

Input / Output Panels

400A / 800A

Installation Instructions & User Manual



A safe, convenient and
reliable way to connect and
access temporary power



Contents

- 2 Contents / Important
- 3 Prior to Installation: Site Preparation
- 3 Shipment: Unpacking and Inspection
- 4 Product Features (Input / Output)
- 5 Installation (Input / Output)
- 6 Installation Continued (Input)
- 7 Set-up (Input)
- 8 Disconnecting Circuits (Input)
- 9 Installation (Output)
- 9 Set-up (Output)
- 10 Disconnecting Circuits (Output)
- 10 Product Feature Instructions (Input)
- 11 Kirk Key Installation
- 12 Limited Warranty
- 12 Maintenance
- 12 Technical Support

Appendices

- 12 Appendix A - Pre-Operation and Maintenance Checklist
- 13 Appendix B - Parts Dimensions
- 13 Appendix C - Replacement Parts
- 14 Appendix D - Labels for Replacement
- 16 Represented Model Numbers and Ratings

Important:

This manual contains information critical to the proper installation and operation of the Lex Products PowerGATE™ Panels. Be certain to read and understand all instructions prior to installation and operation.

Lex Products PowerGATE™ Panels must be installed in conjunction with a Transfer Switch.

This manual is furnished exclusively to support installation and operation of the Lex Products PowerGATE Input / Output Panels. All concepts and ideas are the sole property of Lex Products and are not to be duplicated or utilized in any manner without written permission.

Lex Products PowerGATE™ Input Panels are Listed to UL 1008. Lex Products PowerGATE™ Output Panels are Listed to UL 891 for Switchboards.

Prior to Installation: Site Preparation

Prepare installation site according to local codes.

The PowerGATE™ Panel is to be secured to a building using appropriate 3/8" fasteners (See Figure 1).

The surface where the PowerGATE™ Panel is to be secured must be capable of supporting the weight of the cabinet as well as the cable attached to it.

The following should be taken into consideration when locating the PowerGATE™ Panel:

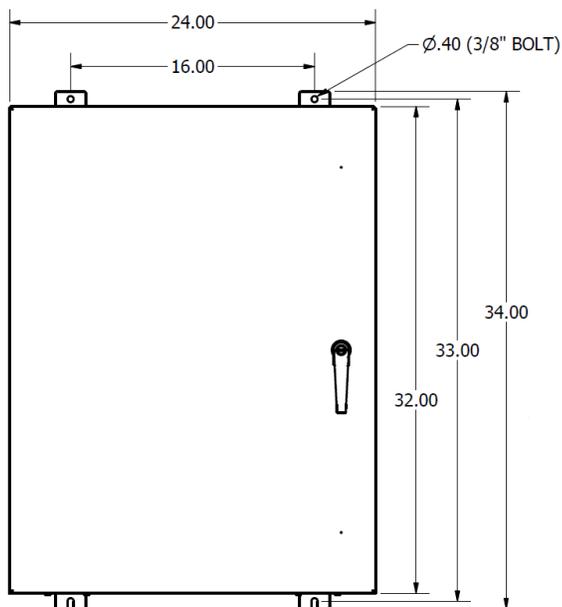
- The PowerGATE™ Panel is designed for exterior operation ONLY.
- Identify and meet local codes and local Authority Having Jurisdiction (AHJ) requirements.
- To prevent carbon monoxide poisoning from improperly ventilated generator emissions, the PowerGATE™ Panel must be mounted outdoors only. The mounting location is to be carefully selected to allow convenient connection to a generator or load bank, and located a suitable distance away from any building openings or HVAC inlets.
- Proper clearance must be allowed in front of the PowerGATE™ Panel to allow for opening of access doors and attachment of externally connected cables. This distance should be no less than six (6) feet from the face of the panel.
- While padlock protection is provided, potential access by unauthorized personnel and vandals should be taken into consideration when locating this device.

Shipment: Unpacking and Inspection

NOTE: Be careful in the use of sharp objects when cutting packaging as damage to the outer enclosure may result.

Perform a visual inspection to ensure the door and all latching hardware are in functioning condition and that the panel integrity is intact.

Figure 1 (Input / Output Panel)



Front view with mounting holes

Product Features (Input Panel Pictured)

Figure 2



Figure 3

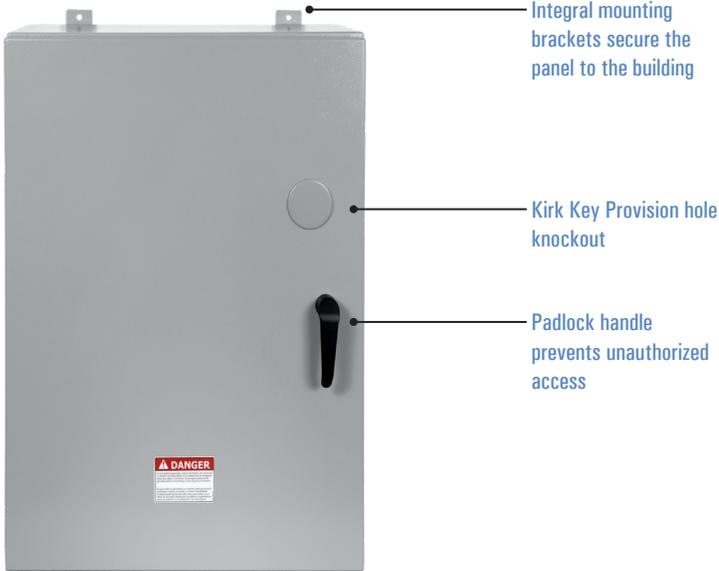


Figure 4



- Entire assembly is cULus Listed NEMA 3R Rainproof
- Low profile
- Cables drape straight down
- Dead front panel prevents accidental contact with wiring chamber

Installation - Input / Output Panels

The installation of the PowerGATE™ Panel should be carried out by qualified personnel in accordance with local electrical codes.

The PowerGATE™ Panel must be installed in conjunction with a transfer switch.

The transfer switch shall not have a rating greater than the PowerGATE™ Panel.

Step 1: Fasten the PowerGATE Power Panel to secure location

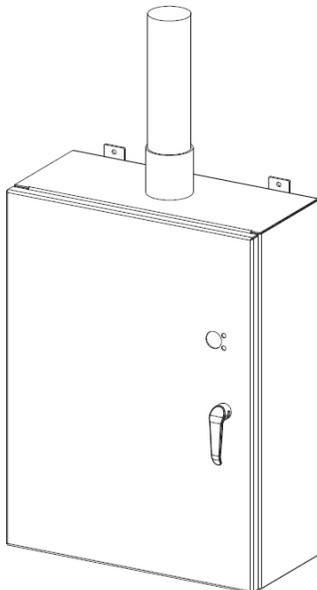
NOTE: The PowerGATE™ Panel weighs approximately 58 lbs. without attached cables.

1. The panel should be located so there is adequate room for the externally connected cables to hang below the panel
 - Typically allow a minimum of 36" clearance from the bottom of the panel to finished ground level
2. Fastening onto an external wall using 3/8" fasteners must be completed prior to proceeding with any terminations (See Figure 1A / 1B for hole spacing)

Step 2: Installing the Conduit

NOTE: Conduit to enter through the top of the device (See Figure 5)

Figure 5



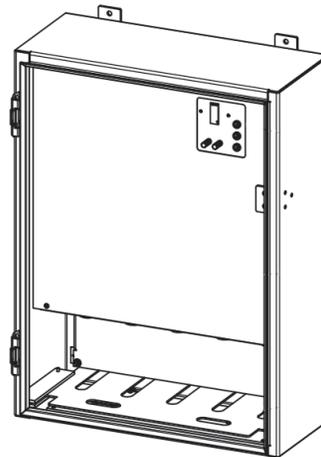
NOTE: To maintain TYPE 3R Rating compliance for the enclosure, proper sealing procedures must be followed. This is to include, but is not limited to, the use of proper gaskets.

NOTE: In order to prevent enclosure damage and to attain the enclosure requirements, the conduit must be aligned to prevent unnecessary stress on the enclosure walls.

1. Open upper to door to expose dead front panel
2. Unfasten the dead front panel by removing the four (4) Phillips-headed 10-32 x 1/2" screws securing it (See Figure 6A and 6B)
3. Conduit to be sized according to cabling rating
4. It is recommended that a knockout punch be used to cut hole for conduit
 - Place the punch on the inside of the enclosure and draw the punch through to the die on the outside.
5. Vacuum entire upper chamber to ensure no shavings are left behind

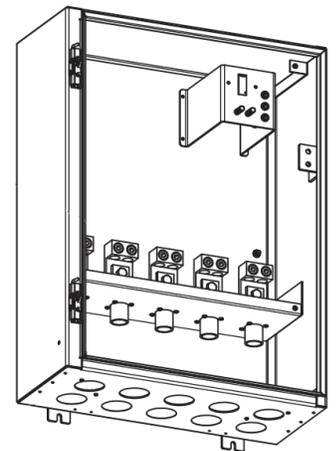
Input / Output Panel

Figure 6A

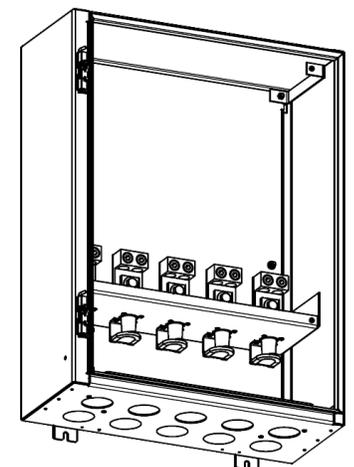
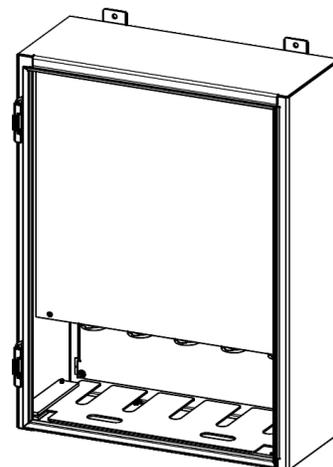


Front view with hinged cover removed

Figure 6B



Front view with dead front panel removed



Installation - Input Panels (continued)

(For Output Panels continue to page 9)

Step 3: Wiring the Lug Terminals

WARNING

Ensure circuit breakers are OFF and the transfer switch is locked out from utility power prior to connection.

Failure to install transfer switch will create the potential for the generator to energize utility lines and endanger utility personnel. Conversely, utility lines may energize the PowerGATE™ Input Panel and endanger generator personnel.

The PowerGATE™ Power Input Panel is for the connection of a generator to the source terminals of a transfer switch, such that the inlets are only energized from the generator.

1. Pull the cables from the transfer switch to the PowerGATE™ Input Panel
2. Beginning with the ground, strip and install the cables in the appropriate compression terminals
 - NOTE: The terminals can accommodate #2 to 600 MCM, Copper or aluminum wire
3. Tighten terminal screws to 375 lb-in torque each
4. If metallic conduit is used, connect ground wire from ground bushing on conduit to the ground connection point in the upper right quadrant of the panel
 - Ground conductor must be a minimum of #3 AWG
 - NOTE: Conduit shall NOT be relied upon to provide grounding protection to tap box
5. Continue to connect the neutral and then the phases
6. Vacuum entire upper chamber to ensure no metal shavings are left behind
7. Replace dead front panel door and secure using four (4) 10-32 x 1/2" Phillips-headed screws

WARNING

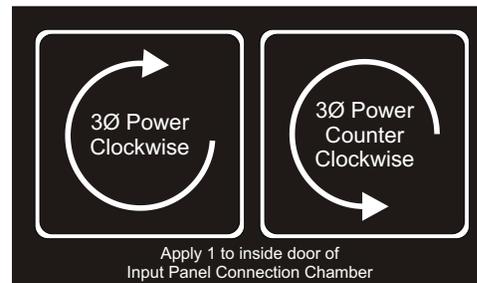
Three phase power systems consist of three phase or hot conductors that are shifted by 120 degrees. Three phase loads such as motors may only work properly if the phases are connected in the correct order. Some motors may work when connected improperly, but will operate backwards. Utility power and electrical generators may be wired either in a clockwise or counter-clockwise order. It is important that any generator connected to the PowerGATE™ input panel is connected in the same rotation (clockwise or counter-clockwise) as the utility power.

Step 4: Determine Phase Rotation

This information will be needed when connecting a generator.

1. Determine phase rotation of the utility power.
 - A. Connect a phase rotation meter to a three phase power source in the building and record whether the building is wired clockwise or counter-clockwise
2. Apply the provided label (Figure 7) to the inside of the PowerGATE™ Input Panel on the inside of the cam connection chamber door (Figure 8).

Figure 7



Lex Products Part Number – LBL-PGIP-ROTATION

Figure 8



Place rotation label here

Step 5: Conduct a safety test to ensure proper installation

Do not attempt to use the PowerGATE™ Input Panel prior to installation and completing the Pre-Operation and Maintenance Checklist under Appendix A.

Set-up - Input Panels (continued)

Step 6: Review Pre-Operation Checklist under Appendices A prior to operation (page 10)

⚠ WARNING

DO NOT ATTEMPT CONNECTION WHILE CIRCUITS ARE LIVE

- Do not use cables if they appear frayed
- Do not use cable if connectors or plug do not seat properly
- Do not use cables if any copper cabling is exposed
- To limit risk of shock, disable generator automatic start to prevent unintended starting

Step 7: Determining phase rotation of generator

1. Disconnect generator from all loads if needed
2. Connect a phase rotation meter to the output phases of the generator
3. Record generator phase rotation (clockwise or counter-clockwise)

Step 8: Making Cam Connections

1. Remove padlock, rotate handle and open chamber door
2. Feed ground (green) cable through appropriate port in bottom
3. Complete the connection

Proper connection (See Figure 9):

- A. Grasp connector jacket and firmly insert cam connector into cam plug
 - B. Push on cam connector jacket until connector fully seats in cam plug
 - C. Rotate cam connector jacket clockwise until it stops
4. Complete the Neutral (white) connection

Proper connection (See Figure 9):

- A. Grasp connector jacket and firmly Insert cam connector into cam plug
 - B. Push on cam connector jacket until connector fully seats in cam plug
 - C. Rotate cam connector jacket clockwise until it stops
5. Complete the Phase (hot) connections
 - A. Should the phase rotation of the generator (as determined in Step 7.3. above) and utility power (label found on the inside of the door for the Cam connection chamber) match, connect the Hots as follows:

Generator Hot	PowerGATE™ Input Panel Hot
A	A
B	B
C	C

- B. Should the phase rotation of the generator (as determined in Step 7.3. above) and utility power (label found on the inside of the door for the Cam connection chamber) NOT match, connect the Hots as follows:

Generator Hot	PowerGATE™ Input Panel Hot
A	B
B	A
C	C

Proper connection (See Figure 9):

- A. Grasp connector jacket and firmly insert cam connector into cam plug
 - B. Push on cam connector jacket until connector fully seats in cam plug
 - C. Rotate cam connector jacket clockwise until it stops
6. Make sure all connections are correct and secure

Figure 9



Set-up - Input Panels (continued)

Step 9: Close chamber door, rotate handle and replace padlocks, allowing cables to exit cable ports at bottom.

Step 10: Powering Up

⚠ WARNING
DO NOT ATTEMPT DISCONNECTING WHILE CIRCUITS ARE LIVE

1. Start generator per manufacturer instructions
2. Toggle the transfer switch, diverting power from utility to generator feed

Disconnecting Circuits - Input Panels

Step 11: Disconnecting Circuits

⚠ WARNING
Power **MUST BE** supplied from a single generator

1. To limit risk of shock, disable generator automatic start to prevent unintended starting
 - Remove padlock and open chamber door
 - Order of disconnect
2. Disconnect the Phase (hot) connections, beginning with the furthest to the left

Proper disconnection (See Figure 10):

- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stops
- B. Firmly pull on connector until it separates from the plug
- C. Set aside

3. Continue with ALL Phase (hot) connections
4. Complete disconnect of ALL hot connections prior to proceeding

5. Disconnect the Neutral (white) connection.

Proper disconnection (See Figure 10):

- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stops
- B. Firmly pull on connector until it separates from the plug
- C. Set aside

6. Disconnect the Ground (green) connections.

Proper disconnection (See Figure 10):

- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stops
- B. Firmly pull on connector until it separates from the plug
- A. Set aside

Step 12: Close chamber door, rotate handle and replace padlock.

Figure 10



Installation - Output Panels (continued)

(For Output Panels continued from page 5)

Step 3: Wiring the Lug Terminals

WARNING

Ensure circuit breakers are OFF and the transfer switch is locked out from source power prior to connection.

Failure to install transfer switch will create the potential for the source to energize the PowerGATE™ Output Panel and endanger personnel.

The PowerGATE™ Power Output Panel is for the connection of a Load Bank to the output terminals of a transfer switch.

1. Pull the cables from the load output terminals of the transfer switch to the PowerGATE™ Output Panel
2. Beginning with the ground, strip and install the cables in the appropriate compression terminals
NOTE: The terminals can accommodate #2 to 600 MCM, Copper wire only
3. Tighten terminal screws to 375 lb-in torque each
4. If metallic conduit is used, connect ground wire from ground bushing on conduit to the ground connection point in the upper right quadrant of the panel
 - A. Ground conductor must be a minimum of #3 AWG**NOTE:** Conduit shall NOT be relied upon to provide grounding protection to tap box
5. Continue to connect the neutral and then the phases
6. Vacuum entire upper chamber to ensure no metal shavings are left behind
7. Replace dead front panel door and secure using four (4) 10-32 x 1/2" Phillips-headed screws

Step 4: Conduct a safety test to ensure proper installation

Do not attempt to use the PowerGATE™ Output Panel prior to installation and completing the Pre-Operation and Maintenance Checklist under Appendix A.

Set-up - Output Panels

Step 5: Review Pre-Operation Checklist under Appendices A prior to operation (page 12)

WARNING

DO NOT ATTEMPT CONNECTION WHILE CIRCUITS ARE LIVE

- Do not use cables if they appear frayed
- Do not use cable if connectors or plug do not seat properly
- Do not use cables if any copper cabling is exposed
- To limit risk of shock, disable generator automatic start to prevent unintended starting

Step 6: Making Cam Connections

1. Remove padlock and open chamber door
2. Feed ground (green) cable through appropriate port in bottom
3. Complete the connection
Proper connection (See Figure 9):
 - A. Grasp connector jacket and firmly insert cam connector into cam plug
 - A. Push on cam connector jacket until connector fully seats in cam plug
 - A. Rotate cam connector jacket clockwise until it stops
4. Complete the Neutral (white) connection following proper connection (See Figure 9)
5. Complete the Phase (hot) connections following proper connection (See Figure 9)

Step 9: Close chamber door and replace padlocks, allowing cables to exit cable ports at bottom.

Step 10: Powering Up

WARNING

Power MUST BE supplied from a source wired to a Transfer Switch

1. Start generator per manufacturer instructions
2. Start load bank per manufacturer instructions
3. Toggle the transfer switch, diverting power from the generator to the load bank

Disconnecting Circuits - Output Panels

Step 11: Disconnecting Circuits

WARNING

DO NOT ATTEMPT DISCONNECTING WHILE CIRCUITS ARE LIVE

1. To limit risk of shock, disable generator automatic start to prevent unintended starting
 - Remove padlock and open chamber door
 - Order of disconnect
2. Disconnect the Phase (hot) connections, beginning with the furthest to the left
3. Continue with ALL Phase (hot) connections
4. Complete disconnect of ALL hot connections prior to proceeding
5. Disconnect the Neutral (white) connection.

Proper disconnection (See Figure 10):

- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stop
 - B. Firmly pull on connector until it separates from the plug
 - C. Set aside
- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stops
 - B. Firmly pull on connector until it separates from the plug
 - C. Set aside
- A. Grasp connector jacket firmly and rotate cam connector counter clockwise until it stops
 - B. Firmly pull on connector until it separates from the plug
 - C. Set aside

Step 12: Close chamber door and replace padlock.

Product Feature Instructions

Phase Rotation Monitor

Visually Monitor the correct sequence of phases L1, L2 and L3 by the presence of a yellow LED light. If connected to a generator and the yellow light is not present, reverse any two phases. The LED light will then illuminate.



Cable Entry Plate

Remove cable entry plate to allow connection of CAM feeder cables. Once all cables are connected insert the cable entry plate into the white tracks within cabinet and slide into place. Remove cable entry plate before disconnecting CAM feeder cables.

- Return plate into position once cables are removed



Product Feature Instructions - Continued

Kirk Key Installation

Parts Kit

- Lex Products Power Input / Output Panel
- Lex Products Kirk Key Install Kit (comes with unit)
 - Seeloc washer
 - Silicone Sealant
 - Installation Instructions
- HD Series Kirk Key (Type D of DM) (not provided by Lex Products)

Equipment Needed

- Torque wrench
- Nut driver or wrench

Installation Instructions

- Install catch to bracket provided on the inside of the enclosure



- Install Kirk Key lock/housing to the inside of the door panel
- Apply provided (UL50/50E) sealant to the Kirk Key shoulder where it will meet and seal with the inside of the enclosure door. Form a complete circular ring around the shoulder in order to provide a 360° seal.



Attach the Kirk Key to the door panel using the Seeloc washers provided.

- Place the Kirk Key cylinder head through the aperture provided in the front door of the enclosure
- Secure the Kirk Key to the panel by inserting the 3/8" bolts using the following order:
 1. Seeloc
 2. Front panel
 3. Kirk Key housing
 4. Spring washer
 5. 5. 3/8" nut



NOTE: Seeloc washers provided may vary in color from the ones shown above.



- Ensure that the Kirk Key lock properly engages with the catch when the unit is closed.

Limited Warranty

When this PowerGATE™ Input / Output Panel is installed and operated according to the manual's instructions Lex Products will repair or replace any of its mechanical or electrical parts if they are found to be defective in material or workmanship within one year of the purchase date.

Maintenance

The PowerGATE™ Input / Output Panel will require periodic maintenance. Lex Products recommends annual inspections to keep the panel in safe operating condition. Lex Products recommends that the Pre-Operation and Maintenance Checklist under Appendix A serve as a basis for annual inspection.

Technical Support

Lex Products technical services are available to assist in resolving issues by calling 800.643.4460 or emailing info@lexproducts.com.

For any other information, please call Lex Products at 1-800-643-4460 or e-mail info@LexProducts.com.

Appendix A

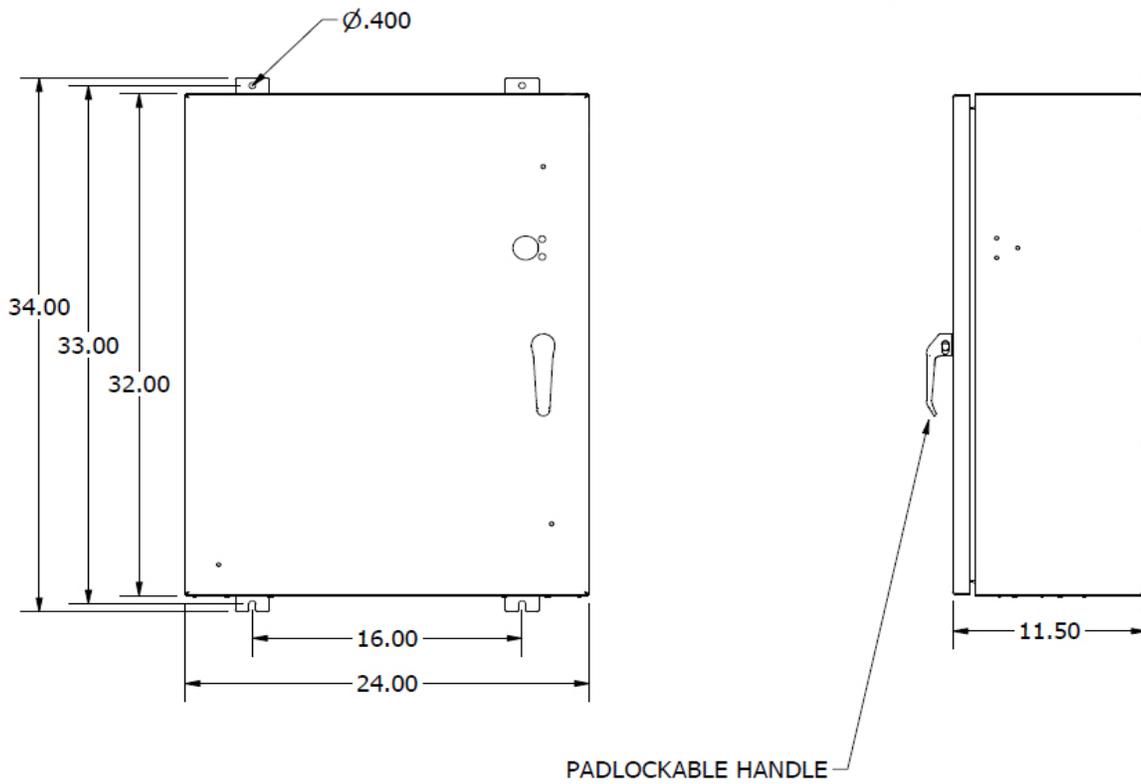
Pre-Operation and Maintenance Checklist

1. Visual inspection of enclosure
 - Ensure the PowerGATE™ Input / Output Panel is firmly secured to the building
 - Review conduit connection for signs of leakage
 - Ensure enclosure is intact with no signs of cracking
2. Open the chamber door
 - Ensure the chamber is dry and free of debris
 - Ensure that gaskets are pliable and no cracking exists
 - Ensure that door hinges are secure and lubricated
 - Ensure that hasps are intact and operational
3. Remove dead front panel
 - Ensure that all load terminals are securely fastened and that the set screws are set at 375 lb-in torque each
 - Ensure electrical connections are intact with no signs of corrosion or cracking
4. Review all safety labels and ensure that they are present and legible
 - See Appendix D for label nomenclature and location
 - Replace as needed
5. Inspect all portable cables
 - Do not use cables if they appear frayed
 - Do not use cable if connectors or plug do not seat properly
6. Do not use cables if any copper wiring is exposed
7. Lex Products technical services are available to assist in resolving issues. If you have any questions or need technical advice or suggestions regarding this product, please contact Lex Products at 800.643.4460 or e-mail info@LexProducts.com.

Appendix B

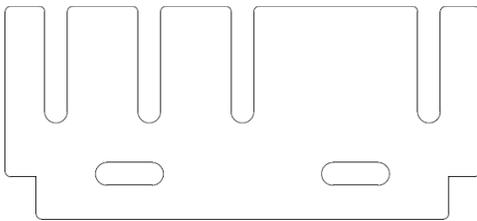
Parts Dimensions

Figure 11



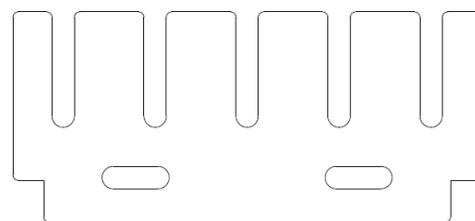
Appendix C

Replacement Cable Plate



Replacement Part Number: 20230-1-809-4

Description: Cable Lock Plate, 4 Wire 400/800A PGIP

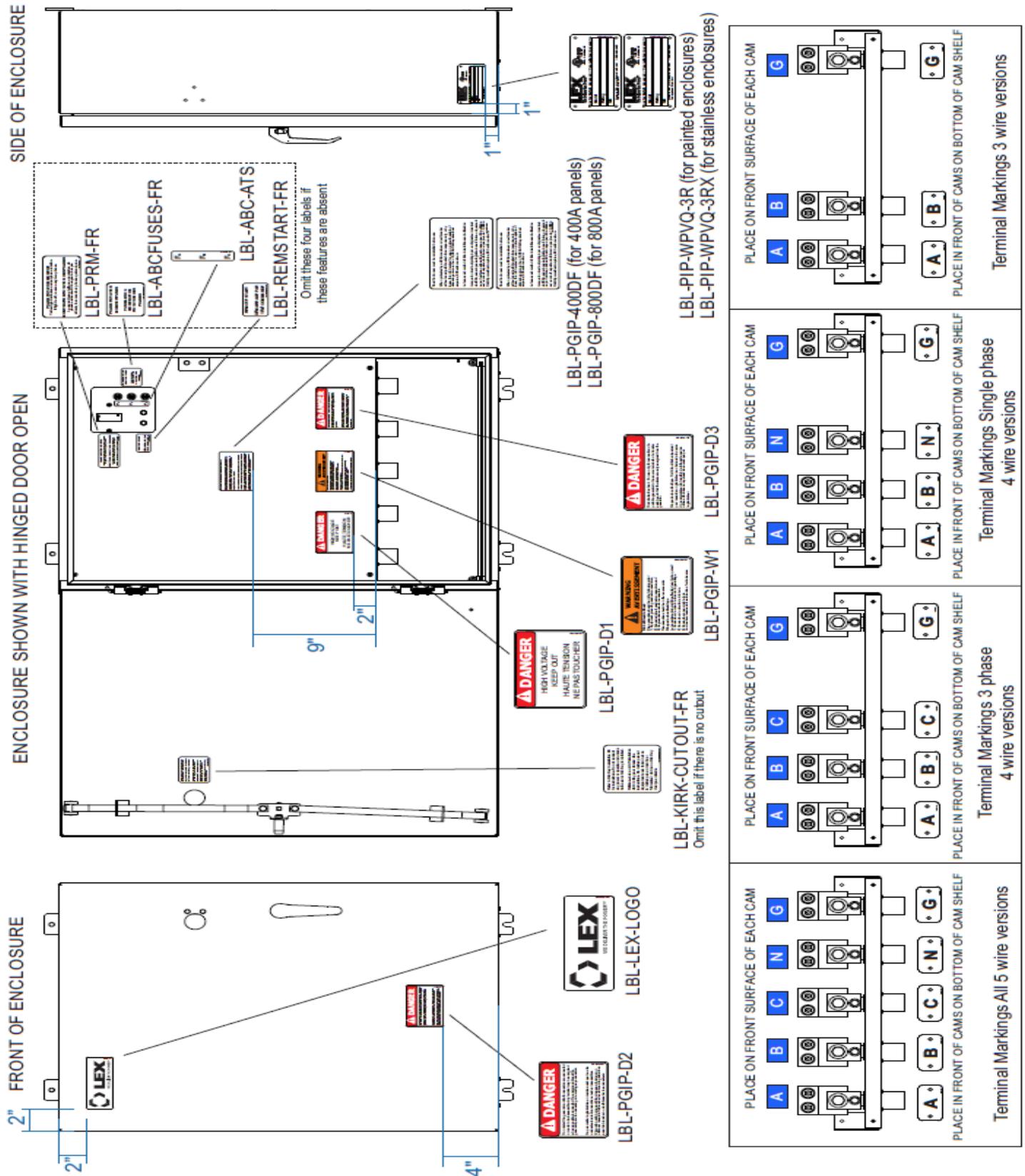


Replacement Part Number: 20230-1-809-5

Description: Cable Lock Plate, 5 Wire 400/800A PGIP

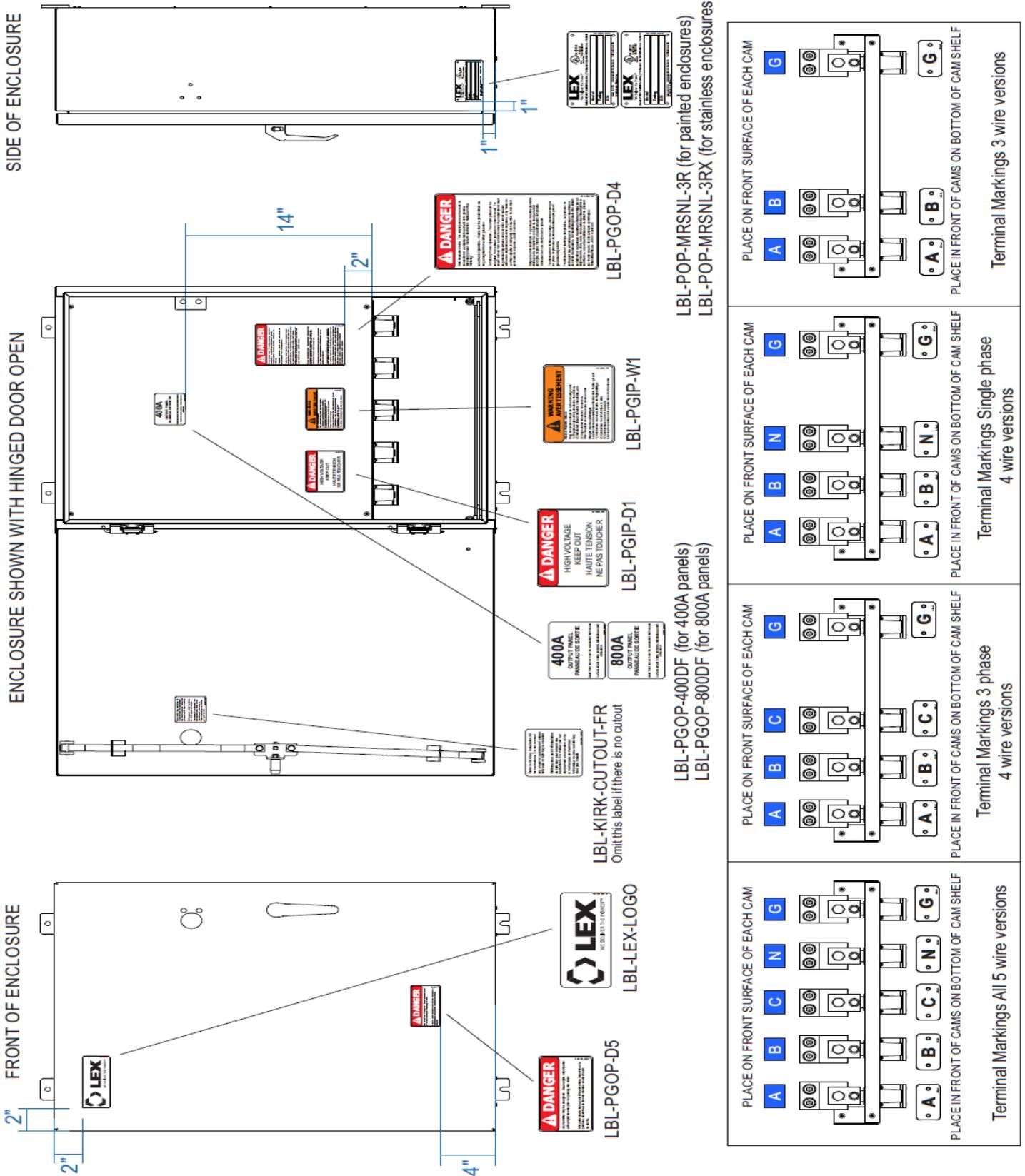
Appendix D

Labels for Replacement - Input Panel



Appendix D

Labels for Replacement - Output Panel



PowerGATE™ 400 / 800 Amp Power Input / Output Panels Installation Instructions and User Manual



Ordering Information

	Input Panels		Output Panels	
400 Amp Part Numbers	PGIP04A-BRBWG-GKL	PGIP04A-BOYWG-GKL	PGOP04A-BRBWG-KL	PGOP04A-BOYWG-KL
Rating	400A, 3 Phase (H,H,H,N,G), 4 Pole, 5 Wire, 60 Hz 480 VAC Maximum		400A, 3 Phase (H,H,H,N,G), 4 Pole, 5 Wire, 60 Hz 600 VAC Maximum	
Environmental Rating	TYPE 3R Rainproof			
Input	(1) Set of (5) Panel Mount 16 Series Cam-type Inlets, Color-coded		(1) Sets of (5) Panel Mount 16 Series Cam-Type Receptacles, Color-coded	
Output	(1) Dual Port Aluminium Lug per Phase, Neutral, Ground - Wire Range: 600 MCM - #2 AWG		(1) Sets of (5) Panel Mount 16 Series Cam-Type Receptacles, Color-coded	
Enclosure	Textured Powder Coat Aluminium, ANSI 61 Grey			
Dimensions	32" H x 24"W x 11.50"D			
Approximate Weight	55 lbs.			
800 Amp Part Numbers	PGIP08A-BRBWG-GKL	PGIP08A-BOYWG-GKL	PGOP08A-BRBWG-KL	PGOP08A-BOYWG-K
Rating	800A, 3 Phase (H,H,H,N,G), 4 Pole, 5 Wire, 60 Hz 480 VAC Maximum		800A, 3 Phase (H,H,H,N,G), 4 Pole, 5 Wire, 60 Hz 600 VAC Maximum	
Environmental Rating	TYPE 3R Rainproof			
Input	(2) Sets of (5) Panel Mount 16 Series Cam-type Inlets, Color-coded		(1) Dual Port Aluminium Lug per Phase, Neutral, Ground - Wire Range: 600 MCM - #2 AWG	
Output	(1) Dual Port Aluminum Lug per Phase, Neutral, Ground - Wire Range: 600 MCM - #2 AWG		(2) Sets of (5) Panel Mount 16 Series Female Cam-type Receptacles, Color-coded	
Enclosure	Textured Powder Coated Aluminium, ANSI 61 Gray			
Dimensions	30" H x 20"W x 11.50"D			
Approximate Weight	68 lbs.			

Additional Cam options and enclosure materials available.
Contact a Lex Products Sales Representative for more information.



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