

# *PCS TRIO™*

## Power Control for Permanent Installation

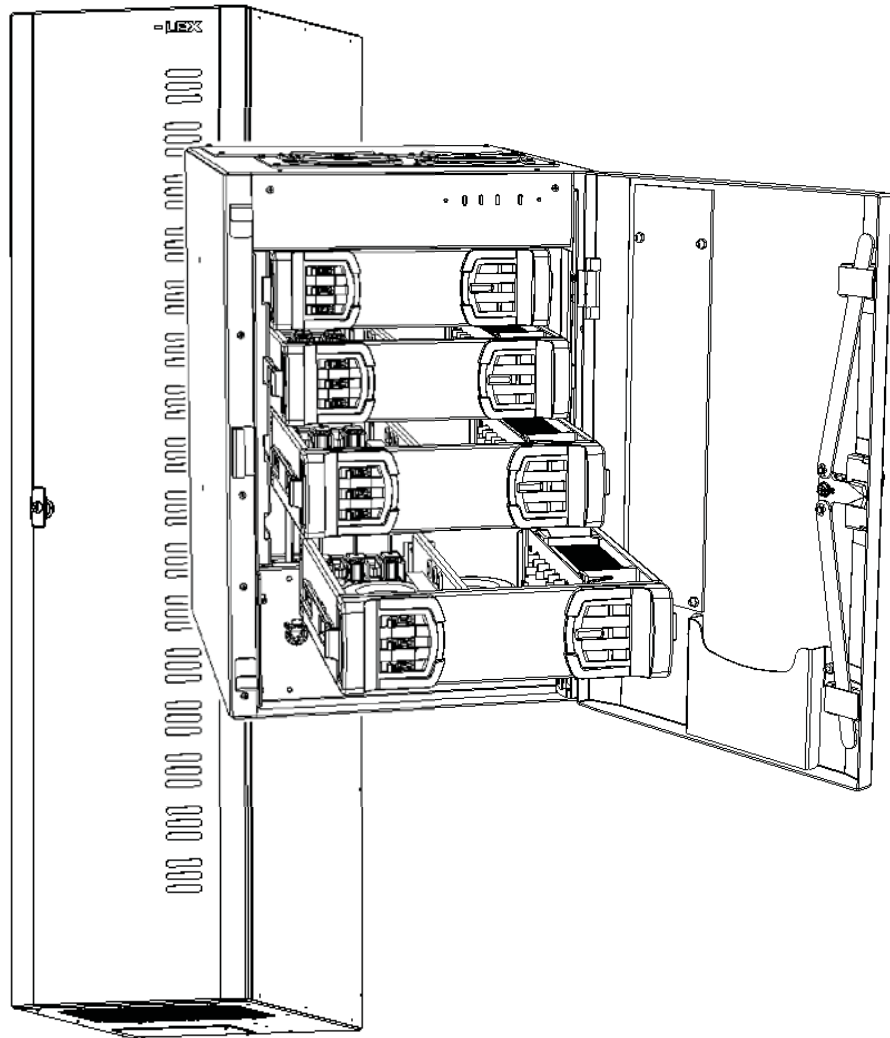
### Panel Installation Manual



Evolutionary new lighting control technology

Unprecedented control, convenience and cost-efficiency

Control power to LEDs, moving and incandescent lights, motor loads and other applicable equipment in a single panel



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## Welcome

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Welcome to the installation guide for PCS TRIO™ Installation Power Control System. This guide contains the procedures for safe and efficient installation as well as initial commissioning of this system.

Whether the application requires power management of LEDs, moving lights, incandescent lights, motor loads, powered speakers or other relevant equipment, the design of the Lex Products PCS TRIO™ enables power control over the widest number of applications possible within one panel.

Available in panel capacities of 4, 8 or 16 modules, interchangeable relay and dimmer modules can be switched out easily to meet specific application requirements.

Incorporating state-of-the-art control the Lex Products PCS TRIO™ supports the most widely sourced protocols: DMX-512A, RDM, sACN and Art-Net. This system may be integrated easily with other dimming and control devices.

By consolidating single pole relays, double pole relays and dimmers into modules supporting three line circuits fitting into one panel, lighting installation is simplified significantly as the panel requires less cabling and conduit runs

## FCC INFORMATION

**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 the user's own expense.

**Caution:** Changes/Modifications not approved by Lex Products could void the user's authority to operate the equipment.

## **IMPORTANT SAFEGUARDS** - Read this first

All equipment manufactured by Lex Products is designed, built and tested to strict safety regulations. Observe all precautions when installing this unit. By following the safety warnings listed below and elsewhere within this guide, you can ensure the safe and proper installation and operation of these units. Please read and follow all warnings given in this guide.

### **READ AND FOLLOW ALL SAFETY INSTRUCTIONS**

1. All sections of this installation guide **MUST** be followed in sequence in order to properly install this unit.
2. All installation services must be performed by qualified personnel or service technicians.
3. The high voltage supply should be fed to the PCS TRIO™ via an external main breaker with sufficient capacity for the planned installation.
4. Install in accordance with National Electrical Code (NEC) and any other national or local codes that are in force in your area.
5. Always turn OFF all power before any service is performed on a panel. Test that power is OFF prior to handling conductors.
6. Do not use outdoors. The PCS TRIO™ is designed for indoor installation and use only. The units can, however, be used to control appropriately certified exterior lighting fixtures.
7. Use this product only as intended and at the listed voltage(s).
8. Do not mount near gas or electric heaters.
9. Power (voltage) is present inside the Module Chamber. Use extreme caution when performing maintenance on this equipment and removing the modules. Failure to follow this warning, and proper safety procedures, could result in severe injury and/or damage to the equipment.
10. Document all wiring that is terminated on the load lugs in this installation guide (Appendix E, page 27), so that the system can be properly configured and programmed for operation.
11. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
12. Once installation is complete ensure that all caution and warning labels are present and clearly visible. See Appendix A (page 24) for label types and locations.
13. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
14. Do not use this equipment for other than intended use.

### **SAVE THESE INSTRUCTIONS**

## **GARANTIES IMPORTANTES** - Lisez cette première

Tous les appareils sont fabriqués et assemblés par les produits Lex et sont testés par des règles de sécurité très strictes. Toutes les précautions ont été prises lors de l'installation de cet appareil. Veuillez lire et respecter tous les avertissements donnés dans ce guide. Veuillez lire et respecter tous les avertissements donnés dans ce guide.

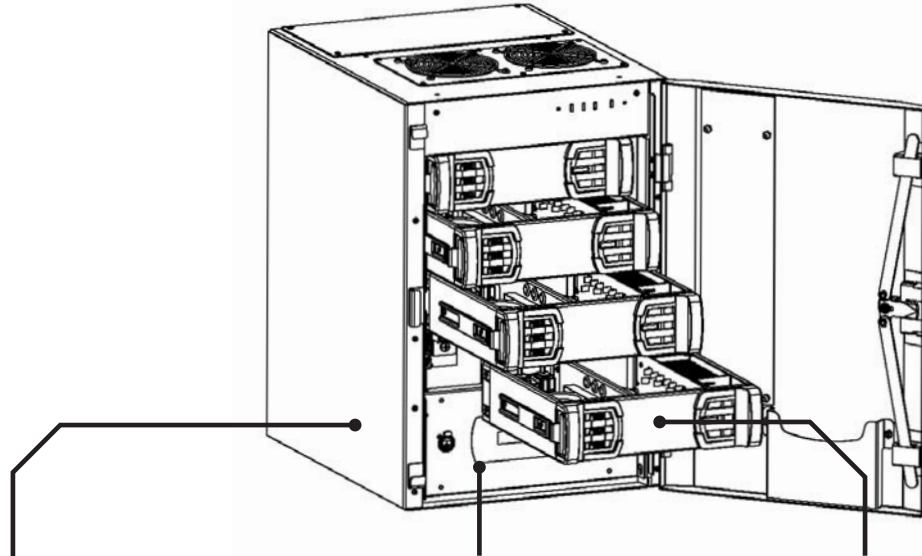
### **LIRE ET SUIVRE TOUTES LES INSTRUCTIONS DE SÉCURITÉ**

1. Toutes les sections de ce guide d'installation doit être suivie dans l'ordre afin d'installer correctement cette unité.
2. Tous les services d'installation doit être effectuée par un personnel qualifié ou les techniciens de maintenance.
3. L'alimentation haute tension doivent être nourris de la PCS TRIO™ via un disjoncteur principal avec une capacité suffisante pour l'installation prévue.
4. Suivez conformément le code Electric national et les codes locaux en vigueur dans votre région.
5. Toujours éteindre toutes les sources d'alimentation avant toute opération d'entretien est effectué sur un panneau. Vérifier que l'alimentation est coupée avant de manipuler les conducteurs.
6. Le PCS Trio est construit uniquement pour être utilise a l'intérieur. Les appareils peuvent toutefois être utilise pour contrôler des lumières à l'extérieur.
7. Utilisez ce produit uniquement comme prévu et à la tension indiquée(s).
8. Ne montez pas là où il y a du gaz ou des chauffages électriques a proximité.
9. Il y a de l'énergie (tension) à l'intérieur de la chambre a balles. Une précaution extrême doit être utilisée lors de l'entretien de cet appareil. Toujours s'assurer que les avertissements sont suivis à la lettre pour éviter des blessures ou endommager l'appareil.
10. Document tout le câblage qui est terminée sur les ergots de charge dans ce guide d'installation (Annexe E, page 27), de sorte que le système peut être correctement configuré et programmé pour cette opération.
11. L'appareil doit être monte dans des endroits spéciaux et a une certaine hauteur ou il sera accessible seulement au personnel autorisé et non à n'importe qui.
12. Une fois l'instillation est terminée toutes les précautions et les étiquettes d'avertissement doivent attachées et bien visibles. Allez Annexe A (page 24) pour le type d'étiquette et ou les placer.
13. Cet appareil ne doit être utiliser seulement que prévue par le manufacturier.
14. Ne pas utiliser ce matériel pour d'autres d'utilisation prévue.

### **CONSERVEZ CES INSTRUCTIONS**

## Range Overview

The PCS TRIO™ Installation Power Control System has been designed to be assembled on site as shown in the following pages. The subsequent Part Number Configuration section shows the components available.



### Module Chamber

Unique panel provides convenient access to line and load terminals. It is designed to be installed separate of the remaining components. This enhances overall system durability by limiting the exposure of sensitive devices during installation.

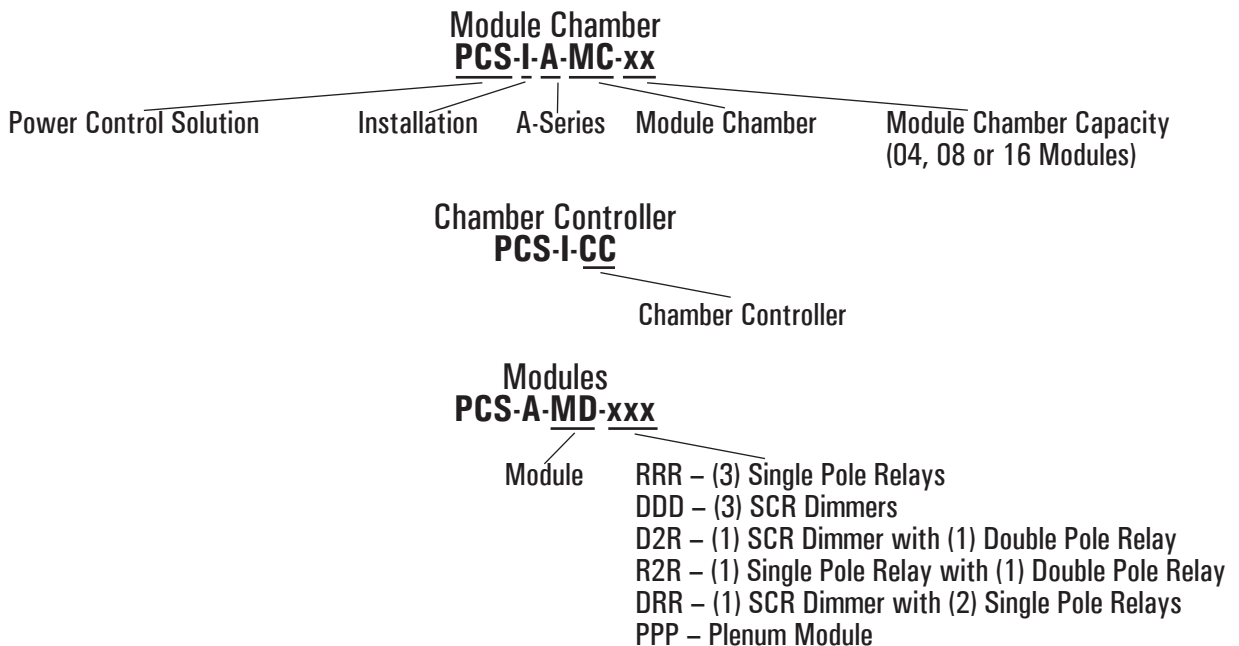
### Chamber Controller

Incorporating state-of-the-art components this unit may be installed in the field and accepts industry standard control protocols: DMX-512A, RDM, sACN and Art-NET

### Modules

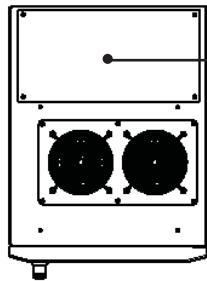
Shipped ready for installation, any combination of modules in any order may be installed up to the capacity of the Module Chamber.

## Part Number Configurations



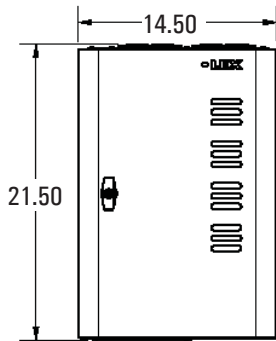
## Panel Dimensions

### Four (4) Module Chamber

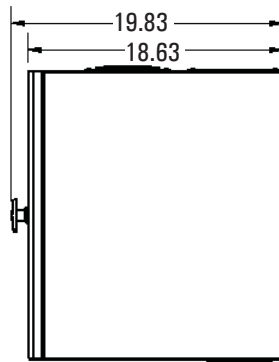


Removable knockout (KO)  
panel for conduit

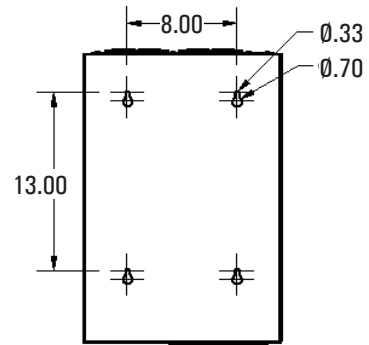
TOP



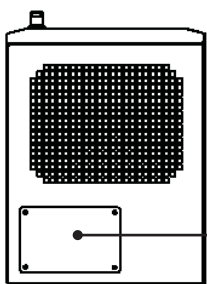
FRONT



SIDE



BACK



Removable knockout (KO)  
panel for conduit

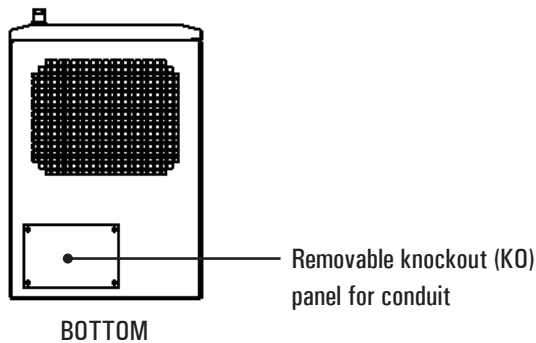
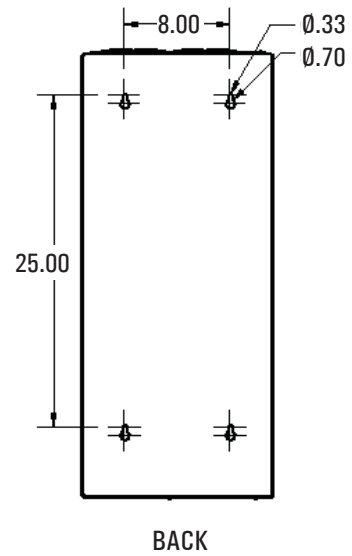
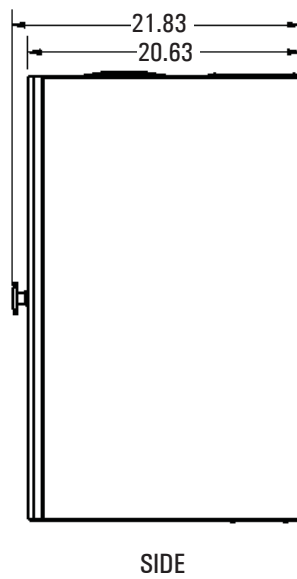
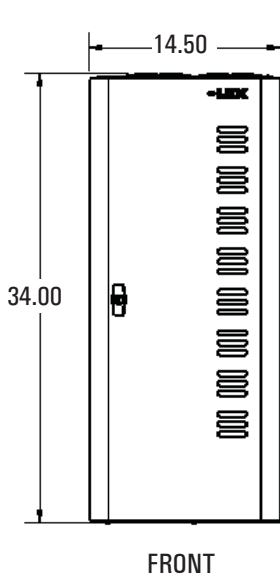
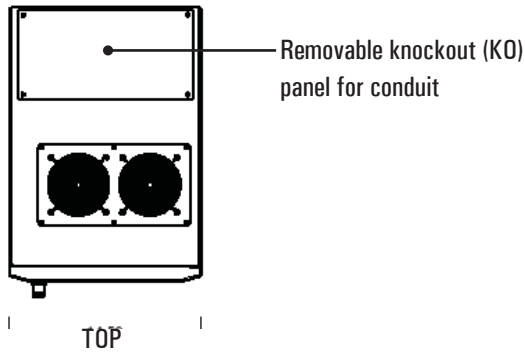
BOTTOM

#### NOTES:

- Maximum Loaded Weight: 140 lbs (63.50 kg)
  - Weight assumes panel fully loaded with PCS-A-MD-DDD modules. Actual weights may be less.
- Multiple units may be installed side by side.
- All dimensions in inches.

## Panel Dimensions (continued)

### Eight (8) Module Chamber

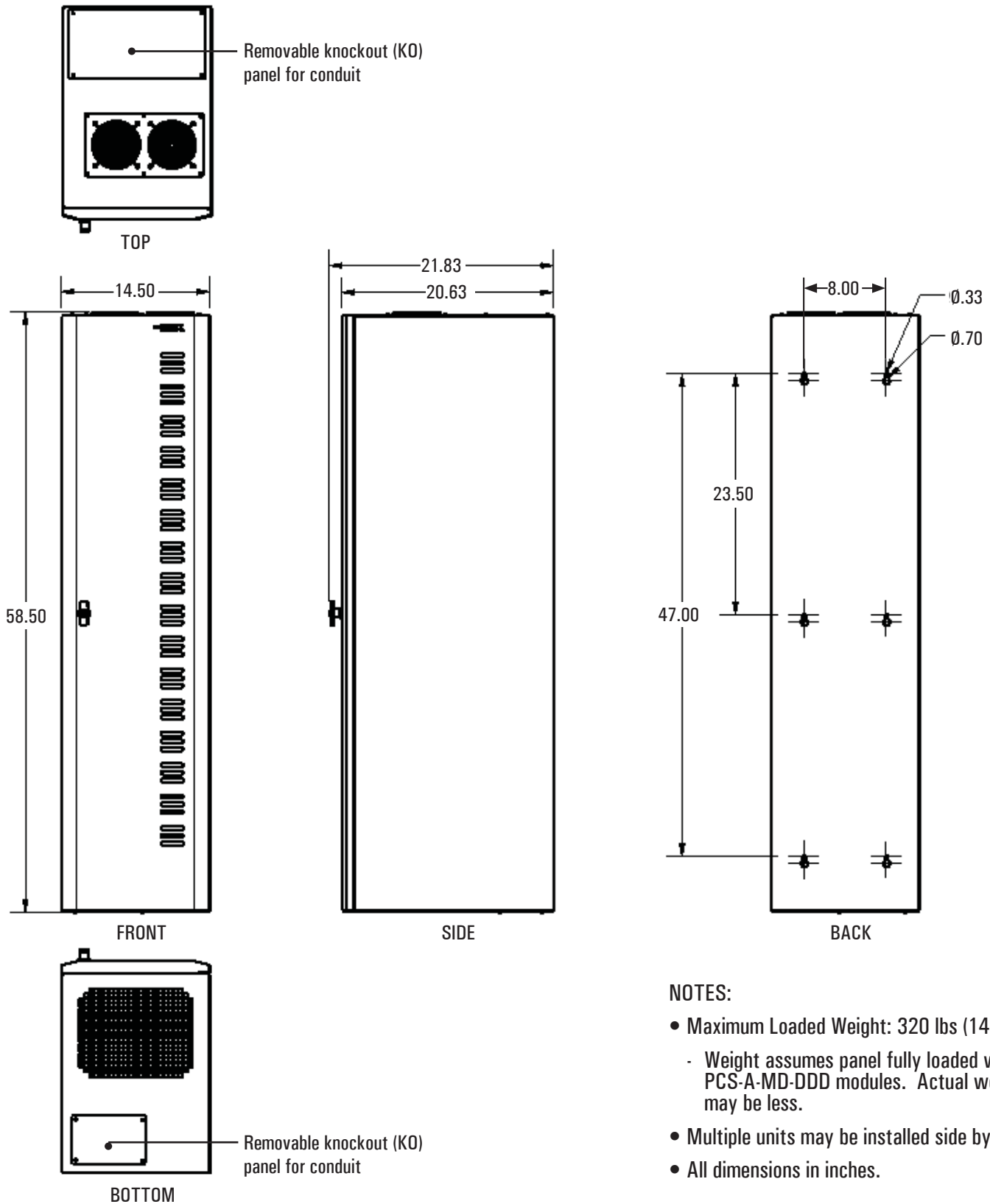


#### NOTES:

- Maximum Loaded Weight: 205 lbs (93.00 kg)
  - Weight assumes panel fully loaded with PCS-A-MD-DDD modules. Actual weights may be less.
- Multiple units may be installed side by side.
- All dimensions in inches.

## Panel Dimensions

Sixteen (16) Module Chamber (PCS-I-A-MC-16)



### NOTES:

- Maximum Loaded Weight: 320 lbs (145.15 kg)
- Weight assumes panel fully loaded with PCS-A-MD-DDD modules. Actual weights may be less.
- Multiple units may be installed side by side.
- All dimensions in inches.

## Location

The PCS TRIO™ Installation Power Control System is cooled by a combination of convection and a forced-air system. The air is moved via high velocity fans that have the potential to generate noise. Therefore it is vitally important to choose a suitable mounting location for the unit. Please consider the following guidelines when deciding on a location for the unit(s):

### Ventilation

- The PCS TRIO™ Modules have the potential to generate heat within the Module Chamber. In addition to convection the Module Chamber is cooled by fans and is sensitive to the surrounding environment.
- Ensure that each unit is installed in a location that permits sufficient airflow. See allowances below.
- Typical ambient temperature should be between 32°F to 104°F, (0°C to 32°C). While operating the unit, ensure that the ambient atmosphere requirements are not exceeded.
- The ventilated area must be free of excessive humidity, condensation or dust and accessible only to authorized personnel.
- Ensure that the minimum clearances and distances to walls and other equipment shown in the diagrams are maintained.
- Ensure that the wall area where the unit is to be mounted is free of obstructions both above and below the unit. Units may be mounted side by side in direct contact with one another.

### Noise

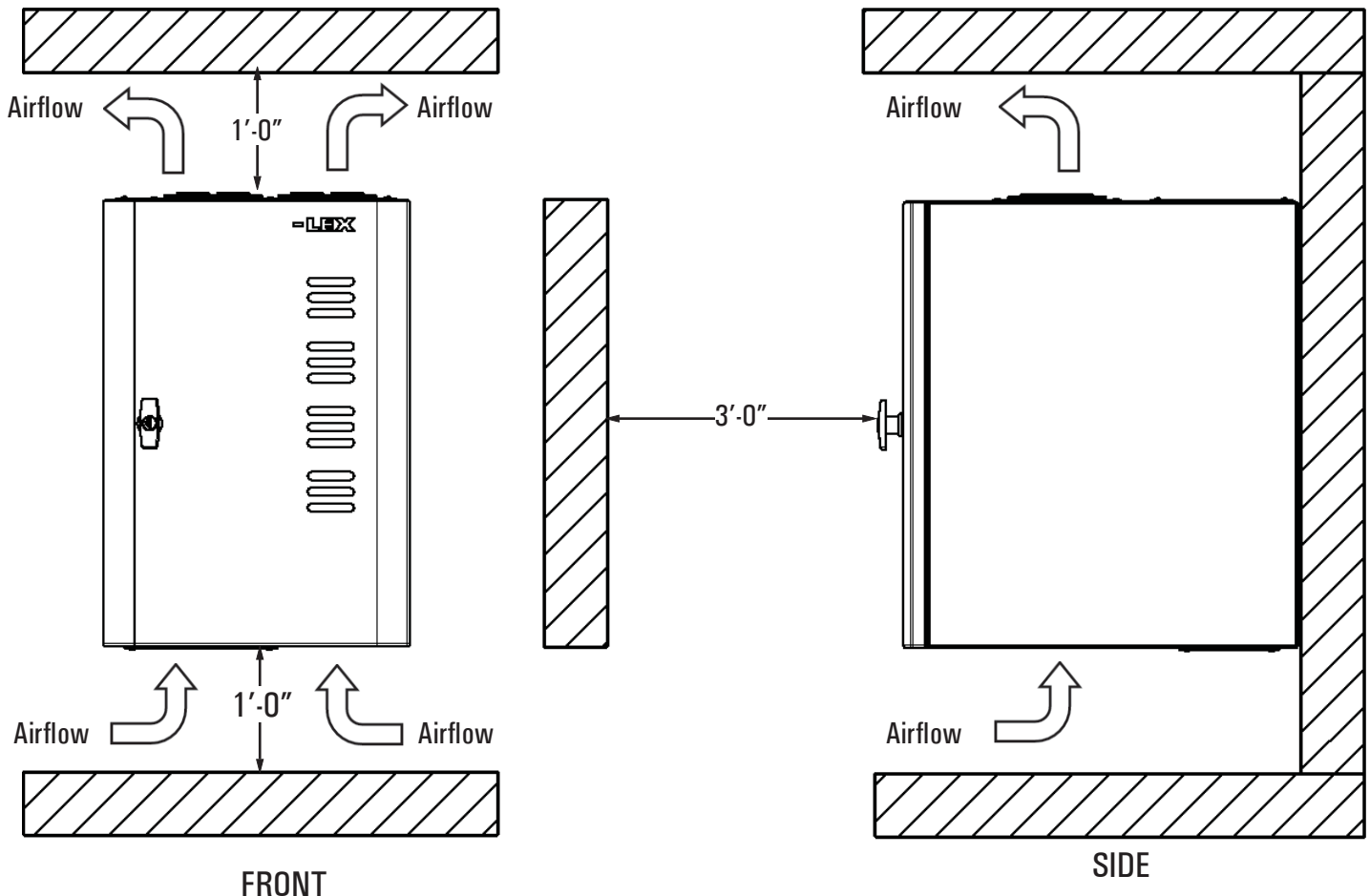
- PCS TRIO™ fans and relays produce some low-level noise (less than 80dB) during normal operation. This should be considered when determining the proper mounting location for the unit.

### Maintenance

- Regular maintenance should be performed, so allow adequate space (clearances) for future maintenance of the unit. Do not install in an obstructed location that will be difficult to access.
- Proper clearance must be allowed in front of the PCS TRIO™ Power Control System to allow for opening of access doors. See figure below for details and dimensions.

### Security

- While key-lock protection is provided within the Module Chamber door, access by unauthorized personnel and vandals should be taken into consideration when locating this device.





## Location

Le système d'installation de control du PCS TRIO™ est refroidi par une combinaison de convection et un système à air puise. L'air est déplacé par des ventilateurs a haute voltage qui génèrent du bruit. Il est donc extrêmement important de choisir une place de montage adapte pour l'appareil. Veuillez tenir compte des instructions suivantes pour mieux le pacer:

### Ventilation

- Le trio PCS modules ont le potentiel de générer de la chaleur dans le module de chambre. Outre le module de chambre de convection est refroidi par des ventilateurs et est sensible à l'environnement
- S'assurer que chaque unité est installée dans un emplacement qui permet une circulation d'air. Voir indemnités ci-dessous.
- La température ambiante doit être comprise entre 32° F à 104° F (0°C à 32°C). Pendant le fonctionnement de l'unité, s'assurer que l'atmosphère ambiante exigences ne sont pas dépassées.
- La zone ventilée doit être exempt d'humidité excessive, la condensation ou la poussière et accessibles uniquement au personnel autorisé.
- S'assurer que les dégagements minimums et les distances et les murs et autres matériel comme indiqué dans les diagrammes sont maintenues.
- Veiller à ce que la surface du mur où l'unité est d'être monté est libre de toute obstruction au-dessus et en dessous de l'unité. Plusieurs unités peuvent être montées côte à côte.

### Bruit

- Pendant le fonctionnement, le PCS TRIO™ Installation Système de contrôle de puissance sera parfois produire bruit audible(s).

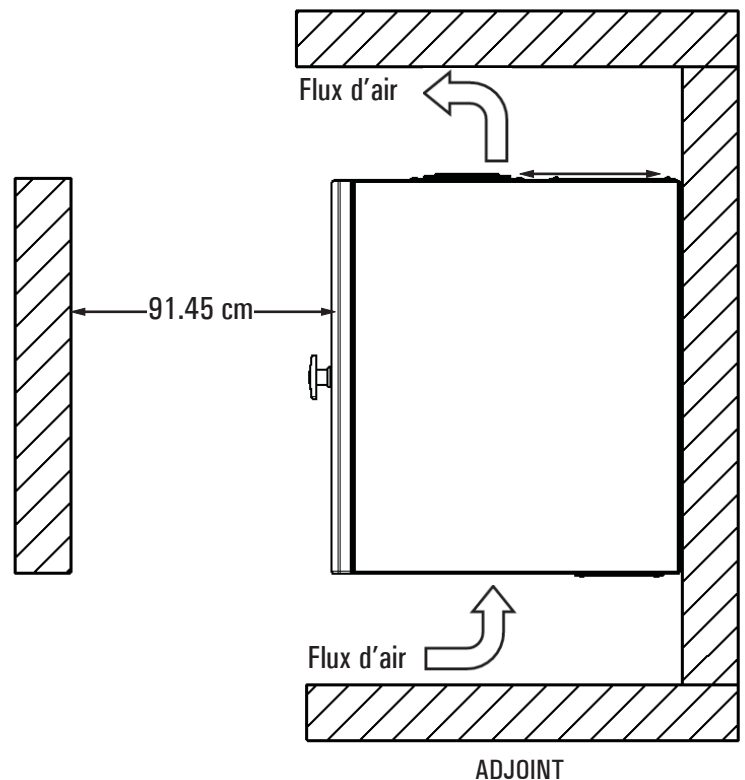
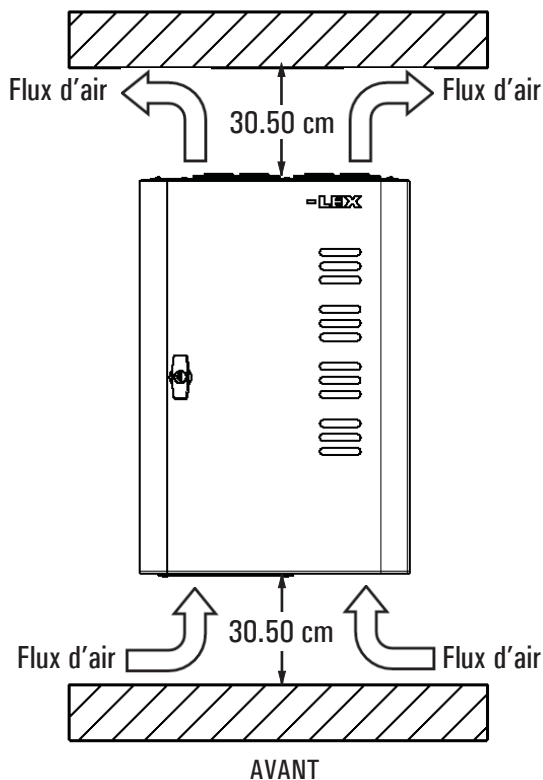
- Les ventilateurs seront sur au moment d'alimentation est allumé et reste allumé pendant tout le temps circuits de charge sont actifs.
- Une fois engagé, le ventilateur fonctionne à une vitesse constante produisant un faible niveau de bruit.
- Les ventilateurs restera sur jusqu'à ce que les circuits de charge sont inactifs pendant une période de vingt (20) minutes.
- Le circuit de charge relais au sein de l'unité exposition un clic audible lorsqu'ils sont excités. Cela devrait être examiné lors de la localisation de l'unité.

### Maintenance

- Un entretien régulier doit être effectué, en laissant suffisamment d'espace pour l'entretien futur de l'unité. Ne l'installez pas dans un endroit qui sera difficile d'accès.
- Le dégagement doit être autorisé à l'avant du PCS TRIO™ Système de contrôle de puissance pour permettre une ouverture des portes d'accès. Voir la figure ci-dessous pour plus de détails et de dimensions.

### Sécurité

- Pendant que la clé verrouiller protection est fournie dans le Module porte de la Chambre, l'accès par des personnes non autorisées et les vandales devraient être prises en considération lors de la localisation de ce périphérique.



## Specifications

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### General Specifications

- The power control system is the PCS TRIO™ Installation Power Control System manufactured by Lex Products.
- The PCS TRIO™ Module Chambers are fully digital, and are designed for either entertainment and/or architectural lighting.
- Each PCS TRIO™ Module Chamber is capable of simultaneously supporting 120 VAC relays, 240 VAC relays and 120 VAC dimmers.
- The PCS TRIO™ Module Chambers are capable of supporting up to sixteen (16) modules within a single panel.
- The PCS TRIO™ Installation Power Control System is UL924 compliant when installed with a UL 1449 Listed surge protective device (SPD), designed for repeated limiting of transient voltage surges, upstream of the system.
  - Unit accepts a closed-contact signal (user selectable between normally open or normally closed) to indicate state (either normal or emergency). Where an emergency state is indicated the power control system executes a user-selectable pre-programmed configuration under five seconds after restoration of power.

### Mechanical

- PCS TRIO™ systems are wall-mounted, dead front switchboard, manufactured and enclosed using 14-gauge formed steel and 14-gauge zinc-plated steel.
- All non-plated steel rack components are treated, primed and finished using a fine texture, scratch resistant, powder coating.
- Lockable front doors provide secure access while allowing easy insertion and removal of all modules. The front door prevents, while closed, incidental removal of modules.
- Modules can be interchanged by the users as desired, at any time, without the use of tools.
- With modules removed, the Module Chamber provides access to line and load terminals.
- Each Module Chamber slot will accommodate any one (1) of six (6) PCS TRIO™ Modules.

### Electrical - Module Chamber

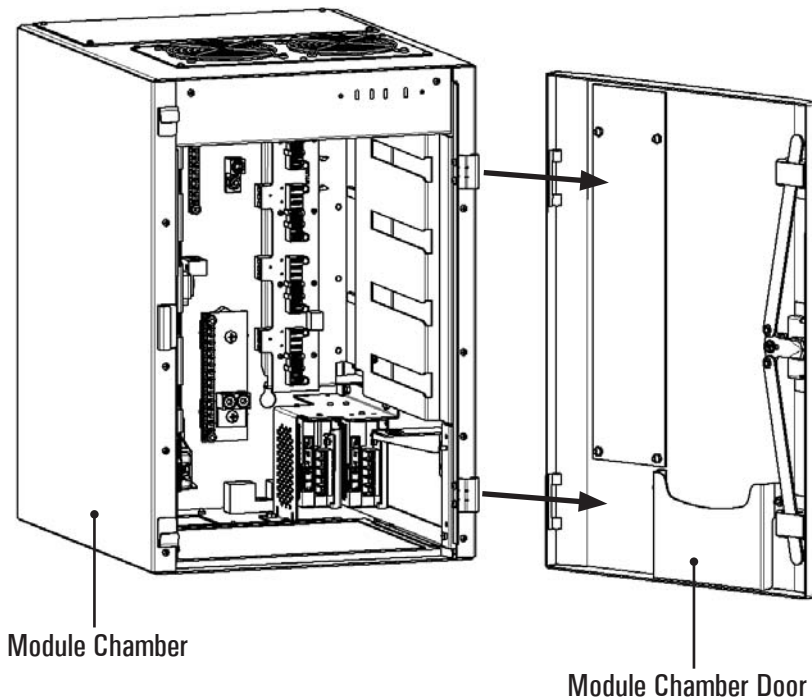
- PCS TRIO™ Module Chambers operate at a nominal voltage of **EITHER** 208Y/120 VAC 3-phase, 4-wire plus ground **OR** 240/120 VAC single phase, 2-wire plus ground at 60Hz.
- Switching between the above voltage types is possible in the field.
- Wiring terminals are located in the Module Chamber for hot, neutral, and ground. See the chart on page 11 for wire capacities.
- Load wiring terminals located in the Module Chamber for line connections are clearly marked with the module designation. See the chart on page 15 for wire capacities.
- The minimum fault current protection of the panel is 100,000 AIC.
- Control signal terminations are either of the plug-in screw terminal or insulation displacement type to facilitate contracting and servicing and are clearly labelled.

### Electrical - Modules

- PCS TRIO™ Modules support three (3) hot lines making each Module capable of supporting the following:
  - Three (3) 120 VAC 20A Single Pole Relays (PCS-A-MD-RRR)
  - One (1) 120 VAC 20A Single Pole Relay and One (1) 240 VAC 20A Double Pole Relay (PCS-A-MD-R2R)
  - One (1) 120 VAC 20A SCR Dimmer and One (1) 240 VAC 20A Double Pole Relay (PCS-A-MD-D2R)
  - One (1) 120 VAC 20A SCR Dimmer and Two (2) 120 VAC 20A Single Pole Relays (PCS-A-MD-DRR)
  - Three (3) 120 VAC 20A SCR Dimmers
- A plenum module (PCS-A-MD-PPP) is available to fill those Module Chamber slots not otherwise occupied
- **Each load circuit requires a dedicated neutral.**
- **Chaque circuit de charge nécessite un dédié neutre.**
- **System requires a UL 1449 Listed, Type 2 Surge Protective Device (SPD), installed per the manufacturer's instructions, to maintain UL 924 compliance.**
- **Système nécessite un type 2 Surge Dispositif de protection homologué UL 1449 (SPD), installé conformément aux instructions du fabricant, pour maintenir la conformité UL 924.**

## Module Chamber Installation

Mounting holes are located in the back panel of the Module Chamber (see pages 5-7 for dimensions). For clear access to the keyholes and to minimize the potential for damage of sensitive components during installation, it is recommended that the Module Chamber door is removed from the Module Chamber prior to installation.



1. Open the Module Chamber door.
2. Remove hinge pins securing the Module Chamber door to the Module Chamber.
3. Remove the Module Chamber door and set aside.
4. Return hinge pins to Module Chamber
5. Mount Module Chamber.

## PCS TRIO™ Power Control System



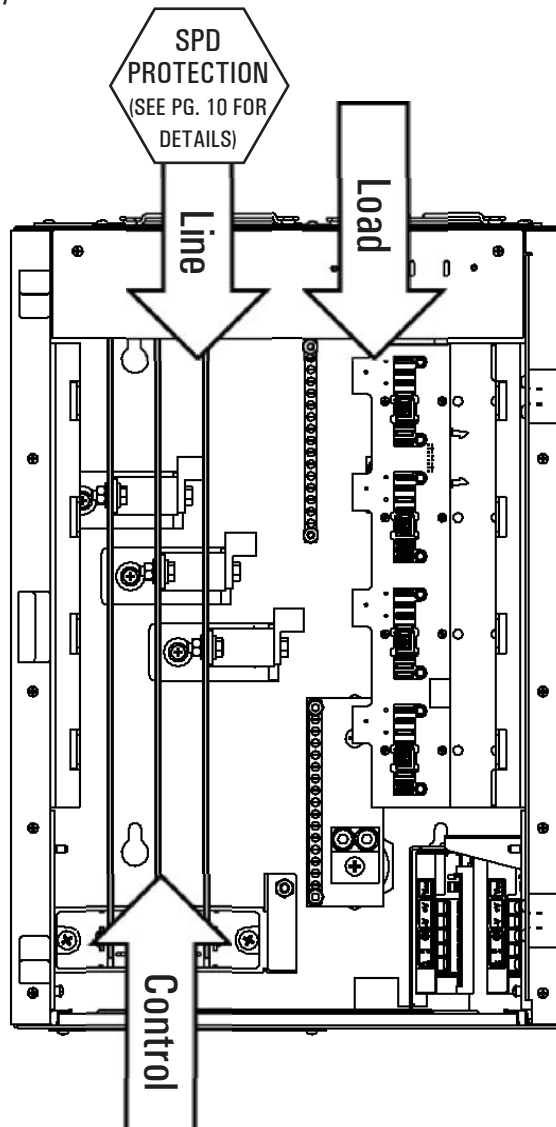
**SAFETY** - Ensure service circuit breakers are 'Off' or 'Open' and Lockout/Tagout procedures have been followed prior to proceeding.

**SÉCURITÉ** - Assurer que les disjoncteurs sont sur 'Fermé' or 'Ouvert' et que les procédures ont été suivies comme recommandé sur l'étiquette.

### Wiring Installation

The PCS TRIO™ Installation Power Control System has been designed to provide a clear layout and logical progression for all power circuits.

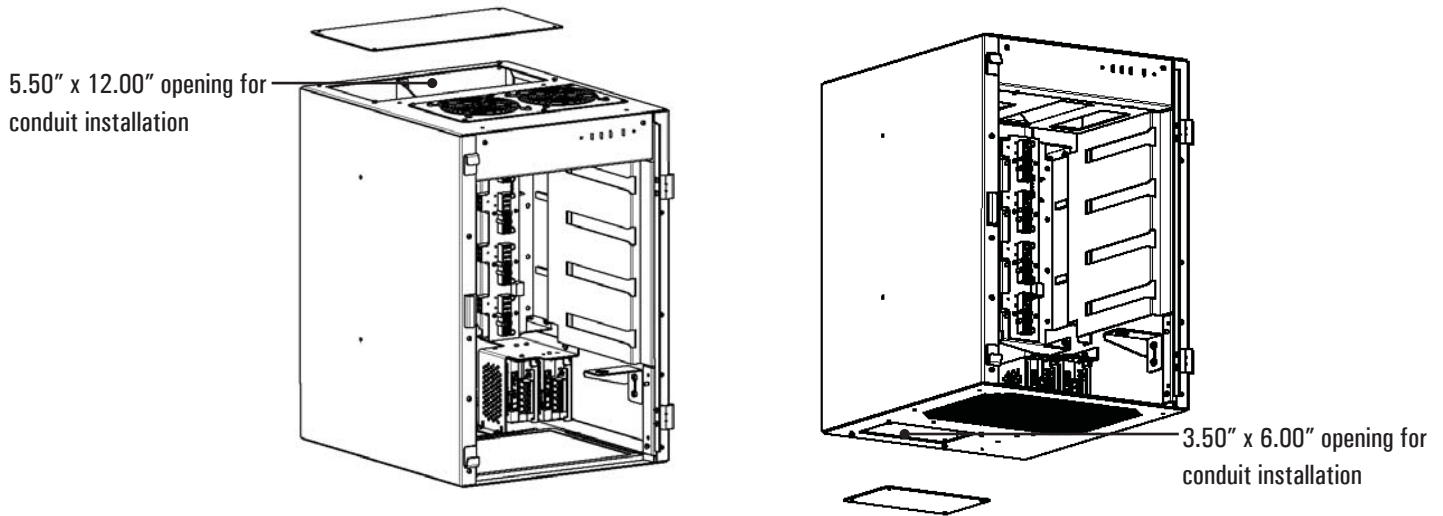
- Line, load and control wiring may ONLY enter through EITHER the top OR bottom removable panels of the Module Chamber. Panels have been provided to easily identify allowable locations for conduit termination.
- Line power is distributed through three (3) service bus bars to the PCS TRIO™ Modules which modulate or switch the power before passing along to the load terminations.
- The diagram below indicates a typical wiring flow with the high voltage line and load wiring exiting from the top of the panel and the control wiring exiting from the bottom.
- Maintain a minimum 1/2 inch (1.27 cm) separation between low voltage control wiring and high voltage power cabling to ensure safety and maintain noise immunity.



## Line Wiring Installation

The actual gauges of line wiring will depend upon the connected loads, the wire type used, expected ambient temperatures and codes in force within your locality. Please consult and follow the tables below for details regarding maximum permissible line hot, neutral and ground wire gauges for specific PCS TRIO™ Module Chambers.

- Knockout panels should be removed from the Module Chamber prior to cutting to limit debris intrusion.
- Conduit selection must be in accordance with National Electrical Code (NEC) and any other national or local codes that are in force in your area.



Maximum Panel Line Lug Amperages\* and Wire Ranges

	208Y/120 VAC 3Ø, 60Hz (H,H,H,N,G)	240 VAC 60Hz (H,H,N,G)	Minimum Wire Range AL/CU		Maximum Wire Range AL/CU	
PCS-I-A-MC-04	80 Amps	120 Amps	(2) 14 AWG	(2) 2.08 mm <sup>2</sup>	(2) 2/0 AWG	(2) 67.40 mm <sup>2</sup>
PCS-I-A-MC-08	160 Amps	240 Amps	(2) 6 AWG	(2) 13.30 mm <sup>2</sup>	(2) 350 kcmil	(2) 177.00 mm <sup>2</sup>
PCS-I-A-MC-16	310 Amps (CU)	310 Amps (CU)	(2) 6 AWG	(2) 13.30 mm <sup>2</sup>	(2) 350 kcmil	(2) 177.00 mm <sup>2</sup>
	250 Amps (AL)	250 Amps (AL)				

\* - Maximum amperages achieved per line lug assuming fully loaded circuits

### Line Lug Schedule

	Wire Strip (inches)	Wire Strip (millimetres)	Hex Size (inches)	Max Torque (inch/pounds)	Max Torque (kilograms/force)
PCS-I-A-MC-04	5/8	15.88	3/16	120	138.25
PCS-I-A-MC-08	1	25.40	5/16	275	316.83
PCS-I-A-MC-16	1	25.40	5/16	275	316.83

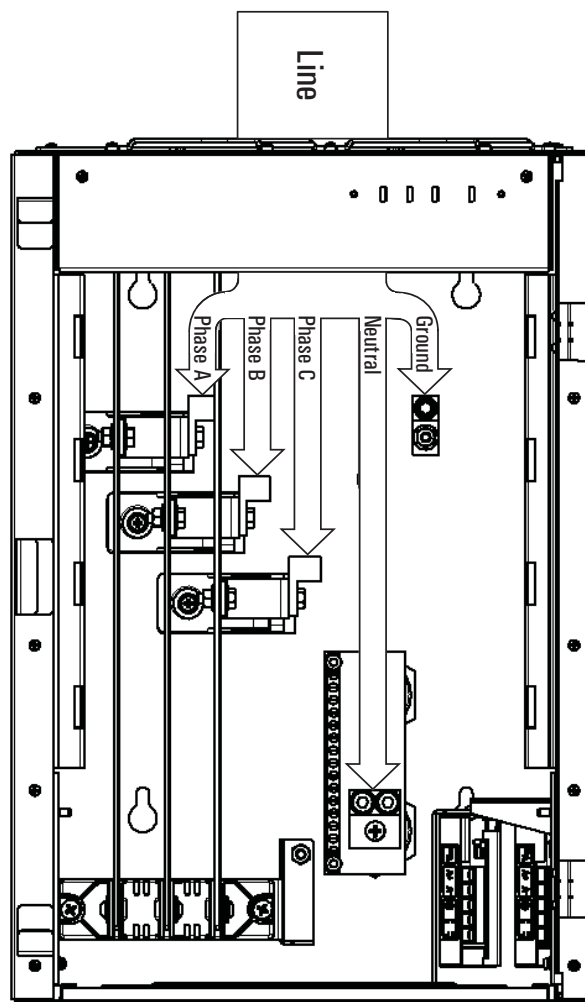
**! SAFETY** - Ensure service circuit breakers are 'Off' or 'Open' and Lockout/Tagout procedures have been followed prior to proceeding.

**SÉCURITÉ** - Assurer que les disjoncteurs sont sur 'Fermé' or 'Ouvert' et que les procédures ont été suivies comme recommandé sur l'étiquette.

### Three Phase Line Wiring Installation

The PCS TRIO™ Module Chamber shall ship from the factory ready for three phase operation.

- The suggested entry point for line voltage is via the top removable knockout (KO) panel.
- KO panels should be removed prior to cutting to limit debris intrusion.
- Keep all low voltage control wiring separate from high voltage power cabling to ensure safety and maintain noise immunity.
- Conduit and wiring selection must be in accordance with National Electrical Code (NEC) and any other national or local codes that are in force in your area.
- Caution must be taken in pulling wire into the cabinet to avoid damaging sensitive components.
- Once connections are complete, record voltages in chart provided on Appendix B (page 24).
- Once voltages have been recorded perform Lockout/Tagout procedure before proceeding to next step of installation.

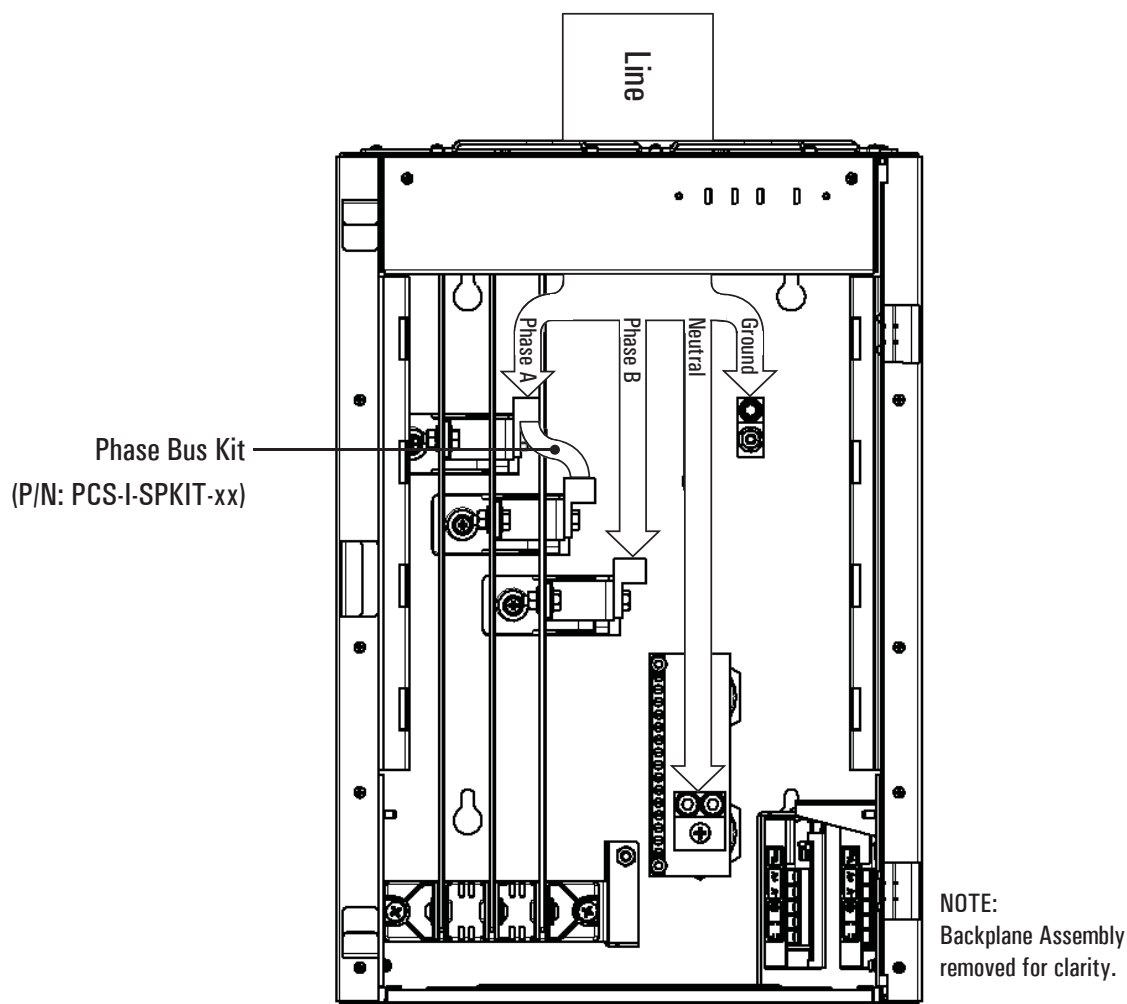


NOTE:  
Backplane Assembly  
removed for clarity.

## Single Phase Line Wiring Installation

The PCS TRIO™ Module Chamber may ship from the factory ready for EITHER three-phase OR single-phase operation. Module Chamber may be modified in the field to accept either power. Field modification shall require one (1) Lex Products Single-Phase Bus Kit (P/N: PCS-I-A-SP). Contact your Lex Products dealer for pricing and availability.

- The suggested entry point for line wiring is via the top removable KO panel.
- KO panels should be removed prior to cutting to limit debris intrusion.
- Keep all low voltage control wiring separate from high voltage power cabling to ensure safety and maintain noise immunity.
- Conduit and wiring selection must be in accordance with National Electrical Code (NEC) and any other national or local codes that are in force in your area.
- Caution must be taken in pulling wire into the cabinet to avoid damaging sensitive components.
- Once connections are complete record voltages in chart provided on Appendix B (page 24).
- Once voltages have been recorded perform Lockout/Tagout procedure before proceeding to next step of installation.



**⚠ SAFETY** - Ensure service circuit breakers are 'Off' or 'Open' and Lockout/Tagout procedures have been followed prior to proceeding.

**SÉCURITÉ** - Assurer que les disjoncteurs sont sur 'Fermé' or 'Ouvert' et que les procédures ont été suivies comme recommandé sur l'étiquette.

## Load Wiring Installation

### Ground Termination

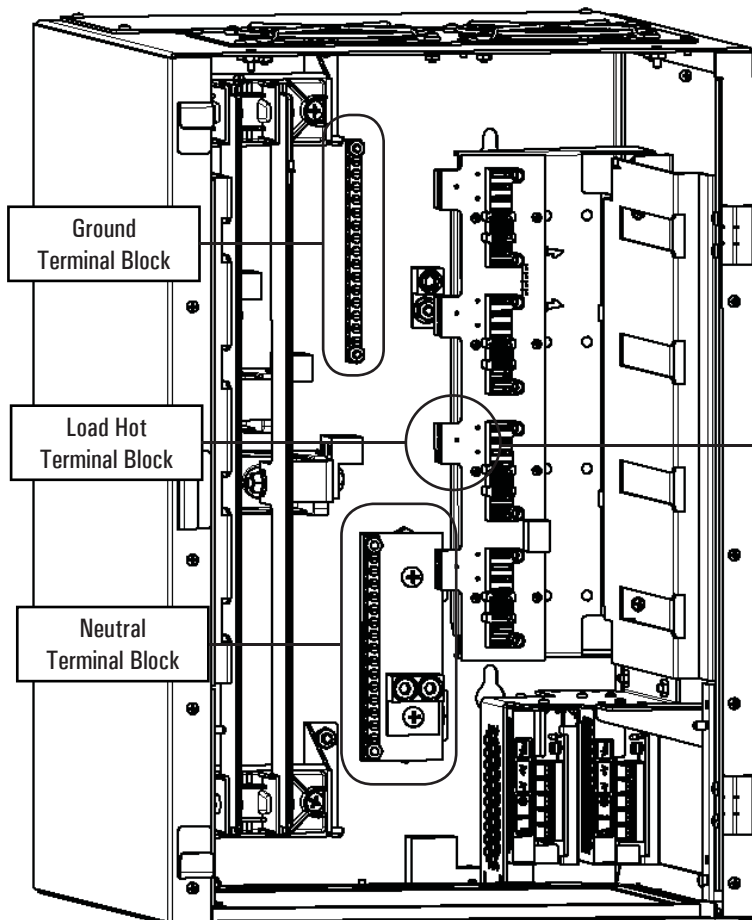
- Each PCS TRIO™ Module Chamber has a slotted pressure screw terminal block for termination of the ground leads.

### Neutral Termination

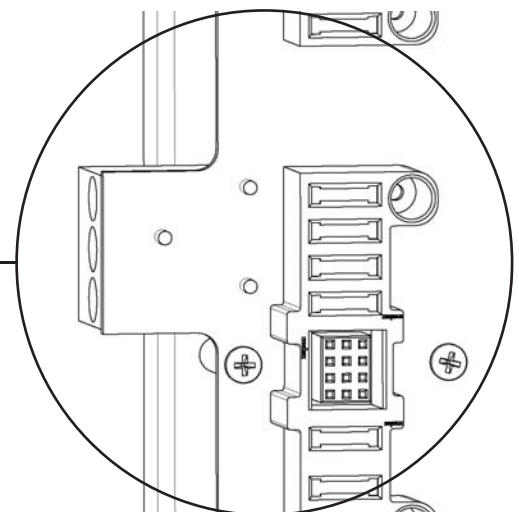
- Each PCS TRIO™ Module Chamber has a slotted pressure screw terminal block for termination of the neutral leads.
  - **NOTE:** Each circuit requires a DEDICATED neutral
  - **NOTE:** Chaque Circuit nécessite un dédié neutre.

### Phase Termination

- Each PCS TRIO™ Module Chamber slot is assigned a three-way quick connection terminal block for termination of phase leads. Load type is determined by the PCS TRIO™ Module inserted into that slot.
- Caution must be taken in pulling wire into the cabinet to avoid damaging sensitive components.



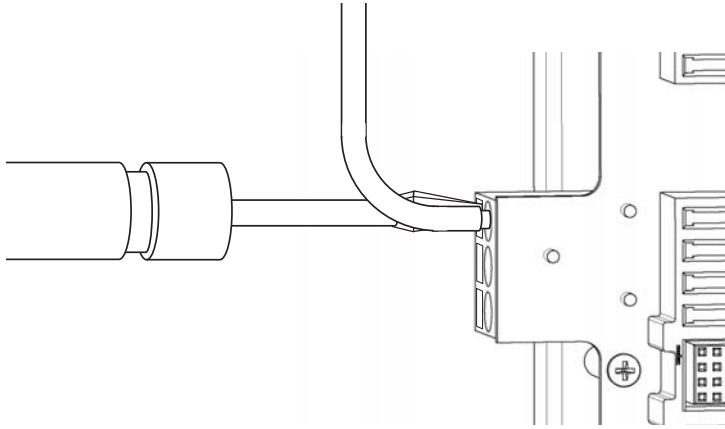
NOTE:  
Fan Assembly removed for clarity.



Detail: Load Phase PCB Terminal Block with Push-In Connection  
(Typical of 4)



## Load Wiring Installation (continued)



### Load Phase Wiring Termination:

1. Cut wire to length.
2. Strip wire insulation from the connection end to the length indicated on the chart below.
3. Insert fine blade screwdriver in rectangular slot to loosen terminal contact. **DO NOT** turn or twist screwdriver as this will damage the connection.
4. Insert the wire until fully seated.
5. With the wire firmly in place remove the screwdriver from the slot.
6. Ensure the wire is firmly held by the internal spring clip before moving on to next connection.
7. Record load wiring assignments in Appendix E (page 27).

### Load Terminal Blocks Schedule

	Minimum Wire Range AL/CU		Maximum Wire Range AL/CU		Wire Strip Length	
Load Ground	12 AWG	3.31 mm <sup>2</sup>	4 AWG	21.20 mm <sup>2</sup>	1/2"	12.70 mm
Load Neutral	12 AWG	3.31 mm <sup>2</sup>	4 AWG	21.20 mm <sup>2</sup>	1/2"	12.70 mm
Load Hot	12 AWG	3.31 mm <sup>2</sup>	4 AWG	21.20 mm <sup>2</sup>	5/16"	8.00 mm

## Control Wiring Installation

The PCS TRIO™ Module Chamber shall ship from the factory ready for operation using either RS-485 based (DMX-512A, RDM) or Ethernet based (sACN, Art-Net) control protocols.

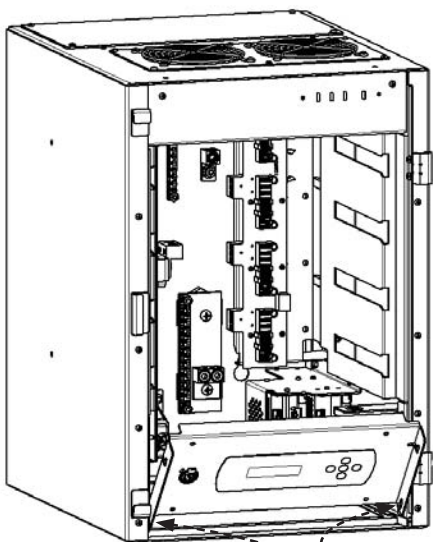
- The suggested entry point for control wiring is via the bottom removable KO panel.
- KO panels should be removed prior to cutting to limit debris intrusion.
- Keep all low voltage control wiring separate from high voltage power cabling to ensure safety and maintain noise immunity.
- Conduit and wiring selection must be in accordance with National Electrical Code (NEC) and any other national or local codes that are in force in your area.
- Caution must be taken in pulling wire into the cabinet to avoid damaging sensitive components.
- Pull enough control wiring into cabinet to reach the Chamber Controller with an additional 3'-0" service loop in Module Chamber.

## Field Service/Commissioning Request

- If the PCS TRIO™ Chamber Controller (P/N: PCS-I-CC) has been provided for limited jobsite operation, proceed to the next page for installation.
- If the PCS TRIO™ Chamber Controller (P/N: PCS-I-CC) has NOT been provided, complete the Field Service/Commissioning Checklist and Field Service/Commissioning Request in Appendices C and D (pages 25 and 26) and return to Lex Products dealer for system commissioning.

## Chamber Controller Module Installation (if applicable)

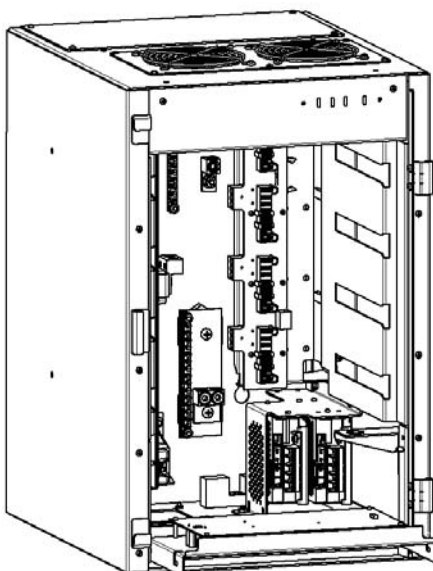
- Your Lex Products dealer may elect to provide the PCS TRIO™ Chamber Controller (P/N: PCS-I-CC) necessary for basic job site operation of the PCS TRIO™ Power Control System. This manual is intended to provide instruction on the installation required to allow this operation.
  - The PCS TRIO™ Chamber Controller utilizes an 'ALL ON' function for this purpose.
  - Once activated all relay circuits will be set to 'ON' or 'CLOSED' and all dimmer circuits will be set to 100%.
- Full commissioning of the PCS TRIO™ Power Control System is required to take full advantage of the DMX-512A, RDM, sACN and Art-Net control protocols.
  - Full commissioning of the system, including addressing, is covered within the *PCS TRIO™ Panel Commissioning and Operation Guide* provided by your Lex Products dealer.



1. Open the shipping container containing the PCS TRIO™ Chamber Controller (Lex Products P/N: PCS-I-CC)  
Contents:
  - (1) Chamber Controller module
  - (1) Termination Kit (P/N: PCS-I-A-TK)
2. Remove (2) #6-32 x 3/8" Phillips-head machine screws and collars that are provided on the Module Chamber.
3. Carefully remove Chamber Controller module from anti-static bag. NOTE: Sensitive electronics must be kept from electric shock.
4. Align side openings in Chamber Controller module with threaded inserts at bottom of Module Chamber.
5. Secure Chamber Controller Module to Module Chamber using (2) #6-32 x 3/8" Phillips-head machine screws and collars.

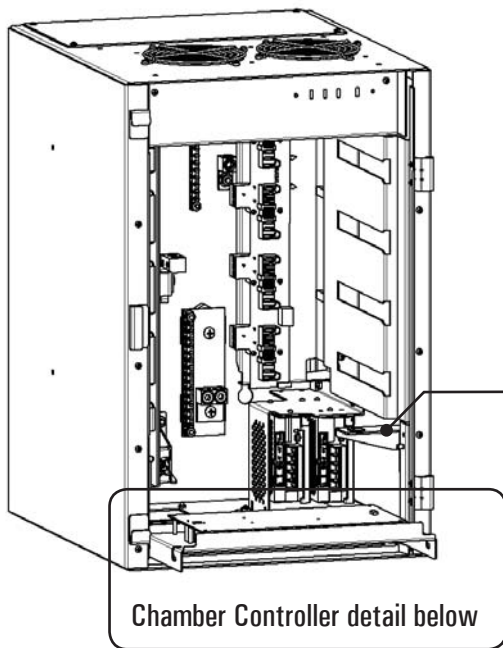


(2) 6-32x 5/16" Phillips-head Machine Screws and Collars

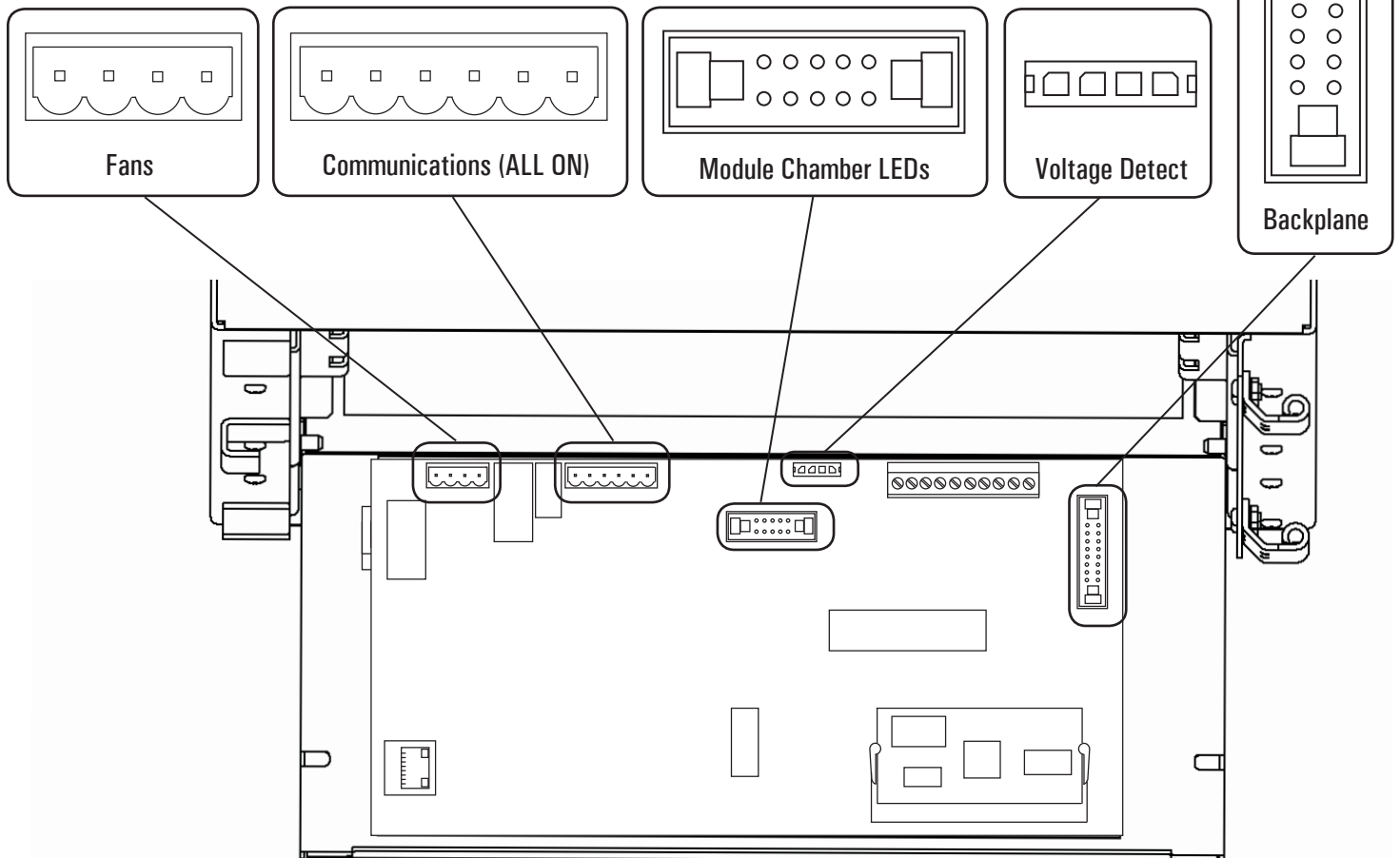


6. Allow the Chamber Controller module to rotate and rest in a horizontal orientation for wiring termination.

## Chamber Controller Module Installation (continued)

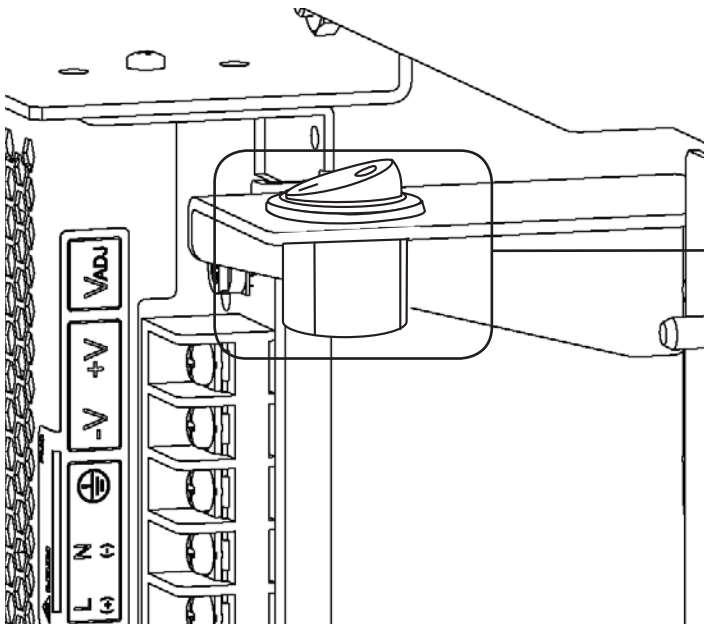


7. Carefully cut wire tie binding Module Chamber connections bag to right side of Module Chamber enclosure. Remove and discard bag.
8. Complete five (5) connections between Module Chamber and Chamber Controller module.
  - Each connection is unique and will only fit the corresponding receptacle in the correct orientation.
  - Do NOT force connections.

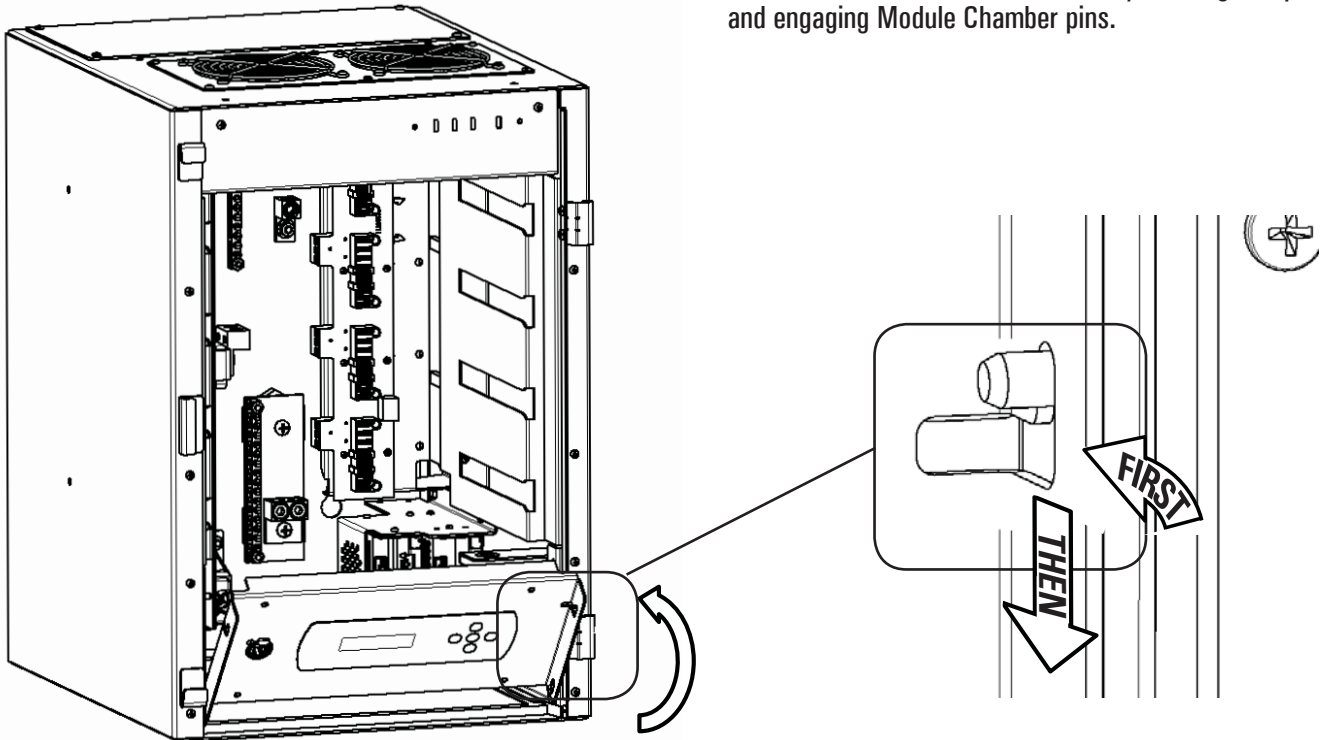


## Chamber Controller Module Installation (continued)

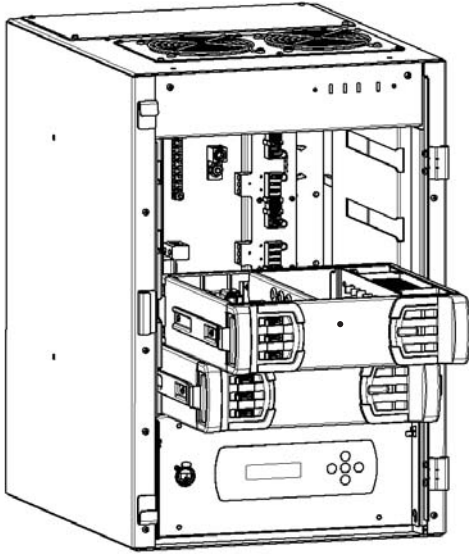
8. Toggle 'ALL ON' switch to ON.



9. Secure Chamber Controller Module by rotating faceplate and engaging Module Chamber pins.



## Module Installation



### 1. Insert Modules into Module Chamber.

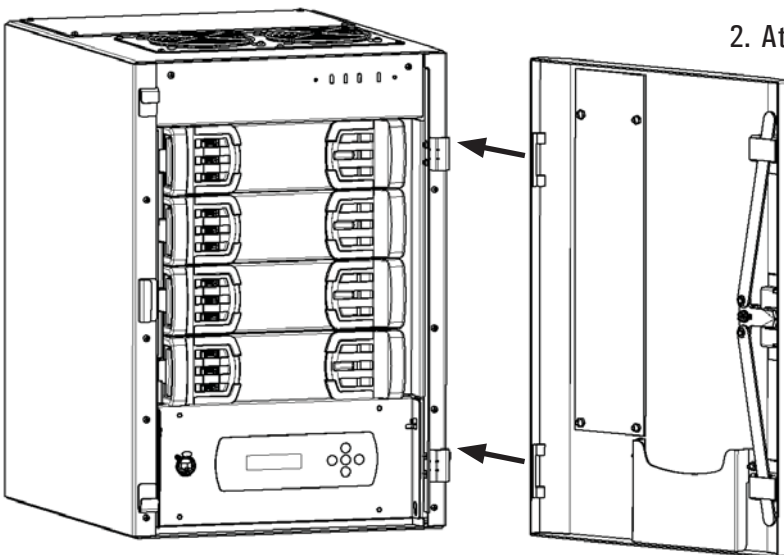
#### PLEASE NOTE:

- As a safety precaution circuit breakers on the modules **MUST BE OFF** to prevent potential arcing during insertion.
- It is critical to proper operation that modules are fully seated within the Module Chamber. Module side latches engage when the unit is properly positioned. If the latches will not engage, make certain Module is installed right side up.
- It is recommended that modules are inserted starting at the bottom most slot and then in ascending order.
- To remove modules insert fingers into each module grip, depress latches and pull straight out.
- All slots **MUST BE** occupied by modules in order to preserve the plenum cooling effect.

#### S'IL VOUS PLAÎT NOTE:

- Comme une mesure de sécurité disjoncteurs sur les modules doivent être fermées pour empêcher l'insertion arc.
- Il est essentiel d'opération approprié que les modules sont bien en place à l'intérieur de la chambre de module. Côtés du module loquets s'engagent lorsque l'appareil est correctement positionné. Si les loquets ne s'enclenche pas, faire certaines Module est installé côté droit vers le haut.
- Il est recommandé que les modules sont insérées en commençant sur le fond plus fente, puis dans l'ordre croissant.
- Pour supprimer des modules insérer les doigts dans chaque poignée du module, appuyez sur les loquets et tirez tout droit.
- Tous les emplacements doivent être occupés par des modules dans le but de préserver l'effet de refroidissement plénum.

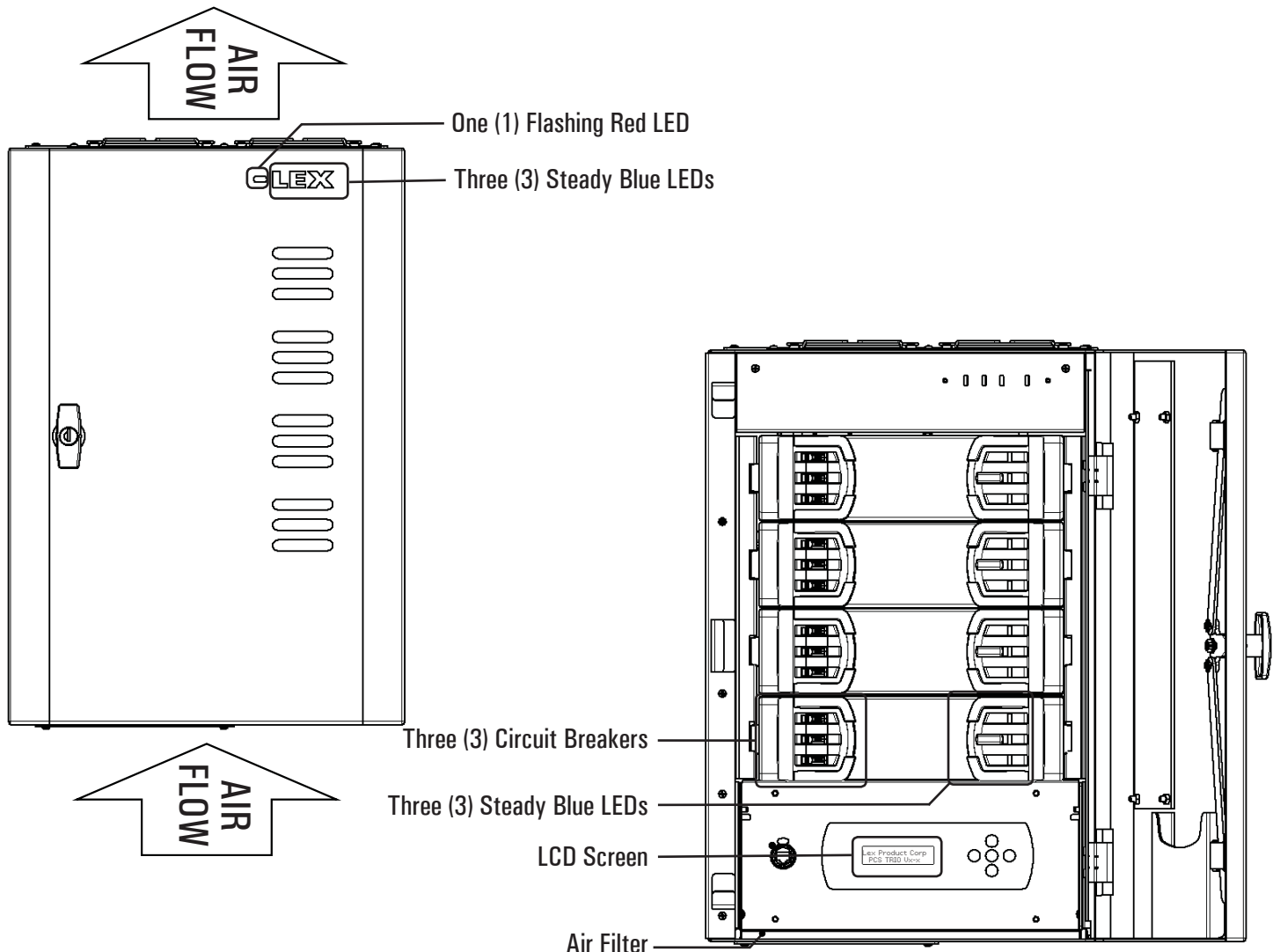
### 2. Attach, close and latch Module Chamber door.



## Limited Operation

1. Restore power to completed PCS TRIO™ Power Control System.
2. Wait for five (5) seconds as the Chamber Controller boots up.
3. Check for proper system status with the Module Chamber door closed:
  - a. On the Module Chamber Door the letters 'L', 'E' and 'X' will be illuminated in solid blue LEDs.
    - Solid blue LEDs indicate the presence of power on each of the three (3) line bus bars.
  - b. To the left of the blue 'LEX' indicators will be a flashing red LED indicating the 'ALL ON' status of the Chamber Controller\*.
  - c. Cooling fans at the top of the Module Chamber will turn on.
4. Open the Module Chamber door and check for proper Chamber Controller system status:
  - a. The LCD display on the Chamber Controller will illuminate and display the following message:  
Lex Product Corp  
PCS TRIO Ux-x ('x-x' = firmware version numbers)
5. Individual circuits may now be energized through toggling the respective circuit breaker handle.
  - a. Three (3) blue LEDs will be illuminated on each module face on the right hand grip.
  - b. All relay circuits will be set to 'ON' or 'CLOSED'
  - c. All dimmer circuits will be set to 100%

\* - Flashing red LED indicates loss of control signal. At this stage of installation a flashing red LED is considered normal.



## Field Service/Commissioning Checklist and Request

- Complete the Field Service/Commissioning Checklist in Appendix C on page 25.
- Once the Field Service/Commissioning Checklist in Appendix C is certified, complete the Field Service/Commissioning Request in Appendix D on page 26 and return both appendices to your Lex Dealer or Lex Products directly at:

Lex Products  
 Attn.: Technical Support  
 15 Progress Drive  
 Shelton CT 06484  
 Fax: 203-636-3742  
 technical\_support@lexproducts.com.

## Troubleshooting

Symptom	Cause	Solution
One or more 'LEX' blue LEDs out	Missing power to one or more Module Chamber service bus bars	Confirm service power supply is intact
Red LED out	No power to Chamber Controller	Check cable connection between Module Chamber and Chamber Controller module
	Chamber Controller failure	Replace Chamber Controller module
Red LED illuminated steady*	Module Chamber in 'overtemp' status due to insufficient air flow/ambient room temperature	Clean air filter
		Relocate Module Chamber per Location - guidelines (page 8)
Module Chamber fans do not come on	No power to fans	Check cable connection between Module Chamber and Chamber Controller module
	Fans broken	Contact your Lex Products dealer for replacement
	Control signal to channels have been at a level of 'zero' for more than twenty minutes	Send a control signal to the channels at a level greater than 'zero'
Load circuit will not energize	Circuit breaker is tripped or off	Cycle circuit breaker
	Module is not properly seated	Remove and reinsert Module
Chamber Controller Module LCD will not illuminate	No power to Chamber Controller Module	Check connection between Module Chamber and Chamber Controller module
	Chamber Controller failure	Replace Chamber Controller module

\* - Flashing red LED indicates loss of control signal. At this stage of installation a flashing red LED is considered normal.

## Limited Warranty

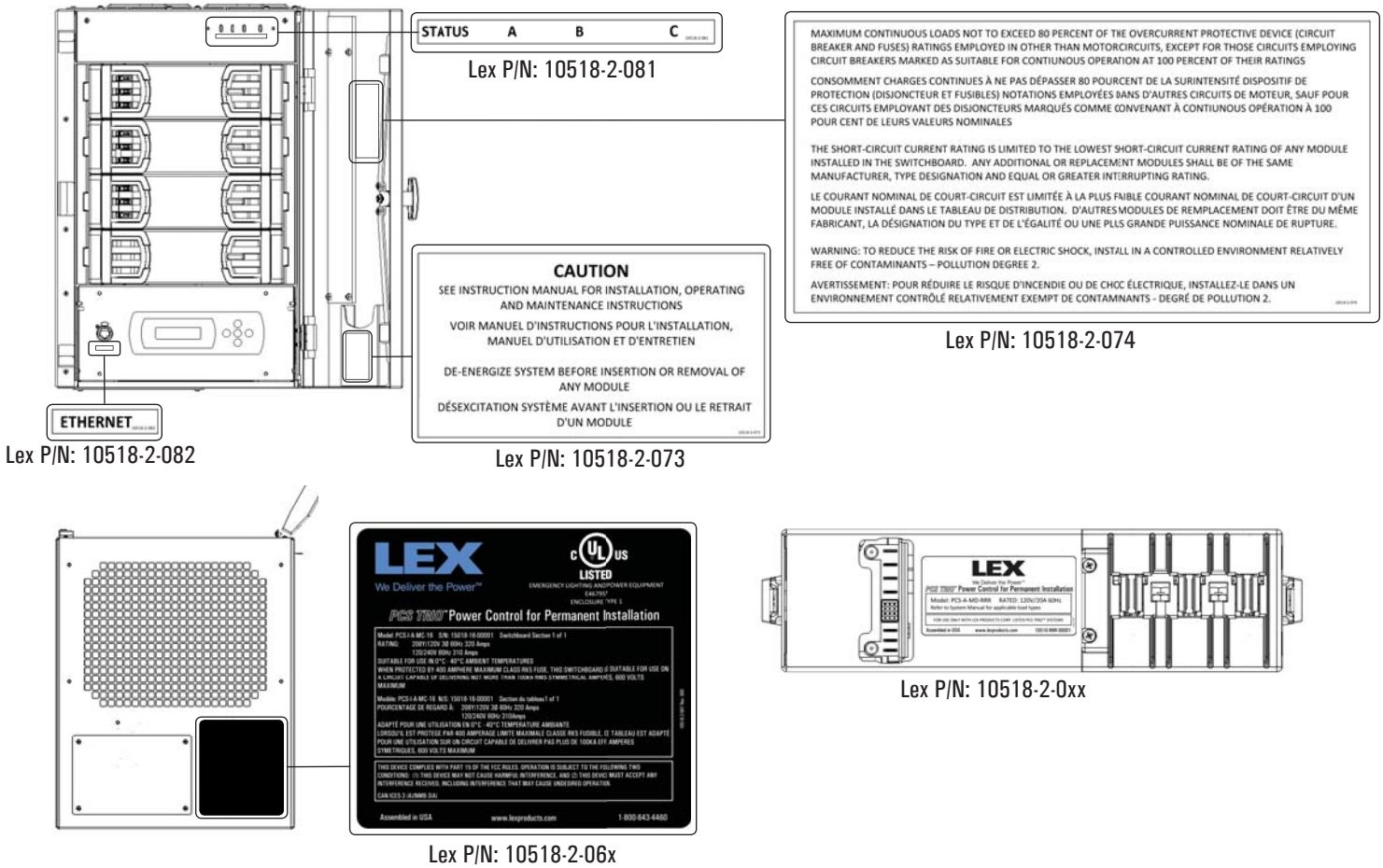
- When this PCS TRIO™ Installation Power Control System is installed and operated according to this manual's instructions Lex Products will repair or replace any of its mechanical or electrical parts if they are found to be defective in material or workmanship within two years of the commissioning date.

## Technical Support

- Contact us with any questions you have and receive live technical support - 888-LEX-1002 or via email at technical\_support@lexproducts.com



## Appendix A - PCS TRIO™ Labels



## Appendix B - Phase/Voltage Record

PHASE	VOLTAGE
Phase A to B	
Phase B to C	
Phase A to C	
Phase A to Neutral	
Phase B to Neutral	
Phase C to Neutral	
Neutral to Ground	



## Appendix C - Field Check/Commissioning Checklist

**Prior to making a request for field check/commissioning, ensure the checklist below is complete**

---

- All system equipment has been delivered to the jobsite and has been installed as required.
- All locations where equipment has been installed are complete and free from construction (drywall, painting, etc.) dirt, dust and debris.
- Arrangements have been made to provide access to ALL system equipment. The term 'access' is to include:
  - Any ladders, lifts (including operators) or other associated equipment required to reach equipment.
  - Accessibility, with any required personnel, to any secured areas.
  - Any safety equipment (glasses, hard hats, vest, etc.) required to access equipment.
- The Electrical Contractor (EC), or an authorized representative of the EC, shall be available at all times during the field check/commissioning. EC, or their representative, shall be available to:
  - Review equipment locations with Lex-authorized technician.
  - Power up/down equipment.
  - Provide access to equipment.
  - Load Modules into Module Chamber during commissioning.
- The EC shall coordinate with any trades effected by the turning on/off of lights during field check/commissioning.
- The EC shall certify that the line system wiring is protected by a UL 1449 Listed, Type 2 Surge Protective Device (SPD), has been installed per the manufacturer's instructions and is in proper working order.
- ALL system wiring (including line, load and control) is complete between the PCS TRIO™ components and the distribution system.
- ALL system wiring (including line, load and control) between the PCS TRIO™ components and the distribution system has been checked for proper installation, accuracy, shorts and continuity.
- The EC shall coordinate any installations between the Lex Products-certified technician and those trades involved in the control system. Coordination shall include:
  - ALL control and receptacle stations have been wired and installed.
  - The control system shall be certified by that manufacturer's representative to be in a proper working order.
- All DMX/Ethernet cabling has been certified by the control system's representative. Low-voltage cabling shall NOT be terminated in the PCS TRIO™ Module Chamber(s) except by a Lex Products-certified technician.
- ALL load lamps have been installed if present.
- ALL Modules are present at the jobsite and have been transported to the Module Chamber location(s).
- ALL Module Chambers have been cleared of dirt, dust and debris.
- Those persons with decision making authority are available to verify system configuration during commissioning
- Certify that all necessary owners, representatives and staff will be present for demonstration and training for the scheduled time.

# PCS TRIO™ Power Control System

## Appendix D - Field Check/Commissioning Request

In order to schedule a Lex Products-certified technician for PCS TRIO™ system activation, please complete, sign and return both sides of this form to [technical\\_support@lexproducts.com](mailto:technical_support@lexproducts.com) or fax to 203-363-3742.

FROM: \_\_\_\_\_ COMPANY: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

***Please allow a MINIMUM of four (4) weeks advance notice for the start of field service/commissioning and enough time for project completion once started. Time required for completion is contingent upon the scale of the job.***

JOB NAME: \_\_\_\_\_ SALES ORDER #: \_\_\_\_\_ PO#: \_\_\_\_\_

JOB ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

RECOMMENDED AIRPORT: \_\_\_\_\_

SITE ACCESS RESTRICTIONS: \_\_\_\_\_  
(ID BADGE, PASS KEYS, ETC.)

JOB SITE REQUIREMENTS: \_\_\_\_\_  
(HARD HATS, STEEL-TOED BOOTS, ETC.)

PROJECT MANAGER: \_\_\_\_\_ PHONE: \_\_\_\_\_ EMAIL: \_\_\_\_\_

SITE CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_ EMAIL: \_\_\_\_\_

CLIENT SITE CONTACT: \_\_\_\_\_ PHONE: \_\_\_\_\_ EMAIL: \_\_\_\_\_

REQUESTED FIELD SERVICE/COMMISSIONING DATE: \_\_\_\_\_

SITE HOURS: \_\_\_\_\_

DMX Cable Type: \_\_\_\_\_ Ethernet Cable Type: \_\_\_\_\_

**I HEREBY CERTIFY THAT THE CONDITIONS OUTLINED IN THE FIELD CHECK/COMMISSIONING CHECKLIST HAVE BEEN MET AND THAT THE INSTALLATION IS COMPLETE. I UNDERSTAND THAT ADDITIONAL CHARGES WILL BE ASSESSED, REQUIRING A PURCHASE ORDER, FOR ADDITIONAL VISITS RESULTING FROM AN INCOMPLETE INSTALLATION.  
UNSIGNED FORMS WILL NOT BE ACCEPTED**

PRINT NAME: \_\_\_\_\_ POSITION: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ TODAY'S DATE: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_ EMAIL: \_\_\_\_\_

CUT HERE

CUT HERE

CUT HERE

# PCS TRIO™ Power Control System

## Appendix E - Load Wiring Record

Panel Capacity	Module Type & S/N	Circuit	Emer.	Notes
PCS-I-A-MC-16 - S/N:	PCS-I-A-MC-08 - S/N:	PCS-I-A-MC-04 - S/N:		
	PCS-I-A-MC-08 - S/N:	PCS-I-A-MC-04 - S/N:		
	PCS-I-A-MC-08 - S/N:	PCS-I-A-MC-04 - S/N:		
	PCS-I-A-MC-08 - S/N:	PCS-I-A-MC-04 - S/N:		
	PCS-I-A-MC-08 - S/N:	PCS-I-A-MC-04 - S/N:		
PCS-I-CC - S/N(s):				



Lex Products  
15 Progress Drive  
Shelton CT 06484  
203.363.3738  
203.363.3742 Fax

Lex West  
11847 Sheldon Street  
Sun Valley, CA 91352  
818.768.4474  
818.768.4040 Fax

[www.lexproducts.com](http://www.lexproducts.com)  
[info@lexproducts.com](mailto:info@lexproducts.com)  
800.643.4460

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