3845)</td>
<td>6 at 291 (641)</td>
<td></td>
</tr>
<tr>
<td>PDU with dual front-facing sidecar</td>
<td>300</td>
<td>2136 (4710)</td>
<td>2062 (4547)</td>
<td>6 at 344 (758)</td>
<td></td>
</tr>
<tr>
<td>PDU with dual side-facing sidecar</td>
<td>300</td>
<td>1979 (4362)</td>
<td>1931 (4257)</td>
<td>6 at 322 (710)</td>
<td></td>
</tr>
<tr>
<td>PDU with single front-facing sidecar and single side-facing sidecar</td>
<td>300</td>
<td>2058 (4536)</td>
<td>1997 (4402)</td>
<td>6 at 333 (734)</td>
<td></td>
</tr>
<tr>
<td>PDU dual input sidecar</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>PDU with dual input sidecar and single front-facing sidecar</td>
<td>300</td>
<td>2075 (4574)</td>
<td>2001 (4411)</td>
<td>6 at 334 (735)</td>
<td></td>
</tr>
<tr>
<td>PDU with dual input sidecar and single side-facing sidecar</td>
<td>300</td>
<td>1996 (4400)</td>
<td>1935 (4266)</td>
<td>6 at 323 (711)</td>
<td></td>
</tr>
<tr>
<td>PDU with dual input sidecar and single PRL4 side-facing sidecar</td>
<td>300</td>
<td>1994 (4396)</td>
<td>1932 (4260)</td>
<td>6 at 322 (711)</td>
<td></td>
</tr>
<tr>
<td>PDU with single PRL4 side-facing sidecar</td>
<td>300</td>
<td>1785 (3936)</td>
<td>1741 (3839)</td>
<td>6 at 290 (640)</td>
<td></td>
</tr>
<tr>
<td>PDU with single front-facing sidecar and single PRL4 side-facing sidecar</td>
<td>300</td>
<td>2056 (4532)</td>
<td>1994 (4396)</td>
<td>6 at 332 (733)</td>
<td></td>
</tr>
<tr>
<td>PDU with single side-facing sidecar and single PRL4 side-facing sidecar</td>
<td>300</td>
<td>1977 (4358)</td>
<td>1928 (4251)</td>
<td>6 at 321 (709)</td>
<td></td>
</tr>
</tbody>
</table>

### Table C. Clearances for Standard PDU Front/Rear Access Cabinet

<table>
<thead>
<tr>
<th>PDU Configuration</th>
<th>Top</th>
<th>Front</th>
<th>Rear</th>
<th>Left or Right Side (with side car)</th>
<th>Left or Right Side (no side car)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side access on both sides, no sidecars</td>
<td>18&quot; for ventilation</td>
<td>42&quot; working space</td>
<td>4&quot; ventilation</td>
<td>N/A</td>
<td>42&quot; working space</td>
</tr>
<tr>
<td>No side access on either side, no side cars</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
<td>None required</td>
</tr>
<tr>
<td>With side facing side car (either side)</td>
<td>18&quot; for ventilation</td>
<td>42&quot; working space</td>
<td>42&quot; working space</td>
<td>None required</td>
<td>None required</td>
</tr>
<tr>
<td>With front facing side car (either side)</td>
<td></td>
<td></td>
<td></td>
<td>None required</td>
<td>None required</td>
</tr>
</tbody>
</table>

### Table D. Clearances for PDU Front Access Only Cabinet

<table>
<thead>
<tr>
<th>PDU Configuration</th>
<th>Top</th>
<th>Front</th>
<th>Rear</th>
<th>Left or Right Side (with side car)</th>
<th>Left or Right Side (no side car)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With side facing side car (either side)</td>
<td>18&quot; for ventilation</td>
<td>42&quot; working space</td>
<td>42&quot; working space for side car</td>
<td>None required</td>
<td>None required</td>
</tr>
<tr>
<td>With front facing side car (either side)</td>
<td></td>
<td></td>
<td></td>
<td>None required</td>
<td>None required</td>
</tr>
</tbody>
</table>
7. The basic environmental requirements for PDU operation are:
   - Ambient Temperature Range: 0–40°C (32–104°F)
   - Recommended Operating Range: 20–25°C (68–77°F)
   - Maximum Relative Humidity: 95%, non-condensing

The PDU cooling requirements are shown in Table E.

### Table E. PDU Cooling Requirements During Full Load Operation

<table>
<thead>
<tr>
<th>Rating</th>
<th>Voltage</th>
<th>K-factor</th>
<th>Input</th>
<th>Output</th>
<th>Watts</th>
<th>BTU/hr</th>
<th>Kg-cal/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>380/400/415</td>
<td>13</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4659</td>
<td>15898</td>
<td>4006</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4659</td>
<td>15898</td>
<td>4006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>480</td>
<td>208/120</td>
<td>3709</td>
<td>12654</td>
<td>3189</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>600</td>
<td>208/120</td>
<td>3492</td>
<td>11915</td>
<td>3003</td>
</tr>
<tr>
<td>225</td>
<td>380/400/415</td>
<td>13</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4519</td>
<td>15420</td>
<td>3886</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4519</td>
<td>15420</td>
<td>3886</td>
<td></td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>480</td>
<td>208/120</td>
<td>4616</td>
<td>15750</td>
<td>3969</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>600</td>
<td>208/120</td>
<td>4583</td>
<td>15637</td>
<td>3940</td>
</tr>
<tr>
<td>300</td>
<td>380/400/415</td>
<td>13</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4219</td>
<td>14395</td>
<td>3627</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>380/400/415</td>
<td>4219</td>
<td>14395</td>
<td>3627</td>
<td></td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>480</td>
<td>208/120</td>
<td>4206</td>
<td>14350</td>
<td>3616</td>
</tr>
<tr>
<td></td>
<td>208/120</td>
<td>208/120</td>
<td>600</td>
<td>208/120</td>
<td>4038</td>
<td>13779</td>
<td>3472</td>
</tr>
</tbody>
</table>
Figure A-1. Eaton 300 kVA PDU
Figure A-2. Eaton Power Xpert Gateway Card with Left and Right Front-Facing Sidecars
Figure A-3. Eaton Power Xpert Gateway Card with Left and Right Side-Facing Sidecars
Figure A-4. Eaton 300 kVA PDU with Dual Input Sidecar
Figure A-5. PDU Dimensions – Front and Right Side View

Dimensions are in millimeters (inches).
Figure A-6. PDU Dimensions – Top and Bottom Views

Dimensions are in millimeters (inches).
Figure A-7. PDU – Rear View
Figure A-8. PDU Dimensions – Front View with Left Front-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-9. PDU Dimensions – Top and Bottom Views with Left Front-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-10. PDU Dimensions – Front View with Right Front-Facing Sidecar or Dual Input Sidecar

Dimensions are in millimeters (inches)
Figure A-11. PDU Dimensions – Top and Bottom Views with Right Front-Facing Sidecar or Dual Input Sidecar

Dimensions are in millimeters (inches).
Figure A-12. PDU Dimensions – Front View with Left and Right Front-Facing Sidecars

Dimensions are in millimeters (inches).
Figure A-13. PDU Dimensions – Top and Bottom View with Left and Right Front-Facing Sidecars

Dimensions are in millimeters (inches).
Figure A-14. PDU Dimensions – Front View with Left Side-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-15. PDU Dimensions – Top and Bottom Views with Left Side-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-16. PDU Dimensions – Front View with Right Side-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-17. PDU Dimensions – Top and Bottom Views with Right Side-Facing Sidecar

Dimensions are in millimeters (inches).
Figure A-18. PDU Dimensions – Front View with Left and Right Side-Facing Sidecars

Dimensions are in millimeters (inches).
Figure A-19. PDU Dimensions – Top and Bottom Views with Left and Right Side-Facing Sidecars

Dimensions are in millimeters (inches).
Figure A-20. Front Only Service Access PDU Dimensions – Front View with Left Side-Facing PRL4B Sidecar

Dimensions are in millimeters (inches).
Figure A-21. Front Only Service Access PDU Dimensions – Top and Bottom Views with Left Side-Facing PRL48 Sidecar
Figure A-22. Front Only Service Access PDU Dimensions – Front View with Right Side-Facing PRL4B Sidecar

Dimensions are in millimeters (inches).
Figure A-23. Front Only Service Access PDU Dimensions – Top and Bottom Views with Right Side-Facing PRL4B Sidecar

Dimensions are in millimeters (inches).
Figure A-24. Cable Management Sidecar Detail

- Unmonitored sub-feed breaker and input to PDU route through these openings depending on whether customer uses single crimp lug or wires directly to breaker.
- Brace is unique to this sidecar. It is used for door securing and latching. No deadfronts are used in this sidecar because there is no exposure to live terminals.
- Sub-feed breaker phase A, B, C route through this opening.
- Sub-feed breaker neutral and ground route through this opening.
### A.2 Oneline Drawings and Schematic

#### Table F. Eaton 300 kVA PDU Oneline Configurations

<table>
<thead>
<tr>
<th>Oneline Drawing or Schematic</th>
<th>Rating</th>
<th>Vin</th>
<th>Vout</th>
<th>System Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure A-25</td>
<td>200-300 kVA</td>
<td>380</td>
<td>400</td>
<td>PDU with single input and two sidecars</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure A-26</td>
<td>200-300 kVA</td>
<td>380</td>
<td>400</td>
<td>PDU with dual input sidecar and breaker sidecar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure A-27</td>
<td>200-300 kVA</td>
<td>380</td>
<td>400</td>
<td>PDU with single input and two sidecars - Front</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415</td>
<td>480</td>
<td>access units only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure A-28</td>
<td>200-300 kVA</td>
<td>380</td>
<td>400</td>
<td>PDU with dual input sidecar and breaker sidecar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415</td>
<td>480</td>
<td>- Front access units only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure A-29</td>
<td>200-300 kVA</td>
<td>380</td>
<td>400</td>
<td>Distribution panel schematic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>415</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTE The main cabinet of the PDU is configurable for up to two branch circuit panelboards, up to two PRL3a panelboards, one branch circuit panelboard and one PRL3a panelboard, or one PRL4B panelboard.

NOTE In addition to distribution through the panelboard, up to two 3-pole F-frame or one 3-pole K-frame unmonitored sub-breakers can be installed in the main cabinet.

NOTE Up to two sidecars can be added for a single input PDU. Each sidecar is capable of mounting up to two branch circuit panelboards or one PRL3a panelboard.

NOTE The PRL4B panelboard is not available in the side car front/rear access PDU.

Callout letters A and B map to Table G through Table K.

Figure A-25. Single Input PDU with Two Sidecars
NOTE The main cabinet of the PDU is configurable for up to two branch circuit panelboards, or up to two PRL3a panelboards, or one branch circuit panelboard and one PRL3a panelboard, or one PRL4 panelboard.

NOTE In addition to distribution through panelboard, up to two 3-pole F-frame unmonitored breakers or one 3-pole K-Frame un-monitored sub-feed breaker can be installed in the main cabinet.

NOTE Only one left sidecar can be added for the additional power distribution for dual input PDU. The sidecar is capable of mounting up to two branch circuit panelboards or one PRL3a panelboard.

NOTE The PRL4 panelboard is not available in the side car for front/rear access PDU.

Callout letters A and B map to Table G through Table K.

Figure A-26. PDU with Dual Input Sidecar and Breaker Sidecar
NOTE The main cabinet of the PDU is NOT configurable for internal panelboards.

NOTE Up to two 3-pole F-frame or one 3-pole K-frame un-monitored sub-feed breakers can be installed in the main cabinet.

NOTE Up to two sidecars can be added for the single input PDU. Each sidecar is capable of mounting up to two branch circuit panelboards or one PRL3A or one PRL4 panelboard. Only one PRL4 sidecar can be configured.

Callout letters A and B map to Table G through Table K.

Figure A-27. PDU with Dual Sidecars and Single Input - Front Access Only
NOTE: The main cabinet of the PDU is NOT configurable for internal panelboards.

NOTE: Up to two 3-pole F-frame or one 3-pole K-frame unmonitored sub-feed breakers can be installed in the main cabinet.

NOTE: Only one left sidecar can be added for the additional power distribution for a dual input PDU. The sidecar is capable of mounting up to branch circuit panelboards or one PRL3A or one PRL4 panelboard.

Callout letters A and B map to Table G through Table K.

Figure A-28. PDU with Single Sidecar and Dual Input - Front Access Only
Figure A-29. PDU Distribution Panel Schematic
A.3 Power Wiring Installation Notes

Read and understand the following notes while planning your 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.

1. Wire ampacities are chosen from Table 310-16 of the National Electric Code® (NEC). Wire is 90°C specification.

**CAUTION**

Cable insulation with 90°C or better is required for the incoming 3-phase cables connecting to the input main circuit breaker. Failure to meet this requirement may lead to catastrophic system failure.

2. For external wiring, use 90°C copper wire. See the appropriate column in Table G through Table K.
3. Refer to national and local electrical codes for acceptable external wiring practices.
4. Material and labor for external wiring requirements are to be provided by designated personnel.
5. When wiring a PDU with branch circuit monitoring, use THHN wire for branch circuit output distribution. Using THHN wire will facilitate routing the wire through the branch CTs to the branch breakers.
6. Output neutrals are rated for up to 200%.
7. 100% rated adjustable subfeed breakers must be wired for maximum rated current.
8. The PDU cabinet is shipped with a debris shield covering the ventilation grill on top of the unit. Do not remove the debris shield until installation is complete. However, remove the shield before operating the PDU. Once the debris shield is removed, do not place objects on the ventilation grill.
9. Optional 225A distribution panels use Eaton bolt-on type BAB or QBHW breakers for bolt-on panels, or plug-on type HQP or QPHW breakers for plug-on panels. Breakers to be provided by the customer.
10. Optional 225A and 400A Square D NQ type distribution panels use bolt-on type QOB breakers. These panels are available for use in both the main cabinet and the sidecars. Breakers to be provided by the customer.
11. Refer to section 1 of this manual for installation instructions.
12. If installing with a UPS, refer to the applicable UPS Installation and Operation manual for UPS cabinet wiring requirements, and conduit and terminal locations.
13. Per NEC Article 300–20(a), all three-phase conductors must be run in the same conduit. Neutral and ground must be run in the same conduit as the phase conductors.
14. Conduit is to be sized to accommodate one neutral conductor the same size as the phase conductor and one ground conductor. If two neutral conductors or an oversized neutral conductor are to be installed, size the conduit to accommodate the extra wire or size. All PDU products can accommodate a double-sized (200%) neutral.
### Table G. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (380V)

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>380/208</td>
</tr>
<tr>
<td>AC Input to PDU</td>
<td>A</td>
<td>Maximum Amps</td>
</tr>
<tr>
<td>(3) Phases, (1) Ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number per Phase</td>
<td>AWG or kcmil (CSA – mm²)</td>
<td>3/0 [85]</td>
</tr>
<tr>
<td>(each)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number per Phase</td>
<td>AWG or kcmil (CSA – mm²)</td>
<td>#3 [27]</td>
</tr>
<tr>
<td>(each)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AC Output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>Maximum Amps</td>
<td>555</td>
</tr>
</tbody>
</table>

**NOTE** Callout letters A and B map to Figure A-25 through Figure A-28.

### Table H. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (400V)

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>400/208</td>
</tr>
<tr>
<td>AC Input to PDU</td>
<td>A</td>
<td>Maximum Amps</td>
</tr>
<tr>
<td>(3) Phases, (1) Ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number per Phase</td>
<td>AWG or kcmil (CSA – mm²)</td>
<td>3/0 [85]</td>
</tr>
<tr>
<td>(each)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number per Phase</td>
<td>AWG or kcmil (CSA – mm²)</td>
<td>#3 [27]</td>
</tr>
<tr>
<td>(each)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AC Output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>Maximum Amps</td>
<td>555</td>
</tr>
</tbody>
</table>

**NOTE** Callout letters A and B map to Figure A-25 through Figure A-28.
Table I. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (415V)

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>415/208</td>
</tr>
<tr>
<td>AC Input to PDU (3 Phases, (1) Ground)</td>
<td>Maximum Amps</td>
<td>283</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>2/0 [67]</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>#3 [27]</td>
</tr>
<tr>
<td>AC Output</td>
<td>Maximum Amps</td>
<td>555</td>
</tr>
</tbody>
</table>

AC Output from Subfeed Breakers to the Critical Load (3 Phases, (1) Neutral, (1) Ground)

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings, power cable termination sizes listed in Table T, and national and local electrical codes. Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating. Wire 100% rated adjustable subfeed breakers for maximum rated current.

AC Output from Distribution Panel Breakers to the Critical Load

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings and instructions, and national and local electrical codes (output is prewired to the panelboard). Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating.

NOTE Callout letters A and B map to Figure A-25 through Figure A-28.

Table J. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (480V)

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>480/208</td>
</tr>
<tr>
<td>AC Input to PDU (3 Phases, (1) Ground)</td>
<td>Maximum Amps</td>
<td>245</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C) Number per Phase</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>2/0 [67]</td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground) Number per Phase</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>#3 [27]</td>
</tr>
<tr>
<td>AC Output</td>
<td>Maximum Amps</td>
<td>555</td>
</tr>
</tbody>
</table>

AC Output from Subfeed Breakers to the Critical Load (3 Phases, (1) Neutral, (1) Ground)

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings, power cable termination sizes listed in Table T, and national and local electrical codes. Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating. Wire 100% rated adjustable subfeed breakers for maximum rated current.

AC Output from Distribution Panel Breakers to the Critical Load

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings and instructions, and national and local electrical codes (output is prewired to the panelboard). Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating.

NOTE Callout letters A and B map to Figure A-25 through Figure A-28.
15. See Table K for PDU input/output ratings and external wiring requirements for the Eaton 300 kVA PDU (600V).

### Table K. Input/Output Ratings and External Wiring Requirements for the Eaton 300 kVA PDU (600V)

<table>
<thead>
<tr>
<th>Basic Unit Rating</th>
<th>Units</th>
<th>Rating 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kVA</td>
<td>200</td>
</tr>
<tr>
<td>Input/Output Voltage</td>
<td>Volts</td>
<td>600/208</td>
</tr>
<tr>
<td>AC Input to PDU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Phases, (1) Ground</td>
<td>Max. Amps</td>
<td>196</td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C)</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>2/0 [67]</td>
</tr>
<tr>
<td>Number per Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Conductor Size (Ground)</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>#4 [21]</td>
</tr>
<tr>
<td>Number per Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC Output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Conductor Size (Phase A, B, and C)</td>
<td>AWG or kcmil [CSA – mm²] (each)</td>
<td>#4 [21]</td>
</tr>
<tr>
<td>Number per Phase</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AC Output from Subfeed Breakers to the Critical Load**

(3) Phases, (1) Neutral, (1) Ground

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings, power cable termination sizes listed in Table T, and national and local electrical codes. Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating. Wire 100% rated adjustable subfeed breakers for maximum rated current.

**AC Output from Distribution Panel Breakers to the Critical Load**

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings and instructions, and national and local electrical codes (output is prewired to the panelboard). Maximum output ratings are to be in accordance with the rating label on the PDU. The total combined load is not to exceed the maximum output rating.

**NOTE**

Callout letters A and B map to Figure A-25 through Figure A-28.

---

15. See Table L for PDU input circuit breaker ratings.

### Table L. PDU Input Circuit Breaker Ratings

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>kVA Rating</th>
<th>FLA</th>
<th>Main Breaker Size</th>
<th>Standard</th>
<th>kAIC Rating</th>
<th>High</th>
<th>Ultra High</th>
</tr>
</thead>
<tbody>
<tr>
<td>380</td>
<td>200</td>
<td>304</td>
<td>400A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>342</td>
<td>450A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>456</td>
<td>600A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>200</td>
<td>289</td>
<td>400A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>325</td>
<td>450A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>434</td>
<td>600A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>415</td>
<td>200</td>
<td>279</td>
<td>400A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>314</td>
<td>400A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>418</td>
<td>600A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>480</td>
<td>200</td>
<td>241</td>
<td>350A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>271</td>
<td>350A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>361</td>
<td>500A</td>
<td>35</td>
<td>65</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>200</td>
<td>193</td>
<td>250A</td>
<td>25</td>
<td>35</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>217</td>
<td>300A</td>
<td>25</td>
<td>35</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>289</td>
<td>400A</td>
<td>25</td>
<td>35</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>
16. Terminals are UL and CSA rated at 75°C. See Table M through Table Q for input power cable terminations. Paragraph A-35 shows the location of the input power cable terminals inside the PDU cabinet.

17. DO NOT overtighten the terminal lugs to prevent stripping the threads. Tighten lugs to the torque values in Table M through Table Q.

### Table M. Eaton 300 kVA PDU Input Power Cable Terminations (380V)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating (kVA)</th>
<th>Main Breaker Rating</th>
<th>Frame Size</th>
<th>Terminal Function</th>
<th>Number and Size of Pressure Termination</th>
<th>Tightening Torque (Nm (lb in))</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breaker CB1 (and CB2, if installed)</td>
<td>200</td>
<td>400A</td>
<td>K</td>
<td>A (Black) Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>450A</td>
<td>L</td>
<td>A (Black) Phase A</td>
<td>2 – 3/0–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>600A</td>
<td>L</td>
<td>A (Black) Phase A</td>
<td>2 – 250–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>All</td>
<td>All</td>
<td>G (Green) Ground</td>
<td>2 – #14–1/0</td>
<td>5.6 (50)</td>
<td>5/16” Hex</td>
<td></td>
</tr>
</tbody>
</table>

### Table N. Eaton 300 kVA PDU Input Power Cable Terminations (400V)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating (kVA)</th>
<th>Main Breaker Rating</th>
<th>Frame Size</th>
<th>Terminal Function</th>
<th>Number and Size of Pressure Termination</th>
<th>Tightening Torque (Nm (lb in))</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breaker CB1 (and CB2, if installed)</td>
<td>200</td>
<td>400A</td>
<td>K</td>
<td>A (Black) Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>450A</td>
<td>L</td>
<td>A (Black) Phase A</td>
<td>2 – 3/0–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>600A</td>
<td>L</td>
<td>A (Black) Phase A</td>
<td>2 – 250–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B (Red) Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C (Blue) Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>All</td>
<td>All</td>
<td>G (Green) Ground</td>
<td>2 – #14–1/0</td>
<td>5.6 (50)</td>
<td>5/16” Hex</td>
<td></td>
</tr>
</tbody>
</table>
### Table O. Eaton 300 kVA PDU Input Power Cable Terminations (415V)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating (kVA)</th>
<th>Main Breaker Rating</th>
<th>Frame Size</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breaker CB1 (and CB2, if installed)</td>
<td>200</td>
<td>400A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>400A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>600A</td>
<td>L</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 250–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>All</td>
<td>All</td>
<td></td>
<td>G (Green)</td>
<td>Ground</td>
<td>2 – #14–1/0</td>
<td>5.6 (50)</td>
<td>5/16” Hex</td>
</tr>
</tbody>
</table>

### Table P. Eaton 300 kVA PDU Input Power Cable Terminations (480V)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating (kVA)</th>
<th>Main Breaker Rating</th>
<th>Frame Size</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breaker CB1 (and CB2, if installed)</td>
<td>200</td>
<td>350A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>350A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>500A</td>
<td>L</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 3/0–350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>All</td>
<td>All</td>
<td></td>
<td>G (Green)</td>
<td>Ground</td>
<td>2 – #14–1/0</td>
<td>5.6 (50)</td>
<td>5/16” Hex</td>
</tr>
</tbody>
</table>

### Table Q. Eaton 300 kVA PDU Input Power Cable Terminations (600V)

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating (kVA)</th>
<th>Main Breaker Rating</th>
<th>Frame Size</th>
<th>Terminal</th>
<th>Function</th>
<th>Number and Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breaker CB1 (and CB2, if installed)</td>
<td>200</td>
<td>250A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>225</td>
<td>300A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>300</td>
<td>400A</td>
<td>K</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>2 – 2/0–250 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B [Red]</td>
<td>Phase B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C [Blue]</td>
<td>Phase C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>All</td>
<td>All</td>
<td></td>
<td>G (Green)</td>
<td>Ground</td>
<td>2 – #14–1/0</td>
<td>5.6 (50)</td>
<td>5/16” Hex</td>
</tr>
</tbody>
</table>
18. For a PDU with Single or Dual Input compression lug terminals see Table R for output power cable terminations. A through C and Ground are 2-hole stud mountings for standard NEMA 2-hole long barrel lugs. The power wiring connections for this equipment are rated at 75°C. Paragraph A-35 shows the location of the output power cable terminals inside the PDU cabinet. See Table S for recommended installation parts and tools not supplied by Eaton Corporation.

19. DO NOT overtighten the terminal lugs to prevent stripping the threads. Tighten lugs to the torque values in Table R.

Table R. Eaton 300 kVA PDU Single or Dual Input Crimp Lug Input Power Cable Terminations

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Terminal</th>
<th>Function</th>
<th>Bus Landing</th>
<th>Tightening Torque</th>
<th>Stud Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Input to Main Breakers CB1 and CB2</td>
<td>A (Black)</td>
<td>Phase A</td>
<td>1 – 2 stud mounting</td>
<td>76 (56)</td>
<td>M12</td>
</tr>
<tr>
<td>Crimp Lug Input Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B (Red)</td>
<td>Phase B</td>
<td>1 – 2 stud mounting</td>
<td>76 (56)</td>
<td>M12</td>
<td></td>
</tr>
<tr>
<td>C (Blue)</td>
<td>Phase C</td>
<td>1 – 2 stud mounting</td>
<td>76 (56)</td>
<td>M12</td>
<td></td>
</tr>
<tr>
<td>Customer Ground</td>
<td>Ground</td>
<td>Ground</td>
<td>1 – 2 stud mounting</td>
<td>76 (56)</td>
<td>M12</td>
</tr>
</tbody>
</table>

Table S. Recommended Installation Parts and Tools (Not Supplied by Eaton)

<table>
<thead>
<tr>
<th>Part</th>
<th>Size</th>
<th>Quantity</th>
<th>Manufacturer</th>
<th>Part Number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Barrel 2-Hole Lug</td>
<td>#8 AWG</td>
<td>As required</td>
<td>Thomas &amp; Betts</td>
<td>54850BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#6 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54852BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#4 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54854BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#3 and #2 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54856BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>#1 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54858BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/0 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54860BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2/0 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54862BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/0 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54864BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4/0 AWG</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54866BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>250 MCM</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54868BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300 MCM</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54870BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>350 MCM</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54872BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>400 MCM</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54874BE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>500 MCM</td>
<td></td>
<td>Thomas &amp; Betts</td>
<td>54876BE</td>
<td></td>
</tr>
<tr>
<td>Manual Hydraulic Crimp Tool</td>
<td>14 Ton</td>
<td>1</td>
<td>Thomas &amp; Betts</td>
<td>TBM14M</td>
<td>Copper wire only</td>
</tr>
<tr>
<td>Die Set</td>
<td>N/A</td>
<td>1</td>
<td>Thomas &amp; Betts</td>
<td>15506</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** Equivalent parts are acceptable

20. Terminals are UL and CSA rated at 75°C. See Table T for output power cable terminations. Paragraph A-35 shows the location of output power cable terminals inside of the PDU cabinet.
21. DO NOT overtighten the terminal lugs to prevent stripping the threads. Tighten lugs to the torque values in Table T and Table U.

Table T. Eaton 300 kVA PDU Output Power Cable Terminations for Subfeed Breakers

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Breaker Rating</th>
<th>Terminal Function</th>
<th>Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type and Size Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>(F-Frame) &lt;=100A</td>
<td>A Phase A</td>
<td></td>
<td>1 - #14 – 1/0</td>
<td>Varies based on wire size. See Table U below.</td>
<td>Slotted screw</td>
</tr>
<tr>
<td></td>
<td>B Phase B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C Phase C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(F-Frame) &gt;100A</td>
<td>A Phase A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B Phase B</td>
<td></td>
<td>1 - #4 – 4/0</td>
<td>13.6 (120)</td>
<td>3/16” Hex</td>
</tr>
<tr>
<td></td>
<td>C Phase C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(K-Frame)</td>
<td>A Phase A</td>
<td></td>
<td>2 - 2/0 – 250 kcmil</td>
<td>31.0 (275) and 42.0 (375)</td>
<td>5/16” Hex or 3/8” Hex</td>
</tr>
<tr>
<td></td>
<td>B Phase B</td>
<td></td>
<td>or 1 - 2/0 – 500 kcmil</td>
<td>42.0 (375)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C Phase C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(L-Frame)</td>
<td>A Phase A</td>
<td></td>
<td>2 - 3/0 – 350 kcmil</td>
<td>31 (275)</td>
<td>5/16” Hex</td>
</tr>
<tr>
<td></td>
<td>B Phase B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C Phase C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL</td>
<td>N Neutral</td>
<td>#2 – 600 kcmil</td>
<td>42.0 (375)</td>
<td>1/2” Hex</td>
<td></td>
</tr>
<tr>
<td>ALL</td>
<td>G Ground</td>
<td>#14 – 1/0</td>
<td>Varies based on wire size. See Table U below.</td>
<td>Slotted Screw</td>
<td></td>
</tr>
</tbody>
</table>

Wire branch circuits in accordance with branch circuit breaker manufacturer’s ratings and instructions and national and local electrical codes (output is prewired to the panelboard).

Table U. Tightening Torque for F-Frame Breaker and Ground Lug using Slotted Screws

<table>
<thead>
<tr>
<th>AWG Wire Range</th>
<th>Metric Wire Range</th>
<th>Torque Value Lb.-in. (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#14 – #10</td>
<td>2.5 – 6</td>
<td>35 (3.96)</td>
</tr>
<tr>
<td>#8</td>
<td>10</td>
<td>40 (4.52)</td>
</tr>
<tr>
<td>#6 – #4</td>
<td>16 – 25</td>
<td>45 (5.09)</td>
</tr>
<tr>
<td>#3 – 1/0</td>
<td>35 – 95</td>
<td>50 (5.65)</td>
</tr>
</tbody>
</table>

NOTE PRL3 and PRL4 use same ground and neutral lugs.

NOTE Lug TA401K is a 2-hole lug and employs two different size bores each with a different compression screw.
A.4 Location of Conduit Landing and Wire Entry Plates

**NOTE** Sidecars are optional.

**Figure A-30. PDU Conduit Landing Plate Locations – Top View of PDU with Front-Facing Sidecars**

- Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- PDU Top Entry Conduit Landing Plates for AC Input and Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- Interface Entry Conduit Landings for TB1, TB2 Wiring and X-Slot Connections (Remove panels to drill or punch conduit holes.)

**Figure A-31. PDU Conduit Landing Plate Locations – Bottom View of PDU with Front-Facing Sidecars**

- Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- PDU Bottom Entry conduit Landing Plates for AC Output. May be interchanged with top solid output plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)

**NOTE** Sidecars are optional.

Exhaust Grill Debris Shield (Remove shield before operating system.)

Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
Figure A-32. PDU Conduit Landing Plate Locations – Top View of PDU with Side-Facing Sidecars

Exhaust Grill Debris Shield
(Remove shield before operating system.)

- Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- PDU Top Entry Conduit Landing plates for AC Input and Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- Interface Entry Conduit Landings for TB1, TB2 Wiring and X-Slot Connections. (Remove panels to drill or punch conduit holes.)
- Sidecar Top Entry Conduit Landing Plates for AC Output. May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)

NOTE: Sidecars are optional.

Figure A-33. PDU Conduit Landing Plate Locations – Bottom View of PDU with Side-Facing Sidecars
**Figure A-34. PDU Conduit Landing Plate Locations – Top View of PDU with Dual Input Sidecar**

- **Exhaust Grill Debris Shield**: Remove shield before operating system.
- **PDU Top Entry Conduit Landing Plates for AC Output**: May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- **Interface Entry Conduit Landings for TB1, TB2**: Wiring and X-Slot Connections (Remove panels to drill or punch conduit holes.)
- **Dual Input Sidecar Top Entry Conduit Landing Plates for AC Output**: May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)

**Figure A-35. PDU Conduit Landing Plate Locations – Bottom View of PDU with Dual Input Sidecar**

- **PDU Bottom Entry Conduit Landing Plates for AC Output**: May be interchanged with top solid output plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
- **Sidecar Top Entry Conduit Landing Plates for AC Input**: May be interchanged with bottom plates. (Remove panel to drill or punch conduit holes, or remove knockouts.)
A.5 Location of Power Terminals

NOTE The PDU is shown with both left and right distribution panels. However, the installed configuration may contain only a left or right distribution panel.

Figure A-36. Power Terminal Locations – PDU with Two Output Distribution Panels
NOTE The PDU is shown with eight subfeed breakers. However, the installed configuration may contain one to eight subfeed breakers.

Figure A-37. Power Terminal Locations – PDU with Left and Right “F” Frame Subfeed Breakers (PRL3a)
NOTE The PDU is shown with twelve subfeed breakers. However, the installed configuration may contain one to twelve subfeed breakers.

Figure A-38. Power Terminal Locations – PDU with Left and Right “F” Frame Subfeed Breakers (PRL4B)
Figure A-39. Power Terminal Locations – PDU with "K" Frame Subfeed Breakers (PRL4B)

NOTE The PDU is shown with five subfeed breakers. However, the installed configuration may contain one to five subfeed breakers.
**NOTE** The PDU is shown with three subfeed breakers. However, the installed configuration may contain one to three subfeed breakers.

**Figure A-40. Power Terminal Locations – PDU with “L” Frame Subfeed Breakers (PRL4B)**
Figure A-41. Power Terminal Locations – Single Input Crimp Lugs

Figure A-42. Power Terminal Locations – Single Input Crimp Lug Detail (Cover Removed)
Figure A-43. Power Terminal Locations – Front Only Service Access PDU
Figure A-44. Power Terminal Locations – Front Only Service Access with Single Input Crimp Lugs

- Lightning Arrestor (optional)
- SPD (optional)
- AC Input (A, B, C, G) (K or L-Frame) to Optional CB1 Crimp Lugs Input (See Figure A-45 for details.)
- Remove cover to access terminals. See Figure A-45 for details.
- Input Ground Terminals
- Optional Unmonitored Subfeed Breakers (See Figure A-55 or Figure A-56 for details.)
- Unmonitored Subfeed Output Neutral Terminals

Figure A-45. Power Terminal Locations – Front Only Service Access with Single Input Crimp Lug Detail (Cover Removed)

- Customer Connection
- Phase A
- Phase B
- Phase C
- Ground
Figure A-46. Power Terminal Locations – Dual Input Sidecar

AC Input to CB1
(A, B, C) (L or K-Frame)
(See Figure A-53, or Figure A-54 for details.)

AC Input to CB2
(A, B, C) (L or K-Frame)
(See Figure A-53, or Figure A-54 for details.)

AC Input (A, B, C, G) to Optional CB1 Crimp Lugs Input
(See Figure A-47 for details.)

Remove cover to access terminals

Remove cover to access terminals
Figure A-47. Power Terminal Locations – Dual Input Crimp Lug Detail
NOTE The sidecar is shown with both top and bottom distribution panels. However, the installed configuration may contain only a top or bottom distribution panel.

Figure A-48. Power Terminal Locations – Left or Right Front-Facing Sidecar with Two Output Distribution Panels
Figure A-49. Power Terminal Locations – Left or Right Front-Facing Sidecar with “F” Frame Subfeed Breakers (PRL3a)

NOTE The sidecar is shown with four subfeed breakers. However, the installed configuration may contain one to four subfeed breakers.
NOTE The sidecar is shown with both top and bottom distribution panels. However, the installed configuration may contain only a top or bottom distribution panel.

Figure A-50. Power Terminal Locations – Left or Right Side-Facing Sidecar with Two Output Distribution Panels
Figure A-51. Power Terminal Locations – Left or Right Side-Facing Sidecar with "F" Frame Subfeed Breakers (PRL3a)

NOTE: The sidecar is shown with four subfeed breakers. However, the installed configuration may contain one to four subfeed breakers.
Figure A-52. Power Terminal Locations – Left or Right Side-Facing Sidecar with “F” Frame Subfeed Breakers (PRL4B)

NOTE The sidecar is shown with twelve subfeed breakers. However, the installed configuration may contain one to twelve subfeed breakers.
Figure A-53. Power Terminal Locations – "K" Frame PDU Input Main Breaker CB1 or CB2 Terminal Detail

Figure A-54. Power Terminal Locations – "L" Frame PDU Input Main Breaker CB1 or CB2 Terminal Detail

Figure A-55. Power Terminal Locations – "F" Frame Output Subfeed Breaker Terminal Detail
A.6 Interface Wiring Notes

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

---

**WARNING**

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

---

**CAUTION**

Alarm relay contacts should not be operated in excess of 30 Vac @ 5A maximum.
1. Use Class 1 wiring methods (as defined by the NEC) for interface wiring up to 30V. The wire should be rated at 24V, 1A minimum.

2. Use Class 2 wiring methods (as defined by the NEC) for interface wiring from 30 to 600V. The wire should be rated at 600 volts, 1A minimum and 12 AWG maximum.

3. Use shielded twisted-pair wires for each input and return or common.

4. All interface wiring and conduit is to be provided by the customer.

5. When installing external interface wiring (for example, building alarm, relay output, and X-Slot) to the PDU interface terminals, conduit must be installed between each device and the PDU cabinet.

6. Install the interface wiring in separate conduit from the power wiring.

7. All building alarm inputs require an isolated normally-open or normally-closed contact or switch (rated at 24 Vdc, 20 mA minimum) connected between the alarm input and common terminal. Building alarm inputs can be programmed for use with either normally-open or normally-closed contacts. All relay and switch contacts are customer-supplied.

8. The building alarms can be programmed to display the alarm functional name using the front panel LCD.

9. Alarm relay contacts have a maximum current rating of 5A and a switched voltage rating of 30 Vac and 28 Vdc.

10. Alarm relay wiring should be a minimum of 22 AWG.

11. See Table V, Figure A-58 through Figure A-71, and Chapters 3 and 7 for interface wiring.

12. LAN drops for use with X-Slot connectivity cards must be provided by facility planners or the customer.

### Table V. UCB TB1 and TB2 Interface Connections

<table>
<thead>
<tr>
<th>TB1 Terminal</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Building Alarm 1</td>
<td>Input: Programmable PDU alarm, activated by a remote dry contact closure. Building alarm inputs can be programmed for use with either normally-open or normally-closed contacts.</td>
</tr>
<tr>
<td>2</td>
<td>Building Alarm 1 Return</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Building Alarm 2</td>
<td>Input: Programmable PDU alarm, activated by a remote dry contact closure. Building alarm inputs can be programmed for use with either normally-open or normally-closed contacts.</td>
</tr>
<tr>
<td>4</td>
<td>Building Alarm 2 Return</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>REPO</td>
<td>Input: Normally open or normally-closed dry contact used to activate PDU EPO from a remote switch. The factory default configuration is set up for use with a normally-open switch. To use a normally-closed switch, the configuration must be changed during setup by an Eaton Customer Service Engineer.</td>
</tr>
<tr>
<td>6</td>
<td>REPO Return</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Local EPO</td>
<td>NOT USED</td>
</tr>
<tr>
<td>8</td>
<td>Local EPO Return</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TB2 Terminal</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alarm Relay Common</td>
<td>Output: General purpose normally-open (NO) and normally-closed (NC) relay contacts. Set by default to signal when a panelboard or subfeed breaker overload occurs.</td>
</tr>
<tr>
<td>2</td>
<td>Alarm Relay NO</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Alarm Relay NC</td>
<td></td>
</tr>
</tbody>
</table>

### Table W. PDU Aux & Shunt Trip Wiring Terminal Block Terminations

<table>
<thead>
<tr>
<th>Terminal Function</th>
<th>Rating</th>
<th>Size of Pressure Termination</th>
<th>Tightening Torque Nm (lb in)</th>
<th>Type Screw</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shunt Trip or Auxiliary Contacts</td>
<td>600V, 20A</td>
<td>#26–#12</td>
<td>0.4 (3.5) - 0.8 (7.1)</td>
<td>Slotted</td>
<td>Use twisted-pair wires for each input and return or common. Strip wire insulation back 10 millimeters to wire terminal blocks.</td>
</tr>
</tbody>
</table>
NOTE The PDU is shown with both left and right distribution panels. However, the locations of the interface terminals are the same for all configurations.

**Figure A-58. PDU Interface Terminal Locations for Unmonitored Subfeed Breaker Monitoring**
Figure A-59. PDU Interface Terminal Locations for Two PRL3 and Subfeed Breaker Monitoring

- Optional Aux and Shunt Trip Terminal Blocks for PRL3 Panel 2. See Figure A-63 for details.
- Optional Aux and Shunt Trip Terminal Blocks for PRL3 and Unmonitored Subfeed Breakers. See Figure A-62 for details.
- Optional Aux and Shunt Trip Terminal Blocks for PRL3 Panel 1. See Figure A-63 for details.

X-Slot Communication Bay

Terminals TB1 and TB2
(See Figure A-70 for details.)

UCB
Figure A-60. PDU Interface Terminal Locations for PRL4 Monitoring – Main PDU and Sidefacing Sidecar
Figure A-61. PDU Interface Terminal Locations for No Panelboards
Figure A-62. Terminal Blocks for PRL3 and Optional Unmonitored Subfeed Breaker Monitoring
### Figure A-63. PRL3 Terminal Block Detail

<table>
<thead>
<tr>
<th></th>
<th>A-ST</th>
<th>A-RTN</th>
<th>B-ST</th>
<th>B-RTN</th>
<th>A-NO</th>
<th>A-COM</th>
<th>A-NC</th>
<th>B-NO</th>
<th>B-COM</th>
<th>B-NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-ST</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>01-RTN</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>02-ST</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>02-RTN</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>03-ST</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>03-RTN</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>04-ST</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>04-RTN</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>01-NO</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>01-COM</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>01-NC</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>02-NO</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>02-COM</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>02-NC</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>03-NO</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>03-COM</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>03-NC</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>04-NO</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>04-COM</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>04-NC</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**NOTE** Numbers in terminal designation indicate PRL3 panelboard breaker number as shown in Figure A-59.

---

### Figure A-64. Unmonitored Subfeed Breaker Terminal Block Detail

<table>
<thead>
<tr>
<th></th>
<th>A-ST</th>
<th>A-RTN</th>
<th>B-ST</th>
<th>B-RTN</th>
<th>A-NO</th>
<th>A-COM</th>
<th>A-NC</th>
<th>B-NO</th>
<th>B-COM</th>
<th>B-NC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**NOTE** First letter in terminal designation indicates unmonitored subfeed breaker letter as shown in Figure A-59.
Figure A-65. Terminal Block for PRL4 Monitoring
NOTE Numbers in terminal designation indicate PRL4 panelboard breaker number as shown in Figure A-80.

**Figure A-66. PRL4 Terminal Block Detail**
Figure A-67. Front Facing Sidecar Interface Terminal Location

Optional Aux and Shunt Trip Terminal Blocks for PRL3 Breakers. See Figure A-69 for details.
Optional Aux and Shunt Trip Terminal Blocks for PRL3 Breakers. See Figure A-69 for details.

Figure A-68. Side Facing Sidecar Interface Terminal Location
NOTE Numbers in terminal designation indicate PRL4 panelboard breaker number as shown in Figure A-67 or Figure A-68.

Figure A-69. Terminal Block for Front and Side Mounted Sidecar PRL3 Aux and Shunt Trip Option
NOTE: All building alarm inputs require an isolated normally-open or normally-closed contact or switch (rated at 24 Vdc, 20 mA minimum) connected between the alarm input and common terminal as shown. Building alarm inputs can be programmed for use with either normally-open or normally-closed contacts.

NOTE: The building alarms can be programmed to display the alarm functional name using the front panel LCD display controls.

Figure A-70. PDU Customer Input Terminal Detail

NOTE: Alarm relay contacts have a maximum current rating of 5A and a switched voltage rating of 30 Vac and 28 Vdc.

NOTE: Alarm relay wiring should be a minimum of 22 AWG.

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

NOTE: Relay is shown in de-energized state. By default, the relay changes state when a panelboard or subfeed breaker overload occurs.

Figure A-71. Typical Alarm Relay Connection
### A.7 Optional Remote Emergency Power-off

The REPO feature opens the PDU main input breaker CB1 (or CB2 if installed) and isolates power from the critical load. Local electrical codes may also require tripping upstream protective devices to the PDU.

1. This switch must be a normally-open or normally-closed latching-type switch not tied into any other circuits. The factory default configuration is set up for use with a normally-open switch. To use a normally-closed switch, the configuration must be changed during setup by an Eaton Customer Service Engineer.

2. The REPO switch rating is 24 Vdc, 1A minimum.

3. REPO wiring should be a minimum of 22 AWG and a maximum of 14 AWG.

4. The REPO switch wiring must be in accordance with NEC Article 725 Class 2 requirements.

5. The maximum distance between the REPO and the PDU cannot exceed 150m (500 ft).

6. See Table V, Figure A-72 or Figure A-73, and Chapter 4 for REPO interface wiring.

7. See Figure A-74 for the optional Eaton REPO switch.

![Figure A-72. REPO Wiring – Normally Open Switch](image1)

![Figure A-73. REPO Wiring – Normally Closed Switch](image2)
Dimensions are in millimeters [inches].

**Figure A-74. Optional Eaton REPO Switch**

NOTE: Interface wiring and conduit between the REPO switch and the PDU are to be supplied by the customer.
A.8 Optional Floor Mounting Brackets

Front and rear floor mounting brackets can be installed to permanently secure the PDU to the facility floor.

Figure A-75. Optional Floor Mounting Bracket Dimensions
A.9 Optional Floorstand

A floorstand can be used to support the PDU when installed in facilities with raised floors that will not support the weight of the PDU directly (see Figure A-76 through Figure A-78). The floorstand supports only the main cabinet. Because the sidecars are not weight bearing items they are supported on the floor by their attached leveling feet.

Figure A-76. Optional Floorstand Dimensions

Dimensions are in millimeters (inches).
Figure A-77. Optional Floorstand Mounting Views

Stands are available from 7 inches to 48 inches in height.

Dimensions are in millimeters (inches).
Figure A-78. Optional Floorstand Mounting Features
A.10 Optional Air Skirt

An air skirt can be installed around the perimeter of the PDU Main Unit and any sidecars installed with the PDU. An air skirt helps contain air flow under the PDU. See Figure A-79 through Figure A-80 for air skirt installation illustrations.

**CAUTION**

Use air skirts only when the PDU is installed on a raised floor where the raised floor acts as a plenum and provides adequate air flow to the PDU. The side skirts are to keep forced air from escaping, but will block air if installed on a concrete or similar non-raised flat floor. Inadequate air flow will cause the PDU to overheat.

---

Figure A-79. 300 kVA PDU Main Unit with Optional Air Skirt Installed (Front and Side View)
Size of Air Skirt and number of screws varies with configuration.

Figure A-80. Typical Air Skirt for Power Xpert Gateway Card