



We Deliver the Power™

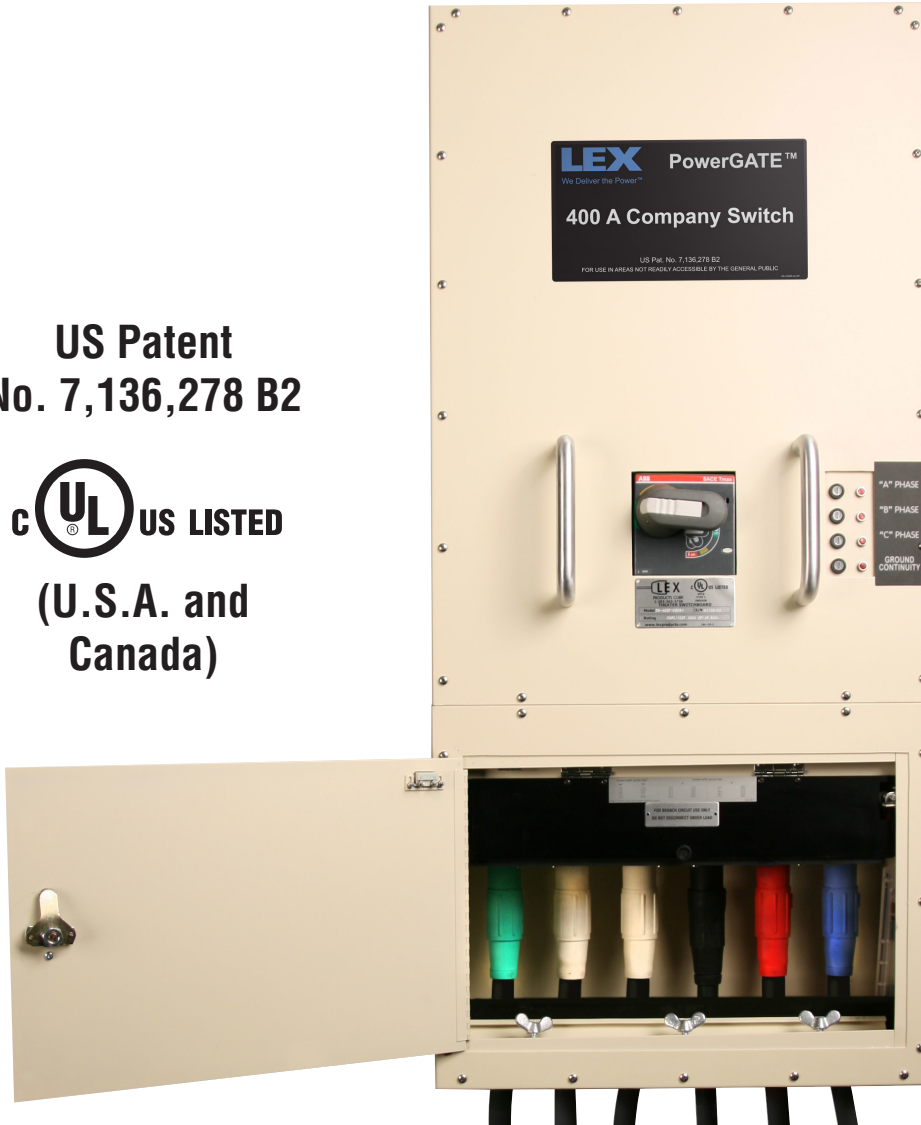
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**US Patent
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PowerGATE™
Switches & Panels

Company Switch Installation Instructions and User Manual

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Introduction

The Lex PowerGATE™ Company Switch has been specifically designed for safe power access and has been put to use in such places as:

- Theaters
- Conventions Centers
- Studios
- Theme Parks
- Recreational Facilities

Manual Notes

Photographs shown throughout this manual are of the 400A NEMA Type 1 Company Switch but are representative of the 100A and 200A Type 1 and 100A, 200A and 400A Type 3R Company Switch as well.

Step 1: Installing the Company Switch



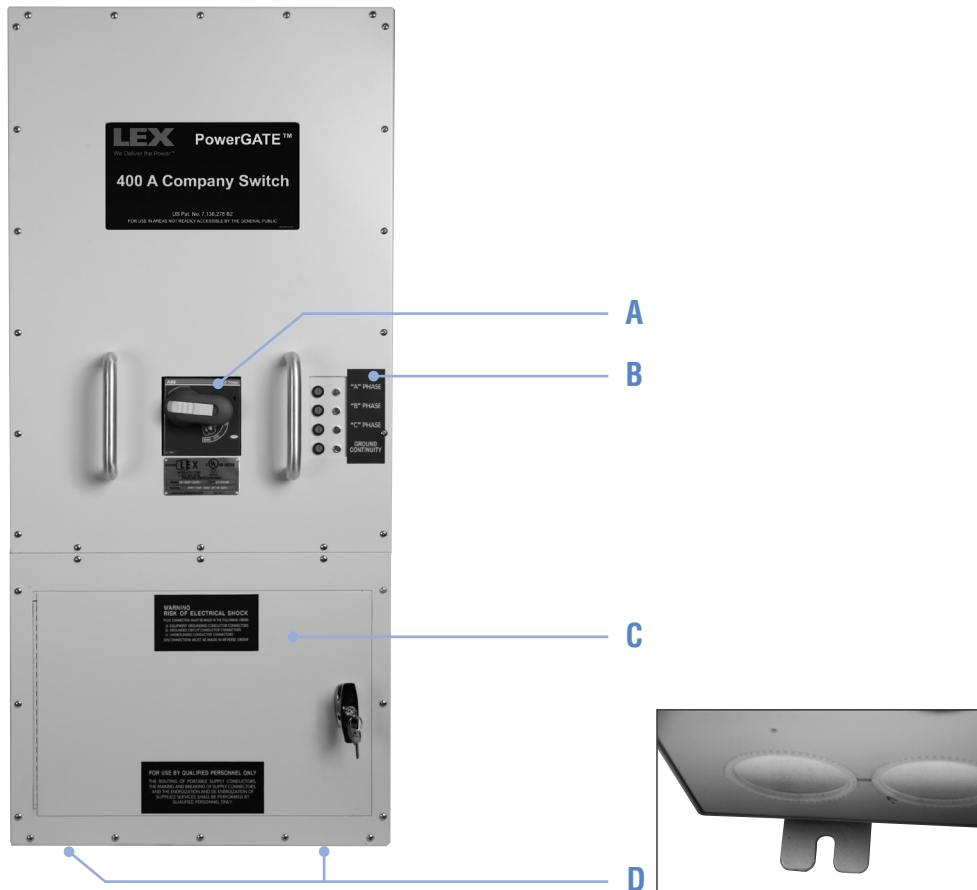
WARNING: RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. Refer to NFPA 70E. This equipment **must** only be installed and serviced by a licensed electrician.
- Turn off all power supplying this equipment before installing, working on or inside equipment. Lockout/tagouts are recommended.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace all devices, doors and covers before energizing this equipment.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN DEATH OR SERIOUS INJURY.

External Layout:

- A: Main switch,
- B: Phase indicator
- C: Connection chamber access door
- D: Mounting ears, (2) located on the bottom and (2) located on the top of the unit.



External Layout:

- F: Shunt trip interlock
- G: Internal light
- H: Lug output connector access door
- I: Cam type output connectors

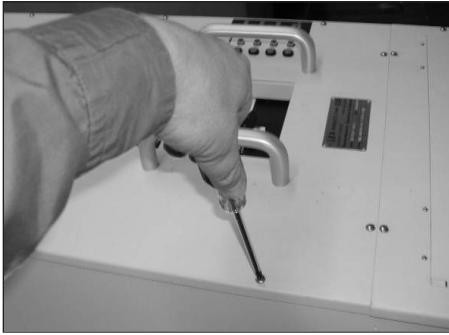


Step 2: Tools Needed

- Lineman's pliers
- Utility knife
- Set of screwdrivers
- Wrenches to connect the conduit into the unit
- 3/8 Allen key for making lug connections
- A hole saw or hole punch for providing an access hole in the cabinet for the conduit connection
- An insulation stripping tool, and cutter to provide square cut ends of the cables.

Step 3: Mounting the Unit

Remove upper panel to expose main switch connections, and to make the unit easier to mount.



- Determine where you wish to install the unit and make sure that the mounting surface will support the full weight of the Company Switch plus connected 4/0 cables.
- Mounting ears are provided on positions 1 & 2 on the top and 3 & 4 on the bottom (see below).
- The mounting hole pattern dimensions are:

	Horizontal	Vertical
CS400	14.00"	45.22"
CS200 & CS100	14.00"	37.00"

The minimum clearance (free space) from bottom of unit to nearest flat surface needs to be no less than 24" to allow for cable with cam connections. A mounting height of 44" AFF to the bottom of the panel is recommended.

Hold unit into place and level, then mark the mounting hole locations, drill and temporarily mount the unit.

While unit is mounted, locate the desired conduit location.

Remove the unit and cut conduit hole. Ensure that the main switch is covered during this operation to make sure that metal filings do not enter it.

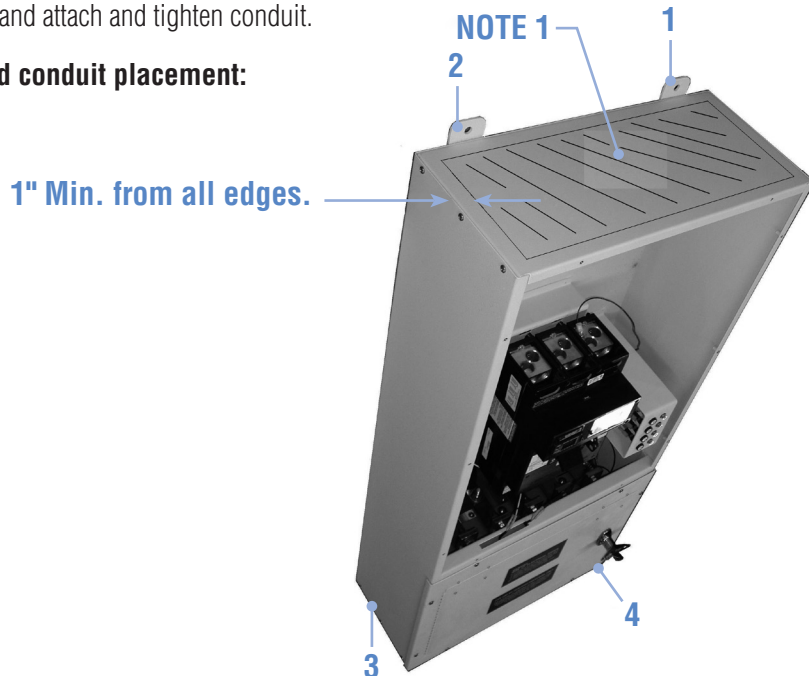
IMPORTANT

Bend radius requirements dictate that the conduit for incoming power may only enter the cabinet from the top of the cabinet. Conduit entry from the sides or back of the cabinet is not permitted.

NOTE 1: The completed conduit when connected to the box must be a minimum of at least one inch from any of the top edges for proper clearance.

Remount the unit permanently and attach and tighten conduit.

Mounting tab locations and conduit placement:



Step 4: Wiring the Unit

The Lex PowerGATE™ Company Switch comes in three amperage types, **100A, 200A and 400A.**

The recommended input (contractor direct wire) wire gage for these units is as follows:

- 100A: #2AWG minimum
- 200A: 4/0 AWG minimum
- 400A: 500 kcmil minimum

With the conduit in place, make sure main source of power is off or isolated and pull the power cables through into the unit.

Follow the chart provided below for strip length and torque required to secure cables to binding lugs. Do not nick any strands while stripping cable. Cable ends need to be cut square.

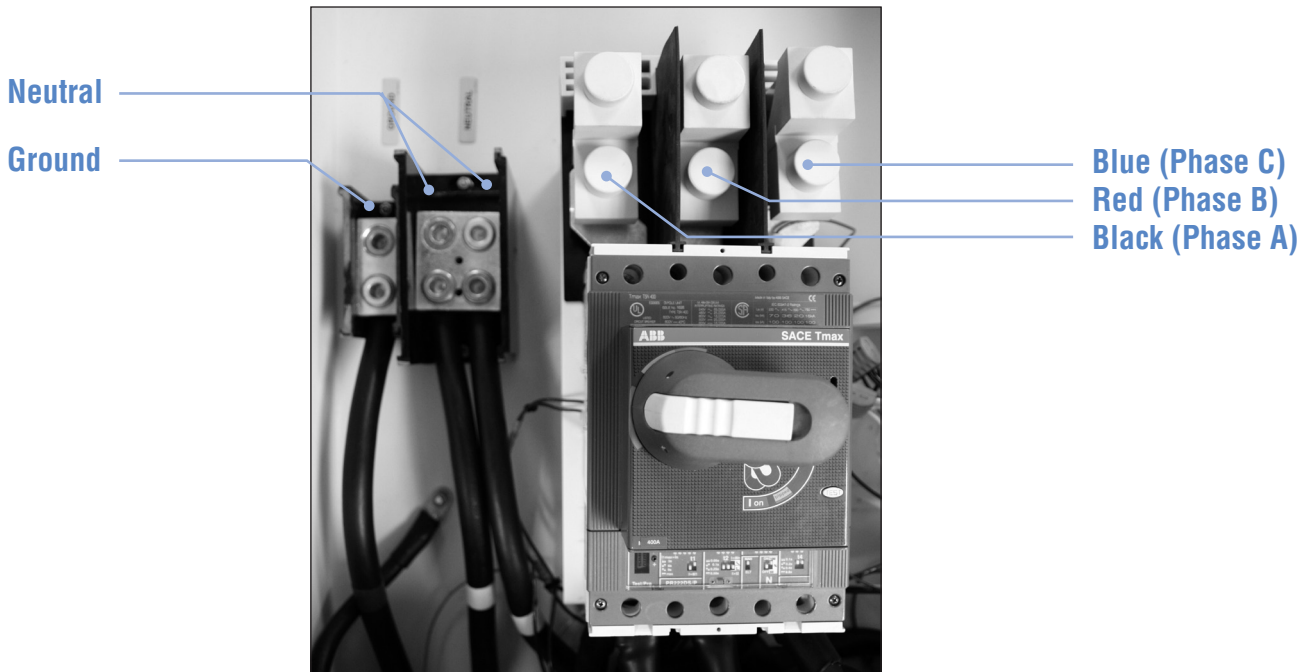
Circuit Breaker	Wire Gauge Range	Torque (lb.-in.)	Strip Length
100A	350 kcmil - 6 AWG	275	1-1/8"
200A	350 kcmil - 6 AWG	275	1-1/8"
400A	500 kcmil - 250 kcmil 250 kcmil - 3/0 kcmil	380 275	1-1/8"
Ground & Neutral Lugs	350 kcmil - 6 AWG	See table behind Chamber Access Door	1-1/8"

NOTE: Fine stranded wire MUST be sleeved with copper shim stock before inserting into lugs or strands may interfere with threads of wire binding screw resulting in false torque indication.

Wire Installation

Strip the cable to the length indicated in the table above. To install, start with the ground, then the neutral, then the phases. Place the appropriate cables into the lugs and torque the screw to the torque indicated in the table above using a 3/8" Allen wrench.

NOTE: The use of 600 kcmil cable will require different lugs and/or reducers. These are not supplied by Lex Products but are readily available from most electrical suppliers.



Step 5: Isolating the Chassis Ground

If you need to isolate the chassis from ground, proceed as follows:

The chassis ground (C.G.) termination is located next to the main ground cable. To isolate this ground:

- 1) Remove the nut holding the chassis ground lug to the threaded stud.
- 2) Wrap the chassis ground mounting lug with good grade electrical tape or shrink wrap, if available.
- 3) Using a plastic wire tie, secure the chassis ground to the main ground cable.
- 4) Check to make sure that the chassis ground is secure and that it cannot come into contact with any metal surfaces of the cabinet.



Chassis Ground

Step 6: Pre-Power up Check List

Before energizing the unit make sure all connections are correct and secure.

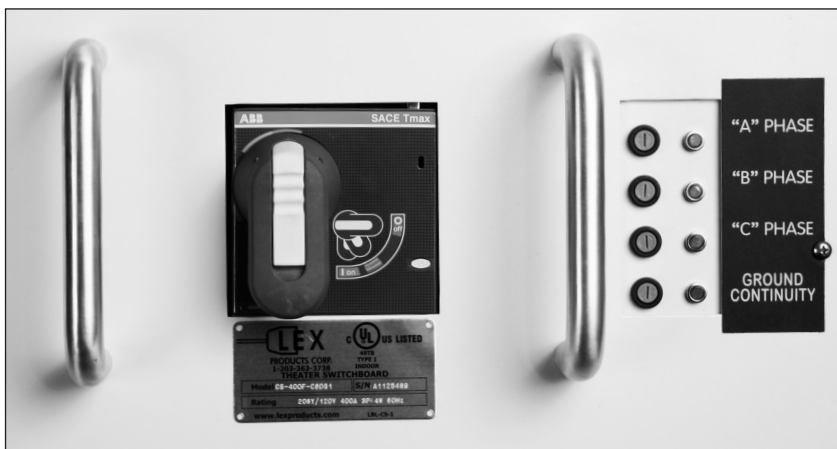
Make sure there is no debris left over from drilling, and that no tools are left in the cabinet.

Replace front panel and fasten securely.

Make sure lower panel door is closed and secured. Note that as a safety feature of this device, the power will be tripped off when the door is opened.

Step 7: Powering Up

Turn the power lever to the ON position. LED's for each phase as well as ground continuity should be lit.



Step 7.1: Troubleshooting



WARNING: RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- **Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.**
- **This equipment must only be installed and serviced by qualified electrical personnel.**
- **Turn off all power supplying this equipment before working on or inside equipment.**
- **Always use a properly rated voltage sensing device to confirm power is off.**
- **Replace all devices, doors and covers before turning on power to this equipment.**

Failure to follow these instructions will result in death or serious injury.

If the unit immediately trips off on power up, check to make sure the lower panel door is closed and secured.

If any or all LED's do not light, and there is power to the unit, turn main power switch off and check the fuses located to the left of the LED's.

If the breaker appears to be tripping too quickly, possibly due to inrush current, contact the Lex Technical Services team for instructions on adjusting the trip delay time. The contact information is on page 12.

Step 8: Operation and Use



The breaker switch has a lockout/tagout feature that can be used to safely secure the switch in the off position. Simply lift the gray tab on the hub of the breaker lever. Once lifted, up to three locks may be attached to the tab, locking the handle in the off position.

The external connection wire access is located at the bottom of the unit and the connections are made inside the connection chamber, behind the lockable door. The large holes are provided for cables with Cam-type connectors and the smaller holes are provided for stripped wire connections.

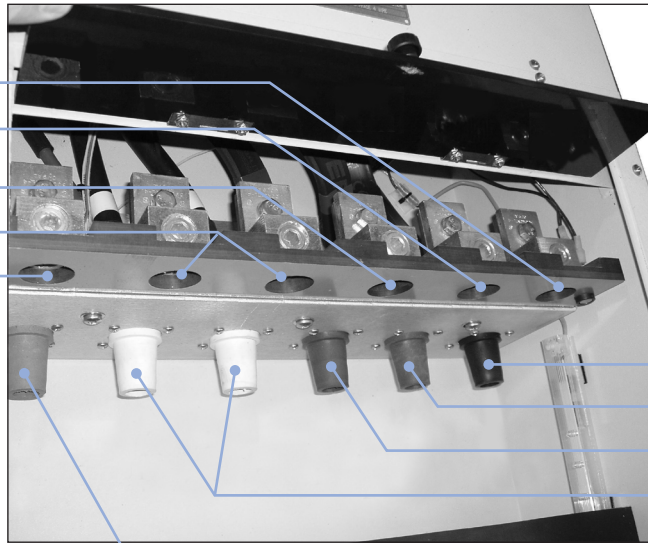
The stripped wire lug connector access holes are located on the phenolic panel, and the securing screw lugs are located behind the hinged phenolic door as shown below.



Cam-type connectors are provided on the aluminum panel as shown at the left.

NOTE: If the power is ON and the door is opened, the shunt trip interlock will trip the breaker OFF. As a good personal safety measure, the breaker should be switched to the OFF position before the door is opened.

Phase C - Blue
Phase B - Red
Phase A - Black
Neutral
Ground



Phase C - Blue
Phase B - Red
Phase A - Black
Neutral
Ground

Step 9: Making Lug Connections

Make sure main power source is off.

Cut the cable end square and strip the wire 1-1/2". Do not nick any strands. When connecting the cables, always start with the Ground, then the Neutral, and finally the phases. Insert the wire into the lug and torque per the label on the lug cover.

Open the connection chamber door. Pull the ground cable through the smaller hole in the bottom of the unit that corresponds with the ground mounting lug. The spring loaded door will help hold the cable in place while the wires are connected and torqued.

Start by connecting the ground first, torque to the proper spec. then continue with the neutral and then the three phases. When all the cables are connected, use the wing bolts on the spring loaded cable door to clamp down on the cable, providing strain relief for the lug connections. Be sure to leave a little slack in the cable so that there is no strain on the lug connections.

When disconnecting, do it in reverse order, (phases, neutral and lastly the ground cable).

Step 10: Making Cam Connections

Make sure main power source is off.

Open the lower cabinet, then pull the ground cable with the cam connections through the large holes in the bottom of the unit that corresponds with the ground cam connector.

Beginning with the ground, push the cam connector up into its receptacle with the screw on the cable cam connector facing you, then rotate the cam counter clockwise until it stops in its locked position.

Then do the same for the neutral connections and then the three phases.

When disconnecting, do it in reverse order, (phases, neutral and lastly the ground cable).

Changing Trip Current to 60A (100A Company Switch only)

You may wish to set the trip point on the breaker to 60A when using lighter cable to feed a audio or other smaller distribution rack. Please contact the Lex Technical Services Team for instructions.

Technical Services Team

Lex Products is available to help in any way possible. If you have questions, need technical advice or have suggestions regarding this product, please contact us at 800.643.4460 or email us at technical_support@lexproducts.com.

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