

# ReadySwitch<sup>™</sup> 400 Amp Transfer Switch and Inlet Panel Installation Instructions & User Manual

US LISTED

TYPE 3R Rainproof

# 

- A cost effective way to prepare your business facility for a power outage.
- cULus 1008 listed to ensure safety and reliability.
- U.S. Patent Mechanical Interlock for safe connection
- Utility & Generator disconnects
- Hinged door with key lock entry
- Suitable for use as Service Equipment
  - (US Only)



# Contents

- 2 Contents
- 3 Prior to Installation
- 3 Shipment: Unpacking and Inspection
- 4 Product Features
- 5 Installation
- 7 Set-up
- 8 Disconnecting Circuits
- 9 Limited Warranty
- 9 Maintenance
- 9 Technical Support

# **Appendices**

- 10 Appendix A Pre-Operation and Maintenance Checklist
- 10 Appendix B Parts Dimensions
- 10 Appendix C Represented Model Numbers and Ratings
- 10 Appendix D Labels for Replacement Parts List
- 11 Appendix E Warning Location
- 12 Appendix F Specifications

# **Important:**

This manual contains information critical to the proper installation and operation of the Lex Products PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> Panel. Be certain to read and understand all instructions prior to installation and operation.

Note: This manual is furnished exclusively to support installation and operation of the Lex Products PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> Panel. 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.

# **Prior to Installation: Site Preparation**

Prepare installation site according to local codes.

The PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> is to be secured to a building using appropriate 3/8" fasteners (See Figure 1).

The surface where the PowerGATE<sup>®</sup> ReadySwitch<sup>M</sup> is to be secured must be capable of supporting the weight of the cabinet as well as the cables attached to it.

The following should be taken into consideration when locating the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>:

- Identify and meet local codes and local Authority Having Jurisdiction (AHJ)
- The PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> is designed for exterior operation ONLY
- To prevent carbon monoxide poisoning from improperly ventilated generator emissions, the PowerGATE<sup>®</sup>
  ReadySwitch<sup>™</sup> must be mounted outdoors only. The mounting location is to be carefully selected to allow convenient connection to a generator and located a suitable distance away from any building openings or HVAC inlets.
- Proper clearance must be allowed in front of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> 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.

# **Shipment: Unpacking and Inspection**

 While keylock protection is provided, access by unauthorized personnel and vandals should be taken into consideration when locating this device.

**NOTE:** Be careful in the use of sharp object when cutting packaging as scratching of outer coating may result in rusting.

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

# **Determining Your Part Number**

Review Appendix  ${\sf F}$  to verify part number, rating voltage, and amperage

Figure 1: 400 AMP



Rear view with mounting holes

# **Product Features**



#### Figure 3 Image - Door Closed



Key lock entry prevents unauthorized access and operation

#### Figure 4 Image - Bottom View



Individual cable entry holes restrict access, reducing cable theft

Low profile enclosure is only 11 1/4 inches deep

- Enclosure is cULus Listed Type 3R Rainproof\*
- Keyed entry prevents unauthorized access and operation
- Cables drape straight down
- Dead-front panel prevents accidental contact with wiring chamber
- \* Any conduit penetrating the bottom must extend to the horizontal barrier

## Installation

The installation of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> should be carried out by qualified personnel in accordance with local electrical codes.

# Step 1: Fasten the PowerGATE $^{\circledast}$ ReadySwitch $^{\rm m}$ to secure location

NOTE: The PowerGATE<sup>®</sup> ReadySwitch<sup>m</sup> weighs 252 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
  - A. Typically allow a minimum of 36" clearance from the bottom of the panel to finished ground level
- 2. Installation must be level and plumb to allow for proper drainage from PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> weep holes
- 3. Fastening onto an external wall using 3/8" fasteners must be completed prior to proceeding with any terminations (See Figure 1 for hole spacing)

#### **Step 2: Installing the Conduit**

NOTE: Conduit to enter through top or right/left side (No bottom feed -See Figure 5B)

NOTE: To maintain outdoor rating compliance for the enclosure, proper sealing procedures must be followed. This is to include, but 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 up door to expose dead front panel
- 2. Unfasten the dead front panel by removing the hardware securing it (See Figure 5 and 5A)
- 3. Conduit to be sized according to cabling rating
  - A. 400 Amp cable range #6-500MCM
- 4. It is recommended that a knockout punch be used to cut hole for conduit
  - A. 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



Figure 5A



Front view with hinged cover removed



Front view with dead-front panel removed

Figure 5B



Front view with hinged cover removed

Figure 6





GENERATOR CONNECTIONS MADE AT TIME OF USE NO CONTRACTOR WIRING NEEDED FOR GENERATOR.

#### MOLDED CASE SWITCH VERSION WIRING CONNECTIONS

Figure 6A



CIRCUIT BREAKER SWITCH VERSION WIRING CONNECTIONS NON SERVICE ENTRANCE USE

Figure 6B



## **Installation** – Initial Setup · Main Power

#### **Step 1: Wiring the Main Terminals**

#### WARNING $\mathbb{A}$

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<sup>®</sup> ReadySwitch<sup>™</sup> and endanger generator personnel.

The PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> is for the connection to a main panel of a structure, with an option to switch to backup generator via a CAM-Type connection, such that the inlets are only energized from the generator.

- 1. Pull the cables to the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>
- 2. First, strip and install the ground cable to the ground terminal block
  - A. NOTE: See Figure 5A
- 3. Tighten terminal screws to 375 lb.-in. torque each
  - A. NOTE: See Figure 9
- bushing on conduit to the ground connection point in the bottom left quadrant of the panel

  - B. NOTE: Conduit shall NOT be relied upon to provide grounding protection to tap box
- 5. Continue to connect the neutral wire to the ground terminal block. (Service Entrance rated models ONLY)
- 6. Verify the 3 phases of the service entrance

#### WARNING $\mathbb{A}$

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<sup>®</sup> ReadySwitch™ is connected in the same rotation (clockwise or counterclockwise) as the utility power.

7. Connect the 3 phases of the switch here:

8. Replace dead front panel and secure using hardware

- A. MAIN TERMINAL
- **B. BUILDING TERMINAL**

- 4. If metallic conduit is used, connect ground wire from ground
  - A. Ground conductor must be a minimum of 2 AWG



**Installation** – Initial Setup - Main Power (continued

The following information will be needed when connecting a

A. Connect a phase rotation meter to a three phase power

source in the building and record whether the building is

3Ø Power

Counter

Clockwise

1. Determine phase rotation of the utility power

wired clockwise or counter-clockwise

Apply 1 to inside door of Input Panel Connection Chambe

**P/N: LBL-PGIP-ROTATION** 

SERVICE

DISCONNECT

P/N: LBL-SERVICEDIS

(Label only applicable for Service Entrance rated version of ReadySwitch)

connection chamber door. (Figure 8)

3Ø Power

Clockwise

2. Apply the provided label (Figure 7) to the inside of the

PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> on the inside of the cam

**Step 2: Determine Phase Rotation** 

generator:

Figure 7

Figure 7A

Figure 8



## Installation – Initial Setup - Main Power (continued)

#### Step 3: Complete a Safety Test

Do not attempt to use the PowerGATE<sup>®</sup> ReadySwitch<sup>m</sup> prior to installation and completing the Pre-Operation and Operation Checklist under Appendix A.

#### Step 4: Completing Set Up

1. Close utility and re-energize system

2. After ensuring system power, close the door of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>

3. Lock the door, marking the keys as appropriate

# **Connecting A Portable Generator**

# Step 1: Review Pre-Operation Checklist under Appendix 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 2: 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 counterclockwise)

#### Figure 9



# **Connecting A Portable Generator** (continued

#### **Step 3: Making Cam Connections**

- 1. Open the front door of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>
- 2. Ensure that the vermin door is un-obstructed and that the cable can flow freely through cable entry holes
- 3. Complete the Ground (green) connections first by feeding the cable through the appropriate port, beginning with the closest from the door to the left.

Proper connection (See Figure 9):

- A. Grasp connector jacket and firmly insert Cam connector into Cam plug
- B. Push on connector jacket until connector fully seats in plug
- C. Rotate connector jacket counterclockwise until it stops. (see Figure 9)
- 4. Complete ALL Neutral connections prior to proceeding
- 5. Complete the hot connections by feeding the cable through the appropriate port and connect to the CAM-Type connector
  - A. (BLACK/BROWN- PHASE A- LINE 1, RED/ORANGE-PHASE B- LINE 2, BLUE/YELLOW- PHASE C- LINE 3
  - B. Utilize the notes concerning phase rotation below
  - C. Should the phase rotation of the generator (as determined in Step 2.3. 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<sup>®</sup> ReadySwitch<sup>™</sup> Hot

A	A
В	В
С	C

D. Should the phase rotation of the generator (as determined in Step 2.3. 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 <sup>®</sup> ReadySwitch <sup>™</sup> Hot	
A	В	
В	A	
C	C	

- 6. Complete ALL Phase connections prior to proceeding
- 7. Make sure all connections are right and secure

# Step 3: Close and secure chamber door, allowing cables to exit through cable ports at bottom

# **Operation**

### MARNING WARNING

Power MUST BE supplied from a single generator

#### Switching

- 1. To switch from MAIN power to BACKUP power:
  - A. Portable generator must be connected prior to this step (see step 3.5 above)
  - B. Start generator per manufacturer instructions
  - C. Close main breaker on the generator
  - D. Open the front door of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>
  - E. Turn the UTILITY BREAKER to OFF
  - F. Turn backup breaker to ON
  - G. Close and lock chamber door, ensuring that all cables exit through the entry holes at the bottom
- 2. To switch from BACKUP power to MAIN power
  - A. Open the front door of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>
  - B. Turn the backup breaker to OFF
  - C. Turn the MAIN breaker to ON
  - D. Close and lock chamber door, ensuring that all cables exit through the cable entry holes at the bottom
- 3. Open the main breaker on the generator
- 4. Stop and turn off generator per manufacturer instructions

#### MARNING

DO NOT ATTEMPT TO DISCONNECT GENERATOR WHILE CIRCUITS ARE LIVE.

# **Disconnecting a Portable Generator**

- 1. Open the front door of the PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup>
  - A. To limit the risk of shock, disable generator automatic start to prevent unintended starting.
- 2. Disconnect the Phase (hot) connections, beginning with the furthest to the right

Proper disconnection (See Figure 9):

- A. Grasp connector jacket firmly and rotate cam connector clockwise until it stops
- B. Firmly pull on connector until it separates from the plug
- C. Set aside
- 4. Continue with ALL Phase (hot) connections
- 5. Complete disconnect of ALL hot connections prior to proceeding

# **Disconnecting a Portable Generator** (continued)

- 5. Disconnect the Neutral (white) connection
- 6. Disconnect the Ground (green) connection

Step 4: Close and lock front door of the PowerGATE  $^{\circledast}$  ReadySwitch  $^{\mathbb{M}}$ 

# **Limited Warranty**

When this PowerGATE<sup>®</sup> ReadySwitch<sup>™</sup> 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<sup>®</sup> ReadySwitch<sup>™</sup> 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 Operation 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 800.643.4460 or e-mail info@lexproducts.com.

#### Figure 10 - Torque Chart ReadySwitch™ Installation

Location	400A
CB OR SWITCH LUG KIT	380 IN-LB (43 N-M)
TERMINAL BLOCKS	375 IN-LB (42 N-M)

Figure 11



# **Appendix A**

**Pre-Operation & Operation Checklist** 

- 1. Visual inspection of enclosure
  - Ensure the PowerGATE ReadySwitch 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 front door of the PowerGATE ReadySwitch
  - Ensure the chamber is dry and free of debris
  - Ensure the vermin door is un-obstructed and that cable can flow freely through cable entry holes
  - 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. Inspect all portable cables
  - 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 wiring is exposed
- 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**

**Initial Setup Safety Checklist** 

- 1. Ensure that all load terminals are securely fastened and that the set screws are set at 375lb.-in torque each
- 2. Ensure electrical connections are intact with no signs of corrosion or cracking
- 3. Review all safety labels and ensure that they are present and legible. See Appendix E for label nomenclature and location. Replace as needed
- 4. Ensure Phase rotation is correct
  - Verify Phase A of MAIN is PHASE A as labeled on the terminals of the input
  - Verify Phase B of MAIN is PHASE A as labeled on the terminals of the input
  - Verify Phase C of MAIN is PHASE A as labeled on the terminals of the input
  - Verify Phase A of BUILDING is PHASE A as labeled on the terminals of input
  - Verify Phase B of BUILDING is PHASE A as labeled on the terminals of the input
  - Verify Phase C of BUILDING is PHASE A as labeled on the terminals of the input

# Appendix C

Represented Models and Wire Range for ReadySwitch

Part Number	Wire Range
PIPM0400-C-C-AJ-GRXEE	#6-500MCM
PIPM0400-C-C-AJ-GOXEE	#6-500MCM
PIPM0400-C-C-AJ-GBXEE	#6-500MCM
PIPM0400-S-S-AJ-GRXFF	#6-500MCM
PIPM0400-S-S-AJ-GOXFF	#6-500MCM
PIPM0400-S-S-AJ-GBXFF	#6-500MCM

# **Appendix D**

Labels for Replacement - Parts List





p/n: – LBL-PGIP-D2



p/n: - LBL-PGIP-W1

# Appendix D (continued)

SHORT-CIRCUIT WITHSTAND AND CLOSING RATINGS COURANTS NOMINAUX DE RÉSISTANCE AU COURT-CIRCUIT ET DE FERMETURE DE CIRCUIT When protected by a circuit treaker, this transfer switch is suitable for use in a circuit capable of		BUILDING (LOAD)		
delivering the short-circuit current for the maximum time duration and voltage marked below. S'il est protégé par un disjoncteur, ce commutateur convient aux circuits capables d'acheminer un courant de court-circuit pendant la durée d'a la tension maximales indiquées plus bas.	<b>READYSWITCH™</b>	L1	L2	L3
The circuit breaker must include an instantaneous trip response and shall not include a short-time trip response. Le disjonctieur doit être à déclenchement instantané sans déclenchement rapide. The maximum clearing time of the instantaneous trip response must be equal to or less than the time duration shown for the marked short-circuit, current.	We Deliver the Power™	p/n: L	BL-RDYSW-BUII	DING
Le temps de colquie maxima pour le decencientent instantaire doit eue ega do internet a la doute indiquée pour le courant de court-focial. SHORT-CIRCUIT CURRENT VOLTAGE MAXIMUM TIME DURATION COLIBANT DE COLIBIECTION INTERNI MAXIMUM LE TEMPS DI INÉÉE	TRANSFER SWITCH AND		1	131-40153-663 00
35,000 A RMS 480V AC 0.050 S 25,000 A RMS 600V AC 0.050 S	INLET PANEL	GG		N
Inis transfer switch does not include short-time current ratings. 4004 maximum overcurrent devicew Ce commutateur n'est pas velule pour les courants nominaux de courte durée. 400A maximum le dispositif de protection us.embrande device et durée.		p/n:	- LBT-KDA2M-I	jgn
p/n: – LBL-RDYSW-SCCR-SW	93992830063			
For Service Entrance Rated Version please use	p/n: – 10519-2-023	l	JTILITY (LINE)	LEL-REPSW-UTILITY 000
Part Number: LBL-RDYSW-SUCK-SW		L1	L2	L3
		p/n: –	LBL-RDWSW-U	TILITY
<b>A</b> CAUTION ATTENTION	3/16" UTILITY: 43 N-M, 380 IN-LBs			
Manual Transfer Switch – This Device Will Not Automatically Transfer To An Alternative Source	8 mm BUILDING, N, G: 42 N-M, 375 IN-LBs			
Commutateur Manuel – Ce dispositif				
une charge vers une source auxiliaire	LBL-RDYSW-TSS 000 75°C / 90°C			
n/n; 10510-2-024	p/n: – LBL-RDYSW-TSS			
p/n: – 10519-2-024				

# **Appendix E**

Warning Locations



p/n: LBL-RDYSW-SCCR-BRK

# PowerGATE<sup>™</sup> ReadySwitch 400 Amp Transfer Switch and Inlet Panel Installation Instructions and User Manual





# **Appendix F**

	Service Entrance	Switched
Part Number	PIPM0400-C-C-AJ-GRXEE	PIPM0400-S-S-AJ-GRXFF
Rating	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum
Environmental Rating	NEMA 3R	NEMA 3R
Input	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (Black, Red, Blue)	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (Black Red, Blue)
Output	Direct Wire	Direct Wire
Enclosure	Powder Coated Steel, ANSI 61 Grey	Powder Coated Steel, ANSI 61 Grey
Dimensions	48″x30″x13.5″	48″x30″x13.5″
Approximate Weight	252 lbs	252 lbs

Part Number	PIPM0400-C-C-AJ-GOXEE	PIPM0400-S-S-AJ-GOXFF
Rating	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum
Environmental Rating	NEMA 3R	NEMA 3R
Input	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (Brown, Orange, Yellow)	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (Brown, Orange, Yellow)
Output	Direct Wire	Direct Wire
Enclosure	Powder Coated Steel, ANSI 61 Grey	Powder Coated Steel, ANSI 61 Grey
Dimensions	48″x30″x13.5″	48″x30″x13.5″
Approximate Weight	252 lbs	252 lbs

Part Number	PIPM0400-C-C-AJ-GBXEE	PIPM0400-S-S-AJ-GBXFF
Rating	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum	400 Amp, 3 Phase, (H, H, H, N, G) 4 Pole, 5 Wire, 600 VAC Maximum
Environmental Rating	NEMA 3R	NEMA 3R
Input	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (All Black)	(1) Set of (5) 16 Series Cam-type color coded panel mount inlets (All Black)
Output	Direct Wire	Direct Wire
Enclosure	Powder Coated Steel, ANSI 61 Grey	Powder Coated Steel, ANSI 61 Grey
Dimensions	48″x30″x13.5″	48″x30″x13.5″
Approximate Weight	252 lbs	252 lbs



Lex Products Corporation 11 Forest Parkway Shelton CT 06484 203.363.3738 203.363.3742 Fax Lex West 12701 Van Nuys Blvd. Suite Q Pacoima, CA 91331 818.768.4474 818.768.4040 Fax www.lexproducts.com info@lexproducts.com 800.643.4460  $^{\odot}$  Copyright Lex Products 2021

Produced in the United States of America All Rights Reserved.

Lex Products logo and lexproducts.com are trademarks or registered trademarks of Lex Products in the United States, other countries, or both.