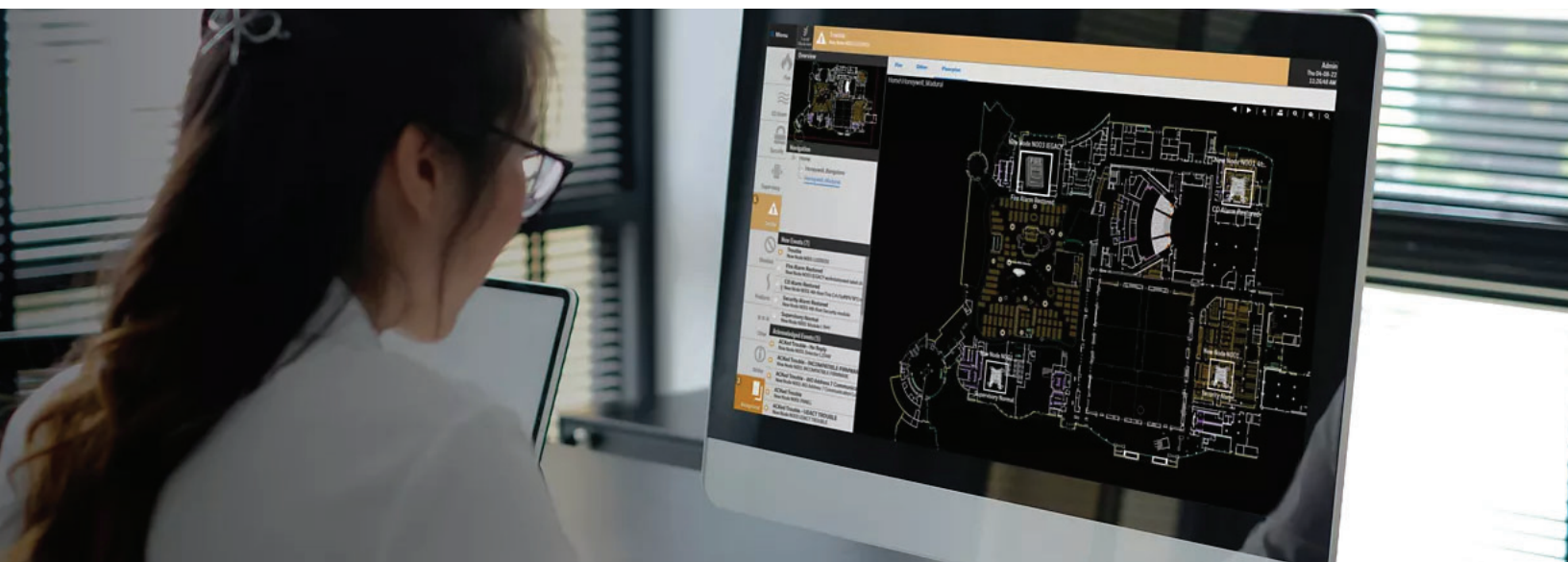




PMB AUX



PRODUCT INSTALLATION DOCUMENT

LS10242-000GE

ECN - 00061264

Rev D | 2025

INSTALLATION PRECAUTIONS

Adherence to the following will aid in problem-free installation with long-term reliability:

WARNING - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

CAUTION - System Re-acceptance Test after Software Changes:

To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0-49° C/32-120° F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15-27° C/60-80° F.

Verify that wire sizes are adequate for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

Like all solid state electronic devices, this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

Units with a touchscreen display should be cleaned with a dry, clean, lint free/microfiber cloth. If additional cleaning is required, apply a small amount of Isopropyl alcohol to the cloth and wipe clean. Do not use detergents, solvents, or water for cleaning. Do not spray liquid directly onto the display.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

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FIRE ALARM & EMERGENCY COMMUNICATION SYSTEM LIMITATIONS

While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

An emergency communication system—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event. The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at <http://www.systemsensor.com/appguides/>. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire. Particles of combustion or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of “smoke” present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm. Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

Audible warning devices such as bells, horns, strobes, speakers and displays may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

A life safety system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

Equipment used in the system may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

Alarm Signaling Communications:

- **IP connections** rely on available bandwidth, which could be limited if the network is shared by multiple users or if ISP policies impose restrictions on the amount of data transmitted. Service packages must be carefully chosen to ensure that alarm signals will always have available bandwidth. Outages by the ISP for maintenance and upgrades may also inhibit alarm signals. For added protection, a backup cellular connection is recommended.
- **Cellular connections** rely on a strong signal. Signal strength can be adversely affected by the network coverage of the cellular carrier, objects and structural barriers at the installation location. Utilize a cellular carrier that has reliable network coverage where the alarm system is installed. For added protection, utilize an external antenna to boost the signal.
- **Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup alarm signaling connections are recommended.

The most common cause of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only.

WARRANTY

MANUFACTURER WARRANTIES AND LIMITATION OF LIABILITY

Manufacturer Warranties. Subject to the limitations set forth herein, Manufacturer warrants that the Products manufactured by it in its Northford, Connecticut facility and sold by it to its authorized Distributors shall be free, under normal use and service, from defects in material and workmanship for a period of thirty six months (36) months from the date of manufacture (effective Jan. 1, 2009). The Products manufactured and sold by Manufacturer are date stamped at the time of production. Manufacturer does not warrant Products that are not manufactured by it in its Northford, Connecticut facility but assigns to its Distributor, to the extent possible, any warranty offered by the manufacturer of such product. This warranty shall be void if a Product is altered, serviced or repaired by anyone other than Manufacturer or its authorized Distributors. This warranty shall also be void if there is a failure to maintain the Products and the systems in which they operate in proper working conditions.

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SOFTWARE DOWNLOADS

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system.

Contact Technical Support with any questions about software and the appropriate version for a specific application.

TABLE OF CONTENTS

Section 1: General **1**

 1.1. Hardware kit 2

Section 2: Specifications **3**

Section 3: Installation **5**

 3.1. Requirements 5

 3.2. Battery Charging Capacity 6

 3.2.1. PMB-AUX 7

 3.3. PMB-AUX-RTO 8

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SECTION 1: GENERAL

The PMB-AUX and PMB-AUX-RTO are auxiliary power supplies for fire alarm control panels. The units are identical in functionality, but differ in mounting availability. The PMB-AUX mounts in a CAB-5 Series enclosure while the PMB-AUX-RTO mounts in a CAB-4 Series enclosure. They both feature 6 amps of power in standby/8.5 amps of power in alarm, four (4) power-limited (Class 2) NAC outputs which can be configured for either Class A or Class B wiring, two (2) 24VDC auxiliary power outputs, and a remote sync input. One auxiliary power output, AUX1, can be configured for either Class A or Class B wiring. A maximum of two (2) PMB-AUX(-RTO) power supplies can be installed in an enclosure in addition to the FACP (fire alarm control panel). If more than five (5) loop cards are installed in the system, a PMB-AUX(-RTO) power supply is required, and if ten (10) loop cards are installed in the system, two (2) PMB-AUX(-RTO) power supplies are required, for battery charging and alarm load.

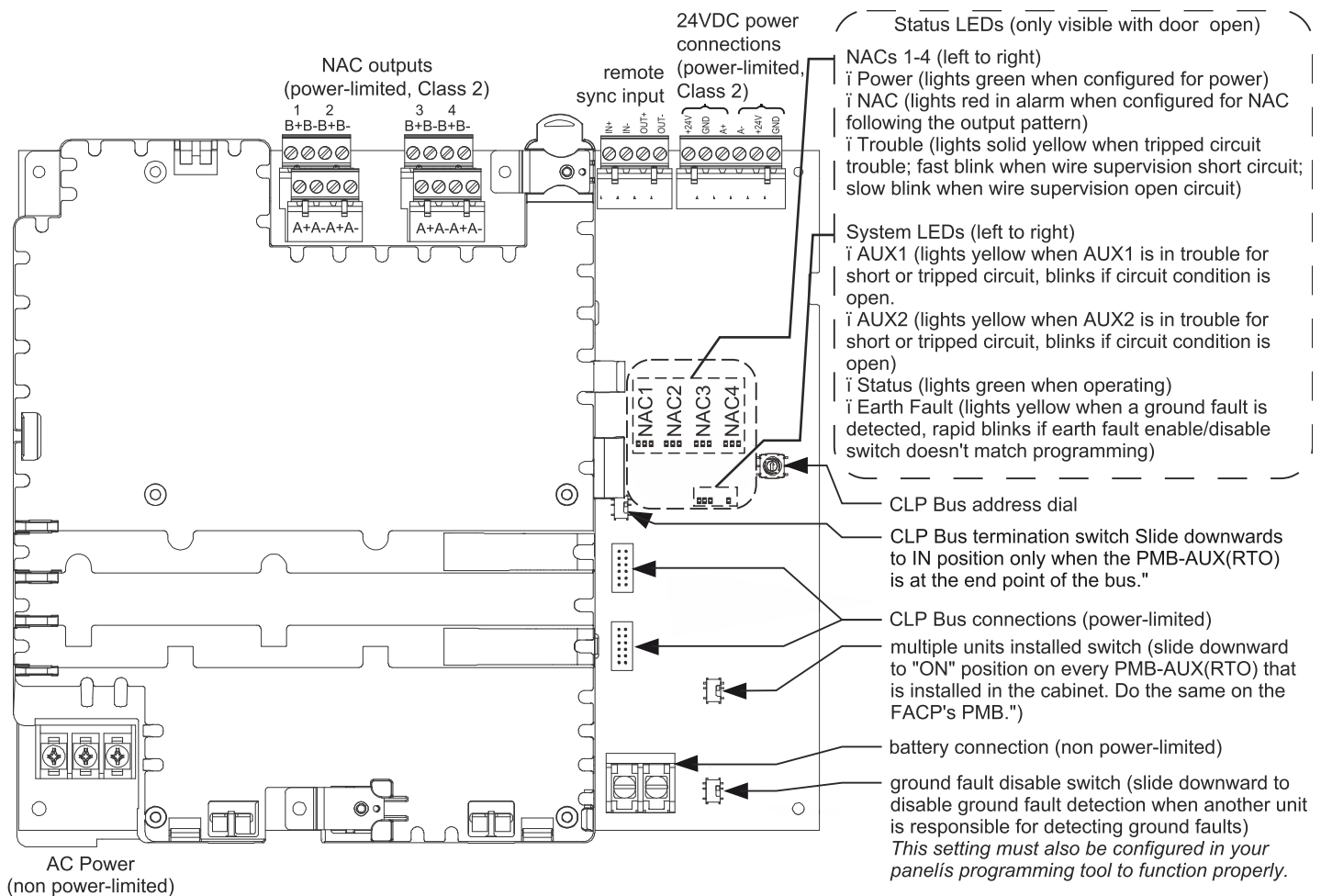


Figure 1.1: PMB-AUX(-RTO) Board Layout/Wiring Connections

1.1. Hardware kit

The PMB ships with all hardware necessary for installation.

- two (2) #8 keps nuts
- two (2) 28" cable for PMB to PMB connection
- one (1) 13" CLP interconnect cable
- four (4) dummy terminal block end-of-line resistors (2.2K)
- six (6) terminal block plugs
- four (4) field wiring end-of-line resistors (ELR-2.2K)
- four (4) polarized dampening networks (ELRD-2.2K) for Gentex Class A
- three (3) quick-connect battery cables, including one (1) jumper
- six (6) ring terminal battery cables, including two (2) jumpers
- two (2) chassis ground cables

SECTION 2: SPECIFICATIONS

AC power: 2.5A 120VAC 50/60 HZ, 1.25A 240VAC 50/60 Hz

24VDC aux outputs: Power-limited (Class 2), 24V @ 1.5A each (2A each for PMBNL-PCB Rev B or later generation). Special Application Aux Power, AUX1 Class A/B, AUX2 Class B Only. Releasing 2.0 Special Applications, Resettable/Non-Resettable

NAC outputs (power-limited (Class 2): Special Applications Class A/B NAC Power, Class D Door Holder Power, 1.5A Special Applications, 150mA Regulated, 2.0A Special Applications Releasing (with PMBNL-PCB Rev B or later generation), Class A/B Aux Power, UZC 2.8 ohm max line impedance. End-of- Line resistor 2.2k ½W (ELR-2.2K)

CLP Bus connections: carry CLP data and internal 24V power to the CLP bus devices and the core board on the FACP CPU assembly.

Secondary power (battery) charging circuit and PMB battery charging:

- Sealed lead-acid battery charger which will charge 7-100 AH batteries (7-210AH batteries with PMBNL-PCB Rev B or later generation)
- Charging current: None/disabled 1A, 2A, and 4.25A (also 5.5A with PMBNL-PCB Rev B or later generation)
- Charging voltage: 27.6 VDC nominal
- No charger
- Low (7-26AH)
- Medium (33-55AH)
- High (100AH)
- Ultra High (210AH) with PMBNL-PCB Rev B or later generation

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SECTION 3: INSTALLATION

The main FACP assembly should be mounted in the top row of the cabinet. Due to cable length restrictions, the PMB-AUX(-RTO) must be mounted in the second position of the backbox. If installing two PMB-AUX(-RTO) power supplies, the second unit must be mounted in the third position. A maximum of two PMB-AUX(-RTO) units is allowed.

Wiring methods used shall be in accordance with Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681.



Warning: HIGH VOLTAGE PRESENT

REMOVE ALL SOURCES OF POWER BEFORE SERVICING, REMOVING, OR INSTALLING ANY UNITS. ENSURE TO INSTALL THE SNAP-ON COVER OVER TB1 AFTER WIRING.



Caution: STATIC SENSITIVE EQUIPMENT

THE CIRCUIT BOARD CONTAINS STATIC-SENSITIVE COMPONENTS. ALWAYS USE PROPER GROUNDING DEVICES SUCH AS A WRIST STRAP BEFORE HANDLING ANY BOARDS SO THAT STATIC CHARGES ARE REMOVED FROM THE BODY. USE STATIC SUPPRESSIVE PACKAGING TO PROTECT ELECTRONIC ASSEMBLIES.

3.1. Requirements

- Installations are to be indoors only, in dry locations, protected from rain, water, and rapid changes in temperature that could cause condensation.
- Equipment must be securely mounted on rigid, permanent walls.
- Operating temperature shall not exceed the range of 32° to 120° F (0 to 49° C).
- Operating humidity not to exceed 93% +/- 2% non-condensing at 100° F (38° C).
- Adequate space must be available around the installation to allow easy access for operation and servicing.
- All sub-assemblies and components are to be located in compliance with local and national codes.
- All installation field wiring shall be in compliance with local and national codes.

3.2. Battery Charging Capacity

The PMB-AUX (-RTO) has built in battery charging capabilities. The printed circuit board (PCB) reference designator and revision determines the maximum battery capacity that can be charged that can be charged, which is either 100AH or 210AH. Refer to the table below for the PCB designator/ revision and charging capacity:

PCB Reference Designator and Revision	Maximum Chargeable Battery Capacity
PMBNL-PCA (any revision)	100 AH
PMBNL-PCB-Rev A	100 AH
PMBNL-PCB-Rev B or higher	210AH



Note: NOTE: The PCB reference designator and the revision will be marked on the outer edge of the PMB-AUX (-RTO) circuit board

3.2.1. PMB-AUX

The PMB-AUX Power supply comes pre-installed on a chassis for easy installation in a CAB-5 series cabinet.

01. Mount the chassis to the backbox by aligning the two mounting tabs with the slots in the backbox, then position the two mounting hole tabs over the studs with nuts located in the upper portion of the backbox.
02. Slide the tabs located on the bottom of the chassis into the mounting slots in the backbox by pressing the chassis down.
03. Secure the chassis to the backbox. Fasten the two supplied #8 keps nuts over the mounting holes at the top.

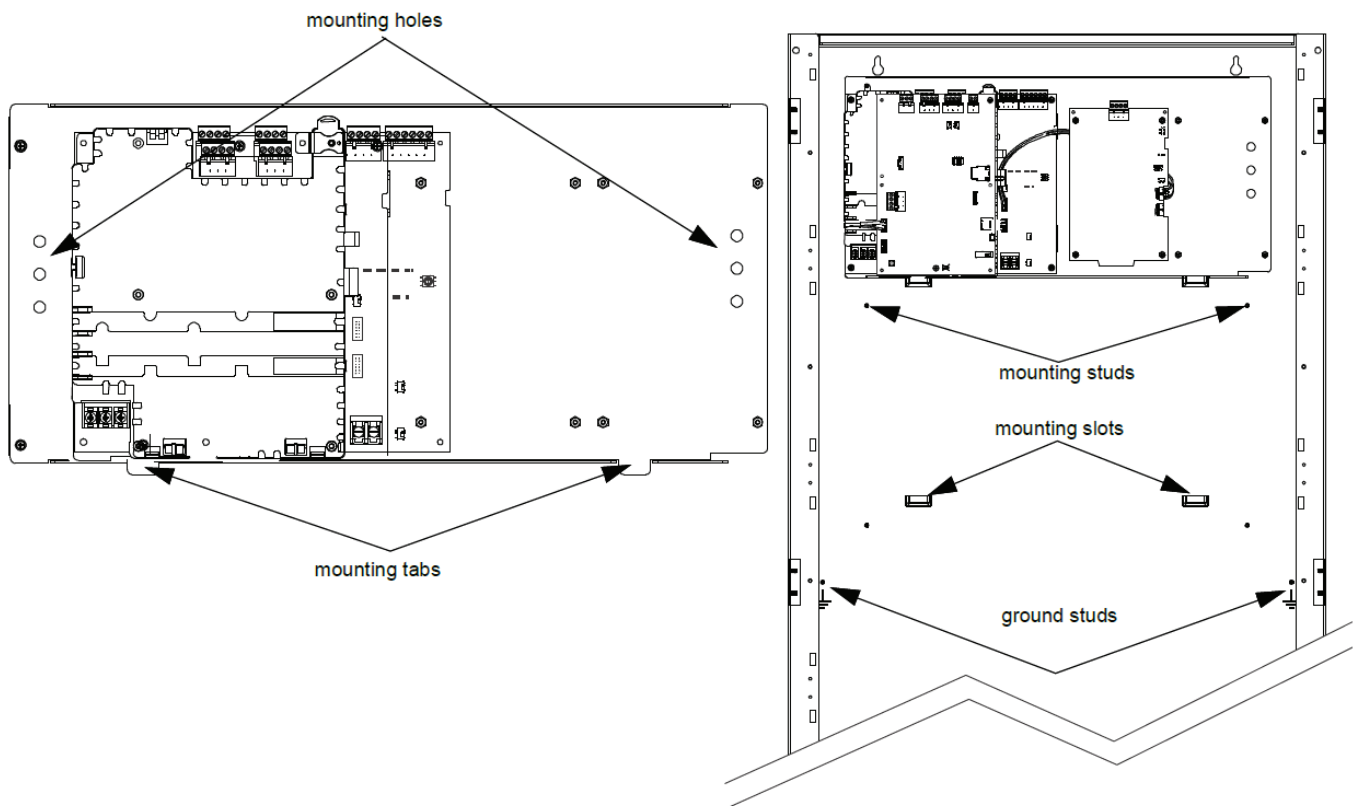


Figure 3.1: PMB-AUX Installation

3.3. PMB-AUX-RTO

Mount the chassis into the second row of the backbox. Align the center hole on the edge of the chassis with the studs on the backbox and secure with two supplied #8 keps nuts. (The FACP should be mounted in the top row.) If installing a second PMB-AUX-RTO, install the chassis in the third row of the cabinet using the top mounting holes on the edge of the chassis. Refer to below [Figure 3.2 below](#) for details.

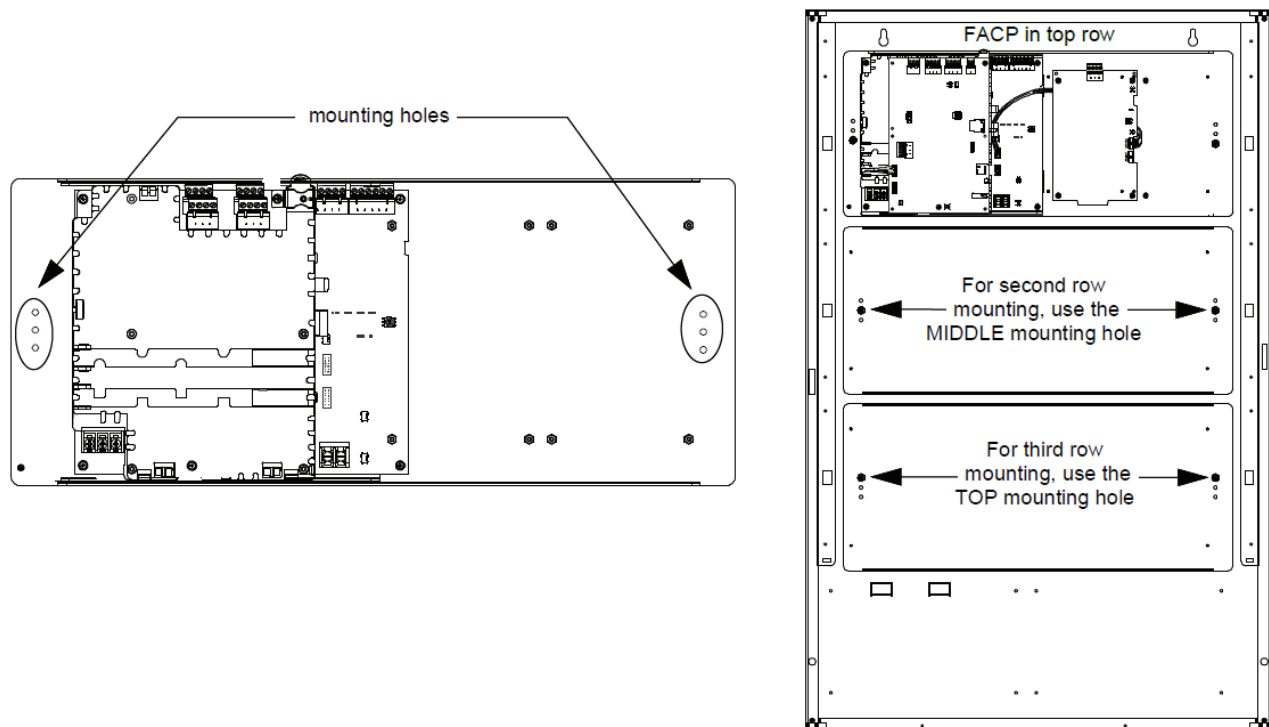


Figure 3.2: PMB-AUX-RTO Installation